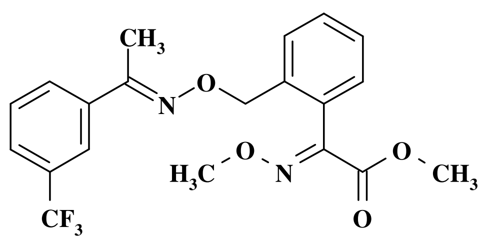
TRIFLOXYSTROBIN (213)

First draft prepared by Dr Ursula Banasiak, Federal Institute for Risk Assessment, Berlin, Germany

IDENTITY

Common name:	trifloxystrobin
Chemical name:	
IUPAC:	methyl (*E*)-methoxyimino-{(*E*)-α-[1-(α,α,α-trifluoro-*m*-tolyl)ethylideneaminooxy]-*o*-tolyl}acetate
CA:	methyl (αE)-(α-(methoxyimino)-2-[[[(*E*)-[1-[3-(trifluoromethyl)phenyl]ethylidene]amino]oxy]methyl] benzeneaceate
Manufacturer's code number:	CGA279202
CAS number:	141517-21-7
CIPAC number:	617
Molecular formula:	$C_{20}H_{19}F_3N_2O_4$

Structural formula:



Molecular mass: 408.4 g/mol

Formulations:

Formulation	Content of active ingredients	Trade names
WG 50 (500 WG)	500 g/kg trifloxystrobin	Flint, Zato, Consist, Natchez
WG 25 (250 WG)	250 g/kg trifloxystrobin	Gem
EC 125	125 g/l trifloxystrobin	Twist, Aprix, Bonus, Scarfax
DC 125	125 g/l trifloxystrobin	Twist
EC 075 (7.5 EC)	75 g/l trifloxystrobin	Tega
SC 250	250 g/l trifloxystrobin	Flint
SC 500	500 g/l trifloxystrobin	Twist
EC 267.5	187.5 g/l trifloxystrobin 80 g/l cyproconazole	Sphere, Sfera, Agora, Dexter
SC 535	375 g/l trifloxystrobin 160 g/l cyproconazole	(Sphere)
EC 250	125 g/l trifloxystrobin 125 g/l propiconazole	Stratego, Rombus
EC 312.5	187.5 g/l trifloxystrobin 125 g/l propiconazole	Stratego
WG 49 (490 WG)	25% trifloxystrobin	Eclair

24% cymoxanil

Physical and chemical properties

A detailed chemical and physical characterisation of the pure and technical active ingredients is given in Table 1.
References to test materials used:
1 Trifloxystrobin (batch AMS 759/101, purity 99.7%)
2 Trifloxystrobin (batch P.706029, purity 97.4%)
3 Trifloxystrobin (batch AMS 759/3, purity 99.9%)
4 [(U)-^{14}C-Phenyl-glyoxylate]trifloxystrobin, radiochemical purity > 99%, specific radioactivity 4.03 MBq/mg
5 [Trifluoromethyl-phenyl-(U)-^{14}C]trifloxystrobin, radiochemical purity > 97%, specific radioactivity 3.4 MBq/mg
6 CGA321113 (batch BPS 885/1, purity 99%)

Table 1. Physical and chemical properties of trifloxystrobin.

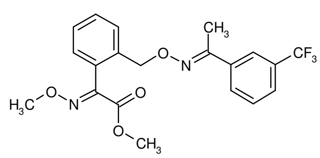
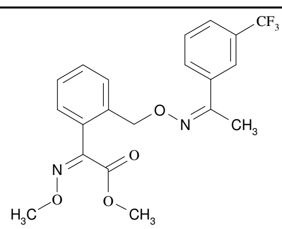
Property		Test Material, Method	Report No.
Physical state, colour	Active substance, pure: white powder Active substance as manufactured: off-white powder	Material 1 Material 2	46887 53274
Odour	Active substance, pure: odourless Active substance as manufactured: slightly sweet odour	Material 1 Material 2	46887 53274
Melting point	72.9°C	Material 1, OECD 102	46880
Density	1.36 g/cm^3 at 20°C	Material 1, OECD 109	PP-96/63P.DES
Vapour pressure	$3.4 \cdot 10^{-6}$ Pa at 25°C (extrapolated from fit of measurements between 40 and 65°C)	Material 1, OECD 104	96WI29
Volatility	Henry's law constant at 25°C (calculated): $2.3 \cdot 10^{-3}$ Pa · m^3/mol		MO-01-003756
Solubility in water	0.61 mg/l at 25°C Because trifloxystrobin has no dissociation constant in an accessible pH range, the pH has no effect on the water-solubility in the pH range 4 to 10.	Material 1, OECD 105	46885
Solubility in organic solvents	n-hexane 11 g/l at 25°C 1-octanol 18 g/l at 25°C methanol 76 g/l at 25°C toluene 500 g/l at 25°C ethyl acetate > 500 g/l at 25°C acetone > 500 g/l at 25°C dichloromethane > 500 g/l at 25°C	Material 2, SOP 209/5 about CIPAC MT 157.3	53276
Dissociation constant	Trifloxystrobin does not show any acidic or basic properties in the range pH 2 - pH 12.	Material 1, OECD 112	46883
Partition coefficient n-octanol/ water	$P_{OW} = 32000 \pm 680$ at 25°C $\log P_{OW} = 4.5 \pm 0.0094$ at 25°C The effect of pH (4-9) was not investigated because trifloxystrobin has neither acidic nor basic properties in water.	Material 1, OECD 107	46884
Hydrolysis rate	Hydrolysis half-lives of trifloxystrobin at 20°C were determined to be: pH k [s^{-1}] DT$_{50}$ [days] 5 $2.5557 \cdot 10^{-9}$ 3139 (8.6 years) 7 $1.0012 \cdot 10^{-7}$ 80.1 (11.4 weeks) 9 $7.1108 \cdot 10^{-6}$ 1.1 (27.1 hours) The main degradation product at and above pH 5 was CGA321113	Material 4, OECD 111	94PK01 94UL04

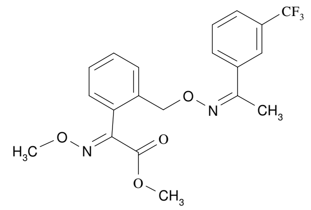
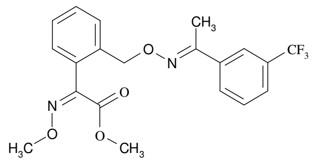
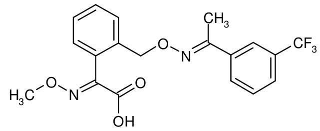
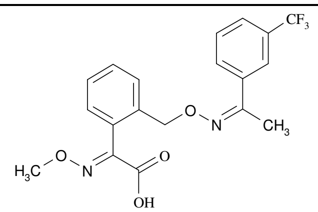
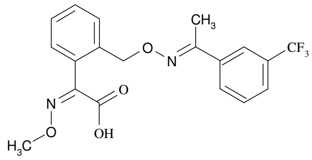
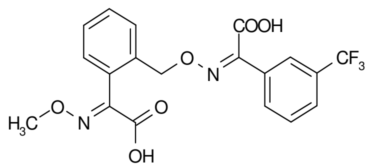
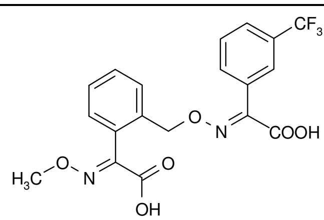
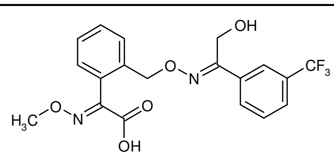
Property		Test Material, Method	Report No.
Photochemical degradation	The experimental photolytic half-lives of trifloxystrobin in sterile aqueous buffered solutions (pH 5 and pH 7) under a Xenon arc light (12 hours light followed by 12 hours dark intervals) were found to be 20.4 hours at pH 5 and 25°C and 31.5 hours at pH 7 and 25°C corresponding to predicted environmental half-lives under natural summer sunlight at geographical latitude of 40°N of 1.1 and 1.7 days at pH 5 and pH 7 respectively Dark controls at 25°C showed a half-life of 3.1 years at pH 5 and 27.4 days at pH 7. Isomerisation of the active substance is the main consequence of irradiation. After 380 hours of irradiation the following concentrations of the four isomers were found : trifloxystrobin (E,E) 10.4 % CGA331 409 (E,Z) 1.5 % CGA357 261 (Z,E) 12.4 % CGA357 262 (Z,Z) 3.5 % Degradation of the parent compound isomers led to the following acid isomers : CGA373 466 (Z,E) up to 13 % CGA321 113 (E,E) up to 5.3 % Further degradation led to cleavage of the molecule between the two ring systems. After 360 hours irradiation at pH 5 54.8 % of the applied radioactivity of the used trifluoromethyl-(U)-phenyl-labelled trifloxystrobin were trapped in toluene and identified as CGA107170. The recoveries at pH 5 were between 90.8 % and 104.2 % of the applied radioactivity.	Material 5, EPA 161-2	94PK02

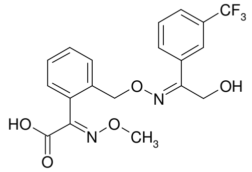
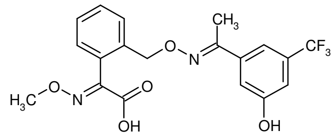
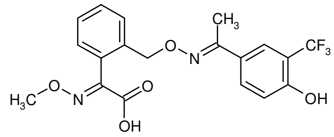
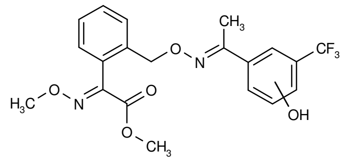
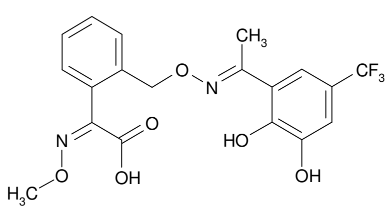
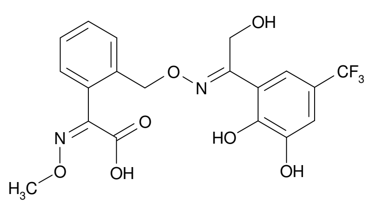
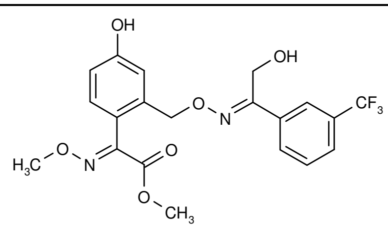
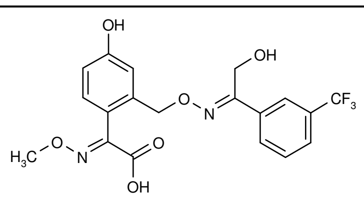
METABOLISM AND ENVIRONMENTAL FATE

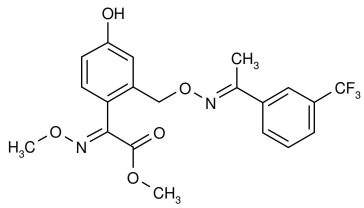
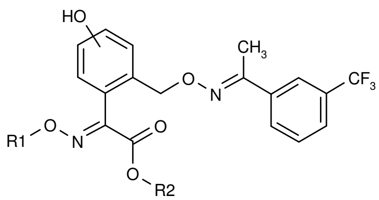
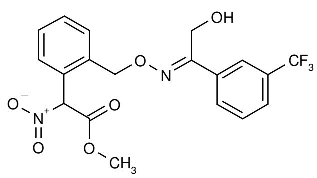
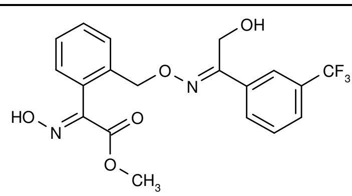
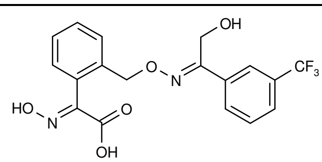
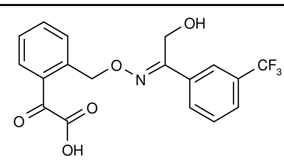
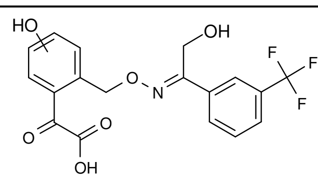
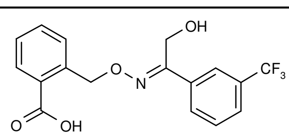
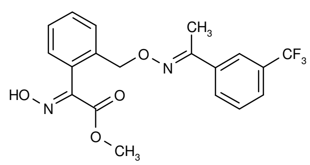
Chemical names, structures and code names of metabolites and degradation products of trifloxystrobin are shown below. The chemical names are those provided by the manufacturer without modification and do not necessarily reflect IUPAC or CAS practice.

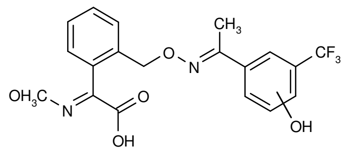
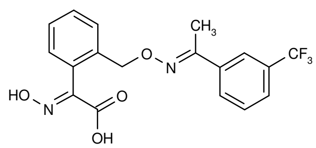
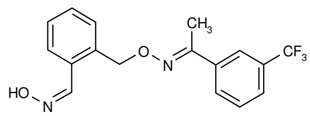
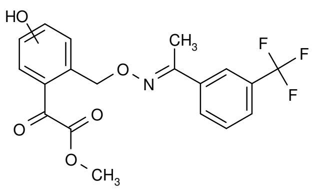
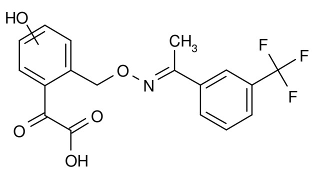
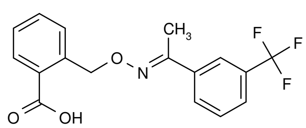
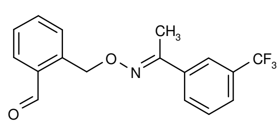
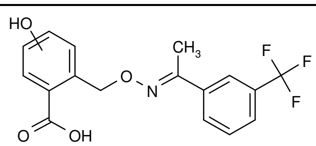
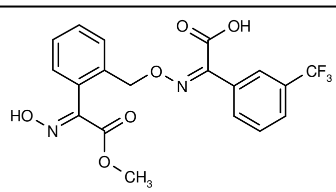
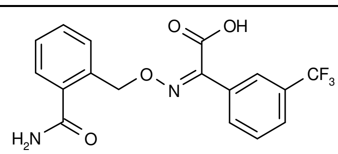
List of Metabolites – sorted by chemical structures

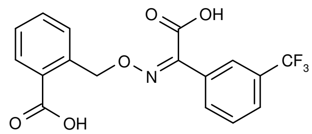
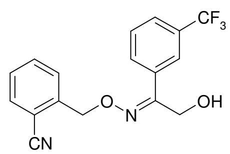
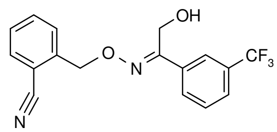
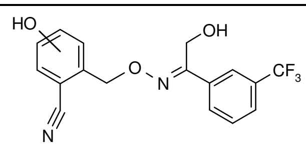
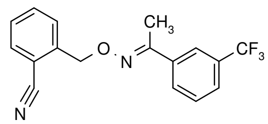
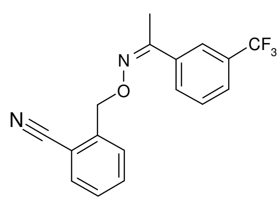
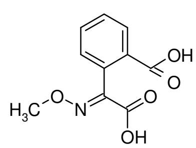
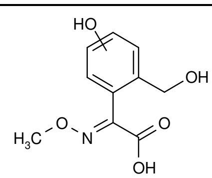
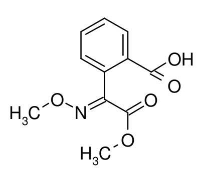
Structure	Name	Occurrence
	CGA279202, Trifloxystrobin, Met 1F, Met 8G (Parent) (EE-isomer) *(E,E)*-Methoxyimino-{2-[1-(3-trifluoro methyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-acetic acid methyl ester	Wheat, Apple, Cucumber, Sugar beet, Rotational crops Hen, Goat, Rat, Soil, Water, Fish
	CGA357262 (ZZ-isomer) *(Z,Z)*-Methoxyimino-{2-[1-(3-trifluoro methyl-phenyl)-ethylideneamino-oxymethyl]-phenyl}-acetic acid methyl ester	Wheat, Apple, Cucumber, Sugar beet Soil (minor, bare ground, photolysis) Water (minor, photolysis)

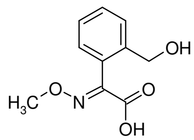
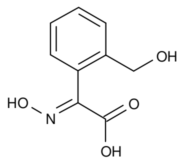
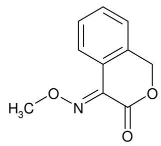
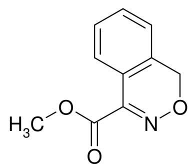
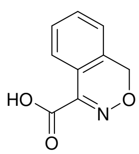
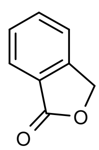
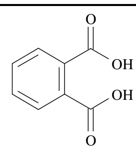
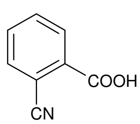
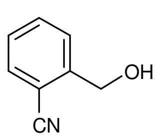
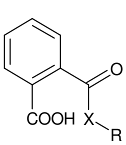
Structure	Name	Occurrence
	CGA357261 (ZE-isomer) *(Z,E)*-Methoxyimino-{2-[1-(3-trifluoro methyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-acetic acid methyl ester	Wheat, Apple, Cucumber Soil (bare ground, photolysis) Water (photolysis)
	CGA331409 (EZ-isomer) *(E,Z)*-Methoxyimino-{2-[1-(3-trifluoro methyl-phenyl)-ethylideneamino-oxymethyl]-phenyl}-acetic acid methyl ester	Wheat, Apple, Cucumber, Sugar beet Soil, Water (traces, by photolysis) Fish
	CGA321113 Met 4F, 2G, L7a*, L7b**, I_{15}, I_{24} *(E,E)*-Methoxyimino-{2-[1-(3-trifluoro methyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-acetic acid (*taurine-, **glycine conjugate)	Wheat, Apple, Cucumber, Sugar beet, Rotational crops Goat, Hen, Rat Soil (hydrolysis pH >5), Water, Fish
	CGA373466 I_{24b} *(Z,E)*-Methoxyimino-{2-[1-(3-trifluoro methyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-acetic acid	Wheat, Apple, Sugar beet, Soil (Rotational crops) Soil (bare ground), Water (photolysis) Fish
	CGA373465 *(E,Z)*-Methoxyimino-{2-[1-(3-trifluoro methyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-acetic acid	Soil (Rotational crops) Water (minor, photolysis)
	NOA413161 (EZ-isomer) I_5 *(E,Z)*-{2-[carboxy-(3-trifluoromethyl-phenyl)-methyleneaminooxy-methyl]-phenyl}-methoxy-iminoacetic acid	Wheat, Rotational crops Soil
	NOA413163 (EE-isomer) I_6 *(E,E)*-{2-[carboxy-(3-trifluoromethyl-phenyl)-methyleneaminooxy-methyl]-phenyl}-methoxy-iminoacetic acid	Wheat, Rotational crops Soil
	NOA443152; Met.2U/I Met 2U, Met 20U (glucuronide), Met 5F, I_{10} 2-[2-hydroxy-1-(3-trifluoromethyl-phenyl)-ethylideneaminooxy-methyl]-phenyl}-methoxyimino-acetic acid	Wheat, Cucumber, Sugar beet, Rotational crops Goat Hen Rat

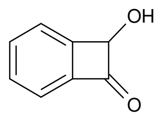
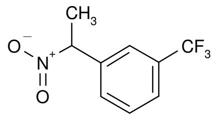
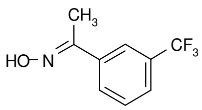
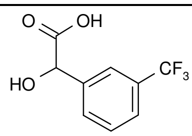
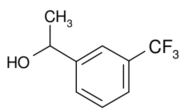
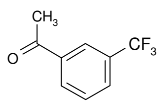
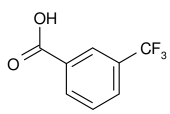
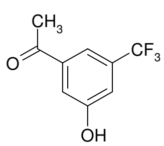
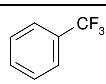
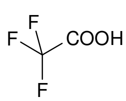
Structure	Name	Occurrence
	BO 172741 (E,E isomer) isomer of NOA443152 (2-[2-hydroxy-1-(3-trifluoromethyl-phenyl)-ethylideneaminooxy-methyl]-phenyl}-methoxyimino-acetic acid	Wheat
	NOA414412 I_{14}, I_{12} 2-[1-(3-hydroxy-5-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-methoxyimino-acetic acid	Wheat, Cucumber, Sugar beet, Rotational crops Rat
	NOA417076 *(EE)*-2-[1-(4-Hydroxy-3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-methoxyimino-acetic acid	Apple, Cucumber Rat, Hen
	Met L13b {2-[1-(hydroxy-5-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-methoxyimino-acetic acid methyl ester	Hen
	II_{21a} benzeneacetic acid, 2-[[[[(1E)-1-[2,3-dihydroxy-5-(trifluoromethyl)phenyl]ethylidene]amino]oxy]-methyl]-a-(methoxyimino)- (CAS name)	Sugar beet
	II 19a benzeneacetic acid, 2-[[[[(1Z)-1-[2,3-dihydroxy-5-(trifluoromethyl)phenyl]-2-hydroxyethylidene]amino]oxy]methyl]-a-(methoxyimino)- (CAS name)	Sugar beet
	Met 8F {4-hydroxy-2-[2-hydroxy-1-(3-trifluoro methyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-methoxyimino-acetic acid methyl ester	Rat
	Met 19U {4-hydroxy-2-[2-hydroxy-1-(3-trifluoro methyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-methoxyimino-acetic acid	Rat

Structure	Name	Occurrence
	Met 7F {4-hydroxy-2-[1-(3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-methoxyimino-acetic acid methyl ester	Goat Rat
 R_1 = H, R_2 = CH_3 or vice versa	Met 9F Chemical name is not available	Rat
	Met 3U {2-[2-hydroxy-1-(3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-nitro-acetic acid methyl ester	Hen Rat
	Met 3F Met 4aG is the glucuronide hydroxyimino-{2-[2-hydroxy-1-(3-trifluoro methyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-acetic acid methyl ester	Goat Hen Rat
	Met 6U Met 5G is the sulfate hydroxyimino-{2-[2-hydroxy-1-(3-trifluoro methyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-acetic acid	Goat Hen Rat
	Met 5U {2-[2-hydroxy-1-(3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-oxo-acetic acid	Hen Rat
	EGR1 {hydroxy-2-[2-hydroxy-1-(3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-oxo-acetic acid	Hen (from unextractables of egg yolk, workup artefact)
	Met 4U EGR9 2-[2-hydroxy-1-(3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-benzoic acid	Hen Rat
	NOA405637 Met 2F The glucuronide conjugate is Met 2F, Met L13a hydroxyimino-{2-[1-(3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-acetic acid methyl ester	Goat Hen Rat Fish (cysteine and G-conjugate)

Structure	Name	Occurrence
	Met 6bG (excreted as glucuronide) 6-({1-[2-(carboxy-methoxyimino-methyl)-benzyloxyimino]-ethyl}-5-trifluoromethyl-phenoxy)	Rat
	Met 1U Met 6F (Met 6a is the sulfate), hydroxyimino-{2-[1-(3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-acetic acid	Goat Hen Rat Fish (conjugate)
	Met EW11 2-[1-(3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-benzaldehyde oxime	Hen
	EGR10b {hydroxy-2-[1-(3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-oxo-acetic acid methyl ester	Hen (from unextractables of egg yolk)
	EGR10c {hydroxy-2-[1-(3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-phenyl}-oxo-acetic acid	Hen (from unextractables of egg yolk)
	EGR10a 2-[1-(3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-benzoic acid	Hen (from unextractables of egg yolk)
	Met L24 2-[1-(3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-benzaldehyde	Hen
	EGR8 hydroxy-2-[1-(3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-benzoic acid	Hen (from unextractables of egg yolk)
	Met 10U [2-(hydroxyimino-methoxycarbonyl-methyl)-benzyloxyimino]-(3-trifluoromethyl-phenyl)-acetic acid	Rat
	Met 13U (2-carbamoyl-benzyloxyimino)-(3-trifluoromethyl-phenyl)- acetic acid (as taurine conjugate)	Rat

Structure	Name	Occurrence
	Met 14U 2-[carboxy-(3-trifluoromethyl-phenyl)-methyleneaminooxymethyl]-benzoic acid	Rat
	BO 172323 isomer of BO 172631 2-[2-hydroxy-1-(3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-benzonitrile	Wheat
	BO 172631 Met III$_5$, L14 2-[2-hydroxy-1-(3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-benzonitrile	Wheat Hen (artefact)
	Met EW1b hydroxy-2-[2-hydroxy-1-(3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-benzonitrile	Hen
	CGA357276 (E) 2-[1-(3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-benzonitrile	Hen (artefact) soil (artefact)
	NOA409480 (Z) 2-[1-(3-trifluoromethyl-phenyl)-ethylideneaminooxymethyl]-benzonitrile	Soil photolysis (probably artefact)
	CGA373463 2-(carboxy-methoxyimino-methyl)- benzoic acid	Rat
	EX5 (hydroxy-2-hydroxymethyl-phenyl)-methoxyimino-acetic acid	Hen
	F2b2-3a&b(A2) methyl ester of CGA373463 2-(carboxymethyl-methoxyimino-methyl)-benzoic acid 2-[(1E)-N,2-dimethoxy-2-oxoethanimidoyl] benzoic acid	Peanuts

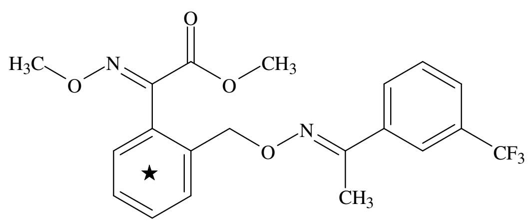
Structure	Name	Occurrence
	CGA347242 F2b2-3a&b (A1) (2-hydroxyethyl-phenyl)-methoxyimino-acetic acid	Apple (intermediate postulated) Peanuts Rat
	Met 18U (as sulfate) hydroxyimino-(2-hydroxymethyl-phenyl)-acetic acid]-ester	Rat
	CGA320299 4-(O-methyloxime)1*H*-2-benzopyran-3,4-dione, Isochroman-3,4-dione 4-(O-methyl-oxime)	Apple Fish
	CGA289565 methyl-1-H-2,3-benzoxazine-4-carboxylate	water (hydrolysis at pH 1)
	WFX-IX-86 1H-2,3-benzoxazine-4-carboxylic acid	Peanuts
	CGA166988 3-H-isobensofuran-1-one	Hen
	CGA367619 Met 16U, FHW0115D phthalic acid benzene-1,2-dicarboxylic acid	Wheat, Peanut Rat,
	FHW0115C 2-cyanobenzoic acid	Wheat
	OHBN 2-hydroxymethyl benzonitrile	Water (photolysis)
	SA 04275 unstable conjugate of phthalic acid (CGA367619)	Wheat

Structure	Name	Occurrence
	SA 04271 8-hydroxybicyclo[4.2.0]octa-1,3,5-trien-7-one	Wheat
	Met 8U 1-(1-nitro-ethyl)-3-trifluoromethyl-benzene	Rat
	CGA300624, Met 11U (S-Conjugate) 1-(3-trifluoromethyl-phenyl)-ethanone oxime	Goat Hen Rat
	CGA354870, Met 12U hydroxy-(3-trifluoromethyl-phenyl)-acetic acid	Goat Hen Rat
	CGA328265 1-[3-(trifluoromethyl)phenyl]ethanol	Peanuts Soil
	CGA107170 3-trifluoromethyl-acetophenon	Soil and water (photolysis, volatile to the air)
	CGA55641, Met 7U 3-trifluoromethyl-benzoic acid	Rat
	BO 17372 5-hydroxy-3trifluoromethyl-acetophenon	Wheat
	TFMB Trifluoromethyl benzene	Soil (photolysis)
	TFA Trifluoroacetic acid	Rotational crops

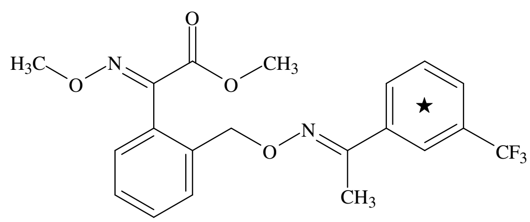
Studies of metabolism and degradation were carried out with [^{14}C]-trifloxystrobin labelled in the *o*-substituted ring or the *m*-substituted ring as shown below.

Note: Trifloxystrobin does not contain a glyoxyl group, but a glyoxyl group is present in an intermediate in its synthesis. As the name Glyoxyl-phenyl-U-^{14}C]-trifloxystrobin has been used extensively in the manufacturers' references and elsewhere it is retained here.

[Glyoxyl-phenyl-U-^{14}C]-trifloxystrobin



[Trifluoromethyl-phenyl-U-^{14}C]-trifloxystrobin



★ = position of label

Animal metabolism

The metabolism of trifloxystrobin has been studied in laboratory rats, goats and hens according to GLP. Rat metabolism studies were evaluated by the WHO Core Assessment Group of the 2004 JMPR. A short summary of the rat metabolism in comparison with the goat and hen metabolism is given at the end of this section.

Lactating goat

Report No. 09/97 (Ruembeli, 1997). Two lactating goats (Gemsfarbige Gebirgsziege strain; 51.7 and 35.1 kg bodyweight) were dosed intraruminally for four consecutive days with [trifluoromethyl-Phenyl-U-^{14}C] trifloxystrobin (purity >99%) by gelatin capsule. The mean dose/day was 170.4 mg trifloxystrobin, equivalent to 107.3 and 100.2 ppm in the feed (mean 103.8 ppm) or 3.48 and 5.0 mg/kg body weight (mean 4.24 mg/kg). Average feed consumptions were 1.6 and 1.7 kg/goat per day (for days 1 to 3).

Urine and faeces were collected separately at 24-hour intervals over the acclimatisation and dosing periods. Milk samples were collected twice daily before and during the treatment period. Morning and evening milks were not mixed and the last milking took place just before the goats were slaughtered. The animals were killed 6 hours after the last dose. At that time, blood, samples of the GI tract, leg muscle, tenderloin, omental fat, perirenal fat, kidney, liver, and bile were taken for analysis.

Radioactivity in all specimens was determined by LSC. Radioactivity in solid samples was determined after combustion or tissue solubilization. TLC and HPLC were used in metabolite identification and characterisation. The goats excreted approximately 65 and 60% of the total dose (milk 0.08 and 0.07%, faeces 45 and 44%, and urine 20 and 15%). Cage wash and cage debris made up 0.3 and 0.7% of the total doses.

The maximum concentration of radioactivity reported in the milk of goat 1 was 0.12 mg/kg trifloxystrobin equivalents, present in milk taken 48-55 hours after the start of dosing. At 24-31 hours, the concentration was 0.119 mg/kg trifloxystrobin equivalents. In goat 2, the highest radioactivity reported was 0.121 mg/kg trifloxystrobin equivalents. This also occurred at the 48-55 hour interval. In the total milk sampled over 78 hours, the average concentrations of trifloxystrobin were 0.084 mg/kg equivalents in goat 1 and 0.086 mg/kg equivalents in goat 2. Total radioactivities in a.m. and p.m.

milk were not determined separately. The distribution of radioactivity in tissues, blood and bile is shown in Table 2.

Table 2. Distribution of the TRR in goat tissues after dosing at the equivalent of 100 ppm in the feed (Report no. 09/97).

Sample	% of dose administered		mg/kg trifloxystrobin equivalents	
	Goat 1	Goat 2	Goat 1	Goat 2
Leg muscle	0.036	0.036	0.044	0.085
Tenderloin	0.002	0.002	0.048	0.081
Omental fat	0.072	0.028	0.148	0.442
Perirenal fat	0.035	0.023	0.153	0.475
Kidney	0.036	0.026	1.86	1.79
Liver	0.566	0.512	4.67	4.99
Blood	0.06	0.066	0.22	0.28
Bile	0.242	0.098	69.3	76.8
GIT/rumen	21.3	28.2		
Total eliminated	65.2	59.7		
Total recovery	87.5	88.8		

GIT: gastrointestinal tract

The storage stability of metabolites present in liver was investigated by comparison of the metabolite distribution in an extract of fresh liver with the metabolite distribution in the same extract stored for 7 months at –20°C. In addition, liver stored for 4 and 23 months was extracted and compared with the fresh liver. There was no significant difference in extractability, and the composition of the metabolites did not change significantly during storage of the whole liver or of the liver extract.

Investigations with fresh milk extract and milk stored at –20°C and extracted after 4 and 23 months showed similar results. Residues of trifloxystrobin in liver were between 36 and 191% of the starting concentration over the storage period, and in milk between 80 and 86%.

The quantitative distribution of metabolites in tissues taken at slaughter and in the milk sampled over the dosing period is shown in Table 3.

Table 3. Distribution of metabolites in tissues at slaughter and in milk sampled over the study period (Report no. 09/97).

Metabolite fraction	Percentage of radioactivity in sample and (µg/kg trifloxystrobin equivalents)							
	Muscle	Fat	Liver	Liver [1]	Kidneys	Milk	Urine	Faeces
trifloxystrobin	21 (12)	79 (151)	2.8 (136)	2.8 (136)	1.8 (34)	52 (44)		22
CGA321113	57 (33)	10 (20)	13 (626)	13 (626)	54 (993)	3.6 (3)	70	36
L7a [2]	1.2 (0.7)		28 (1337)	28 (1337)	13 (233)	13 (11)		
L7b [3]	1.2 (0.7)		9 (435)	11 (515)	5.2 (95)			2.9
Others	8.2	1.6	11	24	8.8	24	24	29
No. of other fractions	7	3	3	5	5	6	5	5
Total	88	91	64	78	83	92	94	90
Polar	1.3	0.3	2.1	16	11	2.3	6	
Non-polar	0.7	2.2	0.7	0.7	0.4	1.3		
Unextractable	9.7	6.6	34	5	6.2	4.5		11

[1] after microwave-assisted extraction
[2] L7a identified as the taurine conjugate of CGA321113
[3] L7b identified as the glycine conjugate of CGA321113

Report no. 14/97 (Ruembeli, 1997). Two other lactating goats of the same strain (40.1 and 47.5 kg bodyweight) were dosed in the same way for four consecutive days with [Glyoxyl-Phenyl-(U)-^{14}C] trifloxystrobin (purity >98%). The mean dose/day was 170.8 mg trifloxystrobin, equivalent to 100.4

ppm in the feed for both goats (4.52 and 3.74 mg/kg body weight/day; average feed consumptions were 1.7 kg/goat per day). The animals were slaughtered about 6 hours after the last dose and samples were taken as before. Sampling of milk, urine and faeces was also as in the previous experiment, and similar analytical procedures were used. At the time of slaughter, the animals weighed 37.8 and 45.7 kg.

Approximately 59 and 58% of the total administered dose was excreted (milk 0.08 and 0.05%; faeces 37 and 35%; urine 18 and 20%). Cage wash and cage debris made up 4 and 3% of the total dose.

The maximum concentration of radioactivity reported in the milk of goat 1 was 0.153 mg/kg as trifloxystrobin equivalents, recorded in milk taken 24-31 hours after commencement of dosing. In goat 2, the maximum concentration was 0.11 mg/kg trifloxystrobin equivalents, at the 55-72 hours interval. In the total milk sampled over 78 hours the average concentrations of trifloxystrobin were 0.097 mg/kg in goat 1 and 0.08 mg/kg in goat 2. The radioactivity in tissues, blood and bile at slaughter was distributed as shown in Table 4.

Table 4. Distribution of the TRR in goat tissues after dosing at the equivalent of 100 ppm in the feed (Report no. 14/97).

Sample	% of dose administered		mg/kg trifloxystrobin equivalents	
	Goat 1	Goat 2	Goat 1	Goat 2
Leg muscle	0.11	0.078	0.095	0.061
Tenderloin	0.003	0.003	0.082	0.067
Omental fat	0.045	0.06	0.52	0.3
Perirenal fat	0.014	0.049	0.52	0.31
Kidney	0.052	0.032	2.9	1.7
Liver	0.54	0.28	5.2	2.6
Blood	0.12	0.08	0.43	0.24
Bile	0.093	0.07	58	29
GIT/rumen	27	16		
Total eliminated	59	58		
Total recovery	87	75		

GIT: gastrointestinal tract

The storage stability of metabolites present in liver was investigated by comparison of the quantitative metabolite pattern of fresh liver extract with the metabolite pattern in the same extract stored at –20°C and with extracts from whole liver stored frozen and extracted after about 10 and 20 months. There was no significant difference in extractability and the metabolic profile did not change significantly during storage of the whole liver or storage of the liver extracts. Investigations with fresh milk extracts and whole milk stored at –20°C and extracted after about 10 and 20 months showed similar results. Residues of trifloxystrobin in liver during the storage period were between 92 and 125% of the initial levels. In milk, total residues were virtually unchanged over the storage periods.

The quantitative distribution of metabolites in the tissues taken at slaughter and in the milk sampled over the dosing period is shown in Table 5.

Table 5. Distribution of compounds in tissues at slaughter and in milk sampled over the study period (Report no. 14/97).

Fraction	% of radioactivity in sample and (µg/kg trifloxystrobin equivalents)							
	Muscle	Fat	Liver	Liver [1]	Kidney	Milk	Urine	Faeces
Trifloxystrobin	26 (20)	82 (292)	1 (40)	2.5 (97)	1.8 (42)	74 (66)		48
CGA321113	51 (39)	11 (40)	38 (1493)	40 (1549)	74 (1714)	4.8 (4.3)	72	13
L7a	0.3 (0.2)		5.2 (205)	5.2 (205)	1.4 (32)	3.3 (2.9)	1.6	0.3
L7b	2.0 (1.6)		7.9 (310)	12 (461)	4.9 (114)	1 (0.9)	7.3	5.3
Others	4.6		11	24	12	12	11	14

Fraction	% of radioactivity in sample and (µg/kg trifloxystrobin equivalents)							
	Muscle	Fat	Liver	Liver [1]	Kidney	Milk	Urine	Faeces
No. of other fractions	2	0	6	7	4	5	3	5
Total	84	93	63	84	94	95	92	81
Polar	1.7	1	2.7	9.9			8.1	1.9
Non-polar	2.7	4	3.1	4.4	1.3	2.5		2.8
Unextractable	11	1.7	31	2.1	5.2	2.8		14

[1] after microwave-assisted extraction.

The two studies show that the principal route of elimination in goats is via the faeces and to a lesser extent urine. Comparison of the metabolic profiles in the faeces and urine leads to the conclusion that the metabolism of trifloxystrobin in goats follows the same pathways as in rats. Trifloxystrobin was the major residue in the fat and milk and there was evidence that radioactive residues reached plateau concentrations in the milk. The parent compound is not the major component of the residue in muscle, liver or kidney.

Laying hens

Report nos. 10/97 and 22/97 (Ruembeli, 1997, 1988). Groups of five laying hens (Leghorn, LSL blanches, 22 weeks old) were dosed orally with trifluoromethyl-phenyl-U-^{14}C]-trifloxystrobin or glyoxyl-phenyl-U-^{14}C]-trifloxystrobin by gelatin capsule for four consecutive days. The daily dose was 11.6 or 11.9 mg per bird, equivalent to 91-107.3 or 92-108.3 ppm in the feed (mean for each group 100.7 or 98.9 ppm) corresponding to 7.4-8.1 or 6.2-7.1 mg/kg body weight (mean for groups was 7.7 or 6.7 mg/kg body weight). Daily feed consumption in the two groups during days 1 to 3 of dosing was 107-137 and 105-130 g/day/bird, with means of 116 and 121 g feed/day.

Feed and water were available *ad libitum* (feed intake was measured). Egg production did not appear to be affected by the dosing regime. Excreta and eggs were collected throughout the studies and the birds were killed about 6 hours after the last dose. Blood, thigh and breast muscle, skin with attached fat, peritoneal fat, liver, kidneys, and gastrointestinal tract contents were sampled at the time of slaughter.

Approximately 73 to 83% of the dose in study 10/97 and 74-87% in 22/97 was eliminated in the excreta over the 0-78 hour period.

Study 10/97. In egg whites, the total radioactivity peaked between 24 and 72 hours of dosing. Maximum egg white levels (as trifloxystrobin equivalents over the 0-72 hour dosing period) in each bird were 0.19, 0.14, 0.15, 0.56, and 0.15 mg/kg. Total radioactive residues in the egg yolks increased over time and did not appear to have reached maximum values at the end of the dosing period. Total egg yolk values during 0-78 hours were between 0.71 and 1.24 mg/kg trifloxystrobin equivalents. The radioactivity in egg whites and yolks made up 0.13-0.16% of the total recovered radioactivity.

Lean meat contained 0.11-0.22% of the dose (0.13-0.35 mg/kg trifloxystrobin equivalents), skin and attached fat 0.14-0.39% (0.8-1.8 mg/kg trifloxystrobin equivalents), peritoneal fat 0.07-0.21% (1.9-2.7 mg/kg trifloxystrobin equivalents), kidney 0.11-0.25% (6-13 mg/kg trifloxystrobin equivalents), and liver 0.28-0.62% (3.8-8.6 mg/kg trifloxystrobin equivalents). The total recovered radioactivity (including intestinal and gizzard) was between 78 and 91%.

TLC analysis of liver homogenate and egg white homogenate after approximately 6 and 23 months frozen storage at –20°C indicated that the extractability and metabolite composition did not change significantly in either case. The stability of trifloxystrobin residues in poultry meat and eggs was not further considered.

The parent compound was the major identified component of the radioactive residue in lean meat, skin with fat, egg yolk and excreta. In egg white and liver, CGA321113 was the major component with little or no parent present. Table 6 summarises the quantitative distribution of major metabolites in tissues, eggs, and excreta, as µg/kg trifloxystrobin equivalents and as% of the sample radioactivity.

Table 6. Distribution of radioactivity in tissues, eggs and excreta (Report no. 10/97).

Sample	Total µg/kg	mg/kg as trifloxystrobin and (% of TRR in sample)						
		CGA321113	Trifloxystrobin		Total identified		Unextractable	
Lean meat [1]	210		58	(28%)	158	(75%)	30	(14%)
Fat and skin [2]	1482	20 (1.3%)	820	(55%)	1382	(93%)	47	(3.2%)
Liver [3]	6316	321 (5.1%)	64	(1%)	3996	(63%)	1825	(29%)
Egg white [4]	125	32 (26%)			123	(99%)	1.6	(1.3%)
Egg yolk [5]	1016		38	(3.7%)	171	(17%)	804	(79%)
Excreta (% only) [6]		4.4%		28%		89%		11%

[1] 8 other fractions isolated (0.7-24.3 µg/kg trifloxystrobin equivalents)
[2] 9 other fractions isolated (10-180 µg/kg trifloxystrobin equivalents)
[3] 13 other fractions isolated (77-798 µg/kg trifloxystrobin equivalents)
[4] 6 other fractions isolated (4.6-48 µg/kg trifloxystrobin equivalents)
[5] 5 other fractions isolated (5.7-48 µg/kg trifloxystrobin equivalents)
[6] 10 other fractions isolated (approximately 57% of the identified radioactivity)

The unextractable fractions from liver were subjected to microwave treatment with 2-propanol/water at 100-180°C and most of the unextractable material was released. At least 13 metabolites or degradation products were present. Each contributed less than 5% of the total radioactive residues in the liver. Microwave-assisted extraction (up to 150°C) of the unextractables in the egg yolk released an additional 78% of the yolk radioactivity. Seven minor metabolites (each less than 5% of the total yolk radioactivity) and three major metabolites or degradation products at levels of 9-35% were released. An additional 4.2% (43 µg/kg) of trifloxystrobin was recovered by microwave extraction.

Trifloxystrobin was the major residue in lean meat and fat plus skin. Comparison of the metabolic profiles in the excreta with those in goat urine and rat faeces lead to the conclusion that metabolism of trifloxystrobin in hens follows the same pathways as in goats and rats. A plateau effect was not clearly demonstrated in egg yolks. Trifloxystrobin was quantifiable (0.038 mg/kg) but not a major constituent of the radioactivity in egg yolk (1.016 mg/kg trifloxystrobin equivalents).

Study 22/97. In the egg yolk the total radioactivity continued to increase over the dosing period. Concentrations of radioactivity (mg/kg trifloxystrobin equivalents) in the yolks were 0-0.003 (0-24 hours), 0.06-0.44 (24-48 hours), 1.2-2 (48-72 hours), and 2.2-2.3 (72-78 hours). In egg whites the total radioactivity gave indications of having reached plateau levels between 24 and 78 hours from the start of dosing; mg/kg trifloxystrobin equivalents over the 0-78 hour period were 0-0.004 (0-24 hours), 0.03-0.18 (24-48 hours), 0.03-0.15 (48-72 hours), and 0.06-0.26 (72-78 hours) with mean concentrations of 0.002, 0.107, 0.067 and 0.14 mg/kg.

Over the 0-78 hour dosing period, 0.005-0.04% of the dose was present in the egg whites and 0.07-0.16% in the egg yolks. Total concentrations of radioactivity in the egg whites were 0.079 and in the egg yolks 0.96 mg/kg trifloxystrobin equivalents (0-78 hours).

After 78 hours, lean meat contained 0.12-0.15% of the dose (0.13-0.20 mg/kg trifloxystrobin equivalents), skin and attached fat 0.18-0.27% (0.66-0.84 mg/kg), peritoneal fat 0.1-0.13% (0.84-1.3 mg/kg), kidney 0.16-0.22% (5.9-9.4 mg/kg), and liver 0.38-0.68% (4.6-8.1 mg/kg). The total recovered radioactivity (including intestinal and gizzard radioactivity) was between 82 and 90%.

TLC analysis of liver and egg white homogenates after approximately 10 and 20 months frozen storage at –20°C indicated that the extractability and metabolite composition did not change significantly in either case.

In lean meat, skin with fat, and excreta, the parent was a major component. In egg white, CGA321113 was one of the major components, with no parent present. Table 7 summarises the quantitative distribution of the main compounds in tissues, eggs, and excreta as µg/kg trifloxystrobin equivalents and as% of the sample radioactivity.

Table 7. Distribution of radioactivity in tissues, eggs and excreta (Report no. 22/97).

Sample	Total µg/kg	mg/kg as trifloxystrobin and (% of TRR in sample)							
		CGA321113		Trifloxystrobin		Total identified		Unextractable	
Lean meat	172	8.5	(5%)	10	(6%)	64	(37%)	62	(36%)
Fat and skin	829			302	(36%)	708	(85%)	92	(11%)
Liver	5814	183	(3%)	22	(0.4%)	2930	(50%)	2046	(35%)
Egg white	79	10	(12%)			59	(75%)	4	(6%)
Egg yolk	963	5	(0.5%)	9	(1%)	77	(8%)	861	(89%)
Excreta (% only)			5.5%		20%		83%		12%

In the lean meat, 7 other metabolites were identified, ranging in concentration from 3 to 13 µg/kg. In fat and skin, 6 other metabolites were reported (30-170 µg/kg). Liver contained another 10 metabolites (117-498 µg/kg), egg white 7 (3-21 µg/kg) and egg yolk 6 (6-24 µg/kg).

Most of the unextractables in the liver were released by microwave treatment with 2-propanol/water at 100-180°C. 2-D TLC showed a complex pattern with 14 fractions identified. Each of these contributed less than 5% of the total radioactive residues in the liver. Microwave-assisted extraction (up to 150°C) of the unextractables in the egg yolk released an additional 79% of the total yolk radioactivity. In the major fraction extracted, several minor metabolites (each less than 5% of the total yolk radioactivity) and three major metabolites or degradation products were released at levels of 4-26% of the total radioactivity.

The results from the two hen studies were comparable and showed that trifloxystrobin residues could be expected in fat and eggs when hens were exposed to levels of 100 ppm trifloxystrobin in the diet. Trifloxystrobin was a major residue in lean meat, and skin with fat. The parent was the major compound found in the excreta.

Comparison of metabolites found in the hen excreta with those in rat faeces and goat urine indicated that the metabolism followed the same principal pathways in the three species. A plateau was not clearly demonstrated in egg yolks. Trifloxystrobin was quantifiable (0.01 mg/kg) but not a major constituent of the total yolk residues (0.96 mg/kg trifloxystrobin equivalents).

Summary – animal metabolism

In rat metabolism studies evaluated by the WHO Core Assessment Group at the present Meeting the fate of trifloxystrobin was investigated after single oral administrations of the ^{14}C-labelled compound. Doses of 0.5 mg/kg bw and 100 mg/kg bw were absorbed from the gastro-intestinal tract to the extent of about 60% and about 27 to 41% respectively. Biliary excretion was the major route of elimination. The metabolite pattern in rats is very complex. About 35 metabolites were isolated from urine, faeces and bile and identified. The major steps in the metabolic pathway include hydrolysis of the methyl ester to the corresponding acid, *O*-demethylation of the methoxyimino group yielding a hydroxyimino compound and oxidation of the ethylideneamino methyl group to a primary alcohol, followed by partial oxidation to the corresponding carboxylic acid. These are followed by a complex pattern of further, minor reactions. Cleavage between the two phenyl moieties accounted for about 10% of the dose.

In goats dosed at the equivalent of 100 ppm the dominant elimination was in the faeces. 0.05 – 0.08% of the total dose was eliminated in the milk which corresponds to about 0.1 mg/kg trifloxystrobin equivalents. Major tissue residues were found in the liver, bile and kidneys accounting for 0.28-0.57%, 0.07-0.24% and 0.026-0.052% of the applied dose respectively. These values correspond to 2.6-5.2, 29-77 and 1.7-2.9 mg/kg as trifloxystrobin equivalents. Minor amounts were found in fat, muscle and blood. The major compounds were the parent trifloxystrobin, its carboxylic acid CGA321113 and conjugates thereof. Demethylation of the methoxyimino group of trifloxystrobin and CGA321113 and hydroxylation of the ethylidene group and the *o*-tolyl ring was found in minor fractions. Cleavage between the two phenyl rings was a minor reaction detected in the study with the trifluoromethyl-phenyl label but was not observed in animals treated with the *o*-tolyl-labelled compound.

In hens dosed at the equivalent of 100 ppm up to 0.16% and 87% of the applied dose was eliminated in the eggs and excreta respectively. Tissue residues (TRR as trifloxystrobin equivalents) 6 h after the last dose were: 0.13-0.35 mg/kg in lean meat, 0.84-2.7 mg/kg in peritoneal fat, 0.66-1.8 mg/kg in skin with attached fat, 3.8-8.6 mg/kg in liver and 5.9-13 mg/kg in kidneys. The maximum concentration in egg white was 0.56 mg/kg and in egg yolk 2.3 mg/kg. Unchanged trifloxystrobin was the major residue in lean meat and skin with fat, and was the major compound eliminated in the excreta. The major metabolite in liver was formed by hydroxylation of the trifluoromethyl-phenyl ring. All the other major metabolites were formed by hydrolysis of the parent molecule to form its carboxylic acid CGA321113 and/or demethylation of the methoxyimino group, followed by decarboxylation, hydrolysis and hydroxylation reactions. Minor reactions were cleavage of the molecule between the two phenyl rings and sulfate conjugation.

The metabolism of trifloxystrobin proceeds in the goat and hen by the same major pathways as in the rat. Overall pathways in goats, hens ands rat are shown in Figure 1.

On the basis of the livestock metabolism studies, the sum of the parent compound trifloxystrobin and its metabolite CGA321113 is considered to be the residue of concern in food commodities of animal origin.

Figure 1. Proposed metabolic pathways in goats, hens and rats (part 1).

Combined Pathways of CGA 279202: Rat, Goat and Hen

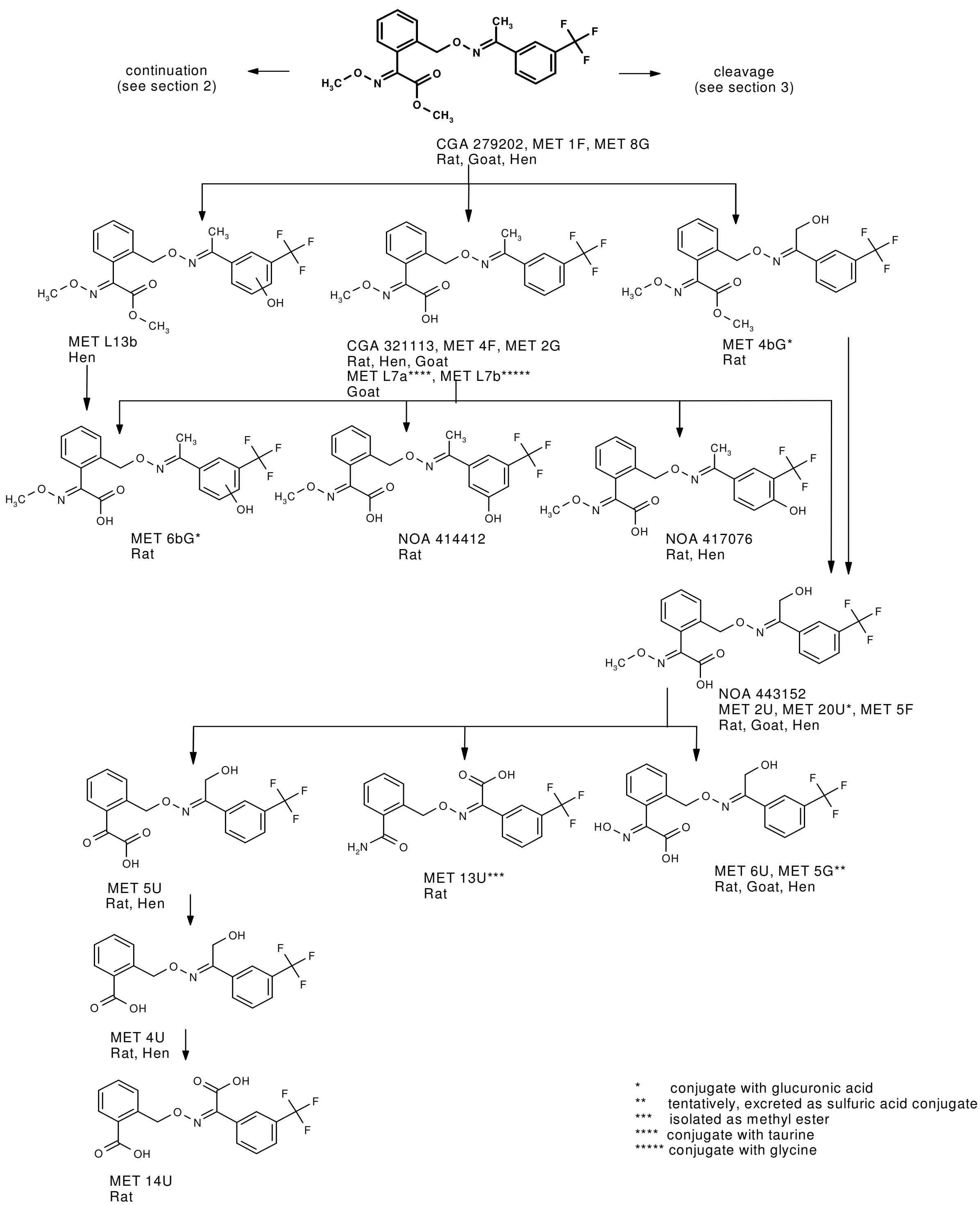


Figure 1 continued. Proposed metabolic pathways in goats, hens and rats (part 2).

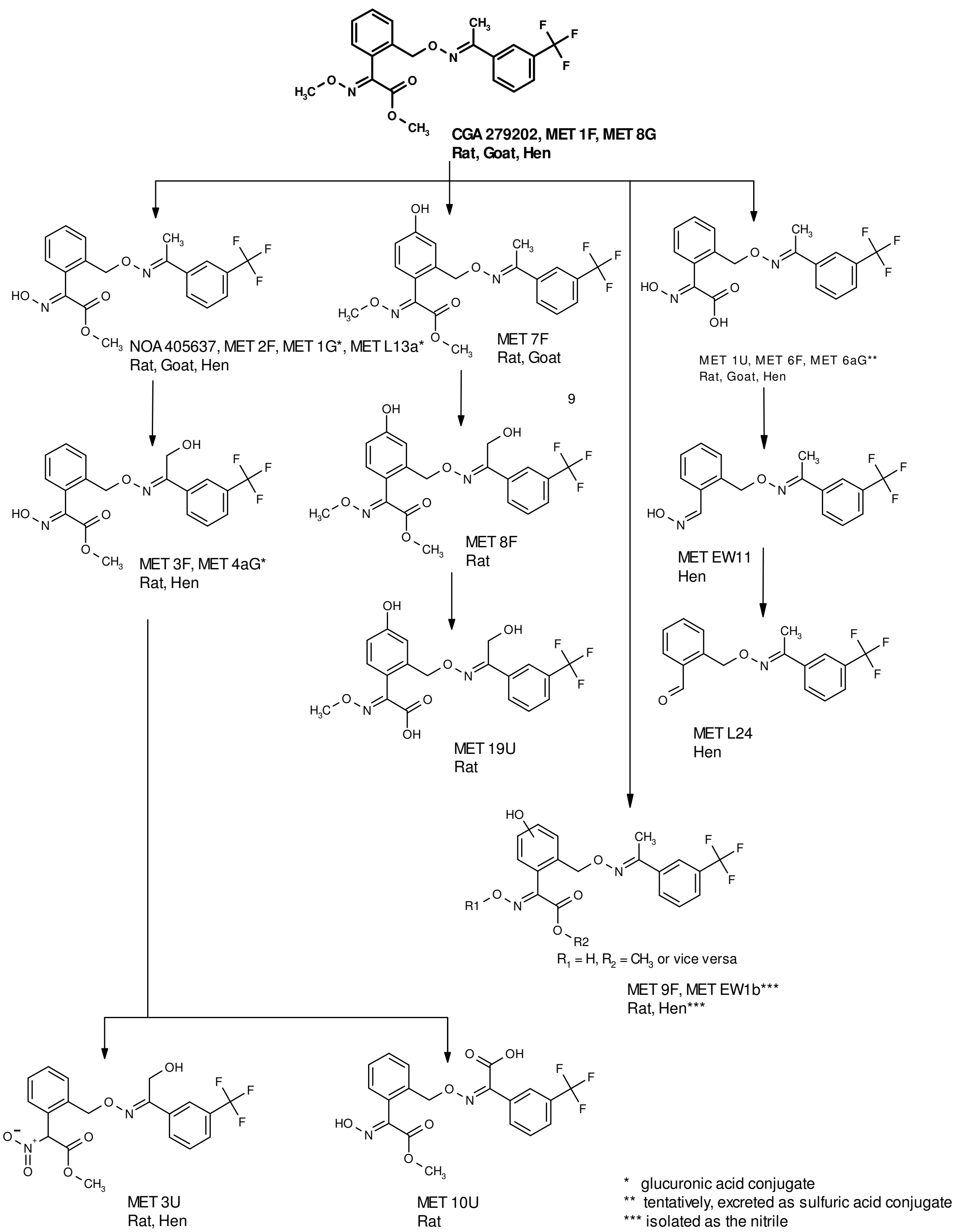
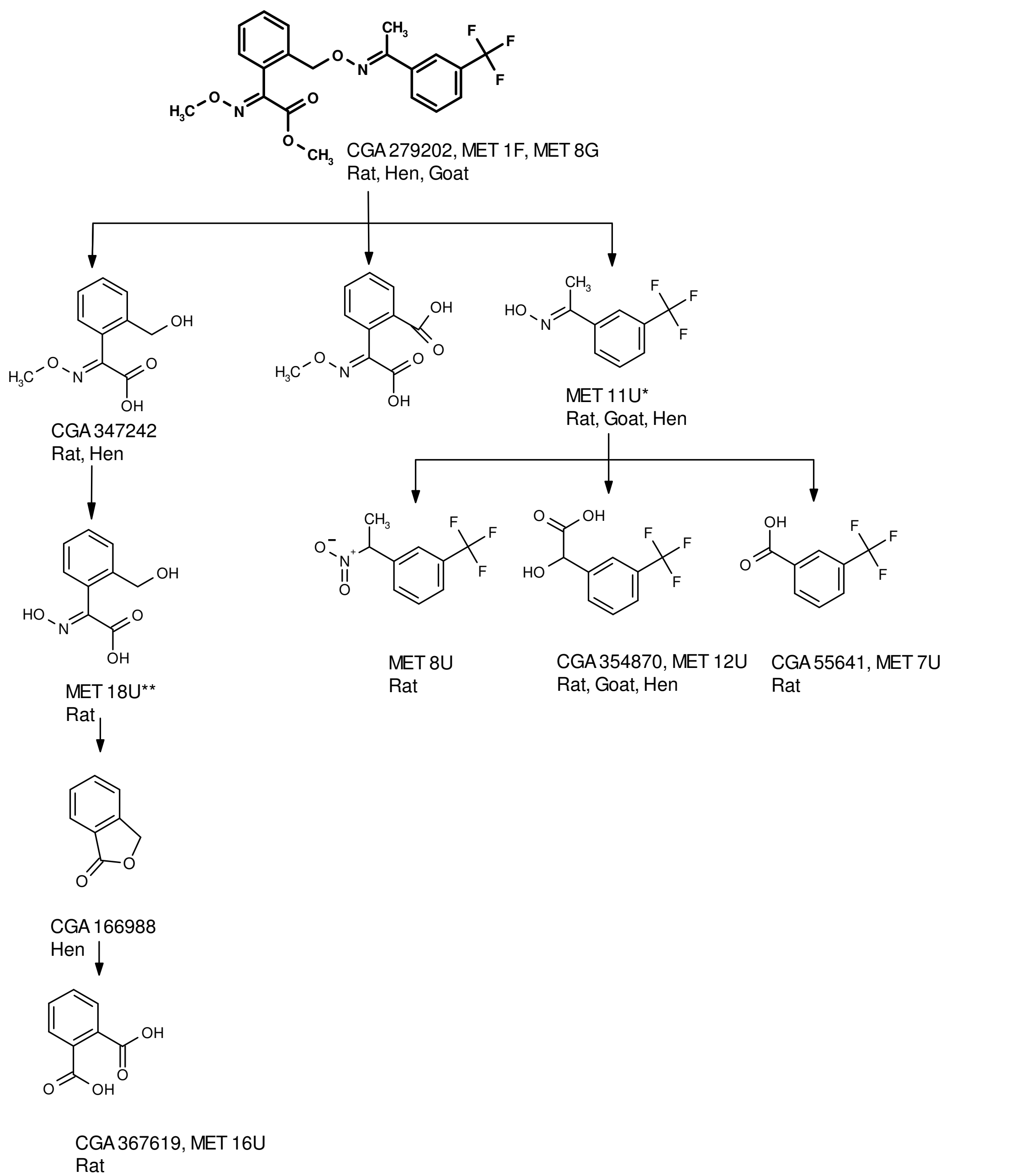


Figure 1 continued. Proposed metabolic pathways in goats, hens and rats (part 3).



* sulfuric acid conjugate
** tentatively, excreted as sulfuric acid conjugate

Plant metabolism

The metabolism of trifloxystrobin has been studied after spray application in apples, cucumbers, wheat, sugar beets and peanuts according to GLP.

Apples

<u>Report no. CMR 12/97 (Kiffe, 1997)</u>. Three apple trees (var. *Golden Delicious*), approximately 4 years old and grown in a greenhouse, were treated with four applications of a WG 50 formulation of

[trifluoromethyl-phenyl-(U)-^{14}C] trifloxystrobin at a concentration of 10 g ai/100L. The sprays were applied at 4-week intervals and the total amount applied was equivalent to the recommended 40 g ai/100L (6 x 6.7 g ai/100L) or 400 g ai/ha (1000 trees/ha). The treatments started after flowering. Apples and samples of foliage were taken 1 hour and 2 weeks (harvest) after the fourth application. Apples were washed with acetonitrile/water to determine surface radioactivity and the washed apples were then used for flesh and peel analysis. Radioactivity was determined by liquid scintillation counting (LSC) and metabolites were identified by TLC and HPLC.

At harvest the TRR in the whole fruit was 0.83 mg/kg trifloxystrobin equivalents, with 0.75 mg/kg equivalents in the peel (0.29 mg/kg parent and its isomers) and 0.012 mg/kg equivalents in the pulp (0.002 mg/kg parent and its isomers). In the foliage, the TRR was 46 mg/kg parent equivalents, of which the majority was identified as the parent and its isomers. The quantification of metabolites in different plant fractions is shown below.

Table 8. Quantification of residue fractions in apples after treatment with [CF_3-phenyl-(U)-^{14}C]-trifloxystrobin (Report no. 12/97).

Sample	TRR mg/kg [1]	%TRR [2]	Metabolite fractions present at harvest (mg/kg as trifloxystrobin [3])							
			II_{8a}	II_{10a}	II_{11a}	II_{22a}	II_{24b} [4]	II_{24} [5]	II_{25} [6]	UR [7]
Surface		82								
Peel	0.75	17	0.012	0.011	0.017	n.d. [8]	0.009		0.51	0.09
Pulp	0.01	1.2	0.001	0.001	<0.001	0.001	0.001		0.003	0.002
Fruit	0.83	100	0.003	0.002	0.003	0.001	0.005		0.76	0.04
Foliage	46	100	0.56	1.8	0.32	n.d. [8]	0.46		36	3.2

[1] Trifloxystrobin equivalents.
[2] Sum of radioactivity found on surface, peel, and flesh defined as 100% (whole fruit).
[3] Quantified by 2-D TLC.
[4] CGA373466.
[5] CGA321113.
[6] Consists of trifloxystrobin and its isomers, CGA331409, CGA357262, and CGA357261.
[7] Unresolved.
[8] not detected; limit of detection 0.001 mg/kg.

Trifloxystrobin was the major component of the radioactive residue in all samples (foliage, surface, peel, and flesh). At harvest there was a TRR of 0.83 mg/kg trifloxystrobin equivalents in the whole fruit, of which 0.67 mg/kg was identified as trifloxystrobin, 0.043 mg/kg as CGA357261 (the *Z,E* isomer), 0.018 mg/kg as CGA357262 (the *Z,Z* isomer) and 0.028 mg/kg as, CGA331409 (the *E,Z* isomer). In foliage, the TRR was 46 mg/kg parent equivalents, with 33 mg/kg parent, 2.6 mg/kg CGA357261 1.2 mg/kg CGA357262 and 1.5 mg/kg CGA331409.

Storage stability investigations of peel and flesh samples stored at –18°C for about 8 months indicated no significant change in the metabolite profile either quantitatively or qualitatively. Specific information on the storage stability of trifloxystrobin in apple matrices was not provided.

Report no. CMR13/97 (Kiffe, 1997). Three similar apple trees were treated as above, but with glyoxyl-phenyl-(U)-^{14}C-labelled trifloxystrobin.

Foliage was sampled 2 weeks after the last (fourth) application, at harvest. Apples were sampled 1 hour and 2 weeks after the fourth application. The apples were washed (CH_3CN/water) to determine surface radioactivity and the peel and pulp then analysed separately. Radioactivity was determined by liquid scintillation counting and metabolites were identified by TLC and HPLC.

At harvest the TRR in the whole fruit was 1.3 mg/kg trifloxystrobin equivalents, with 0.7 mg/kg of the TRR in the peel (0.31 mg/kg parent and its isomers), and 0.032 mg/kg in the flesh (0.004 mg/kg parent and its isomers). In the foliage, the TRR was 72 mg/kg equivalents, of which the majority was identified as the parent and its isomers. Extractable radioactivity from the foliage, peel, and fruit accounted for between 86 and 99.5% of the radioactivity found in the plant parts. Quantification of metabolite fractions in the apples at harvest is shown in Table 9.

Table 9. Quantification of metabolite fractions in apples after treatment with [glyoxyl-phenyl-(U)-^{14}C]-trifloxystrobin (Report no. CMR13/97).

Sample	TRR mg/kg [1]	% of TRR [2]	Metabolite fractions present at harvest (mg/kg as tryfloxystrobin [3])							
			II_{8a}	II_{10a}	II_{11a}	II_{22a}	II_{24b} [4]	II_{24} [5]	II_{25} [6]	UR [7]
Surface		87								
Peel	0.70	11	0.061			0.015	0.009	0.013	0.45	0.028
Pulp	0.032	1.9	0.008			0.002	0.001		0.002	0.002
Fruit	1.3	100	0.019			0.004	0.005		1.2	0.043
Foliage	72	100	1.1	2.7	0.79	n.d. [8]	n.d. [8]		58	6.2

[1] Trifloxystrobin equivalents.
[2] Sum of radioactivity found on surface, peel, and pulp defined as 100% (whole fruit).
[3] Quantified by 2-D TLC.
[4] CGA373466.
[5] CGA321113.
[6] Consists of trifloxystrobin and its isomers, CGA331409, CGA357262, and CGA357261.
[7] Unresolved.
[8] not detected; limit of detection 0.001 mg/kg.

Trifloxystrobin was the major component of the radioactivity in the foliage, surface, peel, and pulp. Total radioactive residues of 1.3 mg/kg equivalents in the whole fruit at harvest included 1.1 mg/kg trifloxystrobin, 0.042 mg/kg CGA357261 (the *Z,E* isomer), 0.018 mg/kg CGA357262 (the *Z,Z* isomer) and 0.028 mg/kg CGA331409 (the *E,Z* isomer). In foliage, the total radioactive residues were 72 mg/kg equivalents, with 54 mg/kg parent, 2.8 mg/kg CGA357261, 1.3 mg/kg CGA357262 and 1.9 mg/kg CGA331409.

Stability studies of fruit washings stored at 4°C and peel and pulp samples stored at –18°C for about 7 months indicated no significant changes in the metabolite profile either quantitatively or qualitatively. Specific information on the storage stability of trifloxystrobin in apple matrices was not provided.

The two apple studies showed no significant differences with respect to TRR or the distribution of metabolites in the various fractions analysed. Trifloxystrobin was identified as the major compound associated with harvested apples.

Cucumber

Report nos. CMR22/97 and CMR23/97 (Stingelin, 1997). Cucumber plants (about 7 weeks old) were treated with three applications of [CF_3-phenyl-(U)-^{14}C]trifloxystrobin (CMR23/97) or glyoxyl-phenyl-(U)-^{14}C]trifloxystrobin (CMR, 22/97) formulated as 50 WG products. Sprays at concentrations of 20.8 g ai/100l were applied at 7 day intervals, the first application being made shortly after the first flowering. The total amount of active material applied was 940 g ai/ha/season.

Samples of foliage and fruit were collected 0, 1 and 7 days after the final spray. Total radioactivity was determined by combustion analysis and/or scintillation counting. Characterisation of the radioactivity was by TLC.

The distribution of radioactivity in the cucumber foliage and fruit is shown in Tables 10 and 11.

Table 10. Quantification of residue fractions in cucumber plants after treatment with [CF_3-phenyl-(U)-^{14}C]-trifloxystrobin (Report no. CMR23/97).

Sample/DAT	TRR (mg/kg equiv.)	Extractable residues, mg/kg and (%TRR)				
		CGA321113	CGA357261	trifloxystrobin	CGA357262	CGA331409
Foliage 0 days	34.7	0.38 (1.1)	0.31 (0.9)	29 (83.6)	<0.001 (0)	0.6 (1.7)
Foliage 7 days	16.6	0.23 (1.4)	0.18 (1)	13.6 (81)	<0.001 (0)	0.25 (1.5)
Small fruit 0 days	0.9	0.01 (1.1)	0.005 (0.6)	0.81 (93)	0.009 (1.1)	0.006 (0.7)
Small fruit 7 days	0.59	0.017 (2.9)	0.003 (0.5)	0.51 (86.4)	0.012 (2)	0.007 (1.2)
Large fruit 1 day	0.4	0.006 (1.5)	0.002 (0.5)	0.37 (92)	0.008 (2)	0.005 (1.2)
Large fruit 7 days	0.19	0.008 (4.2)	0.002 (1.1)	0.17 (89.5)	0.003 (1.6)	0.002 (1.1)

DAT: days after treatment

Table 11. Quantification of residue fractions in cucumber plants after treatment with [glyoxyl-phenyl-(U)-^{14}C]-trifloxystrobin (Report no. CMR22/97).

Sample/DAT	TRR (mg/kg equiv.)	Extractable residues, mg/kg and (%TRR)				
		CGA321113	CGA357261	trifloxystrobin	CGA357262	CGA331409
Foliage 0 days	32.7	0.29 (0.9)	0.36 (1.1)	28.2 (86.2)	<0.001 (0)	0.72 (2.2)
Foliage 7 days	24.9	0.32 (1.3)	0.30 (1.2)	20.3 (81.5)	<0.001 (0)	0.35 (1.4)
Small fruit 0 days	1.19	0.02 (1.7)	0.01 (0.8)	1.0 (86.6)	0.015 (1.3)	0.013 (1.1)
Small fruit 7 days	2.29	0.053 (2.3)	0.021 (0.9)	2 (87.3)	<0.001 (0)	0.046 (2)
Large fruit 1 day	0.53	0.007 (1.3)	0.006 (1.1)	0.46 (86.8)	<0.001 (0.2)	0.007 (1.3)
Large fruit 7 days	0.3	0.01 (3.3)	0.004 (1.3)	0.24 (80)	0.003 (1)	0.003 (1)

The highest levels of radioactivity (33-35 mg/kg equivalents) occurred in the foliage immediately after application, and these levels fell by approximately 25-50% within 7 days. TLC analysis of the TRRs showed that the main component of the radioactivity in all samples was trifloxystrobin, which constituted 80 to 93% of the TRR. The *cis/trans* isomers of trifloxystrobin were detected at low levels in all samples (CGA357261 0.5 to 1.3% of the TRR; CGA357262 0 to 2%, and CGA331409 0.7 to 2.2%. The free acid of trifloxystrobin (CGA321113) constituted 0.9 to 4.2%.

Wheat

Report no. CMR15/97 (Gross, 1997). Plots of spring wheat (about 1.5 m^2) were treated twice with [CF_3-phenyl-(U)-^{14}C]-trifloxystrobin; the first application of 250 g ai/ha was made 41 days after sowing (BBCH 30-31; beginning of shooting/elongation phase), and the second, at the same application rate, 17 days later (BBCH 49-51; late shooting/beginning of ear emergence phase).

Samples of wheat shoots and stalks were collected immediately after the first and second applications (i.e. days 0 and 17). Samples of wheat ears and stalks were collected 24 days after the second application (day 41; 50% crop maturity), and samples of grain, husks and straw were collected 52 days after the second application (day 69; mature wheat). Total radioactive residues were determined by combustion and scintillation counting. Characterisation of the radioactivity was by a series of techniques including solid-phase extraction, microwave extraction, enzyme cleavage and TLC. The distribution of ^{14}C in the samples is tabulated below (Table 12).

Table 12. Quantification of residue fractions in wheat after treatment with [CF_3-phenyl-(U)-^{14}C]-trifloxystrobin (Report no. CMR15/97).

Sampling	Sample	TRR (mg/kg)	Extract-able (%)	Un-extractable (%)	Characterisation of the extractable residues, mg/kg and (% of the TRR)			
					CGA 357261	Trifloxy-strobin	CGA 357262	CGA 331409
Immediately after 1st treatment	shoots	14.37	98.0	2.0	ND	12.89 (89.7%)	ND	ND

Sampling	Sample	TRR (mg/kg)	Extract-able (%)	Un-extractable (%)	Characterisation of the extractable residues, mg/kg and (% of the TRR)			
					CGA 357261	Trifloxy-strobin	CGA 357262	CGA 331409
Immediately after 2nd treatment	shoots	10.99	95.9	4.1	ND	9.28 (84.4%)	ND	ND
24 days after 2nd treatment	ears	0.081	91.1	11.7	-	0.003 (3.7%)	-	-
	stalks	5.473	90.0	8.9	0.016 (0.3%)	0.038 (0.7%)	0.011 (0.2%)	0.016 (0.3%)
52 days after 2nd treatment	grain	0.020	71.5	33.3	-	<0.001	-	-
	husks	0.142	70.8	33.8	<0.001 (<0.7%)	0.003 (2.1%)	0.001 (0.7%)	<0.001 (<0.7%)
	straw	3.851	69.2	27.2	0.028 (0.7%)	0.033 (0.9%)	0.017 (0.4%)	0.024 (0.6%)

ND: not determined

In mature wheat the highest levels of radioactivity were found in the straw (3.85 mg/kg equivalents), with 0.14 mg/kg equivalents in the husks and 0.02 mg/kg in the grain. The composition of the residue was complex, and trifloxystrobin and its isomers constituted less than 5% of the TRR. The overall metabolic profile in wheat straw and husk showed at least 30 metabolites (unidentified), none of which accounted for more than 7% of the TRR. Comparison of the crude extracts of straw showed that the metabolic profiles in non-polar and polar fractions were qualitatively similar, indicating that metabolism in wheat produces essentially metabolites containing both ring systems.

Report no. CMR18/97 (Gross, 1997). This was a continuation of the study described above, with the aim of identifying the metabolites present in the straw and husk of the treated wheat.

Characterisation of the radioactive compounds now included HPLC, and metabolites were identified by NMR, APCI-MS, GC-MS, and LC-MS, and co-chromatography wotj reference compounds.

Cell culture experiment. Stock cultures of wheat (*Heines Koga II*) were grown as a cell suspension. The cells were allowed to reach the exponential growth phase (5 days) before the addition of ^{14}C-labelled trifloxystrobin. Cells were harvested 14 days after treatment, homogenized, and subjected to a range of extraction procedures to isolate and identify the radiolabelled metabolites.

The metabolite pattern of CF_2–phenyl-labelled trifloxystrobin is complex, with up to 35 metabolite fractions found, but most of the metabolites constituted less than 1% of the TRR. The structures identified showed that the metabolism of trifloxystrobin occurred mainly via:

- cleavage of the methyl ester group to form CGA321113;
- hydroxylation of the CF_3-phenyl ring to form NOA414412;
- oxidation of the ethylidene methyl group to give the isomeric carboxylic acids NOA413161 (EZ) and NOA413163 (EE);
- sugar conjugation of metabolites I_{10}, I_{12} and I_{14} to give the water-soluble metabolites II_8, II_{10} and II_{11}, which represent the major part of the radioactivity in immature wheat forage.
-

The following minor metabolic pathways were identified:

- cis/trans isomerisation of the parent trifloxystrobin and its free acid;
- loss of methoxy from methoxyimino side chain in combination with methyl oxidation of the ethylideneaminooxy group to form metabolite fraction III_5 (i.e. 2-[2-hydroxy-1-(3-trifluoromethylphenyl)ethylideneaminooxymethyl]benzonitrile).
-

Analysis of the unextractable residues showed that the radioactivity in grain was mostly incorporated into starch. In contrast, the unextractable residues in straw consisted mainly of additional metabolites that were not completely extracted from the matrix (i.e. only a small proportion of the unextractable radioactivity in straw was associated with cell wall fractions such as pectin, cellulose and lignin).

Stingelin, 1997 (Reports CMR04/97 and CMR25/97) carried out identical experiments to those described by Gross (1977; reports CMR15/97 and CMR18/97) except that [glyoxl-phenyl-(U-; ettt. was used..

Report no. CMR04/97 (Stingelin, 1997). The objectives of this experiment were to determine the rate at which ^{14}C-labelled trifloxystrobin penetrates the surface of treated wheat plants and to examine the distribution and nature of trifloxystrobin residues in field-grown spring wheat by characterising the extractable radioactivity in shoots, stalks, ears, straw, husks and grain.

Plots of spring wheat (about 2 x 2 m) were treated twice at 250 g ai/ha with [glyoxylphenyl-(U)-^{14}C]-trifloxystrobin 41 and 58 days after sowing, as before.

Plant samples for the penetration study were collected 1 hour, 2 hours, 3 hours, 1 day, 3 days, 7 days and 14 days after the first application. The distribution of the surface and penetrated radioactivite residues is shown in Tables 13 and 14.

Table 13. Surface radioactivity in wheat (Report no. CMR04/97).

Sampling time after application	TRR (mg/kg equiv.)	Surface radio-activity (%)	Characterisation of the surface radioactivity					
			CGA 331409 (EZ) (%)	CGA 357262 (ZZ) (%)	trifloxy-strobin (EE) (%)	CGA 357261 (ZE) (%)	CGA 321113 (EE) (%)	Polar metabolites (%)
1 hour	11.70	96.9	3.7	ND	89.0	3.1	ND	2.4
3 hours	10.57	96.3	4.4	ND	85.0	6.5	ND	2.2
24 hours	12.47	106.5	3.8	2.1	80.0	8.4	ND	4.2
3 days	7.28	86.4	2.5	1.4	83.6	5.7	ND	5.5
7 days	6.09	88.3	1.9	1.0	84.7	4.7	ND	5.0
14 days	2.29	41.9	2.4	3.3	76.5	8.5	ND	7.6

ND: not determined

Table 14. Penetrated radioactivity in wheat (Report no. CMR04/97).

Sampling time after application	TRRs (mg/kg equiv.)	Penetrated radio-activity (%)	Characterisation of the penetrated radioactivity					
			CGA 331409 (EZ) (%)	CGA 357262 (ZZ) (%)	trifloxy-strobin (EE) (%)	CGA 357261 (ZE) (%)	CGA 321113 (EE) (%)	Polar metabolites (%)
1 hour	11.70	3.1	4.4	ND	73.5	3.2	2.9	12.5
3 hours	10.57	5.6	5.8	2.0	64.0	5.6	7.2	17.5
24 hours	12.47	15.1	8.1	2.6	37.3	8.2	2.9	39.2
3 days	7.28	28.9	4.4	2.8	17.5	2.8	0.5	66.8
7 days	6.09	30.9	2.8	2.5	13.6	2.6	0.9	69.5
14 days	2.29	43.8	1.4	1.3	9.1	1.6	0.7	80.2

ND: not determined

The results show that penetration of the wheat plant by trifloxystrobin is quite rapid, reaching about 15% within 24 hours and about 30% within 3 days. Characterisation of the surface residue revealed that trifloxystrobin is relatively stable photolytically as the level of the parent compound on the plant surface fell only from 89% after 1 hour to 76.5% after 14 days. In contrast, the penetrated trifloxystrobin appeared to undergo exponential decay, resulting in an apparent half-life of about 12 hours. The decrease in penetrated trifloxystrobin levels was correlated with an increase in the levels of polar metabolites.

In the associated *metabolism study* shoots were collected immediately after the first and second applications of ^{14}C-labelled trifloxystrobin (i.e. days 0 and 17 of the experiment), ears and stalks 24 days after the second application (day 41 of the experiment; 50% crop maturity), and grain, husks and straw 52 days after the second application (day 69; mature wheat).

Total radioactive residues were determined by combustion analysis and scintillation counting, and the products characterised by autoradiography, TLC, HPLC, enzyme cleavage and acid hydrolysis.

The distribution of ^{14}C is shown in Table 15.

Table 15. Distribution of residues in wheat (Report no. CMR04/97).

Sampling time	Sample	TRR (mg/kg eqiuv.)	Extract-able (%)	Unex-tractable (%)	Characterisation of extractable residues, mg/kg and (% of the TRR)			
					CGA357261 (ZE)	trifloxystrobin (EE)	CGA357262 (ZZ)	CGA331409 (EZ)
Immediately after first treatment	shoots	10.24	--	--	ND	ND	ND	ND
Immediately after 2nd treatment	shoots	7.255	98.1	1.9	ND	ND	ND	ND
24 days after 2nd treatment	ears	0.411	97.3	2.8	0.001 (0.3%)	0.002 (0.6%)	<0.001 (0.1%)	<0.001 (0.1%)
	stalks	4.650	101.3	2.6	0.040 (0.9%)	0.180 (3.9%)	0.018 (0.4%)	0.022 (0.5%)
52 days after 2nd treatment	grain	0.099	76.9	29.0	0.001 (1.2 %)	0.001 (1.3 %)	--	--
	husks	0.780	71.7	24.1	0.011 (1.4%)	0.007 (0.8%)	--	--
	straw	5.482	75.7	15.8	0.057 (1.0%)	0.123 (2.2%)	0.023 (0.4%)	0.037 (0.7%)

ND: not determined

The overall metabolic profile in wheat straw and husk showed at least 30 fractions, none of which accounted for more than 5% of the TRR. Hydrolysis of grain, husk and straw samples with hydrochloric acid at 100°C for 16-18 hours resulted in the release of two main products, 3*H*-isobenzofuran-1-one (phthalide) and benzene-1,2-dicarboxylic acid (phthalic acid). The results indicate that the glyoxylphenyl ring played only a minor role in the transformation of trifloxystrobin. The phthalide is believed to originate from metabolites with an intact bridge between the two phenyl ring systems, while the precursors of the phthalic acid derivative contained only the glyoxylphenyl part of the original molecule with an oxidised side chain. It was concluded that the phthalide/phthalic acid products of acid hydrolysis could not be used as a common moiety for residues analysis, since the phthalide may be released as a natural compound from wheat grain at levels of 0.05 mg/kg, and the phthalic acid may potentially be present in samples as a result of contact with packaging material.

Report no. CMR25/97 Stingelin, 1997). Plots of spring wheat (about 1.5 m) were treated twice with [glyoxyl-phenyl-(U)-^{14}C]-trifloxystrobin. The details of treatment, sample collection and metabolite identification were as in the studies by Gross (1997).

The metabolite pattern of [glyoxyl-phenyl-(U)-trifloxystrobin is complex and virtually identical to that of the CF_3–phenyl-labelled compound identified by Gross (1997), although the author also detected the formation of the minor products CGA166988 (3H-isobenzofuran-1-one), quoted above, and 2-[1-(3-trifluoromethylphenyl) ethylideneamino-oxymethyl]-benzonitrile, which may be artefacts of the decarboxylation/acid hydrolysis of genuine metabolites. Again, most of the metabolites constituted less than 1% of the TRR.

-

Analysis of the unextracted residues again showed that the radioactivity in grain was mostly incorporated into starch whereas those in straw consisted mainly of additional metabolites that were not completely extracted from the matrix.

Report no. MR-027/02 (Reiner and Bongartz, 2002). The metabolism of trifloxystrobin in the straw and grain of spring wheat was investigated after two spray applications of 250 g/ha [trifluoromethyl-phenyl-UL-14C]trifloxystrobin giving the seasonal maximum rate of 500 g ai/ha. The first application was at growth stage 33 of the BBCH code and the second at growth stage 69, 42 days after the first.

Immature hay samples were collected 3 days after the second application, and grain and straw were harvested at maturity, 32 days later. Samples were first homogenized at room temperature with acetonitrile/water 8:2, then treated by microwave extraction at 150°C using acetonitrile/water. Remaining solids were treated with the starch-cleaving enzyme diastase.

Radioactivity was measured in solid samples by LSC after combustion, and in extracts after separation in varous TLC and HPLC systems. Characterisation, identification and structure elucidation of metabolites was by co-chromatography with reference standard compounds, LC/MS/MS and 1H-NMR spectrometry.

The total radioactive residue in hay amounted to 5.2 mg/kg expressed as the parent compound. 92.3% of the TRR was extracted with acetonitrile/water at room temperature and was partitioned into a dichloromethane phase and an aqueous phase. A further 5.6% of the TRR was in the microwave extract.

The TRR in straw amounted to 6.13 mg/kg and the extraction procedure was the same as with hay. Only 71.9% of the TRR was in the initial acetonitrile/water extract whereas that in the microwave extract increased to 19.1% of the TRR.

The TRR in grain was only 0.12 mg/kg and 66.9% of it was extracted with acetonitrile/water. The remaining solids (solids 1, 33.1%, 0.040 mg/kg) were treated with diastase which released an additional 21.4%. After diastase treatment, only 0.014 mg/kg of the TRR remained unextracted.

The results are given in Table 16.

Table 16. Total residues in spring wheat after two applications of [CF_3-phenyl-UL-^{14}C]-trifloxystrobin (Report no. MR-027/02).

	hay		straw		grain	
Fraction (50 g of sample extracted)	%	mg/kg	%	mg/kg	%	mg/kg
dichloromethane phase	53.0	2.75	47.8	2.93	26.2	0.032
aqueous phase (1)	39.3	2.04	24.1	1.48	40.7	0.049
(solids 1, further extracted)	(7.7)	(0.40)	(28.1)	(1.72)	(33.1)	(0.04)
microwave extract	5.6	0.29	19.1	1.17	n.a.	n.a.
diastase extract (further hydrolysed)	n.a.	n.a.	n.a.	n.a.	(21.4)	(0.026)
toluene phase	n.a.	n.a.	n.a.	n.a.	10.5	0.013
aqueous phase 2	n.a.	n.a.	n.a.	n.a.	10.9	0.013
solids 2 (unextracted residue)	2.1	0.11	9.0	0.55	11.7	0.014
Total radioactive residue (TRR)	100	5.2	100	6.13	100	0.12

n.a. not analysed

The identified extracted radioactive residues were grouped as parent compound plus isomers, other metabolites and aglycones. The sum of the parent isomers accounted for 43.5% (2.26 mg/kg) of the TRR in hay, 25.5% (1.56 mg/kg) in straw and 39.7% (0.048 mg/kg) in grain. In total, 80.7% (4.19 mg/kg) of the TRR was identified in hay, 67.1% (4.11 mg/kg) in straw and 61.4% (0.074 mg/kg) in grain. The remaining extracted radioactivity was characterised as fractionated by the extraction procedure, partitioning in aqueous and dichloromethane phases and HPLC or TLC analysis. Details are given in Tables 17 for hay, 18 for straw and 19 for grain.

Table 17. Characterisation and identification of radioactive residues in hay after treatment of wheat plants with [trifluoromethyl-phenyl-UL-^{14}C]-trifloxystrobin (Report no. MR-027/02).

Compound or fraction	Description	Occurrence	%	mg/kg
Total identified (parent isomers, metabolites and aglycones)			(80.7)	(4.19)
Total trifloxystrobin isomers			(43.5)	(2.26)
CGA357261	Z,E-isomer	D, M	6.7	0.35
trifloxystrobin	E,E-isomer	D, M	31.1	1.61
CGA357262	Z,Z-isomer	D	2.0	0.11
CGA331409	E,Z-isomer	D	3.8	0.20
Other identified metabolites			(10.3)	(0.54)
CGA321113	carboxylic acid	D	1.6	0.08
CGA373466	carboxylic acid	D	0.3	0.02
NOA414412	CF_3-ring-OH-carboxylic acid	D	2.1	0.11
NOA443152	hydroxycarboxylic acid	D	1.8	0.09
BO172741 (isomer of NOA443152)	hydroxycarboxylic acid	D	0.9	0.04
NOA413163	dicarboxylic acid	A	3.7	0.19
NOA413161	dicarboxylic acid	A	n.d.	n.d.
Identified aglycones of the following conjugates			(26.8)	(1.39)
conjugate 1 of NOA414412	CF_3-ring-OH-carboxylic acid	A	3.5	0.18
conjugate 2 of NOA414412	CF_3-ring-OH-carboxylic acid	A	5.3	0.28
conjugate 1 of NOA443152	hydroxycarboxylic acid	A	8.1	0.42
conjugate 2 of NOA443152	hydroxycarboxylic acid	A	0.9	0.05
conjugate 1 of BO172741	hydroxycarboxylic acid	A	4.5	0.23
conjugate 2 of BO172741	hydroxycarboxylic acid	A	3.7	0.19
conjugate of BO172631	hydroxynitrile	M	0.3	0.02
conjugate of BO172323	hydroxynitrile	M	0.6	0.03
Subtotals characterised by extraction procedure, partitioning and HPLC			(17.2)	(0.89)
regions 1, 2, 4, 6 and 10 (each ≤0.07 mg/kg)		D	4.3	0.22
regions 1-5, 7, 12, 14 and 15 (each ≤0.09 mg/kg)		A	9.7	0.50
regions 3-6 (each ≤0.09 mg/kg)		M	3.2	0.17
Total extracted			97.9	5.09
Solids 2 (unextracted residue)			2.1	0.11
Total residue			100.0	5.20

A: aqueous phase
D: dichloromethane phase
M: microwave extract

Table 18. Characterisation and identification of radioactive residues in straw after treatment of wheat plants with [trifluoromethyl-phenyl-UL-^{14}C]-trifloxystrobin (Report no. MR-027/02).

Compound or fraction	Description	Occurrence	%	mg/kg
Total identified (parent isomers, metabolites and aglycones)			(67.1)	(4.11)
Total trifloxystrobin isomers			(25.5)	(1.56)
CGA357261	Z,E-isomer	D, M	5.3	0.32
trifloxystrobin	E,E-isomer	D, M	14.3	0.88
CGA357262	Z,Z-isomer	D	2.4	0.14

Compound or fraction	Description	Occurrence	%	mg/kg
CGA331409	E,Z-isomer	D	3.6	0.22
Other identified metabolites			(34.1)	(2.09)
CGA321113	carboxylic acid	D	4.2	0.26
CGA373466	carboxylic acid	D	1.8	0.11
NOA414412	CF_3-ring-OH-carboxylic acid	D, A	7.0	0.43
NOA443152	hydroxycarboxylic acid	D, A	6.5	0.40
BO172741 (isomer of NOA443152)	hydroxycarboxylic acid	D, A	4.1	0.25
BO172631	hydroxycyano compound	D	1.0	0.06
BO172323	hydroxycyano compound	D	0.9	0.05
BO17372	CF_3-ring-OH	A	0.9	0.06
NOA413163	dicarboxylic acid	A	5.8	0.35
NOA413161	dicarboxylic acid	A	1.8	0.11
Identified aglycones of the following conjugates			(7.6)	(0.46)
conjugate 1 of NOA414412	CF_3-ring-OH-carboxylic acid	A	0.5	0.03
conjugate 2 of NOA414412	CF_3-ring-OH-carboxylic acid	A	0.7	0.04
conjugate 1 of NOA443152	hydroxycarboxylic acid	A	2.2	0.14
conjugate 2 of NOA443152	hydroxycarboxylic acid	A	0.7	0.04
conjugate 1 of BO172741	hydroxycarboxylic acid	A	1.1	0.07
conjugate of BO172631	hydroxycyano compound	M	1.3	0.08
conjugate of BO172323	hydroxycyano compound	M	1.1	0.07
Subtotals characterised by extraction procedure, partitioning and HPLC			(23.9)	(1.46)
regions 1-8, 10, 11, 14, 18, 20, 21 (each ≤0.04 mg/kg)		D	4.3	0.26
regions 1-10, 13, 15, 21 and 23 (each ≤0.07 mg/kg)		A	6.0	0.37
regions 1-3, 5, 7-12 (each ≤0.23 mg/kg)		M	13.5	0.83
Total extracted			91	5.58
Solids 2 (unextracted residue)			9.0	0.55
Total residue			100	6.13

A: aqueous phase
D: dichloromethane phase
M: microwave extract

Table 19. Characterisation and identification of radioactive residues in grain after treatment of wheat plants with [trifluoromethyl-phenyl-UL-^{14}C]-trifloxystrobin (Report no. MR-027/02).

Compound or fraction	Description	Occurrence	%	mg/kg
Total identified (parent isomers, metabolites and aglycones)			(61.4)	(0.074)
Total trifloxystrobin isomers			(39.7)	(0.048)
CGA357261	Z,E-isomer	D, A1	8.0	0.010
Trifloxystrobin	E,E-isomer	D, A1	19.6	0.024
CGA357262	Z,Z-isomer	D, A1	6.3	0.008
CGA331409	E,Z-isomer	D, A1	5.8	0.007
Other identified metabolites			(21.7)	(0.026)
CGA321113	carboxylic acid	D	2.6	0.003
CGA373466	carboxylic acid	D	1.2	0.001
NOA414412	CF_3-ring-OH-carboxylic acid	D	5.2	0.006
NOA443152	hydroxycarboxylic acid	D	4.6	0.006

Compound or fraction	Description	Occurrence	%	mg/kg
BO172741 (isomer of NOA443152)	hydroxycarboxylic acid	D	1.5	0.002
NOA413163	dicarboxylic acid	A1	2.9	0.004
NOA413161	dicarboxylic acid	A1	0.3	<0.001
glucoside of NOA443152	hydroxycarboxylic acid	A1	3.4	0.004
Subtotals characterised by extraction procedure, enzymatic hydrolysis, acidic hydrolysis, partitioning and HPLC or TLC			(26.9)	(0.032)
regions 1-3 (each ≤0.003 mg/kg)		A1	5.5	0.007
regions 1-4 (each ≤0.007 mg/kg)		T	10.5	0.013
aqueous phase 2, polar radioactivity		A2	10.9	0.013
Total extracted			88.3	0.106
Solids 2 (unextracted residue)			11.7	0.014
Total residue			100	0.12

A1, A2: aqueous phase
D: dichloromethane phase
T: toluene phase

Significant amounts of the parent compound (E,E-isomer) were isomerized. A main metabolic reaction in spring wheat was the hydrolysis of the parent methyl ester. Hydroxylation of the ethylidene methyl group and the 1,3-disubstituted trifluoromethyl ring at the meta-position was also important. Significant amounts of the hydroxylated metabolites were also detected as sugar conjugates. The methyl group was partly oxidised to carboxy. A hydroxylated iminomethyl group was also present in two minor metabolites (isomers) in hay and straw.

Report no. MR-028/02 (Reiner and Bongartz, 2002). This was identical to the previous study, except that [glyoxyl-phenyl-UL-14C]-trifloxystrobin was used.

The TRR in hay amounted to 5.98 mg/kg expressed as parent compound; 94.1% of the TRR was extracted with acetonitrile/water and partitioned into dichloromethane and aqueous phases, and a further 4.5% was in the microwave extract.

The TRR in straw amounted to 6.12 mg/kg, of which 76.3% was extracted with acetonitrile/water and 16.9% by microwave extraction.

The TRR in grain was 0.262 mg/kg and 76.5% was extracted with acetonitrile/water. Solids 1 (23.5%, 0.061 mg/kg) when treated with diastase yielded 17.0% of soluble residue, with only 0.017 mg/kg of the TRR remaining unextracted in solids 2. The results are summarized in Table 20.

Table 20. Total residues in plant parts of spring wheat at various time intervals after two applications of [glyoxyl-phenyl-UL-^{14}C]-trifloxystrobin (Report no. MR-028/02).

	hay		straw		grain	
Fraction (50 g of sample extracted)	%	mg/kg	%	mg/kg	%	mg/kg
dichloromethane phase	54.1	3.24	50.0	3.06	16.3	0.043
aqueous phase (1)	40.0	2.39	26.3	1.61	60.2	0.158
(solids 1, further extracted)	(5.9)	(0.35)	(23.7)	(1.45)	(23.5)	(0.061)
microwave extract	4.5	0.27	16.9	1.03	n.a.	n.a.
diastase extract (further hydrolysed)	n.a.	n.a.	n.a.	n.a.	(17.0)	(0.044)
ethyl acetate phase	n.a.	n.a.	n.a.	n.a.	14.0	0.037
aqueous phase 2	n.a.	n.a.	n.a.	n.a.	3.0	0.008
solids 2 (unextracted residue)	1.4	0.08	6.8	0.42	6.5	0.017
Total radioactive residue (TRR)	100	5.98	100	6.12	100	0.262

n.a. not analysed

The four parent isomers accounted for 53.1% (3.18 mg/kg) of the TRR in hay, 29.3% (1.79 mg/kg) in straw and 17.9% (0.047 mg/kg) in grain. In total, 85.9% (5.13 mg/kg) of the TRR was identified in hay, 70.4% (4.31 mg/kg) in straw and 48.2% (0.126 mg/kg) in grain. The remaining extracted radioactivity was characterised as above. Details are given in Tables 21, 22 and 23.

The metabolites found in the experiment with CF_3-phenyl-labelled material were also identified in this study. It was also seen that, after cleavage between the rings, the glyoxylphenyl moiety was intensively degraded and the oxidation product phthalic acid was formed in significant amounts. The anticipated precursor (*o*-cyanobenzoic acid) was also identified. A derivative of phthalic acid was tentatively identified as a cyclic keto-alcohol.

Table 21. Characterisation and identification of radioactive residues in hay after treatment of wheat plants with [glyoxyl-phenyl-UL-^{14}C]-trifloxystrobin (Report no. MR-028/02).

Compound or fraction	Description	Occurrence	%	mg/kg
Totals identified (parent isomers, metabolites and aglycones)			(85.9)	(5.13)
Total trifloxystrobin isomers			(53.1)	(3.18)
CGA357261	Z,E-isomer	D, M	7.1	0.42
CGA279202	E,E-isomer	D, M	40.3	2.41
CGA357262	Z,Z-isomer	D, M	2.2	0.13
CGA331409	E,Z-isomer	D, M	3.6	0.21
Other identified metabolites			(8.9)	(0.53)
CGA321113	carboxylic acid	D	1.3	0.08
CGA373466	carboxylic acid	D	0.2	0.01
NOA414412	CF_3-ring-OH-carboxylic acid	D	0.7	0.04
NOA443152	hydroxycarboxylic acid	D	0.5	0.03
NOA413163	dicarboxylic acid	A	4.0	0.24
FHW0115C	cyanobenzoic acid	A, M	1.4	0.09
FHW0115D (CGA367619)	phthalic acid	A	0.7	0.04
Tentatively identified metabolite			(0.1)	(0.01)
SA04271	cyclic keto-alcohol	M	0.1	0.01
Identified aglycones of the following conjugates			(23.7)	(1.42)
conjugate 1 of NOA414412	CF_3-ring-OH-carboxylic acid	A	2.1	0.13
conjugate 2 of NOA414412	CF_3-ring-OH-carboxylic acid	A	6.8	0.40
conjugate 1 of NOA443152	hydroxycarboxylic acid	A	7.2	0.43
conjugate 2 of NOA443152	hydroxycarboxylic acid	A	1.2	0.07
conjugate 1 of BO172741	hydroxycarboxylic acid	A	3.7	0.22
conjugate 2 of BO172741	hydroxycarboxylic acid	A	2.5	0.15
conjugate of BO172631	hydroxycyano compound	M	0.1	0.00
conjugate of BO172323	hydroxycyano compound	M	0.2	0.01
Subtotals characterised (by extraction procedure, partitioning, LC-MS and HPLC)			(12.7)	(0.76)
SA04273	metabolite of polar group	A	1.6	0.10
regions 1 and 6 (each ≤0.02 mg/kg)		D	0.5	0.03
regions 1, 2, 4, 6, 8-13, 15, 21 and 22 (each ≤0.09 mg/kg)		A	9.1	0.54
regions 2-5, 7 and 10-13 (each ≤0.02 mg/kg)		M	1.5	0.09
Total extracted			98.6	5.89
Solids 2 (unextracted residue)			1.4	0.08
Total residue			100	5.98

A: aqueous phase
D: dichloromethane phase
M: microwave extract

Table 22. Characterisation and identification of radioactive residues in straw after treatment of wheat plants with [glyoxyl-phenyl-UL-^{14}C]-trifloxystrobin (Report no. MR-028/02).

Compound or fraction	Description	Occurrence	%	mg/kg
Totals identified (parent isomers, metabolites and aglycones)			(70.4)	(4.31)
Total trifloxystrobin isomers			(29.3)	(1.79)
CGA357261	Z,E-isomer	D, M	5.3	0.33
CGA279202	E,E-isomer	D, M	18.6	1.14
CGA357262	Z,Z-isomer	D	2.3	0.14
CGA331409	E,Z-isomer	D	3.1	0.19
Other identified metabolites			(33.5)	(2.05)
CGA321113	carboxylic acid	D	3.8	0.23
CGA373466	carboxylic acid	D	2.0	0.12
NOA414412	CF_3-ring-OH-carboxylic acid	D, A	6.5	0.40
NOA443152	hydroxycarboxylic acid	D, A	5.9	0.36
BO172741 (isomer of NOA443152)	hydroxycarboxylic acid	D, A	3.5	0.21
BO172631	hydroxycyano compound	D	0.7	0.04
BO172323	hydroxycyano compound	D	0.5	0.03
NOA413163	dicarboxylic acid	A	5.0	0.31
NOA413161	dicarboxylic acid	A	1.4	0.08
FHW0115C	cyanobenzoic acid	A, M	3.0	0.18
FHW0115D (CGA367619)	phthalic acid	A, M	1.2	0.07
Tentatively identified metabolite			(1.5)	(0.09)
SA04271	cyclic keto alcohol	A, M	1.5	0.09
Identified aglycones of the following conjugates			(6.1)	(0.37)
conjugate 1 of NOA414412	CF_3-ring-OH-carboxylic acid	A	0.3	0.02
conjugate 2 of NOA414412	CF_3-ring-OH-carboxylic acid	A	0.5	0.03
conjugate 1 of NOA443152	hydroxycarboxylic acid	A	2.0	0.12
conjugate 2 of NOA443152	hydroxycarboxylic acid	A	0.3	0.02
conjugate 1 of BO172741	hydroxycarboxylic acid	A	1.2	0.07
conjugate of BO172631	hydroxycyano compound	M	0.9	0.06
conjugate of BO172323	hydroxycyano compound	M	0.9	0.05
Subtotals characterised by extraction procedure, partitioning and HPLC			(22.8)	(1.39)
SA04273	metabolite of polar group	A, M	3.8	0.23
regions 1-3, 5, 8, 12, 14 and 15 (each ≤0.04 mg/kg)		D	2.7	0.16
regions 1-3, 5, 8, 9, 13, 14, 20, 21, 23 (each ≤0.13 mg/kg)		A	7.6	0.46
regions 4, 5, 9-13 (each ≤0.16 mg/kg)		M	8.7	0.53
Total extracted			93.2	5.70
Solids 2 (unextracted residue)			6.8	0.42
Total residue			100	6.12

A1, A2: aqueous phases
D: dichloromethane phase
M: microwave extract

Table 23. Characterisation and identification of radioactive residues in grain after treatment of wheat plants with [glyoxyl-phenyl-UL-^{14}C]-trifloxystrobin (Report no. MR-028/02).

Compound or fraction	Description	Occurrence	%	mg/kg
Total identified (parent isomers, metabolites and aglycones)			(48.2)	(0.126)
Total trifloxystrobin isomers			(17.9)	(0.047)
CGA357261	Z,E-isomer	D, A1	2.9	0.008
CGA279202	E,E-isomer	D, A1	11.1	0.029
CGA357262	Z,Z-isomer	D, A1	1.8	0.005
CGA331409	E,Z-isomer	D, A1	2.1	0.005
Other identified metabolites			(19.2)	(0.05)
CGA321113	carboxylic acid	D	1.7	0.005
CGA373466	carboxylic acid	D	0.9	0.002
NOA414412	CF_3-ring-OH-carboxylic acid	D	2.4	0.006
NOA443152	hydroxycarboxylic acid	D	1.9	0.005
NOA413163	dicarboxylic acid	A1	1.8	0.005
NOA413161	dicarboxylic acid	A1	0.3	0.001
glucoside of NOA443152	hydroxycarboxylic acid	A1	3.4	0.009
FHW0115C	cyanobenzoic acid	A1	3.6	0.009
FHW0115D (CGA367619)	phthalic acid	A1	3.1	0.008
Tentatively identified metabolites			(11.1)	(0.029)
SA04271	cyclic keto-alcohol	A1	9.6	0.025
SA04273	metabolite of polar group	A1	5.0	0.013
SA04275	instable phthalic acid conjugate	A1	1.5	0.004
Subtotals characterised (by extraction procedure, enzymatic hydrolysis, acidic hydrolysis, partitioning and HPLC or TLC)			(45.3)	(0.119)
regions 1 and 6 (each ≤0.005 mg/kg)		D	2.4	0.006
regions 1-5, 7, 10, 11 and 12 (each ≤0.019 mg/kg)		A1	21.0	0.055
regions 1 and 2 (each ≤0.019 mg/kg)		EA	14.0	0.037
aqueous phase 2, polar radioactivity		A2	3.0	0.008
Total extracted			93.5	0.245
Solids 2 (unextracted residue)			6.5	0.017
Total residue			100.0	0.262

A: aqueous phase
D: dichloromethane phase
EA: ethyl acetate phase

Sugar beet

Report nos. 99MK09 and 99MK10 (Kiffe, 2000). Sugar beets were treated three times at three-week intervals with trifluoromethylphenyl- or glyoxylphenyl-labelled trifloxystrobin formulated as EC 125 at a rate of 130 or 141 g ai/ha for the first, 137 or 132 g ai/ha for the second and 128 or 127 g ai/ha for the third application (in total 395 or 400 g ai/ha, the recommended rate). Applications were started at growth stage BBCH 39 (crop cover complete: leaves cover 90% of ground).

Whole plants were collected 1 hour after the first application, 1 hour after the second application, and 1 hour, 21 and 45 days after the last application. Soil samples were also collected at these times.

To generate higher plant residues for characterization and identification, beets were treated three times with the two labelled formulations at a rate of 692 or 830 g ai/ha for the first, 693 or 691 g ai/ha for the second and 768 or 683 g ai/ha for the third application (in total 2153 or 2204 g ai/ha, approximately a 5.5-fold rate) at three-week intervals again starting at growth stage BBCH 39. Whole plants were collected 21 and 45 days after the last application. Soil samples were also collected at the last sampling.

Collected samples were separated into tops and roots, homogenized and extracted first at room temperature five times with acetonitrile/water (8:2), and then in a microwave extractor with n-propanol/water at 120-150°C. Solid samples before and after extraction were combusted to determine the total and unextractable radioactivity by LSC.

Combined extracts were analyzed by three different TLC systems and HPLC. Characterisation and identification of metabolites was based on mass and 1H-NMR spectrometry as well as co-chromatography with reference compounds.

At the low application rates, total radioactive residues 21 days after the last application were 1.52 and 1.4 mg/kg in tops, 0.038 and 0.113 mg/kg in roots and 0.106 and 0.098 mg/kg in the top soil layer (0-10 cm). At harvest 45 days after the last application, total radioactive residues accounted for 0.453 and 0.73 mg/kg in tops, 0.021 and 0.025 mg/kg in roots and 0.162 and 0.13 mg/kg in the 0-10 cm soil layer.

Trifloxystrobin could be detected in all plant parts as well as in soil. Unextractable radioactivity from the trifluoromethylphenyl label after cold and microwave extraction accounted for 3.7% and 2.2% of the total radioactive residues in tops, 11.6% and 10.6% in roots and 9.2% and 14.3% in soil 21 days and 45 days after the last application respectively. The corresponding figures from the glyoxylphenyl label were 3.9 and 4.7% in tops, 12.2 and 3.5% in roots, and 13.7 and 16.6% in soil.

The results of the overdose experiments reflected the higher application rates. Total radioactive residues 21 days after the last application were 10.1 and 7.13 mg/kg in tops and 0.55 and 0.34 mg/kg in roots. At harvest 45 days after the last application, the TRRs were 4.16 and 7.76 mg/kg in tops, 0.48 and 0.49 mg/kg in roots and 0.92 and 0.46 mg/kg in the 0-10 cm soil layer . Unchanged trifloxystrobin was detected in plant parts and in soil.

The metabolic patterns from the trifluoromethylphenyl label in tops and roots were identical at both application rates. Metabolite fraction II_{25} was identified as trifloxystrobin and its isomer CGA331409. The minor metabolites II_{24}, II_{24b}, II_{23a} and II_{22} were identified as CGA321113, CGA373466, NOA443152 and NOA414412 respectively, by silica gel TLC and/or reversed-phase HPLC co-chromatography with reference standards. NOA443152 and NOA414412 were also found as glucose conjugates (metabolites II_{11} is the glucose conjugate of NOA443152, metabolite II_{10} is the glucose conjugate of NOA414412). Metabolite II_{9b} was identified as the glucose conjugate of II_{21a}.

The main compounds found in the tops and roots were trifloxystrobin and its *E,Z*- and *Z,Z*-isomers. They accounted for up to 68.9% (1.045 mg/kg) in tops and 51.5% (0.02 mg/kg) of the TRR in roots. CGA321113 was found to a lower extent in the roots and tops (up to 8.7% of the TRR, equivalent to 0.003 mg/kg, and up to 2.7% equivalent to 0.041 mg/kg respectively).

On the basis of the structures identified, the metabolism of trifloxystrobin in sugar beets appears to proceed via several routes:

- Cis/trans isomerization of the parent compound.
- Ester hydrolysis to CGA321113 followed by cis/trans isomerization to CGA373466.
- Hydroxylation of the trifluoromethylphenyl ring to NOA414412 or its isomer with subsequent sugar conjugation to form metabolite II_{10} or II_{9b}.
- Oxidation at the ethylidene methyl group to NOA443152 with subsequent sugar conjugation.

- Formation of unextracted residues.

Peanuts

Report No. ABR-97084 (Rezaaiyan, 1997). The metabolism of trifloxystrobin in peanuts was investigated following four spray applications at four-week intervals of 560 g ai/ha labelled trifloxystrobin giving a seasonal maximum rate of 2240 g ai/ha. Two plots were treated, one with [trifluoromethyl-UL-^{14}C]-trifloxystrobin, and one with [glyoxyl-phenyl-UL-^{14}C]-trifloxystrobin.

Immature vines were collected on day 0 after the 1st application and 14 days after the 2nd application. Mature plants were harvested 14 days after 4th application. Soil samples were taken before and directly after the 1st application and at harvest, 14 days after the 4th application.

Mature plants were separated into hay, hulls (shells) and kernels (peanuts) and homogenised frozen. Samples were extracted at room temperature with hexane followed by acetonitrile/water (8:2). ACN/H_2O extracts were further separated by partitioning with water and dichloromethane.

Radioactivity was measured in solid samples by LSC after combustion, and in extracts after separation by various TLC and HPLC systems. Characterisation, identification and structure elucidation of metabolites was by co-chromatography with reference standards LC/MS/MS and 1H-NMR spectrometry. Unextracted residues were characterised by hydrolysis with NaOH or HCl and enzymatic cleavage with lipase, protease or cellulase.

The total radioactive residues after the 1st application were 20.7 mg/kg and 24.9 mg/kg in glyoxyl-phenyl- and CF_3-phenyl-treated vines respectively. Residue levels decreased rapidly with plant growth and were only 7.7 mg/kg and 9.1 mg/kg 14 days after the 2nd application. Radioactive residues in mature hay amounted to 26.3 mg/kg and 27.9 mg/kg 14 days after the 4th application. In mature hulls residue levels were 1.08 mg/kg and 1.15 mg/kg from the glyoxyl-phenyl and CF_3-phenyl labels, and in mature peanuts 0.305 mg/kg and 0.18 mg/kg.

In the 0-10 cm soil layer total radioactive residues directly after the 1st application amounted to 0.22 mg/kg and 0.24 mg/kg. Residues increased only slightly with the number of applications and accounted for 0.34 and 0.37 mg/kg 14 days after the 4th treatment. Most of the radioactive residues in soil samples collected 14 days after the last application could be extracted (60.5% and 70.7% of the TRR). The main component of the extractable residues was the mono-acid CGA321113. CGA373466 and CGA357276 and the parent compound were also identified.

In the immature vines the extractable radioactive residues amounted to 86.3 and 90.9% of the TRR for the glyoxyl-phenyl and CF_3-phenyl labels respectively, in mature hay 67.7 and 74.1% respectively, and in mature kernels 52.6 and 51.6%. Unextractable radioactivity after extraction with acetonitrile/water amounted to 9.9 and 10.7% of the TRR in immature vines, 30.4 and 24.3% in mature hay and 55.4 and 53.2% in mature kernels (Table 24).

Table 24. Distribution of radioactivity in peanuts after treatment with [trifluoromethyl-phenyl-(U)-^{14}C]- and [glyoxyl-phenyl-(U)-^{14}C]-trifloxystrobin (Report no. ABR-97084).

Fraction	Radio-label	Vines (day 0)[1]	Vines (immature)[2]		Hay (mature)[3]		Hull (mature)[3]	Kernels (mature)[3]	
		mg/kg[4]	% of TRR	mg/kg[4]	% of TRR	mg/kg[4]	mg/kg[4]	% of TRR	mg/kg[4]
acetonitrile/ water extract	A B	n.a.	90.89 86.25	7.030 7.860	67.68 74.09	17.827 20.686	n.a.	26.99 20.66	0.074 0.034
organosoluble of ACN/H_2O	A B	n.a.	56.45 66.89	4.366 6.097	42.42 55.35	11.174 15.455	n.a.	4.70 12.53	0.013 0.021

Fraction	Radio-label	Vines (day 0)[1]	Vines (immature)[2]		Hay (mature)[3]		Hull (mature)[3]	Kernels (mature)[3]	
		mg/kg[4]	% of TRR	mg/kg[4]	% of TRR	mg/kg[4]	mg/kg[4]	% of TRR	mg/kg[4]
water-soluble of ACN/H_2O	A	n.a.	26.05	2.014	21.01	5.534	n.a.	22.35	0.061
	B		17.89	1.630	16.84	4.701		7.45	0.012
hexane extract	A	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	25.63	0.070
	B							30.89	0.051
unextracted residue	A	n.a.	10.65	0.823	30.40	8.007	n.a.	55.36	0.152
	B		9.91	0.903	24.32	6.790		53.17	0.098
Total (TRR)	A	20.742	101.54	7.734	98.08	26.340	1.148	107.98	0.305
	B	24.899	96.16	9.114	98.41	24.899	1.081	104.72	0.184

A: glyoxyl-phenyl
B: trifluoromethyl-phenyl
n.a. not analysed
[1] directly after 1st application
[2] 14 days after 2nd application
[3] 14 days after 4th application
[4] ^{14}C expressed as trifloxystrobin

Metabolite patterns in the organosoluble fractions of the acetonitrile/water extracts from immature vines and mature hay were very similar for both labels. No metabolites resulting from the cleavage of the N-O bridge between the rings were detected in reasonable amounts. The major compounds were identified as parent trifloxystrobin, its isomers CGA357261, CGA357262 and CGA331409, and the mono-acid metabolites CGA321113 and CGA373466.

Metabolic profiles in the water-soluble fraction were similar for immature vines, mature hay and mature kernels. However, significant differences between the radiolabels were observed, indicating a cleavage of the N-O bond between the aromatic ring systems and the formation of label-specific metabolites. The major water-soluble metabolites in mature hay and immature vines were present mainly as malonyl sugar and sugar conjugates. They were identified as conjugates of CGA321113, CGA300624 (oxime of CF_3-methylphenyl moiety), CGA347242 (acid of glyoxyl phenyl moiety), CGA107170 (trifluoromethylacetophenone), CGA328365 (1-[3-(trifluoromethyl)phenyl]ethanol) and CGA55641 (trifluoromethylbenzoic acid).

In kernels only trifloxystrobin, CGA321113 and CGA373466 were identified in the organosoluble fraction. In the aqueous phase label-specific metabolites of the glyoxyl moiety were identified in the organosoluble fraction, resulting from cleavage between the rings. They were phthalic acid (CGA367619), a sugar conjugate of CGA347242 which is the glyoxyl moiety of the acid CGA321113, and F2b2-3a&b(A2), the methyl ester of CGA373463. The residue in the hexane fraction from mature kernels was shown to be composed of radiolabelled triglycerides.

Unextracted residues were solubilised by hot extraction and sequential hydrolyses with cellulase, protease, HCl and NaOH. Residues released by these procedures were identified as trifloxystrobin and its isomers CGA357261, CGA357262 and CGA331409, and the carboxylic acid metabolites CGA321113 and CGA373466. Radioactive residues remaining unextractable even under exhaustive conditions were <10% of the TRR in all samples. Detailed metabolic profiles from both radiolabels in immature vines (14 days after 2nd application), mature hay (harvested 14 days after 4th application) and mature kernels are shown in Tables 25, 26 and 27.

Table 25. Characterisation and identification of radioactive residues in immature vines after treatment of peanut plants with [trifluoromethyl-phenyl-UL-^{14}C]- and [glyoxyl-phenyl-UL-^{14}C]trifloxystrobin (Report no. ABR-97084).

Compound or fraction	glyoxyl-phenyl		CF_3-phenyl	
	% of TRR	mg/kg	% of TRR	mg/kg
Extractable radioactive residues	90.89	7.030	86.25	7.860
Total trifloxystrobin isomers	41.04	3.174	47.29	4.31
CGA279202 (*E,E*- isomer)	32.40	2.506	38.60	3.518
CGA357261 (*Z,E*- isomer)	2.94	0.227	2.94	0.268
CGA357262 (*Z,Z*- isomer)	2.48	0.192	2.41	0.219
CGA331409 (*E,Z*- isomer)	3.22	0.249	3.34	0.305
CGA321113 (*E,E* carboxylic acid)	1.35	0.105	2.04	0.185
CGA373466 (*Z,E* carboxylic acid)	n.d.	n.d.	0.33	0.030
hydroxy CGA321113 (hydroxylated on CF_3-phenyl ring or ethylidene methyl group)	n.d.	n.d.	1.49	0.135
CGA321113 malonyl glucose conjugate	11.63	0.899	15.19	1.384
CGA321113 sugar conjugate	1.52	0.117	0.15	0.014
CGA328365 malonyl glucose conjugate			1.25	0.114
CGA300624 malonyl glucose conjugate			0.40	0.036
CGA367619 (phthalic acid, Fb2-4b)	1.42	0.110		
F2b2-3a&b(A2) (methyl ester of CGA373463)	1.14	0.088		
CGA347242 glucose conjugate (carboxylic acid of glyoxyl moiety)	6.36	0.492		
WFX-IX-86 (1,2-benzisoxazole-3-carboxylic acid)	1.54	0.119		
TFA (trifluoroacetic acid)			0.28	0.025
CGA107170-glucose conjugate			0.95	0.087
CGA55641-glucose conjugate			1.47	0.135
Unextracted[a] radioactive residues	10.65	0.823	9.91	0.903
CGA279202 (E,E-isomer)	0.81	0.062	0.90	0.082
CGA357261 (Z,E-isomer)	0.24	0.018	0.21	0.020
CGA357262 (Z,Z-isomer)	0.22	0.017	0.25	0.022
CGA331409 (E,Z-isomer)	0.27	0.021	0.27	0.024
CGA321113 (carboxylic acid)	0.42	0.033	0.41	0.037
CGA373466 (carboxylic acid)	0.24	0.019	0.17	0.015
CGA373465 (carboxylic acid)	0.07	0.005	0.06	0.005
CGA367619 (phthalic acid, Fb2-4b)	0.14	0.011		
F2b2-3a&b(A2) (methyl ester of CGA373463)	0.14	0.011		
CGA300624 malonyl glucose conjugate	0.40	0.031		
Total identified residues (extractable)	66.22	5.104	70.84	6.455
Total identified residues (unextracted)	2.95	0.228	2.27	0.205
Total identified	68.94	5.332	73.11	6.66

n.d.: not detected

[a] residues released by hydrolysis and/or enzymatic cleavage

Table 26. Characterisation and identification of radioactive residues in mature hay after treatment of peanut plants with [trifluoromethyl-phenyl-UL-^{14}C]- and [glyoxyl-phenyl-UL-^{14}C]trifloxystrobin (Report no. ABR-97084).

Compound or fraction	glyoxyl-phenyl		CF_3-phenyl	
	% of TRR	mg/kg	% of TRR	mg/kg
Extractable radioactive residues	67.68	17.827	74.09	20.686
Total trifloxystrobin isomers	35.18	9.263	51.48	14.374

Compound or fraction	glyoxyl-phenyl		CF_3-phenyl	
	% of TRR	mg/kg	% of TRR	mg/kg
CGA279202 (*E,E* -isomer)	29.02	7.643	43.51	12.148
CGA357261 (*Z,E* isomer)	2.21	0.581	2.66	0.742
CGA357262 (*Z,Z* isomer)	1.32	0.346	1.77	0.495
CGA331409 (*E,Z* isomer)	2.63	0.693	3.54	0.989
CGA321113 (*E,E* carboxylic acid)	3.14	0.827	3.87	1.082
CGA373466 (*Z,E* carboxylic acid)	1.65	0.436	0.55	0.155
hydroxy CGA321113 (hydroxylated on CF_3-phenyl ring or ethylidene methyl group)	0.47	0.123	1.82	0.510
CGA321113 malonyl glucose conjugate	4.86	1.279	1.62	0.453
CGA321113 sugar conjugate	0.07	0.019	n.d.	n.d.
CGA328365 malonyl glucose conjugate			2.48	0.692
CGA300624 malonyl glucose conjugate			n.d.	n.d.
CGA367619 (phthalic acid, Fb2-4b)	1.17	0.307		
F2b2-3a&b(A2) (methyl ester of CGA373463)	1.20	0.315		
CGA347242 glucose conjugate (carboxylic acid of glyoxyl moiety)	3.72	0.980		
WFX-IX-86 (1,2-benzisoxazole-3-carboxylic acid)	2.48	0.653		
TFA (trifluoroacetic acid)			0.78	0.217
CGA107170-glucose conjugate			1.87	0.522
CGA55641-glucose conjugate			3.00	0.838
Unextracted[a] radioactive residues	30.40	8.007	24.32	6.790
CGA279202 (E,E isomer)	0.30	0.079	3.00	0.837
CGA357261 (Z,E isomer)	n.d.	n.d.	0.50	0.139
CGA357262 (Z,Z isomer)	n.d.	n.d.	0.41	0.115
CGA331409 (E,Z isomer)	n.d.	n.d.	0.54	0.151
CGA321113 (*E,E* carboxylic acid)	0.09	0.024	1.22	0.341
CGA373466 (*Z,E* carboxylic acid)	n.d.	n.d.	0.20	0.057
CGA373465 (*E,E* carboxylic acid)	n.d.	n.d.	n.d.	n.d.
CGA367619 (phthalic acid, Fb2-4b)	1.51	0.398		
F2b2-3a&b(A2) (methyl ester of CGA373463)	n.d.	n.d.		
CGA347242 glucose conjugate	4.21	1.11		
Total identified residues (extractable)	53.94	14.202	67.47	18.843
Total identified residues (unextracted)	6.11	1.611	5.87	1.64
Total identified	60.05	15.813	73.34	20.483

n.d.: not detected

[a] *residues released by hydrolysis and/or enzymatic cleavage*

Table 27. Characterisation and identification of radioactive residues in mature kernels after treatment of peanut plants with [trifluoromethyl-phenyl-UL-^{14}C]- and [glyoxyl-phenyl-UL-^{14}C]-trifloxystrobin (Report no. ABR-97084).

Fraction	Identity	glyoxyl-phenyl		trifluoromethyl-phenyl	
		% of TRR	mg/kg	% of TRR	mg/kg
Extractable radioactive residues		52.63	0.144	51.55	0.085
hexane extract		25.63	0.070	30.89	0.051
	CGA357261 (Z,E isomer)	sum: 1.98	sum: 0.005	sum: 1.61	sum: 0.003
	CGA279202 (parent)				
	CGA357262 (Z,Z isomer)				
	CGA331409 (E,Z isomer)				

<table>
<tr><th rowspan="2">Fraction</th><th rowspan="2">Identity</th><th colspan="2">glyoxyl-phenyl</th><th colspan="2">trifluoromethyl-phenyl</th></tr>
<tr><th>% of TRR</th><th>mg/kg</th><th>% of TRR</th><th>mg/kg</th></tr>
<tr><td rowspan="3"></td><td>CGA321113 (E,E carboxylic acid)</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td></tr>
<tr><td>CGA373466 (E,E carboxylic acid)</td></tr>
<tr><td>^{14}C-triglycerides</td><td>23.65</td><td>0.065</td><td>29.28</td><td>0.048</td></tr>
<tr><td colspan="2">dichloromethane soluble phase of ACN/water extract</td><td>4.70</td><td>0.013</td><td>12.53</td><td>0.021</td></tr>
<tr><td rowspan="4"></td><td>CGA357261 (Z,E isomer)</td><td>n.d.</td><td>n.d.</td><td rowspan="2">sum: 2.31</td><td rowspan="2">sum: 0.004</td></tr>
<tr><td>CGA279202 (parent)</td><td rowspan="3">sum: 1.11</td><td rowspan="3">sum: 0.003</td></tr>
<tr><td>CGA321113 (E,E carboxylic acid)</td><td rowspan="2">sum: 2.04</td><td rowspan="2">sum: 0.003</td></tr>
<tr><td>CGA373466 (Z,E carboxylic acid)</td></tr>
<tr><td colspan="2">water-soluble phase of ACN/water extract</td><td>22.35</td><td>0.061</td><td>7.45</td><td>0.012</td></tr>
<tr><td rowspan="3"></td><td>F2b2-4b (phthalic acid)</td><td>5.97</td><td>0.016</td><td rowspan="3"></td><td rowspan="3"></td></tr>
<tr><td>F2b2-3a&b(A2)</td><td>3.35</td><td>0.009</td></tr>
<tr><td>CGA347242, gluc. conj.</td><td>8.80</td><td>0.024</td></tr>
<tr><td colspan="2">Total identified</td><td>44.87</td><td>0.123</td><td>35.24</td><td>0.058</td></tr>
</table>

n.d.: not detected

Summary - metabolism in plants

In wheat, the total radioactive residues (TRR) at harvest after CF_3-phenyl label treatment were 0.02-0.12 mg/kg parent equivalents for grain, 0.14 mg/kg for husk and 3.85-6.13 mg/kg for straw. Concentrations of the parent compound (EE-isomer) accounted for <0.001-0.024 mg/kg in grain, 0.001 mg/kg in husk and 0.050-0.88 mg/kg in straw. The TRR at harvest after glyoxyl-phenyl label treatment reached 0.099-0.262 mg/kg parent equivalents in grain, 0.78 mg/kg in husk and 5.48-6.12 mg/kg in straw. Parent (EE-isomer) concentrations in grain, husk and straw amounted to 0.001-0.029 mg/kg, 0.006 mg/kg and 0.121-1.14 mg/kg respectively. Differences between the TRR from the two labels were due to the timing of application and not owing to the label differences. In wheat the metabolite pattern was rather complex, owing to isomerization of the parent compound and its metabolites, and cleavage of the N-O bond between the two aromatic ring systems. In straw, up to 35 metabolite fractions were found, most of them at levels below 1% of the total radioactive residues. All major fractions were characterized or identified, the content and nature of the bound residues in grain and straw were also elucidated.

In apples and cucumbers metabolism was less significant and the parent EE isomer of tryfloxystrobin accounted for more than 80% of the total radioactivity. In sugar beet the main compounds found, with both labels, in the tops and roots were trifloxystrobin and its isomers (CGA331409 and CGA357262). They accounted for up to 68.9% of the TRR in tops and 51.5% in roots. CGA321113 was found to a lower extent in the roots and tops (respectively up to 10.8% of the TRR, equivalent to 0.012 mg/kg, and up to 5.2% equivalent to 0.073 mg/kg). In peanuts, many metabolite fractions containing only one moiety of the parent molecule were detected, generally similar to those found in wheat. Extensive formation of sugar and malonyl sugar conjugates was found with all metabolite fractions.

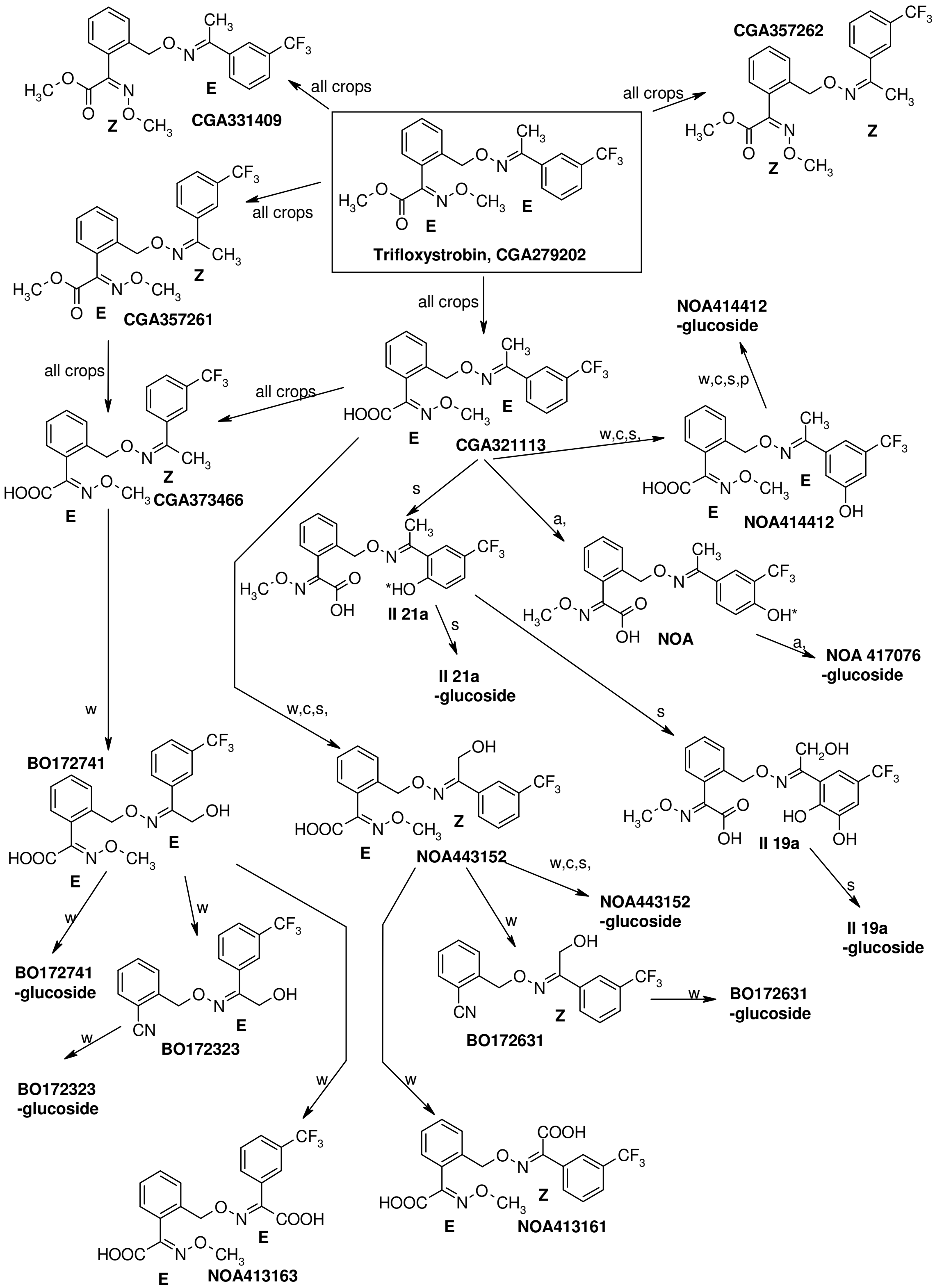
In general, the metabolism of trifloxystrobin in crops is complex owing to isomerization of the parent compound and its metabolites.Broadly, the metabolism of trifloxystrobin is similar in all crops examined:

- Cis/trans isomerization of the *E,E* isomer
- Hydrolysis of the methyl esters of the parent compound and its isomer EGA357261 to carboxylic acids CGA321113 and CGA373466
- Cis/trans isomerization of carboxylic acid CGA321113 to CGA373466
- Hydroxylation of the trifluoromethylphenyl ring, followed by sugar conjugation
- Methyl oxidation of the ethylideneaminooxy group with subsequent sugar conjugation

- Cleavage of the N-O bridge, followed by oxidation of the trifluoromethylphenyl moiety to form the acetophenone derivative and subsequent sugar conjugation
- Cleavage of the N-O bridge, followed by oxidation of the glyoxyl-phenyl moiety, eventually forming phthalic acid by alternative routes
- Formation of bound residues.

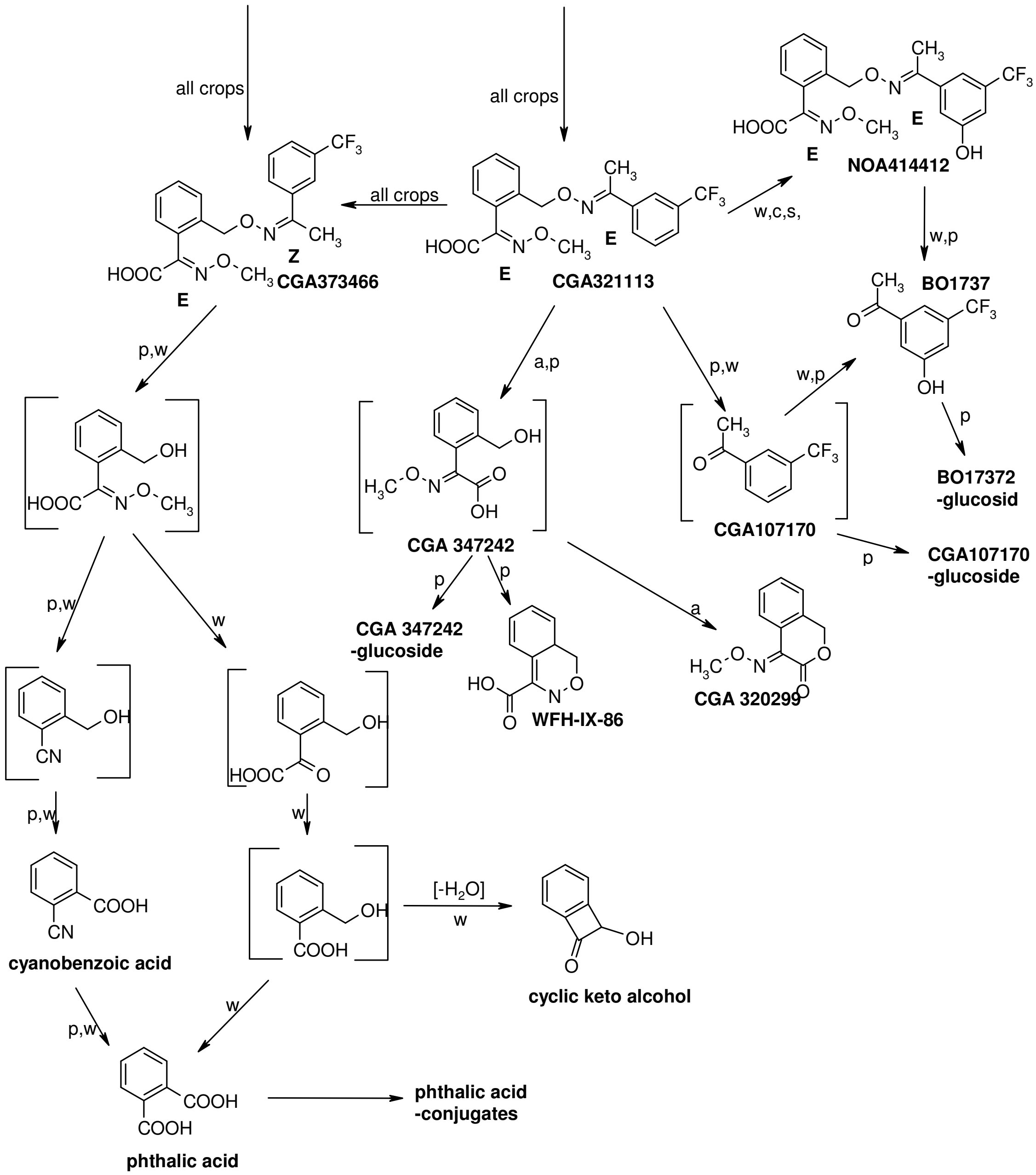
The proposed metabolic pathways for trifloxystrobin in plants are given in Figure 2.

Figure 2. Proposed metabolic pathways of trifloxystrobin in plants (Part 1).



a: apple; w: wheat; c: cucumber; s: sugar beet; p: peanuts

Figure 2. Proposed metabolic pathways of trifloxystrobin in plants (Part 2).



a: apple; w: wheat; c: cucumber; s: sugar beet; p: peanuts

Environmental fate

Because trifloxystrobin is used for foliar spray treatment and on paddy rice, only studies on hydrolysis and residue degradation in water-sediment systems and rotational crops were considered.

Hydrolysis

Report no. 94PK01 (Kitschmann, 1996). The hydrolysis of glyoxyl-phenyl-labelled trifloxystrobin was investigated in the dark at pH 1, 5, 7, 9 and 13 and temperatures of 25, 40 and 60°C at a concentration of 0.3 mg ai/l, which is half of the reported water-solubility. The test duration was variable depending on pH and temperature. At pH 5, 7 and 9 at 25°C it was 30 days. Aliquots of the test solutions were radioassayed by liquid scintillation counting. The ^{14}C balances at the different pH values were in the range of 95.3-104.0%. Determination of trifloxystrobin and its hydrolysis products was by TLC and HPLC. Mass spectrometry was used to confirm the identity of trifloxystrobin and major hydrolysis products.

Hydrolysis at pH 1, 5, 7 and 9 was described by pseudo first order reaction kinetics. Best-fit evaluation of the data was obtained by solving the 1st order kinetics equation $\ln(C) = \ln(C_0)-kt$ with a non-linear procedure. The half-lives of hydrolysis of trifloxystrobin at environmentally relevant temperatures are given in Table 28.

The main degradation product above pH 5 was identified as the acid CGA321113. Hydrolysis at pH 1 showed only one major degradation product, which was generated by cleavage of the bridge between the two aromatic rings. This was identified as CGA289565.

The half-lives of CGA321113 at pH 9 and 13 at 60°C were determined to be 742 and 452 days respectively. At environmentally relevant pH values CGA321113 would not be degraded by hydrolysis.

Table 28. Hydrolytic half-lives (first order kinetics) of glyoxyl-phenyl-labelled trifloxystrobin (Report no. 94PK01).

pH	non-linear evaluation (best fit):		linear evaluation:
	20°C (calculated)	25°C (experimental)	25°C (experimental)
1	3.9 days	2.2 days	
5	8.6 years	4.7 years	480 days
7	11.4 weeks	41.5 days	39-41 days
9	27.1 hours	15.0 hours	28.8 hours
13	<5 min (estimated)	<5 minutes	

Report no. 94UL04 (Ulbrich, 1997). In this study the hydrolysis of trifloxystrobin was investigated under identical conditions to Kitschmann, 1996, but using the CF_3-phenyl-labelled test substance.

Half-lives at environmentally relevant temperatures (Table 29) were comparable to those in the previous study. At pH >5 CGA321113 was again the major product. The half-lives of CGA321113 were determined by a pseudo first order kinetic model based on consecutive reactions at 60°C as 72.3 days, 85.7 days and 155.2 days at pH 7, 9 and 13 respectively. The values confirm that under environmental conditions CGA321113 will only be degraded very slowly by hydrolysis.

Hydrolysis at pH 1 showed one major degradation product, generated by cleavage of the bridge between the two aromatic rings and identified as CGA107170 (3-trifluoromethylacetophenone). The nitrile CGA357276 found at pH 9 and pH 13 at 60°C was formed by thermal elimination of CO_2 and methanol from CGA321113.

Table 29. Hydrolytic half-lives (first-order kinetics) of CF_3-phenyl-^{14}C trifloxystrobin (Report no. 94UL04).

pH	non-linear evaluation (best fit):		linear evaluation:
	20°C (calculated)	25°C (experimental)	25°C (experimental)
1	4.6 days	2.6 days	
5	4.7 years	2.7 years	>1000 days
7	10.7 weeks	40.0 days	40 days
9	26.4 hours	15.0 hours	55.2 days
13	est. <5 minutes	<5 minutes	

Report no. 97WI40 (Widmer, 1997). Measurements of vapour pressure were carried out with the trifloxystrobin acid metabolites CGA321113 (EE) and CGA373466 (ZE) by the gas-saturation method, in which a stream of nitrogen is passed over glass pearls covered with the test substance.

In all experiments at elevated temperatures (>50°C) the vapour pressure of the compounds could not be determined owing to thermal decomposition to nitriles which were identified in the cooling traps by HPLC co-chromatography with reference material CGA357276. It can therefore be concluded that the formation of the nitrile CGA357276 in hydrolysis experiments at 60°C was an artefact caused by thermal decomposition. CGA357276 would not be a hydrolysis product of CGA321113 under realistic environmental conditions.

The proposed degradation pathways of trifloxystrobin in water involving hydrolytic and biotic degradation are shown in Figure 3.

Degradation in water/sediment systems

Report no. 242.40 (Manuli and Jacobson, 2000). A study was conducted to evaluate the mobility and degradation of trifloxystrobin in water and soil when applied under field conditions to a paddy rice crop in Arkansas. Unlabelled trifloxystrobin was applied twice, with a 14-day interval, to a flooded rice crop at 190 g ai/ha per treatment.

Rice plants were 3-4 months old and the canopy covered about 60% of the soil/water surface. The soil at the test site was poorly drained and was characterised as a silty clay in the upper, clay in the middle and clay loam in the deeper soil layers. Soil characteristics are given in detail in Table 30. The water level in the treated plots was maintained at a depth of about 10-18 cm.

Water samples were taken one day before the first application and at intervals of a few days up to 30 days after the second application, when the rice crops were drained. Soil cores were collected on several days, before and after applications, up to 364 days. Soil was taken to a depth of 15 cm in the flooded field and up to 90 cm in the drained field.

Trifloxystrobin and the five degradation products CGA373466, CGA321113, CGA357261, CGA357262 and CGA331409 were determined in soil and water by LC-MS. The limit of quantification for all analytes was 0.1 µg/kg in water and 2 µg/kg in soil.

Table 30. Aquatic field dissipation study with trifloxystrobin: soil characterisation for soil depth 0-90 cm (Report no. 242.40).

Characteristics based on dry matter	Soil depth, cm			
	0-15	15-30	30-60	60-90
pH (KCl)	6.7	6.3	6.3	6.5
Organic matter (%)	1.9	1.2	1.2	0.4
CEC potl. (mmol/z/100g soil)	26.5	32.5	29.8	24.5
Clay (0-0.002 mm) (%)	42	56	54	40
Silt (0.002 - 0.05 mm) (%)	44	30	28	36
Sand (0.05 - 2.0 mm) (%)	14	14	18	24
Soil Texture (USDA)	silty clay	clay	clay	clay loam
Water holding capacity at 1/3 bar (%)	36.9	42.1	40.9	37.2
Water holding capacity at 15 bar (%)	22.7	28.8	27.8	21.9

Initial concentrations of trifloxystrobin in water samples collected immediately after the 1st and 2nd applications were 69.4 µg ai/l and 51.9 µg ai/l respectively. Taking into account the depth of the water layer (12.5 cm at the 1st application, 17.5 cm at the 2nd application) these values represent 51% and 54% of the theoretical concentration. In view of the canopy of about 60% it can be assumed that a similar quantity of the initially applied test substance remained on the rice foliage, so the initial recovery of test substance in the paddy water was considered adequate.

Water samples were analysed for the parent compound and its major degradation products found in soil degradation and hydrolysis studies which are the parent isomers CGA357261, CGA357262 and CGA331409, the mono-acid CGA321113, and its isomer CGA373466. Concentrations measured at different sampling dates after the 2nd application are given in Table 31.

Concentrations of trifloxystrobin in water decreased rapidly. Two days after the 2nd application only 2.84 µg/l, 5% of the initial concentration, and from day 5 only concentrations between 0.6 µg/l and the LOQ of 0.1 µg/l were found. Trifloxystrobin was predominantly degraded to CGA357261, CGA321113 and CGA373466. CGA321113 and CGA373466 were formed in major amounts. Maximum concentrations of both were reached 3 days after the last applications, with 56.1 µg/l CGA321113 and 13.9 µg/l CGA373466. CGA357261 was the only parent isomer which could be detected in the water layer, at concentrations ranging between the LOQ (0.10 µg/l) and 0.604 µg/l throughout the sampling period.

In soil in the upper layer (0-15 cm), concentrations of the parent compound decreased relatively slowly during the flooding period, from 13.6 µg/kg at day 0 to 4.57 µg/kg at day 30, but rapidly immediately after drainage at day 30 to <2.0 µg/kg. As in water CGA321113 and CGA373466 were the main products, with up to 21.3 and 6.39 µg/kg respectively, while parent isomers were only sporadically detected (Table 32).

Table 31. Aquatic field dissipation study. Residues (µg/l) of trifloxystrobin and degradation products in paddy water after application of 2 x 190 g ai/ha (Report no. 242.40).

sampling	DALA	parent*	CGA357261*	CGA357262*	CGA331409*	CGA321113*	CGA373466*
01.Sep.98	0	51.9	0.271	<0.1	<0.1	8.0	1.16
02.Sep.98	1	10.6	0.604	<0.1	<0.1	22.6	5.83
03.Sep.98	2	2.84	0.325	<0.1	<0.1	36.5	8.11
04.Sep.98	3	3.80	0.414	<0.1	0.1	56.1	13.9
06.Sep.98	5	0.327	0.118	<0.1	<0.1	32.7	8.97
08.Sep.98	7	0.618	<0.1	<0.1	<0.1	13.2	2.38
11.Sep.98	10	0.236	0.165	<0.1	<0.1	19.7	7.28
15.Sep.98	14	0.548	0.221	<0.1	<0.1	23.9	11.0
18.Sep.98	17	<0.1	<0.1	<0.1	<0.1	16.4	7.54
22.Sep.98	21	0.174	<0.1	<0.1	<0.1	8.66	4.36
26.Sep.98	25	<0.1	<0.1	<0.1	<0.1	3.79	1.46
01.Oct.98	30	0.268	0.127	<0.1	<0.1	1.83	0.921

* Results represents an average of all analyses with no correction for procedural recovery
DALA: days after last application

Table 32. Aquatic field dissipation study. Residues (µg/kg) of trifloxystrobin and degradation products in soil after application of 2 x 190 g ai/ha (Report no. 242.40).

sampling	DALA	parent	CGA 357261	CGA 357262	CGA 331409	CGA 321113	CGA 321113	CGA 321113	CGA 373466
		0-15 cm*	0-15 cm*	0-15 cm*	0-15 cm*	0-15 cm	15-30 cm	30-45 cm	0-15 cm**
01.Sep.98	0	13.6	<2.0	<2.0	<2.0	11.7	-	-	4.35
02.Sep.98	1	11.7	<2.0	<2.0	<2.0	17.1	-	-	5.18
04.Sep.98	3	10.4	<2.0	<2.0	<2.0	16.9	-	-	5.21
08.Sep.98	7	6.44	<2.0	<2.0	<2.0	19.0	-	-	5.25
15.Sep.98	14	9.69	<2.0	<2.0	<2.0	17.9	-	-	6.39
22.Sep.98	21	6.85	<2.0	<2.0	<2.0	19.7	-	-	6.32
01.Oct.98	30	4.57	<2.0	<2.0	<2.0	18.4	-	-	6.22
16.Oct.98	45	<2.0	<2.0	<2.0	<2.0	14.1	2.56	<2.0	4.04
31.Oct.98	60	<2.0	<2.0	<2.0	<2.0	16.9	2.43	<2.0	5.14
30.Nov.98	90	4.07	2.71	<2.0	4.66	19.7	2.59	<2.0	5.40
31.Dec.98	121	<2.0	<2.0	4.48	<2.0	21.3	2.23	<2.0	6.25
04.Mar.99	184	<2.0	<2.0	<2.0	<2.0	13.8	<2.0	2.21	4.23
29.May99	270	<2.0	<2.0	<2.0	<2.0	10.4	<2.0	<2.0	2.35
31.Aug.99	364	<2.0	<2.0	<2.0	<2.0	2.68	<2.0	<2.0	<2.0

* No residues in the 15-30 cm layer and below
** No samples above the LOD (2 µg/kg) at 15-30 cm. One sample with 2.34 µg/kg at 184 DALA in 30-45 cm
DALA: days after last application

Dissipation kinetics of trifloxystrobin, CGA321113, CGA373466 and CGA357261 were calculated for the water phase by linear regression analysis on the basis of the concentration curve of each compound, starting with the maximum concentration. Half-lives were 5 days for trifloxystrobin, 4.2 days for CGA373466, 6.6 days for CGA321113 and 18 days for CGA357261.

Summary - degradation in water

Trifloxystrobin is relatively stable hydrolytically under sterile neutral and weakly acid conditions but under alkaline conditions degradation increases with increasing pH.

The acid CGA321113 formed under alkaline conditions is not degraded hydrolytically. At elevated temperatures CGA321113 eliminates CO_2 and methanol to form the nitrile CGA357276.

Hydrolysis at pH 1 showed two major degradation products which were generated by cleavage of the bridge between the two aromatic rings, CGA289565 and CGA107170. No ring cleavage is observed at pH $\geq$5.

Photolytic degradation of trifloxystrobin occurs as described in Table 1. The experimental photolytic half-lives of trifloxystrobin in sterile aqueous buffered solutions at 25°C under xenon arc light (12 hours light / 12 hours dark cycle) were found to be 20.4 hours at pH 5 and 31.5 hours at pH 7. The predicted environmental half-lives under natural summer sunlight at a latitude of 40° N were 1.1 and 1.7 days at pH 5 and 7 respectively.

Irradiation of trifloxystrobin in aqueous buffered solution at pH 5 and 7 led to isomerization of the active substance and the hydrolytic product CGA321113. After 380 hours of irradiation the four isomers of the parent compound were found in following concentrations: trifloxystrobin (E,E) 10.4%; CGA331409 (E,Z) 1.5%; CGA357261 (Z,E) 12.4%; CGA357262 (Z,Z) 3.5%. In addition, two isomers of the mono-acid degradation product were found: CGA373466 (Z,E) up to 13% and CGA321113 (E,E) up to 5.3%. Further degradation led to cleavage of the molecule between the two ring systems. After 360 hours irradiation at pH 5 of trifluoromethylphenyl-labelled trifloxystrobin 54.8% of the applied radioactivity was trapped in toluene and identified as CGA107170.

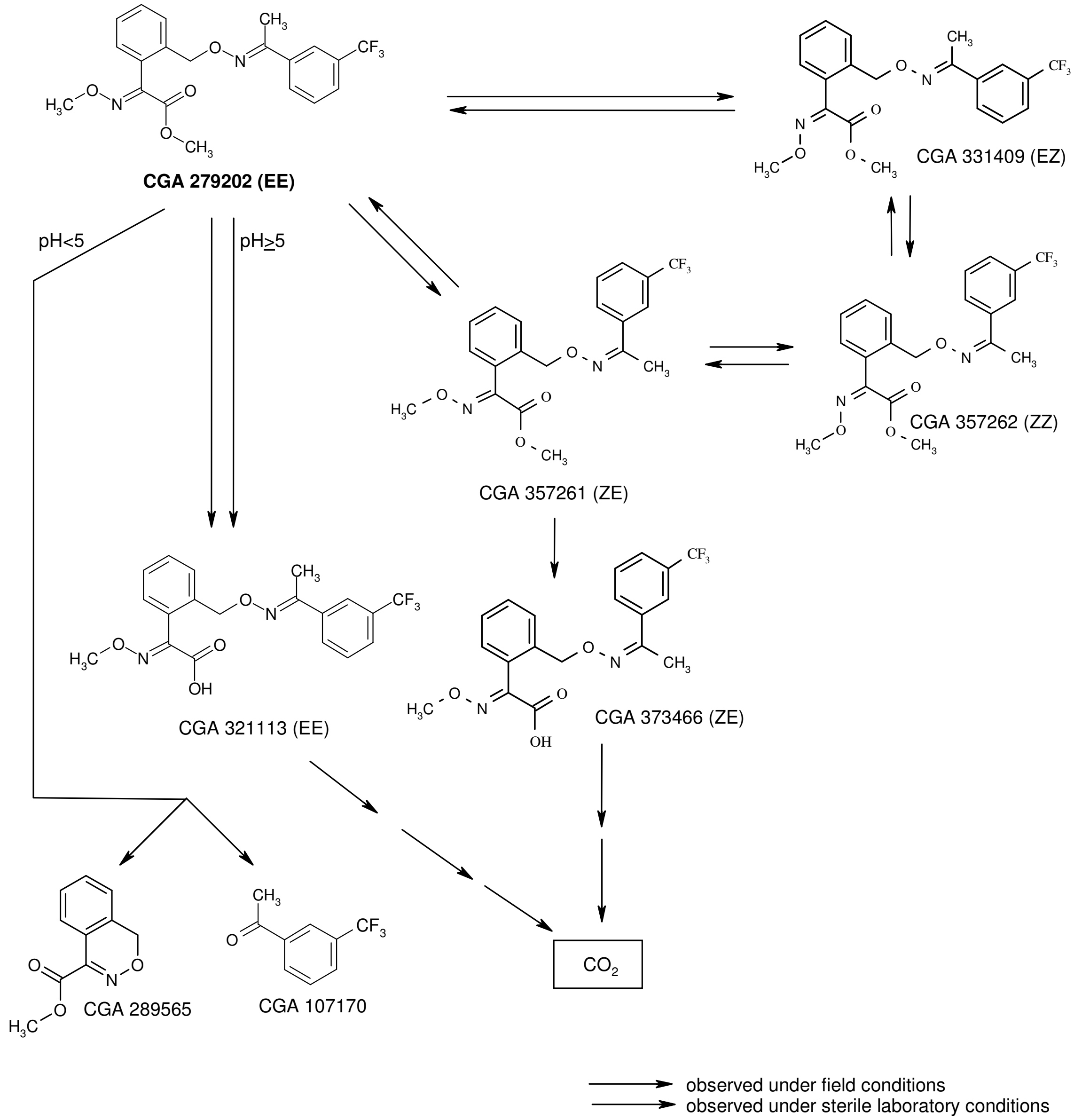
In the biologically active aquatic system of a paddy rice plot trifloxystrobin was rapidly degraded in both flooding water and soil, with a maximum half-life of about 2-5 days. As in sterile hydrolysis the principal product in a paddy rice field was the acid CGA321113. Although stable to sterile hydrolysis, CGA321113 was rapidly degraded in the rice plot with half-lives of 7-8 days in flooding water and paddy soil. Isomerization of both the parent compound and CGA321113 was observed, resulting in the formation of the parent isomer CGA357261 in minor amounts and the mono acid isomer CGA373466 in major amounts. Degradation of CGA373466 in the water layer was rapid with a half-life of 4.2 days. Concentrations of CGA357261 in the range of the LOQ were too low to estimate a half-life with reasonable significance.

Table 33. Half-lives of trifloxystrobin and degradation products in a paddy rice field.

Compound	DT_{50} , days (dissipation from water)	DT_{50} , days (degradation in water and paddy soil)	
	water	water	paddy soil
trifloxystrobin	5	0.4	2.1
CGA321113	6.6	7.7	7.4
CGA373466	4.2	-	-

The pathways of abiotic and biotic degradation of trifloxystrobin in aquatic systems are shown in Figure 3.

Figure 3. Proposed degradation pathways of trifloxystrobin in aquatic systems.



Residues in rotational crops

Two confined rotational crop studies in Europe (Gross, 1997, Stingelin, 1997, Kennedy, 1997) with labelled trifloxystrobin, and a field study using unlabelled trifloxystrobin in the USA (Hayworth, 1999) were reported.

Report no. CMR26/97 (Gross, 1997). The uptake, distribution, and degradation of [CF_3-phenyl-(U)^{14}C]-trifloxystrobin after application at a rate of 500 g ai/ha to bare ground were investigated in the following rotational crops.

Planting	31 days after application:	lettuce 1, radish 1, and spring wheat 1
	120 days after application:	lettuce 2, radish 2
	174 days after application:	winter wheat
	365 days after application:	lettuce 3, radish 3, and spring wheat 2

Plant samples and soil cores (0-10 cm, 10-20 cm and 20-30 cm layers) were collected. All harvested samples were kept frozen at or below -18°C. The homogenized plant material (30-200 g) was extracted with acetonitrile/water 8:2 in approximately 4 ml solvent per g plant material. The suspensions were shaken for at least four hours in a mechanical shaker and then centrifuged. This extraction procedure was repeated five times or until the radioactivity in the last of the extracts was less than 5% of the radioactivity of the first one. Soil samples (50-200 g) were extracted with 80% aqueous acetonitrile (0.5-1 g/ml) as described for plant samples.

The unextractable radioactivity was determined by combustion of dry aliquots of the extracted plant material. The combined extracts were radio-assayed by liquid scintillation counting and characterized by TLC.

The total radioactive residues in the rotational crops were found to be

- 0.025 mg/kg, 0.01 mg/kg and 0.005 mg/kg in lettuce at plant-back intervals of 31, 120 and 365 days
- 0.041 mg/kg, 0.016 mg/kg and 0.009 mg/kg in radish tops and 0.031 mg/kg, 0.003 mg/kg and 0.002 mg/kg in radish roots at plant-back intervals of 31, 120 and 365 days
- 0.046 mg/kg, 0.059 mg/kg, 0.075 mg/kg, and 0.125 mg/kg in the 50% mature sample (whole tops), in grain, husks, and straw of spring wheat 1 planted at a plant-back interval of 301 days
- 0.005 mg/kg, 0.005 mg/kg, 0.021 mg/kg, and 0.023 mg/kg in the 50% mature sample (whole tops), in grain, husks, and straw of spring wheat 2 planted at a plant-back interval of 365 days
- 0.011 mg/kg, 0.005 mg/kg, 0.005 mg/kg, 0.012 mg/kg, and 0.015 mg/kg in the fall cutting sample, the 50% mature sample (whole tops), in grain, husks, and straw of winter wheat planted at a plant-back interval of 174 days.

Characterization of the radioactivity in various plant parts showed that trifluoroacetic acid (TFA) was the major degradation product in all crops, especially in spring wheat and radish (up to 16 µg/kg), demonstrating breakdown of the trifluoromethylphenyl ring. As trifluoroacetic acid was not observed as a plant metabolite in most target crops after foliar application (except very low amounts in peanuts), it is likely that its precursor is formed in the soil or rhizosphere of the plants.

The qualitative metabolite pattern in spring wheat rotational crops was similar to the pattern found in spring wheat after two spray treatments with [CF_3-phenyl-(U)-^{14}C]trifloxystrobin with the exception of the metabolite mentioned above.

Measurable amounts of trifloxystrobin and its acid CGA321113 could be detected in the tops and roots of radish only at the 31 days plant-back interval (5 and 6 µg/kg). I_5 (NOA413161), I_6 (NOA413163), I_{10} (NOA443152) and its isomer I_{12}, and I_{14} (NOA414412) could be characterized in spring wheat straw.

Report no. CMR24/97 (Stingelin, 1997). In a similar experiment with [glyoxyl-phenyl-(U)-^{14}C] trifloxystrobin applied at the same rate, planting was as follows.

31 days after application:	lettuce 1, radish 1, and spring wheat 1
120 days after application:	lettuce 2, radish 2
174 days after application:	winter wheat
365 days after application:	spring wheat 2

Plant samples and soil cores (0-10 cm, 10-20 cm and 20-30 cm layers) were collected and extracted as before, but unextracted plant residues were subjected to a microwave extraction using 80% aqueous 1-propanol at 30 bar and 100-150°C.

The plant and soil samples after extraction were air dried, homogenized in a disk mill, and aliquots combusted to determine the unextractable radioactivity. The combined extracts were radio-assayed by liquid scintillation counting and characterized by TLC.

All harvested samples were kept frozen at or below -18°C. As a representative sample *whole tops-1* from *spring wheat 1* were tested for storage stability by comparison of analyses at the beginning and end of the experimental period. Qualitatively, no significant changes were found but quantitatively some changes could be observed.

The total radioactive residues were

- 0.023 mg/kg and 0.007 mg/kg in lettuce at plant-back intervals of 31 and 120 days
- 0.028 mg/kg and 0.005 mg/kg in radish tops and 0.018 mg/kg and 0.002 mg/kg in radish roots at plant-back intervals of 31 and 120 days
- 0.06 mg/kg, 0.037 mg/kg, 0.058 mg/kg, and 0.121 mg/kg in the 50% mature sample (whole tops), in grain, husks, and straw of spring wheat 1 planted at plant-back intervals of 30 days
- 0.002 mg/kg, 0.004 mg/kg, 0.004 mg/kg, and 0.007 mg/kg in the 50% mature sample (whole tops) in grain, husks, and straw of spring wheat 2 planted at a plant-back interval of 365 days
- 0.008 mg/kg, 0.002 mg/kg, 0.003 mg/kg, 0.002 mg/kg, and 0.004 mg/kg in the autumn cutting sample, the 50% mature sample (whole tops), in grain, husks, and straw of winter wheat planted at a plant-back interval of 174 days.

Characterization of the radioactivity in the plants showed that

- The qualitative metabolite pattern in rotational crops was similar to the pattern found in spring wheat after two spray treatments with [glyoxyl-phenyl-(U)-^{14}C]trifloxystrobin
- No single metabolite fraction accounted for more than 10 µg/kg in any of the rotational crops at any plant-back interval
- Minor amounts of trifloxystrobin and its isomers (0.3-1.4 µg/kg) could be detected in all rotational crops except in the straw of spring wheat
- I_5 (NOA413161), I_6 (NOA413163), I_{12} (isomer of NOA443152) and I_{15} (CGA321113) were identified.

The total radioactive residues in the 0-10 cm soil layer disappeared with a half-life of about 81 days and the major fraction, consisting of CGA321113 and CGA373465, disappeared with a half-life of about 72 days.

<u>Report no. ABR-97087 (Kennedy, 1997)</u>. The uptake, distribution, and degradation of [trifluoromethyl-phenyl-(U)-^{14}C]- and [glyoxyl-phenyl-(U)-^{14}C] trifloxystrobin after bare ground application in early or late summer at a rate of 2.2 kg ai/ha were investigated in the following rotational crops.

Planting		
30 days after application:	[trifluoromethyl-phenyl-(U)-^{14}C]	spinach 1 [CF_3]
		turnips 1 [CF_3]
		winter wheat 1 [CF_3]
	[glyoxyl-phenyl-(U)-^{14}C]	spinach 1 [gly]
		turnips 1 [gly]
		winter wheat 1 [gly]
120 days after application:	[trifluoromethyl-phenyl-(U)-^{14}C]	spinach 2 [CF_3]
		turnips 2 [CF_3]
		winter wheat 2 [CF_3]
	[glyoxyl-phenyl-(U)-^{14}C]	spinach 2 [gly]
		turnips 2 [gly]
		winter wheat 2 [gly]

For each plant-back interval, leafy vegetables (spinach) and root vegetables (turnips) were harvested at maturity, and cereals were harvested at 25%, 50% and 100% maturity. Soil samples were collected before application, directly after application and at last harvest.

Mature turnips were separated into leaves and roots, and mature wheat into fodder (straw and husks) and grain. Collected plant samples were homogenised, and 100-200 g batches were extracted with twice the volume of a mixture of acetonitrile and water (80:20). Extracts were pooled and assayed by LSC to determine the amount of extractable radioactivity. The acetonitrile/water extracts were individually concentrated by rotary evaporation until the acetonitrile stopped condensing. The aqueous solution was then partitioned twice with dichloromethane. The organic fractions were combined and the radioactivities in both the aqueous and organic fractions were determined by LSC. Finally, the unextractable radioactivity was determined by combustion of dry aliquots of the extracted plant material.

Soil samples were also extracted with 80% aqueous acetonitrile.

Sample extracts were also analysed by TLC and HPLCIdentification of metabolites was by co-chromatography with reference standard compounds.

The average total radioactive residues in rotational crops following soil application of [CF_3-phenyl-(U)-^{14}C]- and [glyoxyl-phenyl-(U)-^{14}C]trifloxystrobin respectively at a rate of 2.2 kg ai/ha were

- 0.254 mg/kg and 0.016 mg/kg in spinach leaves at a plant-back interval of 30 days, and 0.264 mg/kg and 0.058 mg/kg at a plant-back interval of 120 days
- 0.064 mg/kg and 0.011 mg/kg in turnip leaves at a plant-back interval of 30 days, and 0.037 mg/kg and 0.021 mg/kg at a plant-back interval of 120 days
- 0.017 mg/kg and 0.005 mg/kg in turnip roots at a plant-back interval of 30 days, and 0.018 mg/kg and 0.015 mg/kg at a plant-back interval of 120 days
- 0.282 mg/kg and 0.021 mg/kg in (25% mature) wheat fodder at a plant-back interval of 30 days, and 0.190 mg/kg and 0.058 mg/kg at a plant-back interval of 120 days
- 0.138 mg/kg and 0.021 mg/kg in (50% mature) wheat fodder at a plant-back interval of 30 days, and 0.101 mg/kg and 0.082 mg/kg at a plant-back interval of 120 days
- 0.165 mg/kg and 0.042 mg/kg in mature wheat straw at a plant-back interval of 30 days, and 0.200 mg/kg and 0.127 mg/kg at a plant-back interval of 120 days
- 0.069 mg/kg and 0.029 mg/kg in mature wheat grain at a plant-back interval of 30 days, and 0.061 mg/kg and 0.057 mg/kg at a plant-back interval of 120 days.
-

In soil residues ranged from 0.876 to 1.342 mg/kg directly after application. They decreased to 0.212 to 0.603 mg/kg at planting, and to 0.206-0.294 mg/kg at harvest.

In general, radioactive residues in crops treated with the CF_3-label were higher than those treated with the glyoxyl-label.

After application of [trifluoromethyl-phenyl-(U)-^{14}C]trifloxystrobin, trifluoroacetic acid was found as a major degradation product in all crops, especially in spring wheat (up to 0.23 mg/kg in 25% mature fodder and 0.12 mg/kg in mature straw), demonstrating breakdown of the trifluoromethylphenyl ring. As trifluoroacetic acid was practically absent in target crops after foliar application, it is likely that its precursor is formed in the soil or rhizosphere of the plants.

In samples treated with [glyoxyl-phenyl-(U)-^{14}C]trifloxystrobin the products containing only the labelled moiety of the parent molecule were the hydroxy acid CGA347242, the corresponding lactone CGA320299 and phthalic acid (CGA367619).

Minor amounts of trifloxystrobin and its isomers (up to 1 µg/kg) could be detected in nearly all rotational crops. Exceptions were spinach leaves planted 30 days after application, and most immature wheat and wheat straw samples.

The carboxylic acid CGA321113 was detected in all rotational crops at low levels up to 3 µg/kg. In many samples the isomer CGA373466 was found at similarly low levels.

In soil, the main components detected were the parent compound and its isomers CGA357262 and CGA331409, and the mono-acids CGA321113, CGA373466 and CGA373465.

Report no. 109-97 (Hayworth, 1999). The uptake of trifloxystrobin and CGA321113 in rotational crops planted 30 and 120 days after 4 applications of trifloxystrobin to bare ground or primary (target) crops was investigated in 7 field trials in the USA.

At six locations, fields cropped with cucumber or squash plants were treated 4 times with trifloxystrobin at 282 g ai/ha by foliar spray application, at intervals of 7 days. At one location bare ground instead of cropped soil was treated. At plant-back intervals of 30 and 120 days, representative crops (lettuce as a leafy vegetable, turnip as a root vegetable, and wheat as a cereal crop) were planted. The crops were grown under normal agricultural conditions and plant samples were collected at harvest.

Samples were stored frozen until extraction, when they were homogenised and extracted twice with acetonitrile/water (8:2). Further preparation included liquid-liquid extraction and clean-up steps. Samples were chromatographed by GC with an NPD and GC-MS (as a confirmatory method). Only trifloxystrobin and CGA321113 were determined.

No residues of trifloxystrobin (<0.02 mg/kg) or CGA321113 (<0.02 mg/kg) were detected in any of the rotational crops at the 30 days plant-back intervals except in wheat straw and grain from one trial. Samples with plant-back intervals of 120 days were therefore not analysed.

RESIDUE ANALYSIS

Analytical methods

Enforcement method

Report no. 00086/M040 (Weber and Pelz, 2002). A standard multi-residue method, DFG S19, can be used for monitoring purposes for the determination of trifloxystrobin in plant materials (Bayer method no. 00086/M040). Typical watery, acidic, dry, and oily samples (cucumber, citrus, wheat grain, and almond), as well as hops and leeks were chosen as representative crops to test the method for its applicability as an enforcement method.

In the revision of DFG S19, cucumbers, oranges, wheat, leeks and hops are extracted with acetone. Water is added, taking the natural water content of the sample into account, so that the acetone:water ratio is 2:1. Sodium chloride is added and the extract partitioned against ethyl acetate/cyclohexane, after which the organic phase is purified by GPC on BioBeads S-X3, using ethyl acetate/cyclohexane as the eluent. Almonds are extracted with acetone and acetonitrile with calcium silicate, and the organic phase is cleaned up by GPC. The final ethyl acetate/cyclohexane eluates are concentrated and reconstituted in ethyl acetate.

Hops are subjected to an additional clean-up on a silica gel mini-column (1 g deactivated silica gel and 5-10 mm of sodium sulfate). After preconditioning the column with hexane, isooctane is added to the concentrated eluate from the previous GPC step. The column is rinsed and eluted with toluene and then with toluene/acetone. The last eluate is then concentrated on an evaporator and reconstituted in ethyl acetate.

The samples were analysed by GC-MSD. Recoveries from samples spiked at 0.02 mg/kg (LOQ) and 0.2 mg/kg ranged from 81 to 110% in all crops tested except hops, with relative standard deviations (RSD) of 1.6-16%. Accuracy, precision and linearity were all well within guideline specifications. With regard to specificity, no significant interferences were observed except in the case of oranges, where a background level of about 25% of the LOQ was found. Method S19 was successfully validated for representative oily, acidic, dry and watery crops, as well as for leeks.

Hops were fortified at 0.05 and 0.5 mg/kg, but recoveries were unsatisfactory, so DFG method S19 is not appropriate for the determination of trifloxystrobin in hops.

Specialised methods

Report no. REM177.02 (Kissling, 1996). In method REM 177.02, used for the determination of trifloxystrobin in plant materials, homogenised samples are extracted with acetonitrile/water (8 + 2). An aliquot of the extract is diluted with 0.002 M hydrochloric acid and saturated sodium chloride solution, and partioned twice with *tert*-butyl methyl ether. Liquid samples are directly partitioned with *ter.*-butyl methyl ether. The solvent is evaporated in a gentle stream of air at about 40°C and the residue is redissolved in n-hexane and passed through a conditioned amino-modified silica gel column. The column is washed with hexane and the analyte is eluted with *tert*-butyl methyl ether. The organic phase is evaporated as before and the residue redissolved in acetonitrile/water (35 + 65). Final quantification of trifloxystrobin is by HPLC with UV detection.

The LOQ for the method was 0.02 mg/kg for solid samples (apples, potatoes, pumpkins) and 0.01 mg/l for liquids (wine, juice). Mean recoveries from the samples tested at the LOQ and 10 times the LOQ ranged from 76 to 109%, with relative standard deviations (RSD) between 0.6% and 13.2%. Accuracy, precision, and repeatability were all tested and within guideline specifications. A confirmatory technique was also developed and reported, which involves dissolving the final residue in isooctane with determination by GC/ECD.

Report no. REM177.03 (Kissling, 1996). Method REM 177.03 is used for the determination of trifloxystrobin and CGA321113 in plant samples such as cereal grain and straw and bananas. Homogenised samples are extracted with acetonitrile/water (8 + 2) by heating under reflux (cereal grain and straw) or by maceration with a high-speed homogeniser. After filtration of the extract, an aliquot is taken for clean-up by a 3-layer liquid-liquid partition by adding saturated sodium chloride solution, toluene and hexane. The middle layer is collected and partitioned with hexane. The hexane phase is discarded, and the remaining organic phase evaporated. After reconstitution in a mixture of 0.085% aqueous phosphoric acid and acetone (95 + 5), a solid-phase extraction clean-up follows on a C_{18} modified silica gel column. After elution with 0.085% aqueous phosphoric acid/acetone (3 + 7), the solution is evaporated to the aqueous remainder, and the sample is partitioned with hexane/*tert*-butyl methyl ether (1 + 1). The organic phase is evaporated and the residue redissolved in 0.1% polyethylene glycol in acetone. Final determination is by GC with electron capture detection.

Report no. 141/96 (Kissling, 1996). The method REM 177.03 was validated in a separate study. The LOQ for the method was 0.02 mg/kg for all tested samples except cereal straw (0.05 mg/kg). The overall recoveries were 90% and 91% for trifloxystrobin and CGA321113 respectively, with RSDs of 10% and 9%. Accuracy, precision, and repeatability were all tested and within guideline specifications.

The efficiency of extraction of method REM 177.03 tested by comparing the amount of radioactivity extracted with the TRR in a specimen treated with ^{14}C-labelled trifloxystrobin was 62% for wheat grain (total radioactivity 6055 dpm/g) and 65% for wheat straw (total radioactivity 156887 dpm/g).

Report no. REM 177.04 (Kissling, 1997). Method REM 177.04 is used for the determination of trifloxystrobin and CGA321113 in green and dry hop cones. Homogenised samples are extracted with acetonitrile/water (8 + 2) by heating under reflux. After filtration of the extract, clean-up is by a 3 layer liquid-liquid partition, additional partition with hexane and solid-phase extraction on a C_{18} column as above. After the addition of a 0.2% ammonia solution, the two analytes are separated by liquid-liquid partition under alkaline conditions with hexane.

The hexane phase containing trifloxystrobin is evaporated, and the residue redissolved in hexane, transferred to an amino-modified silica gel cartridge and the analyte eluted with *tert*-butyl methyl ether. After evaporation, the residue is redissolved in 0.1% polyethylene glycol in acetone for final determination of trifloxystrobin by GC with electron capture detection as before.

The aqueous layer containing CGA321113 is mixed with 0.1 M HCl and *tert*-butyl methyl ether for liquid-liquid partition. The partition is repeated and the combined organic phases are evaporated. After clean-up on a conditioned amino-modified silica gel cartridge the analyte is eluted with acetonitrile/0.2% ammonia solution, saturated NaCl solution is added and the analyte is partitioned into hexane-*tert*-butyl methyl ether. The organic phase is evaporated and the residue dissolved in acetonitrile-water. Final determination of CGA321113 is by HPLC with UV detection. For both analytes, the limit of quantification was 0.1 mg/kg in green cones and 0.5 mg/kg in dry cones.

Report no. 161/97 (Kissling, 1997). Method REM 177.04 was validated in a separate study. For both analytes, the limit of quantification was 0.1 mg/kg in green cones and 0.5 mg/kg in dry cones. The overall recoveries for the method were 86% and 81% for trifloxystrobin and CGA321113 respectively, with RSDs of 7% and 9%. Repeatability, reproducibility and recovery were all tested and within guideline specifications.

Report no. AG-659 (Campell, 1997). Method AG-659 is suitable for the determination of trifloxystrobin and CGA321113 in plant materials and animal tissues and products. The same clean-up procedure is used as in REM 177.03, except that the organic phase for the last partition step is a mixture of hexane and *tert*-butyl methyl ether (1 + 1). Quantification of the analytes is by GC with NP detection.

Report no. AG-659A (Campell, 1998). AG-659A is a supplement to method AG-659, which it supersedes. The protocol of the method was extended to include the analysis of animal tissue samples from goats and poultry. All significant aspects of extraction, purification and residue determination remain unchanged.

Extraction efficiency data for GC/NPD method AG-659A using weathered radiolabelled samples from the plant metabolism studies for apples, cucumbers, and peanuts, and from the animal metabolism studies were submitted. The results (% extracted during validation of method AG-659A v. % extracted during metabolism studies) were apples 99% v. 100%, peanut kernels 52% v. 45%, peanut hay 82% v. 70%, cucumbers 120% v. 100%, goat meat 66% v. 88%, goat milk 90% v. 92% and poultry meat 80% v. 75%.

Report no. 756-99 (Eudy and Ediger, 1999). Validation data for AG-659 and AG-659A were presented. The mean recovery rates of trifloxystrobin over all fortification levels from animal tissues and products ranged from 84% for breast and thigh of chicken (fortification levels 0.02 to 0.05 mg/kg) with a relative standard deviation (RSD) of 8.1%, to 116% for cattle kidney (fortification levels 0.02 to 1.0 mg/kg, RSD of 18.2%). For crops, the lowest mean recovery rate was 78% from peanut meal (fortification levels 0.02 to 0.2 mg/kg), and the highest rate was 99% for potato granules (RSD 11%; fortification levels 0.02 to 0.5 mg/kg). The method can also be used for the determination of trifloxystrobin in hops, a sample that is difficult to analyse. The overall recovery from dried cones (fortification levels varying between 0.1 and 20 mg/kg) was 82.7% for the parent compound (RSD 19.5%), and 91.0% for CGA321113 (RSD 23.8%).

In animal tissues and products, the mean recovery rates of CGA321113 over all fortification levels ranged from 71% from breast and thigh of chicken (RSD 3.3%; fortification levels 0.02 to 0.05 mg/kg) to 115% from chicken liver (RSD 12.6%; fortification levels 0.02 to 0.1 mg/kg). Recovery levels from crops were between 78% for cucumber (RSD 19%; fortification levels 0.02 to 1 mg/kg) and 94% for grapes (RSD 9.1%; fortification levels 0.02 to 10 mg/kg).

The LOQ was 0.02 mg/kg for both trifloxystrobin and CGA321113 in all samples except milk, peanut hay, and hops. The LOQ for milk was 0.01 mg/kg, for peanut hay 0.05 mg/kg, and for hops 0.1 mg/kg. Accuracy and precision were reported as satisfactory.

A confirmatory technique was also reported in which the residues are determined by GC-MS. For both trifloxystrobin and CGA321113, the mean recoveries from peanut hay were 73% (fortification levels 0.05 to 10 mg/kg), with relative standard deviations of 8.9% for trifloxystrobin and 15.1% for CGA321113. Validation of method AG-659A also included the extractability and recovery results from the ^{14}C- trifloxystrobin animal sample validation.

Report no. 279202/564 (Bandong, 1998); Report no. ABR-98013 (Hamilton, 1998). The two equivalent methods AG-659 and AG-659A (Campbell 1997, 1998) were validated in two independent laboratories (ILV) for the determination of trifloxystrobin and CGA321113 in the representative crops apples, bananas, raisins and peanut hay, as well as the animal samples liver, eggs, and milk. In each study, duplicates of control samples and 4 fortified samples (2 each at the LOQ and at 2-40 times the LOQ) were extracted and analysed. The method was validated successfully for all samples, with overall average recoveries of 95% and 97% for trifloxystrobin and CGA321113 in the first study (Bandong, 1998), and 103% and 89% in the second (Hamilton, 1998); the respective overall relative standard deviations were 18.3% and 13.6% in the first study, and 17% and 16% in the second.

When both reports are considered together, four recoveries were obtained for each substrate and approximate spike level. The pooled recovery data yielded mean values of 74.5-95.8% for trifloxystrobin at or about the LOQ in plant materials (RSD range 5.4-20.6%), and 86.5-105% at higher fortification levels (RSD 7.2-21.7%). In animal substrates, the mean values at the LOQ were 82-104.5% for trifloxystrobin (RSD range 13.3-28%) and 88-105% for CGA321113 (RSD range 18.3-28.1%). After fortification at levels 2-3 times the LOQs, the recovery levels were 82.8-102.3% and 101.8-108.3% for the two compounds respectively. The RSD ranged from 3.5 to 19.2% in the latter experiments.

Report no. 99/5/1647 (Peterson, 1999). Method 265A.00 is used for the determination of trifloxystrobin and CGA321113 in fresh and processed plant material. Apples, grapes, grape juice and wine are extracted with aqueous acetonitrile. The extract is diluted with hydrochloric acid and extracted with *tert*-butyl methyl ether. The organic phase is dried with anhydrous sodium sulfate, evaporated to dryness and reconstituted in mobile phase before injection on the HPLC column.

Fortification levels were 0.02 mg/kg (for grapes only), 0.04 mg/kg (for apples only), 0.05, 0.1, 0.2 and 0.5 mg/kg (for grapes and apples), and 0.02 and 0.1mg/l (for juice and wine). The mean recoveries of trifloxystrobin and CGA321113 were in the range 70-110% (except that the recovery of CGA321113 from grapes was slightly below 70% at 0.02 mg/kg).

For both analytes, the LOQ was 0.02 mg/kg in grapes, 0.02 mg/l in grape juice and wine, and 0.04 mg/kg in apples.

Report no. 99/5/1647 (Peterson, 1999). The method was validated in a separate study. The LOQ for trifloxystrobin and CGA321113 was 0.02 mg/kg for grapes, 0.02 mg/l for grape juice and wine and

0.04 mg/kg for apples. Recoveries ranged from 66 to 124% for trifloxystrobin and 58-130% for CGA321113.

Report no. 200177 (Haan, 2002). Method 200177 is suitable for trifloxystrobin and CGA321113 in plant materials. The residues are extracted from homogenised plant samples with acetonitrile/water (4 + 1) in a blender. The suspension is vacuum-filtered through a paper filter. The remaining solids are blended a second time with fresh solvent and filtered. The filtrates are combined and internal standard is added. The total volume is adjusted to 50 ml with acetonitrile / water (4 + 1). After solid-phase extraction on an SPE column under slight vacuum, the column is rinsed with acetonitrile/water (4 + 1) and the analytes are eluted with acetonitrile. The solution is evaporated to dryness and the dry residue dissolved in acetonitrile/water (4 + 1). The final determination is with LC/MS/MS in the positive ion mode. The LOQ was 0.01 mg/kg for both analytes.

Report no. 06742 (MR-078/02) (Nuesslein, 2002). Method 06742 was developed for the determination of residues of trifloxystrobin and CGA321113 in plant materials (carrots, Brussels sprouts, cabbages, tomatoes, red peppers, lettuce). Both analytes are extracted with acetonitrile/water. After filtration and concentration to the aqueous reminder, the acidified crude extract is purified by liquid-liquid partition in a mixture of cyclohexane and ethyl acetate and separation on a ChemElut cartridge. The residues are quantified by reverse-phase HPLC with Turbo-Ionspray MS/MS detection. The LOQ was 0.02 mg/kg in all samples.

Recoveries of trifloxystrobin ranged from 72 to 99% with mean values at each level between 81 and 93% and relative standard deviations between 0.7 and 10.4%. Recoveries of CGA321113 were between 71 and 103% with mean values at each level between 83 and 100% and relative standard deviations between 0.6 and 8.1%. The linearity of the detector response was demonstrated over the appropriate range of concentrations. The repeatability was shown successfully with carrots and tomatoes.

Report no. 00742 (MR-052/03) (Nuesslein, 2003). This supplement was developed for validating analytical method 00742 for the determination of trifloxystrobin and CGA321113 in additional plant materials. Recoveries were determined at fortification levels of 0.02 mg/kg, 0.2 mg/kg and 2 mg/kg with beans (bean with pod), broccoli (head), cauliflower (head), cherries, cucumbers, currants, leeks (shoots), melon fruit and peel, plums and strawberry fruit, jam and preserve. The LOQ was 0.02 mg/kg in all samples. Individual recovery rates ranged from 68 to 103% with overall RSDs between 1.1 and 9.3%. In the case of CGA321113, recoveries were between 81 and 101% with overall standard deviations (RSD) between 1.4 and 5.4%. The repeatability was shown to be satisfactory for cauliflower and strawberry.

Report no. REM177.05 (Kissling, 1997). In method REM 177.05, used for the determination of trifloxystrobin in body fluids, samples are extracted with acetonitrile/water (8 + 2) by shaking and extracts are centrifuged. An aliquot of the extract is taken for a 3-layer liquid-liquid partition by adding saturated sodium chloride solution, toluene and hexane. The middle layer is collected and an additional partition with hexane follows. The hexane phase is discarded and the organic phase evaporated. Reconstitution in a mixture of 0.085% aqueous phosphoric acid and acetone (95 + 5) is followed by a solid-phase extraction clean-up on a C_{18} modified silica gel column. After elution with a mixture of 0.085% aqueous phosphoric acid/acetone (3 + 7), the solution is evaporated to the aqueous remainder, and the analytes partitioned into *tert*-butyl methyl ether/hexane (1 + 1). After evaporation, the analytes are redissolved in 0.1% polyethylene glycol in acetone. Final quantification is by GC with electron capture detection.

Report no. 164/97 (Kissling, 1997). The method was validated in a separate study. The LOQ for the method was 0.01 mg/kg for the tested substrates. The overall recoveries for the method were 95% and 86% for trifloxystrobin and CGA321113 respectively, with RSDs of 6% and 11%. Mean recoveries at the LOQ and 10 times the LOQ ranged from 90 to 100% for the parent compound and 78 to 94% for CGA321113, with relative standard deviations of 4-5% and 1-11% respectively. Accuracy, precision, and repeatability were all tested and within guideline specifications. A confirmatory technique was also reported, based on determination by GC with MS detection.

Stability of residues in stored analytical samples

Storage stability data from trials with apples, cucumbers, potatoes, wheat, grapes, peanuts and their corresponding processed products were reported.

Report no. 160-97 (Grunenwald, 1999); Report no. 154/96 (Kissling, 1999). In the study by Grunenwald samples of apple, apple wet pomace, peanut kernels, peanut oil and grape juice were fortified with 0.5 to 1 mg/kg of trifloxystrobin or CGA321113. Immediately after fortification, a sample was taken to determine the initial residue (fortification level). The remaining fortified samples were deep-frozen at about -20°C and analysed after nominal storage periods of 2, 6, 12 and 18 months.

In the study by Kissling samples of grapes, cucumbers, potatoes and wheat (whole plant, grain and straw) were homogenised and fortified with 0.5 mg/kg trifloxystrobin or CGA321113 (wheat straw: 1 mg/kg). Immediately after fortification, a sample was taken to determine the initial residue (fortification level). The remaining fortified specimens were deep frozen below -18°C and analysed after 2, 4, 8, 12, 18 and 24 months.

No significant decrease of residues was observed after the tested period of 18 or 24 months. Thus the residues of trifloxystrobin and CGA321113 are stable under freezer storage conditions for at least 24 months in grapes, cucumbers, potatoes and wheat and 18 months in apple, apple wet pomace, peanut kernels, peanut oil and grape juice. Hence, the results of the storage stability studies validate the results from the residue trials with respect to the stability of trifloxystrobin and CGA321113 in frozen samples. The results are shown in Tables 34-37.

Table 34. Storage stability of trifloxystrobin in plant samples (Report no. 154/96, Kissling, 1999).

Sample	Average % remaining after storage (months)						
	0	2	4	8	12	18	24
Grape	100	103	93	109	114	103	99
Cucumber	100	96	100	89	93	95	89
Potato	100	96	93	95	107	91	97
Wheat (straw)	100	107	99	106	94	113	115
Wheat (grain)	100	99	87	104	81	95	103
Wheat (whole plant)	100	100	101	99	98	108	100

Table 35. Storage stability of CGA321113 in plant samples (Report no. 154/96, Kissling, 1999).

Sample	Average % remaining after storage (months)						
	0	2	4	8	12	18	24
Grape	100	104	95	105	112	102	96
Cucumber	100	132	102	86	93	92	85
Potato	100	99	95	97	108	98	103
Wheat (straw)	100	102	97	98	92	107	111
Wheat (grain)	100	93	104	109	78	90	96
Wheat (whole plant)	100	98	99	91	93	106	102

Table 36. Storage stability of trifloxystrobin in plant samples (Report no. 160-97, Grunenwald, 1999).

Sample	Average % remaining after storage (months)				
	0	2	6	12	18
Apple (fruit)	117	80	92	95	82
Apple (pomace)	108	103	94	91	81
Peanut (kernels)	110	70	90	87	86

Sample	Average % remaining after storage (months)				
	0	2	6	12	18
Peanut (hay)	107	108	75	119	99
Peanut (oil)	92	102	117	94	102
Potato (granules)	102	99	75	70	84
Grape (juice)	99	93	92	106	108

Table 37. Storage stability of CGA321113 in plant samples (Report no. 160-97, Grunenwald, 1999).

Sample	Average % remaining after storage (months)				
	0	2	6	12	18
Apple (fruit)	89	75	112	78	75
Apple (pomace)	108	82	104	87	68
Peanut (kernels)	111	71	78	87	72
Peanut (hay)	101	95	99	93	96
Peanut (oil)	84	111	110	109	107
Potato (granules)	97	109	102	100	86
Grape (juice)	116	114	85	107	96

Report no. 301-97 (Grunenwald, 1999). Samples of muscle, liver, milk and eggs were homogenised and fortified with 1 mg/kg trifloxystrobin or CGA321113. Immediately after fortification, a sample was taken to determine the initial residues (fortification level). The remaining fortified specimens were deep-frozen below -20°C and analysed after nominal intervals of 3, 6 and 12 months.

No significant decrease of residues was observed after the tested period of 12 months. The results validate the results from the feeding trials with respect to the stability of trifloxystrobin and CGA321113 in frozen samples. The results are shown Tables 38 and 39.

Table 38. Storage stability of trifloxystrobin in animal samples (Report no. 301-97, Grunenwald, 1999).

Sample	Average % remaining after storage (months)			
	0	3	6	12
Beef muscle	97	115	103	120
Beef liver	104	106	81	73
Milk	105	110	107	71
Eggs	111	98	95	79

Table 39. Storage stability of CGA321113 in animal samples (Report no. 301-97, Grunenwald, 1999).

Sample	Average % remaining after storage (months)			
	0	3	6	12
Beef muscle	105	100	124	101
Beef liver	115	119	72	111
Milk	105	101	87	102
Eggs	113	94	79	91

USE PATTERN

Trifloxystrobin is a broad-spectrum contact fungicide for foliar use with mesostemic properties. The active substance is not translocated in the vascular system. Trifloxystrobin is active against fungi from all four classes: *Ascomycetes, Deuteromycetes*, *Basidiomycetes* and *Oomycetes.* It is used on a wide range of agricultural and horticultural crops grown in open fields or protected under glass or plastic in temperate, sub tropical and tropical climates. It is mainly used on grapes, pome fruits, citrus fruits, bananas and cereals, but it is also used commercially on stone fruits, strawberries, vegetables of all kinds, pulses, tree nuts, oilseeds, coffee and hops.

The use of trifloxystrobin is supported by supervised residue trials in the following crops or crop groups: citrus, pome fruit, stone fruit, grapes, strawberry, banana, cereals, leek, head cabbage, Chinese cabbage, Brussels sprouts, cauliflower and broccoli, cucumber, melon, summer squash, tomato, pepper, beans, soya beans, carrot, celeriac, potato, sugar beet, celery, chicory, cereals (wheat, barley, maize, rice), almonds, tree nuts, cotton, peanut, coffee and hops. Certified labels with English translations were submitted by the manufacturer. Information on GAP reflects the registration status as of February 2004. Use patterns which are supported by residue data are summarised in Table 40.

Products containing the active substance trifloxystrobin are sold under different trade names depending on mixing partner, the type of formulation, the country and market section. The most common trade names for straight (solo) formulations are Flint®, Twist® and Tega®. Co-formulations with other fungicides are Stratego®/Rombus® (trifloxystrobin and propiconazole), Sphere®/Sfera® (trifloxystrobin and cyproconazole) and Eclair® (trifloxystrobin and cymoxanil).

Table 40. Use patterns of trifloxystrobin in foliar spray applications.

Crop	Country	Formulation conc. of ai	Application			PHI (days)
			Rate (kg ai/ha)	Spray conc. (kg ai/hl)	No.	
Almond	USA	WG 500 g/kg	0.07-0.14		max 3	60
Apple	Australia	WG 500 g/kg		0.005	max 3	35, 70[1]
Apple	Austria	WG 500 g/kg		0.005	3	14
Apple	Belgium	WG 500 g/kg	0.05[2]/0.085		4	14
Apple	Canada	WG 500 g/kg	0.07-0.11		4 (2)[3]	n. s.
Apple	Croatia	WG 500 g/kg		0.005-0.0075	max 5	21
Apple (excl. cider apples)	France	WG 500 g/kg		0.0075	max 3	14
Apple	Germany	WG 500 g/kg	0.025[2]	0.005	3 (4)	14
Apple	Hungary	WG 500 g/kg	0.075		max 3-4	14
Apple	Italy	WG 500 g/kg	0.075-0.11	0.005-0.0075	max 3	14
Apple	Japan	SC 250 g/kg		0.0083-0.0167	1 - 4	1
Apple	Luxembourg	WG 500 g/kg	0.05[2]/0.085		4	14
Apple	Mexico	WG 500 g/kg	0.075-0.1		4 (2)[4]	14
Apple	New Zealand	WG 500 g/kg		0.005	max 3	70
Apple	Poland	WG 500 g/kg	0.075		3 (4)[5]	14
Apple	Poland	WG 500 g/kg	0.1		2	14
Apple	Romania	WG 500 g/kg		0.005	4 - 6	14
Apple	South Africa	WG 500 g/kg		0.0038-0.005	3	7
Apple	Slovakia	WG 500 g/kg	0.075	0.0075	2 - 3	14
Apple	Spain	WG 500 g/kg		0.0075-0.015	max 4	14
Apple	Switzerland	WG 500 g/kg	0.12	0.0075	max 4	21
Apple	Turkey	WG 500 g/kg		0.0075	2 - 3	14
Apple	Ukraine	WG 500 g/kg	0.075		3	20
Apple	USA	WG 500 g/kg	0.0530.105		3 (4)[5]	14
Apricot	Switzerland	WG 500 g/kg	0.2	0.013	max 3	21
Apricot	USA	WG 500 g/kg	0.07-0.14		max 4	1
Banana	Colombia	EC 75 g/l	0.075-0.09		max 4	0
Banana	Costa Rica	EC 75 g/l	0.075-0.09		3 - 4	n. r.
Banana	Ecuador	EC 75 g/l	0.075		max 4	0
Banana	Guatemala	EC 75 g/l	0.075-0.09		3 - 4	n. r.
Banana	Honduras	EC 75 g/l	0.075-0.09		3 - 4	n. r.
Banana	Nicaragua	EC 75 g/l	0.075-0.09		3 - 4	n. r.

Crop	Country	Formulation conc. of ai	Application			PHI (days)
			Rate (kg ai/ha)	Spray conc. (kg ai/hl)	No.	
Banana	Panama	EC 75 g/l	0.075-0.09		3 - 4	n. r.
Barley	Austria	EC 187.5 g/l	0.15		1	35
Barley	Belgium	DC 125 g/l	0.19		max 2	42
Barley	France	EC 125 g/l	0.25		max 2	42
Barley	Germany	SC 500 g/l	0.25		max 2	35
Barley	Great Britain	SC 500 g/l	0.25		max 2	35
Barley	Great Britain	EC 125 g/l	0.25		max 2	35
Barley, spring	Hungary	EC 187.5 g/l	0.15-0.19		1 - 2	n. s.
Barley	Ireland	EC 125 g/l	0.25		max 2	usable up to BBCH 71
Barley	Italy	EC 187.5 g/l	0.11-0.19		max 3	42
Barley	Luxembourg	DC 125 g/l	0.19		max 2	42
Barley	Poland	EC 187.5 g/l	0.15-0.19		n. s.	45
Barley	Poland	EC 125 g/l	0.125		n. s.	35
Barley, spring	Slovakia	EC 125 g/l	0.125		n. s.	35
Barley	Switzerland	EC 187.5 g/l	0.19		1	appl. latest BBCH 51
Bean	Brazil	WG 500 g/kg	0.1-0.13		3	15
Bean	Brazil	EC 125 g/l	0.075		1 - 2	15
Beechnut	USA	WG 500 g/kg	0.07-0.14		max 4	60
Brazil Nut	USA	WG 500 g/kg	0.07-0.14		max 4	60
Broccoli	Switzerland	WG 500 g/kg	0.13-0.25		max 3	7
Brussels sprouts	Switzerland	WG 500 g/kg	0.13-0.25		max 3	7
Butternut	USA	WG 500 g/kg	0.07-0.14		max 4	60
Cabbage, Chinese	Switzerland	WG 500 g/kg	0.13-0.25		max 3	7
Cabbage, Head	Switzerland	WG 500 g/kg	0.13-0.25		max 3	7
Carrots	Switzerland	WG 500 g/kg	0.13-0.25		max 3	7
Cashew	USA	WG 500 g/kg	0.07-0.14		max 4	60
Cauliflower	Switzerland	WG 500 g/kg	0.13-0.25		max 3	7
Celeriac	Switzerland	WG 500 g/kg	0.13-0.25		max 3	14
Celery	Switzerland	WG 500 g/kg	0.13-0.25		max 3	7
Cherry	Switzerland	WG 500 g/kg	0.2	0.013	max 3	21
Cherry	USA	WG 500 g/kg	0.07-0.14		max 4	1
Chestnuts	USA	WG 500 g/kg	0.07-0.14		max 4	60
Chicory	Switzerland	WG 500 g/kg	0.13-0.25		max 3	21
Chinquapins	USA	WG 500 g/kg	0.07-0.14		max 4	60
Citrus (excl. lemon)	South Africa	WG 500 g/kg		0.005	2	76
Citrus	USA	WG 250 g/kg	0.07-0.14		3 (4)[5]	30
Coffee	Brazil	EC 187.5 g/l	0.075-0.11		3	30
Cotton	Brazil	EC 125 g/l	0.063-0.075		2 - 3	21
Cucumber	Japan	SC 250 g/kg		0.01	1 - 3	1
Cucumber	Mexico	WG 500 g/kg	0.06-0.09	0.013-0.019	4 (2)[4]	0
Cucumber	Switzerland	WG 500 g/kg	indoor0.25	0.025	max 3	3
Cucumber	USA	WG 500 g/kg	0.053-0.14		max 4	0
Cucurbits	South Africa	WG 500 g/kg	min. 0.03	0.0063	3	7
Filberts	USA	WG 500 g/kg	0.07-0.14		max 4	60
Grapes	Australia	WG 500 g/kg		0.0075	max 3	35, 70[1]
Grapes	Austria	WG 500 g/kg	0.06-0.12	0.0038-0.0075	max 3	35

Crop	Country	Formulation conc. of ai	Application			PHI (days)
			Rate (kg ai/ha)	Spray conc. (kg ai/hl)	No.	
Grapes	Canada	WG 500 g/kg	0.053-0.07		max 4[6]	n. s.
Grapes, wine	France	WG 500 g/kg		0.0063	max 3	35
Grapes, wine	Germany	WG 500 g/kg	0.0450.12[7]	0.008	max 3	35
Grapes, table	Germany	WG 500 g/kg	0.06[7]	0.008	max 3	35
Grapes	Hungary	WG 250 g/kg	0.13		max 3-4	21
Grapes	Italy	WG 500 g/kg	0.063-0.13	0.0063-0.013	max 3	35
Grapes	Mexico	WG 500 g/kg	0.05-0.1		4 (2)[4]	14
Grapes	Portugal	WG 500 g/kg	0.063-0.075	0.0063-0.0075	3	35
Grapes	Romania	WG 250 g/kg	0.13	0.013	1 - 4	14
Grapes	Slovenia	WG 250 g/kg	0.063-0.13		max 4	n. s.
Grapes, table	South Africa	WG 500 g/kg	0.038-0.075	0.0075	3	28-42
Grapes, wine	South Africa	WG 500 g/kg	0.023-0.11	0.0075[8]	3	14
Grapes, wine	South Africa	WG 500 g/kg	0.034-0.17	0.011 [9]	2	14
Grapes	Spain	WG 500 g/kg	0.075	0.013-0.015	max 4	30
Grapes	Switzerland	WG 500 g/kg	0.05-0.12	0.015	max 3	last appl. mid August
Grapes	Switzerland	WG 250 g/kg	0.1-0.2		max 3	last appl. mid August
Grape	Turkey	WG 500 g/kg		0.005	2 - 3	35
Grapes excl. Concord Gr.	USA	WG 500 g/kg	0.053-0.14		max 4	14
Hops	Austria	WG 500 g/kg	0.075-0.38	0.013	max 2	14
Hops	Germany	WG 500 g/kg	0.38-0.63	0.013	max 2	14
Hops	USA	WG 500 g/kg	0.0380.14		3 (4)[5]	14
Leek	Switzerland	EC 187.5 g/l	0.19		max 3	7
Macadamia	USA	WG 500 g/kg	0.07-0.14		max 4	60
Maize	Brazil	EC 125 g/l	0.075-0.1		1 - 2	30
Maize	USA	EC 125 g/l	0.064-0.11		max 2-3	30[10]
Melon	Italy	WG 500 g/kg	0.075-0.13	0.0075-0.013	max 3	3
Melon	Mexico	WG 500 g/kg	0.06-0.09	0.013-0.019	4 (2)[4]	0
Melon	Turkey	WG 500 g/kg		0.0075	2-3	5
Melon, musk	USA	WG 500 g/kg	0.053-0.14		max 4	0
Nectarine	Spain	WG 500 g/kg		0.015	max 4	7
Nectarine	Switzerland	WG 500 g/kg	0.2	0.013	max 3	21
Nectarine	USA	WG 500 g/kg	0.07-0.14		max 4	1
Peach	Spain	WG 500 g/kg		0.015	max 4	7
Peach	Switzerland	WG 500 g/kg	0.2	0.013	max 3	21
Peach	USA	WG 500 g/kg	0.07-0.14		max 4	1
Peanut	Argentina	EC 187.5 g/l	0.084		max 3	15
Peanut	Brazil	EC 125 g/l	0.075		3	15
Peanut	USA	EC 125 g/l	0.064		6 (2)[11]	14
Peanut	USA	EC 125 g/l	0.13		2	14
Pear	Australia	WG 500 g/kg		0.005	max 3	35, 70[1]
Pear	Austria	WG 500 g/kg		0.005	3	14
Pear	Belgium	WG 500 g/kg	0.05[2] /0.085		4	14
Pear	Canada	WG 500 g/kg	0.07-0.11		4 (2)[3]	n. s.
Pear	France	WG 500 g/kg		0.0075	max 3	14
Pear	Germany	WG 500 g/kg	0.025[2]	0.005	3 (4)	14
Pear	Hungary	WG 500 g/kg	0.05-0.075		n. s.	14
Pear	Italy	WG 500 g/kg	0.075-0.11	0.005-0.0075	max 3	14
Pear	Luxembourg	WG 500 g/kg	0.05[2] /0.085		4	14

Crop	Country	Formulation conc. of ai	Application			PHI (days)
			Rate (kg ai/ha)	Spray conc. (kg ai/hl)	No.	
Pear	Mexico	WG 500 g/kg	0.075-0.1		4 (2)[4]	14
Pear	New Zealand	WG 500 g/kg		0.005	max 3	70
Pear	Poland	WG 500 g/kg	0.075		3 (4) [5]	14
Pear	Romania	WG 500 g/kg		0.005	4 - 6	14
Pear	South Africa	WG 500 g/kg		0.0038	3	14
Pear	Slovakia	WG 500 g/kg	0.075	0.0075	2 - 3	14
Pear	Spain	WG 500 g/kg		0.0075-0.015	max 4	14
Pear	Switzerland	WG 500 g/kg	0.12	0.0075	max 4	21
Pear	Ukraine	WG 500 g/kg	0.075		3	20
Pear	USA	WG 500 g/kg	0.0530.105		3 (4)[5]	14
Pecans	USA	EC 125 g/l	0.091		max 3	30
Pepper	USA	WG 500 g/kg	0.053-0.14		max 4	3
Plum	Switzerland	WG 500 g/kg	0.2	0.013	max 3	21
Plum	USA	WG 500 g/kg	0.07-0.14		max 4	1
Pome fruit	Slovenia	WG 500 g/kg	0.05-0.075		4	21
Potato	USA	WG 250 g/kg	0.11-0.14		6 (2)[11]	7
Rice	Brazil	WG 500 g/kg	0.10-0.13		2	15
Rice	USA	WG 250 g/kg	0.11-0.17		max 2	35
Rice	USA	EC 125 g/l	0.13-0.15		max 2	35
Soya bean	Argentina	EC 187.5 g/l	0.056		1	20
Soya bean	Brazil	EC 125 g/l	0.05		2	30
Soya bean	Brazil	EC 187.5 g/l	0.056-0.075		2	30
Soya bean	Brazil	EC 187.5 g/l	0.056		n. s.	30
Squash, Summer	USA	WG 500 g/kg	0.053-0.14		max 4	0
Strawberry	Switzerland	WG 500 g/kg	0.25	0.025	max 3	14
Sugar beet	Italy	EC 187.5 g/l	0.11-0.15		2 - 3	21
Sugar beet	Switzerland	EC 187.5 g/l	0.15		1	21
Sugar beet	USA	WG 250 g/kg	0.11-0.12		max 3 [12]	21
Tea plant	Japan	SC 250 g/kg		0.0083- 0.0167	1 - 2	14
Tomato	USA	WG 500 g/kg	0.07-0.14		max 4	3
Walnut	USA	WG 500 g/kg	0.07-0.14		max 4	60
Wheat	Argentina	EC 187.5 g/l	0.11-0.15		max 3	35
Wheat	Austria	EC 187.5 g/l	0.19		1	35
Wheat	Belgium	DC 125 g/l	0.19		max 2	42
Wheat	Brazil	EC 125 g/l	0.075		1 - 2	30
Wheat *	Canada	EC 125 g/l	0.13		max 2	45
Wheat *	Canada	WG 500 g/kg	0.12		max 2	45
Wheat	France	EC 125 g/l	0.25		max 2	42
Wheat	Germany	SC 500 g/l	0.25		max 2	35
Wheat, Winter	Great Britain	SC 500 g/l	0.25		max 2	35
Wheat, Winter	Great Britain	EC 125 g/l	0.25		max 2	35
Wheat, Winter	Hungary	EC 187.5 g/l	0.15-0.19		1 or 2	n. s.
Wheat	Ireland	EC 125 g/l	0.25		max 2	usable up to BBCH 71
Wheat	Italy	EC 187.5 g/l	0.11-0.19		max 3	42
Wheat	Luxembourg	DC 125 g/l	0.19		max 2	42
Wheat	Poland	EC 187.5 g/l	0.15-0.19		n. s.	45
Wheat	Poland	EC 125 g/l	0.13		n. s.	35
Wheat, Winter	Slovakia	EC 125 g/l	0.13		n. s.	35

Crop	Country	Formulation conc. of ai	Application			PHI (days)
			Rate (kg ai/ha)	Spray conc. (kg ai/hl)	No.	
Wheat	Switzerland	EC 187.5 g/l	0.19		1	appl. latest BBCH 61
Wheat	USA	EC 125 g/l	0.09		max 2	35

n. r. no restrictions
n. s. not specified on label
* includes winter, spring, hard red, durum, Canada prairie and soft white wheat
[1] apple, pear, grape (Australia): 70 days PHI for export
[2] kg/ha vertical fruit leaf wall
[3] max. 4 applications of strobilurins per season. Do not apply more than 2 sequential applications of strobilurin fungicides before alternating to a non-strobilurin fungicide for at least 2 applications
[4] applications in blocks of two
[5] 3-4 applications per season, max. 3 subsequent applications
[6] max. applications per year: table and wine grapes 4; other grapes 3. Max 2 sequential applications of strobilurin fungicides before applying a non-strobilurin fungicide
[7] base application rate 0.03 kg ai/ha
[8] 10-14 day programme
[9] 18-21 day programme
[10] PHI for forage
[11] 2-6 applications; not more than 2 sequential applications
[12] not more than 1 application before using a fungicide with a different mode of action

RESIDUES RESULTING FROM SUPERVISED TRIALS ON CROPS

The Meeting received information on trifloxystrobin supervised field trials for

Fruits	citrus	Tables 41 – 42	oranges
		Table 43	grapefruit
		Table 44	lemon
	pome	Tables 45 – 49	apple and pear
	stone	Table 50	apricot
		Table 51	cherries
		Table 52	peach
		Table 53	plum
	berries	Table 54 – 57	grapes
		Table 58	strawberry
	tropical	Table 59	banana
Vegetables	bulb	Table 60	leek
	brassica	Table 61	head cabbage
		Table 62	Brussels sprouts
		Table 63	flowerhead brassicas
	fruiting	Tables 64 – 65	cucumber
		Table 66	melons
		Table 67	summer squash
		Table 68	sweet pepper
		Table 69	tomato
	leafy	Table 70	Chinese cabbage
	pulses	Table 71	beans
		Table 72	soya beans
	root and tuber	Table 73	carrot
		Table 74	celeriac
		Table 75	potato
		Tables 76 – 77	sugar beet
	stalk and stem	Table 78	celery
		Table 79	witloof chicory

Cereal grains	Table	80	barley
	Tables	81 – 83	wheat
	Table	84	maize
	Table	85	rice
Tree nuts	Table	86	almonds
	Table	87	pecan
Oil seeds	Table	88	cotton seed
	Table	89	peanut
Further commodities	Table	90	coffee beans
	Table	91	hops
Animal feed	Table	92	almond hulls
	Table	93	peanut fodder
	Table	94	barley straw
	Table	95	maize stover
	Table	96	rice straw
	Tables	97 – 98	wheat straw
	Tables	99 –100	sugar beet leaves and tops

The trials were well documented with laboratory and field reports including method validation, procedural recoveries with spiking at residue levels similar to those occurring in samples from the supervised trials, and dates of analyses or duration of sample storage. Although control plots were included in the trials no results are shown in the Tables except where the residues in the control samples exceeded the LOQ. Residue data are unadjusted for recoveries. Results from replicate field plots are presented as individual values, and from replicate field samples as individual values followed by the mean. Results from replicate laboratory samples are presented as the means. When no residues were detected they are shown as below the LOQ. Residues, application rates and spray concentrations have generally been rounded to two significant figures or, for residues near the LOQ, to one significant figure. Residues values from the trials conducted according to maximum GAP have been used for the estimation of maximum residue levels and STMRs. These results are double underlined.

The corresponding data on the parent compound and CGA321113 expressed as trifloxystrobin conversion (factor 408/394) are given in the Tables.

Citrus fruits

In supervised trials on oranges, grapefruit and lemons reported to the Meeting from South Africa and the USA, the leaves of the crops were sprayed with 25WG and 50 WG formulations.

Table 41. Results of residue trials with trifloxystrobin on oranges in South Africa

Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
1997	50 WG	2	0.89 - 0.91	0.03	fruit	0[1] 0 3 7 14 21 28	0.18 1.6 1.6 1.2 0.94 0.74 0.52	0.05 0.05 0.05 0.06 0.05 0.05 0.06	2411/97 SAF-2411-97
					peel	76	0.58	0.11	
					pulp	76	<0.02	<0.02	
					whole fruit, calculated	76	0.20	0.04	

Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
1997	50 WG	2	0.46	0.015	fruit	0[1] 0 3 7 14 21 28	0.08 0.74 0.76 0.72 0.50 0.35 0.26	0.02 0.02 0.03 0.03 0.04 0.04 0.04	2410/97 SAF-2410-97
					peel	76	0.20	0.07	
					pulp	76	<0.02	<0.02	
					whole fruit, calculated	76	0.07	0.03	
1997	50 WG	2	0.56 - 0.59	0.015	fruit	0[1] 0 3 7 14 21 28	0.05 0.72 0.49 0.39 0.29 0.20 0.13	0.02 0.02 0.02 0.02 0.02 0.02 0.02	2409/97 SAF-2409-97
					peel	76	0.12	0.04	
					pulp	76	<0.02	<0.02	
					whole fruit, calculated	76	0.06	0.02	
1999	50 WG	2	0.34	0.01	fruit	0 7 14 28 56	0.42 0.33 0.26 0.19 0.12	<0.01 <0.01 <0.01 <0.01 <0.01	2179/99 SAF-2179-99
					peel	104 104	0.31 0.24	<0.01 <0.01	
					pulp	104 104	<0.01 <0.01	<0.01 <0.01	
					whole fruit, calculated	104 104	0.12 0.09	<0.01 <0.01	
1999	50 WG	2	0.17	0.005	fruit	0 7 14 28 56	0.28 0.14 0.12 0.07 0.04	<0.01 <0.01 <0.01 <0.01 <0.01	2178/99 SAF-2178-99
					peel	104 104	0.07 0.12	<0.01 <0.01	
					pulp	104 104	<0.01 <0.01	<0.01 <0.01	
					whole fruit, calculated	104 104	0.03 0.05	<0.01 <0.01	
1999	50 WG	2	0.17	0.005	fruit	0 7 14 28 56	0.24 0.18 0.17 0.07 0.05	<0.01 <0.01 <0.01 <0.01 <0.01	2177/99 SAF-2177-99
					peel	104 104	0.08 0.09	<0.01 <0.01	
					pulp	104 104	<0.01 <0.01	<0.01 <0.01	
					whole fruit, calculated	104 104	0.03 0.03	<0.01 <0.01	

[1] before last treatment

Table 42. Results of residue trials with trifloxystrobin on oranges in the USA.

Location, year	Application				Residues (mg/kg)				
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	*Report No.;* Study No.
CA, 1998	50 WG	4	0.17	0.025	fruit	0	0.30	<0.02	*SAM 4474* 02-FR-002-98-A
						0	0.30	<0.02	
						8	0.36	<0.02	
						8	0.35	<0.02	
						18	0.27	<0.02	
						18	0.30	<0.02	
						25	0.23	<0.02	
						25	0.22	<0.02	
						32	0.16	<0.02	
						32	0.19	<0.02	
						39	0.21	<0.02	
						39	0.21	<0.02	
CA, 1998	50 WG	4	0.17	0.012	fruit	0	0.43	<0.02	*SAM 4474* 02-FR-002-98-B
						0	0.41	<0.02	
						32	0.23	<0.02	
						32	0.20	<0.02	
FL, 1998	50 WG	4	0.17	0.023 - 0.025	fruit	30	0.11	<0.02	*SAM 4474* OS-FR-402-98
						30	0.07	<0.02	
FL, 1998	50 WG	4	0.17	0.023 – 0.025	fruit	30	0.21	<0.02	*SAM 4474* OS-FR-403-98
						30	0.18	<0.02	
FL, 1998	50 WG	4	0.17	0.024 - 0.025	fruit	30	0.10	<0.02	*SAM 4474* OS-FR-405-98
						30	0.10	<0.02	
FL, 1998	50 WG	4	0.17	0.01	fruit	26	0.08	<0.02	*SAM 4474* OS-FR-406-98
						26	0.07	<0.02	
FL, 1998	50 WG	4	0.17	0.023 - 0.025	fruit	30	0.12	<0.02	*SAM 4474* OS-FR-407-98
						30	0.15	<0.02	
FL, 1998	50 WG	4	0.17	0.009	fruit	26	0.09	<0.02	*SAM 4474* OS-FR-408-98
						26	0.08	<0.02	
TX, 1998	50 WG	4	0.17	0.023 - 0.024	fruit	30	0.15	<0.02	*SAM 4474* OS-FR-310-98-A
						30	0.14	<0.02	
TX, 1998	50 WG	4	0.17	0.0064 - 0.0071	fruit	30	0.11	<0.02	*SAM 4474* OS-FR-310-98-B
						30	0.12	<0.02	
AZ, 1998	50 WG	4	0.17	0.025	fruit	29	0.17	<0.02	SAM 4474 OW-FR-517-98
						29	0.15	<0.02	
FL, 1998	50 WG	4	0.17	0.0074	fruit	0	0.17	<0.02	SAM 4474 07-FR-003-98
						0	0.16	<0.02	
						8	0.06	<0.02	
						8	0.07	<0.02	
						15	0.05	<0.02	
						15	0.05	<0.02	
						22	0.05	<0.02	
						22	0.05	<0.02	
						30	0.05	<0.02	
						30	0.04	<0.02	
						36	0.04	<0.02	
						36	0.04	<0.02	
Orange FL, USA 1998	50 WG	4	0.17	0.011	fruit	26	0.16	<0.02	SAM 4474 OS-FR-404-98-A
						26	0.13	<0.02	
CA, 1998	50 WG	4	0.17	0.0076	fruit	30	0.07	<0.02	SAM 4474 OW-FR-516-98-A
						30	0.05	<0.02	

Table 43. Results of residue trials with trifloxystrobin on grapefruit in the USA.

Location, year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
FL, 1998	50 WG	4	0.17	0.0074	fruit	30 30	0.03 0.03	≤0.02 <0.02	SAM 4474 07-FR-004-98-B
FL, 1998	50 WG	4	0.17	0.025	fruit	30 30	0.03 0.03	≤0.02 <0.02	SAM 4474 07-FR-004-98-A
CA, 1998	50 WG	4	0.17	0.012	fruit	32 32	0.10 0.09	≤0.02 <0.02	SAM 4474 02-FR-003-98
FL, 1998	50 WG	4	0.17	0.0075- 0.008	fruit	0 0 9 9 16 16 22 22 29 29 36 36	0.17 0.20 0.12 0.13 0.07 0.08 0.08 0.08 0.08 0.08 0.07 0.07	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 ≤0.02 <0.02 <0.02 <0.02	SAM 4474 OS-FR-409-98
FL, 1998	50 WG	4	0.17	0.024- 0.025	fruit	30 30	0.04 0.04	≤0.02 <0.02	SAM 4474 OS-FR-410-98
TX, 1998	50 WG	4	0.17	0.023- 0.024	fruit	30 30	0.06 0.03	≤0.02 <0.02	SAM 4474 OS-FR-311-98- A
TX, 1998	50 WG	4	0.17	0.007	fruit	30 30	0.05 0.08	<0.02 ≤0.02	SAM 4474 OS-FR-311-98- B
AZ, 1998	50 WG	4	0.17	0.025	fruit	30 30	≤0.02 <0.02	≤0.02 <0.02	SAM 4474 OW-FR-518-98

Table 44. Results of residue trials with trifloxystrobin on lemon in the USA.

Location, Year	Application				Residues (mg/kg)				
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	*Report No.;* Study No.
FL, 1998	50 WG	4	0.17	0.024 - 0.025	fruit	28 28	0.02 0.02	<0.02 ≤0.02	*SAM 4474* OS-FR-411-98-A
FL, 1998	50 WG	4	0.17	0.008	fruit	28 28	<0.02 ≤0.02	<0.02 ≤0.02	*SAM 4474* OS-FR-411-98-B
AZ, 1998	50 WG	4	0.17	0.015	fruit	31 31	0.09 0.11	<0.02 ≤0.02	*SAM 4474* OW-FR-521-98
CA, 1998	50 WG	4	0.17	0.021	fruit	30 30	0.13 0.12	≤0.02 <0.02	*SAM 4474* OW-FR-108-98
CA, 1998	50 WG	4	0.17	0.008	fruit	0 0 9 9 16 16 23 23 30 30 37 37	0.16 0.20 0.23 0.22 0.21 0.19 0.20 0.14 0.16 0.22 0.12 0.15	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 ≤0.02 <0.02 <0.02	*SAM 4474* OW-FR-519-98
CA, 1998	50 WG	4	0.17	0.025	fruit	29□29	0.09□0.0 6	≤0.02 <0.02	*SAM 4474* OW-FR-520-98

Pome fruits

The results of supervised trials on apples and pears conducted using foliar spray applications of 50 WG formulations were reported from Australia, Canada, Northern and Southern European countries, South Africa and the USA.

In two trials on apples (Kissling, 1998; report no. 511/98) trifloxystrobin was applied four times to the trees at a rate of 0.12 or 0.15 kg ai/ha at intervals of 12 to 17 days. Samples of fruit were taken before and after each application (Table 45).

Table 45. Residues of trifloxystrobin in apples before and after each of four applications in trials in Switzerland.

Sampling	Residues (mg/kg)		Report No.
	Plot 1	Plot 2	
after 1st application	0.42	0.45	511/98
before 2nd application	0.15	0.14	
after 2nd application	0.43	0.31	
before 3rd application	0.17	0.09	
after 3rd application	0.54	0.28	
before 4th application	0.21	0.12	
after 4th application	0.34	0.29	
43 days after 4th application	0.11	0.11	
51 days after 4th application	0.11	0.08	

Table 46. Results of residue trials with trifloxystrobin on pome fruits in South Africa.

Crop year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Apple 1995	50 WG	7	0.026-0.044	0.0038	fruit	0	0.09	<0.02	2215/95 SAF-2215-95
						3	0.03	<0.02	
						7	0.03	<0.02	
						14	<0.02	<0.02	
						21	<0.02	<0.02	
						27	<0.02	<0.02	
						48	<0.02	<0.02	
Apple 1995	50 WG	7	0.026-0.044	0.0038	fruit	0	0.11	<0.02	2216/95 SAF-2216-95
						3	0.06	<0.02	
						7	0.04	<0.02	
						14	<0.02	<0.02	
						21	0.03	<0.02	
						27	<0.02	<0.02	
						66	<0.02	<0.02	
Pear 1999	50 WG	3	0.0642	0.0037	fruit	0	0.25	0.01	2163/99 SAF-2163-99
						3	0.16	0.01	
						7	0.13	0.01	
						14	0.06	<0.01	
						21	0.03	<0.01	
						28	0.03	<0.01	
						74	<0.01	<0.01	
						74	<0.01	<0.01	

Crop year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Pear 1999	50 WG	3	0.062	0.0037	fruit	0	0.18	<0.01	2165/99 SAF-2165-99
						3	0.15	0.01	
						7	0.11	0.01	
						14	0.05	0.01	
						21	0.04	<0.01	
						28	0.02	<0.01	
						66	<0.01	<0.01	
						66	<0.01	<0.01	

Table 47. Results of residue trials with trifloxystrobin on apple in Australia.

Year	Application				Residues (mg/kg)				
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	*Report No.;* Study No.
1998	50 WG	6	0.075	0.0038	fruit	0[1]	<0.04	<0.04	99/5/1646 AUS-99-5-1646-A1
						0[1]	0.05	<0.04	
						0	0.04	<0.04	
						0	0.06	<0.04	
						7	0.05	<0.04	
						7	<0.04	<0.04	
						14	<0.04	<0.04	
						14	<0.04	<0.04	
						21	<0.04	<0.04	
						21	<0.04	<0.04	
						28	<0.04	<0.04	
						28	<0.04	<0.04	
						35	<0.04	<0.04	
						35	<0.04	<0.04	
						42	<0.04	<0.04	
1998	50 WG	6	0.15	0.0075	fruit	0[1]	0.10	<0.04	99/5/1646 AUS-99-5-1646-A2
						0[1]	0.11	<0.04	
						0	0.17	<0.04	
						0	0.16	<0.04	
						7	0.14	<0.04	
						7	0.12	<0.04	
						14	0.07	<0.04	
						14	0.07	<0.04	
						21	0.06	<0.04	
						21	0.05	<0.04	
						28	0.04	<0.04	
						28	0.04	<0.04	
						35	<0.04	<0.04	
						35	<0.04	<0.04	
						42	<0.04	<0.04	
						42	<0.04	<0.04	
Apple Australia 1998	50 WG	6	0.075	0.0038	fruit	0[1]	0.05	<0.04	99/5/1646 AUS-99-5-1646-B1
						0[1]	0.14	<0.04	
						0	0.06	<0.04	
						0	0.21	<0.04	
						7	0.14	<0.04	
						7	0.12	<0.04	
						13	0.12	<0.04	
						13	0.12	<0.04	
						21	0.27	<0.04	
						21	0.13	<0.04	
						28	0.13	<0.04	
						28	0.06	<0.04	
						35	0.04	<0.04	
						35	0.08	<0.04	
						42	0.05	<0.04	
						42	<0.04	<0.04	

Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Apple Australia 1998	50 WG	6	0.15	0.0075	fruit	0[1]	0.18	<0.04	99/5/1646 AUS-99-5-1646-B2
						0[1]	0.06	<0.04	
						0	0.27	<0.04	
						0	0.36	<0.04	
						7	0.21	<0.04	
						7	0.14	<0.04	
						13	0.12	<0.04	
						13	0.11	<0.04	
						21	0.10	<0.04	
						21	0.27	<0.04	
						28	0.08	<0.04	
						28	0.27	<0.04	
						35	0.15	<0.04	
						35	0.07	<0.04	
						42	0.08	<0.04	
						42	0.10	<0.04	

[1] before last treatment

Table 48. Results of residue trials with trifloxystrobin on pome fruits in the USA and Canada.

Crop Location, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Apple CO, USA 1996	50 WG	4	0.1	0.011	fruit	14	0.15	0.03	110433 USA-MW-FR-315-96-B
						14	0.18	0.03	
Apple OH, USA 1996	50 WG	4	0.1	0.008	fruit	14	0.18	<0.02	110433 USA-NE-FR-210-96-B
						14	0.26	≤0.02	
Apple MI, USA 1996	50 WG	4	0.1	0.011	fruit	14	0.13	<0.02	110433 USA-NE-FR-725-96-B
						14	0.16	≤0.02	
Apple NY, USA 1996	50 WG	4	0.1	0.011	fruit	14	0.15	<0.02	110433 USA-NE-FR-820-96-B
						14	0.31	≤0.02	
Apple PN,USA 1996	50 WG	4	0.1	0.01	fruit	15	0.14	<0.02	110433 USA-NE-FR-821-96-B
						15	0.14	≤0.02	
Apple CA, USA 1996	50 WG	4	0.1	0.011	fruit	14	0.09	<0.02	110433 USA-OW-FR-409-96-B
						14	0.18	≤0.02	
Apple CA, USA 1996	50 WG	4	0.1	0.011	fruit	0	0.13	<0.02	110433 USA-OW-FR-410-96-B
						0	0.12	<0.02	
						1	0.11	<0.02	
						1	0.15	<0.02	
						3	0.12	<0.02	
						3	0.10	<0.02	
						7	0.14	<0.02	
						7	0.12	<0.02	
						14	0.10	≤0.02	
						14	0.09	<0.02	
						21	0.06	<0.02	
						21	0.03	<0.02	
Apple WA, USA 1996	50 WG	4	0.1	0.011	fruit	14	0.13	<0.02	110433 USA-OW-FR-634-96-B
						14	0.24	≤0.02	
						14	0.14	0.03	
Apple WA, USA 1996	50 WG	4	0.1	0.11	fruit	13	0.11	<0.02	110433 USA-OW-FR-635-96-B
						13	0.12	≤0.02	

Crop Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy- strobin	CGA- 321113	
Apple OR, USA 1996	50 WG	4	0.1	0.009	fruit	14 14	0.13 0.21	<0.02 <0.02	110433 USA-OW-FR-636-96-B
Apple ID, USA 1996	50 WG	4	0.1	0.011	fruit	14 14	0.23 0.37	<0.02 <0.02	110433 USA-OW-FR-637-96-B
Apple NC, USA 1996	50 WG	4	0.1	0.01	fruit	14 14	0.10 0.13	<0.02 <0.02	110433 USA-0S-FR-605-96-B
Apple Canada 1999	50 WG	4	0.1	0.011	fruit	14 14	0.04 0.03	<0.02 <0.02	CER 04412/99 CND-CER04412/99-A
Apple Canada 1999	50 WG	4	0.1	0.012	fruit	14 14	0.16 0.09	<0.02 <0.02	CER 04412/99 CND-CER04412-99-B
Apple Canada 1999	50 WG	4	0.1	0.011- 0.012	fruit	14 14	0.07 0.09	<0.02 <0.02	CER 04412/99 CND-CER04412-99-C
Apple WA, USA 1996	50 WG	4	0.1	0.01	fruit	0 0 1 1 3 3 7 7 14 14 14 21 21	0.32 0.22 0.33 0.28 0.10 0.24 0.11 0.08 0.18 0.09 0.07 0.08 0.08	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	110433 USA-05-FR-005-96-B
Pear USA 1996	50 WG	4	0.1	0.012	fruit	13 13	0.09 0.15	<0.02 <0.02	110433 USA-NE-FR-822-96-B
Pear USA 1996	50 WG	4	0.1	0.008	fruit	14 14	0.10 0.05	0.04 <0.02	110433 USA-OW-FR-414-96-B
Pear USA 1996	50 WG	4	0.1	0.11	fruit	14 14	0.23 0.17	<0.02 <0.02	110433 USA-OW-FR-638-96-B
Pear USA 1996	50 WG	4	0.1	0.011	fruit	14 14	0.14 0.13	0.03 0.03	110433 USA-OW-FR-639-96-B
Pear USA 1996	50 WG	4	0.1	0.011- 0.013	fruit	14 14	0.22 0.14	<0.02 <0.02	110433 USA-OW-FR-640-96-B
Pear USA 1996	50 WG	4	0.1	0.007	fruit	0 0 1 1 3 3 7 7 14 14 21 21	0.54 0.43 0.38 0.44 0.43 0.74 0.20 0.44 0.13 0.17 0.13 0.15	0.02 0.02 0.03 0.03 0.03 0.04 0.03 0.02 0.03 0.03 0.03 0.03	110433 USA-02-FR-023-96-B
Pear Canada 1999	50 WG	4	0.1-0.11		fruit	14 14	0.09 0.07	<0.02 <0.02	CER 04413/99 CND- CER04413-99-A

Crop Location, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Pear Canada 1999	50 WG	4	0.1-0.11		fruit	15 15	0.10 0.07	≤0.02 <0.02	CER 04413/99 CND-CER04413-99-B
Pear Canada 1999	50 WG	4	0.1-0.11		fruit	14	0.07	≤0.02	CER 04413/99 CND-CER04413-99-C1
Pear Canada 1999	50 WG	4	0.1-0.11		fruit	14	0.08	≤0.02	CER 04413/99 CND-CER04413-99-C2

Table 49. Results of residue trials with trifloxystrobin on pome fruit in Europe.

Crop Country, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Apple Germany 1995	50 WG	10	0.08	0.01	fruit	0 7 10 14 21	0.10 0.06 0.05 0.05 0.05	<0.02 <0.02 <0.02 ≤0.02 <0.02	FR10/95/31 BRD-FR10-95-31
Apple Germany 1995	50 WG	10	0.075	0.005	fruit	0 7 10 14 21	0.19 0.19 0.18 0.11 0.09	<0.02 <0.02 <0.02 ≤0.02 <0.02	FR10/95/42 BRD-FR10-95-42
Apple France 1995	50 WG	10	0.075	0.015	fruit	0[1] 0 7 14 21 28	0.21 0.34 0.14 0.13 0.12 0.10	0.02 0.03 <0.02 0.02 0.02 0.02	OF95134/KJ11 FRA-KJ11
Apple Switzerland 1995	50 WG	10	0.075	0.0075	fruit	0 7 11 14 21	0.26 0.10 0.07 0.08 0.05	<0.02 <0.02 <0.02 ≤0.02 <0.02	2034/95 SWZ-2034-95
Apple Germany 1996	50 WG	10	0.075	0.01	fruit	0 7 10 14 21	0.35 0.21 0.18 0.13 0.09	<0.02 <0.02 <0.02 ≤0.02 <0.02	gr00996 BRD-gr00996
Apple France 1996	50 WG	10	0.075	0.0075	fruit	13	0.10	≤0.02	OF96122/KJ72 FRA-KJ72
Apple France 1996	50 WG	10	0.075	0.0075	fruit	14	0.30	≤0.02	OF96122/SJ26 FRA-SJ26
Apple Switzerland 1996	50 WG	6	0.075	0.0075	fruit	14 14	0.12 0.09	≤0.02 <0.02	2014/96 SWZ-2014-96
Apple Switzerland 1996	50 WG	6	0.075	0.0075	fruit	14 14	0.04 0.06	<0.02 ≤0.02	2015/96 SWZ-2015-96
Apple Switzerland 1996	50 WG	10	0.075	0.0075	fruit	14 14	0.19 0.10	≤0.02 <0.02	2016/96 SWZ-2016-96
Apple Switzerland 1996	50 WG	10	0.075	0.0075	fruit	14 14	0.05 0.05	≤0.02 <0.02	2017/96 SWZ-2017-96

Crop Country, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Apple	50	6	0.075-	0.0075	fruit	0	0.18	<0.02	gr50598
Germany	WG		0.086			6	0.12	<0.02	BRD-gr50598
1998						13	0.05	≤0.02	
Apple	50	5	0.08	0.01	fruit	0	0.09	<0.02	9811001
France	WG					7	0.05	<0.02	FRA-9811001
1998						14	0.07	≤0.02	
Apple	50	5	0.06-0.08	0.03	fruit	0	0.13	<0.02	2158/98
Netherlands	WG					0	0.09	<0.02	NIE-2158-98
1998						14	0.07	≤0.02	
						14	0.07	<0.02	
Apple	50	5	0.06-0.07	0.03	fruit	0	0.05	<0.02	2159/98
Netherlands	WG					0	0.06	<0.02	NIE-2159-98
1998						14	0.04	<0.02	
						14	0.07	≤0.02	
Apple	50	5	0.07-0.08	0.033-	fruit	0	0.08	<0.02	2160/98
Netherlands	WG			0.033		0	0.07	<0.02	NIE-2160-98
1998						14	0.07	≤0.02	
						14	0.04	<0.02	
Apple	50	6	0.075	0.0075	fruit	0	0.19	<0.02	2060/98
Switzerland	WG					3	0.18	<0.02	SWZ-2060-98
1998						7	0.11	<0.02	
						14	0.09	≤0.02	
Apple	50	6	0.075	0.0075	fruit	0	0.16	<0.02	2061/98
Switzerland	WG					3	0.12	<0.02	SWZ-2061-98
1998						7	0.14	<0.02	
						14	0.10	≤0.02	
Apple	50	3	0.075	0.015	fruit	0	0.10	<0.02	2007/99
France	WG					7	0.03	<0.02	FRA-2007-99
1999						14	0.03	≤0.02	
						14	0.02	<0.02	
Apple	50	3	0.06-0.08	0.03	fruit	0	0.08	<0.02	2109/99
Netherlands	WG					7	0.04	<0.02	NIE-2109-99
1999						14	0.03	<0.02	
						14	0.04	≤0.02	
Apple	50	3	0.075	0.0075	fruit	0	0.19	<0.02	2124/99
Switzerland	WG					7	0.08	<0.02	SWZ-2124-99
1999						14	0.03	<0.02	
						14	0.04	≤0.02	
Apple	50	3	0.075	0.008	fruit	0	0.08	<0.01	2125/99
Switzerland	WG					7	0.06	<0.01	SWZ-2125-99-A
1999						14	0.05	≤0.01	
						14	0.03	<0.01	
Apple	50	10	0.075	0.015	fruit	0[1]	0.53	0.05	OF95134/FP97
France	WG					0	0.53	0.05	FRA-FP97
1995						7	0.43	0.04	
						14	0.37	0.04	
						21	0.32	0.04	
						28	0.22	0.04	
Apple	50	10	0.075	0.011	fruit	7	0.27	<0.02	OF95135/LD05
France	WG					14	0.14	≤0.02	FRA-LD05
1995						21	0.12	<0.02	
						28	0.09	<0.02	
Apple	50	6	0.075	0.006	fruit	0	0.12	<0.02	2115/95
Italy	WG					14	0.07	≤0.02	ITA-2115-95
1995						28	0.05	<0.02	
						35	0.02	<0.02	
						42	0.02	<0.02	

Crop Country, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy- strobin	CGA- 321113	
Apple Italy 1995	50 WG	10	0.075	0.0075	fruit	0 6 13 20 27	0.10 0.04 0.03 0.03 0.04	<0.02 <0.02 <0.02 <0.02 ≤0.02	2116/95 ITA-2116-95
Apple France 1996	50 WG	10	0.075	0.0075	fruit	14	0.44	≤0.02	OF96122/FP13 FRA-FP13
Apple France 1996	50 WG	10	0.075	0.0075	fruit	14	0.17	≤0.02	OF96122/LD69 FRA-LD69
Apple Italy 1996	50 WG	10	0.075	0.005	fruit	14 14	0.04 0.05	<0.02 ≤0.02	2082/96 ITA-2082-96
Apple Italy 1996	50 WG	10	0.075	0.005	fruit	10 10	0.07 0.04	<0.02 <0.02	2083/96 ITA-2083-96
Apple Italy 1997	50 WG	6	0.11	0.0075	fruit	14 14	0.07 0.09	<0.02 ≤0.02	2075/97 ITA-2075-97
Apple Italy 1997	50 WG	6	0.11	0.0075	fruit	14 14	0.12 0.13	<0.02 ≤0.02	2076/97 ITA-2076-97
Apple Spain 1997	50 WG	6	0.11	0.005- 0.012	fruit	14 14	0.19 0.18	≤0.02 <0.02	2048/97 SPA-2048-97
Apple Spain 1997	50 WG	6	0.11	0.006- 0.007	fruit	14 14	0.12 0.15	<0.02 ≤0.02	2049/97 SPA-2049-97
Apple Greece 1998	50 WG	6	0.11	0.007- 0.0075	fruit	14 14	0.17 0.20	<0.02 ≤0.02	2135/98 GRI-2135-98
Apple Italy 1998	50 WG	6	0.11	0.007- 0.0075	fruit	0 3 7 14	0.14 0.15 0.12 0.07	<0.02 <0.02 <0.02 ≤0.02	2034/98 ITA-2034-98
Apple Spain 1998	50 WG	6	0.11	0.007- 0.008	fruit	0 3 7 14	0.36 0.30 0.26 0.21	<0.02 <0.02 <0.02 ≤0.02	2030/98 SPA-2030-98
Apple Spain 1998	50 WG	6	0.12	0.0085	fruit	0 3 7 14	0.27 0.29 0.29 0.19	<0.02 <0.02 <0.02 ≤0.02	2055/98 SPA-2055-98
Pear Germany 1996	50 WG	10	0.075	0.005	fruit	0 6 10 14 21	0.27 0.21 0.24 0.13 0.17	0.02 0.02 0.02 <0.02 0.02	gr01096 BRD-2180-96
Pear Greece 1998	50 WG	6	0.07	0.005	fruit	14 14	0.12 0.11	≤0.02 <0.02	2136/98 GRI-2136-98
Pear Italy 1998	50 WG	6	0.075	0.005	fruit	0 3 7 14	0.14 0.10 0.09 0.06	<0.02 <0.02 <0.02 ≤0.02	2035/98 ITA-2035-98
Pear Spain 1998	50 WG	6	0.08	0.006	fruit	0 3 7 14	0.13 0.11 0.08 0.07	<0.02 <0.02 <0.02 ≤0.02	2058/98 SPA-2058-98

Crop Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Pear Spain 1998	50 WG	6	0.07-0.075	0.006	fruit	0 3 10 17	0.17 0.17 0.10 0.11	<0.02 <0.02 <0.02 <0.02	2059/98 SPA-2059-98

[1] before last treatment

Stone fruits

The results of supervised trials on apricots, cherries, peaches and plums carried out in Europe and the USA using foliar sprays with 50 WG formulations were reported to the Meeting.

Table 50. Results of residue trials with trifloxystrobin on apricots in Switzerland in 2000.

Application				Residues (mg/kg)				Report No.; Study No.
Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
50 WG	3	0.25	0.013	pulp	0 7 14 21 21	0.63 0.45 0.15 0.07 0.15	0.01 <0.01 0.01 0.01 <0.01	2062/00 SWZ-2062-00
				whole fruit, calculated	14 21 21	0.14 0.07 0.14	0.01 0.01 <0.01	
50 WG	3	0.25	0.019	pulp	0 7 14 21 21	0.95 0.51 0.31 0.30 0.21	0.02 0.01 0.02 0.02 0.02	2063/00 SWZ-2063-00
				whole fruit, calculated	14 21 21	0.29 0.28 0.20	0.02 0.02 0.02	

Table 51. Results of residue trials with trifloxystrobin on cherries in the USA and Switzerland.

Crop Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Cherry, sour UT, USA 1998	50 WG	4	0.14	0.01	fruit	1 1	0.55 0.48	0.04 0.04	149-98 USA-MW-FR-710-98
Cherry, sour MI, USA 1998	50 WG	4	0.14	0.006	fruit	0 0 1 1 2 2	0.67 0.63 0.29 0.53 0.20 0.31	0.07 0.06 0.04 0.06 0.03 0.06	149-98 USA-NE-FR-716-98
Cherry, sour MI, USA 1998	50 WG	4	0.14	0.15	fruit	1 1	0.58 0.42	0.04 0.03	149-98 USA-NE-FR-717-98
Cherry, sour NY, USA 1998	50 WG	4	0.14	0.03	fruit	1 1	0.34 0.32	0.04 0.04	149-98 USA-NE-FR-804-98-A
Cherry, sour NY, USA 1998	50 WG	4	0.14	0.008	fruit	1 1	0.66 0.47	0.07 0.05	149-98 USA-NE-FR-804-98-B

Crop Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy- strobin	CGA321113	
Cherry, sour UT, USA 1998	50 WG	4	0.14	0.025- 0.028	fruit	1 1	0.38 0.30	0.03 <0.02	149-98 USA-OW-FR- 702-98-A
Cherry, sour UT, USA 1998	50 WG	4	0.14	0.008- 0.009	fruit	1 1	0.53 0.54	0.04 0.04	149-98 USA-OW-FR- 702-98-B
Cherry, sweet MI, USA 1998	50 WG	4	0.14	0.15	fruit	1 1	0.33 0.33	0.04 0.05	149-98 USA-NE-FR- 714-98
Cherry, sweet MI, USA 1998	50 WG	4	0.14	0.02	fruit	1 1	0.63 0.84	0.05 0.06	149-98 USA-NE-FR- 715-98-A
Cherry, sweet MI, USA 1998	50 WG	4	0.14	0.006- 0.007	fruit	1 1	0.54 0.63	0.06 0.06	149-98 USA-NE-FR- 715-98-B
Cherry, sweet CA, USA 1998	50 WG	4	0.14	0.027	fruit	1 1	0.56 0.38	0.05 0.04	149-98 USA-OW-FR- 406-98
Cherry, sweet WA, USA 1998	50 WG	4	0.14	0.022	fruit	1 1	0.25 0.26	0.03 0.02	149-98 USA-OW-FR- 610-98
Cherry, sweet CA, USA 1998	50 WG	4	0.14	0.01	fruit	0 0 1 1 2 2	0.45 0.63 0.34 0.37 0.24 0.27	<0.02 0.03 <0.02 ≤0.02 <0.02 0.02	149-98 USA-02-FR- 007-98
Cherry, sweet OR, USA 1999	50 WG	4	0.14	0.007	fruit	1 1	0.25 0.39	0.03 0.03	149-98 USA-OW-FR- 612-99
Cherry Switzerland 2000	50 WG	3	0.25	0.024- 0.028	fruit	0 7 14	0.58 0.31 0.14	0.02 0.02 0.02	2060/00 SWZ-2060-00
					whole fruit, calculated	21 21	0.05 0.07	0.01 0.01	
					pulp	21 21	0.07 0.09	0.02 0.02	
Cherry Switzerland 2000	50 WG	3	0.25	0.024- 0.028	fruit	0	0.54	0.01	2061/00 SWZ-2061-00
					pulp	7 14 21 21	0.18 0.09 0.09 0.06	0.01 0.02 0.02 0.01	
					whole fruit, calculated	7 14 21 21	0.14 0.07 0.08 0.05	0.01 0.01 0.01 0.01	

Table 52. Results of residue trials with trifloxystrobin on peach.

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Peach PA, USA 1998	50 WG	4	0.14	0.02	fruit	1 1	0.82 0.63	0.04 0.04	149-98 USA-NE-FR-603-98-A
Peach PA, USA 1998	50 WG	4	0.14	0.004	fruit	1 1	0.85 0.89	0.06 0.05	149-98 USA-NE-FR-603-98-B
Peach MI, USA 1998	50 WG	4	0.14	0.15	fruit	1 1	0.21 0.18	<0.02 <0.02	149-98 USA-NE-FR-712-98-A
Peach MI, USA 1998	50 WG	4	0.14	0.009	fruit	1 1	0.39 0.34	<0.02 <0.02	149-98 USA-NE-FR-712-98-B
Peach TX, USA 1998	50 WG	4	0.14	0.023- 0.024	fruit	1 1	1.9 1.6	0.06 0.05	149-98 USA-OS-FR-203-98-A
Peach TX, USA 1998	50 WG	4	0.14	0.008	fruit	1 1	1.7 1.8	0.08 0.08	149-98 USA-OS-FR-203-98-B
Peach NC, USA 1998	50 WG	4	0.14	0.01	fruit	1 1	0.28 0.32	<0.02 <0.02	149-98 USA-OS-FR-611-98
Peach CA, USA 1998	50 WG	4	0.14	0.028	fruit	1 1	0.61 0.65	0.05 0.05	149-98 USA-OS-FR-617-98-A
Peach CA, USA 1998	50 WG	4	0.14	0.007	fruit	1 1	0.82 0.79	0.06 0.06	149-98 USA-OS-FR-617-98-B
Peach GA, USA 1998	50 WG	4	0.14	0.018	fruit	1 1	0.41 0.40	<0.02 <0.02	149-98 USA-OS-FR-834-98
Peach CA, USA 1998	50 WG	4	0.14	0.02	fruit	1 1	0.06 0.05	<0.02 <0.02	149-98 USA-OW-FR-109-98
Peach CA, USA 1998	50 WG	4	0.14	0.027- 0.028	fruit	1 1	0.25 0.18	<0.02 <0.02	149-98 USA-OW-FR-403-98-A
Peach CA, USA 1998	50 WG	4	0.14	0.01	fruit	1 1	0.32 0.34	<0.02 <0.02	149-98 USA-OW-FR-403-98-B
Peach CA, USA 1998	50 WG	4	0.14	0.01	fruit	0 0 1 1 2 2	0.24 0.50 <0.02 0.21 0.20 0.19	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02	149-98 USA-02-FR-004-98
Peach Spain 1999	50 WG	3	0.11	0.008	pulp	0 0 7 7	0.33 0.29 0.18 0.14	0.02 0.02 0.02 <0.02	2016/99 SPA-2016-99
					whole fruit, calculated	0 0 7 7	0.28 0.25 0.16 0.12	0.02 0.02 0.02 <0.02	
Peach Spain 2000	50 WG	3	0.11	0.0075	pulp	0 7 7	0.43 0.24 0.22	0.01 0.02 0.02	2029/00 SPA-2029-00
					whole fruit, calculated	0 7 7	0.39 0.22 0.20	0.01 0.02 0.02	

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Peach Spain 1999	50 WG	3	0.11	0.011	pulp	0	1.4	0.05	2015/99 SPA-2015-99
						0	1.5	0.06	
						7	0.54	0.04	
						7	0.40	0.04	
					whole fruit, calculated	0	1.1	0.04	
						0	1.2	0.05	
						7	0.48	0.04	
						7	0.35	0.04	
Peach Italy 2000	50 WG	3	0.11	0.011	pulp	7	0.19	<0.01	2095/00 ITA-2095-00
						7	0.15	<0.01	
					whole fruit, calculated	7	0.18	≤0.01	
						7	0.14	<0.01	
Peach Italy 1999	50 WG	3	0.11	0.0075	pulp	0	0.26	<0.01	2111/99 ITA-2111-99
						3	0.28	<0.01	
						7	0.20	<0.01	
						7	0.23	<0.01	
						14	0.18	0.01	
						19	0.22	0.01	
					whole fruit, calculated	14	0.16	<0.01	
						19	0.18	<0.01	
Peach France 1999	50 WG	3	0.12	0.016	pulp	0	0.14	0.01	2017/99 FRA-2017-99
						3	0.10	<0.01	
						7	0.08	<0.01	
						7	0.14	0.01	
						14	0.07	0.01	
						19	0.04	<0.01	
					whole fruit, calculated	19	0.04	<0.01	

Table 53. Results of residue trials with trifloxystrobin on plum in the USA and Switzerland.

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
MI, USA 1998	50 WG	4	0.14	0.15	fruit	1	0.10	<0.02	149-98 USA-NE-FR-713-98-A
						1	0.15	≤0.02	
MI, USA 1998	50 WG	4	0.14	0.007-0.008	fruit	1	0.17	<0.02	149-98 USA-NE-FR-713-98-B
						1	0.21	≤0.02	
CA, USA 1998	50 WG	4	0.14	0.022	fruit	1	0.19	≤0.02	149-98 USA-OW-FR-404-98
						1	0.17	<0.02	
CA, USA 1998	50 WG	4	0.14	0.009-0.01	fruit	1	0.09	≤0.02	149-98 USA-OW-FR-405-98-A
						1	0.08	<0.02	
						1	0.07	<0.02	
OR, USA 1998	50 WG	4	0.14	0.02	fruit	1	0.06	≤0.02	149-98 USA-OW-FR-609-98-A
						1	0.04	<0.02	
OR, USA 1998	50 WG	4	0.14	0.006	fruit	1	0.06	≤0.02	149-98 USA-OW-FR-609-98-B
						1	0.04	<0.02	
CA, USA 1998	50 WG	4	0.14	0.01	fruit	0	<0.02	<0.02	149-98 USA-02-FR-005-98
						0	0.03	<0.02	
						1	<0.02	<0.02	
						1	0.02	≤0.02	
						2	0.02	<0.02	
						2	0.05	<0.02	
CA, USA 1998	50 WG	4	0.14	0.02	fruit	1	0.21	≤0.02	149-98 USA-02-FR-006-98-A
						1	0.19	<0.02	

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
CA, USA 1998	50 WG	4	0.14	0.01	fruit	1	0.32	<0.02	149-98 USA-02-FR-006-98-B
						1	0.53	<0.02	
						1	0.15	<0.02	
Switzerland 2000	50 WG	3	0.25	0.05	whole fruit, calculated	0	0.14	<0.01	2064/00 SWZ-2064-00
						7	0.09	<0.01	
						14	0.09	<0.01	
						20	0.10	<0.01	
						20	0.09	<0.01	
					pulp	0	0.15	<0.01	
						7	0.10	<0.01	
						14	0.09	<0.01	
						20	0.11	<0.01	
						20	0.10	<0.01	
Switzerland 2000	50 WG	3	0.25	0.027	whole fruit, calculated	0	0.08	<0.01	2065/00 SWZ-2065-00
						7	0.08	<0.01	
						14	0.06	<0.01	
						21	0.04	<0.01	
						21	0.07	<0.01	
					pulp	0	0.08	<0.01	
						7	0.08	<0.01	
						14	0.06	<0.01	
						21	0.04	<0.01	
						21	0.07	<0.01	

Berries and other small fruits

Residue supervised trials data were received for grapes from Australia, Canada, Northern Europe (Germany, Northern France, Switzerland) and Southern European countries (Greece, Italy, Spain), South Africa and the USA and for strawberries from France, Germany and Switzerland. Trials were carried out by foliar spray with 49 WG, 50 WG and 125 WG formulations.

Table 54. Results of residue trials with trifloxystrobin on grapes in Australia.

Country, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	FL	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA 321113	
1997	50 WG	6	0.075	0.008	berry	0[1]	0.10	<0.02	99/5/1645 AUS-99-5-1645-C1
						0[1]	0.16	<0.02	
						0	0.22	<0.02	
						7	0.17	<0.02	
						7	0.20	<0.02	
						13	0.13	<0.02	
						13	0.11	<0.02	
						21	0.09	<0.02	
						21	0.08	<0.02	
						28	0.03	<0.02	
						36	0.08	<0.02	
						36	0.09	<0.02	
1997	50 WG	6	0.075	0.009	berry	0[1]	<0.02	<0.02	99/5/1645 AUS-99-5-1645-D1
						0	0.09	<0.02	
						8	0.09	0.02	
						8	0.06	<0.02	
						15	0.08	0.02	
						15	0.12	0.03	
						23	0.07	0.03	
						23	0.08	0.04	
						29	0.06	0.03	
						29	0.07	0.03	
						36	0.04	<0.02	
						36	0.03	<0.02	

Country, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	FL	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA 321113	
1998	50 WG	6	0.075	0.008	berry	0[1] 0[1] 0 0 7 7 14 14 21 21 28 28 35	0.12 0.09 0.14 0.10 0.13 0.14 0.10 0.12 0.06 0.11 0.10 0.07 0.08	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 0.02 <0.02 <0.02 <0.02 <0.02 0.03	P98/42 AUS-P98-42-A1
1998	50 WG	6	0.075	0.0075	berry	0[1] 0[1] 0 0 7 7 14 14 21 21 28 28 35 35 42 42	0.26 0.10 1.9 3.0 <0.02 0.03 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	P98/42 AUS-P98-42-B1
1998	50 WG	6	0.075	0.008	berry	0[1] 0[1] 0 0 7 7 14 14 21 21 28 28 35 35	0.14 0.06 0.05 0.20 0.12 0.16 0.12 0.10 0.08 0.18 0.09 0.08 0.09 0.08	0.02 <0.02 <0.02 <0.02 0.03 0.03 <0.02 <0.02 <0.02 0.04 0.03 0.03 <0.02 <0.02	P98/42 AUS-P98-42-C1
1998	50 WG	6	0.075	0.0075	berry	0[1] 0[1] 0 0 7 7 13 13	0.10 0.13 0.26 0.29 0.12 0.12 0.13 0.13	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	99/5/1645 AUS-99-5-1645-A2
1999	50 WG	3	0.075	0.0075	berry	61 61	<0.02 <0.02	<0.02 <0.02	P99/40 AUS-P99-40-A1
1999	50 WG	3	0.075	0.0075	berry	53 53	<0.02 <0.02	<0.02 <0.02	P99/40 AUS-P99-40-B1
1999	50 WG	3	0.075	0.0074	berry	75 75	<0.02 <0.02	<0.02 <0.02	P99/40 AUS-P99-40-C1
1999	50 WG	3	0.075	0.0075	berry	106 106	<0.02 <0.02	<0.02 <0.02	P99/40 AUS-P99-40-D1
1999	50	3	0.075	0.007	berry	75	<0.02	<0.02	P99/49

Country, Year	Application: FL	No	kg ai/ha	kg ai/hl	Residues (mg/kg): Sample	PHI (days)	trifloxy-strobin	CGA 321113	*Report No.;* Study No.
	WG					75	<0.02	<0.02	AUS-P99-49-C3

[1] before last treatment

Table 55. Results of residue trials with trifloxystrobin on grapes in South Africa in 1995.

Application: Form	No	kg ai/ha	kg ai/hl	Residues (mg/kg): Sample	PHI (days)	trifloxy-strobin	CGA321113	Report No.; Study No.
125 EC	9	0.05-0.13	0.013	berry	0	0.36	0.05	2204/95 SAF-2204-95
					3	0.21	0.06	
					7	0.12	0.04	
					14	0.18	0.04	
					21	0.17	0.03	
					28	0.13	0.03	
					47	0.06	0.03	
125 EC	7	0.06-0.19	0.013	berry	0[1]	0.17	0.09	2211/95 SAF-2211-95
					0	1.14	0.12	
					3	0.65	0.15	
					7	0.47	0.18	
					14	0.24	0.14	
					21	0.12	0.11	
					28	0.10	0.10	
					42	0.08	0.09	
50 WG	7	0.06-0.19	0.013	berry	0[1]	0.12	0.02	2214/95 SAF-2214-95
					0	0.50	0.05	
					3	0.35	0.05	
					7	0.19	0.03	
					14	0.11	0.04	
					21	0.05	0.03	
					28	0.04	0.03	
					42	0.06	0.03	

[1] before last treatment

Table 56. Results of residue trials with trifloxystrobin on grapes in Europe.

Country, Year	Application: Form	No	kg ai/ha	kg ai/hl	Residues (mg/kg): Sample	PHI (days)	trifloxy-strobin	CGA 321113	*Report No.;* Study No.
Germany 1997	50 WG	8	0.19	0.023-0.047	berry	0	1.3	0.13	gr45597 BRD-gr45597
						13	0.99	0.09	
						28	0.69	0.06	
						36	0.65	0.06	
						43	0.65	0.06	
Germany 1997	50 WG	8	0.19	0.023-0.047	berry	0	2.0	0.12	gr46597 BRD-gr46597
						13	1.2	0.10	
						28	0.54	0.07	
						36	0.59	0.07	
						43	0.46	0.06	
France 1999	50 WG	3	0.13	0.09-0.11	berry	0	0.18	<0.02	2114/99 FRA-2114-99
						14	0.12	0.02	
						35	0.04	<0.02	
						35	0.04	<0.02	
France 1999	50 WG	3	0.13	0.13	berry	0	0.37	0.02	2115/99 FRA-2115-99
						14	0.28	0.02	
						35	0.13	0.03	
						35	0.13	0.03	
Germany 2000	50 WG	3	0.13	0.016	berry	0	0.72	<0.01	gr43500 BRD-gr43500
						35	0.27	0.02	

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA 321113	
Germany 2000	50 WG	3	0.13	0.016	berry	0 35	0.62 0.29	<0.01 0.01	gr44500 BRD-gr44500
Germany 2000	50 WG	3	0.13	0.006	berry	0 35	0.16 0.06	0.01 <0.01	gr45800 BRD-gr45800
Germany 2000	50 WG	3	0.13	0.006	berry	0 35	0.16 0.14	<0.01 0.02	gr46900 BRD-gr46900
Switzerland 2000	50 WG	3	0.13	0.012	berry	35 35	0.06 0.06	0.01 0.01	2008/00 SWZ-2008-00
Switzerland 2000	50 WG	3	0.13	0.009	berry	35 35 36 36	0.04 0.04 0.04 0.03	0.01 0.01 0.01 0.01	2147/00 SWZ-2147-A
Switzerland 2000	50 WG	3	0.13	0.009	berry	36	0.04	0.01	2147/00 SWZ-2147-B1
Switzerland 2000	50 WG	3	0.13	0.009	berry	36	0.03	0.01	2147/00 SWZ-2147-B2
Germany 1995	49 WG	8	0.19-0.22	0.02-0.05	berry	0 21 35 41 48	1.1 0.52 0.34 0.32 0.29	0.19 0.12 0.11 0.12 0.11	CGD03 BRD-CGD03
Switzerland 1995	49 WG	8	0.19	0.013	berry	0 28 35 42 49	1.6 0.25 0.24 0.15 0.15	0.11 0.09 0.09 0.07 0.08	2035/95 SWZ-2035-95
Switzerland 1995	49 WG	8	0.19	0.013	berry	0 28 35 42 49	1.7 0.64 0.58 0.52 0.18	0.09 0.06 0.05 0.06 0.03	2036/95 SWZ-2036-95
Germany 1995	49 WG	8	0.19-0.20	0.019-0.020	berry	0 21 35 41 48	3.4 1.8 1.1 0.94 1.4	0.18 0.11 0.07 0.07 0.15	951047008 BRD-FR08-95-43
Germany 1996	49 WG	8	0.18-0.19	0.024-0.047	berry	0 14 28 35 42	1.5 1.2 1.2 1.2 1.0	0.04 0.03 0.03 0.03 0.03	gr01196 BRD-gr01196
Germany 1996	49 WG	8	0.15-0.21	0.022-0.038	berry	0 14 28 35 42	0.73 0.47 0.29 0.31 0.24	0.06 0.04 0.05 0.04 0.04	gr01296 BRD-gr01296
France 1996	49 WG	8	0.19	0.17-0.19	berry	35	0.52	0.12	OF96125/DE17 FRA-DE17
France 1996	49 WG	8	0.19	0.09	berry	36	0.83	0.11	OF96126/KJ58 FRA-KJ58

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA 321113	
Switzerland 1998	49 WG	4	0.20	0.05	berry	-1 0 15 28 46	0.34 0.79 0.33 0.21 0.18	0.06 0.06 0.04 0.03 0.04	526/98 SWZ-98- 3.211.051
Switzerland 1998	49 WG	4	0.20	0.05	berry	-1 0 15 28 46	0.27 0.57 0.25 0.12 0.11	0.09 0.08 0.05 0.04 0.04	526/98 SWZ-98-3- 211.052
Switzerland 1998	49 WG	4	0.20	0.02	berry	-2 1 29 42	0.32 0.65 0.16 0.11	0.04 0.04 0.03 0.02	526/98 SWZ-98-3- 211.060
Switzerland 1998	49 WG	4	0.20	0.03	berry	-1 1 15 29 50	0.40 0.74 0.34 0.18 0.20	0.06 0.06 0.06 0.04 0.05	526/98 SWZ-98- 3.211.061
Spain 1997	50 WG	6	0.075	0.015- 0.04	berry	31 31	0.11 0.28	<0.02 <0.02	2050/97 SPA-2050-97
Spain 1997	50 WG	6	0.074- 0.076	0.009- 0.011	berry	30 30	0.07 0.08	<0.02 <0.02	2051/97 SPA-2051-97
Greece 1998	50 WG	6	0.075	0.0075	berry	21 21 28 28	0.19 0.20 0.14 0.13	0.02 0.02 <0.02 <0.02	2134/98 GRI-2134-98
Italy 1998	50 WG	6	0.10	0.010	berry	0 14 21 28	0.31 0.17 0.16 0.13	<0.02 <0.02 <0.02 <0.02	2042/98 ITA-2042-98
Italy 1998	50 WG	6	0.10	0.010- 0.013	berry	0 14 21 28	0.18 0.10 0.05 0.05	0.02 <0.02 <0.02 <0.02	2043/98 ITA-2043-98
Spain 1998	50 WG	6	0.075	0.014	berry	21 29	0.26 0.36	0.02 0.02	2056/98 SPA-2056-98
Spain 1998	50 WG	6	0.076	0.0075- 0.009	berry	21 21 31 31	0.16 0.16 0.10 0.11	<0.02 <0.02 <0.02 <0.02	2057/98 SPA-2057-98

Table 57. Results of residue trials with trifloxystrobin on grapes in Canada and the USA.

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Canada 1999	50 WG	6	0.07	0.007	bunch of grapes	13 13	0.04 0.06	<0.02 <0.02	CER 04414/99 CND-CER04414-99-A
Canada 1999	50 WG	5	0.07	0.007	bunch of grapes	14	2.2	0.02	CER 04414/99 CND-CER04414-99-B
NY, USA 1996	50 WG	6	0.14	0.015	berry	14 14	0.09 0.08	<0.02 <0.02	110440 USA-NE-FR-825-96
PA, USA 1996	50 WG	6	0.14	0.015- 0.016	berry	14 14	0.62 0.55	0.02 0.02	110440 USA-NE-FR-826-96

Country, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
CA, USA	50	6	0.14	0.025	berry	0	0.20	<0.02	110440
1996	WG					0	0.43	<0.02	USA-OW-FR-415-96-
						1	0.73	<0.02	A
						1	0.45	<0.02	
						3	0.47	<0.02	
						3	0.45	<0.02	
						7	0.34	<0.02	
						7	0.31	<0.02	
						14	0.25	<0.02	
						14	0.33	≤0.02	
						22	0.09	<0.02	
						22	0.15	<0.02	
CA, USA	50	6	0.14	0.03	berry	0	0.96	0.04	110440
1996	WG					0	0.81	0.05	USA-02-FR-025-96-A
						1	0.57	0.04	
						1	0.87	0.06	
						4	0.59	0.04	
						4	0.96	0.04	
						7	0.57	0.03	
						7	0.66	0.04	
						14	1.1	0.05	
						14	1.0	0.05	
						21	0.38	0.03	
						21	0.53	0.045	
CA, USA	50	6	0.14	0.025	berry	14	0.22	<0.02	110440
1996	WG					14	0.26	≤0.02	USA-OW-FR-416-96
CA, USA	50	6	0.14	0.03	berry	14	0.03	<0.02	110440
1996	WG					14	0.04	≤0.02	USA-OW-FR-417-96
CA, USA	50	6	0.14	0.03	berry	14	0.17	≤0.02	110440
1996	WG					14	0.16	<0.02	USA-OW-FR-418-96
CA, USA	50	6	0.14	0.03	berry	14	0.16	≤0.02	110440
1996	WG					14	0.15	<0.02	USA-OW-FR-419-96
CA, USA	50	6	0.14	0.03	berry	14	0.26	<0.02	110440
1996	WG					14	0.28	≤0.02	USA-OW-FR-531-96
CA, USA	50	6	0.14	0.009	berry	14	0.29	0.07	110440
1996	WG					14	0.26	0.06	USA-OW-FR-532-96
WA, USA	50	6	0.14	0.015	berry	13	0.15	<0.02	110440
1996	WG					13	0.21	≤0.02	USA-OW-FR-647-96
OR, USA	50	6	0.14	0.015-	berry	14	0.61	0.02	110440
1996	WG			0.017		14	0.51	0.02	USA-OW-FR-648-96

Table 58. Results of residue trials with trifloxystrobin on strawberry in Europe.

Country, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113[1]	
Switzerland	50	3	0.25	0.025	berry	0	1.2	0.05	2080/99
1999	WG					3	0.30	0.05	SWZ-2080-99
						7	0.20	0.06	
						14	0.10	0.04	
						14	0.10	0.04	
Switzerland	50	3	0.25	0.03	berry	0	0.38	0.03	2045/00
2000	WG					3	0.29	0.03	SWZ-2045-00
						7	0.17	0.04	
						10	0.12	0.04	
						14	0.09	0.04	
						14	0.13	0.05	

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113[1]	
France 2002	50 WG	3	0.25	0.04	fruit	0[1]	0.06	0.03	RA-2038/02 0080-02
						0	0.14	0.03	
						1	0.11	0.03	
						3	0.15	0.03	
						7	0.08	0.03	
						14	0.06	0.04	
Germany 2002	50 WG	3	0.25	0.04	fruit	0[1]	0.14	0.04	RA-2038/02 0187-02
						0	0.32	0.05	
						1	0.28	0.04	
						3	0.27	0.05	
						7	0.12	0.06	
						14	0.04	0.05	
Germany 2002	50 WG	3	0.25	0.04	fruit	0[1]	0.08	0.02	RA-2038/02 0188-02
						0	0.22	0.02	
						1	0.20	0.03	
						3	0.15	0.03	
						7	0.07	0.04	
						14	0.05	0.03	

Assorted tropical and subtropical fruits – inedible peel

Banana

The results of supervised trials carried on bananas using foliar sprays of 75 EC formulations were reported from Costa Rica, Columbia, Ecuador, Guatemala, Honduras, Mexico, Puerto Rico and Martinique. Except for the trials in Martinique, six individual field samples were taken at each sampling date.

Table 59. Results of residue trials with trifloxystrobin on bagged and unbagged bananas.

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Banana, bagged Costa Rica 1996	75 EC ✈	10	0.1-0.13	0.5	pulp	0	<0.02 (6)	<0.02 (6)	128/96 COR-2144-96-A
						2	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
						10	<0.02 (6)	<0.02 (6)	
					peel	0	<0.02 (6)	<0.02 (6)	
						2	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
						10	<0.02 (6)	<0.02 (6)	
					whole fruit, calculated	0	≤0.02 (6)	≤0.02 (6)	
						2	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
						10	<0.02 (6)	<0.02 (6)	

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Banana, unbagged Costa Rica 1996	75 EC ✈	10	0.1-0.13	0.5	pulp	0	<0.02 (5)	<0.02 (5)	128/96 COR-2144-96-B
						0	<0.02	0.02	
						2	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
						10	<0.02 (6)	<0.02 (6)	
					peel	0	<0.02 (5)	<0.02 (5)	
						0	0.05	0.02	
						2	0.10	0.04	
						2	0.03	0.02	
						2	0.02	<0.02	
						2	0.02	<0.02	
						2	0.05	0.02	
						2	<0.02	<0.02	
						7	<0.02 (5)	<0.02 (5)	
						7	0.03	0.02	
						10	<0.02 (5)	<0.02 (5)	
						10	0.02	<0.02	
					whole fruit, calculated	0	<0.02 (5)	<0.02 (5)	
						0	0.03	0.02	
						2	0.05	0.02	
						2	<0.02 (4)	<0.02 (4)	
						2	0.03	<0.02	
						2	mean 0.03	<0.02	
						7	<0.02 (6)	<0.02 (6)	
						10	<0.02 (6)	<0.02 (6)	
Banana, bagged Costa Rica 1996	75 EC ✈	10	0.11-0.13	0.37-0.51	pulp	0	<0.02 (6)	<0.02 (6)	128/96 COR-2146-96-A
						7	<0.02 (6)	<0.02 (6)	
					peel	0	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
					whole fruit, calculated	0	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
Banana, unbagged Costa Rica 1996	75 EC ✈	10	0.11-0.13	0.37-0.51	pulp	0	<0.02 (6)	<0.02 (6)	128/96 COR-2146-96-B
						7	<0.02 (6)	<0.02 (6)	
					peel	0	<0.02 (4)	<0.02 (4)	
						0	0.02 (2)	<0.02 (2)	
						7	<0.02 (5)	<0.02 (5)	
						7	0.02	<0.02	
					whole fruit, calculated	0	<0.02 (5)	<0.02 (5)	
						0	0.02	<0.02	
						7	<0.02 (6)	<0.02 (6)	
Banana, bagged Costa Rica 1996	75 EC ✈	10	0.08-0.13	0.51-0.57	pulp	0	<0.02 (6)	<0.02 (6)	128/96 COR-2147-96-A
						7	<0.02 (6)	<0.02 (6)	
					peel	0	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
					whole fruit, calculated	0	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
Banana, unbagged Costa Rica 1996	75 EC ✈	10	0.08-0.13	0.51-0.57	pulp	0	<0.02 (6)	<0.02 (6)	128/96 COR-2147-96-B
						7	<0.02 (6)	<0.02 (6)	
					peel	0	<0.02 (3)	<0.02 (3)	
						0	0.02(2)	<0.02 (2)	
						0	0.03	<0.02	
						7	<0.02 (6)	<0.02 (6)	
					whole fruit, calculated	0	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Banana, bagged Ecuador 1996	75 EC ✈	10	0.10-0.14	0.45-0.54	pulp	0 2 7 10	<0.02 (6) <0.02 (6) <0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6) <0.02 (6) <0.02 (6)	129/96 ECU-2148-96-A
					peel	0 2 7 10	<0.02 (6) <0.02 (6) <0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6) <0.02 (6) <0.02 (6)	
					whole fruit, calculated	0 2 7 10	<0.02 (6) <0.02 (6) <0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6) <0.02 (6) <0.02 (6)	
Banana, unbagged Ecuador 1996	75 EC ✈	10	0.10-0.14	0.45-0.54	pulp	0 2 7 10	<0.02 (6) <0.02 (6) <0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6) <0.02 (6) <0.02 (6)	129/96 ECU-2148-96-B
					peel	0 2 7 10	<0.02 (6) <0.02 (6) <0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6) <0.02 (6) <0.02 (6)	
					whole fruit, calculated	0 2 7 10	<0.02 (6) <0.02 (6) <0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6) <0.02 (6) <0.02 (6)	
Banana, bagged Ecuador 1996	75 EC ✈	10	0.11-0.12	0.56	pulp	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	129/96 ECU-2151-96-A
					peel	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	
					whole fruit, calculated	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	
Banana, unbagged Ecuador 1996	75 EC ✈	10	0.11-0.12	0.56	pulp	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	129/96 ECU-2151-96-B
					peel	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	
					whole fruit, calculated	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	
Banana, bagged Ecuador 1996	75 EC ✈	10	0.10-0.16	0.56	pulp	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	129/96 ECU-2150-96-A
					peel	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	
					whole fruit, calculated	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	
Banana, unbagged Ecuador 1996	75 EC ✈	10	0.10-0.16	0.56	pulp	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	129/96 ECU-2150-96-B
					peel	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	
					whole fruit, calculated	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Banana, bagged Colombia 1996	75 EC ✈	11	0.09-0.13	0.56-0.57	pulp	0	<0.02 (6)	<0.02 (6)	130/96 COL-2152-96-A
						2	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
						10	<0.02 (6)	<0.02 (6)	
					peel	0	<0.02 (6)	<0.02 (6)	
						2	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
						10	<0.02 (6)	<0.02 (6)	
					whole fruit, calculated	0	≤0.02 (6)	≤0.02 (6)	
						2	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
						10	<0.02 (6)	<0.02 (6)	
Banana, unbagged Colombia 1996	75 EC ✈	11	0.09-0.13	0.56-0.57	pulp	0	<0.02 (6)	<0.02 (6)	130/96 COL-2152-96-B
						2	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
						10	<0.02 (6)	<0.02 (6)	
					peel	0	<0.02 (6)	<0.02 (6)	
						2	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
						10	<0.02 (6)	<0.02 (6)	
					whole fruit, calculated	0	≤0.02 (6)	≤0.02 (6)	
						2	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
						10	<0.02 (6)	<0.02 (6)	
Banana, bagged Colombia 1996	75 EC ✈	11	0.10-0.12	0.56	pulp	0	<0.02 (6)	<0.02 (6)	130/96 COL-2154-96-A
						7	<0.02 (6)	<0.02 (6)	
					peel	0	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
					whole fruit, calculated	0	≤0.02 (6)	≤0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
Banana, unbagged Colombia 1996	75 EC ✈	11	0.10-0.12	0.56	pulp	0	<0.02 (6)	<0.02 (6)	130/96 COL-2154-96-B
						7	<0.02 (6)	<0.02 (6)	
					peel	0	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
					whole fruit, calculated	0	≤0.02 (6)	≤0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
Banana, bagged Guatemala 1996	75 EC ✈	10	0.11-0.16	0.51-0.61	pulp	0	<0.02 (6)	<0.02 (6)	131/96 GUA-2155-96-A
						2	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
						10	<0.02 (6)	<0.02 (6)	
					peel	0	<0.02 (6)	<0.02 (6)	
						2	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
						10	<0.02 (6)	<0.02 (6)	
					whole fruit, calculated	0	≤0.02 (6)	≤0.02 (6)	
						2	<0.02 (6)	<0.02 (6)	
						7	<0.02 (6)	<0.02 (6)	
						10	<0.02 (6)	<0.02 (6)	

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Banana, unbagged Guatemala 1996	75 EC ✈	10	0.11-0.16	0.51-0.61	pulp	0 2 7 10	<0.02 (6) <0.02 (6) <0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6) <0.02 (6) <0.02 (6)	131/96 GUA-2155-96-B
					peel	0 0 2 2 7 7 10	0.02 <0.02 (5) <0.02 (5) 0.02 <0.02 (5) 0.02 <0.02 (6)	<0.02 <0.02 (5) <0.02 (5) <0.02 <0.02 (5) <0.02 <0.02 (6)	
					whole fruit, calculated	0 2 7 10	<0.02 (6) <0.02 (6) <0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6) <0.02 (6) <0.02 (6)	
Banana, bagged Guatemala 1996	75 EC ✈	10	0.10-0.13	0.23-0.57	pulp	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	131/96 GUA-2157-96-A
					peel	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	
					whole fruit, calculated	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	
Banana, unbagged Guatemala 1996	75 EC ✈	10	0.10-0.13	0.23-0.57	pulp	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	131/96 GUA-2157-96-B
					peel	0 0 7	0.03 <0.02 (5) <0.02 (6)	<0.02 <0.02 (5) <0.02 (6)	
					whole fruit, calculated	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	
Banana, bagged Mexico 1996	75 EC ✈	10	0.10-0.13	0.57-0.68	pulp	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	132/96 MEX-2158-96-A
					peel	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	
					whole fruit, calculated	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	
Banana, unbagged Mexico 1996	75 EC ✈	10	0.10-0.13	0.57-0.68	pulp	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	132/96 MEX-2158-96-B
					peel	0 0 7	<0.02 (5) 0.02 <0.02 (6)	<0.02 (5) <0.02 <0.02 (6)	
					whole fruit, calculated	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	
Banana, bagged Honduras 1996	75 EC ✈	10	0.12	0.51-0.57	pulp	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	133/96 HON-2159-96-A
					peel	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	
					whole fruit, calculated	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	
Banana, unbagged Honduras 1996	75 EC ✈	10	0.12	0.51-0.57	pulp	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	133/96 HON-2159-96-B
					peel	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	
					whole fruit, calculated	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Banana, bagged Puerto Rico 1997	75 EC	10	0.10-0.13	0.53-0.54	pulp	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	134/96 PUR-2160-96-A
					peel	0 0 0 0 7 7 7	0.04 0.04 <0.02 (3) 0.14 <0.02 (4) 0.02 0.05	0.02 0.02 <0.02 (3) 0.04 <0.02 (4) <0.02 <0.02	ground treatment, spraying over the top, simulating aerial application
					whole fruit, calculated	0 0 0 0 7 7	0.02 (2) <0.02 (3) 0.06 mean 0.03 <0.02 (5) 0.02	<0.02 (2) <0.02 (3) 0.02 <0.02 <0.02 (5) <0.02	
Banana, unbagged Puerto Rico 1997	75 EC	10	0.10-0.13	0.53-0.54	pulp	0 7	<0.02 (6) <0.02 (6)	<0.02 (6) <0.02 (6)	134/96 PUR-2160-96-B
					peel	0 0 7 7	0.03 <0.02 (5) 0.04 <0.02 (5)	<0.02 <0.02 (5) <0.02 <0.02 (5)	ground treatment, spraying over top, simulating aerial application
					whole fruit, calculated	0 7 7	<0.02 (6) 0.02 <0.02 (5)	<0.02 (6) <0.02 <0.02 (5)	
Banana, bagged Martinique 2000	75 EC	6	0.094	0.30-0.36	pulp	0 3 7	<0.01 <0.01 <0.01	<0.01 <0.01 <0.01	2154/00 MAR-2154-00-A
					peel	0 3 7	<0.01 <0.01 <0.01	<0.01 <0.01 <0.01	foliar backpack sprayer with aerial boom
					whole fruit, calculated	0 3 7	<0.01 <0.01 <0.01	<0.01 <0.01 <0.01	
Banana, unbagged Martinique 2000	75 EC	6	0.094	0.30-0.36	pulp	0 3 7	<0.01 <0.01 <0.01	<0.01 <0.01 <0.01	2154/00 MAR-2154-00-B
					peel	0 3 7	<0.01 <0.01 <0.01	<0.01 <0.01 <0.01	foliar backpack sprayer with aerial boom
					whole fruit, calculated	0 3 7	<0.01 <0.01 <0.01	<0.01 <0.01 <0.01	
Banana, bagged Martinique 2000	75 EC	6	0.09	0.30-0.36	pulp	0 3 7	<0.01 <0.01 <0.01	<0.01 <0.01 <0.01	2155/00 MAR-2155-00-A
					peel	0 3 7	<0.01 <0.01 <0.01	<0.01 <0.01 <0.01	foliar backpack sprayer with aerial boom
					whole fruit, calculated	0 3 7	<0.01 <0.01 <0.01	<0.01 <0.01 <0.01	
Banana, unbagged Martinique 2000	75 EC	6	0.09	0.30-0.36	pulp	0 3 7	<0.01 <0.01 <0.01	<0.01 <0.01 <0.01	2155/00 MAR-2155-00-B
					peel	0 3 7	0.01 <0.01 0.01	<0.01 <0.01 <0.01	foliar backpack sprayer with aerial boom

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
					whole fruit, calculated	0 3 7	≤0.01 <0.01 <0.01	≤0.01 <0.01 <0.01	

✈ aerial application by helicopter or fixed-winged airplane

Bulb vegetables

Leek

Table 60. Results of residue trials with trifloxystrobin on leek.

Country, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA 321113	
France 2002	50 WG	3	0.2	0.034	shoot	0[1] 0 3 7 14 20	0.83 1.8 0.95 <u>0.40</u> 0.14 0.13	0.07 0.07 0.07 <u>0.07</u> 0.07 0.09	*RA-2031/02* 0085-02
Netherlands 2002	50 WG	3	0.20-0.21	0.034	shoot	0[1] 0 3 7 14 21	<0.02 0.86 0.61 <u>0.40</u> 0.08 0.04	0.05 0.07 0.07 <u>0.09</u> 0.07 0.05	*RA-2031/02* 0134-02
Germany 2002	50 WG	3	0.2	0.034	shoot	0[1] 0 3 7 14 21	0.11 0.68 0.17 <u>0.08</u> 0.06 0.03	0.03 0.04 0.06 <u>0.05</u> 0.04 0.03	*RA-2031/02* 0135-02
Switzerland 2000	267.5 EC	3	0.15	0.03	whole plant without roots (shoot)	0 7 14 21 21	1.5 <u>0.14</u> 0.04 0.01 0.02	0.14 <u>0.17</u> 0.09 0.04 0.06	*2067/00* SWZ-2067-00
Switzerland 2000	267.5 EC	3	0.15	0.03	whole plant without roots (shoot)	0 7 14 21 21	1.3 <u>0.15</u> 0.08 0.03 0.04	0.10 <u>0.11</u> 0.07 0.04 0.05	*2068/00* SWZ-2068-00

Brassica vegetables

Head cabbage

Table 61. Results of residue trials with trifloxystrobin on head cabbage.

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Cabbage Switzerland 2000	50 WG	3	0.25	0.05	head	0 3 7 14 14	0.19 0.10 0.02 <0.01 0.01	0.01 0.02 0.02 0.01 0.01	2056/00 SWZ-2056-00
Cabbage Switzerland 2000	50 WG	3	0.25	0.05	head	0 3 7 14 14	0.93 0.06 0.02 <0.01 <0.01	0.02 0.02 0.02 0.02 0.01	2057/00 SWZ-2057-00
Cabbage, red Belgium 2001	50 WG	3	0.13	0.021	head	0[1] 0 7 14 21 28	0.03 0.47 0.02 <0.02 <0.02 <0.02	0.03 0.03 0.04 0.02 <0.02 <0.02	RA-2198/01 0641-01
Cabbage, red Netherlands 2001	50 WG	3	0.13	0.021	head	0[1] 0 7 14 21 28	<0.02 0.07 <0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02	RA-2198/01 0642-01
Cabbage, white Germany 2001	50 WG	3	0.13	0.021	head	0[1] 0 7 14 14 21 29	<0.02 0.18 <0.02 <0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	RA-2198/01 0640-01
Cabbage, white Germany 2001	50 WG	3	0.13	0.021	head	0[1] 0 7 14 14 21 28	<0.02 0.03 <0.02 <0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	RA-2198/01 0643-01
Cabbage, red Germany 2002	50 WG	3	0.25	0.042	head	0[1] 0 7 14 21 28	0.04 0.33 0.02 0.03 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02	RA-2052/02 0233-02
Cabbage, white Netherlands 2002	50 WG	3	0.25	0.042	head	0[1] 0 7 14 21 28	<0.02 0.11 0.07 0.03 <0.02 <0.02	<0.02 0.02 0.04 0.02 0.02 <0.02	RA-2052/02 0232-02

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Cabbage, red Germany 2002	50 WG	3	0.25	0.042	head	0[1] 0 7 14 21 28	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02	RA-2052/02 0231-02 trial invalid[2]
Cabbage, white Great Britain 2002	50 WG	3	0.25	0.042	head	0[1] 0 7 14 21 28	0.33 3.3 3.3 0.16 0.13 0.07	0.04 0.05 0.08 0.05 0.03 0.02	RA-2052/02 0234-02 trial invalid[3]

[1] before last treatment
[2] trial invalid, heavy rainfall after last treatment
[3] trial invalid, last application (BBCH 43) and sampling (BBCH 45) at an early growth stage

Brussels sprouts

Table 62. Results of residue trials with trifloxystrobin on Brussels sprouts.

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Switzerland 2000	50 WG	3	0.25	0.05	sprout	0 4 7 14 14	0.32 0.49 <u>0.16</u> 0.05 0.09	0.05 0.09 <u>0.06</u> 0.02 0.03	*2054/00* SWZ-2054-00
Switzerland 2000	50 WG	3	0.25	0.05	sprout	0 3 7 14 14	0.57 0.35 <u>0.20</u> 0.15 0.14	0.10 0.10 <u>0.08</u> 0.05 0.05	*2055/00* SWZ-2055-00
Germany 2001	50 WG	3	0.13	0.021	sprout	0[1] 0 8 14 21 29	<0.02 0.11 <0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02	RA-2197/01 0633-01
France 2001	50 WG	3	0.13	0.021	sprout	0[1] 0 7 14 21 28	<0.02 0.03 0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02	RA-2197/01 0634-01
Netherlands 2001	50 WG	3	0.13	0.021	sprout	0[1] 0 7 14 21 28	0.02 0.12 0.11 0.04 <0.02 <0.02	<0.02 <0.02 0.03 0.03 0.02 0.02	RA-2197/01 0635-01

Country, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Belgium 2001	50 WG	3	0.13-0.14	0.021	sprout	0[1]	<0.02	<0.02	RA-2197/01 0637-01
						0	0.04	<0.02	
						7	0.03	<0.02	
						14	<0.02	<0.02	
						21	<0.02	<0.02	
						28	<0.02	<0.02	
France 2002	50 WG	3	0.25	0.042	sprout	0[1]	<0.02	0.05	*RA-2051/02* 0222-02
						0	0.23	0.05	
						7	0.19	0.07	
						14	0.06	0.09	
						21	0.04	0.09	
						28	0.03	0.07	
France 2002	50 WG	3	0.25	0.042	sprout	0[1]	0.32	0.06	*RA-2051/02* 0224-02
						0	0.56	0.06	
						7	0.35	0.04	
						14	0.02	<0.02	
						21	0.02	<0.02	
						28	<0.02	<0.02	
Germany 2002	50 WG	3	0.25	0.042	sprout	0[1]	0.15	<0.02	*RA-2051/02* 0225-02
						0	0.45	0.02	
						7	0.18	≤0.02	
						14	0.13	<0.02	
						21	0.06	<0.02	
						28	0.03	<0.02	
Great Britain 2002	50 WG	3	0.25	0.042	sprout	0[1]	0.08	0.16	*RA-2051/02* 0226-02
						0	0.44	0.17	
						7	0.10	0.17	
						14	0.06	0.15	
						21	0.04	0.13	
						28	0.02	0.09	

[1] before last treatment

Flowerhead brassicas

Table 63. Results of residue trials with trifloxystrobin on cauliflower and broccoli.

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Cauliflower Switzerland 2000	50 WG	3	0.25	0.05	head	0	0.33	0.03	2058/00 SWZ-2058-00
						3	0.19	0.09	
						7	0.13	0.10	
						14	0.03	0.06	
						14	0.02	0.06	
Cauliflower Switzerland 2000	50 WG	3	0.25	0.05	head	0	0.07	0.03	2059/00 SWZ-2059-00
						3	0.01	0.04	
						7	≤0.01	0.03	
						14	<0.01	0.03	
						14	<0.01	0.03	
Cauliflower Germany 2002	50 WG	3	0.20	0.034	whole plant without roots	0[1]	<0.02	<0.02	RA-2032/02 0074-02
						0	1.5	<0.02	
					curd	7	≤0.02	≤0.02	
						14	<0.02	<0.02	
						21	<0.02	0.02	

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Broccoli Germany 2002	50 WG	3	0.20	0.034	whole plant without roots	0[1] 0	<0.02 1.8	<0.02 <0.02	RA-2032/02 0136-02
					curd	7 14 20	0.09 <0.02 <0.02	0.04 <0.02 <0.02	
Broccoli Great Britain 2002	50 WG	3	0.20	0.034	whole plant without roots	0[1] 0	0.94 2.6	<0.02 0.03	RA-2032/02 0137-02
					curd	7 14 21	0.13 0.03 <0.02	0.03 0.02 <0.02	
Broccoli Germany 2002	50 WG	3	0.20	0.034	whole plant without roots	0[1] 0	<0.02 1.5	<0.02 <0.02	RA-2032/02 0138-02
					curd	7 14 21	0.26 0.02 <0.02	<0.02 <0.02 <0.02	

Fruiting vegetables, cucurbits

Cucumber

In the USA eight field trials, and in Europe eight greenhouse were conducted.

Table 64. Results of residue field trials with trifloxystrobin on cucumber in the USA.

Location Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
CA, 1996	50 WG	8	0.14	0.075	fruit	0 0	0.13 0.22	<0.02 0.02	ABR-97120 USA-OW-FR-420-96
CA, 1996	50 WG	8	0.14	0.06	fruit	0 0 3 3	0.11 0.17 0.07 0.10	<0.02 <0.02 <0.02 <0.02	ABR-97120 USA-02-FR-073-96-A
WI, 1997	50 WG	8	0.14	0.055-0.086	fruit	0 0	0.03 0.03	<0.02 <0.02	ABR-97120 USA-MW-FR-701-97A
MI, 1997	50 WG	8	0.14	0.049-0.051	fruit	0 0	0.04 0.04	<0.02 <0.02	ABR-97120 USA-NE-FR-701-97-A
TX, 1997	50 WG	8	0.14	0.072-0.076	fruit	0 0	0.03 0.04	<0.02 <0.02	ABR-97120 USA-OS-FR-301-97-A
NC, 1997	50 WG	8	0.14	0.10	fruit	0 0	0.05 0.03	<0.02 <0.02	ABR-97120 USA-OS-FR-601-97-A
SC, 1997	50 WG	8	0.14	0.072-0.074	fruit	0 0	0.02 0.04	<0.02 <0.02	ABR-97120 USA-OS-FR-602-97-A

Location Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
FL, 1997	50 WG	8	0.14	0.30	fruit	0 0 1 1 3 3 5 5	0.05 0.06 0.06 0.04 <0.02 <0.02 <0.02 <0.02	<0.02 ≤0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	ABR-97120 USA-07-FR-011-97-A

Table 65. Results of residue trials in a greehouse with trifloxystrobin on cucumber in Europe.

Country, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Italy 1996	50 WG	5	0.18-0.19	0.019- 0.027	fruit	0[1] 0 3 5 7	<0.02 0.13 0.02 <0.02 <0.02	<0.02 0.04 ≤0.02 <0.02 <0.02	*2079/96* ITA-2079-96
Switzerland 1996	50 WG	5	0.19	0.013	fruit	0[1] 0 1 3 5 7	0.02 0.05 0.05 0.04 0.04 0.03	<0.02 <0.02 <0.02 ≤0.02 <0.02 <0.02	*2020/96* SWZ-2020-96
Spain 1996	50 WG	5	0.19	0.019	fruit	0[1] 0 1 3 7	0.02 0.16 0.13 0.06 <0.02	0.02 0.03 0.05 0.04 0.02	*2053/96* SPA-2053-96
Spain 1996	50 WG	5	0.19	0.019	fruit	0[1] 0 1 3 7	0.02 0.12 0.11 0.07 <0.02	0.02 0.03 0.05 0.05 0.02	*2054/96* SPA-2054-96
Spain 1996	50 WG	5	0.19	0.017- 0.027	fruit	0[1] 0 1 3 7	0.06 0.13 0.17 0.14 0.09	0.02 0.02 0.03 0.03 0.02	*2164/96* SPA-2164-96
Spain 1996	50 WG	5	0.19	0.017- 0.019	fruit	0[1] 0 1 3 7	0.04 0.17 0.16 0.14 0.10	<0.02 <0.02 0.02 0.03 0.02	*2165/96* SPA-2165-96
Netherlands 1996	50 WG	5	0.19	0.011- 0.017	fruit	0[1] 0 1 3 5 7 14	<0.02 0.06 0.07 0.03 0.02 <0.02 <0.02	<0.02 <0.02 <0.02 ≤0.02 <0.02 <0.02 <0.02	*2102/96* NIE-2102-96

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Netherlands 1996	50 WG	5	0.18-0.19	0.011-0.015	fruit	0[1]	<0.02	<0.02	*2103/96* NIE-2103-96
						0	0.05	<0.02	
						1	0.04	<0.02	
						3	0.03	≤0.02	
						5	0.03	<0.02	
						7	<0.02	<0.02	
						14	<0.02	<0.02	

Melons, except watermelon

Table 66. Results of residue trials with trifloxystrobin on melons.

Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
AZ, USA 1996	50 WG	8	0.14	0.06	fruit	0	0.22	<0.02	ABR-97120 USA-02-FR-074-96-A
						0	0.24	≤0.02	
						1	0.18	<0.02	
						1	0.17	<0.02	
						3	0.08	<0.02	
						3	0.19	<0.02	
						5	0.19	<0.02	
						5	0.08	<0.02	
TX, USA 1997	50 WG	8	0.14	0.27-0.30	fruit	0	0.10	<0.02	ABR-97120 USA-OS-FR-302-97-A
						0	0.10	≤0.02	
GA, USA 1997	50 WG	8	0.14	0.075	fruit	0	0.07	≤0.02	ABR-97120 USA-OS-FR-830-97-A
						0	0.03	<0.02	
CA, USA 1997	50 WG	8	0.14	0.03	fruit	0	0.18	≤0.02	ABR-97120 USA-OW-FR-527-97-A
						0	0.11	<0.02	
AZ, USA 1997	50 WG	8	0.14	0.075	fruit	0	0.07	<0.02	ABR-97120 USA-OW-FR-528-97-A
						0	0.10	≤0.02	
IN, USA 1998	50 WG	8	0.14	0.08-0.10	fruit	0	0.11	≤0.02	146-98 USA-NE-FR-102-98-A
						0	0.04	<0.02	
						3	0.03	<0.02	
						3	0.08	<0.02	
Spain 1996	50 WG	5	0.13	0.006	fruit	0[1]	<0.02	<0.02	2051/96 SPA-2051-96
						0	0.02	<0.02	
						1	<0.02	<0.02	
						3	≤0.02	≤0.02	
						7	<0.02	<0.02	
Spain 1996	50 WG	5	0.13	0.006	fruit	0[1]	<0.02	<0.02	2052/96 SPA-2052-96
						0	0.02	<0.02	
						1	<0.02	<0.02	
						3	≤0.02	≤0.02	
						7	<0.02	<0.02	
Italy 1996	50 WG	5	0.13	0.021	fruit	0[1]	<0.02	<0.02	2080/96 ITA-2080-96
						0	0.14	<0.02	
						3	0.07	≤0.02	
						5	0.02	<0.02	
						7	0.02	<0.02	
Italy 1996	50 WG	5	0.13	0.013-0.014	fruit	7	0.06	<0.02	*2081/96 ITA-2081-96*
						7	0.06	<0.02	

Location, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Spain 1997	50 WG	5	0.13	0.016	fruit	3 3	0.19 0.12	<0.02 <0.02	2052/97 SPA-2052-97
Spain 1997	50 WG	5	0.13	0.013	fruit	3 3	0.02 0.04	<0.02 <0.02	2053/97 SPA-2053-97
Italy 1997	50 WG	5	0.13	0.013- 0.014	fruit	3 3	0.08 0.11	<0.02 <0.02	2388/97 ITA-2388-97
Italy 1997	50 WG	5	0.13	0.021	fruit	3 3	0.10 0.09	<0.02 <0.02	2389/97 ITA-2389-97

Summer squash

Table 67. Results of residue trials with trifloxystrobin on summer squash.

Location, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
FL, USA 1996	50 WG	8	0.14	0.30	fruit	0 0 3 3	0.06 0.10 0.04 0.15	<0.02 <0.02 <0.02 <0.02	ABR-97120 USA-07-FR-010-96-A
MI, USA 1997	50 WG	8	0.14	0.05	fruit	0 0	0.06 0.11	<0.02 <0.02	ABR-97120 USA-NE-FR-702-97-A
NY, USA 1997	50 WG	8	0.14	0.075	fruit	0 0	0.06 0.09	<0.02 <0.02	ABR-97120 USA-NE-FR-810-97-A
GA, USA 1997	50 WG	8	0.14	0.075- 0.076	fruit	0 0	<0.02 <0.02	<0.02 <0.02	ABR-97120 USA-OS-FR-831-97-A
CA, USA 1997	50 WG	8	0.14	0.06	fruit	0 0 1 1 3 3 5 5	0.23 0.18 0.14 0.13 0.07 0.10 0.08 0.13	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	ABR-97120 USA-02-FR-001-97-A
South Africa 1998	50 WG	5	0.031- 0.047	0.006- 0.0065	fruit	0 3 7 14 21	<0.02 <0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02	2255/98 SAF-2255-98
South Africa 1998	50 WG	5	0.033- 0.047	0.006	fruit	0 3 7 14 21	<0.02 <0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02	2256/98 SAF-2256-98
South Africa 1998	50 WG	5	0.064- 0.094	0.013	fruit	0 3 7 14 21	0.02 <0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02	2257/98 SAF-2256-98

Fruiting vegetables, other than cucurbits

Sweet pepper

Table 68. Results of residue field trials with trifloxystrobin on sweet pepper in the USA.

Location, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
MI, 1997	50 WG	8	0.14-0.17	0.05-0.07	fruit	3 3	0.03 0.03	≤0.02 <0.02	40-97 USA-NE-FR-733-97
TX, 1997	50 WG	8	0.14	0.05	fruit	3 3	0.11 0.12	<0.02 ≤0.02	40-97 USA-OS-FR-322-97
NC, 1997	50 WG	8	0.14	0.30	fruit	3 3	0.05 0.04	≤0.02 <0.02	40-97 USA-OS-FR-608-97
CA, 1997	50 WG	8	0.14	0.06	fruit	3 3	0.14 0.12	≤0.02 <0.02	40-97 USA-OW-FR-531-97
CA, 1997	50 WG	8	0.14	0.30	fruit	3 3	0.11 0.12	<0.02 ≤0.02	40-97 USA-02-FR-008-97
FL, 1997	50 WG	8	0.14	0.03	fruit	0 0 1 1 3 3 5 5	0.12 0.12 0.08 0.06 0.03 0.04 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 ≤0.02 <0.02 <0.02	40-97 USA-07-FR-006-97
CA, 2001	50 WG	4	0.14	0.21-0.22	fruit	0 0 3 3 5 5 7 7 10 10 13 13 15 15	0.11 0.07 0.10 0.11 0.12 0.09 0.16 0.10 0.08 0.09 0.11 0.07 0.08 0.08	<0.01 <0.01 <0.01 <0.01 <0.01 <0.01 ≤0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01	200169 BAY-FL004-01D-A
CA, 2001	50 WG	8	0.14	0.21-0.22	fruit	0 0 3 3 5 5 7 7 10 10 13 13 15 15	0.07 0.11 0.06 0.08 0.08 0.07 0.05 0.03 0.06 0.05 0.04 0.06 0.04 0.07	<0.01 <0.01 <0.01 ≤0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01	200169 BAY-FL004-01D-B

Location, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
TX, 2001	50 WG	4	0.14-0.15	0.24-0.25	fruit	0	0.03	<0.01	200169 BAY-FL005-01D-A
						0	0.04	<0.01	
						3	0.04	≤0.01	
						3	0.03	<0.01	
						5	0.03	<0.01	
						7	0.03	<0.01	
						10	0.03	<0.01	
						13	0.02	<0.01	
						13	0.03	<0.01	
						16	0.02	<0.01	
TX, 2001	50 WG	8	0.14	0.21-0.25	fruit	0	0.05	<0.01	200169 BAY-FL005-01D-B
						0	0.05	<0.01	
						3	0.04	<0.01	
						3	0.05	≤0.01	
						5	0.04	<0.01	
						5	0.02	<0.01	
						7	0.04	<0.01	
						7	0.03	<0.01	
						10	0.02	<0.01	
						10	0.05	<0.01	
						13	0.03	<0.01	
						13	0.01	<0.01	
						16	0.01	<0.01	
						16	0.03	<0.01	
CA, 2001	50 WG	4	0.14	0.19-0.20	fruit	0	0.16	<0.01	200169 BAY-FL006-01D-A
						0	0.18	<0.01	
						3	0.13	<0.01	
						3	0.14	<0.01	
						5	0.13	<0.01	
						5	0.16	≤0.01	
						7	0.10	<0.01	
						7	0.06	<0.01	
						10	0.07	<0.01	
						10	0.04	<0.01	
						13	0.04	<0.01	
						13	0.09	<0.01	
						16	0.03	<0.01	
						16	0.06	<0.01	
CA, 2001	50 WG	8	0.14	0.20	fruit	0	0.10	<0.01	200169 BAY-FL006-01D-B
						0	0.13	<0.01	
						3	0.12	≤0.01	
						5	0.10	<0.01	
						5	0.08	<0.01	
						7	0.08	<0.01	
						10	0.09	<0.01	
						10	0.07	<0.01	
						13	0.07	<0.01	
						13	0.08	<0.01	
						16	0.05	<0.01	

Tomato

Table 69. Results of residue field trials with trifloxystrobin on tomato in the USA.

Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
FL, 1997	50 WG	8	0.14	0.05	fruit	3	≤0.02	≤0.02	40-97 USA-FL-FR-405-97
						3	<0.02	<0.02	

Location, Year	Application: Form	No	kg ai/ha	kg ai/hl	Residues (mg/kg): Sample	PHI (days)	trifloxy-strobin	CGA-321113	Report No.; Study No.
OH, 1997	50 WG	8	0.14	0.06	fruit	3	0.09	<0.02	40-97
						3	0.13	<0.02	USA-NE-FR-202-97
PA, 1997	50 WG	8	0.14	0.05	fruit	3	0.02	<0.02	40-97
						3	0.03	<0.02	USA-NE-FR-306-97
SC, 1997	50 WG	8	0.14	0.30	fruit	3	0.05	<0.02	40-97
						3	0.07	<0.02	USA-OS-FR-607-97
CA, 1997	50 WG	8	0.14	0.05	fruit	3	0.13	<0.02	40-97
						3	0.20	<0.02	USA-OW-FR-410-97
CA, 1997	50 WG	8	0.14	0.05	fruit	3	0.49	<0.02	40-97
						3	0.34	<0.02	USA-OW-FR-411-97-A
						3	0.18	<0.02	
CA, 1997	50 WG	8	0.14	0.04	fruit	3	0.07	<0.02	40-97
						3	0.05	<0.02	USA-OW-FR-412-97
CA, 1997	50 WG	8	0.14	0.05	fruit	3	0.06	<0.02	40-97
						3	0.06	<0.02	USA-OW-FR-529-97
CA, 1997	50 WG	8	0.14	0.30	fruit	3	0.08	<0.02	40-97
						3	0.09	<0.02	USA-02-FR-006-97
FL, 1997	50 WG	8	0.14	0.026	fruit	0	0.15	<0.02	40-97
						0	0.11	<0.02	USA-07-FR-004-97
						1	<0.02	<0.02	
						1	<0.02	<0.02	
						3	<0.02	<0.02	
						3	<0.02	<0.02	
						5	<0.02	<0.02	
						5	<0.02	<0.02	
CA, 1998	50 WG	8	0.14	0.06	fruit	3	0.07	<0.02	40-97
						3	0.05	<0.02	USA-OW-FR-555-98
CA, 1998	50 WG	8	0.14	0.06	fruit	0	0.10	<0.02	40-97
						0	0.24	<0.02	USA-02-FR-007-97-A
						1	0.36	<0.02	
						1	0.29	<0.02	
						3	0.19	<0.02	
						3	0.29	<0.02	
						3	0.12	<0.02	
						5	0.11	<0.02	
						5	0.16	<0.02	
CA, 2001	50 WG	4	0.14	0.15	fruit	0	0.32	<0.01	200169
						0	0.30	<0.01	BAY-FL001-01D-A
						3	0.34	<0.01	
						3	0.15	<0.01	
						5	0.21	<0.01	
						5	0.20	<0.01	
						7	0.23	<0.01	
						7	0.20	<0.01	
						10	0.19	<0.01	
						10	0.15	<0.01	
						12	0.13	<0.01	
						12	0.18	<0.01	
						16	0.09	<0.01	
						16	0.11	<0.01	

Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
CA, 2001	50	8	0.14	0.15	fruit	0	0.44	<0.01	200169
	WG					0	0.58	<0.01	BAY-FL001-01D-B
						3	0.25	<0.01	
						3	0.43	<0.01	
						5	0.18	<0.01	
						5	0.32	<0.01	
						7	0.33	<0.01	
						7	0.35	<0.01	
						10	0.08	<0.01	
						10	0.16	<0.01	
						12	0.21	<0.01	
						12	0.22	<0.01	
						16	0.23	<0.01	
						16	0.23	<0.01	
CA, 2001	50	4	0.14-0.16	0.17	fruit	0	0.08	<0.01	200169
	WG					0	0.07	<0.01	BAY-FL002-01D-A
						3	0.04	<0.01	
						3	0.07	<0.01	
						5	0.04	<0.01	
						5	0.03	<0.01	
						7	0.05	<0.01	
						7	0.03	<0.01	
						10	0.02	<0.01	
						10	0.04	<0.01	
						13	0.03	<0.01	
						13	0.03	<0.01	
						16	0.02	<0.01	
						16	0.02	<0.01	
CA, 2001	50	8	0.14	0.17	fruit	0	0.15	<0.01	200169
	WG					0	0.08	<0.01	BAY-FL002-01D-B
						3	0.09	<0.01	
						3	0.08	<0.01	
						5	0.06	<0.01	
						5	0.06	<0.01	
						7	0.06	<0.01	
						7	0.05	<0.01	
						10	0.07	<0.01	
						10	0.05	<0.01	
						13	0.02	<0.01	
						13	0.03	<0.01	
						16	0.02	<0.01	
						16	0.02	<0.01	
CA, 2001	50	4	0.14	0.21-0.22	fruit	0	0.06	<0.01	200169
	WG					0	0.05	<0.01	BAY-FL003-01D-A
						3	0.07	<0.01	
						3	0.05	<0.01	
						5	0.06	<0.01	
						5	0.06	<0.01	
						7	0.05	<0.01	
						7	0.07	<0.01	
						10	0.07	<0.01	
						10	0.04	<0.01	
						13	0.06	<0.01	
						13	0.04	<0.01	
						15	0.03	<0.01	
						15	0.03	<0.01	

Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
CA, 2001	50 WG	8	0.14	0.21-0.22	fruit	0 0 3 3 5 5 7 7 10 10 13 13 15 15	0.08 0.08 0.10 0.06 0.07 0.06 0.05 0.06 0.08 0.06 0.07 0.05 0.04 0.03	<0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01	200169 BAY-FL003-01D-B

Leafy vegetables (including Brassica leafy vegetables)

Chinese cabbage

Table 70. Results of residue field trials with trifloxystrobin on Chinese cabbage in Switzerland in 2000.

Application				Residues (mg/kg)				
Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	*Report No.;* Study No.
50 WG	3	0.25	0.05	head	0 3 7 14 14	1.6 0.14 0.01 <0.01 <0.01	0.05 0.02 <0.01 <0.01 <0.01	2052/00 SWZ-2052-00
50 WG	3	0.25	0.05	head	0 3 7 14 14	1.0 0.81 0.33 0.03 0.01	0.02 0.03 0.02 0.01 0.01	2053/00 SWZ-2053-00

Pulses

Beans (dry)

Table 71. Results of residue field trials with trifloxystrobin on beans in Brazil.

.

Year	Application				Residues (mg/kg)				
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	*Report No.;* Study No.
1998	50 WG	4	0.15	0.05	seed	0 7 15	<0.02 <0.02 <0.02	n.a.	FR001/99 BRA-FR001-99-A
1999	50 WG	4	0.15		seed	0 7 15	<0.02 <0.02 <0.02	n.a.	FR002/99 BRA-FR002-99-A
2000	50 WG	4	0.15	0.05	bean, without pod	15	<0.05	n.a.	M00140-JJB BRA-M00140-JJB-A
2001	50 WG	4	0.15	0.06	bean, without pod	15	<0.05	n.a.	M00140-JSA BRA-M00140-JSA-A

Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
2001	50 WG	4	0.15	0.075	bean, without pod	15	<0.05	n.a.	M00140-RPK BRA-M00140-RPK-A
1999	250 EC	3	0.094	0.02	seed	15 15	<0.02 <0.02	n.a.	FR029/99 BRA-FR029-99-A
1999	250 EC	4	0.094		seed	15 15	<0.02 <0.02	n.a.	FR030/99 BRA-FR030-99-A
2000	250 EC	3	0.094	0.03	bean, without pod	15	<0.05	n.a.	M00146-JJB BRA-M00146-JJB-A
2001	250 EC	3	0.094	0.04	bean, without pod	15	<0.05	n.a.	M00146-JSA BRA-M00146-JSA-A
2001	250 EC	3	0.094	0.05	bean, without pod	15	<0.05	n.a.	M00146-RPK BRA-M00146-RPK-A

n.a. not analysed

Soya bean (dry)

Table 72. Results of residue field trials with trifloxystrobin on soya bean in Brazil.

Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
2002	250 EC	2	0.063	0.031	seed	21	<0.05	n.a.	BRA S-P-677/02-S1 BRA-S-P-677/02-S1-A
2002	250 EC	2	0.13	0.063	seed	21	<0.05	n.a.	BRA S-P-677/02-S1 BRA-S-P-677/02-S1-B
2002	250 EC	2	0.063	0.031	seed	21	<0.05	n.a.	BRA S-P-677/02-S2 BRA-S-P-677/02-S2-A
2002	250 EC	2	0.13	0.063	seed	21	<0.05	n.a.	BRA S-P-677/02-S2 BRA-S-P-677/02-S2-B
2002	250 EC	2	0.063	0.031	seed	21	<0.05	n.a.	BRA S-P-677/02-S3 BRA-S-P-677/02-S3-A
2002	250 EC	2	0.13	0.063	seed	21	<0.05	n.a.	BRA S-P-677/02-S3 BRA-S-P-677/02-S3-B
2003	267.5 EC	2	0.094	0.031	seed	30	<0.05	n.a.	FR03BRA012-P1 BRA-FR03BRA012-P1-A
2003	267.5 EC	2	0.094	0.031	seed	30	<0.05	n.a.	FR03BRA012-P2 BRA-FR03BRA012-P2-A
2003	267.5 EC	2	0.094	0.031	seed	30	<0.05	n.a.	FR03BRA012-P3 BRA-FR03BRA012-P3-A

n.a. not analysed

Root and tuber vegetables

Carrot

Table 73. Results of residue trials with trifloxystrobin on carrot.

Country, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Switzerland 1999	50 WG	3	0.25	0.03	root, washed	0	0.02	0.03	*2081/99* SWZ-2081-99
						7	0.04	0.04	
						14	0.02	0.03	
						21	<0.02	0.03	
						21	<0.02	0.02	
Switzerland 2000	50 WG	3	0.25	0.05	root, washed	0	0.01	<0.01	*2047/00* SWZ-2047-00
						3	0.03	0.01	
						7	0.03	0.01	
						14	0.02	0.01	
						14	0.02	0.01	
Germany 2001	50 WG	3	0.25	0.04	root	0[1]	0.02	<0.02	*RA-2196/01* 0627-01
						0	0.02	<0.02	
						7	0.02	0.02	
						14	0.02	0.02	
						21	0.02	0.02	
						28	<0.02	<0.02	
Belgium 2001	50 WG	3	0.22-0.26	0.04	root	0[1]	0.02	<0.02	*RA-2196/01* 0628-01
						0	0.02	<0.02	
						7	≤0.02	≤0.02	
						14	<0.02	<0.02	
						21	<0.02	<0.02	
						28	<0.02	<0.02	
Netherlands 2001	50 WG	3	0.25	0.04	root	0[1]	<0.02	<0.02	*RA-2196/01* 0629-01
						0	<0.02	<0.02	
						7	0.02	≤0.02	
						14	<0.02	<0.02	
						21	<0.02	<0.02	
						28	<0.02	<0.02	
Netherlands 2001	50 WG	3	0.25	0.04	root	0[1]	<0.02	<0.02	*RA-2196/01* 0630-01
						0	<0.02	<0.02	
						7	0.03	≤0.02	
						14	<0.02	<0.02	
						21	<0.02	<0.02	
						28	<0.02	<0.02	

Celeriac

Table 74. Results of residue trials with trifloxystrobin on celeriac in Switzerland in 2000.

Application				Residues (mg/kg)				*Report No.;* Study No.
Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
50 WG	3	0.25	0.05	root, washed	0	0.02	<0.01	2048/00 SWZ-2048-00
					7	0.02	0.01	
					14	0.02	0.01	
					21	0.01	<0.01	
					21	<0.01	<0.01	

Application				Residues (mg/kg)				
Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	*Report No.;* Study No.
50 WG	3	0.25	0.05	root, washed	0 7 14 21 21	0.03 0.03 0.03 0.03 0.04	0.01 <0.01 0.01 0.01 0.01	2049/00 SWZ-2049-00

Potato

Table 75. Results of residue trials with trifloxystrobin on potato in the USA.

Location, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
CO, 1996	50 WG	6	0.14	0.08-0.10	tuber	7 7	<0.02 <0.02	<0.02 <0.02	55-96 USA-MW-FR-316-96
ND, 1996	50 WG	6	0.14	0.05	tuber	0 0 7 7	<0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02	55-96 USA-MW-FR-511-96-A
MN, 1996	50 WG	6	0.14	0.10	tuber	7 7	<0.02 <0.02	<0.02 <0.02	55-96 USA-MW-FR-512-96
WI, 1996	50 WG	6	0.14	0.075	tuber	7 7	<0.02 <0.02	<0.02 <0.02	55-96 USA-MW-FR-706-96
MI, 1996	50 WG	6	0.14	0.065	tuber	7 7	<0.02 <0.02	<0.02 <0.02	55-96 USA-NE-FR-726-96
ME, 1996	50 WG	6	0.14	0.075	tuber	7 7	<0.02 <0.02	<0.02 <0.02	55-96 USA-NE-FR-823-96
NY, 1996	50 WG	6	0.14	0.06	tuber	7 7	<0.02 <0.02	<0.02 <0.02	55-96 USA-NE-FR-824-96
NC, 1996	50 WG	6	0.14	0.10	tuber	7 7	<0.02 <0.02	<0.02 <0.02	55-96 USA-OS-FR-606-96
ID, 1996	50 WG	6	0.14	0.30	tuber	7 7	<0.02 <0.02	<0.02 <0.02	55-96 USA-OW-FR-642-96
ID, 1996	50 WG	6	0.14	0.04	tuber	7 7	<0.02 <0.02	<0.02 <0.02	55-96 USA-OW-FR-643-96
WA, 1996	50 WG	6	0.14	0.056-0.058	tuber	7 7	<0.02 <0.02	<0.02 <0.02	55-96 USA-OW-FR-644-96
WA, 1996	50 WG	6	0.14	0.056-0.058	tuber	7 7	<0.02 <0.02	<0.02 <0.02	55-96 USA-OW-FR-645-96
OR, 1996	50 WG	6	0.14	0.075	tuber	7 7	<0.02 <0.02	<0.02 <0.02	55-96 USA-OW-FR-646-96
CA, 1996	50 WG	6	0.14	0.30	tuber	7 7	<0.02 <0.02	<0.02 <0.02	55-96 USA-02-FR-024-96
FL, 1996	50 WG	6	0.14	0.025	tuber	7 7	<0.02 <0.02	<0.02 <0.02	55-96 USA-07-FR-004-96

Sugar beet

Table 76. Results of residue trials with trifloxystrobin on sugar beet in the USA.

Location Year	Application Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	Residues (mg/kg) trifloxy-strobin	CGA321113	*Report No.;* Study No.
ID, 1997	50 WG	3	0.12	0.26	root	21 21	<0.02 <0.02	<0.02 <0.02	35-97 USA-OW-FR-626-97
ID, 1997	50 WG	3	0.12	0.041	root	21 21	<0.02 <0.02	<0.02 <0.02	35-97 USA-OW-FR-627-97
CO, 1997	50 WG	3	0.12	0.083	root	21 21	<0.02 0.04	<0.02 <0.02	35-97 USA-MW-FR-312-97
WI, 1997	50 WG	3	0.12	0.083	root	21 21	<0.02 0.02	<0.02 <0.02	35-97 USA-MW-FR-313-97
NE, 1997	50 WG	3	0.12	0.066	root	21 21	<0.02 <0.02	<0.02 <0.02	35-97 USA-MW-FR-622-97
MI, 1997	50 WG	3	0.12	0.26	root	21 21	<0.02 <0.02	<0.02 <0.02	35-97 USA-NE-FR-731-97
MN,1997	50 WG	3	0.12	0.066	root	23 23 23	<0.02 <0.02 <0.02	<0.02 <0.02 <0.02	35-97 USA-OW-FR-223-97-A
MN, 1997	50 WG	3	0.12	0.066	root	0 0 7 7 14 14 21 21 28 28	0.06 0.06 <0.02 <0.02 0.04 0.05 0.02 0.04 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	35-97 USA-OW-FR-224-97
CA, 1997	50 WG	3	0.12	0.053	root	0 0 7 7 14 14 21 21 28 28	0.08 0.07 <0.02 <0.02 0.03 0.03 <0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	35-97 USA-OW-FR-402-97
ID, 1997	50 WG	3	0.12	0.26	root	21 21	<0.02 <0.02	<0.02 <0.02	35-97 USA-OW-FR-626-97
ID, 1997	50 WG	3	0.12	0.041	root	21 21	<0.02 <0.02	<0.02 <0.02	35-97 USA-OW-FR-627-97
NE, 1998	50 WG	3	0.12	0.066	root	21 21	0.03 <0.02	<0.02 <0.02	152-98 USA-MW-FR-615-98-A
MN, 1998	50 WG	3	0.12	0.066	root	21 21	<0.02 0.03	0.02 0.03	152-98 USA-OW-FR-216-98-A
ID, 1998	50 WG	3	0.12	0.044-0.046	root	21 21	<0.02 0.03	<0.02 <0.02	152-98 USA-OW-FR-312-98-A
CA, 1998	50 WG	3	0.12	0.044-0.046	root	21 21	<0.02 <0.02	<0.02 <0.02	152-98 USA-OW-FR-522-98-A
NE, 1998	250 EC	3	0.12	0.066	root	21 21	<0.02 <0.02	<0.02 <0.02	152-98 USA-MW-FR-615-98-B
MN,1998	250 EC	3	0.12	0.066	root	21 21	0.02 <0.02	<0.02 <0.02	152-98 USA-OW-FR-216-98-B
ID, 1998	250 EC	3	0.12	0.044-0.046	root	21 21	<0.02 <0.02	<0.02 <0.02	152-98 USA-OW-FR-312-98-B
CA, 1998	250 EC	3	0.12	0.044	root	21 21	0.02 0.02	<0.02 <0.02	152-98 USA-OW-FR-522-98-B

Table 77. Results of residue trials with trifloxystrobin on sugar beet in Europe.

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
France-North, 1999	267.5 EC	2	0.13	0.04	root	45 45	<0.02 <0.02	<0.02 <0.02	9911101 FRA-9911101
France-North, 1999	267.5 EC	2	0.13	0.04-0.05	root	45 45	<0.02 <0.02	<0.02 <0.02	9911102 FRA-9911102
France-North, 1998	267.5 EC	2	0.13	0.05	root	46 46	<0.02 <0.02	<0.02 <0.02	2163/98 FRA-2163-98
France-North, 1998	267.5 EC	2	0.13	0.03	root	43 43	<0.02 <0.02	<0.02 <0.02	2164/98 FRA-2164-98
France-North, 1999	267.5 EC	2	0.13	0.05	root	0 21 30 45	<0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02	9910901 FRA-9910901
France-North, 1999	267.5 EC	2	0.13	0.05	root	0 21 30 45	<0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02	9910902 FRA-9910902
France-North, 1999	267.5 EC	2	0.13	0.04	root	0 21 30 45	<0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02	9910903 FRA-9910903
France-South, 1999	267.5 EC	2	0.13	0.03	root	0 22 30 43	<0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02	9911001 FRA-9911001-A
France-South, 1999	267.5 EC	3	0.13	0.03	root	0 22 30 43	<0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02	9911001 FRA-9911001-B
France-South, 1999	267.5 EC	2	0.13	0.04	root	0 21 30 45	<0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02	9911002 FRA-9911002-A
France-South, 1999	267.5 EC	3	0.13	0.04	root	0 21 30 45	<0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02	9911002 FRA-9911002-B
France-South, 2000	267.5 EC	3	0.13	0.013	root	0 20 20	0.08 0.02 <0.02	0.02 <0.02 <0.02	NOV/RES/00061 FRA-NOV-RES-00061
France-South, 2000	267.5 EC	3	0.13	0.03	root	0 20 20	0.02 <0.02 <0.02	<0.02 <0.02 <0.02	NOV/RES/00062 FRA-NOV-RES-00062
Spain, 1999	267.5 EC	3	0.13	0.013	root	21 21	<0.02 <0.02	<0.02 <0.02	2060/99 SPA-2060-99
Spain, 1999	267.5 EC	3	0.13	0.012-0.014	root	0 7 14 21 21	<0.02 <0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02	2061/99 SPA-2061-99
Italy, 1999	267.5 EC	3	0.13	0.02	root	0 7 14 21 21 28	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02	2074/99 ITA-2074-99
Italy, 1999	267.5 EC	3	0.13	0.02	root	21 21	<0.02 <0.02	<0.02 <0.02	2075/99 ITA-2075-99

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Switzerland, 1999	267.5 EC	2	0.13	0.02	root	0 21 30 45 45	<0.02 <0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02	2086/99 SWZ-2086-99

Stalk and stem vegetables

Celery

Table 78. Results of residue trials with trifloxystrobin on celery in Switzerland in 2000.

Application				Residues (mg/kg)				Report No.; Study No.
Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
50 WG	3	0.25	0.05	whole plant without roots	0 3 7 14 14	0.29 0.33 0.18 0.12 0.11	<0.01 <0.01 <0.01 <0.01 <0.01	2146/00 SWZ-2146-00
50 WG	4	0.25	0.05	whole plant without roots	0[1] 0 3 7 14 14	0.27 0.56 0.42 0.21 0.13 0.06	<0.01 <0.01 0.01 <0.01 <0.01 <0.01	2050/00 SWZ-2050-00
50 WG	3	0.25	0.05	whole plant without roots	0 3 7 14 14	0.09 0.06 0.12 0.11 0.16	<0.01 <0.01 <0.01 <0.01 <0.01	2051/00 SWZ-2051-00

Witloof chicory (sprouts)

Table 79. Results of residue field trials with trifloxystrobin on witloof chicory in Switzerland in 2000.

Application				Residues (mg/kg)				Report No.; Study No.
Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
50 WG	3	0.25	0.05	leaf	0 21 21	5.4 0.34 0.32	0.11 0.03 0.03	2069/00 SWZ-2069-00
				root	21 21	0.01 0.02	<0.01 <0.01	
50 WG	3	0.25	0.05	leaf	0 21 21	8.0 0.86 0.74	0.13 0.08 0.08	2070/00 SWZ-2070-00
				root	21 21	0.01 0.02	<0.01 <0.01	

Cereal grains

Barley

Table 80. Results of residue trials with trifloxystrobin on barley grain.

Country, Year	Application				Residues (mg/kg)			Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	PHI (days)	trifloxy-strobin	CGA321113	
Barley France- South 2000	500 SC	2	0.24-0.26	0.06	42 42	0.10 0.13	<0.02 0.03	0011601 FRA-0011601
Barley France-South 2000	500 SC	2	0.25-0.26	0.06	42 42	0.07 0.05	<0.02 <0.02	0011602 FRA-0011602
Barley France- South 1997	125 EC	2	0.25	0.06	38	0.18	<0.02	2166/97 FRA-2166-97
Barley France- South 1997	125 EC	2	0.25	0.075	34	0.02	<0.02	2167/97 FRA-2167-97
Barley France- South 1997	125 EC	2	0.25	0.06	34	0.05	0.02	2168/97 FRA-2168-97
Barley France- South 1997	125 EC	2	0.25	0.06	34	0.11	0.04	2169/97 FRA-2169-97
Barley, winter France- South 1996	125 EC	2	0.25	0.06	41	<0.02	<0.02	OF96118/LD88 FRA-LD88
Barley, winter France- South 1996	125 EC	2	0.25	0.06	42	<0.02	<0.02	OF96119/BY02 FRA-BY02
Barley France- South 1997	267.5 EC	2	0.19	0.05	43	<0.02	<0.02	2228/97 FRA-2228-97
Barley France- South 1997	267.5 EC	2	0.19	0.05	45	<0.02	<0.02	2229/97 FRA-2229-97
Barley France- South 1997	267.5 EC	2	0.19	0.06	45	0.02	<0.02	2230/97 FRA-2230-97
Barley France- South 1997	267.5 EC	2	0.19	0.05	42	0.12	0.02	2231/97 FRA-2231-97
Barley, winter France- South 1998	267.5 EC	2	0.17-0.18	0.05	33 33 45 45	0.05 0.05 0.07 0.07	<0.02 <0.02 0.02 <0.02	9813203 FRA-9813203
Barley, winter France- South 1998	267.5 EC	2	0.18	0.05	33 33 45 45	0.09 0.08 0.13 0.11	0.03 0.03 0.04 0.04	9813204 FRA-9813204
Barley France- North 1997	535 SC	2	0.19	0.05	40	0.05	<0.02	2224/97 FRA-2224-97
Barley France- North 1997	535 SC	2	0.19	0.05	44	0.04	<0.02	2225/97 FRA-2225-97
Barley France- North 1997	535 SC	2	0.19	0.05	46	0.04	<0.02	2226/97 FRA-2226-97

Country, Year	Application				Residues (mg/kg)			Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	PHI (days)	trifloxy-strobin	CGA321113	
Barley France- North 1997	535 SC	2	0.19	0.05	46	0.05	≤0.02	2227/97 FRA-2227-97
Barley, spring France- North 1998	267.5 EC	2	0.18-0.19	0.05	45 45	≤0.02 <0.02	≤0.02 <0.02	9810602 FRA-9810602
Barley, winter France- North 1998	267.5 EC	2	0.19	0.05	43 43	0.02 0.02	≤0.02 <0.02	9810502 FRA-9810502
Barley, winter France- North 1998	267.5 EC	2	0.19	0.05	35 35 47 47	≤0.02 <0.02 <0.02 <0.02	≤0.02 <0.02 <0.02 <0.02	9813201 FRA-9813201
Barley, winter France- North 1998	267.5 EC	2	0.18	0.05	35 35 47 47	≤0.02 <0.02 <0.02 <0.02	≤0.02 <0.02 <0.02 <0.02	9813202 FRA-9813202
Barley France- North 1997	267.5 EC	2	0.19	0.05	40	0.03	≤0.02	2220/97 FRA-2220-97
Barley France- North 1997	267.5 EC	2	0.19	0.05	44	≤0.02	≤0.02	2221/97 FRA-2221-97
Barley France- North 1997	267.5 EC	2	0.19	0.05	46	0.03	≤0.02	2222/97 FRA-2222-97
Barley France- North 1997	267.5 EC	2	0.19	0.05	46	0.03	≤0.02	2223/97 FRA-2223-97
Barley, winter France – North 1997	250 EC	2	0.25	0.06	45	≤0.02	≤0.02	9711601 FRA-9711601
Barley, spring France- North 1997	250 EC	2	0.25	0.06	45	≤0.02	≤0.02	9715102 FRA-9715102
Barley, spring France- North 1999	125 EC	2	0.25	0.06	46 46 46	0.03 0.03 0.02	0.01 0.01 <0.01	2021/99 FRA-2021-99
Barley, spring France- North 1999	125 EC	2	0.25-0.26	0.06	39 39 39	0.04 0.06 0.04	0.01 0.01 0.01	2022/99 FRA-2022-99
Barley, winter Denmark 1996	125 EC	2	0.25	0.10	42 58	0.10 0.11	<0.02 ≤0.02	FR0796 DAE-FR0796
Barley, winter Germany 1996	125 EC	2	0.25	0.06	35 42	<0.02 0.02	<0.02 ≤0.02	gr37296 BRD-2170-96
Barley, winter Germany 1999	125 EC	2	0.25	0.06	35 42	0.40 <0.02	0.06 <0.02	gr37399 BRD-2143-99
Barley, winter Germany 1995	312.5 EC	2	0.19	0.05	35 42	0.03 0.03	≤0.02 <0.02	gr3295 BRD-gr22395
Barley, winter Germany 1996	312.5 EC	2	0.19	0.05	35 42	0.07 0.04	0.02 0.02	gr33696 BRD-gr33696
Barley, winter Germany 2000	500 SC	2	0.25	0.06	34	0.12	0.01	gr59100 BRD-gr59100
Barley, spring Germany 1999	125 EC	2	0.25	0.06	34 41	0.05 0.04	0.02 0.03	gr35199 BRD-2141-99

Country, Year	Application				Residues (mg/kg)			Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	PHI (days)	trifloxy-strobin	CGA321113	
Barley, winter Great Britain 1996	125 EC	2	0.25	0.13	47	0.11	<0.02	FR0296 ENG-FR0296
Barley, winter Great Britain 1996	125 EC	2	0.25	0.13	44	0.11	<0.02	FR0396 ENG-FR0396

Wheat

Table 81. Results of residue trials with trifloxystrobin in wheat in Brazil in 2002.

Application				Residues (mg/kg)			
Form	No	kg ai/ha	kg ai/hl	PHI (days)	trifloxy-strobin	CGA321113	*Report No.;* Study No.
267.5 EC	3	0.15	0.05	30	<0.05	n.a.	BRA S-A1-630/02-S1 BRA-S-A1-630/02-S1-A
267.5 EC	3	0.15	0.05	30	<0.05	n.a.	BRA S-A1-630/02-S2 BRA-S-A1-630/02-S2-A
267.5 EC	3	0.15	0.05	30	<0.05	n.a.	BRA S-A1-630/02-S3 BRA-S-A1-630/02-S3-A
250 EC	3	0.13	0.042	30	<0.05	n.a.	BRA S-A1-631/02-S1 BRA-S-A1-631/02-S1-A
250 EC	3	0.13	0.063	30	<0.05	n.a.	BRA S-A1-631/02-S2 BRA-S-A1-631/02-S2-A
250 EC	3	0.13	0.063	30	<0.05	n.a.	BRA S-A1-631/02-S3 BRA-S-A1-631/02-S3-A

n.a. not analysed

Table 82. Results of residue trials with trifloxystrobin in wheat in the USA.

	Application				Residues (mg/kg)				
Location, Year	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	*Report No.;* Study No.
KS, 1998	250 EC	2	0.12	0.10	grain	35 35	<0.02 <0.02	<0.02 <0.02	153-98 USA-MW-FR-313-98-D
OK, 1998	250 EC	2	0.12	0.09	grain	30 30	<0.02 <0.02	<0.02 <0.02	153-98 USA-OS-FR-732-98-D
TX, 1998	250 EC	2	0.12	0.10	grain	37 37	<0.02 <0.02	<0.02 <0.02	153-98 USA-OS-FR-733-98-D
ND, 1998	250 EC	2	0.12	0.09	grain	37 37	<0.02 0.02	<0.02 <0.02	153-98 USA-OW-FR-217-98-D
NC, 1998	250 EC	2	0.12	0.13	grain	45 45	<0.02 <0.02	<0.02 <0.02	153-98 USA-OS-FR-613-98-D
KS, 1998	50 WG	2	0.12	0.10	grain	35 35	<0.02 <0.02	<0.02 <0.02	153-98 USA-MW-FR-313-98-C
NC, 1998	50 WG	2	0.12	0.13	grain	45 45	<0.02 <0.02	<0.02 <0.02	153-98 USA-OS-FR-613-98-C
TX, 1998	50 WG	2	0.12	0.10	grain	37 37	<0.02 <0.02	<0.02 <0.02	153-98 USA-OS-FR-733-98-C
ND, 1998	50 WG	2	0.12	0.09	grain	37 37	<0.02 <0.02	<0.02 <0.02	153-98 USA-OW-FR-217-98-C
spring MT, 1997	50 WG	1	0.12	0.08	grain	36 36	<0.02 <0.02	<0.02 <0.02	43-97 USA-OW-FR-204-97-B
spring MT, 1997	50 WG	2	0.12	0.07-0.08	grain	36 36	<0.02 <0.02	<0.02 <0.02	43-97 USA-OW-FR-204-97-C

Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	*Report No.;* Study No.
spring MT, 1997	50 WG	1	0.12	0.07	grain	43 43	<0.02 <0.02	<0.02 <0.02	43-97 USA-OW-FR-205-97-B
spring MT, 1997	50 WG	2	0.12	0.07- 0.08	grain	43 43	<0.02 0.03	<0.02 <0.02	43-97 USA-OW-FR-205-97-C
spring MN, 1997	50 WG	1	0.12	0.05	grain	44 44	<0.02 <0.02	<0.02 <0.02	43-97 USA-OW-FR-220-97-B
spring MN, 1997	50 WG	2	0.12	0.05	grain	44 44	<0.02 <0.02	<0.02 <0.02	43-97 USA-OW-FR-220-97-C
winter MO, 1997	50 WG	1	0.12	0.07	grain	43 43	<0.02 <0.02	<0.02 <0.02	43-97 USA-MW-FR-201-97-B
winter MO, 1997	50 WG	2	0.12	0.07	grain	43 43	<0.02 <0.02	<0.02 <0.02	43-97 USA-MW-FR-201-97-C
winter KS, 1997	50 WG	1	0.14	0.07	grain	36 36 36	<0.02 <0.02 <0.02	<0.02 <0.02 <0.02	43-97 USA-MW-FR-309-97-B
winter KS, 1997	50 WG	2	0.12-0.14	0.07	grain	36 36 36	<0.02 <0.02 <0.02	<0.02 <0.02 <0.02	43-97 USA-MW-FR-309-97-C
winter KS, 1997	50 WG	1	0.12	0.13	grain	35 35	<0.02 <0.02	<0.02 <0.02	43-97 USA-MW-FR-310-97-B
winter KS, 1997	50 WG	2	0.12	0.13	grain	35 35	<0.02 <0.02	<0.02 <0.02	43-97 USA-MW-FR-310-97-C
winter CO, 1997	50 WG	1	0.12	0.09	grain	38 38	<0.02 <0.02	<0.02 <0.02	43-97 USA-MW-FR-311-97-B
winter CO, 1997	50 WG	2	0.12	0.09	grain	38 38	<0.02 <0.02	<0.02 <0.02	43-97 USA-MW-FR-311-97-C
winter NE, 1997	50 WG	1	0.12	0.07	grain	33 33	<0.02 <0.02	<0.02 <0.02	43-97 USA-MW-FR-621-97-B
winter NE, 1997	50 WG	2	0.12	0.07	grain	33 33	<0.02 <0.02	<0.02 <0.02	43-97 USA-MW-FR-621-97-C
winter AR, 1997	50 WG	1	0.12	0.09	grain	43 43	<0.02 <0.02	<0.02 <0.02	43-97 USA-OS-FR-103-97-B
winter AR, 1997	50 WG	2	0.12	0.09	grain	43 43	0.03 0.02	<0.02 <0.02	43-97 USA-OS-FR-103-97-C
winter NC, 1997	50 WG	1	0.12	0.09	grain	34 34	<0.02 <0.02	<0.02 <0.02	43-97 USA-OS-FR-603-97-B
winter NC, 1997	50 WG	2	0.12	0.09	grain	34 34	<0.02 <0.02	<0.02 <0.02	43-97 USA-OS-FR-603-97-C
winter OK, 1997	50 WG	1	0.12	0.09	grain	34 34 38 38 44 44 51 51	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	43-97 USA-OS-FR-730-97-B
winter OK, 1997	50 WG	2	0.12	0.09	grain	34 34 38 38 44 44 51 51	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	43-97 USA-OS-FR-730-97-C
winter OK, 1997	50 WG	1	0.12	0.07	grain	47 47 47	<0.02 <0.02 <0.02	<0.02 <0.02 <0.02	43-97 USA-OS-FR-731-97-B

Location, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
winter OK, 1997	50 WG	2	0.12	0.07	grain	47 47 47	<0.02 <0.02 <0.02	<0.02 <0.02 <0.02	43-97 USA-OS-FR-731-97-C
winter TX, 1997	50 WG	1	0.12	0.08	grain	32 32	≤0.02 <0.02	≤0.02 <0.02	43-97 USA-OS-FR-735-97-B
winter TX, 1997	50 WG	2	0.12	0.08	grain	32 32	≤0.02 <0.02	≤0.02 <0.02	43-97 USA-OS-FR-735-97-C

Table 83. Results of residue trials with trifloxystrobin in wheat in Europe.

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321 113	
Wheat, winter Germany 2000	500 SC	2	0.25	0.06	grain	35	0.14	0.06	gr57100 BRD-gr57100
Wheat, winter Germany 2000	500 SC	2	0.25	0.06	grain	36	0.02	≤0.01	gr58200 BRD-gr58200
Wheat, winter Germany 1995	312.5 EC	2	0.19	0.047	grain	36 42	≤0.02 <0.02	≤0.02 <0.02	gr3195 BRD-gr12395
Wheat, winter Germany 1995	312.5 EC	2	0.19	0.047	grain	35 42	≤0.02 <0.02	≤0.02 <0.02	gr3195 BRD-gr42395
Wheat, winter France-North, 1995	312.5 EC	2	0.19	0.047	grain	41	≤0.02	≤0.02	OF95137/KJ19 FRA-KJ19
Wheat, winter Germany 1996	312.5 EC	2	0.19	0.047	grain	34 41	≤0.02 <0.02	≤0.02 <0.02	gr31196 BRD-gr31196
Wheat, winter Germany 1996	312.5 EC	2	0.19	0.047	grain	40 42	<0.02 ≤0.02	<0.02 ≤0.02	gr32296 BRD-gr32296
Wheat, winter Sweden 1998	312.5 EC	2	0.18	0.09	grain	35 42 48	≤0.02 <0.02 <0.02	≤0.02 <0.02 <0.02	gr97098 SWD-gr97098
Wheat, winter Switzerland 1997	125 EC	2	0.25	0.05	grain	47	≤0.02	≤0.02	2272/97 SWZ-2272-97
Wheat Switzerland 1997	125 EC	2	0.25	0.05	grain	42	≤0.02	≤0.02	2013/96 SWZ-2013-96
Wheat, spring Germany 1999	125 EC	2	0.25	0.06	grain	34 41	≤0.02 <0.02	≤0.02 <0.02	gr38499 BRD-2144-99
Wheat, winter Germany 1996	125 EC	2	0.25	0.06	grain	34 41	0.02 <0.02	≤0.02 <0.02	gr35196 BRD-2168-96
Wheat, winter Germany 1996	125 EC	2	0.25	0.06	grain	40 42	<0.02 ≤0.02	<0.02 ≤0.02	gr36296 BRD-2169-96
Wheat, winter France-North, 1996	125 EC	2	0.25	0.06	grain	41	≤0.02	≤0.02	OF96116/SJ14 FRA-SJ14
Wheat, winter Germany 1997	125 EC	2	0.25	0.06	grain	35 42	0.02 0.05	<0.02 0.02	gr49197 BRD-gr49197
Wheat, winter France-North, 1997	267.5 EC	2	0.19	0.047	grain	42	≤0.02	≤0.02	2236/97 FRA-2236-97
Wheat, winter France- North, 1997	267.5 EC	2	0.19	0.047	grain	46	≤0.02	≤0.02	2237/97 FRA-2237-97
Wheat, winter France-North, 1997	267.5 EC	2	0.19	0.047	grain	44	≤0.02	≤0.02	2238/97 FRA-2238-97

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321 113	
Wheat, winter France-North, 1997	267.5 EC	2	0.19	0.047	grain	46	≤0.02	≤0.02	2239/97 FRA-2239-97
Wheat, winter France-North, 1998	267.5 EC	2	0.17-0.18	0.047	grain	34 34 43 43	0.03 0.03 <0.02 <0.02	≤0.02 <0.02 <0.02 <0.02	9813101 FRA-9813101
Wheat, winter France-North, 1998	267.5 EC	2	0.19	0.047	grain	49 49	≤0.02 <0.02	≤0.02 <0.02	9813102 FRA-9813102
Wheat France-North, 1997	535 SC	2	0.19	0.047	grain	42	≤0.02	≤0.02	2240/97 FRA-2240-97
Wheat France-North, 1997	535 SC	2	0.19	0.047	grain	46	≤0.02	≤0.02	2241/97 FRA-2241-97
Wheat France-North, 1997	535 SC	2	0.19	0.047	grain	44	≤0.02	≤0.02	2242/97 FRA-2242-97
Wheat France-North, 1997	535 SC	2	0.19	0.047	grain	46	≤0.02	≤0.02	2243/97 FRA-2243-97
Wheat France-South, 2000	500 SC	2	0.25	0.06	grain	44 44	≤0.02 <0.02	≤0.02 <0.02	0011701 FRA-0011701
Wheat France-South, 2000	500 SC	2	0.25	0.08	grain	42 42	0.02 0.02	≤0.01 <0.01	2106/00 FRA-2106-00-A
Wheat France-South, 1997	125 EC	2	0.25	0.06	grain	34	0.03	≤0.02	2170/97 FRA-2170-97
Wheat France-South, 1997	125 EC	2	0.25	0.075	grain	31	≤0.02	≤0.02	2171/97 FRA-2171-97
Wheat France-South, 1997	125 EC	2	0.25	0.06	grain	35	≤0.02	≤0.02	2172/97 FRA-2172-97
Wheat France-South, 1997	125 EC	2	0.25	0.06	grain	35	≤0.02	≤0.02	2173/97 FRA-2173-97
Wheat France-South, 1996	125 EC	2	0.25	0.06	grain	42	≤0.02	≤0.02	OF96116/LD87 FRA-LD87
Wheat France-South, 1996	125 EC	2	0.25	0.06	grain	42	≤0.02	≤0.02	OF96117 FRA-OF96117
Wheat France-South, 1997	267.5 EC	2	0.19	0.047	grain	45	≤0.02	≤0.02	2244/97 FRA-2244-97
Wheat France-South, 1997	267.5 EC	2	0.19	0.047	grain	45	≤0.02	≤0.02	2245/97 FRA-2245-97
Wheat France-South, 1997	267.5 EC	2	0.19	0.056	grain	42	≤0.02	≤0.02	2246/97 FRA-2246-97
Wheat France-South, 1997	267.5 EC	2	0.19	0.047	grain	46	≤0.02	≤0.02	2247/97 FRA-2247-97
Wheat France-South, 1998	267.5 EC	2	0.17-0.2	0.047	grain	37 37 47 47	<0.02 <0.02 ≤0.02 <0.02	<0.02 <0.02 ≤0.02 <0.02	9813103 FRA-9813103

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321 113	
Wheat France-South, 1998	267.5 EC	2	0.19-0.2	0.047	grain	36 36 45 45	<0.02 <0.02 ≤0.02 <0.02	<0.02 <0.02 ≤0.02 <0.02	9813104 FRA-9813104

Maize

Table 84. Results of residue trials with trifloxystrobin in maize.

Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Brazil 2002	250 EC	2	0.10	0.05	kernel	30	≤0.05	n.a.	BRA S-A2-676/02-S1 BRA-S-A2-676/02-S1-A
Brazil 2002	250 EC	2	0.10	0.05	kernel	30	≤0.05	n.a.	BRA S-A2-676/02-S2 BRA-S-A2-676/02-S2-A
Brazil 2002	250 EC	2	0.10	0.05	kernel	30	≤0.05	n.a.	BRA S-A2-676/02-S3 BRA-S-A2-676/02-S3-A
IA, USA 1998	250 EC	4	0.12	0.06	grain	29 29	≤0.02 <0.02	0.03 0.03	144-98 USA-MW-FR-150-98-B
IA, USA 1998	250 EC	4	0.12	0.05	grain	30 30	≤0.02 <0.02	≤0.02 <0.02	144-98 USA-MW-FR-151-98-B
MO, USA 1998	250 EC	4	0.12	0.06	grain	30 30	≤0.02 <0.02	≤0.02 <0.02	144-98 USA-MW-FR-201-98-B
IL, USA 1998	250 EC	4	0.12	0.05	grain	30 30	≤0.02 <0.02	≤0.02 <0.02	144-98 USA-MW-FR-405-98-B
IA, USA 1998	250 EC	4	0.12	0.05-0.07	grain	9 9 16 16 23 23 30 30 36 36	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 ≤0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 ≤0.02 <0.02 <0.02 <0.02	144-98 USA-MW-FR-501-98-B
SD, USA 1998	250 EC	4	0.12	0.05-0.07	grain	29 29	≤0.02 <0.02	≤0.02 <0.02	144-98 USA-MW-FR-502-98-B
NE, USA 1998	250 EC	4	0.12	0.05-0.07	grain	30 30	≤0.02 <0.02	≤0.02 <0.02	144-98 USA-MW-FR-610-98-B
NE, USA 1998	250 EC	4	0.12	0.07	grain	30 30	≤0.02 <0.02	≤0.02 <0.02	144-98 USA-MW-FR-611-98-B
NE, USA 1998	250 EC	4	0.12	0.05-0.07	grain	30 30	≤0.02 <0.02	≤0.02 <0.02	144-98 USA-MW-FR-612-98
WI, USA 1998	250 EC	4	0.12	0.05-0.06	grain	30 30	≤0.02 <0.02	≤0.02 <0.02	144-98 USA-MW-FR-701-98-B
MN, USA 1998	250 EC	4	0.12	0.06	grain	9 9 16 16 23 23 30 30 37 37	0.06 0.02 <0.02 <0.02 <0.02 <0.02 ≤0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 ≤0.02 <0.02 <0.02 <0.02	144-98 USA-MW-FR-801-98-B
MN, USA 1998	250 EC	4	0.12	0.06	grain	30 30	≤0.02 <0.02	≤0.02 <0.02	144-98 USA-MW-FR-802-98-B

Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
IN, USA 1998	250 EC	4	0.12	0.26	grain	30 30	<0.02 <0.02	<0.02 <0.02	144-98 USA-NE-FR-103-98-B
IN, USA 1998	250 EC	4	0.12	0.066	grain	30 30	<0.02 <0.02	<0.02 <0.02	144-98 USA-NE-FR-104-98-B
IN, USA 1998	250 EC	4	0.12	0.26	grain	30 30	<0.02 <0.02	<0.02 <0.02	144-98 USA-NE-FR-105-98
OH, USA 1998	250 EC	4	0.06	0.033	grain	28 28	<0.02 <0.02	<0.02 <0.02	144-98 USA-NE-FR-203-98-B
MI, USA 1998	250 EC	4	0.11-0.12	0.05	grain	29 29	<0.02 <0.02	<0.02 <0.02	144-98 USA-NE-FR-710-98-B
NY, USA 1998	250 EC	4	0.12	0.053	grain	30 30	<0.02 <0.02	<0.02 <0.02	144-98 USA-NE-FR-802-98-B
TX, USA 1998	250 EC	4	0.12	0.26	grain	28 28	<0.02 <0.02	<0.02 <0.02	144-98 USA-OS-FR-201-98-B
NC, USA 1998	250 EC	4	0.12	0.07	grain	34 34	<0.02 <0.02	<0.02 <0.02	144-98 USA-OS-FR-609-98-B
CA, USA 1998	250 EC	4	0.12	0.05	grain	35 35	<0.02 <0.02	<0.02 <0.02	144-98 USA-OW-FR-107-98-B
IL, USA 1998	250 EC	4	0.12-0.15	0.06-0.08	grain	29 29	<0.02 <0.02	<0.02 <0.02	144-98 USA-04-FR-004-98-B
KS, USA 1999	250 EC	4	0.12	0.07	grain	29 29	<0.02 <0.02	<0.02 <0.02	751-99 USA-MW-FR-317-99-A
KS, USA 1999	250 EC	4	0.12	0.06-0.07	grain	29 29	<0.02 <0.02	<0.02 <0.02	751-99 USA-MW-FR-318-99
OH, USA 1999	250 EC	4	0.12	0.06-0.07	grain	30 30	<0.02 <0.02	<0.02 <0.02	751-99 USA-NE-FR-203-99

n.a. not analysed

Rice

Table 85. Results of residue trials with trifloxystrobin in rice.

Country, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Brazil 1999	50 WG	3	0.15	0.05	grain	15 15	0.13 0.12	n.a.	FR007/99 BRA-FR007-99-A
Brazil 1999	50 WG	3	0.15		grain	18 18	0.22 0.20	n.a.	FR008/99 BRA-FR008-99-A
Brazil 2000	50 WG	3	0.15	0.075	grain	15	0.05	n.a.	M00139-RPK BRA-M00139-RPK-A
Brazil 2001	50 WG	3	0.15	0.06	grain	15	0.10	n.a.	M00139-JJB BRA-M00139-JJB-A
Brazil 2001	50 WG	3	0.15	0.05	grain	14	<0.05	n.a.	M00139-LZF BRA-M00139-LZF-A
Brazil 1999	250 EC	2	0.13		grain	27 27	0.03 0.03	n.a.	FR027/99 BRA-FR027-99-A
Brazil 1999	250 EC	3	0.13		grain	27 27	0.11 0.10	n.a.	FR028/99 BRA-FR028-99-A
AR, USA 1998	50 WG	2	0.17	0.15	grain	36 36	0.34 0.33	0.07 0.06	150-98 USA-OS-FR-104-98-B
AR, USA 1998	50 WG	2	0.17	0.09	grain	35 35 35	0.10 0.12 0.06	0.07 0.08 0.04	150-98 USA-OS-FR-105-98-A

Country, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
AR, USA 1998	50 WG	2	0.17	0.09	grain	14 14 21 21 28 28 35 35 45 45	0.18 0.17 0.06 0.09 0.04 0.06 0.03 0.04 0.03 0.04	0.03 0.03 0.02 0.02 <0.02 <0.02 <0.02 <0.02 0.02 0.02	150-98 USA-OS-FR-106-98
AR, USA 1998	50 WG	2	0.17	0.37	grain	35 35	0.11 0.07	0.05 0.03	150-98 USA-OS-FR-107-98
AR, USA 1998	50 WG	2	0.17	0.17-0.18	grain	34 34	0.11 0.09	0.10 0.09	150-98 USA-OS-FR-108-98
MO, USA 1998	50 WG	2	0.17	0.14-0.15	grain	35 35	0.54 0.68	0.06 0.07	150-98 USA-OS-FR-109-98
TX, USA 1998	50 WG	2	0.17	0.14-0.15	grain	40 40	<0.02 <0.02	<0.02 <0.02	150-98 USA-OS-FR-204-98-B
TX, USA 1998	50 WG	2	0.17	0.15	grain	37 37	<0.02 <0.02	<0.02 <0.02	150-98 USA-OS-FR-206-98
LA, USA 1998	50 WG	2	0.17	0.09-0.12	grain	35 35 35	<0.02 0.03 0.04	<0.02 0.04 0.02	150-98 USA-OS-FR-901-98-A
LA, USA 1998	50 WG	2	0.17	0.37	grain	35 35	0.04 0.04	<0.02 <0.02	150-98 USA-OS-FR-902-98
LA, USA 1998	50 WG	2	0.17	0.17-0.18	grain	35 35	<0.02 <0.02	<0.02 <0.02	150-98 USA-OS-FR-903-98
MS,USA 1998	50 WG	2	0.17	0.15-0.17	grain	35 35	0.10 0.09	0.03 0.03	150-98 USA-OS-FR-904-98
CA, USA 1998	50 WG	2	0.17	0.074	grain	35 35	3.4 2.5	0.03 0.08	150-98 USA-OW-FR-407-98
CA, USA 1998	50 WG	2	0.17	0.13	grain	35 35	2.4 2.2	0.10 0.10	150-98 USA-OW-FR-408-98-B
MS,USA 1998	50 WG	2	0.17	0.13	grain	14 14 21 21 27 27 34 34 42 42	0.16 0.25 0.15 0.13 0.16 0.20 0.23 0.25 0.19 0.30	0.10 0.11 0.06 0.04 0.06 0.07 0.12 0.12 0.09 0.16	150-98 USA-03-FR-001-98
AR, USA 1998	250 EC	2	0.17	0.15	grain	36 36	0.25 0.24	0.08 0.07	150-98 USA-OS-FR-104-98-A
CA, USA 1998	250 EC	2	0.17	0.13	grain	35 35	0.56 0.52	0.07 0.08	150-98 USA-OW-FR-408-98-A
MO,USA 1998	250 EC	2	0.17	0.15	grain	35 35	<0.02 <0.02	<0.02 <0.02	150-98 USA-OS-FR-110-98-A
TX, USA 199	250 EC	2	0.17	0.14-0.15	grain	40 40	<0.02 <0.02	<0.02 <0.02	150-98 USA-OS-FR-204-98-A

n.a. not analysed

Nuts and seeds

Almonds

Table 86. Results of residue trials with trifloxystrobin in almonds.

Country, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321 113	
CA, USA 1998	50 WG	4	0.14	0.15	nut without shell	62	<0.02	<0.02	143-98 USA-OW-FR-402-98
						62	<0.02	<0.02	
CA, USA 1998	50 WG	4	0.14	0.007	nut without shell	63	<0.02	<0.02	143-98 USA-OW-FR-514-98
						63	<0.02	<0.02	
CA, USA 1998	50 WG	4	0.14	0.15	nut without shell	62	<0.02	<0.02	143-98 USA-OW-FR-515-98
						62	<0.02	<0.02	
CA, USA 1998	50 WG	4	0.14	0.02	nut without shell	63	<0.02	<0.02	143-98 USA-02-FR-001-98-A
						63	<0.02	<0.02	
CA, USA 1998	50 WG	4	0.14	0.01	nut without shell	40	<0.02	<0.02	143-98 USA-02-FR-001-98-B
						40	<0.02	<0.02	
						49	<0.02	<0.02	
						49	<0.02	<0.02	
						55	<0.02	<0.02	
						55	<0.02	<0.02	
						63	<0.02	<0.02	
						63	<0.02	<0.02	
						68	<0.02	<0.02	
						68	<0.02	<0.02	
CA, USA 1999	50 WG	4	0.14	0.009	nut without shell	53	<0.02	<0.02	110852 USA-OW-FR-404-99
						53	<0.02	<0.02	

Table 87. Results of residue trials with trifloxystrobin on pecan in the USA.

Location, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321 113	
GA,1998	50 WG	8	0.14	0.01	nut without shell	0	<0.02	<0.02	155-98 USA-OS-FR-838-98-B
						0	<0.02	<0.02	
						8	<0.02	<0.02	
						8	<0.02	<0.02	
						15	<0.02	<0.02	
						15	<0.02	<0.02	
						22	<0.02	<0.02	
						22	<0.02	<0.02	
						29	<0.02	<0.02	
						29	<0.02	<0.02	
						36	<0.02	<0.02	
						36	<0.02	<0.02	
TX, 1998	50 WG	8	0.14	0.02	nut without shell	30	<0.02	<0.02	155-98 USA-OS-FR-205-98-C
						30	<0.02	<0.02	
TX, 1998	50 WG	8	0.14	0.01	nut without shell	30	<0.02	<0.02	155-98 USA-OS-FR-205-98-D
						30	<0.02	<0.02	
TX, 1998	250 EC	8	0.14	0.02	nut without shell	30	<0.02	<0.02	155-98 USA-OS-FR-205-98-A
						30	<0.02	<0.02	
TX, 1998	250 EC	8	0.14	0.01	nut without shell	30	<0.02	<0.02	155-98 USA-OS-FR-205-98-B
						30	<0.02	<0.02	
NM,1998	250 EC	8	0.14	0.02	nut without shell	28	<0.02	<0.02	155-98 USA-OS-FR-734-98-A
						28	<0.02	<0.02	
NM,1998	250 EC	8	0.14	0.01	nut without shell	28	<0.02	<0.02	155-98 USA-OS-FR-734-98-B
						28	<0.02	<0.02	

Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321 113	
GA,1998	250 EC	8	0.14	0.01	nut without shell	0 0 8 8 15 15 22 22 29 29 36 36	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	155-98 USA-OS-FR-838-98-A
AL, 1998	250 EC	8	0.14	0.14-0.15	nut without shell	34 34	<0.02 <0.02	<0.02 <0.02	155-98 USA-OS-FR-839-98
LA, 1998	250 EC	8	0.14	0.13-0.14	nut without shell	30 30	<0.02 <0.02	<0.02 <0.02	155-98 USA-OS-FR-905-98-A
LA, 1998	250 EC	8	0.14	0.008-0.009	nut without shell	30 30	<0.02 <0.02	<0.02 <0.02	155-98 USA-OS-FR-905-98-B

Oilseed

Cotton seed

Table 88. Results of residue trials with trifloxystrobin on cotton seed.

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Brazil 2002	250 EC	3	0.1	0.033	seed	21	<0.05	n.a.	BRA S-K1-672/02-S1 BRA-S-K1-672/02-S1-A
Brazil 2002	250 EC	3	0.1	0.033	seed	21	<0.05	n.a.	BRA S-K1-672/02-S2 BRA-S-K1-672/02-S2-A
Brazil 2002	250 EC	3	0.1	0.033	seed	21	<0.05	n.a.	BRA S-K1-672/02-S3 BRA-S-K1-672/02-S3-A

n.a. not analysed

Peanut

Table 89. Results of residue trials with trifloxystrobin on peanut.

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321 113	
Brazil 2002	250 EC	4	0.10	0.033	Nut without shell	15	<0.05	n.a.	BRA S-G4-674/02-S1 BRA-S-G4-674/02-S1-A
Brazil 2002	250 EC	4	0.10	0.033	Nut without shell	15	<0.05	n.a.	BRA S-G4-674/02-S2 BRA-S-G4-674/02-S2-A
Brazil 2002	250 EC	4	0.10	0.033	Nut without shell	15	<0.05	n.a.	BRA S-G4-674/02-S3 BRA-S-G4-674/02-S3-A
VA,USA 1996	50 WG	8	0.07	0.05	kernel	14 14	<0.02 <0.02	<0.02 <0.02	53-96 USA-NE-FR-303-96-A
VA,USA 1996	50 WG	8	0.14	0.10	kernel	14 14	<0.02 <0.02	<0.02 <0.02	53-96 USA-NE-FR-303-96-B

Country, Year	Application Form	 No	 kg ai/ha	 kg ai/hl	Sample	Residues (mg/kg) PHI (days)	 trifloxy-strobin	 CGA321 113	*Report No.;* Study No.
TX, USA 1996	50 WG	8	0.07	0.04	kernel	15 15	<0.02 <0.02	<0.02 <0.02	53-96 USA-OS-FR-202-96-A
TX, USA 1996	50 WG	8	0.14	0.08	kernel	0 0 3 3 8 8 15 15 22 22	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	53-96 USA-OS-FR-202-96-B
TX, USA 1996	50 WG	8	0.07	0.04	kernel	14 14	<0.02 <0.02	<0.02 <0.02	53-96 USA-OS-FR-314-96-A
TX, USA 1996	50 WG	8	0.14	0.075	kernel	14 14	<0.02 <0.02	<0.02 <0.02	53-96 USA-OS-FR-314-96-B
SC, USA 1996	50 WG	8	0.07	0.04	kernel	14 14	<0.02 <0.02	<0.02 <0.02	53-96 USA-OS-FR-604-96-A
SC, USA 1996	50 WG	8	0.14	0.075	kernel	14 14	<0.02 <0.02	<0.02 <0.02	53-96 USA-OS-FR-604-96-B
OK,USA 1996	50 WG	8	0.07	0.04-0.05	kernel	16 16	<0.02 <0.02	<0.02 <0.02	53-96 USA-OS-FR-753-96-A
OK,USA 1996	50 WG	8	0.14	0.075-0.1	kernel	16 16	<0.02 <0.02	<0.02 <0.02	53-96 USA-OS-FR-753-96-B
GA,USA 1996	50 WG	8	0.07	0.04	kernel	14 14	<0.02 <0.02	<0.02 <0.02	53-96 USA-OS-FR-841-96-A
GA,USA 1996	50 WG	8	0.14	0.08	kernel	0 0 3 3 7 7 14 14 21 21	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	53-96 USA-OS-FR-841-96-B
GA,USA 1996	50 WG	8	0.07	0.04	kernel	14 14	<0.02 <0.02	<0.02 <0.02	53-96 USA-OS-FR-842-96-A
GA,USA 1996	50 WG	8	0.14	0.08	kernel	14 14	<0.02 <0.02	<0.02 <0.02	53-96 USA-OS-FR-842-96-B
GA,USA 1996	50 WG	8	0.07	0.04	kernel	14 14	<0.02 <0.02	<0.02 <0.02	53-96 USA-OS-FR-843-96-A
GA,USA 1996	50 WG	8	0.14	0.07-0.08	kernel	14 14	<0.02 <0.02	<0.02 <0.02	53-96 USA-OS-FR-843-96-B
GA,USA 1996	50 WG	8	0.07	0.14-0.15	kernel	14 14	<0.02 <0.02	<0.02 <0.02	53-96 USA-OS-FR-844-96-A
GA,USA 1996	50 WG	8	0.14	0.29-0.30	kernel	14 14	<0.02 <0.02	<0.02 <0.02	53-96 USA-OS-FR-844-96-B
GA,USA 1996	50 WG	8	0.07	0.04	kernel	14 14	<0.02 <0.02	<0.02 <0.02	53-96 USA-OS-FR-845-96-A
GA,USA 1996	50 WG	8	0.14	0.07	kernel	14 14	<0.02 <0.02	<0.02 <0.02	53-96 USA-OS-FR-845-96-B
FL, USA 1996	50 WG	8	0.07	0.012	kernel	17 17	<0.02 <0.02	<0.02 <0.02	53-96 USA-07-FR-003-96-A
FL, USA 1996	50 WG	8	0.14	0.025	kernel	17 17	<0.02 <0.02	<0.02 <0.02	53-96 USA-07-FR-003-96-B
NC, USA 1997	50 WG	8	0.07	0.049	kernel	14 14	<0.02 <0.02	<0.02 <0.02	53-96 USA-OS-FR-609-97-A
NC, USA 1997	50 WG	8	0.14	0.10	kernel	14 14	<0.02 <0.02	<0.02 <0.02	53-96 USA-OS-FR-609-97-B
TX, USA 1998	50 WG	8	0.07	0.04	kernel	14 14	<0.02 <0.02	<0.02 <0.02	151-98 USA-OS-FR-312-98-A

	Application				Residues (mg/kg)				
Country, Year	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321 113	*Report No.;* Study No.
TX, USA 1998	250 EC	8	0.07	0.04	kernel	14 14	<0.02 <0.02	<0.02 <0.02	151-98 USA-OS-FR-312-98-B
NC, USA 1998	50 WG	8	0.07	0.075	kernel	14 14	<0.02 <0.02	<0.02 <0.02	151-98 USA-OS-FR-612-98-A
NC, USA 1998	250 EC	8	0.07	0.075	kernel	14 14	<0.02 <0.02	<0.02 <0.02	151-98 USA-OS-FR-612-98-B
OK,USA 1998	50 WG	8	0.07	0.05-0.06	kernel	14	<0.02	<0.02	151-98 USA-OS-FR-731-98-A
OK,USA 1998	250 EC	8	0.07	0.05-0.06	kernel	14 14	<0.02 <0.02	<0.02 <0.02	151-98 USA-OS-FR-731-98-B
GA,USA 1998	50 WG	8	0.07	0.037	kernel	13 13	<0.02 <0.02	<0.02 <0.02	151-98 USA-OS-FR-837-98-A
GA,USA 1998	250 EC	8	0.07	0.037	kernel	13 13	<0.02 <0.02	<0.02 <0.02	151-98 USA-OS-FR-837-98-B
FL, USA 1998	50 WG	8	0.07	0.025	kernel	14 14	<0.02 <0.02	<0.02 <0.02	151-98 USA-07-FR-001-98-A
FL, USA 1998	250 EC	8	0.07	0.025	kernel	14 14	<0.02 <0.02	<0.02 <0.02	151-98 USA-07-FR-001-98-B

n.a. not analysed

Seed for beverages and sweets

Coffee beans

Table 90. Results of residue trials with trifloxystrobin on coffee beans in Brazil.

	Application				Residues (mg/kg)				
Year	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	*Report No.;* Study No.
2002	267.5 EC	3	0.11	0.023	bean, dry	30	<0.05	n.a.	BRA S-E1-671/02-S1 BRA-S-E1-671/02-S1-A
2002	267.5 EC	3	0.11	0.023	bean, dry	30	<0.05	n.a.	BRA S-E1-671/02-S2 BRA-S-E1-671/02-S2-A
2002	267.5 EC	3	0.11	0.023	bean, dry	30	<0.05	n.a.	BRA S-E1-671/02-S3 BRA-S-E1-671/02-S3-A
2003	267.5 EC	3	0.11	0.023	bean, dry	30	<0.05	n.a.	BRA S-E1-671/02-S4 BRA-S-E1-671/02-S4-A

n.a. not analysed

Hops

Table 91. Results of residue trials with trifloxystrobin on hops.

	Application				Residues (mg/kg)				
Country, Year	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	*Report No.;* Study No.
WA, USA 1998	50 WG	6	0.14	0.015	cone, dried	0 0 3 3 6 6 10 10 13 13 18 18	19 19 10 17 12 17 14 18 9.3 8.7 5.4 8.7	1.7 1.5 0.65 0.59 0.71 1.2 1.4 1.9 0.57 0.33 0.68 0.88	148-98 USA-OW-FR-606-98-A
WA, USA 1998	50 WG	6	0.14	0.15	cone, dried	14 14	5.8 10	0.22 0.48	148-98 USA-OW-FR-607-98-A
OR, USA 1998	50 WG	6	0.14	0.01	cone, dried	14 14	4.5 4.4	0.41 0.38	148-98 USA-OW-FR-608-98-A
Germany 1996	50 WG	4	0.38-0.50	0.013	cone, green cone, dried	0 7 9 14 21 14	10 9.1 7.3 7.5 6.1 16	0.38 0.43 0.48 0.43 0.3 2.0	gr01796 BRD-gr01796
Germany 1996	50 WG	4	0.38-0.50	0.013	cone, green cone, dried	0 6 9 14 21 14	7.1 6.1 4.8 3.0 2.7 4.7	0.68 0.65 0.73 0.55 0.48 1.48	RF0296 BRD-RF0296
Germany 1996	50 WG	4	0.38-0.50	0.013	cone, green cone, dried	0 6 9 14 21 14	4.3 4.6 3.8 2.6 4.5 8.8	0.45 0.64 0.52 0.44 0.51 1.4	RF0396 BRD-RF0396
Germany 1996	50 WG	4	0.38-0.50	0.013	cone, green cone, dried	0 6 9 14 21 14	6.0 2.8 3.8 3.1 1.8 5.4	0.45 0.30 0.35 0.45 0.33 1.3	RF0496 BRD-RF0496
Germany 1997	49 WG	6	0.12-0.51	0.019	cone, green cone, dried	0 7 9 14 21 14	6.0 3.7 2.0 2.9 3.1 9.5	0.45 0.43 0.40 0.44 0.50 2.3	2162/97 BRD-2162-97
Germany 1997	49 WG	6	0.13-0.52	0.019	cone, green cone, dried	0 7 9 14 21 14	4.2 4.5 2.5 3.6 2.8 11	0.35 0.43 0.26 <0.1 <0.1 1.7	2163/97 BRD-2163-97

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Germany 1997	49 WG	6	0.13-0.53	0.019	cone, green cone, dried	0 7 9 14 21 14	4.8 3.5 3.4 2.9 1.9 11	0.47 0.52 0.40 0.47 0.47 1.42	2164/97 BRD-2164-97
Germany 1997	49 WG	6	0.13-0.50	0.013	cone, green cone, dried	0 7 11 14 11	14 11 8.1 7.5 26	0.39 0.16 0.28 0.66 2.5	2165/97 BRD-2165-97

Animal feed commodities

Almond hulls

Table 92. Results of residue trials with trifloxystrobin in almond hulls in the USA.

Location, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321 113	
CA, 1998	50 WG	4	0.14	0.15	hull	62 62	1.2 0.98	≤0.02 <0.02	143-98 USA-OW-FR-402-98
CA, 1998	50 WG	4	0.14	0.007	hull	63 63	0.39 0.42	<0.02 ≤0.02	143-98 USA-OW-FR-514-98
CA, 1998	50 WG	4	0.14	0.15	hull	62 62	0.22 0.25	<0.02 ≤0.02	143-98 USA-OW-FR-515-98
CA, 1998	50 WG	4	0.14	0.02	hull	63 63	0.72 0.72	0.02 0.03	143-98 USA-02-FR-001-98-A
CA, 1998	50 WG	4	0.14	0.01	hull	40 40 49 49 55 55 63 63 68 68	0.39 0.51 0.74 0.82 0.62 0.61 1.1 1.2 1.8 1.8	<0.02 <0.02 <0.02 <0.02 <0.02 <0.02 0.03 0.03 0.06 0.06	143-98 USA-02-FR-001-98-B
CA, 1999	50 WG	4	0.14	0.009	hull	53 53	1.6 1.4	0.04 0.03	110852 USA-OW-FR-404-99

Peanut fodder

Table 93. Results of residue trials with trifloxystrobin on peanut hay in the USA.

Location, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
VA, 1996	50 WG	8	0.07	0.05	hay	14 14	0.26 0.26	0.20 0.21	53-96 USA-NE-FR-303-96-A
VA, 1996	50 WG	8	0.14	0.10	hay	14 14	0.82 1.4	0.59 0.67	53-96 USA-NE-FR-303-96-B
TX, 1996	50 WG	8	0.07	0.04	hay	15 15	0.27 0.50	0.18 0.33	53-96 USA-OS-FR-202-96-A

Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
TX, 1996	50 WG	8	0.14	0.08	hay	0	2.1	0.48	53-96 USA-OS-FR-202-96-B
						0	7.4	0.74	
						3	3.0	0.60	
						3	2.9	0.85	
						8	0.93	0.47	
						8	1.3	0.72	
						15	0.26	0.20	
						15	0.46	0.36	
						22	0.27	0.20	
						22	0.27	0.25	
TX, 1996	50 WG	8	0.07	0.04	hay	14	0.09	0.12	53-96 USA-OS-FR-314-96-A
						14	0.09	0.12	
TX, 1996	50 WG	8	0.14	0.075	hay	14	0.15	0.17	53-96 USA-OS-FR-314-96-B
						14	0.19	0.23	
SC, 1996	50 WG	8	0.07	0.04	hay	14	0.36	0.21	53-96 USA-OS-FR-604-96-A
						14	0.43	0.24	
SC, 1996	50 WG	8	0.14	0.075	hay	14	0.71	0.42	53-96 USA-OS-FR-604-96-B
						14	0.73	0.39	
OK, 1996	50 WG	8	0.07	0.04-0.05	hay	16	1.3	0.34	53-96 USA-OS-FR-753-96-A
						16	0.95	0.32	
OK, 1996	50 WG	8	0.14	0.075-0.1	hay	16	1.6	0.39	53-96 USA-OS-FR-753-96-B
						16	3.4	0.67	
GA, 1996	50 WG	8	0.07	0.04	hay	14	0.23	0.22	53-96 USA-OS-FR-841-96-A
						14	0.21	0.16	
GA, 1996	50 WG	8	0.14	0.08	hay	0	6.6	0.70	53-96 USA-OS-FR-841-96-B
						0	5.6	1.1	
						3	6.6	1.2	
						3	7.5	1.0	
						7	1.5	1.2	
						7	1.4	1.2	
						14	0.34	0.29	
						14	0.28	0.22	
						21	0.18	0.15	
						21	0.22	0.20	
GA, 1996	50 WG	8	0.07	0.04	hay	14	0.18	0.18	53-96 USA-OS-FR-842-96-A
						14	0.18	0.15	
GA, 1996	50 WG	8	0.14	0.08	hay	14	0.16	0.15	53-96 USA-OS-FR-842-96-B
						14	0.19	0.18	
GA, 1996	50 WG	8	0.07	0.04	hay	14	0.28	0.21	53-96 USA-OS-FR-843-96-A
						14	0.38	0.26	
GA, 1996	50 WG	8	0.14	0.07-0.08	hay	14	0.29	0.21	53-96 USA-OS-FR-843-96-B
						14	0.29	0.20	
GA, 1996	50 WG	8	0.07	0.14-0.15	hay	14	<0.05	<0.05	53-96 USA-OS-FR-844-96-A
						14	0.06	0.06	
GA, 1996	50 WG	8	0.14	0.29-0.30	hay	14	0.15	0.09	53-96 USA-OS-FR-844-96-B
						14	0.25	0.15	
GA, 1996	50 WG	8	0.07	0.04	hay	14	0.19	0.17	53-96 USA-OS-FR-845-96-A
						14	0.25	0.23	
GA, 1996	50 WG	8	0.14	0.07	hay	14	0.84	0.58	53-96 USA-OS-FR-845-96-B
						14	0.77	0.55	
FL, 1996	50 WG	8	0.07	0.012	hay	17	0.16	0.08	53-96 USA-07-FR-003-96-A
						17	0.19	0.14	
FL, 1996	50 WG	8	0.14	0.025	hay	17	0.29	0.15	53-96 USA-07-FR-003-96-B
						17	0.27	0.20	
NC, 1997	50 WG	8	0.07	0.049	hay	14	1.2	0.18	53-96 USA-OS-FR-609-97-A
						14	1.3	0.20	
NC, 1997	50 WG	8	0.14	0.10	hay	14	2.6	0.51	53-96 USA-OS-FR-609-97-B
						14	3.7	0.47	
TX, 1998	50 WG	8	0.07	0.04	hay	14	<0.05	0.07	151-98 USA-OS-FR-312-98-A
						14	<0.05	0.06	

Location, Year	Application				Residues (mg/kg)				*Report No.;* Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
TX, 1998	250 EC	8	0.07	0.04	hay	14 14	<0.05 <0.05	0.06 0.07	151-98 USA-OS-FR-312-98-B
NC, 1998	50 WG	8	0.07	0.075	hay	14 14	0.83 0.52	0.61 0.43	151-98 USA-OS-FR-612-98-A
NC, 1998	250 EC	8	0.07	0.075	hay	14 14	0.43 0.34	0.71 0.42	151-98 USA-OS-FR-612-98-B
OK, 1998	50 WG	8	0.07	0.05-0.06	hay	14 14	n.a. <0.05	n.a. <0.05	151-98 USA-OS-FR-731-98-A
OK, 1998	250 EC	8	0.07	0.05-0.06	hay	14 14	0.12 <0.05	0.20 <0.05	151-98 USA-OS-FR-731-98-B
GA, 1998	50 WG	8	0.07	0.037	hay	13 13	0.16 0.35	0.22 0.41	151-98 USA-OS-FR-837-98-A
GA, 1998	250 EC	8	0.07	0.037	hay	13 13	0.30 0.37	0.47 0.60	151-98 USA-OS-FR-837-98-B
FL, 1998	50 WG	8	0.07	0.025	hay	14 14	0.13 <0.05	0.18 <0.05	151-98 USA-07-FR-001-98-A
FL, 1998	250 EC	8	0.07	0.025	hay	14 14	<0.05 <0.05	<0.05 0.09	151-98 USA-07-FR-001-98-B

n.a. not analysed

Straw, fodder and forage of cereal grains and grasses

Barley straw and fodder, dry

Table 94. Results of residue trials with trifloxystrobin on barley straw.

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Barley France- South 2000	500 SC	2	0.24-0.26	0.06	straw	42 42	0.81 0.58	0.24 0.16	0011601 FRA-0011601
Barley France-South 2000	500 SC	2	0.25-0.26	0.06	straw	42 42	1.0 0.96	0.09 0.08	0011602 FRA-0011602
Barley France- South 1997	125 EC	2	0.25	0.06	straw	38	2.4	0.16	2166/97 FRA-2166-97
Barley France- South 1997	125 EC	2	0.25	0.075	straw	34	0.91	0.20	2167/97 FRA-2167-97
Barley France- South 1997	125 EC	2	0.25	0.06	straw	34	0.81	0.13	2168/97 FRA-2168-97
Barley France- South 1997	125 EC	2	0.25	0.06	straw	34	1.5	0.16	2169/97 FRA-2169-97
Barley, winter France- South 1996	125 EC	2	0.25	0.06	straw	41	0.15	≤0.05	OF96118/LD88 FRA-LD88
Barley France- South 1997	267.5 EC	2	0.19	0.05	straw	43	0.31	0.07	2228/97 FRA-2228-97
Barley France- South 1997	267.5 EC	2	0.19	0.05	straw	45	0.69	0.06	2229/97 FRA-2229-97
Barley France- South 1997	267.5 EC	2	0.19	0.06	straw	45	0.72	0.14	2230/97 FRA-2230-97

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Barley France- South 1997	267.5 EC	2	0.19	0.05	straw	42 42	0.80 1.3	0.17 0.21	2231/97 FRA-2231-97
Barley, winter France- South 1998	267.5 EC	2	0.17-0.18	0.05	straw	33 33 45 45	1.12 1.08 0.91 0.90	0.20 0.20 0.16 0.17	9813203 FRA-9813203
Barley, winter France- South 1998	267.5 EC	2	0.18	0.05	straw	33 33 45 45	0.81 0.61 0.54 0.64	0.14 0.10 0.12 0.15	9813204 FRA-9813204
Barley France- North 1997	535 SC	2	0.19	0.05	straw	40	0.61	0.19	2224/97 FRA-2224-97
Barley France- North 1997	535 SC	2	0.19	0.05	straw	44	0.38	≤0.05	2225/97 FRA-2225-97
Barley France- North 1997	535 SC	2	0.19	0.05	straw	46	0.66	0.11	2226/97 FRA-2226-97
Barley France- North 1997	535 SC	2	0.19	0.05	straw	46	0.78	0.16	2227/97 FRA-2227-97
Barley, winter France- North 1998	267.5 EC	2	0.19	0.05	straw	35 47	<0.05 0.09	<0.05 ≤0.05	9813201 FRA-9813201
Barley, winter France- North 1998	267.5 EC	2	0.18	0.05	straw	35 35 47 47	0.32 0.38 0.30 0.29	≤0.05 ≤0.05 <0.05 <0.05	9813202 FRA-9813202
Barley France- North 1997	267.5 EC	2	0.19	0.05	straw	40	0.53	0.11	2220/97 FRA-2220-97
Barley France- North 1997	267.5 EC	2	0.19	0.05	straw	44	0.33	≤0.05	2221/97 FRA-2221-97
Barley France- North 1997	267.5 EC	2	0.19	0.05	straw	46	0.50	0.08	2222/97 FRA-2222-97
Barley France- North 1997	267.5 EC	2	0.19	0.05	straw	46	0.43	0.05	2223/97 FRA-2223-97
Barley, winter Denmark 1996	125 EC	2	0.25	0.10	straw	42 58	3.1 4.2	0.06 0.19	FR0796 DAE-FR0796
Barley, winter Germany 1996	125 EC	2	0.25	0.06	straw	35 42	0.68 0.32	0.12 0.11	gr37296 BRD-2170-96
Barley, winter Germany 1999	125 EC	2	0.25	0.06	straw	35 42	1.6 <0.05	0.29 <0.05	gr37399 BRD-2143-99
Barley, winter Germany 1995	312.5 EC	2	0.19	0.05	straw	35 42	0.17 0.23	0.05 0.07	gr3295 BRD-gr22395
Barley, winter Germany 1996	312.5 EC	2	0.19	0.05	straw	35 42	0.32 0.22	0.36 0.38	gr33696 BRD-gr33696
Barley, winter Germany 2000	500 SC	2	0.25	0.06	straw	34	1.1	0.42	gr59100 BRD-gr59100

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Barley, spring Germany 1999	125 EC	2	0.25	0.06	straw	34 41	0.35 0.49	0.18 0.18	gr35199 BRD-2141-99
Barley, winter Great Britain 1996	125 EC	2	0.25	0.13	straw	47	1.8	≤0.05	FR0296 ENG-FR029
Barley, winter Great Britain 1996	125 EC	2	0.25	0.13	straw	44	0.93	≤0.05	FR0396 ENG-FR0396

Maize fodder

Table 95. Results of residue trials with trifloxystrobin on maize stover in the USA.

Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321 113	
IA, 1998	250 EC	4	0.12	0.06	stover	29 29	0.53 0.44	0.12 0.14	144-98 USA-MW-FR-150-98-B
IA, 1998	250 EC	4	0.12	0.05	stover	30 30	1.0 1.0	0.38 0.33	144-98 USA-MW-FR-151-98-B
MO, 1998	250 EC	4	0.12	0.06	stover	30 30	0.35 0.43	0.13 0.13	144-98 USA-MW-FR-201-98-B
IL, 1998	250 EC	4	0.12	0.05	stover	30 30	0.71 0.96	0.44 0.46	144-98 USA-MW-FR-405-98-B
IA, 1998	250 EC	4	0.12	0.05-0.07	stover	0 0 9 9 16 16 23 23 30 30 36 36	4.6 6.9 2.9 3.6 0.93 1.4 1.3 0.80 0.67 1.2 0.78 0.99	0.41 0.34 0.44 0.66 0.22 0.37 0.41 0.21 0.18 0.24 0.24 0.31	144-98 USA-MW-FR-501-98-B
SD, 1998	250 EC	4	0.12	0.05-0.07	stover	29 29	3.2 3.9	0.42 0.51	144-98 USA-MW-FR-502-98-B
NE, 1998	250 EC	4	0.12	0.05-0.07	stover	30 30	2.9 2.8	1.0 1.1	144-98 USA-MW-FR-610-98-B
NE, 1998	250 EC	4	0.12	0.07	stover	30 30	0.64 0.60	0.17 0.12	144-98 USA-MW-FR-611-98-B
NE, 1998	250 EC	4	0.12	0.05-0.07	stover	30 30	1.2 2.7	0.9 1.8	144-98 USA-MW-FR-612-98
WI, 1998	250 EC	4	0.12	0.05-0.06	stover	30 30	2.1 1.2	0.51 0.38	144-98 USA-MW-FR-701-98-B
MN, 1998	250 EC	4	0.12	0.06	stover	0 0 9 9 16 16 23 23 30 30 37 37	1.7 0.86 5.1 4.1 0.39 0.68 1.1 0.52 0.80 0.88 0.61 0.63	0.19 0.29 0.64 0.61 0.30 0.34 0.54 0.27 0.36 0.37 0.27 0.28	144-98 USA-MW-FR-801-98-B

Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321 113	
MN, 1998	250 EC	4	0.12	0.06	stover	30 30	0.96 0.86	0.49 0.37	144-98 USA-MW-FR-802-98-B
IN, 1998	250 EC	4	0.12	0.26	stover	30 30	2.6 3.2	0.25 0.27	144-98 USA-NE-FR-103-98-B
IN, 1998	250 EC	4	0.12	0.07	stover	30 30	2.2 1.2	0.24 0.17	144-98 USA-NE-FR-104-98-B
IN, 1998	250 EC	4	0.12	0.26	stover	30 30	3.0 4.0	0.57 0.43	144-98 USA-NE-FR-105-98
OH, 1998	250 EC	4	0.06	0.033	stover	28 28	0.72 0.59	0.45 0.41	144-98 USA-NE-FR-203-98-B
MI, 1998	250 EC	4	0.11-0.12	0.05	stover	29 29	2.0 1.8	0.79 0.70	144-98 USA-NE-FR-710-98-B
NY, 1998	250 EC	4	0.12	0.053	stover	30 30	0.56 0.58	0.18 0.11	144-98 USA-NE-FR-802-98-B
TX, 1998	250 EC	4	0.12	0.26	stover	28 28	0.67 2.2	0.11 0.26	144-98 USA-OS-FR-201-98-B
NC, 1998	250 EC	4	0.12	0.07	stover	34 34	0.04 0.04	0.05 0.04	144-98 USA-OS-FR-609-98-B
CA, 1998	250 EC	4	0.12	0.05	stover	35 35	0.37 0.19	0.04 0.03	144-98 USA-OW-FR-107-98-B
IL, 1998	250 EC	4	0.12-0.15	0.06-0.08	stover	29 29	5.4 3.0	1.7 1.6	144-98 USA-04-FR-004-98-B
KS, 1999	250 EC	4	0.12	0.07	stover	29 29	0.28 0.42	0.03 0.05	751-99 USA-MW-FR-317-99-A
KS, 1999	250 EC	4	0.12	0.06-0.07	stover	29 29	0.20 0.32	<0.02 0.05	751-99 USA-MW-FR-318-99
OH, 1999	250 EC	4	0.12	0.06-0.07	stover	30 30	1.2 1.5	0.40 0.41	751-99 USA-NE-FR-203-99

n.a. not analysed

Rice straw and fodder, dry

Table 96. Results of residue trials with trifloxystrobin in rice straw in the USA.

Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
AR, 1998	50 WG	2	0.17	0.15	straw	36 36	5.5 6.1	1.3 1.2	150-98 USA-OS-FR-104-98-B
AR, 1998	50 WG	2	0.17	0.09	straw	35 35	0.64 0.78	0.17 0.22	150-98 USA-OS-FR-105-98-A
AR, 1998	50 WG	2	0.17	0.09	straw	14 14 21 21 28 28 35 35 45 45	1.2 1.5 0.80 1.1 0.89 0.82 0.97 1.0 0.58 0.50	0.18 0.24 0.17 0.29 0.40 0.30 0.29 0.32 0.34 0.26	150-98 USA-OS-FR-106-98
AR, 1998	50 WG	2	0.17	0.37	straw	35 35	0.84 2.0	0.31 0.12	150-98 USA-OS-FR-107-98
AR, 1998	50 WG	2	0.17	0.17-0.18	straw	34 34	0.46 0.57	0.29 0.27	150-98 USA-OS-FR-108-98
MO, 1998	50 WG	2	0.17	0.14-0.15	straw	35 35	2.4 1.5	0.81 1.1	150-98 USA-OS-FR-109-98

Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
TX, 1998	50 WG	2	0.17	0.14-0.15	straw	40 40	0.34 0.44	0.07 0.10	150-98 USA-OS-FR-204-98-B
TX, 1998	50 WG	2	0.17	0.15	straw	37 37	0.05 0.07	<0.02 <0.02	150-98 USA-OS-FR-206-98
LA, 1998	50 WG	2	0.17	0.09-0.12	straw	35 35	0.32 0.42	0.12 0.18	150-98 USA-OS-FR-901-98-A
LA, 1998	50 WG	2	0.17	0.37	straw	35 35	1.1 1.1	0.38 0.47	150-98 USA-OS-FR-902-98
LA, 1998	50 WG	2	0.17	0.17-0.18	straw	35 35	0.32 0.54	0.12 0.20	150-98 USA-OS-FR-903-98
MS, 1998	50 WG	2	0.17	0.15-0.17	straw	35 35	0.30 0.50	0.24 0.33	150-98 USA-OS-FR-904-98
CA, 1998	50 WG	2	0.17	0.074	straw	35 35	4.4 5.3	0.17 0.17	150-98 USA-OW-FR-407-98
CA, 1998	50 WG	2	0.17	0.13	straw	35 35	2.6 2.5	0.55 0.64	150-98 USA-OW-FR-408-98-B
MS, 1998	50 WG	2	0.17	0.13	straw	14 14 21 21 27 27 34 34 42 42	0.86 1.7 0.96 1.0 0.67 0.86 0.51 0.51 0.46 1.3	0.41 0.62 0.69 0.77 0.64 0.84 0.42 0.41 0.56 1.3	150-98 USA-03-FR-001-98
AR, 1998	250 EC	2	0.17	0.15	straw	36 36	2.6 1.7	1.1 0.66	150-98 USA-OS-FR-104-98-A
CA, 1998	250 EC	2	0.17	0.13	straw	35 35	1.7 2.5	0.48 0.70	150-98 USA-OW-FR-408-98-A
MO, 1998	250 EC	2	0.17	0.15	straw	35 35	0.20 0.25	0.06 0.07	150-98 USA-OS-FR-110-98-A
TX, 1998	250 EC	2	0.17	0.14-0.15	straw	40 40	0.37 0.19	0.08 0.04	150-98 USA-OS-FR-204-98-A

Wheat straw and fodder, dry

Table 97. Results of residue trials with trifloxystrobin in wheat straw in Europe.

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Wheat, winter Germany 2000	500 SC	2	0.25	0.06	straw	35	1.3	0.31	gr57100 BRD-gr57100
Wheat, winter Germany 2000	500 SC	2	0.25	0.06	straw	36	1.6	0.14	gr58200 BRD-gr58200
Wheat, winter Germany 1995	312.5 EC	2	0.19	0.047	straw	36 42	0.35 <0.05	0.07 <0.05	gr3195 BRD-gr12395
Wheat, winter Germany 1995	312.5 EC	2	0.19	0.047	straw	35 42	0.07 0.06	<0.05 <0.05	gr3195 BRD-gr42395
Wheat, winter France- North, 1995	312.5 EC	2	0.19	0.047	straw	41	0.59	0.18	OF95137/KJ19 FRA-KJ19
Wheat, winter Germany 1996	312.5 EC	2	0.19	0.047	straw	34 41	0.73 0.24	0.21 0.15	gr31196 BRD-gr31196
Wheat, winter Germany 1996	312.5 EC	2	0.19	0.047	straw	40 42	0.52 0.81	0.26 0.14	gr32296 BRD-gr32296

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Wheat, winter Sweden 1998	312.5 EC	2	0.18	0.09	straw	35 42 48	0.08 0.09 0.09	<0.05 <0.05 0.06	gr97098 SWD-gr97098
Wheat, winter Switzerland 1997	125 EC	2	0.25	0.05	straw	47	0.19	0.07	2272/97 SWZ-2272-97
Wheat Switzerland 1997	125 EC	2	0.25	0.05	straw	42	0.16	<0.05	2013/96 SWZ-2013-96
Wheat, spring Germany 1999	125 EC	2	0.25	0.06	straw	34 41	0.31 0.18	0.07 <0.05	gr38499 BRD-2144-99
Wheat, winter Germany 1996	125 EC	2	0.25	0.06	straw	34 41	0.85 0.51	0.43 0.28	gr35196 BRD-2168-96
Wheat, winter Germany 1996	125 EC	2	0.25	0.06	straw	40 42	1.2 2.3	0.19 0.33	gr36296 BRD-2169-96
Wheat, winter France- North, 1996	125 EC	2	0.25	0.06	straw	41	0.62	0.16	OF96116/SJ14 FRA-SJ14
Wheat, winter Germany 1997	125 EC	2	0.25	0.06	straw	35 42	1.8 1.4	0.82 0.88	gr49197 BRD-gr49197
Wheat, winter France- North, 1997	267.5 EC	2	0.19	0.047	straw	42	0.77	0.18	2236/97 FRA-2236-97
Wheat, winter France- North, 1997	267.5 EC	2	0.19	0.047	straw	46	0.30	0.08	2237/97 FRA-2237-97
Wheat, winter France- North, 1997	267.5 EC	2	0.19	0.047	straw	44	0.16	<0.05	2238/97 FRA-2238-97
Wheat, winter France- North, 1997	267.5 EC	2	0.19	0.047	straw	46	<0.05	<0.05	2239/97 FRA-2239-97
Wheat, winter France- North, 1998	267.5 EC	2	0.17-0.18	0.047	straw	34 43	2.6 2.5	0.14 0.16	9813101 FRA-9813101
Wheat, winter France- North, 1998	267.5 EC	2	0.19	0.047	straw	34 49	0.09 0.08	<0.05 <0.05	9813102 FRA-9813102
Wheat France- North, 1997	535 SC	2	0.19	0.047	straw	42	1.4	0.4	2240/97 FRA-2240-97
Wheat France- North, 1997	535 SC	2	0.19	0.047	straw	46	0.40	0.11	2241/97 FRA-2241-97
Wheat France- North, 1997	535 SC	2	0.19	0.047	straw	44	0.33	0.05	2242/97 FRA-2242-97
Wheat France- North, 1997	535 SC	2	0.19	0.047	straw	46	0.13	<0.05	2243/97 FRA-2243-97
Wheat France- South, 2000	500 SC	2	0.25	0.06	straw	44 44	0.99 0.90	0.17 0.20	0011701 FRA-0011701
Wheat France-South, 2000	500 SC	2	0.25	0.08	straw	42 42	1.9 1.6	0.15 0.12	2106/00 FRA-2106-00-A
Wheat France-South, 1997	125 EC	2	0.25	0.06	straw	34	1.3	0.16	2170/97 FRA-2170-97
Wheat France-South, 1997	125 EC	2	0.25	0.075	straw	31	0.70	0.17	2171/97 FRA-2171-97

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA321113	
Wheat France-South, 1997	125 EC	2	0.25	0.06	straw	35	0.94	0.13	2172/97 FRA-2172-97
Wheat France-South, 1997	125 EC	2	0.25	0.06	straw	35	0.38	0.05	2173/97 FRA-2173-97
Wheat France-South, 1996	125 EC	2	0.25	0.06	straw	42	0.17	0.08	OF96116/LD87 FRA-LD87
Wheat France-South, 1996	125 EC	2	0.25	0.06	straw	42	0.83	0.17	OF96117 FRA-OF96117
Wheat France-South, 1997	267.5 EC	2	0.19	0.047	straw	45	0.76	0.13	2244/97 FRA-2244-97
Wheat France-South, 1997	267.5 EC	2	0.19	0.047	straw	45	0.34	0.07	2245/97 FRA-2245-97
Wheat France-South, 1997	267.5 EC	2	0.19	0.056	straw	42	0.19	0.05	2246/97 FRA-2246-97
Wheat France-South, 1997	267.5 EC	2	0.19	0.047	straw	46	0.50	0.07	2247/97 FRA-2247-97
Wheat France-South, 1998	267.5 EC	2	0.17-0.2	0.047	straw	37 47	1.1 1.1	0.08 0.10	9813103 FRA-9813103
Wheat France-South, 1998	267.5 EC	2	0.19-0.2	0.047	straw	36 45	0.37 0.57	0.15 0.21	9813104 FRA-9813104

Table 98. Results of residue trials with trifloxystrobin on wheat straw in the USA.

Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Wheat KS, 1998	250 EC	2	0.12	0.10	straw	35 35	0.10 0.15	<0.02 ≤0.02	153-98 USA-MW-FR-313-98-D
Wheat OK, 1998	250 EC	2	0.12	0.09	straw	30 30	0.11 0.13	<0.02 0.02	153-98 USA-OS-FR-732-98-D
Wheat TX, 1998	250 EC	2	0.12	0.10	straw	37 37	0.14 0.10	≤0.02 <0.02	153-98 USA-OS-FR-733-98-D
Wheat ND, 1998	250 EC	2	0.12	0.09	straw	37 37	0.11 0.17	0.04 0.05	153-98 USA-OW-FR-217-98-D
Wheat NC, 1998	250 EC	2	0.12	0.13	straw	45 45	0.05 <0.03	0.04 <0.03	153-98 USA-OS-FR-613-98-D
Wheat KS, 1998	50 WG	2	0.12	0.10	straw	35 35	0.11 0.19	<0.02 ≤0.02	153-98 USA-MW-FR-313-98-C
Wheat NC, 1998	50 WG	2	0.12	0.13	straw	45 45	0.07 0.12	0.05 0.08	153-98 USA-OS-FR-613-98-C
Wheat TX, 1998	50 WG	2	0.12	0.10	straw	37 37	n.a. 0.51	<0.02 ≤0.02	153-98 USA-OS-FR-733-98-C
Wheat ND, 1998	50 WG	2	0.12	0.09	straw	37 37	0.04 0.08	0.02 0.03	153-98 USA-OW-FR-217-98-C
Wheat, spring MT, 1997	50 WG	1	0.12	0.08	straw	36 36	0.57 0.61	0.03 0.03	43-97 USA-OW-FR-204-97-B

Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Wheat, spring MT, 1997	50 WG	2	0.12	0.07-0.08	straw	36 36	0.96 0.80	0.09 0.08	43-97 USA-OW-FR-204-97-C
Wheat, spring MT, 1997	50 WG	1	0.12	0.07	straw	43 43	0.46 0.51	0.03 0.03	43-97 USA-OW-FR-205-97-B
Wheat, spring MT, 1997	50 WG	2	0.12	0.07-0.08	straw	43 43	1.1 0.94	0.06 0.06	43-97 USA-OW-FR-205-97-C
Wheat, spring MN, 1997	50 WG	1	0.12	0.05	straw	44 44	0.34 0.52	0.04 0.07	43-97 USA-OW-FR-220-97-B
Wheat, spring MN, 1997	50 WG	2	0.12	0.05	straw	44 44	0.31 0.40	0.04 0.07	43-97 USA-OW-FR-220-97-C
Wheat, winter MO, 1997	50 WG	1	0.12	0.07	straw	43 43	0.09 0.07	<0.02 <0.02	43-97 USA-MW-FR-201-97-B
Wheat, winter MO, 1997	50 WG	2	0.12	0.07	straw	43 43	0.09 0.06	<0.02 <0.02	43-97 USA-MW-FR-201-97-C
Wheat, winter KS, 1997	50 WG	1	0.14	0.07	straw	36 36	0.08 0.08	<0.02 <0.02	43-97 USA-MW-FR-309-97-B
Wheat, winter KS, 1997	50 WG	2	0.12-0.14	0.07	straw	36 36	0.12 0.12	<0.02 <0.02	43-97 USA-MW-FR-309-97-C
Wheat, winter KS, 1997	50 WG	1	0.12	0.13	straw	35 35	0.11 0.12	<0.02 <0.02	43-97 USA-MW-FR-310-97-B
Wheat, winter KS, 1997	50 WG	2	0.12	0.13	straw	35 35	0.18 0.19	0.02 0.02	43-97 USA-MW-FR-310-97-C
Wheat, winter CO, 1997	50 WG	1	0.12	0.09	straw	38 38	0.26 0.12	<0.02 <0.02	43-97 USA-MW-FR-311-97-B
Wheat, winter CO, 1997	50 WG	2	0.12	0.09	straw	38 38	0.20 0.29	<0.02 <0.02	43-97 USA-MW-FR-311-97-C
Wheat, winter NE, 1997	50 WG	1	0.12	0.07	straw	33 33	0.07 0.11	<0.02 <0.02	43-97 USA-MW-FR-621-97-B
Wheat, winter NE, 1997	50 WG	2	0.12	0.07	straw	33 33	0.11 0.09	<0.02 <0.02	43-97 USA-MW-FR-621-97-C
Wheat, winter AR, 1997	50 WG	1	0.12	0.09	straw	43 43	1.0 0.76	0.21 0.13	43-97 USA-OS-FR-103-97-B
Wheat, winter AR, 1997	50 WG	2	0.12	0.09	straw	43 43	1.6 2.0	0.32 0.19	43-97 USA-OS-FR-103-97-C
Wheat, winter NC, 1997	50 WG	1	0.12	0.09	straw	34 34	1.3 1.4	0.26 0.23	43-97 USA-OS-FR-603-97-B
Wheat, winter NC, 1997	50 WG	2	0.12	0.09	straw	34 34	1.9 1.7	0.53 0.49	43-97 USA-OS-FR-603-97-C

Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
Wheat, winter OK, 1997	50 WG	1	0.12	0.09	straw	34 34 38 38 44 44 51 51	0.12 0.27 0.12 0.18 0.13 0.21 0.23 0.23	0.02 0.04 0.02 0.04 0.05 0.07 0.07 0.08	43-97 USA-OS-FR-730-97-B
Wheat, winter OK, 1997	50 WG	2	0.12	0.09	straw	34 34 38 38 44 44 51 51	0.18 0.27 0.21 0.19 0.14 0.21 0.32 0.31	0.03 0.04 0.03 0.03 0.04 0.07 0.07 0.13	43-97 USA-OS-FR-730-97-C
Wheat, winter OK, 1997	50 WG	1	0.12	0.07	straw	47 47	0.56 0.57	<0.02 <0.02	43-97 USA-OS-FR-731-97-B
Wheat, winter OK, 1997	50 WG	2	0.12	0.07	straw	47 47	0.05 0.04	<0.02 <0.02	43-97 USA-OS-FR-731-97-C
Wheat, winter TX, 1997	50 WG	1	0.12	0.08	straw	32 32	0.29 0.34	0.02 0.02	43-97 USA-OS-FR-735-97-B
Wheat, winter TX, 1997	50 WG	2	0.12	0.08	straw	32 32	0.71 0.97	0.05 0.05	43-97 USA-OS-FR-735-97-C

Sugar beet leaves and tops

Table 99. Results of residue trials with trifloxystrobin on sugar beet in the USA (tops).

Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
ID, 1997	50 WG	3	0.12	0.26	tops	21 21	0.08 0.08	≤0.02 <0.02	35-97 USA-OW-FR-626-97
ID, 1997	50 WG	3	0.12	0.041	tops	21 21	2.2 2.4	0.06 0.10	35-97 USA-OW-FR-627-97
CO, 1997	50 WG	3	0.12	0.083	tops	21 21	0.50 0.56	<0.02 0.05	35-97 USA-MW-FR-312-97
WI, 1997	50 WG	3	0.12	0.083	tops	21 21	1.4 1.6	0.03 0.04	35-97 USA-MW-FR-313-97
NE, 1997	50 WG	3	0.12	0.066	tops	21 21	0.35 0.28	0.04 0.04	35-97 USA-MW-FR-622-97
MI, 1997	50 WG	3	0.12	0.26	tops	21 21	0.24 0.23	≤0.02 <0.02	35-97 USA-NE-FR-731-97
MN,1997	50 WG	3	0.12	0.066	tops	23 23	0.11 0.17	<0.02 ≤0.02	35-97 USA-OW-FR-223-97-A

Location, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113	
MN,1997	50 WG	3	0.12	0.066	tops	0	1.7	0.03	35-97
						0	1.9	0.03	USA-OW-FR-224-97
						7	0.82	<0.02	
						7	0.90	<0.02	
						14	0.46	<0.02	
						14	0.44	<0.02	
						21	0.13	<0.02	
						21	0.26	<0.02	
						28	0.10	<0.02	
						28	0.09	<0.02	
CA, 1997	50 WG	3	0.12	0.053	tops	0	3.4	0.05	35-97
						0	3.3	0.05	USA-OW-FR-402-97
						7	2.8	0.03	
						7	2.8	0.03	
						14	1.5	<0.02	
						14	1.4	<0.02	
						21	0.98	<0.02	
						21	0.89	<0.02	
						28	0.73	<0.02	
						28	0.54	<0.02	
ID, 1997	50 WG	3	0.12	0.26	tops	21	0.08	<0.02	35-97
						21	0.08	<0.02	USA-OW-FR-626-97
ID, 1997	50 WG	3	0.12	0.041	tops	21	2.2	0.06	35-97
						21	2.4	0.10	USA-OW-FR-627-97
NE, 1998	50 WG	3	0.12	0.066	tops	21	0.08	<0.02	152-98
						21	0.23	<0.02	USA-MW-FR-615-98-A
MN,1998	50 WG	3	0.12	0.066	tops	21	0.49	0.02	152-98
						21	0.61	<0.02	USA-OW-FR-216-98-A
ID, 1998	50 WG	3	0.12	0.044-0.046	tops	21	0.66	<0.02	152-98
						21	0.72	<0.02	USA-OW-FR-312-98-A
CA, 1998	50 WG	3	0.12	0.044-0.046	tops	21	2.1	0.06	152-98
						21	2.3	0.06	USA-OW-FR-522-98-A
NE, 1998	250 EC	3	0.12	0.066	tops	21	0.14	<0.02	152-98
						21	0.11	<0.02	USA-MW-FR-615-98-B
MN,1998	250 EC	3	0.12	0.066	tops	21	0.17	<0.02	152-98
						21	0.21	0.02	USA-OW-FR-216-98-B
ID, 1998	250 EC	3	0.12	0.044-0.046	tops	21	0.54	<0.02	152-98
						21	0.54	<0.02	USA-OW-FR-312-98-B
CA, 1998	250 EC	3	0.12	0.044	tops	21	0.64	0.02	152-98
						21	0.52	0.02	USA-OW-FR-522-98-B

Table 100. Results of residue trials with trifloxystrobin on sugar beet in Europe (tops).

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113[1]	
France-North, 1999	267.5 EC	2	0.13	0.04	tops	45	<0.05	<0.05	9911101
						45	<0.05	<0.05	FRA-9911101
France-North, 1999	267.5 EC	2	0.13	0.04-0.05	tops	45	<0.05	<0.05	9911102
						45	<0.05	<0.05	FRA-9911102
France-North, 1998	267.5 EC	2	0.13	0.05	leaf	46	0.04	<0.02	2163/98
						46	<0.02	<0.02	FRA-2163-98
					tops	46	0.04	<0.02	
France-North, 1998	267.5 EC	2	0.13	0.03	tops	43	0.02	<0.02	2164/98
						43	<0.02	<0.02	FRA-2164-98
France-North, 1999	267.5 EC	2	0.13	0.05	tops	0	0.94	<0.05	9910901
						21	0.09	<0.05	FRA-9910901
						30	0.10	<0.05	
						45	<0.05	<0.05	

Country, Year	Application				Residues (mg/kg)				Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	trifloxy-strobin	CGA-321113[1]	
France – North, 1999	267.5 EC	2	0.13	0.05	tops	0 21 30 45	3.2 ≤0.05 <0.05 <0.05	0.11 ≤0.05 <0.05 <0.05	9910902 FRA-9910902
France-North, 1999	267.5 EC	2	0.13	0.04	tops	0 21 30 45	2.4 0.44 <0.05 <0.05	0.05 ≤0.05 <0.05 <0.05	9910903 FRA-9910903
France-South, 1999	267.5 EC	2	0.13	0.03	tops	0 22 30 43	0.35 ≤0.05 <0.05 <0.05	0.05 ≤0.05 <0.05 <0.05	9911001 FRA-9911001-A
France-South, 1999	267.5 EC	3	0.13	0.03	tops	0 22 30 43	0.92 ≤0.05 <0.05 <0.05	0.20 ≤0.05 <0.05 <0.05	9911001 FRA-9911001-B
France-South, 1999	267.5 EC	2	0.13	0.04	tops	0 21 30 45	1.4 ≤0.05 <0.05 <0.05	0.07 ≤0.05 <0.05 <0.05	9911002 FRA-9911002-A
France-South, 1999	267.5 EC	3	0.13	0.04	tops	0 21 30 45	2.3 ≤0.05 <0.05 <0.05	0.14 ≤0.05 <0.05 <0.05	9911002 FRA-9911002-B
France-South, 2000	267.5 EC	3	0.13	0.013	tops	0 20 20	2.9 0.33 0.19	0.07 0.08 0.04	NOV/RES/00061 FRA-NOV-RES-00061
France-South, 2000	267.5 EC	3	0.13	0.03	tops	0 20 20	0.84 ≤0.02 <0.02	0.06 ≤0.02 <0.02	NOV/RES/00062 FRA-NOV-RES-00062
Spain, 1999	267.5 EC	3	0.13	0.013	tops	21 21	0.14 0.12	0.03 0.03	2060/99 SPA-2060-99
Spain, 1999	267.5 EC	3	0.13	0.012-0.014	tops	0 7 14 21 21	0.77 0.18 0.07 0.07 0.05	0.11 0.04 0.03 0.02 0.02	2061/99 SPA-2061-99
Italy, 1999	267.5 EC	3	0.13	0.02	tops	0 7 14 21 21 28	0.50 0.13 0.06 0.02 0.05 0.02	0.04 0.05 0.04 <0.02 ≤0.02 <0.02	2074/99 ITA-2074-99
Italy, 1999	267.5 EC	3	0.13	0.02	tops	21 21	≤0.02 <0.02	≤0.02 <0.02	2075/99 ITA-2075-99
Switzerland, 1999	267.5 EC	2	0.13	0.02	tops	0 21 30 45 45	0.35 ≤0.02 <0.02 <0.02 <0.02	0.04 ≤0.02 <0.02 <0.02 <0.02	2086/99 SWZ-2086-99

FATE OF RESIDUES IN STORAGE AND PROCESSING

In storage

No data submitted.

In processing

Nature of residues

Morgenroth (2000; report No. 00MO02), described the degradation of glyoxyl-phenyl-[U-^{14}C]trifloxystrobin in buffered water under laboratory conditions simulating processing methods such as pasteurisation, baking and sterilisation for raw agricultural commodities (RAC). Radiolabelled trifloxystrobin was dissolved in citrate buffers at concentrations of about 0.3 mg/l. The test systems were incubated at 90 °C, pH 4 for 20 min. (pasteurisation); 100 °C, pH 5 for 60 min. (baking, brewing and boiling) and 120 °C, pH 6 for 20 min. (sterilisation), and samples analysed by thin-layer chromatography, with quantification by liquid scintillation counting.

Trifloxystrobin was hydrolytically stable under pasteurisation, showed minor degradation of 2.6% under baking, brewing and boiling conditions, and degradation of 22.5% under sterilisation. The main degradation product observed (2% at pH 5 and 20.8% at pH 6) was CGA321113.

Effect of processing on the level of residues

Processing studies on barley, cabbage, cotton, grapes, hops, maize, orange, peanuts, pome fruit, potato, rice, stone fruit, strawberry, sugar beet, tomato and wheat are reported in Tables 108–119. The residues in the raw agricultural commodity (RAC) used for the calculation of the processing factor are in bold. In RACs and processed products CGA321113 was determined in parallel with the parent compound. The processing factors were based on the total trifloxystrobin equivalents (sum of trifloxystrobin and CGA321113, expressed as trifloxystrobin; conversion factor 1.036 for CGA321113). If the residues in the RAC were at or below the LOQ, no processing factors were calculated.

Oranges

In 1998 in five trials in the USA orange trees were sprayed as follows: treatment 1 four foliar spray applications at 14-day intervals at a rate of 0.17 kg ai/ha; treatment 2 four applications at a 3-fold rate (0.52 kg ai/ha) and treatment 3 four applications at a 5-fold rate (0.865 kg ai/ha). Fruit samples were taken on day 26 or 30 after the last application, and residues determined in the raw agricultural commodity and processed products.

Washed oranges were placed in an abrasion peeler to break the oil sacs. Cold water was sprayed into the peeler to trap the highly volatile oil, and the resulting emulsion of oil, water and peel solids was treated with Citropex, an enzyme preparation to increase oil yield. Subsequently, the oil emulsion was passed through a screen separator to separate the peel solids from the emulsion. The peel solids were resuspended with water and again passed through the separator to remove the remaining oil. The oil emulsion was collected and centrifuged to separate water, oil and peel solids, and the oil treated enzymatically and subsequently centrifuged to remove the remaining water and peel solids.

To produce juice, the abraded oranges were extracted with a juice extractor and the resulting juice passed through a screen to remove coarse pulp and pieces of peel. Pulp and peel were combined for further processing.

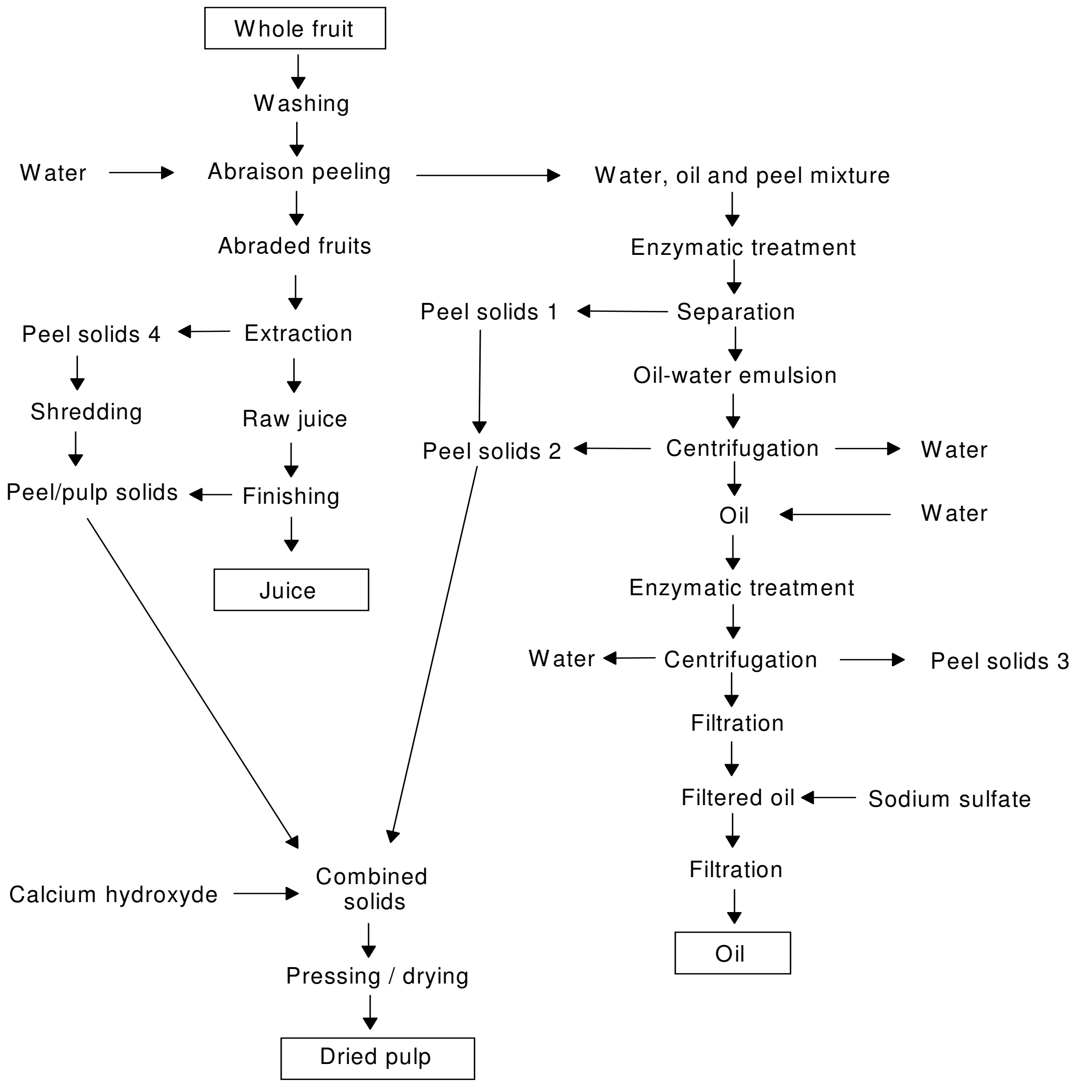
For dried pulp, all of the peel and pulp fractions were combined, ground and neutralised with calcium hydroxide, then pressed to remove water and dried in a dryer to a water content of about 5-10%.

The detailed processing steps are shown in Figure 4. The results of the trials are summarised in Table 101.

Table 101. Trifloxystrobin residues in oranges and their processed products, USA, 1998.

Report No.; Study No.	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA-321113	Total	
SAM 4474 OW-FR-516-98-A	50 WG	4	0.17	0.008	whole fruit, washed	**30**	**0.06**	**<0.02**	**0.06**	
					juice	30	<0.02	<0.02	<0.02	<0.33
					oil	30	6.1	0.70	6.8	113
					pulp, dry	30	0.18	<0.02	0.18	3
SAM 4474 OW-FR-516-98-C	50 WG	4	0.87	0.04	whole fruit, washed	**30**	**0.53**	**<0.02**	**0.53**	
					juice	30	<0.02	<0.02	<0.02	<0.038
					oil	30	33.1	1.8	35	66
					pulp, dry	30	0.67	0.04	0.71	1.34
SAM 4474 OS-FR-404-98-A	50 WG	4	0.17	0.01	whole fruit, washed	**26**	**0.05**	**<0.02**	**0.05**	
					juice	26	<0.02	<0.02	<0.02	<0.4
					oil	26	6.2	0.69	6.9	138
					pulp, dry	26	0.22	0.04	0.26	5.2
SAM 4474 OS-FR-404-98-B	50 WG	4	0.52	0.03	whole fruit, washed	**26**	**0.13**	**<0.02**	**0.13**	
					juice	26	<0.02	<0.02	<0.02	<0.15
					oil	26	20.4	1.2	21.6	166
					pulp, dry	26	0.59	0.09	0.68	5.2
SAM 4474 OS-FR-404-98-C	50 WG	4	0.87	0.05-0.06	whole fruit, washed	**26**	**0.43**	**0.02**	**0.45**	
					juice	26	<0.02	<0.02	<0.02	<0.04
					oil	26	73.0	1.7	74.7	166
					pulp, dry	26	0.99	0.08	1.07	2.38

Figure 4. Processing of oranges to juice, oil and dried pulp.



Pome fruit

In 1996 and 1999 four residue trials were conducted in Europe with trifloxystrobin on apples, and samples were also collected for processing studies. In two trials, the apple trees were treated three or ten times at an application rate of 0.075 kg ai/ha each. In the other two trials the trees were treated three times at the 5-fold rate (0.38 kg ai/ha). In 1996, in a processing trial in Europe pear trees were treated ten times at a rate of 0.075 kg ai/ha, and in six processing trials in the USA apple trees were sprayed using three different treatment regimes: treatment 1 (1-fold rate) four foliar sprays at a rate of 0.1 kg ai/ha; treatment 2 four applications at the 3-fold rate (0.3 kg ai/ha); and treatment 3 four applications at the 5-fold rate (0.5 kg ai/ha). Residues were determined in the raw agricultural commodity 14 days after the last application and in a variety of processed products. The results of the trials are summarised in Table 102.

Apple sauce was prepared by boiling washed and sliced apples and then passing the fruit through a sieve. In some cases sugar, citric acid and ascorbic acid were added and the sauce pasteurised. By pressing apples, juice and wet pomace were separated. The raw juice was then further prepared to give clear and pasteurised juice. The detailed processing steps are shown in Figure 5.

In the pear trial fruits were washed and peeled, cores removed, then the fruits were boiled with sugar solution, water, citric acid and ascorbic acid. The preserve was sterilised.

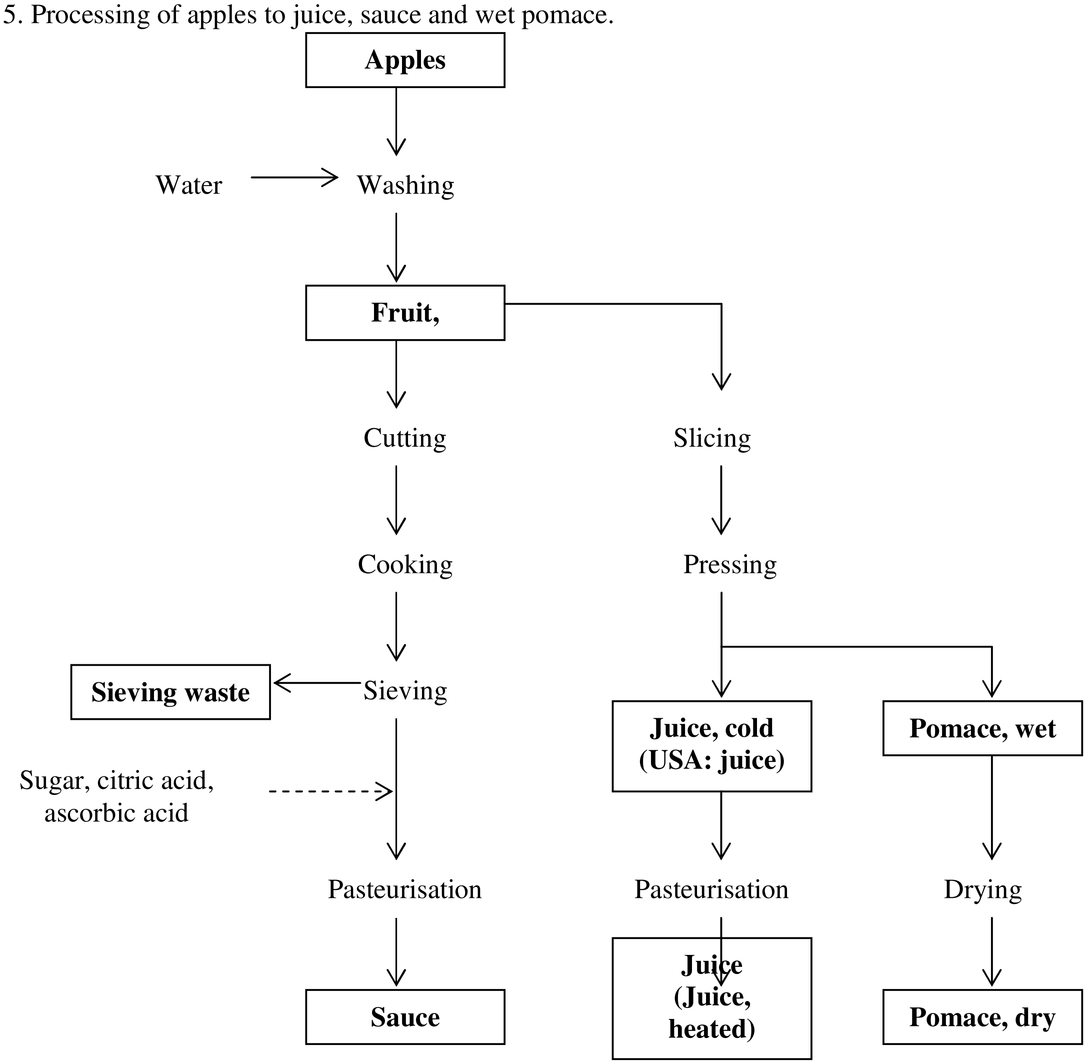
For dried apples and pears the fruits were peeled, cores removed, then cut into discs/rings, sulfurated in $K_2S_2O_5$ solution and dried until a maximum moisture content of 25%.

Table 102. Trifloxystrobin residues in pome fruit and processed products.

Crop Country, Year	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor	Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA-321113	Total		
Apple, France 1999	50 WG	3	0.075	0.015	fruit	**14**	**0.03**	**<0.02**	**0.03**		2007/99 FRA-2007-99
					juice	14	<0.01	<0.01	<0.01	<0.33	
					sauce	14	0.04	<0.01	0.04	1.33	
Apple, Germany 1996	50 WG	10	0.075	0.01	fruit	**14**	**0.13**	**<0.02**	**0.13**		gr00996 BRD-gr00996
					whole fruit, washed	14	0.12	<0.02	0.12	0.92	
					juice	14	<0.02	<0.02	<0.02	<0.15	
					pomace, wet	14	0.33	0.02	0.35	2.69	
					sauce	14	0.04	<0.02	0.04	0.31	
					fruit, dried	14	<0.02	<0.02	<0.02	<0.15	
Apple, Switzer-land 1999	50 WG	3	0.38	0.04	fruit	**14**	**0.25**	**<0.01**	**0.25**		2125/99 SWZ-2125-99-B2
					juice, cold	14	0.009	<0.002	0.009	0.036	
					juice, heated	14	0.003	<0.002	0.003	0.012	
					pomace, wet	14	1.25	0.05	1.3	5.2	
					pomace, dried	14	5.3	1.1	6.4	25.6	
Apple, Switzer-land 1999	50 WG	3	0.38	0.04	fruit	**14**	**0.35**	**<0.01**	**0.35**		2125/99 SWZ-2125-99-B3
					whole fruit, washed	14	0.29	<0.01	0.29	0.83	
					waste, sieving	14	0.98	<0.01	0.98	2.8	
					sauce	14	0.045	<0.01	0.045	0.13	
Pear, Germany 1996	50 WG	10	0.075	0.005	fruit	**14**	**0.13**	**<0.02**	**0.13**		gr01096 BRD-2180-96
					whole fruit, washed	14	0.13	0.02	0.15	1.15	
					sauce/ preserve	14	<0.02	<0.02	<0.02	<0.15	
					fruit, dried	14	0.04	0.04	0.08	0.62	
Apple USA 1996	50 WG	4	0.1	0.01	fruit	14	**0.14**	**0.03**	**0.17**		110433 ABR-97074 USA-OW-FR-634-96-B
					whole fruit, washed	14	0.09	<0.02	0.09	0.53	
					pomace, wet	14	1.1	0.03	1.13	6.6	
					juice	14	<0.02	<0.02	<0.02	<0.12	

Crop Country, Year	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor	Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA-321113	Total		
Apple USA 1996	50 WG	4	0.29	0.032	fruit	14	**0.26**	**0.03**	**0.29**		110433 ABR-97074 USA-OW-FR-634-96-C
					whole fruit, washed	14	0.31	<0.02	0.31	1.07	
					pomace, wet	14	3.2	0.05	3.25	11.2	
					juice	14	0.03	<0.02	0.03	0.103	
Apple USA 1996	50 WG	4	0.49	0.053	fruit	14	**0.53**	**0.03**	**0.56**		110433 ABR-97074 USA-OW-FR-634-96-D
					whole fruit, washed	14	0.64	<0.02	0.64	1.14	
					pomace, wet	14	6.7	0.10	6.8	12.1	
					juice	14	0.04	<0.02	0.04	0.07	
Apple USA 1996	50 WG	4	0.01	0.01	fruit	14	**0.07**	**<0.02**	**0.07**		110433 ABR-97074 USA-05-FR-005-96-B
					whole fruit, washed	14	0.12	<0.02	0.12	1.7	
					pomace, wet	14	1.3	<0.02	1.3	18.6	
					juice	14	<0.02	<0.02	<0.02	<0.29	

Figure 5. Processing of apples to juice, sauce and wet pomace.



Stone fruit

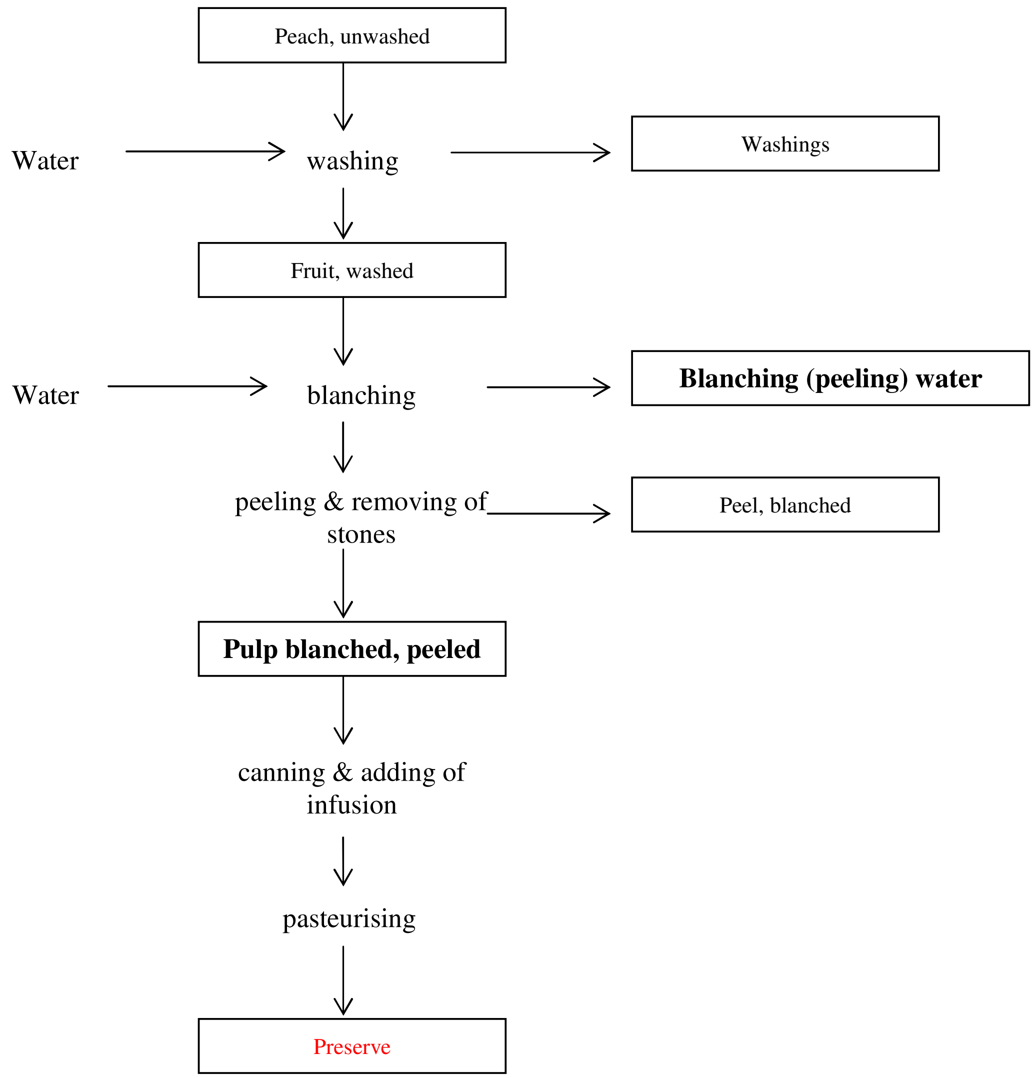
In 1998 in four processing trials in the USA plum trees were treated four times with trifloxystrobin 50 WG using foliar spray applications either at a rate of 0.14 kg ai/ha, or the 5-fold rate (0.7 kg ai/ha). Residues were determined in the raw agricultural commodity (RAC) one day after the last application and in dried prunes.

In 2000 in a trial in Italy on peaches trifloxystrobin was applied three times to the trees at a rate of 0.11 kg ai/ha, and samples taken at the recommended PHI of 7 days. Residues were determined in the fruit, in washed fruits and washings, peeling water, blanched peel and preserve. The detailed processing steps are shown in Figure 6. The results of the trials are summarised in Table 103.

Table 103. Trifloxystrobin residues in stone fruits and their processed products.

Crop Country Year	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor	Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA321 113	Total		
Plum USA 1998	50 WG	4	0.14	0.01	fruit dried prune	1 1	**0.07** 0.10	**<0.02** <0.02	**0.07** 0.10	 1.43	149-98 USA-OW-FR-405-98-A
Plum USA 1998	50 WG	4	0.70	0.05	fruit dried prune	1 1	**0.31** 0.48	**<0.02** <0.02	**0.31** 0.48	 1.55	149-98 USA-OW-FR-405-98-B
Plum USA 1998	50 WG	4	0.14	0.01	fruit dried prune	1 1	**0.15** 0.23	**<0.02** 0.03	**0.15** 0.26	 1.73	149-98 USA-02-FR-006-98-B
Plum USA 1998	50 WG	4	0.70	0.05	fruit dried prune	1 1	**1.1** 1.4	**<0.05** 0.07	**1.1** 1.47	 1.34	149-98 USA-02-FR-006-98-C
Peach Italy 2000	50 WG	3	0.11	0.01	fruit pulp washings pulp, blanched peel, blanched preserve	7 7 7 7 7 7	**0.19** 0.17 0.024 <0.01 0.7 <0.01	**0.01** <0.01 <0.01 <0.01 0.02 <0.01	**0.20** 0.17 0.024 <0.01 0.72 <0.01	 0.85 0.12 <0.05 3.6 <0.05	2095/00 ITA-2095-00

Figure 6. Production of processed peaches.



Grapes

Numerous trials were carried out to determine whether trifloxystrobin-related residues would concentrate in wine (55 trials), must and juice, or dried fruit (12 trials).

A total of 34 processing trials was carried out in Australia on grapes. For processing to dried fruit sultanas were dipped in dipping oil and sodium bicarbonate and then dried according to normal commercial practice. For wine grapes were crushed and destemmed, the must pressed (white wine) and the juice transferred to a fermentation vessel for inoculation with dry yeast. The results are shown in Table 103.

Table 104. Trifloxystrobin residues in grapes and processed products, Australia, 1997–1999.

Report No.; Study No.	Application Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	Residues (mg/kg) trifloxy-strobin	CGA-321113	Total	Proc. factor
99/5/1645 AUS-99-5-1645-C1	50 WG	6	0.075	0.008	berry	36	**0.09**	**<0.02**	**0.09**	
					juice	36	<0.02	<0.02	<0.02	<0.22
					wine	36	<0.02	<0.02	<0.02	<0.22
99/5/1645 AUS-99-5-1645-C2	50 WG	6	0.15	0.016	berry	36	**0.18**	**<0.02**	**0.18**	
					juice	36	<0.02	<0.02	<0.02	<0.11
					wine	36	<0.02	<0.02	<0.02	<0.11
99/5/1645 AUS-99-5-1645-D1	50 WG	6	0.075	0.009	berry	36	**0.04**	**<0.02**	**0.04**	
					juice	36	<0.02	<0.02	<0.02	<0.5
					wine	36	<0.02	<0.02	<0.02	<0.5
99/5/1645 AUS-99-5-1645-D2	50 WG	6	0.15	0.018	berry	36	**0.13**	**<0.02**	**0.13**	
					juice	36	<0.02	<0.02	<0.02	<0.15
					wine	36	<0.02	<0.02	<0.02	<0.15
P98/42 AUS-P98-42-C3	50 WG	6	0.075	0.03	berry	35	**0.13**	**0.05**	**0.18**	
					juice	35	<0.02	<0.02	<0.02	<0.11
					wine	35	<0.02	<0.02	<0.02	<0.11
P98/42 AUS-P98-42-C4	50 WG	6	0.075-0.15	0.03-0.06	berry	35	**0.21**	**0.03**	**0.24**	
					juice	35	<0.02	<0.02	<0.02	<0.08
					wine	35	<0.02	<0.02	<0.02	<0.08
P99/40 AUS-P99-40-A1	50 WG	3	0.075	0.0075	berry	61	**<0.02**	**<0.02**	**<0.02**	
					juice	61	<0.02	<0.02	<0.02	
					wine	61	<0.02	<0.02	<0.02	
P99/40 AUS-P99-40-A2	50 WG	3	0.15	0.015	berry	61	**<0.02**	**<0.02**	**<0.02**	
					juice	61	<0.02	<0.02	<0.02	
					wine	61	<0.02	<0.02	<0.02	
P99/40 AUS-P99-40-B1	50 WG	3	0.075	0.0075	berry	53	**<0.02**	**<0.02**	**<0.02**	
					juice	53	<0.02	<0.02	<0.02	
					wine	53	<0.02	<0.02	<0.02	
P99/40 AUS-P99-40-B2	50 WG	3	0.15	0.015	berry	53	**<0.02**	**<0.02**	**<0.02**	
					juice	53	<0.02	<0.02	<0.02	
					wine	53	<0.02	<0.02	<0.02	
P99/40 AUS-P99-40-B3	50 WG	3	0.075	0.03	berry	53	**<0.02**	**<0.02**	**<0.02**	
					juice	53	<0.02	<0.02	<0.02	
					wine	53	<0.02	<0.02	<0.02	
P99/40 AUS-P99-40-B4	50 WG	3	0.15	0.06	berry	53	**<0.02**	**<0.02**	**<0.02**	
					juice	53	<0.02	<0.02	<0.02	
					wine	53	<0.02	<0.02	<0.02	
P99/40 AUS-P99-40-C1	50 WG	3	0.075	0.007	berry	75	**<0.02**	**<0.02**	**<0.02**	
					juice	75	<0.02	<0.02	<0.02	
					wine	75	<0.02	<0.02	<0.02	
P99/40 AUS-P99-40-C2	50 WG	3	0.15	0.015	berry	75	**0.03**	**<0.02**	**0.03**	
					juice	75	<0.02	<0.02	<0.02	<0.67
					wine	75	<0.02	<0.02	<0.02	<0.67
P99/40 AUS-P99-40-C3	50 WG	3	0.075	0.03	berry	75	**0.03**	**<0.02**	**0.03**	
					juice	75	<0.02	<0.02	<0.02	<0.67
					wine	75	<0.02	<0.02	<0.02	<0.67
P99/40 AUS-P99-40-C4	50 WG	3	0.15	0.06	berry	75	**<0.02**	**<0.02**	**<0.02**	
					juice	75	<0.02	<0.02	<0.02	
					wine	75	<0.02	<0.02	<0.02	
P99/40 AUS-P99-40-D1	50 WG	3	0.075	0.008	berry	106	**<0.02**	**<0.02**	**<0.02**	
					juice	106	<0.02	<0.02	<0.02	
					wine	106	<0.02	<0.02	<0.02	
P99/40 AUS-P99-40-D2	50 WG	3	0.15	0.015	berry	106	**<0.02**	**<0.02**	**<0.02**	
					juice	106	<0.02	<0.02	<0.02	
					wine	106	<0.02	<0.02	<0.02	
P99/49 AUS-P99-49-A1	50 WG	3	0.075	0.03	berry	75	**<0.02**	**<0.02**	**<0.02**	
					fruit, dried	75	<0.02	<0.02	<0.02	
P99/49 AUS-P99-49-A2	50 WG	3	0.15	0.055	berry	75	**<0.02**	**<0.02**	**<0.02**	
					fruit, dried	75	<0.02	<0.02	<0.02	

Report No.; Study No.	Application Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	Residues (mg/kg) trifloxy-strobin	CGA-321113	Total	Proc. factor
P99/49 AUS-P99-49-B1	50 WG	3	0.075	0.027	berry fruit, dried	60 60	**<0.02** 0.03	**<0.02** <0.02	**<0.02** 0.03	
P99/49 AUS-P99-49-B2	50 WG	3	0.15	0.05	berry fruit, dried	60 60	**<0.02** 0.10	**<0.02** <0.02	**<0.02** 0.10	
P99/49 AUS-P99-49-C1	50 WG	3	0.075	0.03	berry fruit, dried	75 75	**<0.02** <0.02	**<0.02** <0.02	**<0.02** <0.02	
P99/49 AUS-P99-49-C2	50 WG	3	0.15	0.05	berry fruit, dried	75 75	**<0.02** 0.03	**<0.02** <0.02	**<0.02** 0.03	
P99/49 AUS-P99-49-C3	50 WG	3	0.075	0.007	berry fruit, dried	75 75	**<0.02** <0.02	**<0.02** <0.02	**<0.02** <0.02	
P99/49 AUS-P99-49-C4	50 WG	3	0.15	0.014	berry fruit, dried	75 75	**<0.02** 0.02	**<0.02** <0.02	**<0.02** 0.02	

In South Africa in three processing trials wine grapes were treated nine times at rates between 0.05 and 0.19 kg ai/ha. Samples were collected on day 47 or 53 after the last application. Information on the processing of grapes to wine was not reported. The results are shwon in Table 104.

Table 105. Trifloxystrobin residues in grapes and processed products, South Africa, 1995.

Report No.; Study No.	Application Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	Residues (mg/kg) trifloxy-strobin	CGA-321113	Total	Proc. factor
2204/95 SAF-2204-95	125 EC	9	0.05-0.13	0.013	berry wine	47 47	**0.06** <0.02	**0.03** <0.02	**0.09** <0.02	 <0.22
2205/95 SAF-2205-95	125 EC	9	0.05-0.13	0.013	wine	53	<0.02	<0.02	<0.02	
2207/95 SAF-2207-95	125 EC	9	0.075- 0.19	0.02	wine	53	<0.02	<0.02	<0.02	

Eighteen processing trials were carried out on grapes in Northern Europe with trifloxystrobin 50 WG or a mixture of trifloxystrobin with cymoxanil (49 WG) from 1995 to 2000. Grapes were treated three, four or eight times at rates between 0.125 and 0.385 kg ai/ha, and samples for processing taken about 35 and 41 to 50 days after the last application. In Southern Europe ten processing trials was conducted on grapes with trifloxystrobin 50 WG, 1996-1998. Grapes were treated either eight times at a rate of 0.19 kg ai/ha with a PHI of 35 days, or six times at rates between 0.074 and 0.1 kg ai/ha and samplings on day 21 or 29-31. The results are shown in Table 106.

For must, grapes were crushed and pressed and the must sulfured, and for wine the must was mixed with yeast (sugar was added in some cases). After fermentation and deposit of the young wine, it was separated from the yeast and SO_2 and Bentonite were added, followed by further separations and filtering.

For raisins bunches of grapes were dipped either into boiling water ("dipped production") or into NaOH ("golden production"). After washing the bunches were dried and berries picked.

Table 106. Trifloxystrobin residues in grapes and processed products from Europe.

Country, Year	Application Form	No	kg ai/ha	kg ai/hl	Sample	PHI (days)	Residues (mg/kg) trifloxy-strobin	CGA-321113	Total	Proc. factor	Report No.; Study No.
Germany 1996	50 WG	8	0.35- 0.39	0.047- 0.094	berry must wine	35 35 35	**0.97** 0.08 <0.02	**0.04** <0.02 <0.02	**1.01** 0.08 <0.02	 0.079 <0.02	gr01396 BRD- gr01396
Germany 1996	50 WG	8	0.34- 0.38	0.044- 0.075	berry must wine	35 35 35	**0.34** 0.05 <0.02	**0.03** <0.02 <0.02	**0.37** 0.05 <0.02	 0.135 <0.05	gr01496 BRD- gr01496

Country, Year	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor	Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA-321113	Total		
Germany 1997	50 WG	8	0.19	0.023-0.047	berry must wine	36 37 37	**0.65** 0.06 <0.02	**0.06** <0.02 <0.02	**0.71** 0.06 <0.02	 0.085 <0.028	gr45597 BRD-gr45597
Germany 1997	50 WG	8	0.19	0.023-0.047	berry must wine	36 37 37	**0.59** 0.04 <0.02	**0.07** 0.02 <0.02	**0.66** 0.06 <0.02	 0.091 <0.03	gr46597 BRD-gr46597
Germany 1995	49 WG	8	0.19-0.22	0.023-0.047	berry must wine	41 41 41	**0.32** 0.02 <0.02	**0.12** 0.02 <0.02	**0.44** 0.04 <0.02	 0.091 <0.045	CGD03 BRD-CGD03
Switzer-land 1995	49 WG	8	0.19	0.013	berry must wine, first filtrate wine, 2nd filtrate	42 42 42 42	**0.15** 0.07 0.05 <0.02	**0.07** <0.02 <0.02 <0.02	**0.22** 0.07 0.05 <0.02	 0.32 0.23 <0.091	2035/95 SWZ-2035-95
Switzer-land 1995	49 WG	8	0.19	0.013	berry must wine, first filtrate wine, 2nd filtrate	42 42 42 42	**0.52** 0.42 0.13 <0.01	**0.06** <0.02 0.04 <0.02	**0.58** 0.42 0.17 <0.02	 0.72 0.29 <0.034	2036/95 SWZ-2036-95
Germany 1995	49 WG	8	0.19-0.20	0.02	berry pomace, wet must wine	41 41 41 41	**0.94** 2.0 0.14 <0.02	**0.07** 0.27 <0.02 <0.02	**1.01** 2.27 0.14 <0.02	 2.25 0.14 <0.02	951047008 BRD-FR08-95-43
Germany 1996	49 WG	8	0.18-0.19	0.024-0.047	berry must wine	35 35 35	**1.2** 0.07 <0.02	**0.03** <0.02 <0.02	**1.23** 0.07 <0.02	 0.057 <0.016	gr01196 BRDgr01196
Germany 1996	49 WG	8	0.15-0.21	0.022-0.038	berry must wine	35 34 34	**0.31** 0.05 <0.02	**0.04** <0.02 <0.02	**0.35** 0.05 <0.02	 0.14 <0.057	gr01296 BRDgr01296
France 1996	49 WG	8	0.19	0.17-0.19	berry must wine	35 35 35	**0.52** 0.78 0.02	**0.12** 0.04 0.01	**0.64** 0.82 0.03	 1.28 0.047	OF96125/DE17 FRA-DE17
France 1996	49 WG	8	0.19	0.094	berry must wine	36 36 36	**0.83** 1.5 0.08	**0.11** 0.04 0.02	**0.94** 1.54 0.1	 1.64 0.106	OF96126/KJ58 FRA-KJ58
Switzer-land 1998	49 WG	4	0.20	0.05	berry must wine	46 46 46	**0.18** 0.14 <0.02	**0.04** <0.02 <0.02	**0.22** 0.14 <0.02	 0.636 0.09	526/98 SWZ-98-3.211.051
Switzer-land 1998	49 WG	4	0.20	0.05	berry must wine	46 46 46	**0.11** 0.044 <0.02	**0.04** <0.02 <0.02	**0.15** 0.044 <0.02	 0.29 <0.13	526/98 SWZ-98-3-211.052
Switzer-land 1998	49 WG	4	0.20	0.02	berry must wine	42 42 42	**0.11** <0.02 <0.02	**0.02** <0.02 <0.02	**0.13** <0.02 <0.02	 <0.15 <0.15	526/98 SWZ-98-3-211.060
Switzer-land 1998	49 WG	4	0.20	0.033	berry must wine	50 50 50	**0.20** 0.063 <0.02	**0.05** <0.02 0.02	**0.25** 0.063 0.04	 0.252 0.16	526/98 SWZ-98-3.211.061
Italy 1996	50 WG	8	0.19	0.021	berry must wine	35 35 35	**0.11** 0.06 <0.02	**0.05** <0.02 <0.02	**0.16** 0.06 <0.02	 0.375 <0.125	2084/96 ITA-2084-96
Italy 1996	50 WG	8	0.19	0.027	berry must wine, first filtrate wine, 2nd filtrate	35 35 35 35	**1.3** 0.66 0.10 0.02	**0.06** <0.02 <0.02 <0.02	**1.36** 0.66 0.10 0.02	 0.485 0.074 0.015	2085/96 ITA-2085-96

Country, Year	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor	Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA-321113	Total		
Italy 1997	50 WG	8	0.19	0.027	berry	35	**0.46**	**0.03**	**0.49**		2077/97 ITA-2077-97
					must	35	0.44	<0.02	0.44	0.898	
					wine, first filtrate	35	0.03	<0.02	0.03	0.061	
					wine, 2nd filtrate	35	0.04	<0.02	0.04	0.082	
Italy 1997	50 WG	8	0.19	0.019-0.021	berry	35	**0.24**	**0.055**	**0.295**		2078/97 ITA-2078-97
					must	35	0.17	<0.02	0.17	0.576	
					wine	35	<0.02	<0.02	<0.02	0.068	
Spain 1997	50 WG	6	0.08	0.015-0.04	berry	31	**0.11**	**<0.02**	**0.11**		2050/97 SPA-2050-97
						31	**0.28**	**<0.02**	**0.28**		
					must	31	0.13	<0.02	0.13	1.18	
						31	0.12	<0.02	0.12	0.43 mean 0.805	
					wine	31	<0.02	<0.02	<0.02	<0.18	
						31	<0.02	<0.02	<0.02	<0.07 mean <0.125	
Spain 1997	50 WG	6	0.07-0.08	0.009-0.011	berry	30	**0.07**	**<0.02**	**0.07**		2051/97 SPA-2051-97
						30	**0.08**	**<0.02**	**0.08**		
					must	30	0.03	<0.02	0.03	0.43	
						30	0.05	<0.02	0.05	0.625 mean 0.528	
					wine	30	<0.02	<0.02	<0.02	<0.286	
						30	<0.02	<0.02	<0.02	<0.25 mean <0.268	
Italy 1998	50 WG	6	0.10	0.01	berry	21	**0.16**	**<0.02**	**0.16**		2042/98 ITA-2042-98
					must	21	0.11	<0.02	0.11	0.69	
					wine, first filtrate	21	0.03	<0.02	0.03	0.19	
					wine, 2nd filtrate	21	<0.02	<0.02	<0.02	<0.125	
Italy 1998	50 WG	6	0.10	0.01-0.013	berry	21	**0.05**	**<0.02**	**0.05**		2043/98 ITA-2043-98
					must	21	0.03	<0.02	0.03	0.6	
					wine	21	<0.02	<0.02	<0.02	<0.4	
Spain 1998	50 WG	6	0.08	0.014	berry	29	**0.36**	**0.02**	**0.38**		2056/98 SPA-2056-98
					must	29	0.18	<0.02	0.18	0.47	
					wine	29	0.06	<0.02	0.06	0.16	
Spain 1998	50 WG	6	0.08	0.009	berry	21	**0.16**	**<0.02**	**0.16**		2057/98 SPA-2057-98
					must	21	0.12	<0.02	0.12	0.76	
					wine	21	<0.02	<0.02	<0.02	<0.125	
Switzer-land 2000	50 WG	3	0.13	0.009	berry	36	**0.04**	**0.01**	**0.05**		2147/00 SWZ-2147-B1
					berry after dipping[1]	36	0.02	<0.01	0.02		
					berry after dipping, washed	36	0.03	0.01	0.04		
					raisin	36	0.12	0.03	0.15	3	
					dippings	36	0.02	<0.01	0.02		
					washings	36	<0.01	<0.01	<0.01		
Switzer-land 2000	50 WG	3	0.13	0.009	berry	36	**0.03**	**0.01**	**0.04**		2147/00 SWZ-2147-B2
					berry after dipping[2]	36	0.03	0.01	0.04		
					berry after dipping, washed	36	0.02	0.01	0.03		
					raisin	36	0.09	0.04	0.13	3.25	
					dippings	36	<0.01	0.03	0.04		
					washings	36	<0.01	<0.01	<0.01		

[1] in boiling water
[2] in NaOH

In 1996 in six processing trials in the USA using a 50 WG solution of trifloxystrobin grapes were sprayed six times, either at the 1-fold rate at 0.14 kg ai/ha, the 3-fold rate (0.42 kg ai/ha), or the 5-fold rate (0.70 kg ai/ha). Samples for processing were taken 14 days after the last application. For juice the grapes were crushed, the pulp collected and the stems discarded. The pulp was then heated, filtered and pasteurised. Raisins were processed in the field by air-drying for 17 or 26 days according to normal agricultural practice. Residues were determined in the raw agricultural commodity and in a variety of processed products. The results are shown in Table 107.

Table 107. Trifloxystrobin residues in grapes and processed products, USA, 1996.

Report No.; Study No.	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA-321113	Total	
110440 USA-OW-FR-415-96-A	50 WG	6	0.14	0.025	bunch of grapes juice raisin	14 14 14	**0.24** 0.04 0.14	**<0.02** <0.02 <0.02	**0.24** 0.04 0.14	 0.167 0.58
110440 USA-OW-FR-415-96-B	50 WG	6	0.42	0.075	bunch of grapes juice	14 14	**0.87** 0.16	**0.02** <0.02	**0.89** 0.16	 0.18
110440 USA-OW-FR-415-96-C	50 WG	6	0.70	0.13	bunch of grapes juice	14 14	**1.1** 0.15	**0.02** <0.02	**1.12** 0.15	 0.13
110440 USA-02-FR-025-96-A	50 WG	6	0.14	0.03	bunch of grapes juice raisin	14 14 14	**0.60** 0.06 1.5	**0.07** <0.02 0.16	**0.67** 0.06 1.66	 0.09 2.48
110440 USA-02-FR-025-96-B	50 WG	6	0.42	0.09	bunch of grapes juice	14 14	**1.8** 0.13	**0.08** 0.02	**1.88** 0.15	 0.08
110440 USA-02-FR-025-96-C	50 WG	6	0.70	0.15	bunch of grapes juice	14 14	**2.2** 0.34	**0.08** 0.04	**2.28** 0.38	 0.167

Figure 7. Processing to must and wine.

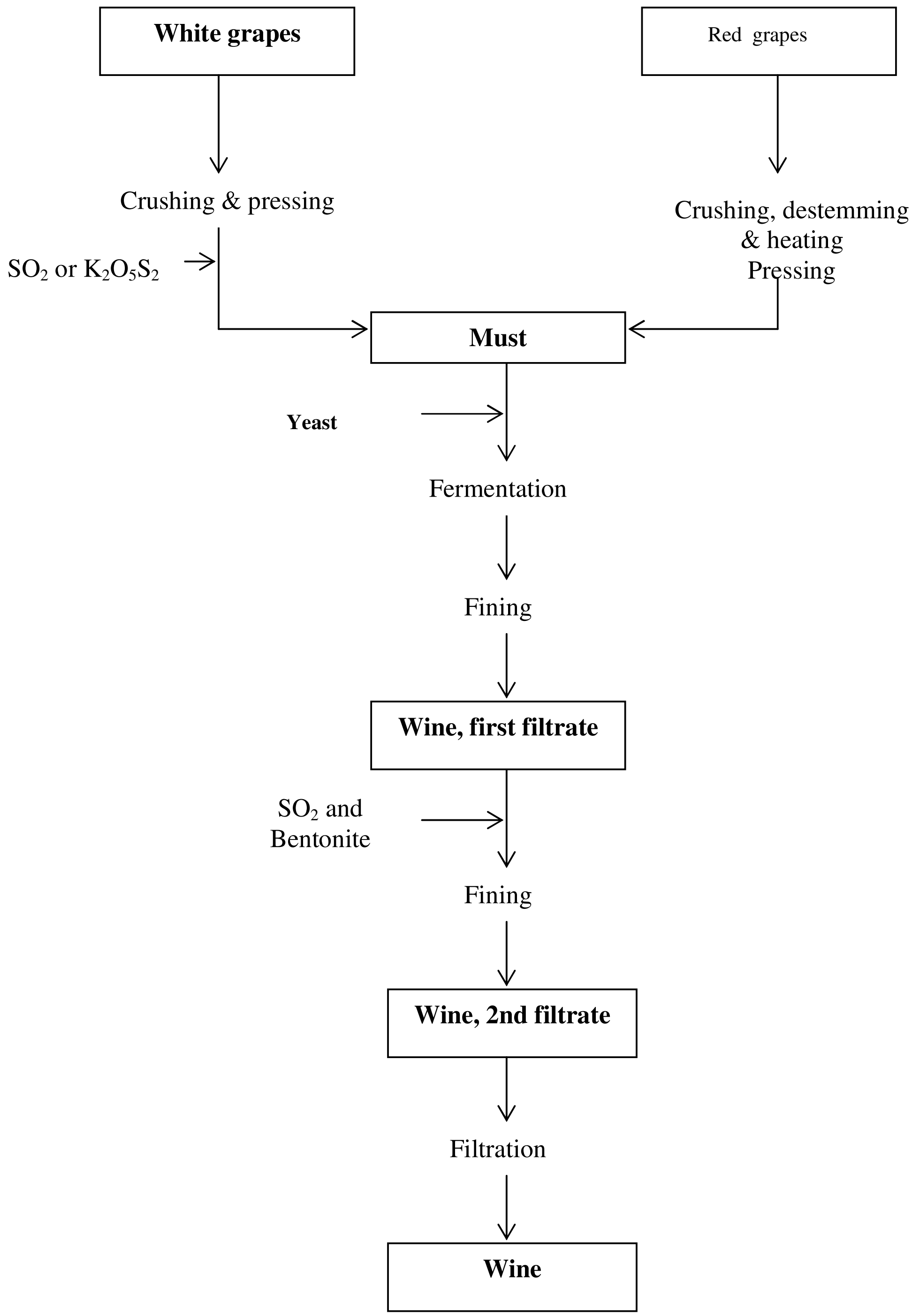


Figure 8. Processing to raisins (Europe).

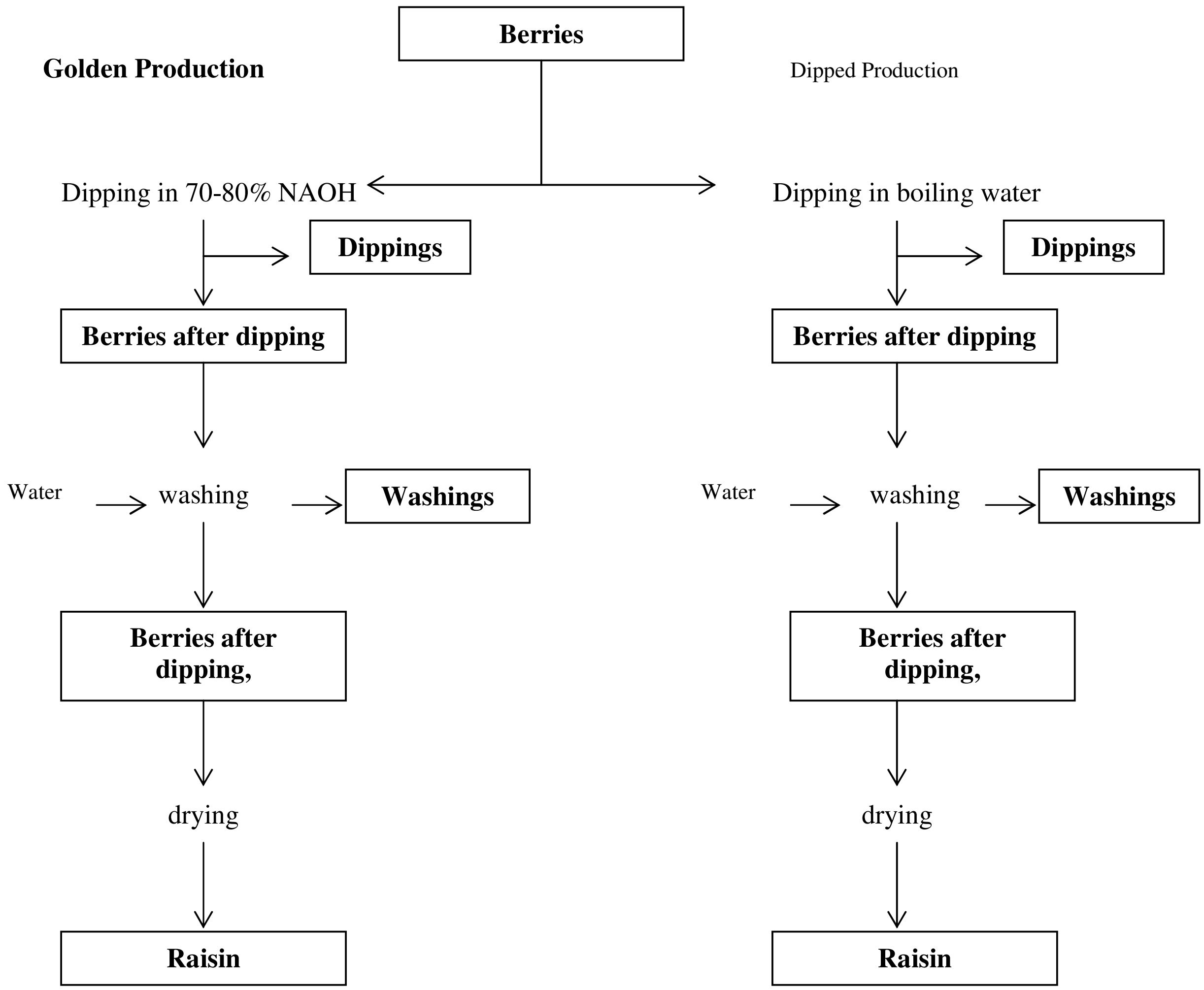
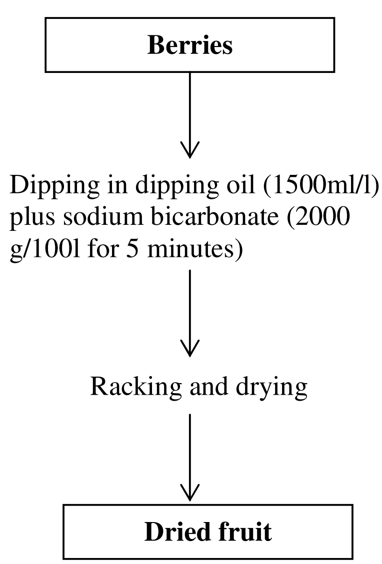


Figure 9. Processing to raisins (Australia).



Strawberries

In two processing studies in 2002 in Northern Europe trifloxystrobin 50 WG was applied three times to strawberry plants at a product rate of 0.5 kg/ha and 600 l water per ha, corresponding to a spray concentration of 0.083% and 0.25 kg ai/ha. Samples were taken 3 days after the last treatment. Residues were determined in the raw agricultural commodity (fruit), washed fruit, washings, preserve and jam. The processing in the laboratory of washed fruits, washing water and jam simulated household practice, and that of strawberry preserve industrial practice.

Strawberries were washed in standing water under slow movement, and stalks removed as necessary. For preserves, washed fruits were placed in cans and sugar solution was added, before pasteurisation at about 90°C. For jam processes were the same except some of the fruit was minced with a mixer, and the remainder chopped with a knife into small pieces. Gelling agent was then added and the mixture heated to 98-100°C for about 3 minutes. The processing steps are shown in Figures 10 and 11.

The results of the trials are shown in Table 108.

Table 108. Trifloxystrobin residues in strawberries and processed products, Europe.

Country, Year	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor	Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl			trifloxy -strobin	CGA321 113	Total		
Germany 2002	50 WG	3	0.25	0.042	fruit	3	**0.15**	**0.03**	**0.18**		RA-2038/02 RA-3038/02 0188-02
					fruit, washed	3	0.13	0.04	0.17		
					preserve	3	0.06	<0.02	0.06	0.33	
					washings	3	0.03	<0.02	0.03		
					jam	3	0.12	0.02	0.12	0.667	
France 2002	50 WG	3	0.25	0.042	fruit	3	**0.12**	**<0.02**	**0.12**		RA-2038/02 RA-3038/02 0191-02
					fruit, washed	3	0.08	<0.02	0.08		
					preserve	3	0.03	<0.02	0.03	0.25	
					washings	3	0.05	<0.02	0.05		
					jam	3	0.07	<0.02	0.07	0.58	

Figure 10. Processing of strawberries to preserves.

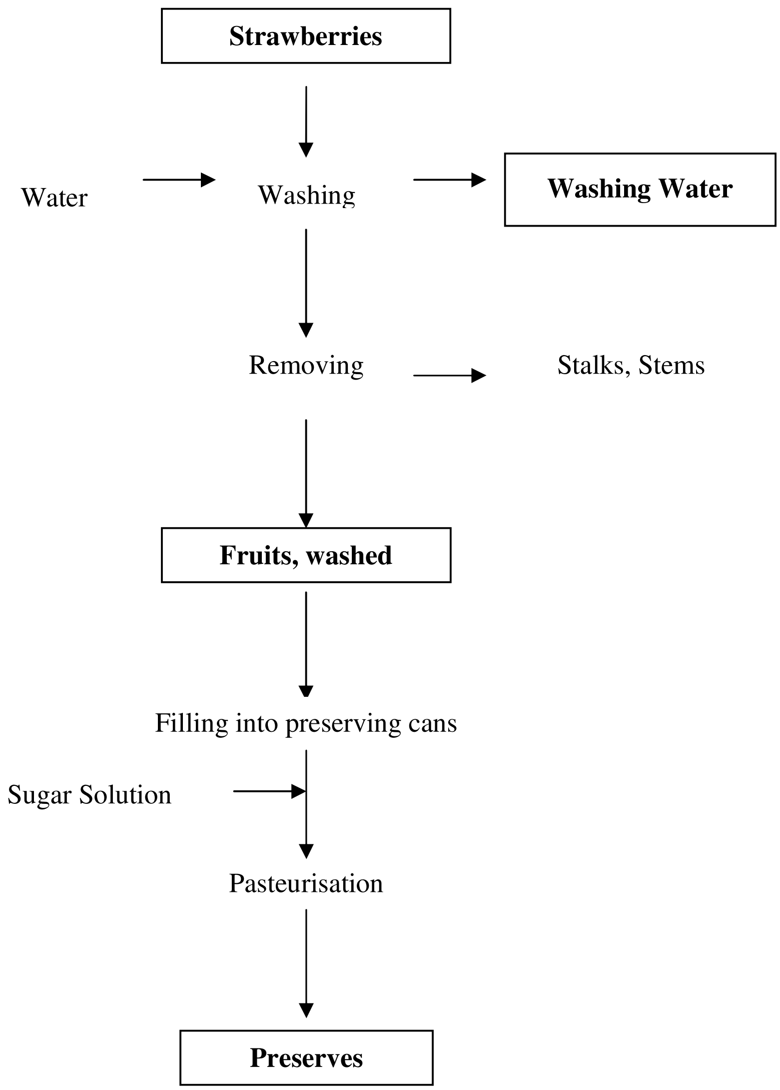
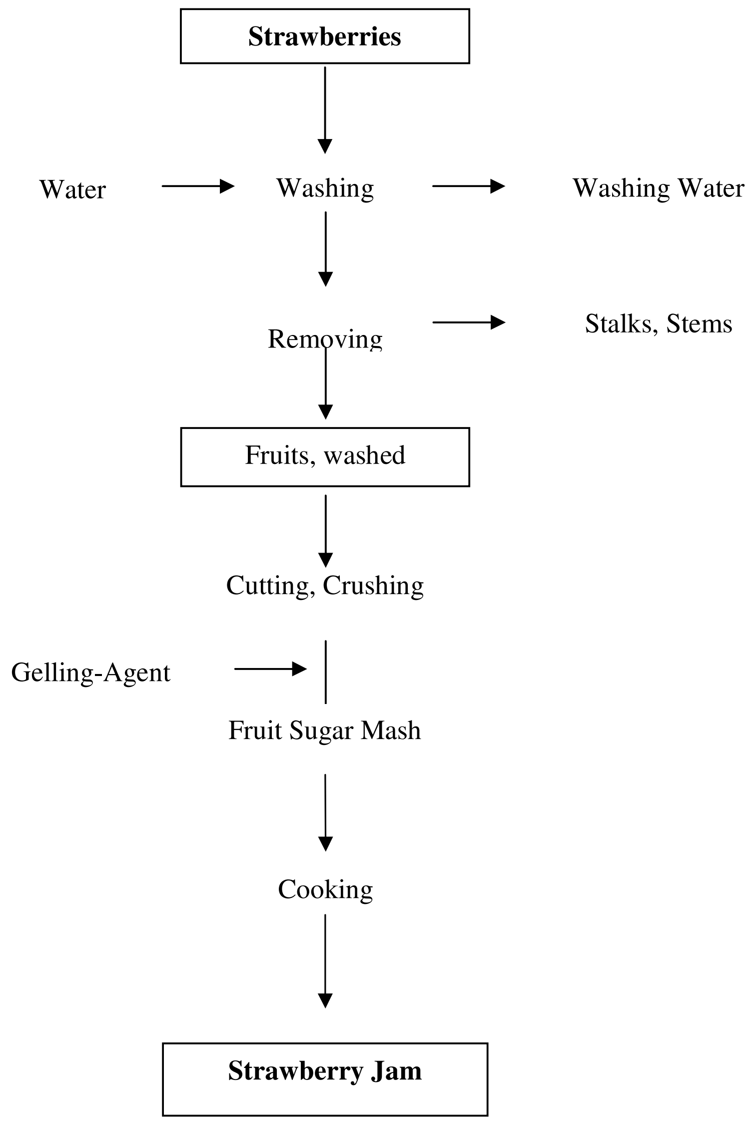


Figure 11. Processing of strawberries to jam.



Cabbage

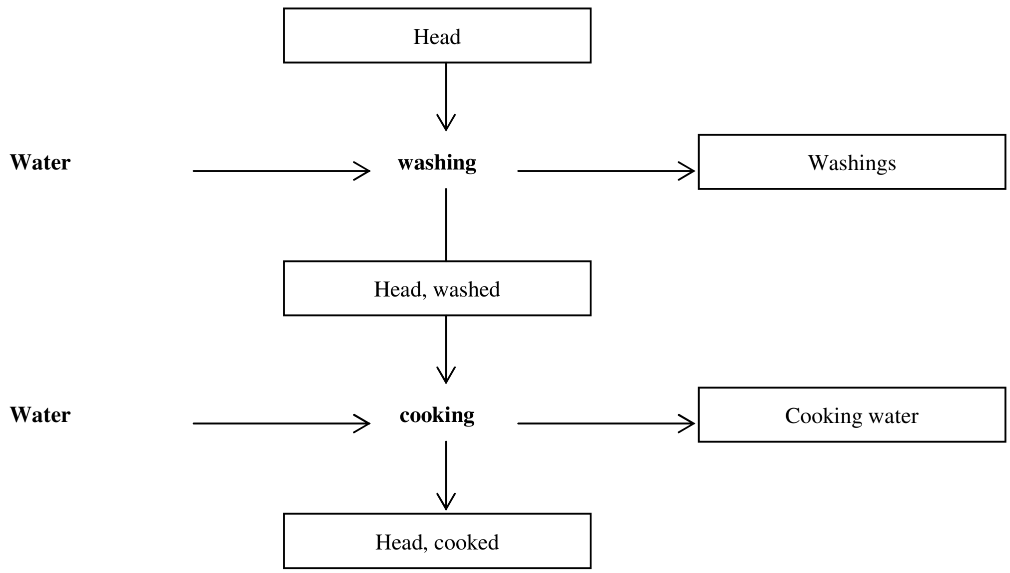
Two processing studies were conducted using three applications of trifloxystrobin 50 WG at a rate of 0.125 kg ai/ha. Cabbage samples were cooked. Residues in all samples of the raw agricultural commodity, washed head, washings, cooking water and cooked head were below the LOQ (0.02 mg/kg), so the processing factor cannot be calculated (Table 109). The processing steps are shown in Figure 12.

Table 109. Trifloxystrobin residues in white cabbage and its processed products, Germany, 2001.

Report No.; Study No.	Application				Sample	PHI (days)	Residues (mg/kg)		
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA321 113	Total
RA-2198/01 RA-3198/01 0640-01	50 WG	3	0.13	0.021	head	14	**<0.02**	**<0.02**	**<0.02**
					head, washed	14	<0.02	<0.02	<0.02
					washings	14	<0.02	<0.02	<0.02
					head, cooked	14	<0.02	<0.02	<0.02

Report No.; Study No.	Application				Sample	PHI (days)	Residues (mg/kg)		
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA321 113	Total
					cooking water	14	**<0.02**	**<0.02**	**<0.02**
RA-2198/01 RA-3198/01 0643-01	50 WG	3	0.13	0.021	head	14	<0.02	<0.02	<0.02
					head, washed	14	<0.02	<0.02	<0.02
					washings	14	<0.02	<0.02	<0.02
					head, cooked	14	<0.02	<0.02	<0.02
					cooking water	14	<0.02	<0.02	<0.02

Figure 12. Processing to washed and cooked cabbage.



Tomato

In 1997 in five processing trials in the USA solutions of trifloxystrobin (50 WG) were sprayed eight times on the leaves of the plants at a volume ranging from 234-283 l/ha either at the 1-fold rate (0.14 kg ai/ha), the 3-fold rate (0.42 kg ai/ha) or the 5-fold rate (0.7 kg ai/ha). Tomato samples were taken on day 3 after the last application. Residues were determined in the RAC, purée and paste.

For juice, the washed tomatoes were placed in a grinder, crushed, disgorged into a tank, then pumped into a hot break system, with water at the required outlet temperature. The tomato crush was heated to about 98°C, and passed through a screen to remove peel and seeds (wet pomace) to produce juice.

For purée, juice was circulated in a vacuum evaporator until condensed. When the natural tomato soluble solids (NTSS) were within the range 8-16%, the purée was collected into a drum, weighed, and thoroughly mixed. A portion was used to produce the canned purée fraction sample. It was transferred into a small steam jacketed kettle, and stirred while being heated to 90-92°C. The NTSS values were then between 7.0 and 7.8%, and the purée was canned.

For paste, another portion was transferred to a vacuum kettle evaporator for condensing. When the NTSS were 24-25%, the paste was transferred into a small steam jacketed kettle, heated to 88°C while being stirred. The NTSS values were then between 25.8 and 27.5% and the paste was canned. The results of the trials are summarised in Table 110.

Table 110. Trifloxystrobin residues in tomatoes and their processed products, USA, 1997-1998.

Report No.; Study No.	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA321 113	Total	
40-97 USA-OW-FR-411-97-A	50 WG	8	0.14	0.05	fruit	3	**0.18**	**<0.02**	**0.18**	
					paste	3	0.23	0.02	0.25	1.39
					purée	3	0.06	<0.02	0.06	0.33
40-97 USA-OW-FR-411-97-B	50 WG	8	0.42	0.15	fruit	3	**0.69**	**<0.02**	**0.69**	
					paste	3	0.75	0.05	0.80	1.16
					purée	3	0.49	<0.02	0.49	0.71
40-97 USA-OW-FR-411-97-C	50 WG	8	0.70	0.25	fruit	3	**0.87**	**<0.02**	**0.87**	
					paste	3	1.3	0.07	1.37	1.57
					purée	3	1.0	0.03	1.03	1.18
40-97 USA-02-FR-007-97-A	50 WG	8	0.14	0.06	fruit	3	**0.12**	**<0.02**	**0.12**	
					paste	3	0.12	<0.02	0.12	1
					purée	3	<0.02	<0.02	<0.02	<0.17
40-97 USA-02-FR-007-97-B	50 WG	8	0.70	0.30	fruit	3	**0.59**	**<0.02**	**0.59**	
					paste	3	1.6	0.07	1.67	2.83
					purée	3	0.25	<0.02	0.25	0.424

Potatoes

In 1996 in six processing trials in the USA using trifloxystrobin 50 WG potato plants were sprayed four times at the 1-fold rate of 0.28 kg ai/ha, the 3-fold rate (0.84 kg ai/ha) or at the 5-fold rate (1.4 kg ai/ha). The spray volume ranged from 281 to 318 l/ha. Tuber samples were taken 7 days after the last application. Residues were determined in the raw agricultural commodity, in washed tubers, peel residues, flakes and chips. The results are summarised in Table 111. Processing factors cannot be calculated because residues were below the LOQ in the RAC.

Having been washed, peeled and trimmed, potatoes were cut into slabs for flakes and sliced for chips, and then washed to remove free starch. The sliced potatoes were fried in hot oil, deoiled and salted to produce chips. For flakes the slabs of potato were cooked, mashed, mixed with additives, dried and milled. The detailed processing steps are shown in Figures 13 and 14.

Table 110. Trifloxystrobin residues in potatoes and their processed products, USA, 1996.

Report No.; Study No.	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA-321113	Total	
55-96 USA-MW-FR-511-96-B	50 WG	4	0.28	0.099	tuber	7	**<0.02**	**<0.02**	**<0.02**	
					tuber, washed	7	<0.02	<0.02	<0.02	
					peel rest	7	<0.02	<0.02	<0.02	
					flakes	7	<0.02	<0.02	<0.02	
					chips	7	<0.02	<0.02	<0.02	
55-96 USA-MW-FR-511-96-C		4	0.84	0.30	tuber	7	**<0.02**	**<0.02**	**<0.02**	
					tuber, washed	7	<0.02	<0.02	<0.02	
					peel rest	7	<0.02	<0.02	<0.02	
					flakes	7	<0.02	<0.02	<0.02	
					chips	7	<0.02	<0.02	<0.02	
55-96 USA-MW-FR-511-96-D	50 WG	4	1.4	0.50	tuber	7	**<0.02**	**<0.02**	**<0.02**	
					tuber, washed	7	<0.02	<0.02	<0.02	
					peel rest	7	0.03	<0.02	0.03	
					flakes	7	<0.02	<0.02	<0.02	
					chips	7	<0.02	<0.02	<0.02	
55-96 USA-OW-FR-699-96-A	50 WG	4	0.28	0.09	tuber	7	**<0.02**	**<0.02**	**<0.02**	
					tuber, washed	7	<0.02	<0.02	<0.02	
					peel rest	7	<0.02	0.03	0.05	
					flakes	7	<0.02	<0.02	<0.02	
					chips	7	<0.02	<0.02	<0.02	

Report No.; Study No.	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA-321113	Total	
55-96 USA-OW-FR-699-96-B	50 WG	4	0.84	0.26	tuber	7	**<0.02**	**0.02**	**0.04**	
					tuber, washed	7	<0.02	0.02	0.04	
					peel rest	7	<0.02	0.06	0.08	2
					flakes	7	<0.02	<0.02	<0.02	<0.5
					chips	7	<0.02	<0.02	<0.02	<0.5
55-96 USA-OW-FR-699-96-C	50 WG	4	1.4	0.44	tuber	7	**<0.02**	**0.04**	**0.06**	
					tuber, washed	7	<0.02	0.03	0.05	
					peel rest	7	0.05	0.10	0.15	2.5
					flakes	7	<0.02	<0.02	<0.02	<0.33
					chips	7	<0.02	<0.02	<0.02	<0.33

Figure 13. Processing of potatoes to flakes.

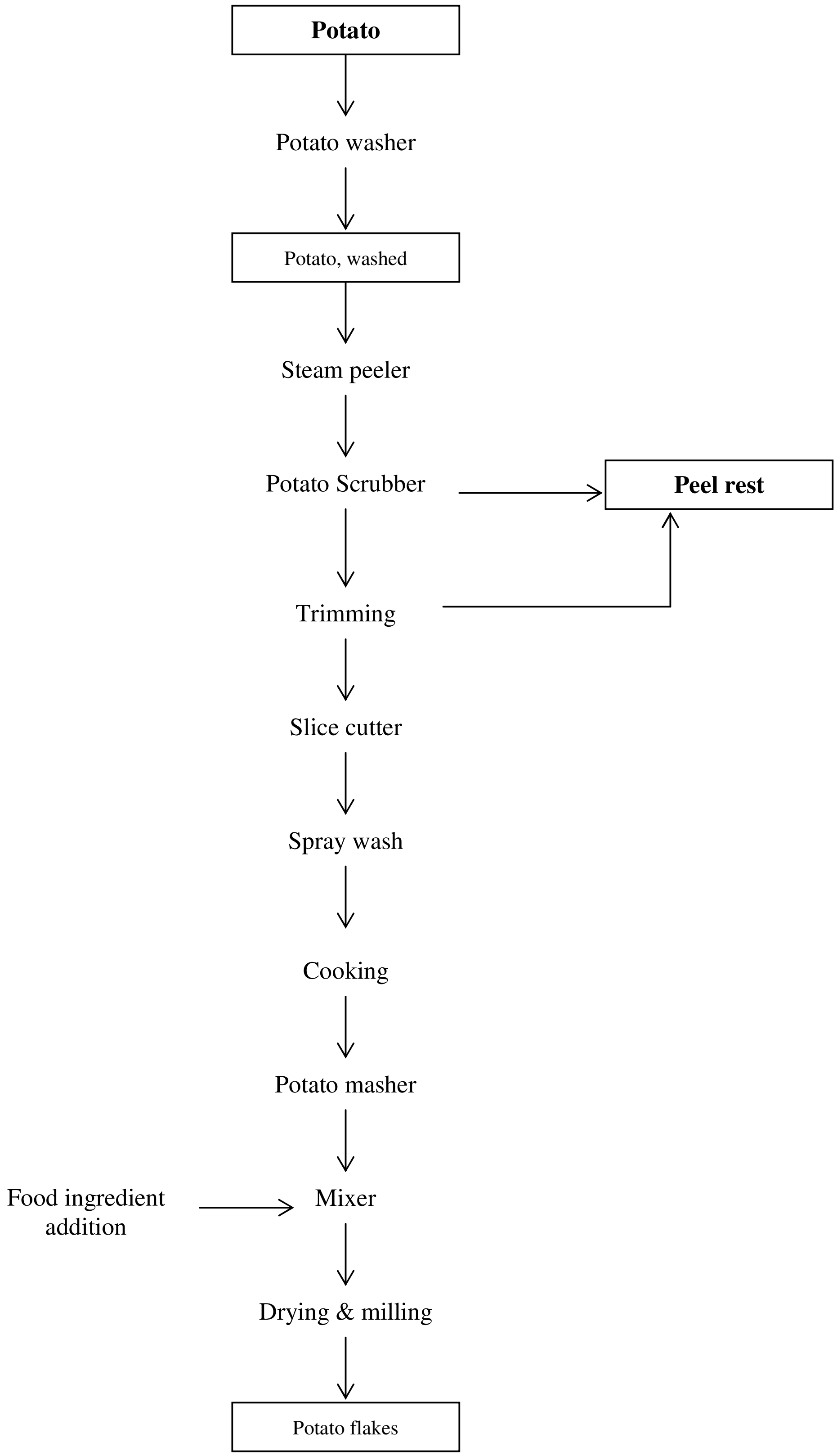
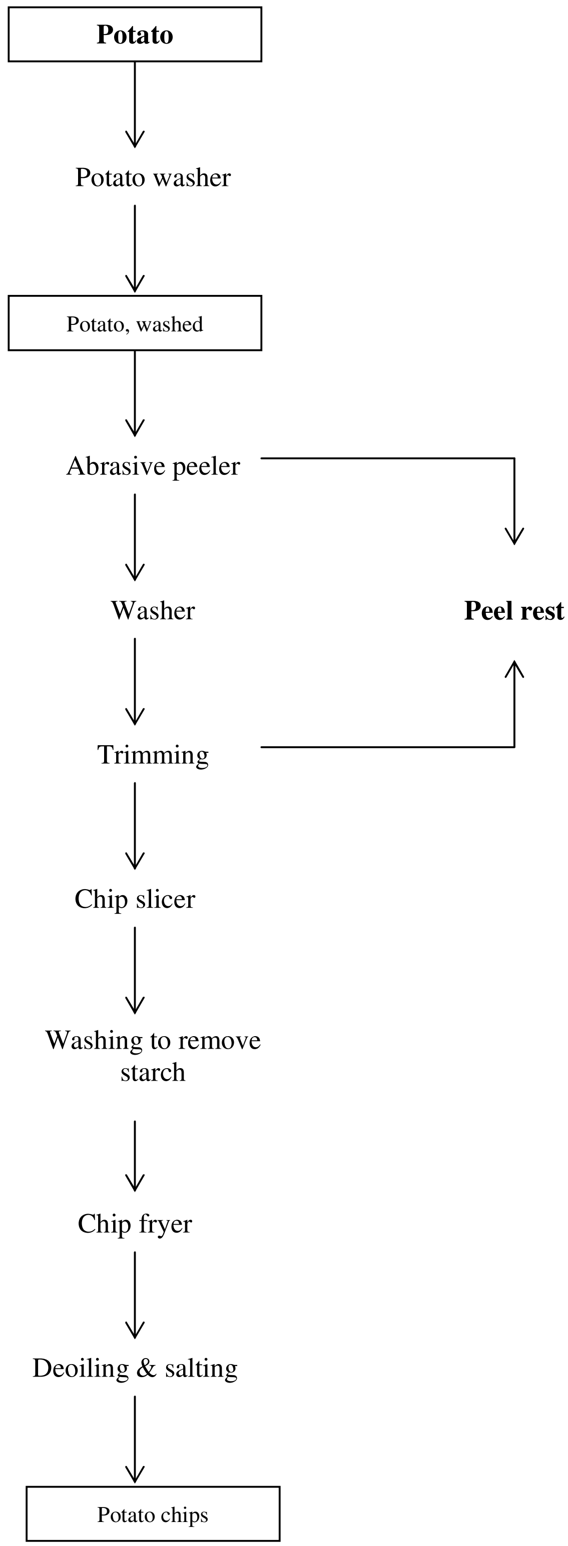


Figure 14. Processing of potatoes to chips.



Sugar beet

In 1997 in three processing trials in the USA plants were sprayed three times with solutions of trifloxystrobin 50 WG, either with foliar spray applications at 1-fold rate of 0.12 kg ai/ha, at the 3-fold rate (0.37 kg ai/ha) or at the 5-fold rate (0.62 kg ai/ha). The spray volume was 187 l/ha. Samples were taken on day 23 after the last application. Residues were determined in roots, tops, white sugar, dry pulp and molasses.

Sugar beets were washed with water and sliced. After diffusion of the pieces the pulp was pressed to remove free juice which was then returned to the diffuser. The pressed beet pulp was dried to below 10% moisture (dried pulp). The raw juice was purified, filtered and boiled (sugar crystallisation). The mixture of sugar crystals and syrup was centrifuged to produce molasses and wet sugar. The sugar was dried (dried sugar/white sugar). The results of the trials are summarised in Table 112.

Table 112. Trifloxystrobin residues in sugar beet and processed products, USA, 1997.

Report No.; Study No.	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA321 113	Total	
35-97 USA-OW-FR-223-97-A	50 WG	3	0.12	0.066	root	23	**<0.02**	**<0.02**	**<0.02**	
					white sugar	23	<0.02	<0.02	<0.02	
					pulp, dry	23	0.06	<0.02	0.06	
					molasses	23	<0.02	0.03	0.05	
35-97 USA-OW-FR-223-97-B	50 WG	3	0.37	0.20	root	23	**0.11**	**<0.02**	**0.11**	
					white sugar	23	<0.02	<0.02	<0.02	<0.18
					pulp, dry	23	0.21	<0.02	0.21	1.91
					molasses	23	<0.02	0.11	0.13	1.18
35-97 USA-OW-FR-223-97-C	50 WG	3	0.62	0.33	root	23	**0.12**	**<0.02**	**0.12**	
					white sugar	23	<0.02	<0.02	<0.02	<0.17
					pulp, dry	23	0.56	0.03	0.59	4.92
					molasses	23	<0.02	0.20	0.22	1.83

Barley

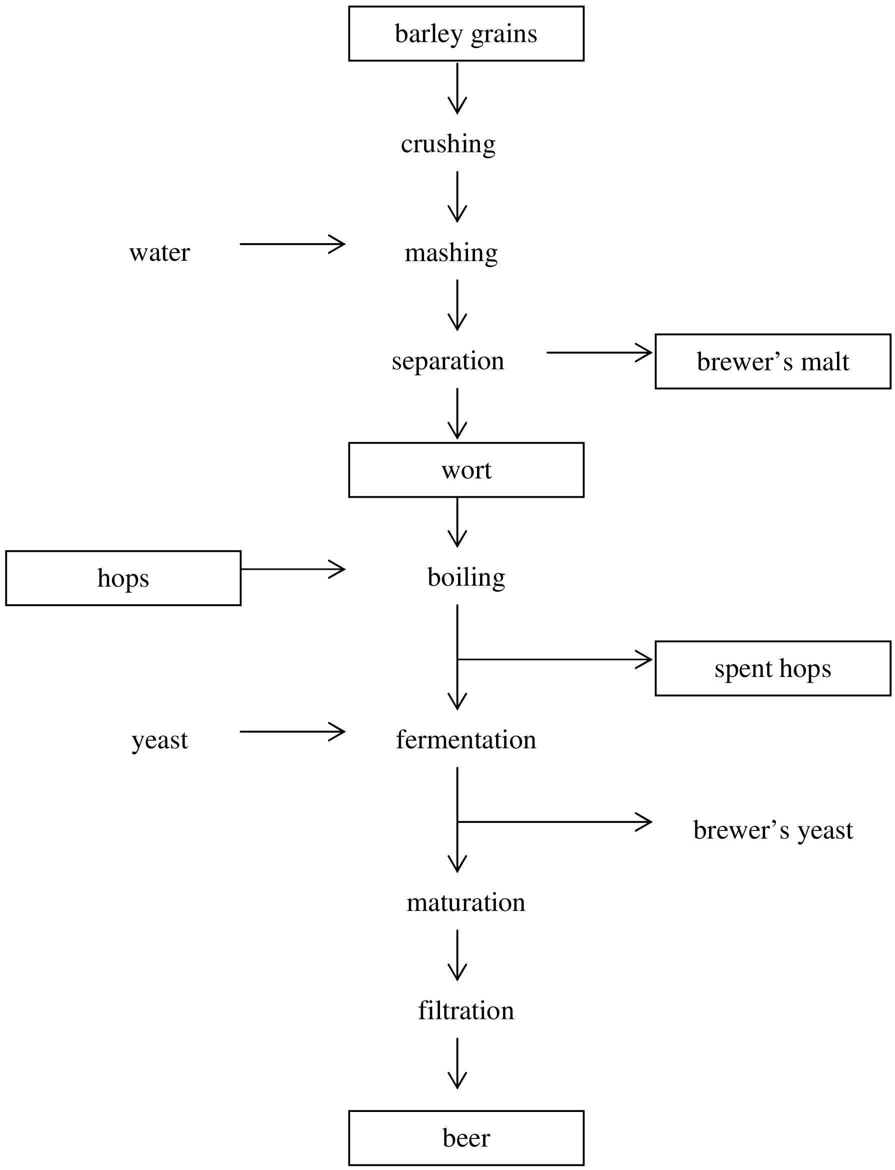
In France six processing trials were carried out in 1997-1999. Crops were sprayed twice with solutions of trifloxystrobin 125 EC, Stratego 250 EC or Sphere 267.5 either at about 0.25 kg/ha or 0.18 to 0.19 kg/ha, with a spray volume ranging between 385 and 423 l/ha. Grain was sampled 39 to 46 days after the last application, and residues determined in the raw agricultural commodity (grain) and the processed products. The processing steps are shown in Figure 15, and results summarised in Table 113.

Table 113. Trifloxystrobin residues in barley and processed products, France, 1997-1998.

Report No.; Study No.	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA321 113	Total	
9715102 FRA-9715102	250 EC	2	0.25	0.059-0.065	grain	45	**<0.02**	**<0.02**	**<0.02**	
					brewer's malt	45	<0.02	<0.02	<0.02	
					wort	45	<0.02	<0.02	<0.02	
					beer	45	<0.01	<0.01	<0.01	
9711601 FRA-9711601	250 EC	2	0.25	0.061	grain	45	**<0.02**	**<0.02**	**<0.02**	
					brewer's malt	45	<0.02	<0.02	<0.02	
					wort	45	<0.02	<0.02	<0.02	
					beer	45	<0.01	<0.01	<0.01	

Report No.; Study No.	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA321 113	Total	
2021/99 FRA-2021-99	125 EC	2	0.25	0.063	grain	**46**	**0.02**	**<0.01**	**0.02**	
					brewer's malt	46	0.01	<0.005	0.01	
					tepral wort fermented wort brewing wort	46 46 46	<0.002 <0.002 <0.002	<0.002 <0.002 <0.002	<0.002 <0.002 <0.002	
					beer	46	<0.002	<0.002	<0.002	
2022/99 FRA-2022-99	125 EC	2	0.25-0.26	0.062	grain	**39**	**0.04**	**0.01**	**0.05**	
					brewer's malt	39 39	0.01 0.02	<0.005 <0.005	0.01 0.02	
					tepral wort fermented wort brewing wort	39 39 39	<0.002 <0.002 <0.002	<0.002 <0.002 <0.002	<0.002 <0.002 <0.002	
					beer	39	<0.002	<0.002	<0.002	<0.04
9810602 FRA-9810602	267.5 EC	2	0.18-0.19	0.047	grain	**45**	**<0.02**	**<0.02**	**<0.02**	
					brewer's malt	45	<0.02	<0.02	<0.02	
					wort	45	<0.01	<0.01	<0.01	
					beer	45	<0.01	<0.01	<0.01	
9810502 FRA-9810502	267.5 EC	2	0.19	0.047	grain	**43**	**0.02**	**<0.02**	**0.02**	
					brewer's malt	43	<0.02	<0.02	<0.02	
					wort	43	<0.01	<0.01	<0.01	
					beer	43	<0.01	<0.01	<0.01	

Figure 15. Processing of barley and hops to beer.



Wheat

In 2000 in one processing trial in France with trifloxystrobin 500 SC wheat was sprayed twice at an application rate of 0.42 kg ai/hl (corresponding to 1.23 and 1.25 kg ai/ha). Grain samples were taken on day 42 after the last application. Residues were determined in the raw agricultural commodity (RAC) and in a variety of processed products.

In 1997 in eight processing trials in the USA wheat was sprayed with trifloxystrobin 50 WG once or twice at 0.12-0.14 kg/ha, or twice at about 0.37 kg ai/ha), or twice at about 0.62 kg ai/ha with spray volumes of 187 (178) l/ha. Grain was sampled 36 or 47 days after the last application. Residues were determined in the raw agricultural commodity (RAC) and in a variety of processed products. The grain samples were dried, cleaned by aspiration and screening, moisture-adjusted and broken in mills. After the bran was separated, the sample was reduced to flour. The results are summarised in Table 114.

Table 114. Trifloxystrobin residues in wheat and processed products.

Country, Year	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor	Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA321 113	Total		
France 2000	500 SC	2	1.2-1.3	0.42	grain	42	**0.04**	**<0.01**	**0.04**		2106/00 FRA-2106-00-B
						42	0.03	<0.01	0.03		
						42	0.02	<0.01	0.02		
					bran	42	0.10	0.01	0.11	2.75	
					meal	42	<0.005	<0.005	<0.005	<0.125	
					whole meal	42	0.02	<0.005	0.02	05	
					whole meal bread	42	0.01	<0.005	0.01	0.25	
USA 1997	50 WG	1	0.14	0.073	grain	36	**<0.02**	**<0.02**	**<0.02**		43-97 USA-MW-FR-309-97-B
					aspir. grain fractions	36	0.18	0.03	0.21		
					germs	36	<0.02	<0.02	<0.02		
					bran	36	<0.02	<0.02	<0.02		
					middlings	36	<0.02	<0.02	<0.02		
					shorts	36	<0.02	<0.02	<0.02		
					low grade	36	<0.02	<0.02	<0.02		
					flour	36	<0.02	<0.02	<0.02		
					patent flour						
USA 1997	50 WG	2	0.12-0.14	0.066-0.074	grain	36	**<0.02**	**<0.02**	**<0.02**		43-97 USA-MW-FR-309-97-C
					aspir. grain fractions	36	0.26	0.04	0.30		
					germs	36	<0.02	<0.02	<0.02		
					bran	36	<0.02	<0.02	<0.02		
					middlings	36	<0.02	<0.02	<0.02		
					shorts	36	<0.02	<0.02	<0.02		
					low grade flour	36	<0.02	<0.02	<0.02		
					patent flour	36	<0.02	<0.02	<0.02		
USA 1997	50 WG	2	0.37-0.42	0.20-0.22	grain	36	**<0.02**	**<0.02**	**<0.02**		43-97 USA-MW-FR-309-97-D
					aspir. grain fractions	36	0.80	0.10	0.90		
					germs	36	<0.02	<0.02	<0.02		
					bran	36	0.03	<0.02	0.03		
					middlings	36	<0.02	<0.02	<0.02		
					shorts	36	<0.02	<0.02	<0.02		
					low grade flour	36	<0.02	<0.02	<0.02		
					patent flour	36	<0.02	<0.02	<0.02		
USA 1997	50 WG	2	0.62-0.69	0.33-0.37	grain	36	**0.03**	**<0.02**	**0.03**		43-97 USA-MW-FR-309-97-E
					aspir. grain fractions	36	2.7	0.34	3.04		
					germs	36	<0.02	<0.02	<0.02	<0.67	
					bran	36	0.08	<0.02	0.08	2.67	
					middlings	36	<0.02	<0.02	<0.02		
					shorts	36	0.02	<0.02	0.02	0.67	
					low grade flour	36	<0.02	<0.02	<0.02	<0.67	
					patent flour	36	0.02	<0.02	0.02	0.67	
USA 1997	50 WG	1	0.12	0.066	grain	47	**<0.02**	**<0.02**	**<0.02**		43-97 USA-OS-FR-731-97-B
					aspir. grain fractions	47	<0.02	<0.02	<0.02		
					germs	47	<0.02	<0.02	<0.02		
					bran	47	<0.02	<0.02	<0.02		
					middlings	47	<0.02	<0.02	<0.02		
					shorts	47	<0.02	<0.02	<0.02		
					low grade flour	47	<0.02	<0.02	<0.02		
					patent flour	47	<0.02	<0.02	<0.02		

Country, Year	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor	Report No.; Study No.
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA321 113	Total		
USA 1997	50 WG	2	0.12	0.066-0.069	grain	47	**<0.02**	**<0.02**	**<0.02**		43-97 USA-OS-FR-731-97-C
					aspir. grain fractions	47	<0.02	<0.02	<0.02		
					germs	47	<0.02	<0.02	<0.02		
					bran	47	<0.02	<0.02	<0.02		
					middlings	47	<0.02	<0.02	<0.02		
					shorts	47	<0.02	<0.02	<0.02		
					low grade flour	47	<0.02	<0.02	<0.02		
					patent flour	47	<0.02	<0.02	<0.02		
USA 1997	50 WG	2	0.37	0.20-0.21	grain	47	**<0.02**	**<0.02**	**<0.02**		43-97 USA-OS-FR-731-97-D
					aspir. grain fractions	47	0.04	<0.02	0.04		
					germs	47	<0.02	<0.02	<0.02		
					bran	47	<0.02	<0.02	<0.02		
					middlings	47	<0.02	<0.02	<0.02		
					shorts	47	<0.02	<0.02	<0.02		
					low grade flour	47	<0.02	<0.02	<0.02		
					patent flour	47	<0.02	<0.02	<0.02		
USA 1997	50 WG	2	0.37	0.20-0.21	grain	47	**<0.02**	**<0.02**	**<0.02**		43-97 USA-OS-FR-731-97-E
					aspir. grain fractions	47	0.09	<0.02	0.09		
					germs	47	<0.02	<0.02	<0.02		
					bran	47	<0.02	<0.02	<0.02		
					middlings	47	<0.02	<0.02	<0.02		
					shorts	47	<0.02	<0.02	<0.02		
					low grade flour	47	<0.02	<0.02	<0.02		
					patent flour	47	<0.02	<0.02	<0.02		

Maize

In 1998 in four processing trials in the USA maize was sprayed four times either at about 0.12 kg/ha applied to the leaves, or at the 5-fold rate (0.62 kg/ha), with spray volumes ranging from 196 to 224 l/ha. Grain/kernel samples were taken on day 29 or 30 after the last application. Residues were determined in the raw agricultural commodity and in a variety of processed products.

Samples were dried to a moisture content of 10-13%. Grain dust was removed (aspiration). After screening and tempering whole corn was dry-milled and separated into hulls, germ, grits (large, medium and small), coarse meal, meal, flour, flaked germ and crude oil (after solvent extraction), refined oil, and soapstock. Wet milled corn samples were processed into hulls, germ, gluten, starch, presscake from the expeller, crude oil from the expeller, presscake after solvent extraction, refined oil, and soapstock. The detailed processing steps are shown in Figure 16. The results of the trials are summarised in Table 115.

Table 115. Trifloxystrobin residues in maize and its processed products, USA, 1998.

Report No.; Study No.	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA-321113	Total	
144-98 USA-MW-FR-151-98-B	250 EC	4	0.12	0.053	kernel	30	**<0.02**	**<0.02**	**<0.02**	
					aspirated grain fractions	30	0.05	<0.02	0.05	
					meal	30	<0.02	<0.02	<0.02	
					grits	30	<0.02	<0.02	<0.02	
					flour	30	<0.02	<0.02	<0.02	

Report No.; Study No.	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA-321113	Total	
					oil, dry milled	30	<0.02	<0.02	<0.02	
					starch	30	<0.02	<0.02	<0.02	
					oil, wet milled	30	<0.02	<0.02	<0.02	
144-98 USA-04-FR-004-98-B	250 EC	4	0.12-0.15	0.055-0.078	kernel	29	**<0.02**	**<0.02**	**<0.02**	
					aspirated grain fractions	29	0.07	<0.02	0.07	
					meal	29	<0.02	<0.02	<0.02	
					grits	29	<0.02	<0.02	<0.02	
						29	<0.02	<0.02	<0.02	
						29	<0.02	<0.02	<0.02	
					flour	29	<0.02	<0.02	<0.02	
					oil, dry milled	29	<0.02	<0.02	<0.02	
					starch	29	<0.02	<0.02	<0.02	
					oil, wet milled	29	<0.02	<0.02	<0.02	
144-98 USA-MW-FR-151-98-C	250 EC	4	0.62	0.26	kernel	30	**0.02**	**<0.02**	**0.02**	
					aspirated grain fractions	30	1.4	0.11	1.51	
					meal	30	<0.02	<0.02	<0.02	
					grits	30	<0.02	<0.02	<0.02	
					flour	30	0.02	<0.02	0.02	
					oil, dry milled	30	<0.02	<0.02	<0.02	
					starch	30	<0.02	<0.02	<0.02	
					oil, wet milled	30	0.07	<0.02	0.07	
144-98 USA-04-FR-004-98-C	250 EC	4	0.62	0.31	kernel	29	**<0.02**	**<0.02**	**<0.02**	
					aspirated grain fractions	29	0.04	<0.02	0.04	
					meal	29	<0.02	<0.02	<0.02	
					grits	29	<0.02	<0.02	<0.02	
					flour	29	<0.02	<0.02	<0.02	
					oil, dry milled	29	<0.02	<0.02	<0.02	
					starch	29	<0.02	<0.02	<0.02	
					oil, wet milled	29	0.03	<0.02	0.03	

Rice

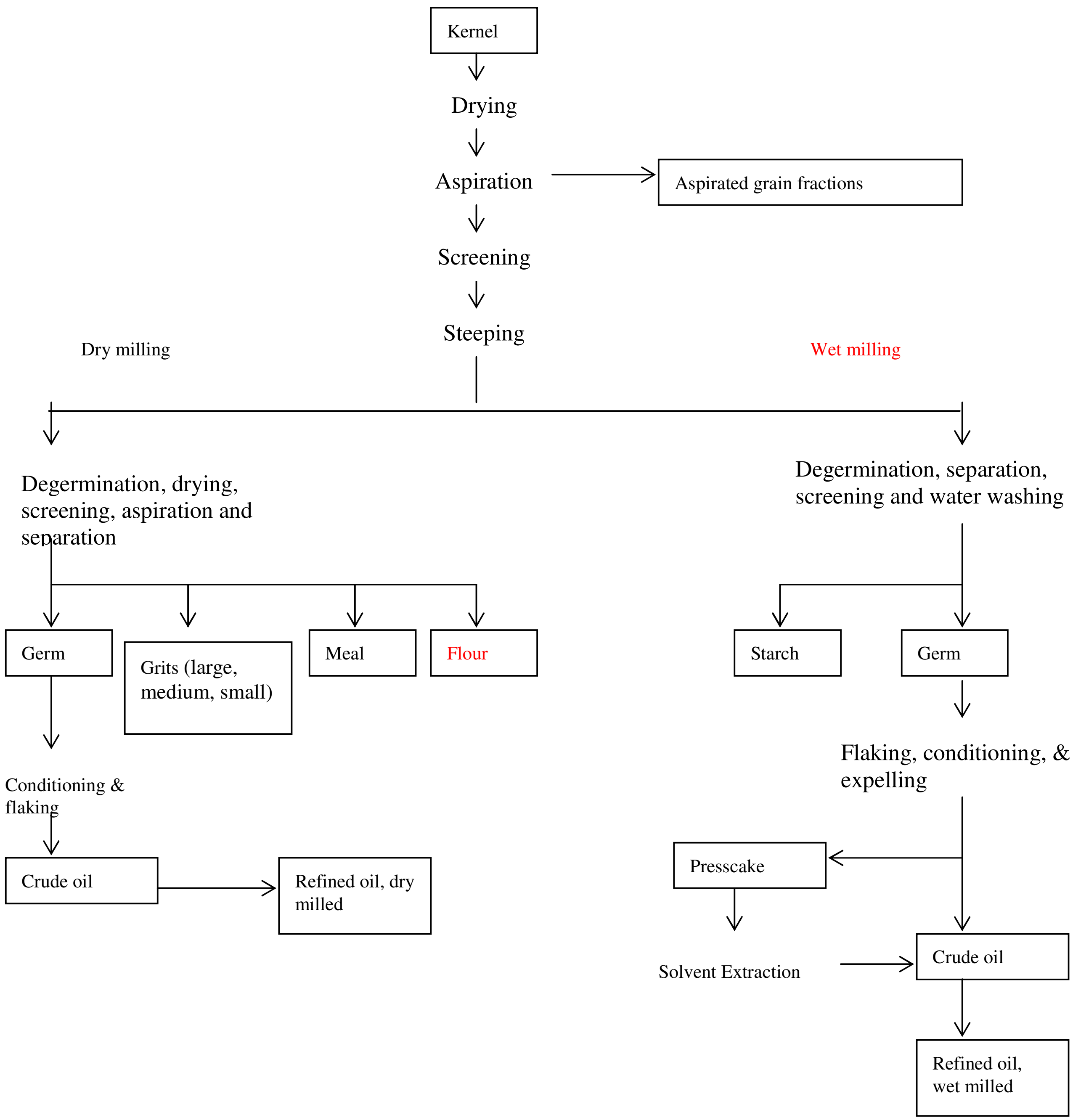
In 1998 in four US processing trials plants were foliar-sprayed twice with trifloxystrobin 50 WG either at a rate of 0.17 kg ai/ha, or at 0.865 kg ai/ha (5-fold rate), at spray volumes ranging from 140 to 196 l/ha. Grain samples were taken 35 days after the last application, and residues determined in the raw agricultural commodity and in the polished grain, hull and bran. Rough rice samples were dried to a moisture content of 11-14%. After aspiration and screening the hulls were separated from the brown rice, and the brown rice was decorticated to give bran and white milled rice (polished grain). The results of the trials are summarised in Table 116.

Table 116. Trifloxystrobin residues in rice and processed products, USA, 1998.

Report No.; Study No.	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA-321113	Total	
150-98 USA-OS-FR-105-98-A	50 WG	2	0.17	0.092	grain	35	**0.06**	**0.04**	**0.10**	
					grain, polished	35	<0.02	<0.02	<0.02	<0.2
					hull	35	0.14	0.05	0.19	1.9
					bran	35	0.09	0.05	0.14	1.4
150-98 USA-OS-FR-901-98-A	50 WG	2	0.17	0.09-0.12	grain	35	**0.04**	**0.02**	**0.06**	
					grain, polished	35	<0.02	<0.02	<0.02	<0.33
					hull	35	0.19	0.04	0.23	3.8
					bran	35	0.06	0.05	0.11	1.8
150-98 USA-OS-FR-	50 WG	2	0.87	0.46	grain	35	**0.50**	**0.15**	**0.65**	
					grain, polished	35	<0.02	0.06	0.08	0.125

Report No.; Study No.	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA-321113	Total	
105-98-B					hull bran	35 35	1.6 0.48	0.27 0.17	1.9 0.65	2.9 1
150-98 USA-OS-FR-901-98-B	50 WG	2	0.87	0.44-0.62	grain grain, polished hull bran	35 35 35 35	**0.29** <0.02 1.4 0.34	**0.11** 0.04 0.22 0.20	**0.40** <0.02 1.6 0.54	 <0.05 4 1.4

Figure 16. Processing of maize to meal, flour and oil.



Cotton

In two US processing studies cotton was treated once with trifloxystrobin 50 WG either at 0.14 kg ai/ha (1-fold rate) or 5-fold rate (0.7 kg ai/ha). Samples were processed to refined oil. Residues in all samples of the raw agricultural commodity, gin trash and refined oil were below the limit of quantification (0.05 mg/kg), so no processing factors could be calculated. The results of the trials are summarised in Table 117.

Table 117. Trifloxystrobin residues in cotton and processed products, USA, 1999.

Report No.; Study No.	Application				Sample	PHI (days)	Residues (mg/kg)		
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA-321113	Total
110786 USA-0S-FR-308-99-A	50 WG	1	0.14	0.15	seed oil, refined	152 152	**<0.05** <0.05	**<0.05** <0.05	**<0.05** <0.05
110786 USA-0S-FR-308-99-B	50 WG	1	0.70	0.75	seed oil, refined	152 152	**<0.05** <0.05	**<0.05** <0.05	**<0.05** <0.05

Peanut

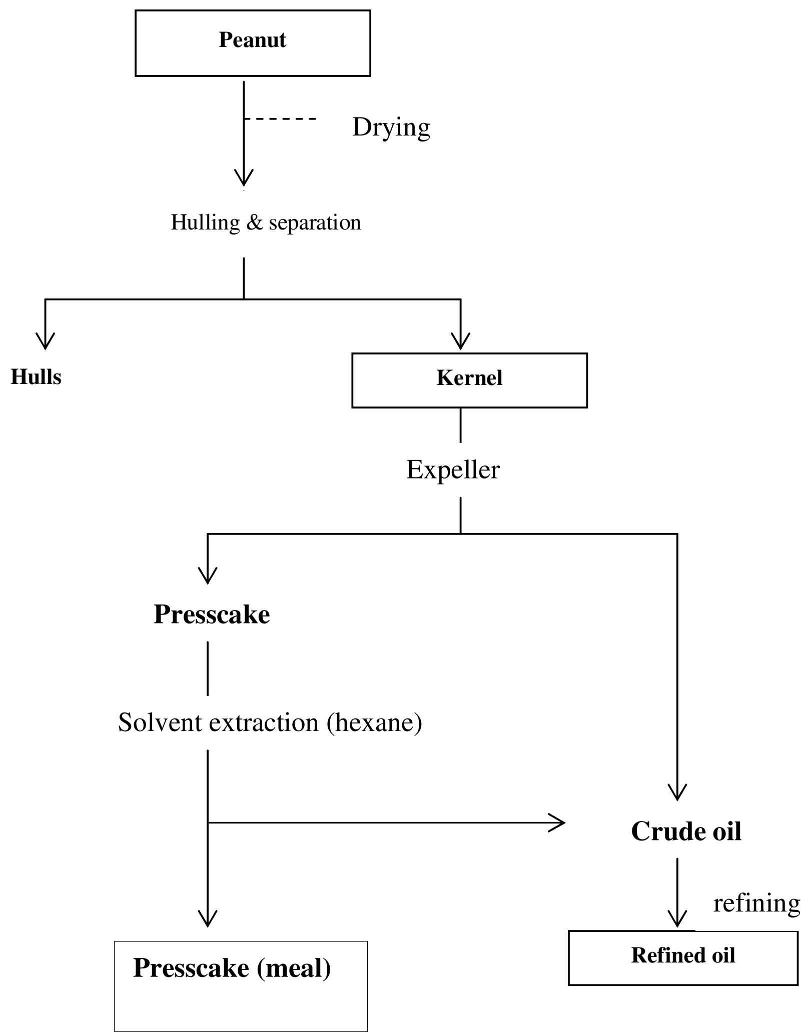
In 1996 in four US processing trials plants were sprayed eight times with trifloxystrobin 50 WG either at a rate of 0.14 kg ai/ha or at 0.42 kg ai/ha (3-fold rate), with spray volumes of about 187 l/ha. Peanut samples were taken 14 days after the last application. Because residues determined in the kernels were below the LOQ, processing factors could not be calculated.

Whole peanuts were dried to a moisture content of 7-12% (hull). After aspiration and screening the nuts were shelled to separate the kernels and the kernels dried to a final moisture of 7-10%, then heated and pressed in an expeller to crude oil and presscake (meal). Oil was refined. The detailed processing steps are shown in Figure 17. The results of the trials are summarised in Table 118.

Table 118. Trifloxystrobin residues in peanuts and their processed products, USA, 1996.

Report No.; Study No.	Application				Sample	PHI (days)	Residues (mg/kg)		
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA-321113	Total
53-96 USA-OS-FR-842-96-B	50 WG	8	0.14	0.075-0.076	meat meal oil, refined	14 14 14	**<0.02** <0.02 <0.02	**<0.02** <0.02 <0.02	**<0.02** <0.02 <0.02
53-96 USA-OS-FR-842-96-C	50 WG	8	0.42	0.23	meat meal oil, refined	14 14 14	**<0.02** <0.02 <0.02	**<0.02** 0.06 <0.02	**<0.02** 0.08 <0.02
53-96 USA-OS-FR-314-96-B	50 WG	8	0.14	0.075	meat meal oil, refined	14 14 14	**<0.02** <0.02 <0.02	**<0.02** <0.02 <0.02	**<0.02** <0.02 <0.02
53-96 USA-OS-FR-314-96-C	50 WG	8	0.42	0.23	meat meal oil, refined	14 14 14	**<0.02** <0.02 <0.02	**<0.02** 0.08 <0.02	**<0.02** 0.10 <0.02

Figure 17. Processing of peanut to (kernels) meal and oil.



Hops

In 1996 in a trial in Germany to investigate the effects of processing on residue levels in processed hop commodities trifloxystrobin 50 WG was applied four times to plants at a rate of 0.75 to 1.0 kg/ha, equivalent to 0.38 to 0.50 kg ai/ha. The spray rate was adjusted to plant height (max. volume 5000 l/ha). Samples of cones were taken at the recommended PHI of 14 days. The processing steps are the same as those shown in Figure 15 for barley. The results are summarised in Table 119.

Table 119. Trifloxystrobin residues in hops and their processed products, Germany, 1996.

Report No.; Study No.	Application				Sample	PHI (days)	Residues (mg/kg)			Proc. factor
	Form	No	kg ai/ha	kg ai/hl			trifloxy-strobin	CGA-321113	Total	
gr01796 BRD-gr01796	50 WG	4	0.38-0.50	0.013	cone, dried	14	**15.7**	**1.98**	**17.7**	
					brewer's malt	14	<0.02	<0.02	<0.02	
					spent hops	14	0.68	0.04	0.72	0.04
					wort	14	<0.02	<0.02	<0.02	
					beer, young	14	<0.02	<0.02	<0.02	
					yeast	14	0.08	0.04	0.12	0.007
					beer	14	<0.02	<0.02	<0.02	<0.001

Summary

The processing factors calculated from the total residues (sum of trifloxystrobin and CGA321113) are shown in Table 120.

Table 120. Summary of processing factors. Data are from trials recorded in Tables 101–119.

RAC	Processed product	Processing factors (PF)	No.	Mean proc. factor
Orange	juice	<0.038, <0.04, <0.15, <0.33, <0.4	5	<0.19
	oil	66, 113, 138, 166, 166	5	130
	pulp, dry	1.34, 2.38, 3, 5.2, 5.2	5	3.4
Apple, Pear	juice	0.036, 0.07, 0.103, <0.12, <0.15, <0.29, <0.33	7	0.16
	sauce/preserve	0.13, <0.15, 0.31, 1.33,	4	0.48
	fruit, dried	<0.15, 0.62	2	0.39
	pomace, wet	2.69, 5.2, 6.6, 11.2, 12.1, 18.6	6	9.4
	pomace, dried	25.6	1	25.6
Plum	dried prune	1.34, 1.43, 1.55, 1.73	4	1.5
Peach	preserve	<0.05	1	<0.05
Grapes	juice	<0.08, 0.08, 0.09, <0.11, <0.11, 0.13, <0.15, 0.167, 0.167, 0.18, <0.22, <0.5, <0.67, <0.67	14	0.24
	must	0.057, 0.079, 0.085, 0.091, 0.091, 0.128, 0.135, 0.14, 0.14, <0.15, 0.252, 0.29, 0.32, 0.375, 0.47, 0.485, 0.528, 0.576, 0.6, 0.636, 0.69, 0.72, 0.76, 0.805, 0.898, 1.28, 1.64	27	0.46
	wine	0.015, <0.016, <0.02, <0.02, <0.028, <0.03, <0.034, <0.045, 0.047, <0.05, <0.057, 0.068, <0.08, 0.082, 0.09, <0.091, 0.106, <0.11, <0.11, <0.125, <0.125, <0.125, <0.125, <0.13, <0.15, <0.15, 0.16, 0.16, <0.22, <0.22, <0.268, <0.4 , <0.5, <0.67, <0.67	35	0.15
	fruit, dried	0.58, 2.48, 3, 3.25	4	2.3
	pomace, wet	2.25	1	2.25
Strawberry	preserve	0.25, 0.33	2	0.29
	jam	0.58, 0.667	2	0.62
Tomato	paste	1.0, 1.16, 1.39, 1.57, 2.83	5	1.6
	purée	<0.17, 0.33, 0.424, 0.71, 1.18	5	0.56
Potato	flakes	<0.33, <0.5	2	<0.42
	chips	<0.33, <0.5	2	<0.42
	peel rest	2.0, 2.5	2	2.3
Sugar beet	white sugar	<0.17, <0.18	2	<0.18
	dried pulp	1.91, 4.92	2	3.4
	molasses	1.18, 1.83	2	1.5
Barley	beer	<0.04	1	0.04
Wheat	bran	2.67, 2.75	2	2.7
	germ	<0.67	1	<0.67
	meal/flour	<0.125, 0.67	2	0.4
	whole meal	0.5	1	0.5
	whole meal bread	0.25	1	0.25
Rice	polished grain	<0.05, 0.125, <0.2, <0.33	4	0.18
	hull	1.9, 2.9, 3.8, 4.0	4	3.2
	bran	1.0, 1.4, 1.4, 1.8	4	1.4
Hops	spent hops	0.04	1	0.04
	yeast	0.007	1	0.007
	beer	<0.001	1	<0.001

RESIDUES IN ANIMAL COMMODITIES

Direct animal treatment

No study reported.

Farm animal feeding studies

Dairy cattle

A feeding study (Campell, 1997; Report No. ABR-97075) was conducted with three groups (each consisting of 3 cows plus a control cow) of lactating Holstein cows were dosed daily for 28 to 30 days with trifloxystrobin in gelatine capsules (random samples analysed to assess conformity and stability) at target rates of 2 ppm (1X), 6 ppm (3X), and 20 ppm (10X) in the diet. Actual rates were very close to the targets at 2 ppm, 5.9 ppm, and 21 ppm respectively. The 1X level ranged from 0.061 to 0.067 mg/kg/bw. Milk was sampled throughout the study and the cows were killed twenty to twenty-four hours after the final dose.

Tissue and milk samples were analysed by method AG 659, which determines trifloxystrobin and its acid metabolite CGA321113 by capillary gas chromatography using nitrogen/phosphorus detection (NPD), after acetonitrile/water extraction and solvent partition plus clean-up on C-18 solid-phase extraction cartridge. The LOQ was 0.01 mg/kg for milk and 0.02 mg/kg for tissues for each analyte.

Analysis of capsules on days 0 and 29 indicated that nominal dosages were achieved and no significant degradation had occurred during the study. Recoveries ranged from 95% to 121% (average 109%). Residues of trifloxystrobin and CGA321113 were undetectable in the milk (<0.02 mg/kg total, expressed as trifloxystrobin), round muscle (<0.04 mg/kg), and tenderloin (<0.04 mg/kg) at all feeding levels. Maximum residues of CGA321113 were 0.09 mg/kg and 0.02 mg/kg in the liver and kidney respectively at the high dose, and total residues of the parent compound and its metabolite were below the LOQ (<0.04 mg/kg) at the other two levels. Maximum residues of 0.06 mg/kg and 0.05 mg/kg, as intact trifloxystrobin, were found in perirenal fat and omental fat respectively at the high dose level. A single perirenal fat sample at the middle level contained a residue equivalent to 0.05 mg/kg: this was anomalous, as it was the only fat sample in which CGA321113 was detected (at the LOQ, 0.02 mg/kg). The corresponding trifloxystrobin residue was 0.03 mg/kg. Since no residues were detected in the samples from the other two animals in this group, and the level of trifloxystrobin was similar to that found at the high dose, this single fat residue is suspect. Resdiues were undetectable on re-analysis. The maximum residues are shown in Table 121, and individual results at the high feeding level are given in Table 122.

Table 121. Maximum residues detected in dairy cows dosed with trifloxystrobin for 28 to 30 days (Campell, 1997; Report No. ABR-97075).

Sample	Day	Maximum trifloxystrobin residues (mg/kg)								
		Dose 2 ppm (1X)			Dose 5.9 ppm (3X)			Dose 21 ppm (10X)		
		parent	321113	Total[1]	parent	321113	Total[1]	parent	321113	Total[1]
Milk	0	-	-	-	-	-	-	<0.01	<0.01	<0.02
	1	-	-	-	-	-	-	<0.01	<0.01	<0.02
	3	-	-	-	-	-	-	<0.01	<0.01	<0.02
	7	-	-	-	-	-	-	<0.01	<0.01	<0.02
	14	-	-	-	-	-	-	<0.01	<0.01	<0.02
	21	-	-	-	-	-	-	<0.01	<0.01	<0.02
	26	-	-	-	-	-	-	<0.01	<0.01	<0.02
Liver	28-30	<0.02	<0.02	<0.04	<0.02	<0.02	<0.04	<0.02	0.09	0.11
Kidney	28-30	<0.02	<0.02	<0.04	<0.02	<0.02	<0.04	<0.02	0.02	0.04

Sample	Day	Maximum trifloxystrobin residues (mg/kg)								
		Dose 2 ppm (1X)			Dose 5.9 ppm (3X)			Dose 21 ppm (10X)		
		parent	321113	Total[1]	parent	321113	Total[1]	parent	321113	Total[1]
Perirenal fat	28-30	<0.02	<0.02	<0.04	(0.03)[2]	(0.02)[2]	(0.05)[2]	0.06	<0.02	0.08
Omental fat	28-30	<0.02	<0.02	<0.04	<0.02	<0.02	<0.04	0.05	<0.02	0.07
Round	28-30	-	-	-	-	-	-	<0.02	<0.02	<0.04
Tenderloin	28-30	-	-	-	-	-	-	<0.02	<0.02	<0.04

[1]Total residues expressed as trifloxystrobin equivalents.
[2] Residues found in only one of three animals. Re-analysis of the sample showed no detectable residues.

Table 122. Single residues found in the tissues of dairy cows dosed with 21 ppm trifloxystrobin for 28 to 30 days (Campell, 1997; Report No. ABR-97075).

Sample	Cow No./sample	Residues mg/kg		
		parent	321113	Total
Round muscle	4A	<0.02	<0.02	<0.04
	4B	<0.02	<0.02	<0.04
	4C	<0.02	<0.02	<0.04
Tenderloin muscle	4A	<0.02	<0.02	<0.04
	4B	<0.02	<0.02	<0.04
	4C	<0.02	<0.02	<0.04
Omental fat	4A	0.05	<0.02	0.07
	4B	0.03	<0.02	0.05
	4C	0.04	<0.02	0.06
Perirenal fat	4A	0.06	<0.02	0.08
	4B	0.03	<0.02	0.05
	4C	0.04	<0.02	0.04
Liver	4A	<0.02	0.04	0.06
	4B	<0.02	0.09	0.11
	4C	<0.02	0.05	0.07
Kidney	4A	0.02	<0.02	0.04
	4B	0.02	<0.02	0.04
	4C	<0.02	<0.02	<0.04

Poultry

A three-level poultry feeding study (1.5 ppm, 4.5 ppm and 15 ppm in the diet) on laying hens was conducted with trifloxystrobin in the USA in 1998 (Hayworth, 1999; Report No. 243-98). Eggs were collected before dosing (day 0), and on dose-days 1, 3, 7, 14, 21, and 28 days, and the hens killed on day 29. Composite tissue samples of breast plus thigh, skin plus attached fat, peritoneal fat, and liver and eggs were analysed according to method AG 659A. No residues (<0.02 mg/kg) were detected in any of the eggs, tissues or organs taken from the hens at the highest treatment level of 15 mg/kg.

RESIDUES IN FOOD IN COMMERCE OR CONSUMPTION

No data reported.

NATONAL MAXIMUM RESIDUE LIMITS

Definition of the residue: trifloxystrobin (otherwise indicated by ①)
Status February 2004, except European Community Status June 2004.

Country / Commodity		MRL mg/kg	Comments	
Australia				published
Bananas		0.1 T	①	
Grapes		0.5	①	
Grapes	dried	2	①	
Edible offal	(mammalian)	0.05	① Level at or about the LOQ	
Meat	(mammalian)	0.05	① Level at or about the LOQ	
Milks		0.02	① Level at or about the LOQ	
Pome fruit		0.3	①	
Pome fruit pomace	dry	15	①	
Austria				published
Barley		0.2		
Grape		2		
Hop		50		
Pome fruit		0.5		
Rye		0.5		
Triticale		0.5		
Wheat		0.05		
Others		0.02	Level at or about the LOQ	
Belgium				published
Apple		0.5		
Banana		0.05 I		
Barley		0.2		
Citrus		0.3 I		
Milk		0.00	Before the LOQ (0.01 mg/kg)	
Pear		0.5		
Wheat		0.05		
Other plant commodities		0.00	Before the LOQ (0.02 mg/kg)	
Other food of animal origin except milk		0.00	① Before the LOQ (0.02 mg/kg)	
Brazil				published
Bean		0.2		
Coffee		0.05		
Corn		0.05		
Cotton		0.05		
Peanut		0.05		
Rice		0.2		
Soya		0.05		
Wheat		0.05		
Canada				published
Almond		0.04	①	
Barley		0.05	①	
Beet, sugar		0.1	①	
Vegetables, Cucurbits		0.5	①	
Vegetables, Fruiting		0.5	①	
Grape		2	①	
Grape	raisin	5	①	
Meat, meat by-products and fat of cattle, goat, hog, horse and sheep		0.04	①	
Meat, meat by-products and fat of poultry, eggs		0.04	①	
Milk		0.02	①	
Oat		0.05	①	
Pome fruit		0.5	①	
Potato	tuber	0.04	①	
Wheat	grain	0.05	①	
European Community			SANCO/10587/2003rev7	published
Banana		0.05	Brussels, 17.06.2004	
Other miscellaneous fruits		0.02*		
Citrus fruits		0.3	* indicates lower limit of analytical determination	
Tree nuts		0.02*		
Pome fruit		0.5		
Apricot		1	<u>all EU-MRLs are provisional</u>	

Country / Commodity		MRL mg/kg	Comments	
Cherries		1	in accordance with Article 4(1)(f) of Directive 91/414/EEC: unless amended, this level will become definitive with effect from [4 years from date of coming into force of the Directive]	
Peach		1		
Other stone fruits		0.02*		
Table and wine grapes		5		
Strawberries		0.02*		
Cane fruit		0.02*		
Currants		1		
Gooseberries		1		
Other berries and small fruits		0.02*		
Root and tuber vegetables		0.02*		
Bulb vegetables		0.02*		
Tomatoes		0.5		
Other solanacea		0.02*		
Sweet corn		0.02*		
Cucurbits edible peel		0.2		
Melons		0.3		
Other cucurbits inedible peel		0.02*		
Sweet corn		0.02*		
Brassica vegetables		0.02*		
Leafy vegetables and fresh herbs		0.02*		
Legume vegetables		0.02*		
Stem vegetables		0.02*		
Fungi		0.02*		
Pulses		0.02*		
Oil seeds		0.05*		
Potatoes		0.02*		
Tea		0.05*		
Hops		30		
Cereals				
Barley		0,3		
Rye		0,05		
Triticale		0.05		
Wheat		0.05		
Other cereals		0.02*		
France				published
Barley		0.2		
Cucumber		0.2		
Grape		3		
Grape	wine	0.3		
Pome fruit		0.5		
Melon		0.2		
Wheat		0.05		
Germany				published
Barley		0.2		
Currant		1		
Gooseberry		1		
Grape		2		
Hop		30		
Others		0.02		
Peach		0.5 I		
Pome fruit		0.5		
Rye		0.05		
Tea		0.05		
Triticale		0.05		
Wheat		0.05		
Israel				published
Cucumber		0.1		
Grape		1		
Peach		0.7		
Strawberry		0.2		
Tomato		0.2		
Italy				published
Apple		0.5		

Country / Commodity		MRL mg/kg	Comments	
Banana		0.1 I		
Barley		0.2		
Beet, sugar		0.05		
Cucumber		0.2		
Courgette		0.2		
Grape		3		
Grape	wine	0.3		
Melon		0.2		
Melon, water		0.2		
Pear		0.5		
Wheat		0.05		
Luxembourg				published
Apple		0.5		
Barley		0.2		
Grape		2		
Pear		0.00	Before the LOQ (0.02 mg/kg)	
Rye		0.00	Before the LOQ (0.02 mg/kg)	
Triticale		0.00	Before the LOQ (0.02 mg/kg)	
Wheat		0.2		
Netherlands				published
Barley		0.2		
Wheat		0.05		
Pome fruit		0.5		
South Africa				published
Apple		0.1		
Citrus fruit		0.1		
Grape		0.5		
Pear		0.1		
Spain				published
Barley		0.2		
Beet, sugar		0.02	Before the LOQ (0.02 mg/kg)	
Beet, sugar	leaves and tops	0.2		
Cereal	straw	3		
Cucumber		0.2		
Courgette		0.2		
Grape		5		
Melon		0.5		
Peach and nectarine		0.5		
Pome fruit		1		
Wheat		0.05		
Others		0.02	Level at or about the LOQ	
Switzerland				published
Banana		0.02 I		
Barley		0.2		
Beet, garden		0.02		
Beet, sugar		0.02		
Brassica vegetables		0.5		
Carrot		0.1		
Celeriac		0.1		
Celery		0.5		
Chicory, witloof		0.1		
Cucumber		0.2		
Grape		3		
Grape	wine	0.3		
Leek		0.5		
Melon		0.02		
Onion		2		
Berry fruit (except grape)		2		
Pome fruit		0.5		
Rye		0.05		
Stone fruit		0.5		
Triticale		0.05		
Wheat		0.05		

Country / Commodity		MRL mg/kg	Comments	
Taiwan				published
Pears		0.05		
Stone fruit		0.05		
UK				published
Apple		0.3	temporary until EU harmonisation	
Barley		0.5	temporary until EU harmonisation	
Cherry		2 I		
Citrus		0.3 I		
Pear		0.3	temporary until EU harmonisation	
Tomato		1 I		
Wheat, winter		0.02		
USA				published
Almond	nut without shell	0.04	①	
Almond	hulls	3	①	
Apple	pomace, dried	5	①	
Banana		0.1	①	
Beet, sugar	dried pulp	0.4	①	
Beet, sugar	molasses	0.2	①	
Beet, sugar	root	0.1	①	
Beet, sugar	tops	4	①	
Cattle	fat	0.05	①	
Cattle	meat	0.05	①	
Cattle	meat by-products	0.05	①	
Citrus	fruit (group 10)	0.3	①	
Citrus	dried pulp	0.8	①	
Citrus	oil	30	①	
Cereals	aspirated grain fractions	5	①	
Corn	field, forage	0.2	①	
Corn	field, grain	0.05	①	
Corn	field, refined oil	0.1	①	
Corn	field, stover	7	①	
Corn	pop, grain	0.05	①	
Corn	pop, stover	7	①	
Egg		0.04	①	
Goat	fat	0.05	①	
Goat	meat	0.05	①	
Goat	meat by-products	0.05	①	
Grape		2	①	
Grape	raisin	5	①	
Hop	cone, dried	11	①	
Horse	fat	0.05	①	
Horse	meat	0.05	①	
Horse	meat by-products	0.05	①	
Milk		0.02	①	
Nut, tree	(group 14)	0.04	①	
Peanut		0.05	①	
Peanut	hay	4	①	
Pistachio		0.04	①	
Pig	fat	0.05	①	
Pig	meat	0.05	①	
Pig	meat by-products	0.05	①	
Pome fruit		0.5	①	
Potato	tuber	0.04	①	
Poultry	fat	0.04	①	
Poultry	meat	0.04	①	
Poultry	meat by-products	0.04	①	
Stone fruit except cherry	(group 12)	2	①	
Rice	grain	3.5	①	
Rice	hulls	8	①	
Rice	straw	7.5	①	

Country / Commodity		MRL mg/kg	Comments	
Sheep	fat	0.05	①	
Sheep	meat	0.05	①	
Sheep	meat by-products	0.05	①	
Vegetable, curcurbit	(group 9)	0.05	①	
Vegetable, fruiting	(group 8)	0.05	①	
Wheat	bran	0.15	①	
Wheat	forage	0.3	①	
Wheat	grain	0.05	①	
Wheat	hay	0.2	①	
Wheat	straw	5	①	

① Residue definition: sum of trifloxystrobin and CGA321113, calculated as trifloxystrobin
I: Import tolerance
T: Temporary MRL

Cucurbit vegetables (Crop Group 9) includes balsam apple, balsam pear, cantaloupe, chayote, cucumber, cucumber (chinese), gherkin (west indian), gourd (edible), melon, melon (citron), muskmelon, pumpkin, squash, squash (summer, winter), watermelon and waxgourd (chinese))

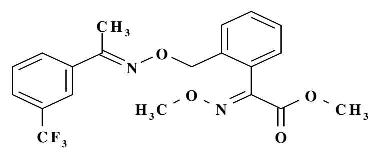
Fruiting vegetables (Crop Group 8) includes chili, eggplant, groundcherry, pepino, pepper, pepper (bell, nonbell, nonbell (sweet)), tomatillo and tomato)

Pome fruits (Crop Group 11) includes apple, crabapples, loquat, mayhaw, pear, pear oriental and quince)

APPRAISAL

The residue and analytical aspects of trifloxystrobin were considered for the first time by the present Meeting.

Trifloxystrobin, a member of the strobilurin group, is a broad-spectrum contact fungicide for foliar use; it has meso-systemic properties. The mode of action of strobilurins involves inhibition of mitochondrial respiration by blockage of the electron transfer chain. The fungicidal properties of trifloxystrobin are derived from the parent ester, and the acid (the main metabolite) is essentially inactive. Trifloxystrobin has registered uses on horticultural crops, vegetables and cereals in many countries.



IUPAC name:	methyl (*E*)-methoxyimino-{(*E*)-α-[1-(α,α,α-trifluoro-*meta*-tolyl)ethylidene-aminooxy]-*ortho*-tolyl}acetate
Chemical Abstracts name:	methyl (α*E*)-α-(methoxyimino)-2-[[[(*E*)-[1-[3-(trifluoromethyl)phenyl]-ethylidene]amino]oxy]methyl]benzeneacetate

The Meeting received information on the metabolism and environmental fate of trifloxystrobin, methods of residue analysis, stability in freezer storage, national registered use patterns, the results of supervised residue trials, the results of farm animal feeding studies, fate of residues in processing and national MRLs.

Trifloxystrobin is a white powder which melts at 73 °C. It is not highly volatile (vapour pressure, 3×10^{-6} Pa). It does not dissociate and is only slightly water-soluble (0.6 mg/l). The log P_{OW}

is 4.5, suggesting that bioaccumulation may occur. Trifloxystrobin is hydrolytically stable at environmental pHs, but photochemical degradation was shown to occur. The active technical substance is not considered to be explosive or inflammable.

Metabolism

Animals

The metabolism of trifloxystrobin was investigated in rats, goats and poultry, and the metabolic pathways were comparable in the three species. The studies were performed with ^{14}C-trifloxystrobin labelled uniformly in one of the two phenyl rings, [glyoxylphenyl-U^{14}C]trifloxystrobin and [trifluoromethylphenyl-U^{14}C]trifloxystrobin, each compound being administered separately. The name [glyoxylphenyl-U^{14}C]trifloxystrobin was introduced during the development of trifloxystrobin to reflect the route of synthesis of radiolabelled material.

After oral administration to *rats* of each sex, rabiolabelled trifloxystrobin was rapidly and appreciably absorbed (35–65% of dose). Faeces was the main route of elimination (63–84%), some of which was through bile (30–45%) while only one-third or less of the administered dose was excreted in urine and none in expired air. There was near-complete degradation of trifloxystrobin after a single low dose of 0.5 mg/kg bw; however, after a dose of 100 mg/kg bw, up to 45% was eliminated unchanged in faeces. The pattern of metabolites in rats is complex: about 35 metabolites were isolated from urine, faeces and bile and identified. The main steps in the metabolic pathway include hydrolysis of the methyl ester to the corresponding acid, *O*-demethylation of the methoxyimino group, yielding a hydroxyimino compound, and oxidation of the ethylideneamino methyl group to a primary alcohol and then to the corresponding carboxylic acid. These stepa are followed by a complex pattern of further, minor reactions. Cleavage between the two phenyl rings accounted for about 10% of the dose.

Lactating *goats* were given diets containing [glyoxylphenyl-U^{14}C]trifloxystrobin or [trifluoromethylylphenyl-U^{14}C]trifloxystrobin at an equivalent of 100 ppm for 4 days and were slaughtered 6 h after the last dose. Up to 20% of the applied dose was excreted in urine and 45% in faeces, while 0.05–0.08% of the total dose was eliminated in milk, corresponding to about 0.1 mg/kg trifloxystrobin equivalents, and a plateau was reached after 48 h.

Most tissue residues were found in liver, bile and kidney, accounting for 0.28–0.57%, 0.07–0.24% and 0.026–0.052% of the applied dose respectively. These values correspond to 2.6–5.2 mg/kg, 29–77 mg/kg and 1.7–2.9 mg/kg as trifloxystrobin equivalents. Lower levels were found in fat, muscle and blood. The main components of the residue were the parent compound, its carboxylic acid, CGA321113 (chemical name: *(E,E)*-methoxyimino-{2-[1-(3-trifluoromethyl-phenyl)ethylideneaminooxymethyl]phenyl}acetic acid) and taurine and glycine conjugates of CGA321113. The amino acid conjugates were the main residue components in the liver (up to 28% of the TRR). These metabolites were not considered to be of toxicological concern. CGA321113 was the main radioactive residue in muscle (up to 57% of the TRR) and kidney (up to 74% of the TRR), and trifloxystrobin was the principal component in milk (up to 74% of the TRR) and fat (up to 82% of the TRR).

Hens were given diets containing trifloxystrobin at an equivalent of 100 ppm in the diet for 4 days and were killed 6 h after the last dose. Up to 0.16% and 87% of the applied dose were eliminated in eggs and excreta respectively. A plateau was not reached in egg yolk. The residue levels appeared to be increasing rapidly at the end of the study.

Eggs contained 0.1–0.2% of the applied dose. The maximum concentration in egg white was 0.56 mg/kg, and that in egg yolk was 2.3 mg/kg as trifloxystrobin equivalents. Lean meat contained 0.11–0.22% of the dose (0.13–0.35 mg/kg trifloxystrobin equivalents); skin and attached fat 0.14–0.39% (0.8–1.8 mg/kg); peritoneal fat, 0.07–0.21% (1.9–2.7 mg/kg); kidney, 0.11–0.25% (6–13 mg/kg); and liver, 0.28–0.68% (3.8–8.6 mg/kg). The TRR (including that in intestine and gizzard) was 78–91%.

Characterization of the radioactive tissue residues revealed that parent trifloxystrobin was a major residue in muscle (up to 28% of the TRR), fat and skin (up to 55% of the TRR) and egg yolk (up to 9% of the TRR) of laying hens. The carboxylic acid derivative (CGA321113) was the main residue in egg white (up to 26% of the TRR) and liver (up to 5.1% of the TRR).

Plants

The metabolism of trifloxystrobin in plants was investigated in wheat, apples, cucumbers, sugar beet and peanuts with ^{14}C-trifloxystrobin applied by spray. Although the number of metabolite fractions differed in the different plants, the metabolic pathways in these the crops were comparable.

In mature *wheat*, the highest TRRs were found in straw (3.85 mg/kg trifloxystrobin equivalents), followed by husks (0.14 mg/kg) and grain (0.02 mg/kg). The composition of the TRRs was complex; trifloxystrobin and its isomers constituted less than 5%.

Studies on wheat showed that the absorption of trifloxystrobin by plants was relatively rapid, with about 15% of the TRR appearing within the first 24 h, 29% within 3 days and 44% within 14 days. Characterization of the surface radioactivity in wheat revealed that trifloxystrobin is relatively stable to photodegradation, accounting for up to about 80% of the surface radioactivity after 14 days. In contrast, absorbed residue appeared to undergo rapid degradation: the trifloxystrobin concentration decreased exponentially, with an apparent half-life of 12 h. Up to 35 metabolite fractions were found in wheat, most of which constituted less than 1% of the TRR.

In *apple*, 14 days after treatment, the main residue component was the parent compound trifloxystrobin (*E*,*E* isomer), which, together with its *Z,Z*, *Z,E* and *E,Z* isomers, constituted about 92% of the residue.

In the leaves and fruits of *cucumber*, the residue consisted of trifloxystrobin (80–93% of the TRR), isomers of trifloxystrobin (2.3–3.8% of the TRR) and CGA321113 (0.9–4.2% of the TRR).

In *sugar-beet*, the main compounds found, with both labels, in the tops and roots were trifloxystrobin and its *E,Z* and *Z,Z* isomers. They accounted for up to 69% of the TRR in tops (1.1 mg/kg trifloxystrobin) and 52% in roots (0.02 mg/kg trifloxystrobin). CGA321113 represented up to 5.2% (0.073 mg/kg) and up to 11% (0.012 mg/kg) of the TRR in tops and roots respectively.

In *peanut*, many metabolite fractions containing only one moiety of the parent molecule were detected, generally similar to those found in wheat. Extensive formation of sugar and malonyl sugar conjugates was found in most metabolite fractions. In vines, the percentage of extractable radioactive residues (acetonitrile:water) amounted to 91% of the TRR. Extractable residues represented up to 74% in mature hay and up to 53% in kernels. The unextracted residues were solubilized by hot extraction and sequential hydrolyses with cellulase, protease, HCl and NaOH. The radioactive residues that remained unextracted under these exhaustive conditions represented < 10% of the TRR.

In general, the metabolism of trifloxystrobin in crops is complex, owing to isomerization of the parent compound and its metabolites. Overall, the metabolism of trifloxystrobin is similar in all crops and involves the following steps:

- *cis–trans* isomerization of trifloxystrobin (*E,E*- isomer) to its *E,Z*-, *Z,Z* and *Z,E*- isomers
- hydrolysis of the methyl esters of the parent and its isomers to carboxylic acids
- *cis–trans* isomerization of the *E,E*-carboxylic acid CGA321113
- hydroxylation of the trifluoromethylphenyl ring, followed by sugar conjugation
- oxidation of the methyl of the 2-ethylideneamino group with subsequent sugar conjugation
- cleavage of the N–O bridge, followed by oxidation of the trifluoromethylphenyl moiety to form the acetophenone derivative, with subsequent sugar conjugation

- cleavage of the N–O bridge, followed by oxidation of the glyoxylphenyl moiety, with eventual formation of phthalic acid
- formation of unextracted residues.

Environmental fate

Water–sediment systems

Because trifloxystrobin is used for foliar spray treatment and on paddy rice, only studies of hydrolysis and degradation in water–sediment systems were considered.

Trifloxystrobin is relatively stable hydrolytically under sterile neutral and weakly acid conditions, whereas under alkaline conditions hydrolytic degradation increases with increasing pH. The acid CGA321113 formed under alkaline conditions is not degraded hydrolytically. No ring cleavage is observed at pH ≥ 5.

In biologically active aquatic systems such as a paddy rice plot, trifloxystrobin was rapidly degraded in both flooding water and paddy soil, with a maximum half-life of 2–5 days. As in sterile hydrolysis, the main product in a paddy rice field was the acid CGA321113. While this metabolite is stable to sterile hydrolysis, it was rapidly degraded in the rice plot, with degradation half-lives of 7–8 days in flooding water and paddy soil. Besides CGA321113, formed by biotic hydrolysis, isomerization of the parent compound and CGA321113 occurred, resulting in formation of the parent *Z,E*- isomer CGA357261 in small amounts and the acid *Z,E*- isomer CGA373466 in large amounts. CGA373466 degraded rapidly in the water layer, with a half-life of 4.2 days. A half-life with reasonable significance could not be estimated for CGA357261 owing to the very low concentrations in the range of the LOQ.

The photolytic half-lives of trifloxystrobin in sterile aqueous buffered solutions at 25 °C under a xenon arc light (12 h light–12 h dark cycle) were 20.4 h at pH 5 and 31.5 h at pH 7. The corresponding predicted environmental half-lives in summer sunlight at a geographical latitude of 40° N were 1.1 and 1.7 days at pH 5 and pH 7 respectively.

Rotational crops

The Meeting received the results of confined crop rotation studies with ^{14}C-trifloxystrobin with both labels and from crop rotation trials with unlabelled trifloxystrobin. In some trials, a first crop was treated with trifloxystrobin, while in others bare ground was treated directly with trifloxystrobin as an extreme case for residues in soil from the first crop. The normal rotation was a first crop followed in rotation by a root crop (radish, turnip), a vegetable (lettuce, spinach) and a cereal (wheat). The rotation crops were sown or planted from 30 days to 1 year after the final treatment of the first crop or bare ground.

In a study with an exaggerated application rate of 2.2 kg ai/ha to bare soil, turnips, spinach and wheat were planted and components of each were analysed 30 and 120 days after application. The residue levels of trifloxystrobin equivalent were higher with the trifluoromethylphenyl label than the glyoxylphenyl label. The levels of trifluoromethylphenyl label (as trifloxystrobin equivalents) after 30/120 days were: 0.06/0.04 mg/kg in turnip leaves, 0.02/0.02 mg/kg in turnip roots, 0.25/0.26 mg/kg in spinach, 0.28/0.19 mg/kg in 25% mature wheat fodder, 0.14/0.10 mg/kg in mature wheat fodder, 0.17/0.20 mg/kg in wheat straw and 0.07/0.06 mg/kg in wheat grain. With the other label, only a small proportion of the TRR were usually identified or characterized; trifloxystrobin represented < 2%. CGA321113 represented up to 8.5% of the TRR in turnip leaves and 17.5% in turnip roots (0.003 mg/kg). With the trifluoromethyl-^{14}C label, 37–100% of the TRR was identified or characterized. Trifloxystrobin, its conformational isomers and the acid CGA321113 and its isomers were reported, all at < 0.01 mg/kg. Trifluoroacetic acid was found as a major degradation product in all crops, especially in wheat (up to 0.23 mg/kg in immature fodder and 0.12 mg/kg in straw), indicating breakdown of the trifluoromethylphenyl ring. As trifluoroacetic acid was observed only rarely as a plant metabolite in target crops after foliar application, it is likely that its precursor is formed in the soil or rhizosphere of the plants.

In unconfined rotational studies with unlabelled trifloxystrobin, no residues of trifloxystrobin (< 0.02 mg/kg) or CGA321113 (< 0.02 mg/kg) were detected in any of the rotational crops at 30-day plant-back intervals, except in wheat straw and grain in one trial,.

The rotational crop studies suggest that trifloxystrobin itself and the acid CGA321113 do not occur in rotational crops at levels ≥ 0.01 mg/kg.

Methods of analysis

The Meeting received descriptions and validation data for analytical methods for residues of trifloxystrobin and the metabolite CGA321113 in crops and animal commodities. The methods rely on gas–liquid chromatography, HPLC and liquid chromatography with tandem mass spectrometry detection and generally achieve LOQs of 0.01–0.02 mg/kg in crop and animal samples, except dry samples such as hay, straw (LOQ, 0.05 mg/kg) and hops (LOQ, 0.1 mg/kg). The recoveries were in the range of 70–120% for both analytes.

In most of the field studies, the determination of trifloxystrobin and CGA321113 in plant and animal commodities was based on extraction of the samples with acetonitrile and water (80:20, v/v), filtration, liquid–liquid partitioning with a three-solvent system (sodium chloride-saturated water, toluene and hexane), clean-up on a C18 solid extraction column, partitioning into methyl *tert*-butyl ether:hexane, concentration to dryness and dissolution in 0.1% polyethylene glycol in acetone for gas chromatographic analysis with nitrogen–phosphorus detection. The LOQ was 0.02 mg/kg in all samples except peanut hay and cereal straw (0.05 mg/kg) and milk (0.01 mg/kg). This method (or with electron capture detection) was used in the rotational crop, storage stability and field trial studies. The nitrogen–phosphorus detection method is proposed as a monitoring method.

The standard multi-method DFG S 19 can be used for enforcement purposes for the determination of trifloxystrobin in all plant materials except hops.

Data on the extraction efficiency of the methods with weathered radiolabelled samples from the studies of metabolism in apples, cucumbers, peanuts, wheat grain and straw, and samples from the animal metabolism studies were submitted. The amount of residue extracted was similar to that in the metabolism studies.

Stability of residues in stored analytical samples

The Meeting received information on the stability of trifloxystrobin and CGA321113 in crops, farm animal commodities and processed commodities at freezer temperatures for 1–2 years. Trifloxystrobin and CGA321113 were generally stable for the duration of testing, i.e. a decrease in residue levels was not evident or was < 30%.

Definition of the residue

The metabolism of trifloxystrobin in animals is similar to that in plants and occurs primarily via cleavage of the methyl ester group to form CGA321113. In plants, the main component of the residue is trifloxystrobin. CGA321113 is the principal residue component in animal tissues (except fat). Trifloxystrobin is the principal residue in milk and fat.

The metabolite CGA321113 accounts for about 30% of the terminal residue in some raw plant commodities (strawberries, leeks, Brussels sprouts, flowerhead brassicas, carrots, barley, wheat, maize, rice, hops, peanut fodder, barley straw, maize fodder and rice straw). Furthermore, trifloxystrobin can be hydrolysed to CGA321113 during processing. In these cases, the nature of the residue in the processed product may differ somewhat from that in the raw agricultural commodity. Therefore, CGA321113 should be included in the residue definition for risk assessment for plant commodities.

The Meeting agreed that the residue definition for enforcement purposes for plant commodities should be trifloxystrobin *per se*, and that for animal commodities should be the parent compound plus CGA321113 (expressed as trifloxystrobin equivalents).

The Meeting agreed that the residue definition for consideration of dietary intake should consist of the parent compound plus CGA321113 (expressed as trifloxystrobin equivalents), to cover the occurrence of residues in both plant and animal commodities as well as in processed products.

The log P_{OW} for trifloxystrobin is 4.5, which suggests that the compound is fat-soluble. As the levels of trifloxystrobin were higher in fat than in muscle, residues in fat are appropriate for controlling residues in meat. The Meeting agreed that the residues of trifloxystrobin are fat-soluble.

Definition of the residue in plant commodities for compliance with MRLs: trifloxystrobin.

Definition of the residue in plant commodities for estimation of dietary intake: sum of trifloxystrobin and CGA321113, expressed as trifloxystrobin.

Definition of the residue in animal commodities for compliance with MRLs and estimation of dietary intake: sum of trifloxystrobin and CGA321113, expressed as trifloxystrobin.

The residue is fat-soluble.

Results of supervised trials on crops

The Meeting received the results of supervised trials on citrus fruit, pome fruit, stone fruit, grapes, strawberries, bananas, leeks, head cabbage, Brussels sprouts, cauliflower and broccoli, cucumbers, melons, summer squash, tomatoes, peppers, Chinese cabbage, beans, soya beans, carrots, celeriac, potatoes, sugar-beet, celery, chicory, cereals (wheat, barley, maize, rice), almonds, tree nuts, cotton-seed, peanuts, coffee beans and hops; and on animal feed items such as almond hulls, cereal straws, peanut hay and sugar-beet tops. In most cases, the acid metabolite CGA321113 was determined as well as the parent compound.

The sum of trifloxystrobin and CGA321113 was calculated and expressed as trifloxystrobin on the basis of the relative molecular masses. A conversion factor of 1.036 is required to express CGA321113 as trifloxystrobin. As CGA321113 does not generally constitute a significant proportion of the residue in crops, when the levels of trifloxystrobin or CGA321113 were below the LOQ, their sum was calculated as in the examples below.

Trifloxystrobin (mg/kg)	CGA321113 (mg/kg)	Total (expressed as trifloxystrobin) (mg/kg)
< 0.02	< 0.02	< 0.02
< 0.02	0.03	0.05
0.10	< 0.02	0.10
0.92	0.16	1.1

Two sets of data are reported: trifloxystrobin *per se* for estimation of maximum residue levels and the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin for estimation of STMRs.

Treatment with trifloxystrobin is limited to up to four applications per season, but in some trials on fruits (pome fruit, grapes, banana) and vegetables (cucurbits, sweet pepper, tomato) up to 10 treatments were made. To investigate the influence of the number of applications on the residue levels, two trials were conducted in apples. Trifloxystrobin was applied four times to apple trees at a rate of 0.12 or 0.15 kg ai/ha with spray intervals of 12–17 days. Samples of fruit were taken before and after each application. The average carry-over of residue (ratio of residue concentration before and after pesticide application) was approximately 40% and at the same level, suggesting that two applications are likely to result in higher residue levels than one application, but three or more applications should not produce residue levels significantly different from those resulting from two. The Meeting agreed that the residue at harvest is influenced only by the final three or four applications, and trials with more than four treatments were used to estimate maximum residue levels and STMRs.

Citrus fruit

The results of supervised trials for residues in orange, grapefruit and lemon were received from South Africa and the USA.

Use of trifloxystrobin as a foliar spray is registered in South Africa with two applications of 0.005 kg ai/hl and a PHI of 76 days. The six trials on orange that were submitted did not reflect GAP.

In the USA, trifloxystrobin may be used as a foliar spray on citrus fruit at three to four applications of 0.07–0.14 kg ai/ha with a 30-day PHI. As the level of CGA321113 was below the LOQ in all samples, the data populations for enforcement and risk assessment purposes are identical. The levels of trifloxystrobin residues in whole fruit in trials approximating these conditions at the highest rate were: 0.05, 0.07, 0.08, 0.09, 0.10, 0.11, 0.12, 0.15 (two), 0.16, 0.17, 0.19, 0.21 and 0.23 mg/kg in orange; < 0.02, 0.03 (two), 0.04, 0.06, 0.08 (two) and 0.10 mg/kg in grapefruit; and < 0.02, 0.02, 0.09, 0.11, 0.13 and 0.22 mg/kg in lemon.

The Meeting agreed to combine these results in estimating a maximum residue level for citrus fruit. As no data were available on residues in the edible portion, the STMR was also estimated from the data for whole fruit. The combined concentrations in the 28 trials in the USA, in ranked order, were: < 0.02 (two), 0.02, 0.03 (two), 0.04, 0.05, 0.06, 0.07, 0.08 (three), 0.09 (two), 0.10 (two), 0.11 (two), 0.12, 0.13, 0.15 (two), 0.16, 0.17, 0.19, 0.21, 0.22 and 0.23 mg/kg for trifloxystrobin as well as for the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin.

The Meeting estimated a maximum residue level of 0.5 mg/kg and an STMR value of 0.095 mg/kg for residues of trifloxystrobin in whole citrus fruits.

Pome fruit

Trials were conducted on apple and pear in Australia, Canada, Europe, South Africa and the USA.

In Australia, trifloxystrobin may be applied to *apples* in three applications of 0.005 kg ai/hl with a 35-day PHI. Because the number of treatments had little influence on the residue concentration, two trials with six applications of 0.0038 kg ai/hl were considered close enough to GAP to allow evaluation. The trifloxystrobin residue level in apples was < 0.04 mg/kg, and the level for the sum of trifloxystrobin and CGA321113 (< 0.04 mg/kg) expressed as trifloxystrobin was 0.08 mg/kg.

GAP for use of trifloxystrobin on apples and pears is similar in many countries in Europe. In France and Italy, trifloxystrobin is registered for use on apples and pears up to a total of three applications at 0.0075 kg ai/hl with a PHI of 14 days. The trifloxystrobin residue levels in apples in four trials in France, one in Germany, one in Greece, six in Italy, three in Spain and nine in Switzerland, conducted according to appropriate GAP, were: 0.04 (two), 0.05 (four), 0.06, 0.07 (two), 0.08, 0.09 (two), 0.10 (two), 0.12, 0.13, 0.15, 0.17, 0.19 (two), 0.20, 0.21, 0.30 and 0.44 mg/kg. The residue levels of CGA321113 were all below the LOQ.

One trial in Greece, one in Italy and two in Spain on *pears* were reported. The residue concentrations of both trifloxystrobin and the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin were 0.06, 0.07, 0.11 and 0.12 mg/kg.

In Spain, four treatments at 0.0075–0.015 kg ai/hl with a PHI of 14 days are allowed on apples and pears. The residue concentration of both trifloxystrobin and the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin in one Spanish trial on apples was 0.19 mg/kg.

In Germany, four treatments at 0.025 kg ai/ha per metre height of crown (0.075 kg ai/ha for a tree with a 3-m crown) and 0.005 kg ai/hl with a PHI of 14 days on apples and pears are allowed. The residue levels of trifloxystrobin and of the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin in one trial on apples were both 0.11 mg/kg. The residue level of trifloxystrobin in one trial on pears was 0.17 mg/kg, and the level of the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin was 0.19 mg/kg.

In Belgium and Luxembourg, four treatments with 0.085 kg ai/ha and a PHI of 14 days are allowed on apples and pears. The trifloxystrobin residue levels in apples in five trials in France, two in Germany and three in The Netherlands were: 0.03, 0.04, 0.05, 0.07 (four), 0.13 (two), 0.14 and 0.37 mg/kg. The levels of the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin were 0.03, 0.04, 0.05, 0.07 (four), 0.13, 0.14, 0.15 and 0.41 mg/kg.

In South Africa, trifloxystrobin is registered for use on apples at up to three applications of 0.0038–0.005 kg ai/hl with a PHI of 7 days, and it is registered for use on pears at three applications of 0.0038 kg ai/hl with a PHI of 14 days. In two trials each on apples and pears, the residue levels of trifloxystrobin were 0.03, 0.04, 0.05 and 0.06 mg/kg, and the levels of the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin were 0.03, 0.04 and 0.06 (two) mg/kg.

The use pattern in the USA allows spraying of trifloxystrobin in four applications of 0.105 kg ai/ha on apples and pears with a PHI of 14 days. The concentrations of trifloxystrobin residues in trials in Canada and the USA in apples were: 0.04, 0.09, 0.10, 0.12, 0.13, 0.14, 0.16 (two), 0.18 (three), 0.21, 0.24, 0.26, 0.31 and 0.37 mg/kg, and those in pears were: 0.07, 0.08, 0.09, 0.10 (two), 0.14, 0.15, 0.17, 0.22 and 0.23 mg/kg. The residue levels of the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin in apples were: 0.04, 0.09, 0.10, 0.12, 0.13, 0.14, 0.16 (two), 0.18 (two), 0.21 (two), 0.24, 0.26, 0.31 and 0.37 mg/kg, and those in pears were: 0.07, 0.08, 0.09, 0.10, 0.14, 0.15, 0.17, 0.20, 0.22 and 0.23 mg/kg.

The Meeting agreed to combine the data sets on apples and pears from two trials in Australia 42 trials in Europe, four trials in South Africa and 26 trials in Canada and the USA. The residue concentrations of trifloxystrobin *per se*, in ranked order, were: 0.03 (two), < 0.04, 0.04 (five), 0.05 (six), 0.06 (three), 0.07 (eight), 0.08 (three), 0.09 (four), <u>0.10</u> (five), <u>0.11</u> (two), 0.12 (three), 0.13 (four), 0.14 (three), 0.15 (two), 0.16 (two), 0.17 (three), 0.18 (three), 0.19 (three), 0.20, 0.21 (two), 0.22, 0.23, 0.24, 0.26, 0.30, 0.31, 0.37 (two) and 0.44 mg/kg. The residue concentrations of the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin, in ranked order, were: 0.03 (two), < 0.04, 0.04 (five), 0.05 (five), 0.06 (four), 0.07 (eight), 0.08 (three), 0.09 (four), 0.10 (four), <u>0.11</u> (two), 0.12 (three), 0.13 (three), 0.14 (three), 0.15 (three), 0.16 (two), 0.17 (two), 0.18 (two), 0.19 (four), 0.20 (two), 0.21 (three), 0.22, 0.23, 0.24, 0.26, 0.30, 0.31, 0.37, 0.41 and 0.44 mg/kg.

The Meeting estimated a maximum residue level of 0.7 mg/kg and an STMR value of 0.11 mg/kg for residues of trifloxystrobin in pome fruit.

Stone fruit

The results of supervised trials on residues of trifloxystrobin in apricots, cherries, peaches and plums were received from Europe and the USA. Trifloxystrobin is registered for use on apricots, nectarines, peaches, cherries and plums in Switzerland (three applications of 0.2 kg ai/ha, 0.013 kg ai/hl, 21-day PHI) and the USA (four applications of 0.14 kg ai/ha, 1-day PHI). In Spain, trifloxystrobin may be used on peaches and nectarines four times at 0.015 kg ai/hl with a 7-day PHI.

In 14 trials on *cherry* in six states of the USA in 1998, with four applications of 0.14 kg ai/ha and harvesting after 1 day, the concentrations of trifloxystrobin residues were: 0.26, 0.33, 0.34, 0.37, 0.38, 0.39, 0.53, 0.54, 0.55, 0.56, 0.58, 0.63, 0.66 and 0.84 mg/kg. The residue concentrations of the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin were: 0.28, 0.37, 0.38 (two), 0.41, 0.42, 0.58, 0.59 (two), 0.61, 0.62, 0.69, 0.73 and 0.90 mg/kg

In two trials on *apricot* in Switzerland, which matched GAP, the trifloxystrobin residue levels were 0.14 and 0.28 mg/kg, and the total residue levels were 0.14 and 0.30 mg/kg.

Three trials in southern Europe (France, Italy and Spain) on *peach* were evaluated against Spanish GAP. The trifloxystrobin residue levels were 0.14, 0.18 and 0.48 mg/kg, and the total residue levels were 0.15, 0.18 and 0.52 mg/kg. In 14 trials on peach in six states of the USA in 1998, with four applications of 0.14 kg ai/ha and harvesting after 1 day, the concentrations of trifloxystrobin residues were: 0.06, 0.18, 0.21, 0.25, 0.32, 0.34, 0.39, 0.41, 0.65, 0.82 (two), 0.89, 1.8 and 1.9 mg/kg. The residue concentrations of the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin were: 0.06, 0.21 (two), 0.25, 0.32, 0.34, 0.39, 0.41, 0.70, 0.86, 0.88, 0.94, 1.9 and 2.0 mg/kg.

In nine trials on *plum* in four states of the USA in 1998, with four applications of 0.14 kg ai/ha and harvesting after 1 day, the concentrations of trifloxystrobin residues and of total residues were: 0.02, 0.06 (two), 0.09, 0.15, 0.19, 0.21 (two) and 0.53 mg/kg.

The Meeting agreed to combine the data from all the trials on residues in stone fruit. The combined results for trifloxystrobin were: 0.02, 0.06 (three), 0.09, 0.14 (two), 0.15, 0.18 (two), 0.19, 0.21 (three), 0.25, 0.26, 0.28, 0.32, 0.33, 0.34 (two), 0.37, 0.38, 0.39 (two), 0.41, 0.48, 0.53 (two), 0.54, 0.55, 0.56, 0.58, 0.63, 0.65, 0.66, 0.82 (two), 0.84, 0.89, 1.8 and 1.9 mg/kg. The residue concentrations of the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin were: 0.02, 0.06 (three), 0.09, 0.14, 0.15 (two), 0.18, 0.19, 0.21 (four), 0.25, 0.28, 0.30, 0.32, 0.34, 0.37, 0.38 (two), 0.39, 0.41 (two), 0.42, 0.52, 0.53, 0.58, 0.59 (two), 0.61, 0.62, 0.69, 0.70, 0.73, 0.86, 0.88, 0.90, 0.94, 1.9 and 2.0 mg/kg.

The Meeting estimated a maximum residue level of 3 mg/kg and an STMR of 0.38 mg/kg for residues in stone fruit.

Berries and small fruit

Trials on *grape* were conducted in Australia, Canada, France, Germany, Greece, Italy, South Africa, Spain, Switzerland and the USA.

In Australia, trifloxystrobin may be used on grapes at 0.0075 kg ai/hl with a 35-day PHI after three applications. In trials in Australia matching GAP conditions, the trifloxystrobin residue levels were: < 0.02, 0.04, 0.08 and 0.09 (two) mg/kg. The residue concentrations of the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin were: < 0.02, 0.04, 0.09 (two) and 0.11 mg/kg.

In Canada, trifloxystrobin may be used up to four times at 0.07 kg ai/ha and in the USA up to 0.14 kg ai/ha with a 14-day PHI. In two Canadian and 12 US trials matching GAP conditions, the trifloxystrobin residue levels were: 0.04, 0.06, 0.09, 0.16, 0.17, 0.21, 0.26, 0.28, 0.29, 0.33, 0.61, 0.62, 1.1 and 2.2 mg/kg. The residue concentrations of the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin were: 0.04, 0.06, 0.09, 0.16, 0.17, 0.21, 0.26, 0.28, 0.33, 0.36, 0.63, 0.64, 1.2 and 2.2 mg/kg.

In Germany, registered use is three applications of 0.12 kg ai/ha with harvesting 35 days after the last treatment. Two trials in France, four in Germany and four in Switzerland with three applications of 0.13 kg ai/ha and a 35–36-day PHI matched this GAP. The trifloxystrobin residue levels were 0.03, 0.04 (three), 0.06 (two), 0.13, 0.14, 0.27 and 0.29 mg/kg. The residue concentrations of the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin were: 0.04 (two), 0.05 (two), 0.06, 0.07, 0.16 (two), 0.29 and 0.30 mg/kg.

Trifloxystrobin is registered for use in South Africa at up to 0.011 kg ai/hl with a 14-day PHI. Residues in grapes in three trials with this use pattern were 0.11, 0.18 and 0.24 mg/kg for trifloxystrobin and 0.15, 0.22 and 0.38 mg/kg for total residues.

Trifloxystrobin is registered for use in Spain at four applications of 0.075 kg ai/ha with a 30-day PHI. In one trial in Greece, two in Italy and four in Spain approximating these conditions, the trifloxystrobin residue levels were 0.05, 0.08, 0.11, 0.13, 0.14, 0.28 and 0.36 mg/kg. The total residue levels were 0.05, 0.08, 0.11, 0.13, 0.14, 0.28 and 0.38 mg/kg.

In summary, the residue levels of trifloxystrobin *per se* in 39 trials in Australia, Europe, South Africa, Canada and the USA, in ranked order, were: < 0.02, 0.03, 0.04 (five), 0.05, 0.06 (three), 0.08 (two), 0.09 (three), 0.11 (two), 0.13 (two), 0.14 (two), 0.16, 0.17, 0.18, 0.21, 0.24, 0.26, 0.27, 0.28 (two), 0.29 (two), 0.33, 0.36, 0.61, 0.62, 1.1 and 2.2 mg/kg. The residue concentrations of the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin were: < 0.02, 0.04 (four), 0.05 (three), 0.06 (two), 0.07, 0.08, 0.09 (three), 0.11 (two), 0.13, 0.14, 0.15, 0.16 (three), 0.17, 0.21, 0.22, 0.26, 0.28 (two), 0.29, 0.30, 0.33, 0.36, 0.38 (two), 0.63, 0.64, 1.2 and 2.2 mg/kg.

The Meeting estimated a maximum residue level of 3 mg/kg and an STMR of 0.15 mg/kg for residues in grapes.

The Swiss pattern of use of trifloxystrobin on *strawberry* allows three spray applications at 0.25 kg ai/ha with a PHI of 14 days. In five trials matching GAP conditions, the residue levels of trifloxystrobin *per se* were: 0.04, 0.05, 0.06, 0.10 and 0.13 mg/kg. The residue concentrations of the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin were 0.08, 0.09, 0.10, 0.14 and 0.18 mg/kg.

The Meeting estimated a maximum residue level of 0.2 mg/kg and an STMR of 0.10 mg/kg for residues in strawberries.

Banana

Trifloxystrobin may be used in Latin America on bananas at four applications of 0.09 kg ai/ha with a 0-day PHI. The results of supervised trials on residues in bagged and unbagged banana after up to 11 treatments at 0.01–0.16 kg ai/ha by aerial application were received from Colombia (four), Costa Rica (six), Ecuador (six), Guatemala (four), Honduras (two) and Mexico (two). The treatment was typical of that performed by commercial aerial sprayers from a fixed-winged airplane or a helicopter. In four trials in Martinique, bananas were treated six times at 0.09 kg ai/ha by a foliar backpack sprayer with aerial boom. In two trials in Puerto Rico, plants were treated 10 times at 0.1–0.13 kg ai/ha by spraying over the top, simulating aerial application. Although the actual treatment rate in some trials exceeded GAP by more than 30%, these trials were included in the evaluation because of the very low residue levels (≤ LOQ). In whole bagged and unbagged fruit, the trifloxystrobin residue concentrations for estimation of the maximum residue level were: < 0.01 (four), < 0.02 (23), 0.02 and 0.03 (two) mg/kg. In the edible portion, the residue concentrations of the sum of trifloxystrobin and CGA321113 expressed as trifloxystrobin were: < 0.01 (four) and < 0.02 (26) mg/kg.

The Meeting estimated a maximum residue level of 0.05 mg/kg and an STMR of 0.02 mg/kg for residues in bananas.

Leek

The Swiss pattern of use of trifloxystrobin on leeks allows three spray applications at 0.19 kg ai/ha with a PHI of 7 days. The levels of trifloxystrobin residues in leek in one trial in France, one in Germany, one in The Netherlands and two in Switzerland that met these conditions were: 0.08, 0.14, 0.15 and 0.40 (two) mg/kg. The corresponding total residues were: 0.13, 0.26, 0.31, 0.47 and 0.49 mg/kg.

The Meeting estimated a maximum residue level of 0.7 mg/kg and an STMR of 0.31 mg/kg for residues in leeks.

Brassica vegetables

The Swiss pattern of use of trifloxystrobin on broccoli, cauliflower, Brussels sprouts and head cabbage allows three spray applications at 0.13–0.25 kg ai/ha with a PHI of 7 days. The trials on head cabbage, Brussels sprouts, broccoli and cauliflower were evaluated together for mutual support.

One trial on *head cabbage* in Germany, one in The Netherlands and two in Switzerland matching maximum GAP, with a rate of 0.25 kg ai/ha, were submitted. The residue levels of trifloxystrobin *per se* were: 0.02 (two), 0.03 and 0.07 mg/kg, and those of total residues were 0.03, 0.04 (two) and 0.11 mg/kg.

Two trials on *Brussels sprouts* in France, one in Germany, two in Switzerland and one in the UK matching maximum GAP, with a rate of 0.25 kg ai/ha, were submitted. The residue levels of trifloxystrobin *per se* were: 0.10, 0.16, 0.18, 0.19, 0.20 and 0.35 mg/kg, and those of total residues were: 0.18, 0.22, 0.26, 0.27, 0.28 and 0.39 mg/kg.

One trial on *cauliflower* in Germany and two in Switzerland and two trials on broccoli in Germany and one in the UK, which matched GAP with a rate of 0.2–0.25 kg ai/ha, were submitted. The residue levels of trifloxystrobin *per se* were: < 0.01, < 0.02, 0.09, 0.13 (two) and 0.26 mg/kg, and those of total residues were: < 0.02, 0.04, 0.13, 0.16, 0.23 and 0.26 mg/kg.

The combined levels of trifloxystrobin residues in broccoli, cauliflower, Brussels sprouts and head cabbage were, in ranked order: < 0.01, < 0.02, 0.02 (two), 0.03, 0.07, 0.09, 0.10, 0.13 (two), 0.16, 0.18, 0.19, 0.20, 0.26 and 0.35 mg/kg. Those of total residues were: < 0.02, 0.03, 0.04 (three), 0.11, 0.13, 0.16, 0.18, 0.22, 0.23, 0.26 (two), 0.27, 0.28 and 0.39 mg/kg.

The Meeting estimated a maximum residue level of 0.5 mg/kg and an STMR of 0.17 mg/kg for residues in flowerhead brassica, Brussels sprouts and head cabbage.

Chinese cabbage

Trifloxystrobin is registered in Switzerland for use on Chinese cabbage up to three times at 0.25 kg ai/ha with a 7-day PHI. The concentrations of trifloxystrobin residues in Chinese cabbage in two Swiss trials were 0.01 and 0.33 mg/kg. The corresponding total residue levels were 0.01 and 0.35 mg/kg.

The Meeting concluded that there were insufficient data to estimate a maximum residue level and an STMR for residues in Chinese cabbage.

Fruiting vegetables

Cucurbits

Trifloxystrobin is registered in Switzerland for use on *cucumber* up to three times at 0.25 kg ai/ha and a 3-day PHI for indoor use. Eight trials conducted in glasshouses in Italy (one), The Netherlands (two), Spain (four) and Switzerland (one) approximated Swiss GAP. The trifloxystrobin residue levels were: 0.02, 0.03 (two), 0.04, 0.06, 0.07 and 0.14 (two) mg/kg. The total residue levels were 0.02, 0.03 (two), 0.04, 0.10, 0.12 and 0.17 (two) mg/kg.

Trifloxystrobin is registered in the USA for use on cucurbit vegetables such as chayote, Chinese waxgourd, citron melon, cucumber, gherkin, edible gourds, muskmelon, pumpkin, summer squash, winter squash and watermelon, as up to four applications of 0.14 kg ai/ha and a 0-day PHI for outdoor use. Eight outdoor trials on *cucumber* in seven states in accord with GAP conditions were reported. The trifloxystrobin residue levels were: 0.03, 0.04 (three), 0.05, 0.06, 0.17 and 0.22 mg/kg. The total residue levels were 0.03, 0.04 (three), 0.05, 0.06, 0.17 and 0.24 mg/kg.

The data from the indoor and outdoor trials on cucumbers could be combined as they were apparently for similar data populations. The residue levels of trifloxystrobin *per se* in the European and North American trials were, in ranked order: 0.02, 0.03 (three), 0.04 (four), 0.05, 0.06 (two), 0.07, 0.14 (two), 0.17 and 0.22 mg/kg. The corresponding total residue levels were 0.02, 0.03 (three), 0.04 (four), 0.05, 0.06, 0.10, 0.12, 0.17 (three) and 0.24 mg/kg.

In Italy, trifloxystrobin may be used on *melon* up to three times at 0.13 kg ai/ha with a 3-day PHI. Three trials in Italy and four in Spain complied with this use pattern. Both the trifloxystrobin and the total residue levels were: < 0.02 (two), 0.04, 0.07, 0.10, 0.11 and 0.19 mg/kg. Six trials in the USA on melons matching GAP for cucurbits resulted in trifloxystrobin and total residue levels of: 0.07, 0.10 (two), 0.11, 0.18 and 0.24 mg/kg.

In five trials in the USA on *summer squash* matching GAP for cucurbits, the trifloxystrobin and the total residue levels were: < 0.02, 0.09, 0.11, 0.15 and 0.23 mg/kg.

The Meeting decided to pool the data on cucumbers (16 trials), melons (13 trials) and summer squash (five trials) to estimate a maximum residue level for cucurbits. The trifloxystrobin residue levels were < 0.02 (three), 0.02, 0.03 (three), 0.04 (five), 0.05, 0.06 (two), 0.07 (three), 0.09, 0.10 (three), 0.11 (three), 0.14 (two), 0.15, 0.17, 0.18, 0.19, 0.22, 0.23 and 0.24 mg/kg. The corresponding total residue levels, in ranked order, were: < 0.02 (three), 0.02, 0.03 (three), 0.04 (five), 0.05, 0.06, 0.07 (two), 0.09, 0.10 (four), 0.11 (three), 0.12, 0.15, 0.17 (three), 0.18, 0.19, 0.23 and 0.24 (two) mg/kg.

The Meeting estimated a maximum residue level of 0.3 mg/kg and an STMR of 0.095 mg/kg for residues in cucurbits.

Sweet peppers

In the USA, trifloxystrobin may be used on sweet peppers four times at 0.14 kg ai/ha with a 3-day PHI. The levels of both trifloxystrobin and total residues in 12 outdoor trials in five states conducted according to GAP were: 0.03, 0.04 (two), 0.05 (two), 0.08, 0.12 (three), 0.14 and 0.16 (two) mg/kg.

The Meeting estimated a maximum residue level of 0.3 mg/kg, and an STMR of 0.1 mg/kg.

Tomato

In the USA, trifloxystrobin may be used on tomatoes four times at 0.14 kg ai/ha with a 3-day PHI. The trifloxystrobin and the total residue levels in 18 outdoor trials in five states conducted according to GAP were: < 0.02 (two), 0.03, 0.06, 0.07 (five), 0.09 (three), 0.10, 0.13, 0.20, 0.29, 0.43 and 0.49 mg/kg.

The Meeting estimated a maximum residue level of 0.7 mg/kg and an STMR of 0.08 mg/kg for residues in tomatoes.

Legume vegetables and pulses

Beans (dry)

Trifloxystrobin may be used on beans in Brazil three times at 0.1–0.13 kg ai/ha with a 15-day PHI. Five trials with four applications at 0.15 kg ai/ha and a further five trials with three to four applications of 0.094 kg ai/ha and a 15-day PHI in Brazil approximately matched GAP. The trifloxystrobin residue levels were < 0.02 (four) and < 0.05 (six) mg/kg. As CGA321113 was not determined, the trials were not considered for evaluation.

The Meeting concluded that there were insufficient data to estimate a maximum residue level and an STMR for residues in beans (dry).

Soya beans (dry)

Trifloxystrobin may be used on soya beans in Brazil twice at 0.056–0.075 kg ai/ha with a 30-day PHI and once at 0.056 kg ai/ha with a 20-day PHI in Argentina. Three trials with two applications at 0.063 kg ai/ha, three trials with two applications at 0.094 kg ai/ha and a further three trials with two applications at 0.13 kg ai/ha and a 21–30-day PHI in Brazil were reported. The trifloxystrobin residue levels were all < 0.05 mg/kg. As CGA321113 was not determined, the trials were not considered for evaluation.

The Meeting concluded that there were insufficient data to estimate a maximum residue level and an STMR for residues in soya bean (dry).

Root and tuber vegetables

Carrot

Trifloxystrobin is registered in Switzerland for use on carrots up to three times at 0.25 kg ai/ha with a 7-day PHI. The concentrations of trifloxystrobin residues in carrots in one trial in Belgium, one in Germany, two in The Netherlands and two in Switzerland conducted according to the Swiss use pattern were: < 0.02, 0.02 (two), 0.03 (two) and 0.04 mg/kg. The corresponding total residue levels were < 0.02, 0.02, 0.03, 0.04 (two) and 0.08 mg/kg.

The Meeting estimated a maximum residue level of 0.1 mg/kg and an STMR of 0.035 mg/kg for residues in carrot.

Celeriac

Trifloxystrobin is registered in Switzerland for use on celeriac up to three times at 0.25 kg ai/ha with a 14-day PHI. The concentrations of trifloxystrobin residues in celeriac in two Swiss trials were 0.02 and 0.03 mg/kg. The corresponding total residue levels were 0.03 and 0.04 mg/kg.

The Meeting concluded that there were insufficient data to estimate a maximum residue level and STMR for residues in celeriac.

Potato

In the USA, trifloxystrobin may be used on potatoes six times at 0.14 kg ai/ha with a 7-day PHI. In 15 trials in 13 states conducted according to GAP, all the levels of trifloxystrobin and CGA321113 residues in tubers were below the LOQ (0.02 mg/kg).

The Meeting estimated a maximum residue level of 0.02* mg/kg and an STMR of 0.02 mg/kg for residues in potato.

Sugar-beet

Italian GAP allows three treatments with an emulsifiable concentrate at rates of 0.11–0.15 kg ai/ha, and Swiss GAP allows one application at 0.15 kg ai/ha, both with a PHI of 21 days, for sugar-beet. In nine trials in France, two in Italy, two in Spain and one in Switzerland that matched GAP, the residue levels of trifloxystrobin *per se* and of total residues in the roots were: < 0.02 (13) and 0.02 mg/kg.

Trifloxystrobin is registered in the USA for use on sugar-beet up to three times at 0.12 kg ai/ha with a 21-day PHI. The trifloxystrobin residue levels in sugar-beet roots in 19 trials in seven states conducted in line with these conditions were: < 0.02 (11), 0.02 (three), 0.03 (three) and 0.04 (two) mg/kg. The corresponding total residue levels were < 0.02 (11), 0.02 (three), 0.03 (two), 0.04 (two) and 0.06 mg/kg.

In summary, the trifloxystrobin residue levels in the 14 trials in Europe and 19 in the USA were: < 0.02 (24), 0.02 (four), 0.03 (three) and 0.04 (two) mg/kg. The corresponding total residue levels were < 0.02 (24), 0.02 (four), 0.03 (two), 0.04 (two) and 0.06 mg/kg.

The Meeting estimated a maximum residue level of 0.05 mg/kg and an STMR of 0.02 mg/kg for residues in sugar-beet.

Celery

Trifloxystrobin is registered in Switzerland for use on celery up to three times at 0.25 kg ai/ha with a 7-day PHI. The concentrations of trifloxystrobin and total residues in whole celery plants without roots in three Swiss trials conducted according to GAP were: 0.12, 0.18 and 0.21 mg/kg.

The Meeting concluded that there were sufficient data and estimated a maximum residue level of 1 mg/kg and an STMR of 0.18 mg/kg for residues in celery as a minor crop.

Witloof chicory

Trifloxystrobin is registered in Switzerland for use on chicory up to three times at 0.25 kg ai/ha with a 21-day PHI. The concentrations of trifloxystrobin residues in chicory leaves in two Swiss trials were 0.34 and 0.86 mg/kg. The corresponding total residue levels were 0.37 and 0.94 mg/kg. The trifloxystrobin and the total residue levels in the roots were both 0.02 mg/kg.

The Meeting concluded that there were insufficient data to estimate a maximum residue level and STMR for residues in witloof chicory.

Cereal grains

Barley

In some countries of Europe, trifloxystrobin is used twice at 0.25 kg ai/ha (France, Germany, UK) or 0.19 kg ai/ha (Belgium) or once at 0.15 kg ai/ha (Austria). The PHI is 35 days in Austria, Germany and the UK and 42 days in Belgium and France. In one trial in Denmark, 30 in France, six in Germany and two in the UK matching the appropriate European GAP, the trifloxystrobin residue levels in barley grain were < 0.02 (10), 0.02 (four), 0.03 (five), 0.04 (two), 0.05 (four), 0.06, 0.07 (three), 0.11 (four), 0.12 (two), 0.13 (two), 0.18 and 0.40 mg/kg. The corresponding total residue levels were < 0.02 (10), 0.02 (four), 0.03 (four), <u>0.04</u> (three), 0.05 (two), 0.07 (four), 0.09 (two), 0.11 (three), 0.13, 0.14, 0.15, 0.16, 0.17, 0.18 and 0.46 mg/kg.

The Meeting estimated a maximum residue level of 0.5 mg/kg and an STMR of 0.04 mg/kg for residues in barley. A highest residue level of 0.46 mg/kg was estimated for calculating the dietary burden of farm animals.

Wheat

Brazilian GAP allows two treatments at 0.075 kg ai/ha with a 30-day PHI. Six Brazilian trials were conducted with three applications at 0.15 kg ai/ha. In all these trials, the trifloxystrobin residue levels were below the LOQ of 0.05 mg/kg. As CGA321113 was not determined, the trials were not considered for evaluation.

Trifloxystrobin may be used twice at 0.25 kg ai/ha in France Germany, Ireland and the UK; at 0.19 kg ai/ha in Austria, Belgium, Hungary, Italy, Luxembourg, Poland and Switzerland; and at 0.13 kg ai/ha in Slovakia, with PHIs of 35–45 days. In 26 trials in France, 10 in Germany, one in Sweden and two in Switzerland matching the appropriate European GAP, the trifloxystrobin residue levels in wheat grain were: < 0.02 (32), 0.02 (three), 0.03 (two), 0.05 and 0.14 mg/kg. The corresponding total residue levels were: < 0.02 (32), 0.02 (three), 0.03 (two), 0.07 and 0.20 mg/kg.

Trifloxystrobin is registered in the USA for use on wheat up to twice at 0.09 kg ai/ha with a 35-day PHI. In 33 trials in 11 states where these conditions were approximated, the trifloxystrobin and the total residue levels in wheat grain were: < 0.02 (30), 0.02 and 0.03 (two) mg/kg.

In summary, the trifloxystrobin residue levels in the 39 European and the 33 US trials were: < 0.02 (62), 0.02 (four), 0.03 (four), 0.05 and 0.14 mg/kg. The corresponding total residue levels were: <u>< 0.02</u> (62), 0.02 (four), 0.03 (four), 0.07 and 0.20 mg/kg.

The Meeting estimated a maximum residue level of 0.2 mg/kg and an STMR of 0.02 mg/kg for residues in wheat. A highest residue level of 0.2 mg/kg was estimated for calculating the dietary burden of farm animals.

Maize

Brazilian GAP allows two treatments at 0.075–0.1 kg ai/ha with a 30-day PHI. Three Brazilian trials at three times 0.1 kg ai/ha were conducted. In all the trials, the trifloxystrobin residue levels were below the LOQ of 0.05 mg/kg. As CGA321113 was not determined, the trials were not considered for evaluation.

Trifloxystrobin is registered in the USA for use on maize up to three times at 0.11 kg ai/ha. The PHI for maize grain is not specified, but the product should not be applied after silking. In 24 field trials in 14 states where these conditions were approximated, the levels of trifloxystrobin residues in maize grain were < 0.02 (24) mg/kg, and the total residue levels were < 0.02 (23) and 0.05 mg/kg.

The Meeting estimated a maximum residue level and an STMR of 0.02 mg/kg for residues in maize. A highest residue level of 0.05 mg/kg was estimated for calculating the dietary burden of farm animals.

Rice

Brazilian GAP allows two foliar treatments at 0.10–0.13 kg ai/ha with a 15-day PHI. Five Brazilian trials with three applications at 0.15 kg ai/ha and a 14–18-day PHI were conducted. The levels of trifloxystrobin residues in rice grain with husk were: < 0.05, 0.05, 0.10, 0.13 and 0.22 mg/kg. As CGA321113 was not determined, these trials were not included in the evaluation.

Trifloxystrobin is registered in the USA for use on rice up to twice at 0.17 kg ai/ha with a 35-day PHI. In 19 trials in five states where these conditions were approximated, the trifloxystrobin residue levels in rice grain with husk before processing were: < 0.02 (five), 0.03, 0.04 (two), 0.10, 0.11 (two), 0.12, 0.25, 0.30, 0.34, 0.56, 0.68, 2.4 and 3.4 mg/kg. The corresponding total residue levels were < 0.02 (five), 0.04, 0.06, 0.07, 0.13, 0.16, 0.20, 0.21, 0.33, 0.41, 0.46, 0.63, 0.75, 2.5 and 3.4 mg/kg.

The Meeting estimated a maximum residue level of 5 mg/kg and an STMR of 0.16 mg/kg for residues in rice. A highest residue level of 3.4 mg/kg was estimated for calculating the dietary burden of farm animals.

Tree nuts

Trifloxystrobin is registered in the USA for use on beechnuts, brazil nuts, butternuts, cashew nuts, chestnuts, chinquapins, filberts, macadamia nuts and walnuts up to four times, and almonds up to three times at 0.14 kg ai/ha with a 60-day PHI. Three treatments at 0.091 kg ai/ha with a PHI of 30 days may be used on pecans.

In six trials on *almonds* in California in which these conditions were approximated, the trifloxystrobin and the total residue levels in almond nuts without shells were < 0.02 mg/kg.

In 11 trials on *pecans* in five states, with eight treatments at 0.14 kg ai/ha and a 30-day PHI, the trifloxystrobin and the total residue levels in pecan nuts without shells were < 0.02 mg/kg.

The Meeting estimated a maximum residue level of 0.02* mg/kg and an STMR of 0 mg/kg for residues in tree nuts.

Cotton-seed

Brazilian GAP allows up to three foliar treatments at 0.063–0.075 kg ai/ha with a 21-day PHI. Three Brazilian trials with three applications at 0.1 kg ai/ha and a 21-day PHI were conducted. The samples were not analysed for CGA321113. In all three trials, the trifloxystrobin residue levels were below the LOQ of 0.05 mg/kg.

The Meeting concluded that there were insufficient data to estimate a maximum residue level and an STMR for cotton-seed.

Peanuts

Brazilian GAP allows three foliar treatments at 0.075 kg ai/ha with a 15-day PHI for peanuts. Three Brazilian trials with three applications at 0.10 kg ai/ha and a 15-day PHI were conducted. The trifloxystrobin residue levels in peanuts without shells were < 0.05 mg/kg. As CGA321113 was not determined, these trials were not included in the evaluation.

Trifloxystrobin is registered in the USA for use on peanuts twice at an application rate of 0.13 kg ai/ha or six times at 0.064 kg ai/ha with a PHI of 14 days. In 22 trials with eight applications at 0.07 kg ai/ha and 12 trials with eight applications at 0.14 kg ai/ha were in seven states in 1996–98, the trifloxystrobin and total residue levels in kernels were all < 0.02 mg/kg.

The Meeting estimated a maximum residue level of 0.02* mg/kg and an STMR of 0 mg/kg for residues in peanuts.

Coffee beans

Brazilian GAP allows three treatments at 0.075–0.11 kg ai/ha with a 30-day PHI. Four Brazilian trials with three applications at 0.11 kg ai/ha were conducted. In all four trials, the trifloxystrobin residue levels were below the LOQ of 0.05 mg/kg. As CGA321113 was not determined, these trials were not included in the evaluation.

The Meeting concluded that there were insufficient data to estimate a maximum residue level or an STMR for coffee beans.

Hops

German and Austrian GAP allows two treatments of hops at a spray concentration of 0.013 kg ai/hl and a PHI of 14 days. Five German trials with four to six applications of trifloxystrobin at a spray concentration of 0.013 kg ai/ha were reported. In cones harvested 14 days after the last treatment and dried, the trifloxystrobin residue levels were: 4.7, 5.4, 8.8, 16 and 26 mg/kg. The corresponding total residue levels were: 6.2, 6.7, 10, 18 and 29 mg/kg.

In the USA, trifloxystrobin may be used on hops four times at 0.14 kg ai/ha with a 14-day PHI. In three trials in two states with six treatments at 0.14 kg ai/ha and a 13–14-day PHI, the trifloxystrobin residue levels in dried cones were 4.5, 9.3 and 10 mg/kg. The corresponding total residue levels were 4.9, 9.9 and 11 mg/kg.

In summary, the trifloxystrobin residue levels in the three trials in Germany and the three in the USA were: 4.5, 4.7, 5.4, 8.8, 9.3, 10, 16 and 26 mg/kg, and the corresponding total residue levels were: 4.9, 6.2, 6.7, <u>9.9</u>, <u>10</u>, 11, 18 and 29 mg/kg.

The Meeting estimated a maximum residue level of 40 mg/kg and an STMR of 9.95 mg/kg for residues in hops, dry.

Animal feedstuffs

Almond hulls

Trifloxystrobin is registered in the USA for use on almonds up to three times at 0.14 kg ai/ha and a 60-day PHI. Six trials on almonds in California approximating these conditions were reported. The trifloxystrobin residue levels in hulls were: 0.25, 0.42, 0.72, 1.2, 1.6 and 1.8 mg/kg, and the total residue levels were: 0.25, 0.42, <u>0.75</u>, <u>1.2</u>, 1.6 and 1.9 mg/kg (fresh weight).

Allowing for the standard 90% dry matter for almond hulls (*FAO Manual*, p. 147), the Meeting estimated a maximum residue level of 3 mg/kg and an STMR of 1.08 mg/kg for almond hulls (dry weight). A highest residue level of 2.1 mg/kg was estimated for calculating the dietary burden of farm animals.

Peanut fodder

Trifloxystrobin is registered in the USA for use on peanuts with a maximum GAP of two applications at 0.13 kg ai/ha and a PHI of 14 days. In 12 trials with eight applications at 0.14 kg ai/ha in six states in 1996, the trifloxystrobin residue levels in peanut hay were: 0.19 (two), 0.25, 0.27, 0.29, 0.34, 0.46, 0.71, 0.84, 1.4, 3.4 and 3.7 mg/kg. The corresponding total residue levels were: 0.37, 0.40, 0.42, 0.47, 0.50, <u>0.63</u>, <u>0.82</u>, 1.1, 1.4, 2.1, 4.1 and 4.2 mg/kg (fresh weight).

Allowing for the standard 85% dry matter for peanut hay (*FAO Manua*l, p. 148), the Meeting estimated a maximum residue level of 5 mg/kg and an STMR (dry weight) of 0.85 mg/kg for residues in peanut fodder. A highest residue level of 4.94 mg/kg was estimated for calculating the dietary burden of farm animals.

Barley straw and fodder, dry

Trifloxystrobin may be used twice at 0.25 kg ai/ha in France, Germany and the UK; twice at 0.19 kg ai/ha in Belgium; and once at 0.15 kg ai/ha in Austria. The PHI is 35 days in Austria, Germany and the UK and 42 days in Belgium and France. The trifloxystrobin residue levels in barley straw in one trial in Denmark, 23 in France, six in Germany and two in the UK, matching appropriate European GAP were: 0.09, 0.15, 0.23, 0.31, 0.32, 0.33, 0.38 (two), 0.43, 0.49, 0.50, 0.53, 0.61, 0.64, 0.66, 0.68, 0.69, 0.72, 0.78, 0.81 (two), 0.91 (two), 0.93, 1.0, 1.1, 1.3, 1.5, 1.6, 1.8, 2.4 and 4.2 mg/kg. The corresponding total residue levels were: 0.09, 0.15, 0.30, 0.33, 0.38 (three), 0.48, 0.58, 0.64, 0.67, 0.68, 0.75, 0.77, 0.79, <u>0.80</u> (two), 0.86, 0.93, 0.94 (two), 1.1 (four), 1.5 (two), 1.7, 1.8, 1.9, 2.6 and 4.4 mg/kg (fresh weight).

Allowing for the standard 89% dry matter for barley straw (*FAO Manual*, p. 147), the Meeting estimated a maximum residue level of 7 mg/kg and an STMR value (dry weight) of

0.9 mg/kg for residues in barley straw and fodder, dry. A highest residue level of 4.9 mg/kg was estimated for calculating the dietary burden of farm animals.

Wheat straw and fodder, dry

Trifloxystrobin may be used on wheat at 0.25 kg ai/ha in France, Germany, Ireland and the UK; at 0.19 kg ai/ha in Austria, Belgium, Hungary, Italy, Luxembourg, Poland and Switzerland; and at at 0.13 kg ai/ha in Slovakia. The PHIs are 35–45 days. In 26 trials in France, 10 in Germany, one in Sweden and two in Switzerland that matched appropriate European GAP, the trifloxystrobin residue levels in wheat straw were: < 0.05, 0.07, 0.09 (two), 0.13, 0.16 (two), 0.17, 0.19 (two), 0.30, 0.31, 0.33, 0.34, 0.35, 0.38, 0.40, 0.50, 0.57, 0.59, 0.62, 0.70, 0.73, 0.76, 0.77, 0.81, 0.83, 0.85, 0.94, 0.99, 1.1, 1.3 (two), 1.4, 1.6, 1.8, 1.9, 2.3 and 2.5 mg/kg. The corresponding total residue levels were < 0.05, 0.07, 0.09, 0.13, 0.15, 0.16 (two), 0.24, 0.25, 0.26, 0.38 (three), 0.41, 0.42, 0.43, 0.51, 0.57, 0.77, 0.78 (two), 0.87, 0.89, 0.94, 0.95 (two), 1.0, 1.1, 1.2 (two), 1.3, 1.5, 1.6, 1.7, 1.8, 2.1, 2.6 (two) and 2.7 mg/kg (fresh weight).

Trifloxystrobin is registered in the USA for use on wheat up to twice at 0.09 kg ai/ha with a 35-day PHI. In 23 trials in eight states where these conditions were approximated, the trifloxystrobin residue levels in wheat straw were: 0.08 (two), 0.11 (two), 0.12 (two), 0.13, 0.14, 0.15, 0.17, 0.19 (two), 0.26, 0.27, 0.29, 0.31, 0.34, 0.51, 0.61, 0.96, 0.97, 1.4 and 1.9 mg/kg. The corresponding total residue levels were 0.08, 0.11 (three), 0.12 (two), 0.14, 0.15 (two), 0.19, 0.21, 0.22, 0.26, 0.29, 0.31, 0.36, 0.44, 0.51, 0.64, 1.0, 1.1, 1.6 and 2.4 mg/kg (fresh weight).

In summary, the trifloxystrobin residue levels in the 39 European and the 23 US trials, in ranked order, were: < 0.05, 0.07, 0.08 (two), 0.09 (two), 0.11 (two), 0.12 (two), 0.13 (two), 0.14, 0.15, 0.16 (two), 0.17 (two), 0.19 (four), 0.26, 0.27, 0.29, 0.30, 0.31 (two), 0.33, 0.34 (two), 0.35, 0.38, 0.40, 0.50, 0.51, 0.57, 0.59, 0.61, 0.62, 0.70, 0.73, 0.76, 0.77, 0.81, 0.83, 0.85, 0.94, 0.96, 0.97, 0.99, 1.1, 1.3 (two), 1.4 (two), 1.6, 1.8, 1.9 (two), 2.3 and 2.5 mg/kg. The total residue levels were: < 0.05, 0.07, 0.08, 0.09, 0.11 (three), 0.12 (two), 0.13, 0.14, 0.15 (three), 0.16 (two), 0.19, 0.21, 0.22, 0.24, 0.25, 0.26 (two), 0.29, 0.31, 0.36, 0.38 (two), 0.38, 0.41, 0.42, 0.43, 0.44, 0.51 (two), 0.57, 0.64, 0.77, 0.78 (two), 0.87, 0.89, 0.94, 0.95 (two), 1.0 (two), 1.1 (two), 1.2 (two), 1.3, 1.5, 1.6 (two), 1.7, 1.8, 2.1, 2.4, 2.6 (two) and 2.7 mg/kg (fresh weight).

Allowing for the standard 88% dry matter for wheat straw (*FAO Manual*, p. 149), the Meeting estimated a maximum residue level of 5 mg/kg and an STMR (dry weight) of 0.48 mg/kg for residues in wheat straw and fodder, dry. A highest residue level of 3.07 mg/kg was estimated for calculating the dietary burden of farm animals.

Maize fodder

Trifloxystrobin is registered in the USA for use on maize up to three times at 0.11 kg ai/ha. In 24 field trials in 14 states where these conditions were approximated and with a PHI of 30 days, the trifloxystrobin residue levels in maize stover were: 0.04, 0.32, 0.37, 0.42, 0.43, 0.53, 0.56, 0.64, 0.88, 0.96 (two), 1.0, 1.2, 1.5, 2.0, 2.1, 2.2 (two), 2.7, 2.9, 3.2, 3.9, 4.0 and 5.4 mg/kg. The corresponding total residue levels were 0.09, 0.37, 0.41, 0.47, 0.56, 0.65, 0.74, 0.80, 1.3, 1.4 (three), 1.5, 1.9, 2.4, 2.5, 2.6, 2.8, 3.5, 3.9, 4.4 (two), 4.5 and 7.1 mg/kg.

Allowing for the standard 83% dry matter for maize stover (*FAO Manual*, p. 147), the Meeting estimated a maximum residue level of 10 mg/kg and an STMR (dry weight) of 1.75 mg/kg for residues in maize fodder. A highest residue level of 8.55 mg/kg was estimated for calculating the dietary burden of farm animals.

Rice straw and fodder, dry

Trifloxystrobin is registered in the USA for use on rice up to twice at 0.17 kg ai/ha with a 35-day PHI. In 19 trials in five states where these conditions were approximated, the trifloxystrobin residue levels in rice straw were: 0.07, 0.25, 0.37, 0.42, 0.44, 0.50, 0.54, 0.57, 0.78, 1.0, 1.1, 1.3, 2.0, 2.4, 2.5, 2.6 (two), 5.3 and 6.1 mg/kg. The corresponding total residue levels were 0.07, 0.32, 0.45, 0.54, 0.60, 0.74, 0.83, 0.84, 1.0, 1.3, 1.6, 2.1, 2.6, 3.2 (three), 3.7, 5.5 and 7.3 mg/kg (fresh weight).

Allowing for the standard 90% dry matter for rice straw (*FAO Manual*, p. 149), the Meeting estimated a maximum residue level of 10 mg/kg and an STMR (dry weight) of 1.4 mg/kg for residues in rice straw and fodder, dry. A highest residue level of 8.1 mg/kg was estimated for calculating the dietary burden of farm animals.

Sugar-beet leaves or tops

Italian GAP allows three treatments at rates of 0.11–0.15 kg ai/ha, and Swiss GAP allows once at 0.15 kg ai/ha, both with a PHI of 21 days, for sugar-beets. The residue levels of trifloxystrobin *per se* in sugar-beet tops in nine trials in France, two in Italy, two in Spain and one in Switzerland matching GAP were: < 0.02 (three), < 0.05 (five), 0.05, 0.07, 0.09, 0.14, 0.33 and 0.44 mg/kg. The corresponding total residue levels were: < 0.02 (three), < 0.05 (five), 0.05, 0.09 (two), 0.17, 0.41 and 0.44 mg/kg (fresh weight).

Trifloxystrobin is registered in the USA for use on sugar-beet up to three times at 0.12 kg ai/ha with a 21-day PHI. In 19 trials in seven states where these conditions were matched, the trifloxystrobin residues in sugar-beet tops were 0.08 (two), 0.14, 0.17, 0.21, 0.23, 0.24, 0.26, 0.35, 0.54, 0.56, 0.61, 0.64, 0.72, 0.98, 1.6, 2.3 and 2.4 (two) mg/kg. The corresponding total residue levels were 0.08 (two), 0.14, 0.17, 0.23 (two), 0.24, 0.26, 0.39, <u>0.54</u>, 0.61 (two), 0.66, 0.72, 0.98, 1.6, 2.4 and 2.5 (two) mg/kg (fresh weight).

The data sets from Europe and the USA appeared to be from different populations and were not combined. The Meeting agreed to estimate a maximum residue level and an STMR on the basis of the results of the trials in the USA.

Allowing for the standard 23% dry matter for sugar beet tops (*FAO Manual*, p. 147), the Meeting estimated a maximum residue level of 15 mg/kg and an STMR (dry weight) of 2.3 mg/kg for residues in sugar-beet leaves or tops. A highest residue level of 10.9 mg/kg was estimated for calculating the dietary burden of farm animals.

Fate of residues during processing

The Meeting received information on the fate and nature of trifloxystrobin residues under various conditions of hydrolysis. Trifloxystrobin is partially hydrolysed to CGA321113 under conditions representative of baking, brewing and boiling (2.6%) and sterilization (22.5%). It was stable under conditions representative of pasteurization. Any possible effects of hydrolysis on the nature of the residue during processing are covered by the fact that the only relevant metabolite (CGA321113) was determined in all the residue and processing trials.

The effect of processing on the level of residues of trifloxystrobin has been studied for barley, cabbage, cotton, grapes, hops, maize, oranges, peanuts, pome fruit, potatoes, rice, stone fruit, strawberries, sugar-beet, tomatoes and wheat. The processing factors shown below were calculated from the total residue levels (sum of trifloxystrobin and CGA321113, expressed as trifloxystrobin).

Raw agricultural commodity	Processed product	No. of samples	Mean processing factor
Orange	Juice	5	< 0.19
	Oil	5	130
	Pulp, dry	5	3.4
Apple, pear	Juice	7	0.16
	Sauce and preserve	4	0.48
	Fruit, dried	2	0.39
	Pomace, wet	6	9.4
	Pomace, dried	1	25.6
Plum	Dried prune	4	1.5
Peach	Preserve	1	< 0.05

Raw agricultural commodity	Processed product	No. of samples	Mean processing factor
Grapes	Juice	14	0.24
	Must	27	0.46
	Wine	35	0.15
	Fruit, dried	4	2.3
	Pomace, wet	1	2.25
Strawberry	Preserve	2	0.29
	Jam	2	0.62
Tomato	Paste	5	1.6
	Purée	5	0.56
Potato	Flakes	2	< 0.42
	Chips	2	< 0.42
	Wet peel	2	2.3
Sugar-beet	White sugar	2	< 0.18
	Dried pulp	2	3.4
	Molasses	2	1.5
Barley	Beer	1	0.04
Wheat	Bran	2	2.7
	Germ	1	< 0.67
	Meal and flour	2	0.4
	Wholemeal	1	0.5
	Wholemeal bread	1	0.25
Rice	Polished grain	4	0.18
	Hull	4	3.2
	Bran	4	1.4
Hops	Spent hops	1	0.04
	Yeast	1	0.007
	Beer	1	< 0.001

Oranges were processed into juice, oil and dried pulp with processing factors of < 0.19, 130 and 3.4 respectively. On the basis of the STMR value of 0.095 mg/kg for whole citrus fruits, the STMR-Ps were 0.018 mg/kg for citrus juice and 12 mg/kg for oil. Allowing for the standard 91% dry matter, the Meeting estimated a maximum residue level of 1 mg/kg and an STMR-P of 0.35 mg/kg ($0.095 \times 3.4 \times 1.0989$) for residues in dried citrus pulp (dry weight).

Apples and *pears* were processed into juice, sauce or preserve, wet pomace, dry pomace and dried fruit, with processing factors of 0.16, 0.48, 9.4, 25.6 and 0.39 respectively. On the basis of the STMR value of 0.11 mg/kg for pome fruit, the STMR-P was 0.018 mg/kg for juice, 0.053 mg/kg for sauce, 0.053 mg/kg for preserve and 0.043 mg/kg for dried fruit of apple and pear. In the *FAO Manual* (Appendix IX), wet apple pomace is listed as animal feed. Allowing for the standard 40% dry matter, the Meeting estimated an STMR-P of 2.6 mg/kg ($0.11 \times 9.4 \times 2.5$) for residues in wet apple pomace (dry weight).

Peaches were processed into preserve (canned fruits) with a processing factor of 0.05. On the basis of the STMR value of 0.38 mg/kg for stone fruit, the STMR-P was 0.019 mg/kg for residues in canned fruits of peaches, nectarines and apricots.

Plums were processed into dried prunes with a processing factor of 1.5. On the basis of the STMR value of 0.38 mg/kg for stone fruit, the STMR-P was 0.57 mg/kg for dried prunes.

Grapes were processed into juice, must, wine and dried fruit (raisins) with processing factors of 0.24, 0.46, 0.15 and 2.3 respectively. On the basis of the STMR value of 0.15 mg/kg for grapes, the STMR-P was 0.036 mg/kg for juice, 0.07 mg/kg for must, 0.023 mg/kg for wine and 0.345 mg/kg for raisins (dried grapes). On the basis of the highest trifloxystrobin residue level of 2.2 mg/kg, the Meeting estimated a maximum residue level of 5 mg/kg for residues in raisins (dried grapes).

Strawberries were processed into preserve (canned fruits) and jam with processing factors of 0.29 and 0.62 respectively. On the basis of the STMR value of 0.10 mg/kg for strawberries, the STMR-P values were 0.029 mg/kg for residues in canned strawberries and 0.062 mg/kg for those in jam.

Head cabbage was cooked. Because residues were not detected in the raw commodity, a processing factor could not be calculated and the levels of residues in the processed commodity could not be estimated.

Tomatoes were processed into paste and purée with processing factors of 1.6 and 0.56 respectively. On the basis of the STMR value of 0.08 mg/kg for tomato, the STMR-Ps were 0.13 mg/kg for residues in tomato paste and 0.045 mg/kg for residues in purée.

Potatoes were processed into flakes, chips and wet peel with processing factors of 0.42, 0.42 and 2.3 respectively. On the basis of the STMR value of 0.02 mg/kg for residues in potatoes, the STMR-Ps were 0.008 mg/kg for residues in potato flakes and chips. In the *FAO Manual* (Appendix IX), wet peel (processed potato waste) is listed as animal feed. Allowing for the standard 15% dry matter, an STMR-P of 0.307 mg/kg ($0.02 \times 2.3 \times 6.67$) was estimated for potato wet peel (dry weight).

Sugar-beet was processed into white sugar, dried pulp and molasses with processing factors of 0.18, 3.4 and 1.5 respectively. On the basis of the STMR value of 0.02 mg/kg, the STMR-P for white sugar was 0.0036 mg/kg. In the *FAO Manual* (Appendix IX), sugar-beet dried pulp (88% dry matter) and molasses (75% dry matter) are listed as animal feeds. On the basis of the highest trifloxystrobin residue level of 0.04 mg/kg, the Meeting estimated maximum residue levels of 0.2 mg/kg ($0.04 \times 3.4 \times 1.14$) for sugar-beet dried pulp and 0.1 mg/kg ($0.04 \times 1.5 \times 1.33$) for sugar-beet molasses (dry weight). The estimated STMR-P values were 0.077 mg/kg ($0.02 \times 3.4 \times 1.14$) for sugar-beet dried pulp and 0.04 mg/kg ($0.02 \times 1.5 \times 1.33$) for sugar beet molasses (dry weight).

Wheat was processed into the milled by-products bran, flour, wholemeal, wholemeal bread and germ, with processing factors of 2.7, 0.4, 0.67, 0.33 and 0.67 respectively. On the basis of the STMR value of 0.02 mg/kg for wheat grain, the STMR-Ps were 0.008 for wheat flour, 0.01 for wholemeal, 0.005 for wholemeal bread and 0.013 for germ. In the *FAO Manual* (Appendix IX), bran is listed as an animal feed. Allowing for the standard 88% dry matter for wheat milled by-products, the Meeting estimated an STMR-P of 0.062 mg/kg ($0.02 \times 2.7 \times 1.14$) for wheat bran, unprocessed (dry weight). On the basis of the highest trifloxystrobin residue level of 0.14 mg/kg, the Meeting estimated a maximum residue level of 0.5 mg/kg ($0.14 \times 2.7 \times 1.14 = 0.43$) for wheat bran, unprocessed (dry weight).

Maize was processed to meal, grits, flour and oil. Because residues were not detected in the raw commodity, processing factors could not be calculated and the residue levels in the processed commodities could not be estimated.

Rice with husk was processed into polished rice, bran and hulls with processing factors of 0.18, 1.4 and 3.2 respectively. On the basis of the STMR of 0.16 mg/kg for rice with husks, an STMR-P of 0.029 mg/kg was calculated for polished rice. In the *FAO Manual* (Appendix IX), rice bran and hulls are listed as animal feed. Allowing for the standard 90% dry matter, the Meeting estimated STMR-P values of 0.57 mg/kg ($0.16 \times 3.2 \times 1.1$) for rice hulls and 0.25 mg/kg ($0.16 \times 1.4 \times 1.1$) for rice bran, unprocessed (dry weight). On the basis of the highest trifloxystrobin residue level of 3.4 mg/kg in rice with husks, the Meeting estimated a maximum residue level of 7 mg/kg for residues in rice bran, unprocessed (dry weight).

Cotton was processed to refined oil. Because residues were not detected in the raw commodity, a processing factor could not be calculated and the residue levels in the processed commodities could not be estimated.

Peanuts were processed to meal and refined oil. Because residues were not detected in the raw commodity, a processing factor could not be calculated and the residue levels in the processed commodities could not be estimated.

Hops were processed for use in beer, with a processing factor of 0.001. On the basis of the STMR value of 9.95 mg/kg for dry hops, an STMR-P of 0.01 mg/kg was calculated for beer. Barley was processed into beer with a processing factor of 0.04. On the basis of the STMR value of 0.04 mg/kg, the STMR-P for beer was 0.0016 mg/kg. Because the STMR-P arising from residues in barley was lower, the Meeting estimated an STMR-P of 0.01 mg/kg for residues in beer, on the basis of residues in hops.

Residues in animal commodities

Dietary burden of farm animals

The Meeting estimated the dietary burden of trifloxystrobin residues in farm animals on the basis of the diets listed in Appendix IX of the *FAO Manual*. Calculation from highest residue and STMR-P values provides the levels in feed suitable for estimating MRLs, while calculation from STMR and STMR-P values for feed is suitable for estimating STMR values for animal commodities. The percentage dry matter is taken as 100% when the highest residue levels and STMRs are already expressed as dry weight.

Estimated maximum dietary burden of farm animals

Commodity	CC	Residue (mg/kg)	Basis	Dry matter (%)	Residue, dry weight (mg/kg)	Diet content (%)			Residue contribution (mg/kg)		
						Beef cattle	Dairy cattle	Poultry	Beef cattle	Dairy cattle	Poultry
Almond hulls	AM	2.1	HR	100	2.1						
Apple pomace, wet	AB	2.6	STMR-P	100	2.6	15			0.39		
Barley grain	GC	0.46	HR	88	0.528			40			0.211
Barley straw	AS	4.9	HR	100	4.9		60			2.94	
Citrus pulp, dried	AB	0.35	STMR-P	100	0.35						
Maize grain	GC	0.05	HR	88	0.057						
Maize fodder	AS	8.55	HR	100	8.55	25			2.14		
Peanut fodder (hay)	AL	4.94	HR	100	4.94						
Potato wet peel	AB	0.307	STMR-P	100	0.307						
Rice	GC	3.4	HR	88	3.86	40	30	60	1.54	1.16	2.32
Rice bran	CM	0.25	STMR-P	100	0.25						
Rice hulls	CM	0.57	STMR-P	100	0.57						
Rice straw and fodder, dry	AS	8.1	HR	100	8.1						
Sugar-beet leaves and tops	AV	10.9	HR	100	10.9	20	10		2.18	1.09	
Sugar-beet, dried pulp	AB	0.077	STMR-P	100	0.077						
Sugar-beet molasses	DM	0.04	STMR-P	100	0.04						
Wheat grain	GC	0.2	HR	89	0.225						
Wheat straw	AS	3.07	HR	100	3.07						

Commodity	CC	Residue (mg/kg)	Basis	Dry matter (%)	Residue, dry weight (mg/kg)	Diet content (%)			Residue contribution (mg/kg)		
						Beef cattle	Dairy cattle	Poultry	Beef cattle	Dairy cattle	Poultry
Wheat milled by-products (bran)	CM	0.062	STMR-P	100	0.062						
Total						**100**	**100**	**100**	**6.3**	**5.2**	**2.5**

Estimated mean dietary burden of farm animals

Commodity	CC	Residue (mg/kg)	Basis	Dry matter (%)	Residue/ dry weight (mg/kg)	Diet content (%)			Residue contribution (mg/kg)		
						Beef cattle	Dairy cattle	Poultry	Beef cattle	Dairy cattle	Poultry
Almond hulls	AM	1.08	STMR	100	1.08		10			0.108	
Apple pomace, wet	AB	2.6	STMR-P	100	2.6	40	20		1.04	0.52	
Barley grain	GC	0.04	STMR	88	0.045						
Barley straw	AS	0.9	STMR	100	0.9		60			0.54	
Citrus pulp, dried	AB	0.35	STMR-P	100	0.35						
Maize grain	GC	0.02	STMR	88	0.023						
Maize fodder	AS	1.75	STMR	100	1.75	25			0.437 5		
Peanut fodder (hay)	AL	0.85	STMR	100	0.85	15			0.127 5		
Potato, wet peel	AB	0.307	STMR-P	100	0.307						
Rice	GC	0.16	STMR	88	0.182			60			0.1092
Rice bran	CM	0.25	STMR-P	100	0.25			25			0.0625
Rice hulls	CM	0.57	STMR-P	100	0.57			15			0.086
Rice straw and fodder, dry	AS	1.4	STMR	100	1.4						
Sugar-beet leaves and tops	AV	2.3	STMR	100	2.3	20	10		0.46	0.23	
Sugar-beet dried pulp	AB	0.077	STMR-P	100	0.077						
Sugar-beet molasses	DM	0.04	STMR-P	100	0.04						
Wheat grain	GC	0.02	STMR	89	0.0225						
Wheat straw	AS	0.48	STMR	100	0.48						
Wheat milled by-products (bran)	CM	0.062	STMR-P	100	0.062						
Total						**100**	**100**	**100**	**2.1**	**1.4**	**0.26**

The dietary burdens of trifloxystrobin for estimating maximum residue levels and STMRs for animal commodities (residue concentrations in animal feeds expressed as dry weight) are 6.3 and 2.1 mg/kg for beef cattle, 5.2 and 1.4 mg/kg for dairy cattle, 2.5 and 0.26 mg/kg for poultry.

Feeding studies

The Meeting received information on residues arising in tissues and milk of *dairy cows* dosed with trifloxystrobin in capsules at the equivalent of 2, 5.9 or 21 ppm in the diet for 28–30 days.

The sum of trifloxystrobin and CGA321113 was calculated and expressed as trifloxystrobin on the basis of relative molecular masses. A conversion factor of 1.036 is required to express the CGA321113 residues as trifloxystrobin equivalents. As this metabolite constitutes a significant proportion of the residue in animal products, when the level of trifloxystrobin or CGA321113 was below its LOQ, the sum of trifloxystrobin and CGA321113 was calculated, as in the examples below, and expressed as trifloxystrobin.

Trifloxystrobin (mg/kg)	CGA321113 (mg/kg)	Total expressed as trifloxystrobin (mg/kg)
< 0.02	< 0.02	< 0.04
< 0.02	0.03	0.05
0.09	< 0.02	0.11

No residues (sum of trifloxystrobin and CGA321113) were detectable in milk (< 0.02 mg/kg), round muscle (< 0.04 mg/kg) or tenderloin (< 0.04 mg/kg) from cattle given the highly exaggerated feeding level of 21 ppm. No residues of either parent or metabolite were found in liver, kidney or fat samples from animals at 2 or 5.9 ppm (total residue, < 0.04 mg/kg). Maximum residue levels of 0.09 mg/kg (total residue, 0.11 mg/kg) and 0.02 mg/kg (total residue, 0.04 mg/kg), detected as the metabolite CGA321113 and expressed as trifloxystrobin, were found in liver and kidney respectively, from cattle at 21 ppm; and maximum residue levels of 0.06 mg/kg (total residue, 0.08 mg/kg) and 0.05 mg/kg (total residue, 0.07 mg/kg), detected as intact trifloxystrobin, were found in perirenal fat and omental fat respectively, from these animals.

The Meeting received information on the concentrations of residues in tissues and eggs from *laying hens* dosed with trifloxystrobin at the equivalent of 1.5, 4.5 or 15 ppm in the diet for 28 days. The hens were killed on day 29, and composite tissue samples of breast plus thigh, skin plus attached fat, peritoneal fat, and liver were taken. Eggs and tissues were analysed for trifloxystrobin and CGA321113. No residues (total residues, < 0.04 mg/kg) were detected in any of the eggs, tissues or organs taken from hens at the highest dietary level of 15 ppm.

Maximum residue levels

The Meeting noted that no trifloxystrobin or CGA321113 residues were detected in milk (total, < 0.02 mg/kg), muscle (< 0.04 mg/kg), kidney (< 0.04 mg/kg), liver (< 0.04 mg/kg) or fat (< 0.04 mg/kg) from animals dosed for 28 days at 5.9 ppm, which was close to the maximum dietary burdens of beef and dairy cattle (8.2 and 7.4 ppm). The highest residue level of trifloxystrobin was found in perirenal fat at 0.06 mg/kg (total residue, 0.08 mg/kg), and the highest level of CGA321113 was found in liver at 0.09 mg/kg (total residue, 0.11 mg/kg) from animals given 21 ppm.

Dietary burden (ppm)	Trifloxystrobin total residue (mg/kg)								
Feeding level [ppm]	Milk	Muscle		Liver		Kidney		Fat	
	(mean)	Highest	Mean	Highest	Mean	Highest	Mean	Highest	Mean
MRL beef cattle									
(6.3)		*(< 0.012)*		*(0.033)*		*(0.012)*		*(0.024)*	
[21]		< 0.04		0.11		0.04		0.08	
MRL dairy cattle									
(5.2)	*(< 0.005)*								
[21]	< 0.02								
STMR beef cattle									
(2.1)			*(< 0.004)*		*(0.008)*		*(0.004)*		*(0.006)*
[21]			< 0.04		0.08		0.04		0.06
STMR dairy cattle									
(1.4)	*(< 0.001)*								
[21]	< 0.02								

The maximum concentrations of residues expected in tissues are < 0.012 mg/kg in muscle, 0.033 mg/kg in liver, 0.012 mg/kg in kidney, 0.024 mg/kg in fat and < 0.005 mg/kg in milk. The mean extrapolated concentrations are < 0.004 mg/kg in muscle, 0.008 mg/kg in liver, 0.004 mg/kg in kidney, 0.006 mg/kg in fat and < 0.001 mg/kg in milk.

Taking into account the fat solubility of trifloxystrobin (the acid metabolite CGA321113 is poorly soluble in fat), the Meeting estimated a maximum residue level of 0.05 mg/kg for the sum of trifloxystrobin and CGA321113 in meat (fat) from mammals other than marine mammals on the basis of residue levels in trimmable fat, and a maximum residue level of 0.02* mg/kg for residues in milks. The estimated maximum residue levels are 0.05 mg/kg for liver and 0.04* mg/kg for kidney of cattle, goats, pigs and sheep.

The estimated STMR values are 0.006 mg/kg in fat, 0 mg/kg in muscle, 0.008 mg/kg in liver, 0.004 mg/kg in kidney and 0 in milks.

The Meeting noted that in the feeding study in laying hens, no trifloxystrobin or CGA321113 residues (total residue, < 0.04 mg/kg) were detected in eggs, tissues or organs from hens at the highest feeding level of 15 ppm. As the maximum dietary burden of 2.5 mg/kg was much lower, the Meeting agreed that the expected level of trifloxystrobin and CGA321113 residues in poultry tissues and eggs would be essentially 0.

The Meeting estimated maximum residue levels of 0.04* mg/kg for residues in eggs, poultry meat (fat) and edible offal. The Meeting recommended that the STMR values should be 0 in eggs, poultry meat, edible offal and fat.

RECOMMENDATIONS

The Meeting estimated the maximum residue levels and STMR values shown below. The maximum residue levels are recommended for use as MRLs.

Definition of the residue

Plants
For compliance with MRLs: trifloxystrobin.
For estimation of dietary intake: sum of trifloxystrobin and [(*E,E*)-methoxy-imino-{2-[1-(3-trifluoromethylphenyl)ethylideneaminooxymethyl]phenyl}acetic acid] (CGA321113), expressed as trifloxystrobin.

Animals
For compliance with MRLs and estimation of dietary intake: sum of trifloxystrobin and [(*E,E*)-methoxyimino-{2-[1-(3-trifluoromethylphenyl)ethylideneamino-oxymethyl]phenyl}acetic acid] (CGA321113), expressed as trifloxystrobin.

The residue is fat-soluble.

Commodity		MRL, mg/kg		STMR or
CCN	Name	New	Previous	STMR-P, mg/kg
AM 0660	Almond hulls[1]	3		
DF 0226	Apples, dried			0.043
JF 0226	Apple juice			0.018
	Apple sauce			0.053
	Apple preserve			0.053
	Apricot, canned			0.019
FI 0327	Banana	0.05		0.02
GC 0640	Barley	0.5		0.04
AS 0640	Barley straw and fodder (dry) [1]	7		
	Beer (residue arising from hops)			0.01
VB 0402	Brussels sprouts	0.5		0.17
VR 0577	Carrot	0.1		0.035
VB 0041	Cabbages, Head	0.5		0.17
VS 0624	Celery	1		0.18
FC 0001	Citrus fruits[2]	0.5		0.095

Commodity		MRL, mg/kg		STMR or
CCN	Name	New	Previous	STMR-P, mg/kg
JF 0001	Citrus juice			0.018
AB 0001	Citrus pulp, dry[1]	1		
	Citrus oil (orange)			12
DF 0269	Dried grapes (Raisins)	5		0.345
PE 0112	Eggs	0.04(*)		0
VB 0042	Flowerhead brassicas	0.5		0.17
VC 0045	Fruiting vegetables, Cucurbits	0.3		0.095
FB 0269	Grapes	3		0.15
JF 0269	Grape juice			0.036
	Must			0.07
	Wine			0.023
DH 1100	Hops, dry	40		9.95
MO 0098	Kidney of cattle, goats, pig and sheep	0.04(*)		0.004
VA 0384	Leek	0.7		0.31
MO 0099	Liver of cattle, goats, pig and sheep	0.05		0.008
GC 0645	Maize	0.02		0.02
AS 0645	Maize fodder[1]	10		
MM 0095	Meat (from mammals other than marine mammals)	0.05 (fat)		0.006 (fat) 0 (muscle)
ML0106	Milks	0.02(*)		0
	Nectarine, canned			0.019
	Peach, canned			0.019
SO 0697	Peanut	0.02*		0
AL 0697	Peanut fodder[1]	5		
	Pears, dried			0.043
	Pear juice			0.018
	Pear preserve			0.053
VO 0445	Peppers, Sweet	0.3		0.1
FP 0009	Pome fruits	0.7		0.11
VR 0589	Potato	0.02(*)		0.02
	Potato chips			0.008
	Potato flakes			0.008
PM 0110	Poultry meat	0.04(*) (fat)		0 (fat) 0 (muscle)
PO 0111	Poultry, Edible offal of	0.04(*)		0
	Prunes, dried			0.57
GC 0649	Rice	5		0.16
CM 1205	Rice, polished			0.029
CM 1206	Rice bran, unprocessed[1]	7		0.25
AS 0649	Rice straw and fodder, dry[1]	10		
FS 0012	Stone fruits	3		0.38
FB 0275	Strawberry	0.2		0.1
	Strawberry, canned			0.029
	Strawberry jam			0.062
VR 0596	Sugar beet	0.05		0.02
	White sugar			0.0036
AB 0596	Sugar beet pulp, dry[1]	0.2		
DM 0596	Sugar beet molasses[1]	0.1		
AM 0596	Sugar beet leaves or tops[1]	15		
VO0448	Tomato	0.7		0.08
	Tomato paste			0.13
	Tomato purée			0.045
TN 0085	Tree nuts	0.02(*)		0
GC 0654	Wheat	0.2		0.02
CM 0654	Wheat bran, unprocessed[1]	0.5		0.062
CF 1211	Wheat flour			0.008
CF 1210	Wheat germ			0.013
CF 1212	Wheat wholemeal			0.01
CP 1212	Wheat wholemeal bread			0.005
AS 0654	Wheat straw and fodder, dry[1]	5		

[1]Expressed on dry weight basis
[2]STMR, STMR-P based on whole fruit residue data

DIETARY RISK ASSESSMENT

Long-term intake

The IEDIs of trifloxystrobin, on the basis of the STMRs estimated for 37 commodities, for the five GEMS/Food regional diets represented 1–2% of the ADI (Annex 3). The Meeting concluded that the long-term intake of residues of trifloxystrobin resulting from uses that have been considered by the JMPR is unlikely to present a public health concern.

Short-term intake

The 2004 JMPR decided that it was unnecessary to establish an ArfD. The present Meeting therefore concluded that the short-term intake of trifloxystrobin residues is unlikely to present a public health concern.

REFERENCES

00086/M040. Weber, H. and Pelz, S. 2002. Enforcement method 00086/M040 for the determination of the residues of trifloxystrobin in cucumber (fruit), citrus (fruit), wheat (grain), almond (seed), hop and leek. Dr. Specht & Partner, Chemische Laboratorien GmbH, Hamburg, Germany. Bayer CropScience AG, Report no. 00086/M040, Edition Number: MO-02-003267. Method Report no. BAY-0018V. Unpublished.

0011601. Pointurier, R. 2001. Residue study with CGA279202 in or barley in France (south). ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 0011601, Edition Number: MO-01-008732. Unpublished.

0011602. Pointurier, R. 2001. Residue study with CGA279202 in or barley in France (south). ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 0011602, Edition Number: MO-01-008765. Unpublished.

0011701. Pointurier, R. 2001. Residue study with CGA279202 in or wheat in France (south). ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 0011701, Edition Number: MO-01-008766. Unpublished.

00742. Nuesslein, F. 2002. Method 00742 for the determination of residues of trifloxystrobin (parent compound) and CGA321113 (metabolite) in/on sample materials of carrot, brussels sprouts, cabbage, tomato, red pepper and lettuce by HPLC-MS/MS. Bayer AG, Leverkusen, Germany. Bayer CropScience AG, Report no. 00742, Edition Number: MO-02-006453, Method Report no. MR-078/02. Unpublished.

00742/E001. Nuesslein, F. 2003. Supplement E001 of the method 00742 for the determination of residues of Trifloxystrobin and CGA321113 in/on the additional sample materials bean, broccoli, cauliflower, cherry, cucumber, currant, leek, melon, plum and strawberry. Bayer CropScience AG, Report no. 00742/E001, Edition Number: MO-03-005110, Method Report no. MR-052/03. Unpublished.

00MO02. Morgenroth, U. 2000. Hydrolysis of [Glyoxyl-phenyl-U-14C]-CGA279202 under processing conditions. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Study Report Number: 00MO02, Edition Number: MO-01-005601. Unpublished.

09/97. Ruembeli, R. 1997. The metabolism of [trifluormethyl-phenyl(U)-14C] CGA279202 after multiple oral administration to lactating goats. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 09/97, Edition Number: MO-01-001719. Unpublished.

10/97. Ruembeli, R. 1997. The metabolism of [trifluormethyl-phenyl-(U)-14C] CGA279202 after multiple oral administration to laying hens. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 10/97, Edition Number: MO-01-001729. Unpublished.

109-97. Hayworth, C. G. 1999. CGA- 279202 - Field accumulation in rotational crops. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 109-97, Edition Number: MO-01-017324. Unpublished.

110433. Campbell, D. D. 1997. CGA-279202 - Magnitude of the residues in or on crop group 11: pome fruits. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 110433, Edition Number: MO-02-015666. Unpublished.

110440. Vincent, T. P. 1998. CGA-279202 - Magnitude of the residue in or on grapes. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 110440, Report includes Trial Nos.: OW-FR-648-96, OW-FR-647-96, OW-FR-532-96, OW-FR-531-96, OW-FR-419-96, OW-FR-418-96, OW-FR-417-96, OW-FR-416-96, OW-FR-415-96, NE-FR-826-96, NE-FR-825-96, 02-FR-025-96, Edition Number: MO-03-012175. Unpublished.

110786. Campbell, D., Joseph, T., Ediger, K. and Vincent, T. P. 2001. CGA279202 - Magnitude of the residues in or on cotton. Syngenta Crop Protection Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 110786, Edition Number: MO-02-001953. Unpublished.

110852. Ediger, K. 2000. CGA279202 - Magnitude of the residues in or on almond. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 110852, Edition Number: MO-02-002261. Unpublished.

128/96. Kissling, M. 1997. Magnitude of residues of CGA279202 applied as EC 075 to banana plants in Costa Rica. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 128/96, Report includes Trial Nos.: 2144/96, 2145/96, 2146/96, 2147/96, Edition Number: MO-01-001894. Unpublished.

129/96. Kissling, M. 1997. Magnitude of residues of CGA279202 applied as EC 075 to banana plants in Ecuador. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 129/96, Report includes Trial Nos.: 2151/96, 2150/96, 2149/96, 2148/96, Edition Number: MO-01-001897. Unpublished.

130/96. Kissling, M. 1997. Magnitude of residues of CGA279202 applied as EC 075 to banana plants in Colombia. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 130/96, Report includes Trial Nos.: 2152/96, 2153/96, 2154/96, Edition Number: MO-01-001891. Unpublished.

131/96. Kissling, M. 1997. Magnitude of residues of CGA279202 applied as EC 075 to banana plants in Guatemala. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 131/96, Report includes Trial Nos.: 2155/96, 2156/96, 2157/96, Edition Number: MO-02-010062. Unpublished.

132/96. Kissling, M. 1997. Magnitude of residues of CGA279202 applied as EC 075 to banana plants in Mexico. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 132/96, Report includes Trial Nos.: 2158/96, Edition Number: MO-01-001910. Unpublished.

133/96. Kissling, M. 1997. Magnitude of residues of CGA279202 applied as EC 075 to banana plants in Honduras. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 133/96, Report includes Trial Nos.: 2159/96, Edition Number: MO-01-001899. Unpublished.

134/96. Kissling, M. 1997. Magnitude of residues of CGA279202 applied as EC 075 to banana plants in USA (Puerto Rico). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 134/96, Report includes Trial Nos.: 2160/96, Edition Number: MO-01-001911. Unpublished.

14/97. Ruembeli, R. 1997. The metabolism of [glyoxyl-phenyl-(U)-14C] CGA279202 after multiple oral administration to lactating goats. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 14/97, Edition Number: MO-01-001724. Unpublished.

141/96. Kissling, M. 1996. Validation of Method REM 177.03: Validation by analysis of fortified specimens and determination of recoveries (including efficiency of extraction and accountability tests). Ciba-Geigy Limited, Basel, Switzerland. Bayer CropScience AG, Report no. 141/96, Edition Number: MO-01-013697. Unpublished.

143-98. Ediger, K. 1998. Propiconazole and CGA279202 - Magnitude of the residues in or on almonds. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 143-98, Edition Number: MO-01-008359. Unpublished.

144-98. Vincent, T. P. 2000. Propiconazole and CGA279202 - Magnitude of the residues in or on field corn and popcorn. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 144-98, Edition Number: MO-01-017969. Unpublished.

146-98. Campbell, D. D. 2000. CGA-279202 - Magnitude of the residues in or on a representative commodity of crop group 9: cucurbit vegetables. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 146-98, Edition Number: MO-01-017388. Unpublished.

148-98. Campbell, D. D. 1999. CGA279202 and CGA245704: Magnitude of the residues in or on hops. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 148-98, Edition Number: MO-02-002720. Unpublished.

149-98. Grunenwald, M. C. 2000. CGA279202 and CGA245704: Magnitude of the residues in or on crop group 12: stone fruits. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 149-98, Edition Number: MO-01-008382. Unpublished.

150-98. Vincent, T. P. 2000. Propiconazole and CGA-279202 - Magnitude of the residues in or on rice. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 150-98, Edition Number: MO-03-012929. Unpublished.

151-98. Hayworth, C. G. 2000. CGA-279202 - Magnitude of the residues in or on peanut. Human Saftey Department, Greensboro, NC, USA. Bayer CropScience AG, Report no. 151-98, Edition Number: MO-01-011477. Unpublished.

152-98. Eudy, L. W. 2000. Propiconazole and CGA279202 - Magnitude of the residues in or on sugar beet. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 152-98, Edition Number: MO-01-008366. Unpublished.

153-98. Hayworth, C. G. 2000. CGA279202 - Magnitude of the residues in or on wheat. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 153-98, Edition Number: MO-01-017312. Unpublished.

154/96. Kissling, M. 1999. Stability of residues of CGA279202 and its metabolite CGA321113 in deep freeze stored analytical specimens of grapes, cucumbers, potatoes and wheat (whole plant, grains and straw). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 154/96, Edition Number: MO-01-006356. Unpublished.

155-98. Vincent, T. P. 2000. CGA279202 - Magnitude of the residues in or on pecans. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 155-98, Edition Number: MO-01-008854. Unpublished.

160-97. Grunenwald, M. C. 1999. Stability of CGA-279202 and CGA-321113 in crops and processed fractions under freezer storage conditions. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 160-97, Edition Number: MO-01-006357. Unpublished.

161/97. Kissling, M. 1997. Validation of method REM 177.04 - Validation by analysis of fortified specimens and determination of recoveries. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 161/97, Edition Number: MO-01-014687. Unpublished.

164/97. Kissling, M. 1997. Validation of Method REM 177.05: Validation by analysis of fortified specimens and determination of recoveries. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 164/97, Edition Number: MO-01-013703. Unpublished.

200169. Krolski, M. E. 2002. Flint 50 WG - Magnitude of the residue on tomatoes and peppers. Bayer Corporation, Stilwell, KS, USA. Bayer CropScience AG, Report no. 200169, Edition Number: MO-02-017293. Unpublished.

200177. Haan, R. A. de 2002. Analytical method for the determination of residues of trifloxystrobin (Flint) and trifloxystrobin acid in/on tomatoes and peppers by LC-MS/MS. Bayer Corporation, Stilwell, KS, USA. Bayer CropScience AG, Report no. 200177, Edition Number: MO-02-017364. Unpublished.

2007/99. Kissling, M. 2000. Residue study with CGA279202 in or on apples in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2007/99, Edition Number: MO-01-009821. Unpublished.

2008/00. Kissling, M. 2001. Residue study with CGA279202 in or on grapes in Switzerland. Syngenta Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2008/00, Edition Number: MO-01-010211. Unpublished.

2013/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation EC 125 (A-9604 A) in wheat (Switzerland). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2013/96, Edition Number: MO-01-002507. Unpublished.

2014/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in apples (Switzerland.) Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2014/96, Edition Number: MO-01-001876. Unpublished.

2015/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in apples (Switzerland). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2015/96, Edition Number: MO-01-001873. Unpublished.

2015/99. Kissling, M. 1999. Residue study with CGA279202 in or on peaches in Spain. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2015/99, Edition Number: MO-01-009801. Unpublished.

2016/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in apples (Switzerland). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2016/96, Edition Number: MO-01-001877. Unpublished.

2016/99. Kissling, M. 1999. Residue study with CGA279202 in or on peaches in Spain. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2016/99, Edition Number: MO-01-009802. Unpublished.

2017/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in apples (Switzerland). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2017/96, Edition Number: MO-01-001874. Unpublished.

2017/99. Kissling, M. 2000. Residue study with CGA279202 in or on peaches in France (South). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2017/99, Edition Number: MO-01-009853. Unpublished.

2018/99. Kissling, M. 2000. Residue study with CGA279202 in or on peaches in France (South). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2018/99, Edition Number: MO-01-009848. Unpublished.

2020/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in cucumbers (Switzerland). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2020/96, Edition Number: MO-01-002590. Unpublished.

2022/99. Kissling, M. 2001. Residue study with CGA279202 in or on spring barley in France (North). Syngenta Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2022/99, Edition Number: MO-01-009705. Unpublished.

2029/00. Kissling, M. 2000. Residue study with CGA279202 in or on peaches in Spain. Syngenta Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2029/00, Edition Number: MO-01-009749. Unpublished.

2030/98. Kissling, M. 1999. Residue study with CGA279202 in or on apples in Spain. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2030/98, Edition Number: MO-01-009789. Unpublished.

2034/95. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation 50 WG (A-9360 B) in apples (Switzerland). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2034/95, Edition Number: MO-01-001889. Unpublished.

2034/98. Kissling, M. 1999. Residue study with CGA279202 in or on apples in Italy. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2034/98, Edition Number: MO-01-009754. Unpublished.

2035/95. Kissling, M. 1997. Magnitude of residues after application of CGA279202 and cymoxanil as formulation 49 WG (A-9529 A) in grapes (Switzerland). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2035/95, Edition Number: MO-01-002704. Unpublished.

2035/98. Kissling, M. 1999. Residue study with CGA279202 in or on pears in Italy. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2035/98, Edition Number: MO-01-009760. Unpublished.

2036/95. Kissling, M. 1997. Magnitude of residues after application of CGA279202 and cymoxanil as formulation 49 WG (A-9529 A) in grapes (Switzerland). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2036/95, Edition Number: MO-01-002737. Unpublished.

2042/98. Kissling, M. 1999. Residue study with CGA279202 in or on grapes in Italy. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2042/98, Edition Number: MO-01-009794. Unpublished.

2043/98. Kissling, M. 1999. Residue study with CGA279202 in or on grapes in Italy. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2043/98, Edition Number: MO-01-009796. Unpublished.

2045/00. Kissling, M. 2000. Residue study with CGA279202 in or on strawberries in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2045/00, Edition Number: MO-01-009837. Unpublished.

2047/00. Kissling, M. 2000. Residue study with CGA279202 in or on carrots in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2047/00, Edition Number: MO-01-009820. Unpublished.

2048/00. Kissling, M. 2000. Residue study with CGA279202 in or on celeriac in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2048/00, Edition Number: MO-01-009831 . Unpublished.

2048/97. Kissling, M. 1998. Residue study with CGA279202 in or on apples in Spain. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2048/97, Edition Number: MO-01-009598. Unpublished.

2049/00. Kissling, M. 2000. Residue study with CGA279202 in or on celeriac in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2049/00, Edition Number: MO-01-009828. Unpublished.

2049/97. Kissling, M. 1998. Residue study with CGA279202 in or on apples in Spain. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2049/97, Edition Number: MO-01-009601. Unpublished.

2050/00. Kissling, M. 2000. Residue study with CGA279202 in or on celery in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2050/00, Edition Number: MO-01-009825. Unpublished.

2050/97. Kissling, M. 1998. Residue study with CGA279202 in or on grapes in Spain. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2050/97, Edition Number: MO-01-009703. Unpublished.

2051/00. Kissling, M. 2000. Residue study with CGA279202 in or on celery in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2051/00, Edition Number: MO-01-009780. Unpublished.

2051/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in melons (Spain). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2051/96, Edition Number: MO-01-002766. Unpublished.

2051/97. Kissling, M. 1998. Residue study with CGA279202 in or on grapes in Spain. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2051/97, Edition Number: MO-01-009710. Unpublished.

2052/00. Kissling, M. 2000. Residue study with CGA279202 in or on chinese cabbage in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2052/00, Edition Number: MO-01-009819. Unpublished.

2052/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in melons (Spain). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2052/96, Edition Number: MO-01-002781. Unpublished.

2052/97. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in melons (Spain). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2052/97, Edition Number: MO-01-002779. Unpublished.

2053/00. Kissling, M. 2000. Residue study with CGA279202 in or on chinese cabbage in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2053/00, Edition Number: MO-01-009777. Unpublished.

2053/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in cucumbers (Spain). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2053/96, Edition Number: MO-01-002581. Unpublished.

2053/97. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in melons (Spain). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2053/97, Edition Number: MO-01-002771. Unpublished.

2054/00. Kissling, M. 2000. Residue study with CGA279202 in or on Brussel sprouts in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2054/00, Edition Number: MO-01-009767. Unpublished.

2054/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in cucumbers (Spain). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2054/96, Edition Number: MO-01-002588. Unpublished.

2055/00. Kissling, M. 2000. Residue study with CGA279202 in or on Brussel sprouts in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2055/00, Edition Number: MO-01-009761. Unpublished.

2055/98. Kissling, M. 1999. Residue study with CGA279202 in or on apples in Spain. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2055/98, Edition Number: MO-01-009788. Unpublished.

2056/00. Kissling, M. 2000. Residue study with CGA279202 in or on cabbage in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2056/00, Edition Number: MO-01-009812. Unpublished.

2056/98. Kissling, M. 1999. Residue study with CGA279202 in or on grapes in Spain. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2056/98, Edition Number: MO-01-009797. Unpublished.

2057/00. Kissling, M. 2000. Residue study with CGA279202 in or on cabbage in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2057/00, Edition Number: MO-01-009811. Unpublished.

2057/98. Kissling, M. 1999. Residue study with CGA279202 in or on grapes in Spain. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2057/98, Edition Number: MO-01-009799. Unpublished.

2058/00. Kissling, M. 2000. Residue study with CGA279202 in or on cauliflower in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2058/00, Edition Number: MO-01-009809. Unpublished.

2058/98. Kissling, M. 1999. Residue study with CGA279202 in or on pears in Spain. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2058/98, Edition Number: MO-01-009785. Unpublished.

2059/00. Kissling, M. 2000. Residue study with CGA279202 in or on cauliflower in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2059/00, Edition Number: MO-01-009823. Unpublished.

2059/98. Kissling, M. 1999. Residue study with CGA279202 in or on pears in Spain. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2059/98, Edition Number: MO-01-009784. Unpublished.

2060/00. Kissling, M. 2000. Residue study with CGA279202 in or on cherries in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2060/00, Edition Number: MO-01-009778. Unpublished.

2060/98. Kissling, M. 1999. Residue study with CGA279202 in or on apples in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2060/98, Edition Number: MO-01-009763. Unpublished.

2060/99. Pointurier, R. 2000. Residue study with CGA279202 and cyproconazole (SAN 619) in or on sugarbeets in Spain. ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 2060/99, Edition Number: MO-01-006300. Unpublished.

2061/00. Kissling, M. 2000. Residue study with CGA279202 in or on cherries in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2061/00, Edition Number: MO-01-009806. Unpublished.

2061/98. Kissling, M. 1999. Residue study with CGA279202 in or on apples in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2061/98, Edition Number: MO-01-009765. Unpublished.

2061/99. Pointurier, R. 2000. Residue study with CGA279202 and cyproconazole (SAN 619) in or on sugarbeets in Spain. ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 2061/99, Edition Number: MO-01-006292. Unpublished.

2062/00. Kissling, M. 2000. Residue study with CGA279202 in or on apricots in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2062/00, Edition Number: MO-01-009803. Unpublished.

2063/00. Kissling, M. 2000. Residue study with CGA279202 in or on apricots in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2063/00, Edition Number: MO-01-009786. Unpublished.

2064/00. Kissling, M. 2000. Residue study with CGA279202 in or on plums in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2064/00, Edition Number: MO-01-009773. Unpublished.

2065/00. Kissling, M. 2000. Residue study with CGA279202 in or on plums in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2065/00, Edition Number: MO-01-009768. Unpublished.

2067/00. Kissling, M. 2000. Residue study with CGA279202 and cyproconazole (SAN 619) in or on leek in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2067/00, Edition Number: MO-01-009591. Unpublished.

2068/00. Kissling, M. 2000. Residue study with CGA279202 and cyproconazole (SAN 619) in or on leek in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2068/00, Edition Number: MO-01-009592. Unpublished.

2069/00. Kissling, M. 2000. Residue study with CGA279202 in or on chicory in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2069/00, Edition Number: MO-01-009759. Unpublished.

2070/00. Kissling, M. 2000. Residue study with CGA279202 in or on chicory in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2070/00, Edition Number: MO-01-009755. Unpublished.

2074/99. Pointurier, R. 2000. Residue study with CGA279202 and cyproconazole (SAN 619) in or on sugarbeets in Italy. ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 2074/99, Edition Number: MO-01-006306. Unpublished.

2075/97. Kissling, M. 1998. Residue study with CGA279202 in or on apples in Italy. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2075/97, Edition Number: MO-01-009671. Unpublished.

2075/99. Pointurier, R. 2000. Residue study with CGA279202 and cyproconazole (SAN 619) in or on sugarbeets in Italy. ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 2075/99, Edition Number: MO-01-006310. Unpublished.

2076/97. Kissling, M. 1998. Residue study with CGA279202 in or on apples in Italy. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2076/97, Edition Number: MO-01-009733. Unpublished

2077/97. Kissling, M. 1998. Residue study with CGA279202 in or on grapes in Italy. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2077/97, Edition Number: MO-01-009714. Unpublished.

2078/97. Kissling, M. 1998. Residue study with CGA279202 in or on grapes in Italy. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2078/97, Edition Number: MO-01-009720. Unpublished.

2079/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in cucumbers (Italy). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2079/96, Edition Number: MO-01-002566. Unpublished.

2080/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in melons (Italy). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2080/96, Edition Number: MO-01-002741. Unpublished.

2080/99. Kissling, M. 1999. Residue study with CGA279202 in or on strawberries in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2080/99, Edition Number: MO-01-009790. Unpublished.

2081/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in melons (Italy). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2081/96, Edition Number: MO-01-002764. Unpublished.

2081/99. Kissling, M. 2000. Residue study with CGA279202 in or on carrots in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2081/99, Edition Number: MO-01-009835. Unpublished.

2082/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in apples (Italy). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2082/96, Edition Number: MO-01-001861. Unpublished.

2083/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in apples (Italy). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2083/96, Edition Number: MO-01-001858. Unpublished.

2084/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in grapes (Italy). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2084/96, Edition Number: MO-01-002638. Unpublished.

2085/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in grapes (Italy). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2085/96, Edition Number: MO-01-002622. Unpublished.

2086/99. Pointurier, R. 2000. Residue study with CGA279202 and cyproconazole (SAN 619) in or on sugarbeets in Switzerland. ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 2086/99, Edition Number: MO-01-006344. Unpublished.

2095/00. Kuehne-Thu, H. 2001. Residue study with CGA279202 in or on peaches in Italy. Syngenta Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2095/00, Edition Number: MO-01-020812. Unpublished.

2102/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in cucumbers (Netherlands). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2102/96, Edition Number: MO-01-002572. Unpublished.

21021/99. Kissling, M. 2001. Residue study with CGA279202 in or on spring barley in France (North). Syngenta Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2021/99, Edition Number: MO-01-009713. Unpublished.

2103/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in cucumbers (Netherlands). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2103/96, Edition Number: MO-01-002569. Unpublished.

2106/00. Kuehne-Thu, H. 2002. Resdiue study with CGA279202 in or on wheat in france (south). Syngenta Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2106/00, Edition Number: MO-02-004873. Unpublished.

2109/99. Kissling, M. 2000. Residue study with CGA279202 in or on apples in Netherlands. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2109/99, Edition Number: MO-01-009955. Unpublished.

2110/99. Kissling, M. 2000. Residue study with CGA279202 in or on peaches in Italy. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2110/99, Edition Number: MO-01-009959. Unpublished.

2111/99. Kissling, M. 2000. Residue study with CGA279202 in or on peaches in Italy. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2111/99, Edition Number: MO-01-009960. Unpublished.

2114/99. Pointurier, R. 2000. Residue study with CGA279202 in or on grapes in France (North). ADME Bioanalyses, Vergeze, France. Bayer CropScience AG, Report no. 2114/99, Edition Number: MO-01-008878. Unpublished.

2115/95. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation 50 WG (A-9360 B) in apples (Italy). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2115/95, Edition Number: MO-01-001859. Unpublished.

2115/99. Pointurier, R. 2000. Residue study with CGA279202 in or on grapes in France (North). ADME Bioanalyses, Vergeze, France. Bayer CropScience AG, Report no. 2115/99, Edition Number: MO-01-008880. Unpublished.

2116/95. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation 50 WG (A-9360 B) in apples (Italy). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2116/95, Edition Number: MO-01-001869. Unpublished.

2124/99. Kissling, M. 2000. Residue study with CGA279202 in or on apples in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2124/99, Edition Number: MO-01-009844. Unpublished.

2125/99. Kissling, M. 2000. Residue study with CGA279202 in or on apples in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2125/99, Edition Number: MO-01-009846. Unpublished.

2134/98. Kissling, M. 1999. Residue study with CGA279202 in or on grapes in Greece. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2134/98, Edition Number: MO-01-009800. Unpublished.

2135/98. Kissling, M. 1999. Residue study with CGA279202 in or on apples in Greece. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2135/98, Edition Number: MO-01-009782. Unpublished.

2136/98. Kissling, M. 1999. Residue study with CGA279202 in or on pears in Greece. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2136/98, Edition Number: MO-01-009779. Unpublished.

2146/00. Kissling, M. 2000. Residue study with CGA279202 in or on celery in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2146/00, Edition Number: MO-01-009753. Unpublished.

2147/00. Kuehne-Thu, H. 2001. Residue study with CGA279202 in or on grapes in Switzerland. Syngenta Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2147/00, Edition Number: MO-01-016589. Unpublished.

2154/00. Kuehne-Thu, H. 2001. Residue study with CGA279202 in or on bananas in Martinique. Syngenta Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2154/00, Edition Number: MO-01-020793. Unpublished.

2155/00. Kuehne-Thu, H. 2001. Residue study with CGA279202 in or on bananas in Martinique. Syngenta Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2155/00, Edition Number: MO-01-020794. Unpublished.

2158/98. Kissling, M. 1999. Residue study with CGA279202 in or on apples in the Netherlands. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2158/98, Edition Number: MO-01-009766. Unpublished.

2159/98. Kissling, M. 1999. Residue study with CGA279202 in or on apples in the Netherlands. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2159/98, Edition Number: MO-01-009770. Unpublished.

2160/98. Kissling, M. 1999. Residue study with CGA279202 in or on apples in the Netherlands. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2160/98, Edition Number: MO-01-009774. Unpublished.

2162/97. Kissling, M. 1998. Residue study with CGA279202 and Cymoxanil (ASF 331) in or on hops in Germany. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2162/97, Edition Number: MO-01-009673. Unpublished.

2163/97. Kissling, M. 1998. Residue study with CGA279202 and Cymoxanil (ASF 331) in or on hops in Germany. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2163/97, Edition Number: MO-01-009676. Unpublished.

2163/98. Kissling, M. 1999. Residue study with CGA279202, cyproconazole (SAN 619) in or on sugarbeets in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2163/98, Edition Number: MO-01-006302. Unpublished.

2163/99. Kissling, M. 2000. Residue study with CGA279202 in or on pears in South Africa. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2163/99, Edition Number: MO-01-008836. Unpublished.

2164/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in cucumbers (Spain). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2164/96, Edition Number: MO-01-002576. Unpublished.

2164/97. Kissling, M. 1998. Residue study with CGA279202 and Cymoxanil (ASF 331) in or on hops in Germany. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2164/97, Edition Number: MO-01-009679. Unpublished.

2164/98. Kissling, M. 1999. Residue study with CGA279202, cyproconazole (SAN 619) in or on sugarbeets in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2164/98, Edition Number: MO-01-006289. Unpublished.

2165/96. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in cucumbers (Spain). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2165/96, Edition Number: MO-01-002578. Unpublished.

2165/97. Kissling, M. 1998. Residue study with CGA279202 and Cymoxanil (ASF 331) in or on hops in Germany. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2165/97, Edition Number: MO-01-009685. Unpublished.

2165/99. Kissling, M. 2000. Residue study with CGA279202 in or on pears in South Africa. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2165/99, Edition Number: MO-01-008845. Unpublished.

2166/97. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation EC 125 (A-9604 A) in barley (France, South). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2166/97, Edition Number: MO-01-001950. Unpublished.

2167/97. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation EC 125 (A-9604 A) in barley (France, South). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2167/97, Edition Number: MO-01-001949. Unpublished.

2168/97. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation EC 125 (A-9604 A) in barley (France, South). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2168/97, Edition Number: MO-01-001951. Unpublished.

2169/97. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation EC 125 (A-9604 A) in barley (France, South). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2169/97, Edition Number: MO-01-001953. Unpublished.

2170/97. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation EC 125 (A-9604 A) in wheat (France, South). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2170/97, Edition Number: MO-01-002084. Unpublished.

2171/97. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation EC 125 (A-9604 A) in wheat (France, South). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2171/97, Edition Number: MO-01-002077. Unpublished.

2172/97. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation EC 125 (A-9604 A) in wheat (France, South). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2172/97, Edition Number: MO-01-002079. Unpublished.

2173/97. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation EC 125 (A-9604 A) in wheat (France, South). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2173/97, Edition Number: MO-01-002087. Unpublished.

2177/99. Kissling, M. 2000. Residue study with CGA279202 in or on oranges in South Africa. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2177/99, Edition Number: MO-01-008803. Unpublished.

2178/99. Kissling, M. 2000. Residue study with CGA279202 in or on oranges in South Africa. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2178/99, Edition Number: MO-01-008812. Unpublished.

2179/99. Kissling, M. 2000. Residue study with CGA279202 in or on oranges in South Africa. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2179/99, Edition Number: MO-01-008819. Unpublished.

22/97. Ruembeli, R. 1998. The metabolism of [glyoxyl-phenyl-(U)-14C] CGA279202 after multiple oral administration to laying hens. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 22/97, Edition Number: MO-01-001731. Unpublished.

2204/95. Kissling, M. 1998. Magnitude of residues after application of CGA279202 as formulation EC 125 (A-9604 A) in grapes and wine. Ciba-Geigy (Pty) Ltd., Isando, South Africa. Bayer CropScience AG, Report no. 2204/95, Edition Number: MO-01-008867. Unpublished.

2205/95. Kissling, M. 1998. Magnitude of residues in wine after application of CGA279202 as formulation EC 125 (A-9604 A) to grapes. Ciba-Geigy (Pty) Ltd., Isando, South Africa . Bayer CropScience AG, Report no. 2205/95, Edition Number: MO-01-008859. Unpublished.

2207/95. Kissling, M. 1998. Magnitude of residues in wine after application of CGA279202 as formulation EC 125 (A-9604 A) to grapes. Ciba-Geigy (Pty) Ltd., Isando, South Africa . Bayer CropScience AG, Report no. 2207/95, Edition Number: MO-01-008863. Unpublished.

2211/95. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation EC 125 (A-9604 A) in grapes. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2211/95, Edition Number: MO-01-002596. Unpublished.

2214/95. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in grapes. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2214/95, Edition Number: MO-01-002674. Unpublished.

2215/95. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in apples. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2215/95, Edition Number: MO-01-001870. Unpublished.

2216/95. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in apples. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2216/95, Edition Number: MO-01-001871. Unpublished.

2220/97. Kissling, M. 1998. Residue study with CGA279202, cyproconazole (SAN 619) in or on barley in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2220/97, Edition Number: MO-01-009404. Unpublished.

2221/97. Kissling, M. 1998. Residue study with CGA279202, cyproconazole (SAN 619) in or on barley in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2221/97, Edition Number: MO-01-009417. Unpublished.

2222/97. Kissling, M. 1998. Residue study with CGA279202, cyproconazole (SAN 619) in or on barley in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2222/97, Edition Number: MO-01-009426. Unpublished.

2223/97. Kissling, M. 1998. Residue study with CGA279202, cyproconazole (SAN 619) in or on barley in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2223/97, Edition Number: MO-01-009430. Unpublished.

2224/97. Kissling, M. 1999. Residue study with CGA279202 in or on barley in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2224/97, Edition Number: MO-01-009462. Unpublished.

2225/97. Kissling, M. 1999. Residue study with CGA279202 in or on barley in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2225/97, Edition Number: MO-01-009465. Unpublished.

2226/97. Kissling, M. 1999. Residue study with CGA279202 in or on barley in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2226/97, Edition Number: MO-01-009549. Unpublished.

2227/97. Kissling, M. 1999. Residue study with CGA279202 in or on barley in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2227/97, Edition Number: MO-01-009553. Unpublished.

2228/97. Kissling, M. 1998. Residue study with CGA279202, cyproconazole (SAN 619) in or on barley in France (south). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2228/97, Edition Number: MO-01-005267. Unpublished.

2229/97. Kissling, M. 1998. Residue study with CGA279202, cyproconazole (SAN 619) in or on barley in France (south). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2229/97, Edition Number: MO-01-005300. Unpublished.

2230/97. Kissling, M. 1998. Residue study with CGA279202, cyproconazole (SAN 619) in or on barley in France (south). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2230/97, Edition Number: MO-01-005307. Unpublished.

2231/97. Kissling, M. 1998. Residue study with CGA279202, cyproconazole (SAN 619) in or on barley in France (south). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2231/97, Edition Number: MO-01-005308. Unpublished.

2236/97. Kissling, M. 1998. Residue study with CGA279202, cyproconazole (SAN 619) in or on wheat in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2236/97, Edition Number: MO-01-009435. Unpublished.

2237/97. Kissling, M. 1998. Residue study with CGA279202, cyproconazole (SAN 619) in or on wheat in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2237/97, Edition Number: MO-01-009440. Unpublished.

2238/97. Kissling, M. 1998. Residue study with CGA279202, cyproconazole (SAN 619) in or on wheat in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2238/97, Edition Number: MO-01-009442. Unpublished.

2239/97. Kissling, M. 1998. Residue study with CGA279202, cyproconazole (SAN 619) in or on wheat in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2239/97, Edition Number: MO-01-009445. Unpublished.

2240/97. Kissling, M. 1999. Residue study with CGA279202 in or on wheat in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2240/97, Edition Number: MO-01-009454. Unpublished.

2241/97. Kissling, M. 1999. Residue study with CGA279202 in or on wheat in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2241/97, Edition Number: MO-01-009455. Unpublished.

2242/97. Kissling, M. 1999. Residue study with CGA279202 in or on wheat in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2242/97, Edition Number: MO-01-009558. Unpublished.

2243/97. Kissling, M. 1999. Residue study with CGA279202 in or on wheat in France (north). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2243/97, Edition Number: MO-01-009563. Unpublished.

2244/97. Kissling, M. 1998. Residue study with CGA279202, cyproconazole (SAN 619) in or on wheat in France (south). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2244/97, Edition Number: MO-01-005313. Unpublished.

2245/97. Kissling, M. 1998. Residue study with CGA279202, cyproconazole (SAN 619) in or on wheat in France (south). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2245/97, Edition Number: MO-01-005315. Unpublished.

2246/97. Kissling, M. 1998. Residue study with CGA279202, cyproconazole (SAN 619) in or on wheat in France (south). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2246/97, Edition Number: MO-01-006274. Unpublished.

2247/97. Kissling, M. 1998. Residue study with CGA279202, cyproconazole (SAN 619) in or on wheat in France (south). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2247/97, Edition Number: MO-01-006276. Unpublished.

2255/98. Kissling, M. 2000. Residue study with CGA279202 in or on summer squash in South Africa. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2255/98, Edition Number: MO-01-008798. Unpublished.

2256/98. Kissling, M. 2000. Residue study with CGA279202 in or on summer squash in South Africa. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2256/98, Edition Number: MO-01-008799. Unpublished.

2257/98. Kissling, M. 2000. Residue study with CGA279202 in or on summer squash in South Africa. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2257/98, Edition Number: MO-01-008802. Unpublished.

2272/97. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation EC 125 (A-9604 A) in winter wheat (Switzerland). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2272/97, Edition Number: MO-01-002509. Unpublished.

2388/97. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in melons (Italy). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2388/97, Edition Number: MO-01-002760. Unpublished.

2389/97. Kissling, M. 1997. Magnitude of residues after application of CGA279202 as formulation WG 50 (A-9360 B) in melons (Italy). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2389/97, Edition Number: MO-01-002757. Unpublished.

2409/97. Kissling, M. 1998. Residue study with CGA279202 in or on oranges in South Africa. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2409/97, Edition Number: MO-01-008837. Unpublished.

2410/97. Kissling, M. 1998. Residue study with CGA279202 in or on oranges in South Africa. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2410/97, Edition Number: MO-01-008846. Unpublished.

2411/97. Kissling, M. 1998. Residue Study with CGA279202 in or on oranges in South Africa. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 2411/97, Edition Number: MO-01-008852. Unpublished.

242.40. Manuli, P. J. and Jacobson, B. 2000. Aquatic field dissipation of CGA-279202 under field conditions with rice in Arkansas. Waterborne Environmental, Inc., Leesburg, VA, USA. Bayer CropScience AG, Report no. 242.40, Edition Number: MO-01-005846. Unpublished.

243-98. Hayworth, C. G. 1999. CGA-279202 - Magnitude of the residues in poultry meat and eggs. Residue Chemistry Department, Greensboro, NC, USA. Bayer CropScience AG, Report no. 243-98, Edition Number: MO-02-002553. Unpublished.

265A.00. Peterson, S. M. 1999. Determination of CGA279202 and CGA321113 in plant material by HPLC. Novartis Animal Health Australasia Pty. Limited, Kemps Creek, NSW, Australia. Bayer CropScience AG, Report no. 265A.00, Edition Number: MO-01-009051, Method Report no. 99/5/1647. Unpublished.

279202/564. Bandong, G. Q. 1998. Independent laboratory validation of the analytical method for the determination of residues of CGA-279202 and the acid metabolite, CGA-321113, in crops and animal substrates by gas chromatography. The National Food Laboratory, Dublin, CA, USA. Bayer CropScience AG, Report no. 279202/564, Edition Number: MO-01-012334. Unpublished.

301-97. Grunenwald, M. C. 1999. Stability of CGA-279202 and CGA-321113 in meat, milk, and eggs under freezer storage conditions. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 301-97, Edition Number: MO-01-006359. Unpublished.

35-97. Vincent, T. P. and Ediger, K. 1998. Propiconazole and CGA279202 - Magnitude of the residues in or on sugar beet. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 35-97, Edition Number: MO-01-008675. Unpublished.

40-97. Eudy, L. W. 1999. CGA279202 - Magnitude of the Residues in or on Crop Group 8: Fruiting Vegetables. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 40-97, Edition Number: MO-01-008363. Unpublished.

43-97. Vincent, T. P. and Ediger, K. 1999. Propiconazole and CGA279202 - Magnitude of the residues in or on wheat. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 43-97, Edition Number: MO-01-008519. Unpublished.

46880. Das, R. 1996. Report on melting point / melting range - CGA279202. Ciba-Geigy Limited, Muenchwilen, Switzerland. Bayer CropScience AG, Report no. 46880, Edition Number: MO-01-003724. Unpublished.

46883. Stulz, J. 1997. Report on dissociation constant in water - CGA279202. Novartis Crop Protection Muenchwilen AG, Muenchwilen, Switzerland. Bayer CropScience AG, Report no. 46883, Edition Number: MO-01-003808. Unpublished.

46884. Stulz, J. 1997. Report on octanol / water partition coefficient - CGA279202. Novartis Crop Protection Muenchwilen AG, Muenchwilen, Switzerland. Bayer CropScience AG, Report no. 46884, Edition Number: MO-01-003797. Unpublished.

46885. Stulz, J. 1997. Report on water solubility - CGA279202. Novartis Crop Protection Muenchwilen AG, Muenchwilen, Switzerland. Bayer CropScience AG, Report no. 46885, Edition Number: MO-01-003778. Unpublished.

46887. Das, R. 1996. Report on general physico-chemical properties, pure a.i. (aspect, colour, odour) - CGA279202. Novartis Crop Protection Muenchwilen AG, Muenchwilen, Switzerland. Bayer CropScience AG, Report no. 46887, Edition Number: MO-01-003759. Unpublished.

511/98. Kissling, M. 1998. Residue study with CGA279202 in or on apples in Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 511/98, Edition Number: MO-01-009750. Unpublished.

526/98. Kissling, M. 2000. Determination of CGA279202 and CGA321113 in grapes (berries and wine) originating from trails 98-3.211.051, 98-3.211.052, 98-3.211.060 and 98-3.211.061- Switzerland. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 526/98, Edition Number: MO-01-009810. Unpublished.

53276. Stulz, J. 1997. Report on solubility in organic solvents - CGA279202. Novartis Crop Protection Muenchwilen AG, Muenchwilen, Switzerland. Bayer CropScience AG, Report no. 53276, Edition Number: MO-01-003784. Unpublished.

53274. Das, R. 1997. Report on general physico-chemical properties, technical grade a.i. (aspect, colour, odour) - CGA279202. Novartis Crop Protection Muenchwilen AG, Muenchwilen, Switzerland. Bayer CropScience AG, Report no. 53274, Edition Number: MO-01-003765. Unpublished.

53-96. Vincent, T. P. 1998. CGA-279202 - Magnitude of the residues in or on peanuts. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 53-96, Report includes Trial Nos.: 07-FR-003-96, OS-FR-202-96, OS-FR-314-96, OS-FR-604-96, OS-FR-753-96, OS-FR-841-96, OS-FR-842-96, OS-FR-843-96, OS-FR-844-96, OS-FR-845-96, NE-FR-303-96, OS-FR-609-97. Edition Number: MO-01-018246. Unpublished.

55-96. Vincent, T. P. 1999. CGA279202 - Magnitude of the residue in or on crop subgroup 1C: tuberous and corm vegetables. Human Safety Department, Greensboro, USA. Bayer CropScience AG, Report no. 55-96, Edition Number: MO-01-009856. Unpublished.

751-99. Vincent, T. P. 2000. Propiconazole and CGA279202 - Magnitude of the residues in or on field corn and popcorn. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 751-99, Edition Number: MO-01-008484. Unpublished.

756-99. Eudy, L. W. and Ediger, K. 1999. CGA-279202 - summary of recovery data for analytical method AG-659A. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. 756-99, Edition Number: MO-02-006422. Unpublished.

94PK01. Kitschmann, P. 1996. Hydrolysis of (U)-14C-phenyl-glyoxylate-labeled CGA279202 under laboratory conditions. Ciba-Geigy Limited, Basel, Switzerland. Bayer CropScience AG, Report no. 94PK01, Edition Number: MO-01-001565. Unpublished.

94PK02. Kitschmann, P. 1997. Aqueous photolysis of [trifluormethyl-phenyl-(U)-14C]-CGA279202 under laboratory conditions. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 94PK02, Edition Number: MO-01-001584. Unpublished.

94UL04. Ulbrich, R. 1997. Hydrolysis of (trifluormethyl-phenyl-(U)-14C)-labeled CGA279202 under laboratory conditions. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 94UL04, Edition Number: MO-01-001568.

951047008. Beinhauer, K. and Kissling, M. 1996. Trial for determination of residue levels in bunches of grapes and wine according to BBA Guideline IV, 3-3 and 3-4 (1990). BioChem GmbH Karlsruhe, Cunnersdorf, Germany. Bayer CropScience AG, Report no. 951047008, Report includes Trial Nos.: FR08/95/43. Edition Number: MO-01-002616. Unpublished.

96WI29. Widmer, H. 1996. Vapour pressure of CGA279202. Ciba-Geigy Limited, Basel, Switzerland. Bayer CropScience AG, Report no. 96WI29, Edition Number: MO-01-003754. Unpublished.

9711601. Maffezzoni, M. 1998. Residue study with CGA279202 and CGA64250 in or on malting winter barley in France (North). ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9711601, Edition Number: MO-01-009457. Unpublished.

9715102. Maffezzoni, M. 1998. Residue study with CGA279202 and CGA64250 in or on malting spring barley in France (North). ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9715102, Edition Number: MO-01-009425. Unpublished.

97WI40. Widmer, H. 1997. Thermal decomposition of CGA321113 and CGA373466 to CGA357276 and the corresponding nitrile of CGA373466. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 97WI40, Edition Number: MO-01-001570. Unpublished.

9810502. Maffezzoni, M. 1999. Residue study with CGA279202 + cyproconazole in or on winter barley in North of France. ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9810502, Edition Number: MO-01-009352. Unpublished.

9810602. Maffezzoni, M. 1999. Residue study with CGA279202 + cyproconazole in or on spring barley in North of France. ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9810602, Edition Number: MO-01-009328. Unpublished.

9811001. Maffezzoni, M. 1999. Residue study with CGA279202 in or on apples in France (North). ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9811001, Edition Number: MO-01-009383. Unpublished.

9813101. Maffezzoni, M. 1999. Residue study with CGA279202 + cyproconazole in or on wheat in North of France. ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9813101, Edition Number: MO-01-009379. Unpublished.

9813102. Maffezzoni, M. 1999. Residue study with CGA279202 + cyproconazole in or on wheat in North of France. ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9813102, Edition Number: MO-01-009374. Unpublished.

9813103. Maffezzoni, M. 1999. Residue study with CGA279202, cyproconazole (SAN 619) in or on wheat in south of France. ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9813103, Edition Number: MO-01-006285. Unpublished.

9813104. Maffezzoni, M. 1999. Residue study with CGA279202, cyproconazole (SAN 619) in or on wheat in South of France. ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9813104, Edition Number: MO-01-006278. Unpublished.

9813201. Maffezzoni, M. 1999. Residue study with CGA279202 + cyproconazole in or on barley in North of France. ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9813201, Edition Number: MO-01-009372. Unpublished.

9813202. Maffezzoni, M. 1999. Residue study with CGA279202 + cyproconazole in or on barley in North of France. ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9813202, Edition Number: MO-01-009368. Unpublished.

9813203. Maffezzoni, M. 1999. Residue study with CGA279202 + cyproconazole in or on barley in South of France. ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9813203, Edition Number: MO-01-009364. Unpublished.

9813204. Maffezzoni, M. 1999. Residue study with CGA279202 + cyproconazole in or on barley in South of France. ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9813204, Edition Number: MO-01-009361. Unpublished.

99/5/1645. Dal Santo, P. and Peterson, S. M. 1999. Trials to determine the level of trifloxystrobin (CGA279202) and its major metabolite CGA321113 in grapes, grape juice and wine following six application of Flint to grapevines. Novartis Crop Protection Australasia Pry. Ltd, Pendle Hill, NSW, Australia. Bayer CropScience AG, Report no. 99/5/1645, Edition Number: MO-01-010124. Unpublished.

99/5/1646. Bodnaruk, K. and Peterson, S. M. 1999. Trials to determine the level of trifloxystrobin (CGA279202) and its major metabolite CGA321113 in pome fruit following six applications of Flint to pome fruit. Novartis Crop Protection Australasia Pry. Ltd, Pendle Hill, NSW, Australia. Bayer CropScience AG, Report no. 99/5/1646, Edition Number: MO-01-010112. Unpublished.

99/5/1647. Peterson, S. M. 1999. Validation of analytical method 265A.00. Novartis Animal Health Australasia Pty. Limited, Kemps Creek, NSW, Australia. Bayer CropScience AG, Report no. 99/5/1647, Edition Number: MO-01-009054. Unpublished.

9910901. Pointurier, R. 2000. Residue study with CGA279202 and cyproconazole (SAN 619) in or on sugarbeets in France (north). ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9910901, Edition Number: MO-01-006305. Unpublished.

9910902. Pointurier, R. 2000. Residue study with CGA279202 and cyproconazole (SAN 619) in or on sugarbeets in France (north). ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9910902, Edition Number: MO-01-006309. Unpublished.

9910903. Pointurier, R. 2000. Residue study with CGA279202 and cyproconazole (SAN 619) in or on sugarbeets in France (north). ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9910903, Edition Number: MO-01-006315. Unpublished.

9911001. Pointurier, R. 2000. Residue study with CGA279202 and cyproconazole (SAN 619) in or on sugarbeets in France. ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9911001, Edition Number: MO-01-006328. Unpublished.

9911002. Pointurier, R. 2000. Residue study with CGA279202 and cyproconazole (SAN 619) in or on sugarbeets in France (south). ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9911002, Edition Number: MO-01-006330. Unpublished.

9911101. Pointurier, R. 2000. Residue study with CGA279202 and cyproconazole (SAN 619) in or on sugarbeets in France (north). ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9911101, Edition Number: MO-01-006321. Unpublished.

9911102. Pointurier, R. 2000. Residue study with CGA279202 and cyproconazole (SAN 619) in or on sugarbeets in France (north). ADME Bioanalyses, Aigues-Vives, France. Bayer CropScience AG, Report no. 9911102, Edition Number: MO-01-006329. Unpublished.

99MK09. Kiffe, M. 2000. Behaviour and metabolism of [trifluoromethyl-phenyl-(U)-14C] CGA279202 in field grown sugar beets. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 99MK09, Edition Number: MO-01-015671. Unpublished.

99MK10. Kiffe, M. 2000. Behaviour and metabolism of [glyoxyl-phenyl-(U)-14C] CGA279202 in field grown sugar beets. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. 99MK10, Edition Number: MO-01-015673. Unpublished.

ABR-97074. Campbell, D. D. 1997. CGA279202 - Magnitude of the residue in or on crop group 11: pome fruits. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. ABR-97074, Edition Number: MO-01-002811. Unpublished.

ABR-97075. Campbell, D. D. 1997. CGA279202 - Magnitude of the residues in meat and milk resulting from the feeding of three levels to dairy cattle. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. ABR-97075, Edition Number: MO-01-002792. Unpublished.

ABR-97084. Rezaaiyan, R. 1997. Uptake and metabolism of CGA-279202 in field grown peanuts after spray treatment with phenyl (A)-14C-CGA-279202 and phenyl (B)-14C-CGA-279202. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. ABR-97084, Edition Number: MO-01-016005. Unpublished.

ABR-97087. Kennedy, E. T. 1997. 14C-CGA-279202: Uptake and distribution of residues in confined rotational crops. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. ABR-97087, Edition Number: MO-01-015714. Unpublished.

ABR-97120. Campbell, D. D. 1997. CGA-279202 - Magnitude of the residues in or on crop group 9: cucurbits. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. ABR-97120, Edition Number: MO-01-016042. Unpublished.

ABR-98013. Hamilton, L. S. 1998. Independent laboratory validation of Novartis analytical method No. AG-659A, analytical method for the determination of residues CGA279202 and the acid metabolite, CGA321113, in crops and animal substrates by gas chromatography. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. ABR-98013, Edition Number: MO-01-014672. Unpublished.

AG-659. Campbell, D. D. 1997. Analytical method for the determination of residues CGA279202 and the acid metabolite, CGA321113, in crops and animal substrates by gas chromatography. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. AG-659, Edition Number: MO-01-002956. Unpublished.

AG-659A. Campbell, D. D. 1998. Analytical method for the determination of residues CGA-279202 and the acid metabolite, CGA-321113, in crops and animal substrates by gas chromatography. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. AG-659A, Edition Number: MO-01-011370. Unpublished.

BRA S-A1-630/02-S1. Anon. 2003. CGA279202 & SAN 619 F; 267.5 EC; wheat; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-A1-630/02-S1, Report includes Trial Nos.: BRA-S-A1-630/02-S1-B, BRA-S-A1-630/02-S1-A. Edition Number: MO-03-014938. Unpublished.

BRA S-A1-630/02-S2. Anon. 2003. CGA279202 & SAN 619 F; 267.5 EC; wheat; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-A1-630/02-S2, Report includes Trial Nos.: BRA-S-A1-630/02-S2-B, BRA-S-A1-630/02-S2-A. Edition Number: MO-03-014941. Unpublished.

BRA S-A1-630/02-S3. Anon. 2003. CGA279202 & SAN 619 F; 267.5 EC; wheat; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-A1-630/02-S3, Report includes Trial Nos.: BRA-S-A1-630/02-S3-B, BRA-S-A1-630/02-S3-A. Edition Number: MO-03-014943. Unpublished.

BRA S-A1-631/02-S1. Anon. 2002. CGA279202 & CGA64250; 250 EC; wheat; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-A1-631/02-S1, Report includes Trial Nos.: BRA-S-A1-631/02-S1-B, BRA-S-A1-631/02-S1-A. Edition Number: MO-03-014920. Unpublished.

BRA S-A1-631/02-S2. Anon. 2002. CGA279202 & CGA64250; 250 EC; wheat; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-A1-631/02-S2, Report includes Trial Nos.: BRA-S-A1-631/02-S2-A, BRA-S-A1-631/02-S2-B. Edition Number: MO-03-014921. Unpublished.

BRA S-A1-631/02-S3. Anon. 2002. CGA279202 & CGA64250; 250 EC; wheat; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-A1-631/02-S3, Report includes Trial Nos.: BRA-S-A1-631/02-S3-A, BRA-S-A1-631/02-S3-B. Edition Number: MO-03-014924. Unpublished.

BRA S-A2-676/02-S1. Anon. 2002. CGA279202 & CGA64250; 250 EC; maize; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-A2-676/02-S1, Report includes Trial Nos.: BRA-S-A2-676/02-S1-B, BRA-S-A2-676/02-S1-A. Edition Number: MO-03-014699. Unpublished.

BRA S-A2-676/02-S2. Anon. 2002. CGA279202 & CGA64250; 250 EC; maize; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-A2-676/02-S2, Report includes Trial Nos.: BRA S-A2-676/02-S2-A, BRA S-A2-676/02-S2-B. Edition Number: MO-03-014702. Unpublished.

BRA S-A2-676/02-S3. Anon. 2002. CGA279202 & CGA64250; 250 EC; maize; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-A2-676/02-S3, Report includes Trial Nos.: BRA-S-A2-676/02-S3-A, BRA-S-A2-676/02-S3-B. Edition Number: MO-03-014704. Unpublished.

BRA S-E1-671/02-S1. Anon. 2003. CGA279202 & SAN 619 F; 267.5 EC; coffee; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-E1-671/02-S1, Report includes Trial Nos.: BRA-S-E1-671/02-S1-B, BRA-S-E1-671/02-S1-A. Edition Number: MO-03-014965. Unpublished.

BRA S-E1-671/02-S2. Anon. 2003. CGA279202 & SAN 619 F; 267.5 EC; coffee; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-E1-671/02-S2, Report includes Trial Nos.:BRA-S-E1-671/02-S2-B, BRA-S-E1-671/02-S2-A. Edition Number: MO-03-014966. Unpublished.

BRA S-E1-671/02-S3. Anon. 2003. CGA279202 & SAN 619 F; 267.5 EC; coffee; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-E1-671/02-S3, Report includes Trial Nos.: BRA-S-E1-671/02-S3-B, BRA-S-E1-671/02-S3-A. Edition Number: MO-03-014967. Unpublished.

BRA S-E1-671/02-S4. Anon. 2003. CGA279202 & SAN 619 F; 267.5 EC; coffee; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-E1-671/02-S4, Report includes Trial Nos.: BRA-S-E1-671/02-S4-B, BRA-S-E1-671/02-S4-A. Edition Number: MO-03-014971. Unpublished.

BRA S-G4-674/02-S1. Anon. 2002. CGA279202 & CGA64250; 250 EC; peanut; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-G4-674/02-S1, Report includes Trial Nos.: BRA-S-G4-674/02-S1-A, BRA-S-G4-674/02-S1-B. Edition Number: MO-03-014979. Unpublished.

BRA S-G4-674/02-S2. Anon. 2002. CGA279202 & CGA64250; 250 EC; peanut; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-G4-674/02-S2, Report includes Trial Nos.: BRA-S-G4-674/02-S2-B, BRA-S-G4-674/02-S2-A. Edition Number: MO-03-014981. Unpublished.

BRA S-G4-674/02-S3. Anon. 2002. CGA279202 & CGA64250; 250 EC; peanut; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-G4-674/02-S3, Report includes Trial Nos.: BRA-S-G4-674/02-S3-B, BRA-S-G4-674/02-S3-A. Edition Number: MO-03-014985. Unpublished.

BRA S-K1-672/02-S1. Anon. 2002. CGA279202 & CGA64250; 250 EC; cotton; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-K1-672/02-S1, Report includes Trial Nos.: BRA-S-K1-672/02-S1-B, BRA-S-K1-672/02-S1-A. Edition Number: MO-03-014706. Unpublished.

BRA S-K1-672/02-S2. Anon. 2002. CGA279202 & CGA64250; 250 EC; cotton; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-K1-672/02-S2, Report includes Trial Nos.: BRA-S-K1-672/02-S2-B, BRA-S-K1-672/02-S2-A. Edition Number: MO-03-014715. Unpublished.

BRA S-K1-672/02-S3. Anon. 2002. CGA279202 & CGA64250; 250 EC; cotton; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-K1-672/02-S3, Report includes Trial Nos.: BRA-S-K1-672/02-S3-B, BRA-S-K1-672/02-S3-A. Edition Number: MO-03-014713. Unpublished.

BRA S-P-677/02-S1. Anon. 2002. CGA279202 & CGA64250; 250 EC; soya; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-P-677/02-S1, Report includes Trial Nos.: BRA-S-P-677/02-S1-A, BRA-S-P-677/02-S1-B. Edition Number: MO-03-014778. Unpublished.

BRA S-P-677/02-S2. Anon. 2002. CGA279202 & CGA64250; 250 EC; soya; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-P-677/02-S2, Report includes Trial Nos.: BRA_S-P-677/02-S2-B, BRA_S-P-677/02-S2-A. Edition Number: MO-03-014783. Unpublished.

BRA S-P-677/02-S3. Anon. 2002. CGA279202 & CGA64250; 250 EC; soya; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. BRA S-P-677/02-S3, Report includes Trial Nos.: BRA-S-P-677/02-S3-A, BRA-S-P-677/02-S3-B. Edition Number: MO-03-014790. Unpublished.

CER04412/99. Purdy, J. R. 2000. 3 crop residue trials to determine the residues of CGA279202 and its significant metabolites after application of FLINT for desease control on apple trees. Novartis Crop Protection Canada Inc., Guelph, Ontario, Canada. Bayer CropScience AG, Report no. CER04412/99, Edition Number: MO-02-002812. Unpublished.

CER04413/99. Purdy, J. R. 2000. 3 crop residue trials to determine the residues of CGA279202 and its significant metabolites after application of FLINT for desease control on pear trees. Novartis Crop Protection Canada Inc., Guelph, Ontario, Canada. Bayer CropScience AG, Report no. CER04413/99, Edition Number: MO-02-002806. Unpublished.

CER04414/99. Purdy, J. R. 2000. 2 crop residue trials to determine the residues of CGA279202 and its significant metabolites after application of Flint TM 50 WG for disease control on grape vines. Novartis Crop Protection Canada Inc., Guelph, Ontario, Canada. Bayer CropScience AG, Report no.
CER 04414/99, Edition Number: MO-02-002234. Unpublished.

CGD03. Ipach, R. 1996. CGA279202 + cymoxanil (and metabolite CGA321113), grapes, Germany. Staatl. Lehr- u. Forschungsanstalt fuer Landwirtschaft, Neustadt/Weinstr., Germany. Bayer CropScience AG, Report no. CGD03, Edition Number: MO-01-002605. Unpublished.

CMR04/97. Stingelin, J. 1997. Behaviour and metabolism of CGA279202 in field grown spring wheat after treatment with [Glyoxyl-Phenyl-(U)-14C] labelled material. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. CMR04/97, Edition Number: MO-01-012305. Unpublished.

CMR12/97. Kiffe, M. 1997. Metabolism of CGA279202 in greenhouse grown apple trees after application of [trifluoromethyl-phenyl-(U)-14C]labelled material. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. CMR12/97, Edition Number: MO-01-010615. Unpublished.

CMR13/97. Kiffe, M. 1997. Metabolism of CGA279202 in greenhouse grown apple trees after application of [glyoxyl-phenyl-(U)-14C] labelled material. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. CMR13/97, Edition Number: MO-01-001686. Unpublished.

CMR15/97. Gross, D. 1997. Distribution and degradation of CGA279202 in field grown spring wheat after treatment with (CF3-phenyl-(U)-) CGA279202 labelled material. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. CMR15/97, Edition Number: MO-01-015761. Unpublished.

CMR18/97. Gross, D. 1997. Metabolism of [CF3-phenyl-(U)-14C]CGA279202 in field grown spring wheat. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. CMR18/97, Edition Number: MO-01-001658. Unpublished.

CMR22/97. Stingelin, J. 1997. Behaviour and metabolism of CGA279202 in greenhouse grown cucumbers after treatment with [glyoxyl-phenyl-(U)-14C]labelled material. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. CMR22/97, Edition Number: MO-01-001695. Unpublished.

CMR23/97. Stingelin, J. 1997. Behaviour and metabolism of CGA279202 in greenhouse grown cucumbers after treatment with [CF3-phenyl-(U)-14C]labelled material. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. CMR23/97, Edition Number: MO-01-001692. Unpublished.

CMR24/97. Stingelin, J. 1997. Outdoor confined accumulation study on rotational crops after bareground application of [glyoxyl-phenyl-(U)-14C]-CGA279202. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. CMR24/97, Edition Number: MO-01-002816. Unpublished.

CMR25/97. Stingelin, J. 1997. Metabolism of [glyoxyl-phenyl-(U)-14C] CGA279202 in field grown spring wheat. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. CMR25/97, Edition Number: MO-01-001675. Unpublished.

CMR26/97. Gross, D. 1997. Outdoor confined accumulation study on rotational crops after bareground application of (CF3-Phenyl-U-14C) labelled CGA279202. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. CMR26/97, Edition Number: MO-01-015715. Unpublished.

FR 001/99. Roncato, C. and Zachi de Góis Marconi, F. E. 2000. Flint - Magnitude de residues of trifloxystrobin in beans, Brazil, 1998-99. Novartis Biociências S.A., Taboao da Serra, SP, Brasil. Bayer CropScience AG, Report no. FR 001/99, Edition Number: MO-03-011792. Unpublished.

FR 002/99. Roncato, C. and Zachi de Góis Marconi, F. E. 2000. Flint - Magnitude de residues of trifloxystrobin in beans, Brazil, 1998-99. Novartis Biociências S.A., Taboao da Serra, SP, Brazil. Bayer CropScience AG, Report no. FR 002/99, Edition Number: MO-03-011818. Unpublished.

FR 007/99. Roncato, C. and Zachi de Góis Marconi, F. E. 2000. Flint - Magnitude of residues of trifloxystrobin in rice, Brazil, 1998-99 Novartis Biociencias S. A., Taboao da Serra, SP, Brazil. Bayer CropScience AG, Report no. FR 007/99, Edition Number: MO-03-011838. Unpublished.

FR 008/99. Roncato, C. and Zachi de Góis Marconi, F. E. 2000. Flint - Magnitude of residues of trifloxystrobin in rice, Brazil, 1998-99. Novartis Biociencias S.A., Taboao da Serra, SP, Brazil. Bayer CropScience AG, Report no. FR 008/99, Edition Number: MO-03-011842. Unpublished.

FR 027/99. Roncato, C. and Zachi de Góis Marconi, F. E. 2000. Stratego - Magnitude of residues of trifloxistrobin and propiconazole in rice, Brazil, 1998-99. Novarties Biociências S. A., Taboao da Serra, Brazil. Bayer CropScience AG, Report no. FR 027/99, Edition Number: MO-03-011844. Unpublished.

FR 028/99. Roncato, C. and Zachi de Góis Marconi, F. E. 2000. Stratego - Magnitude of residues of trifloxistrobin and propiconazole in rice, Brazil, 1998-99. Novarties Biociências S. A., Taboao da Serra, Brazil. Bayer CropScience AG, Report no. FR 028/99, Edition Number: MO-03-011847. Unpublished.

FR 029/99. Roncato, C. and Zachi de Góis Marconi, F. E. 2000. Stratego - Magnitude of residues of trifloxistrobin and propiconazole in beans, Brazil, 1998-99. Novartis Biociências S. A., Taboao da Serra, Brazil. Bayer CropScience AG, Report no. FR 029/99, Edition Number: MO-03-011851. Unpublished.

FR 030/99. Roncato, C. and Zachi de Góis Marconi, F. E. 2000. Stratego - Magnitude of residues of trifloxistrobin and propiconazole in beans, Brazil, 1998-99. Novartis Biociências S. A., Taboao da Serra, Brazil. Bayer CropScience AG, Report no. FR 030/99, Edition Number: MO-03-011854. Unpublished.

FR0296. Adams, S. P. 1997. Winter barley: Generation of crop samples for subsequent residue analyses following foliar treatment with CGA279202 (A-9604 A) in the UK. Novartis Crop Protection UK Ltd., Whittlesford, Great Britain. Bayer CropScience AG, Report no. FR0296, Edition Number: MO-01-002069. Unpublished.

FR0396. Adams, S. P. 1997. Winter barley: Generation of crop samples for subsequent residue analyses following foliar treatment with CGA279202 (A-9604 A) in the UK. Novartis Crop Protection UK Ltd., Whittlesford, Great Britain. Bayer CropScience AG, Report no. FR0396, Edition Number: MO-01-002065. Unpublished.

FR03BRA012-P1. Anon. 2003. CGA279202 & SAN 619 F; 267.5 EC; soya; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. , Report includes Trial Nos.: BRA-FR03BRA012-P1-B, BRA-FR03BRA012-P1-A. Edition Number:MO-03-014874. Unpublished.

FR03BRA012-P2. Anon. 2003. CGA279202 & SAN 619 F; 267.5 EC; soya; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. FR03BRA012-P2, Report includes Trial Nos.: BRA-FR03BRA012-P2-B, BRA-FR03BRA012-P2-A. Edition Number MO-03-014876. Unpublished.

FR03BRA012-P3. Anon. 2003. CGA279202 & SAN 619 F; 267.5 EC; soya; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. FR03BRA012-P3, Report includes Trial Nos.: BRA-FR03BRA012-P3-B, BRA-FR03BRA012-P3-A. Edition Number MO-03-014879. Unpublished.

FR0796. Tack, T. J. 1997. Winter barley: Generation of crop samples for subsequent residue analyses following foliar treatment with CGA279202 (A-9604 A) in Denmark. Novartis Crop Protection UK Ltd., Whittlesford, Great Britain. Bayer CropScience AG, Report no. FR0796, Edition Number: MO-01-001914. Unpublished.

FR10/95/31. Beinhauer, K. and Kissling, M. 1995. Field trial for determination of residue levels in apple according to BBA Guideline IV, 3-3 (1990). BioChem GmbH Karlsruhe, Cunnersdorf, Germany. Bayer CropScience AG, Report no. FR10/95/31, Edition Number: MO-01-001825. Unpublished.

FR10/95/42. Beinhauer, K. and Kissling, M. 1995. Field trial for determination of residue levels in apple according to BBA Guideline IV, 3-3 (1990). BioChem GmbH Karlsruhe, Cunnersdorf, Germany. Bayer CropScience AG, Report no. FR10/95/42, Edition Number: MO-01-001857. Unpublished.

GR00996. Beinhauer, K. 1997. Trial for determination of residue levels in apples according to BBA Guideline IV, 3-3 and 3-4 (1990). BioChem GmbH Karlsruhe, Cunnersdorf, Germany. Bayer CropScience AG, Report no. gr00996, Report includes Trial Nos.: FR06/96/42. Edition Number: MO-01-001834. Unpublished.

GR01096. Beinhauer, K. 1996. CGA279202, WG 50, A-9360 B, pears, Germany. BioChem GmbH Karlsruhe, Cunnersdorf, Germany. Bayer CropScience AG, Report no. GR01096, Edition Number: MO-01-001890. Unpublished.

GR01196. Ipach, R. and Kissling, M. 1997. Field and processing study for determination of CGD 20530 F in white grapes, must, and white wine. Staatl. Lehr- u. Forschungsanstalt fuer Landwirtschaft, Neustadt/Weinstr., Germany. Bayer CropScience AG, Report no. GR01196, Edition Number: MO-01-002606. Unpublished.

GR01296. Ipach, R. and Kissling, M. 1997. Determination of CGA279202, CGA321113 (metabolite of CGA279202) and cymoxanil in grapes (berries, must, young wine and wine), Germany. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. GR01296, Edition Number: MO-01-002602. Unpublished.

GR01396. Ipach, R. and Kissling, M. 1997. Determination of CGA279202 and CGA321113 (metabolite of CGA279202) in grapes (berries, must, young wine and wine), Germany. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. GR01396, Edition Number: MO-01-002612. Unpublished.

GR01496. Ipach, R. and Kissling, M. 1997. Determination of CGA279202 and CGA321113 (metabolite of CGA279202) in grapes (berries, must, young wine and wine), Germany. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. GR01496, Edition Number: MO-01-002604. Unpublished.

GR01796. Beinhauer, K. 1996. Trial for determination of residue levels in hops according to BBA Guideline IV, 3-3 and 3-4 (1990). BioChem GmbH Karlsruhe, Cunnersdorf, Germany. Bayer CropScience AG, Report no. GR01796, Report includes Trial Nos.: FR11/96/72, Edition Number: MO-02-002728. Unpublished.

GR31196. Smith, J. A. 1997. Residues of CGA279202 + propiconazole in winter wheat (test product: CGD 20610 F - A9524B). Novartis Agro GmbH, Frankfurt/Main, Germany. Bayer CropScience AG, Report no. GR31196, Edition Number: MO-01-002485. Unpublished.

GR3195. Smith, J. A. 1997. Field trial for the determination of residues of CGA279202 + propiconazole in winter wheat (test product: CGD 20610 F - A9524A). Novartis Agro GmbH, Frankfurt/Main, Germany. Bayer CropScience AG, Report no. GR3195, Edition Number: MO-02-003096. Unpublished.

GR32296. Smith, J. A. 1997. Residues of CGA279202 + propiconazole in winter wheat (test product: CGD 20610 F - A9524B). Novartis Agro GmbH, Frankfurt/Main, Germany. Bayer CropScience AG, Report no. GR32296, Edition Number: MO-01-002486. Unpublished.

GR3295. Smith, J. A. 1997. Field trial for the determination of residues of CGA279202 + propiconazole in winter barley (test product: CGD 20610 F - A9524A). Novartis Agro GmbH, Frankfurt/Main, Germany. Bayer CropScience AG, Report no. GR3295, Edition Number: MO-02-003114. Unpublished.

GR33696. Smith, J. A. 1997. Residues of CGA279202 + propiconazole in winter barley (test product: CGD 20610 F - A9524B). Novartis Agro GmbH, Frankfurt/Main, Germany. Bayer CropScience AG, Report no. GR33696, Edition Number: MO-01-001992. Unpublished.

GR35196. Smith, J. A. 1997. Residues of CGA279202 in winter wheat (test product: CGD 20620 F - A9604A). Novartis Agro GmbH, Frankfurt/Main, Germany. Bayer CropScience AG, Report no. GR35196, Edition Number: MO-02-003103. Unpublished.

GR35199. Smith, J. A. 2000. Determination of residues of CGA279202 and the metabolite CGA321113 in spring barley. Novartis Agro GmbH, Frankfurt/Main, Germany. Bayer CropScience AG, Report no. GR35199, Edition Number: MO-02-003111. Unpublished.

GR36296. Smith, J. A. 1997. Residues of CGA279202 in winter wheat. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. GR36296, Edition Number: MO-02-002731. Unpublished.

GR37296. Smith, J. A. 1997. Determination of residues of CGA279202, CGA321113 (metabolite of CGA279202) in barley (whole plants, ears, remainder, grain and straw) - field trial (Germany). Novartis Agro GmbH, Frankfurt/Main, Germany. Bayer CropScience AG, Report no. GR37296, Edition Number: MO-01-002018. Unpublished.

GR37399. Smith, J. A. 2000. Determination of residues of CGA279202 and the metabolite CGA321113 in winter barley. Novartis Agro GmbH, Frankfurt/Main, Germany. Bayer CropScience AG, Report no. GR37399, Edition Number: MO-02-003112. Unpublished.

GR38499. Smith, J. A. 2000. Determination of CGA279202 and the metabolite CGA321113 in spring wheat. Novartis Agro GmbH, Frankfurt/Main, Germany. Bayer CropScience AG, Report no. GR38499, Edition Number: MO-02-002733. Unpublished.

gr43500. Simon, P. 2001. Determination of residues of CGA279202 and the metabolite CGA321113 in grapes (white), Germany. Syngenta Agro GmbH, Frankfurt am Main, Germany. Bayer CropScience AG, Report no. gr 43500, Edition Number: MO-01-016587. Unpublished.

gr44500. Simon, P. 2001. Determination of residues of CGA279202 and the metabolite CGA321113 in grapes (red), Germany. Syngenta Agro GmbH, Frankfurt am Main, Germany. Bayer CropScience AG, Report no. gr 44500, Edition Number: MO-01-016585. Unpublished.

GR45597. Smith, J. A. 1998. Determination of residues of CGA279202 in grape vines, must and white wine (test product: NAD 21000 F - A9360B, WG 50). Novartis Agro GmbH, Frankfurt/Main, Germany. Bayer CropScience AG, Report no. GR45597, Edition Number: MO-01-008805. Unpublished.

gr45800. Simon, P. 2001. Determination of residues of CGA279202 and the metabolite CGA321113 in grapes (white), Germany. Syngenta Agro GmbH, Frankfurt am Main, Germany. Bayer CropScience AG, Report no. gr 45800, Edition Number: MO-02-011983. Unpublished.

GR46597. Smith, J. A. 1998. Determination of residues of CGA279202 and the metabolite CGA321113 in grape vines, must and red wine (test product: NAD 21000 F - A9360B, WG 50). Novartis Agro GmbH, Frankfurt/Main, Germany. Bayer CropScience AG, Report no. GR46597, Edition Number: MO-01-008800. Unpublished.

gr46900. Simon, P. 2001. Determination of residues of CGA279202 and the metabolite CGA321113 in grapes (red), Germany. Syngenta Agro GmbH, Frankfurt am Main, Germany. Bayer CropScience AG, Report no. gr 46900, Edition Number: MO-01-016588. Unpublished.

GR49197. Smith, J. A. 1998. Residues of CGA279202 + CGA321113 in winter wheat (test product: NAD 21180 F - A9604A, EC 125). Novartis Agro GmbH, Frankfurt/Main, Germany. Bayer CropScience AG, Report no. GR49197, Edition Number: MO-01-015705. Unpublished.

gr50598. Smith, J. A. 1999. Determination of residues of CGA279202 and the metabolite CGA321113 in apples. Novartis Agro GmbH, Frankfurt/Main, Germany. Bayer CropScience AG, Report no. gr50598, Edition Number: MO-01-010027. Unpublished.

gr57100. Simon, P. 2001. Determination of residues of CGA279202 and the metabolite CGA321113 in winter wheat. Syngenta Agro GmbH, Frankfurt am Main, Germany. Bayer CropScience AG, Report no. gr 57100, Edition Number: MO-01-010202. Unpublished.

gr58200. Simon, P. 2001. Determination of residues of CGA279202 and the metabolite CGA321113 in winter wheat. Syngenta Agro GmbH, Frankfurt am Main, Germany. Bayer CropScience AG, Report no. gr 58200, Edition Number: MO-01-010204. Unpublished.

gr59100. Simon, P. 2001. Determination of residues of CGA279202 and the matabolite CGA321113 in winter barley. Syngenta Agro GmbH, Frankfurt am Main, Germany. Bayer CropScience AG, Report no. gr 59100, Edition Number: MO-01-010198. Unpublished.

gr97098. Smith, J. A. 1999. Determination of residues of CGA279202, the metabolite CGA321113 and propiconazole in winter wheat. Novartis Agro GmbH, Frankfurt/Main, Germany. Bayer CropScience AG, Report no. gr 97098, Edition Number: MO-01-007878. Unpublished.

M00139-JJB. Anon. 2002. CGA279202; 50 WG; rice; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. M00139-JJB, Report includes Trial Nos.: BRA-M00139-JJB-B, BRA-M00139-JJB-A, Edition Number: MO-03-010978. Unpublished.

M00139-LZF. Anon. 2002. CGA279202; 50 WG; rice; Brazil, BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. M00139-LZF, Report includes Trial Nos.: BRA-M00139-LZF-B, BRA-M00139-LZF-A, Edition Number: MO-03-010984. Unpublished.

M00139-RPK. Anon. 2002. CGA279202; 50 WG; rice; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. M00139-RPK, Report includes Trial Nos.: BRA-M00139-RPK-B, BRA-M00139-RPK-A, Edition Number: MO-03-010971. Unpublished.

M00140-JJB. Anon. 2002. CGA279202; 50 WG; bean; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. M00140-JJB, Report includes Trial Nos.: BRA-M00140-JJB-A, BRA-M00140-JJB-B, Edition Number: MO-03-010998. Unpublished.

M00140-JSA. Anon. 2002. CGA279202; 50 WG; bean; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. M00140-JSA, Report includes Trial Nos.: BRA-M00140-JSA-B, BRA-M00140-JSA-A, Edition Number: MO-03-010990. Unpublished.

M00140-RPK. Anon. 2002. CGA279202; 50 WG; bean; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. M00140-RPK, Report includes Trial Nos.: BRA-M00140-RPK-A, BRA-M00140-RPK-B, Edition Number: MO-03-010996. Unpublished.

M00146-JJB. Anon. 2002. CGA279202 + CGA64250; 250 EC; bean; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. M00146-JJB, Report includes Trial Nos.: BRA-M00146-JJB-A, BRA-M00146-JJB-B, Edition Number: MO-03-011006. Unpublished.

M00146-JSA. Anon. 2002. CGA279202 + CGA64250; 250 EC; bean; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. M00146-JSA, Report includes Trial Nos.: BRA-M00146-JSA-A, BRA-M00146-JSA-B, Edition Number: MO-03-011015. Unpublished.

M00146-RPK. Anon. 2002. CGA279202 + CGA64250; 250 EC; bean; Brazil; BBA. Bayer CropScience Ltda., Sao Paulo, Brazil. Bayer CropScience AG, Report no. M00146-RPK, Report includes Trial Nos.: BRA-M00146-RPK-B, BRA-M00146-RPK-A, Edition Number: MO-03-011012. Unpublished.

MO-01-003756. Burkhard, N. 1997. Henry's law constant - CGA279202. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. MO-01-003756. Unpublished.

MR-027/02. Reiner, H. and Bongartz, R. 2002. Metabolism of [trifluoromethyl-phenyl-UL-14C]trifloxystrobin in spring wheat. Bayer AG, Bayer CropScience, Monheim, Germany. Bayer CropScience AG, Report no. MR-027/02, Edition Number: MO-02-009343. Unpublished.

MR-028/02. Reiner, H. and Bongartz, R. 2002. Metabolism of [glyoxyl-phenyl-UL-14C]trifloxystrobin in spring wheat. Bayer AG, Bayer CropScience, Monheim, Germany. Bayer CropScience AG, Report no. MR-028/02, Edition Number: MO-02-009727. Unpublished.

NOV/RES/00061. Pointurier, R. 2001. Residue study with CGA279202 + cyproconazole (SAN 619) in or on sugarbeets in France (South). ADME Bioanalyses, Vergeze, France. Bayer CropScience AG, Report no. NOV/RES/00061, Edition Number: MO-01-010074. Unpublished.

NOV/RES/00062. Pointurier, R. 2001. Residue study with CGA279202 + cyproconazole (SAN 619) in or on sugarbeets in France (South). ADME Bioanalyses, Vergeze, France. Bayer CropScience AG, Report no. NOV/RES/00062, Edition Number: MO-01-010079. Unpublished.

OF95134/FP97. Pointurier, R. 1997. Magnitude of residues of CGA279202 and CGA321113 in apples after application of formulation A9360B WG 50 - dissipation study (France, South). Novartis Agro S.A., Aigues-Vives, France. Bayer CropScience AG, Report no. OF95134/FP97, Edition Number: MO-01-001744. Unpublished.

OF95134/KJ11. Pointurier, R. 1997. Magnitude of residues of CGA279202 and CGA321113 in apples after application of formulation A9360B WG 50 - dissipation study (France, North). Novartis Agro S.A., Aigues-Vives, France. Bayer CropScience AG, Report no. OF95134/KJ11, Edition Number: MO-01-001742. Unpublished.

OF95135/LD05. Pointurier, R. 1997. Magnitude of residues of CGA279202 and CGA321113 in apples after application of formulation A9360B WG 50 - dissipation study (France, South). Novartis Agro S.A., Aigues-Vives, France. Bayer CropScience AG, Report no. OF95135/LD05, Edition Number: MO-01-001822. Unpublished.

OF95137/KJ19. Maffezzoni, M. 1998. Magnitude of residues after application of CGA279202 and CGA64250 as formulation EC 312,5 (A9524A) in winter wheat (France, North). Novartis Agro S.A., Aigues-Vives, France. Bayer CropScience AG, Report no. OF95137/KJ19, Edition Number: MO-01-009561. Unpublished.

OF96116/LD87. Maffezzoni, M. 1997. Magnitude of residues at harvest after application of CGA279202 as formulation EC 125 in winter wheat (France, South). Novartis Agro S.A., Aigues-Vives, France. Bayer CropScience AG, Report no. OF96116/LD87, Edition Number: MO-01-002480. Unpublished.

OF96116/SJ14. Maffezzoni, M. 1997. Magnitude of residues at harvest after application of CGA279202 as formulation EC 125 in winter wheat (France, North). Novartis Agro S.A., Aigues-Vives, France. Bayer CropScience AG, Report no. OF96116/SJ14, Edition Number: MO-01-002105. Unpublished.

OF96117. Maffezzoni, M. 1997. Magnitude of residues after application of CGA279202 as formulation EC 125 (A9604A) in winter wheat (France, South). Novartis Agro S.A., Aigues-Vives, France. Bayer CropScience AG, Report no. OF96117, Edition Number: MO-01-002097. Unpublished.

OF96118/LD88. Maffezzoni, M. 1997. Magnitude of residues after application of CGA279202 as formulation EC 125 (A9604A) in winter barley (France, South). Novartis Agro S.A., Aigues-Vives, France. Bayer CropScience AG, Report no. OF96118/LD88, Edition Number: MO-01-001946. Unpublished.

OF96119. Maffezzoni, M. 1997. Magnitude of residues after application of CGA279202 as formulation EC 125 (A9604A) in winter barley (France, South). Novartis Agro S.A., Aigues-Vives, France. Bayer CropScience AG, Report no. OF96119, Edition Number: MO-01-001939. Unpublished.

OF96122/FP13. Pointurier, R. 1997. Magnitude of residues of CGA279202 and CGA321113 in apples after application of formulation A9360B WG 50 (France, South). Novartis Agro S.A., Aigues-Vives, France. Bayer CropScience AG, Report no. OF96122/FP13, Edition Number: MO-01-001739. Unpublished.

OF96122/KJ72. Pointurier, R. 1997. Magnitude of residues of CGA279202 and CGA321113 in apples after application of formulation A9360B WG 50 (France, North). Novartis Agro S.A., Aigues-Vives, France. Bayer CropScience AG, Report no. OF96122/KJ72, Edition Number: MO-01-001779. Unpublished.

OF96122/LD69. Pointurier, R. 1997. Magnitude of residues of CGA279202 and CGA321113 in apples after application of formulation A9360B WG 50 (France, South). Novartis Agro S.A., Aigues-Vives, France. Bayer CropScience AG, Report no. OF96122/LD69, Edition Number: MO-01-001734. Unpublished.

OF96122/SJ26. Pointurier, R. 1997. Magnitude of residues of CGA279202 and CGA321113 in apples after application of formulation A9360B WG 50 (France, North). Novartis Agro S.A., Aigues-Vives, France. Bayer CropScience AG, Report no. OF96122/SJ26, Edition Number: MO-01-001737. Unpublished.

OF96125/DE17. Pointurier, R. 1998. Magnitude of residues of CGA279202 and CGA321113 and cymoxanil in berries and processing food after application of formulation A9529A WG 49 on vine (France, North). Novartis Agro S.A., Aigues-Vives, France. Bayer CropScience AG, Report no. OF96125/DE17, Edition Number: MO-01-010061. Unpublished.

OF96126/KJ58. Pointurier, R. 1998. Magnitude of residues of CGA279202 and CGA321113 and cymoxanil in berries and processing food after application of formulation A9529A WG 49 on vine (France, North). Novartis Agro S.A., Aigues-Vives, France. Bayer CropScience AG, Report no. OF96126/KJ58, Edition Number: MO-01-010069. Unpublished.

P98/42. Dal Santo, P. 1999. Residues of trifloxystrobin (CGA279202) and its major metabolite (CGA321113) in grapes, grape juice and wine following six applications of Flint to grapevines. Novartis Crop Protection Australasia Pry. Ltd, Pendle Hill, NSW, Australia. Bayer CropScience AG, Report no. P98/42, Edition Number: MO-01-008322. Unpublished.

P99/40. Clarke, C. 2000. Residues of trifloxystrobin (CGA279202) and its major metabolite (CGA321113) in grapes, grape juice and wine following three applications of Flint to grapevines, Australia. Novartis Crop Protection Australasia Pry. Ltd, Pendle Hill, NSW, Australia. Bayer CropScience AG, Report no. P99/40, Edition Number: MO-01-008320. Unpublished.

P99/49. Clarke, C. 2000. Residues of trifloxystrobin (CGA279202) and its major metabolite (CGA321113) in grapes and dried fruit following three applications of Flint to grapevines, Australia. Novartis Crop Protection Australasia Pry. Ltd, Pendle Hill, NSW, Australia. Bayer CropScience AG, Report no. P99/49, Edition Number: MO-01-008321. Unpublished.

PP-96/63P. Fueldner, H. 1997. Report on density of solids - CGA279202. Ciba-Geigy Limited, Basel, Switzerland. Bayer CropScience AG, Report no. PP-96/63P.DES, Edition Number: MO-01-003749. Unpublished.

RA-2031/02. Nuesslein, F. 2003. Determination of rsidues of trifloxystrobin and CGA321113 in/on leek following spray application of flint 50 WG in the field in Northern France, Germany and Netherlands. Bayer CropScience AG, Report no. RA-2031/02, Report includes Trial Nos.: R 2002 0085/4 (0085-02), R 2002 0130/3 (0130-02), R 2002 0131/1 (0131-02), R 2002 0133/8 (0133-02), R 2002 0134/6 (0134-02), R 2002 0135/4 (0135-02), Edition Number: MO-03-007320. Unpublished.

RA-2032/02. Nuesslein, F. 2003. Determination of residues of Trifloxystrobin and CGA321113 in/on cauliflower and broccoli following spray application of Flint 50 WG in the field in Germany and Great Britain. Bayer CropScience AG, Report no. RA-2032/02, Report includes Trial Nos.: R 2002 0140/0 (0140-02), R 2002 0139/7 (0139-02), R 2002 0138/9 (0138-02), R 2002 0137/0 (0137-02), R 2002 0136/2 (0136-02), R 2002 0074/9 (0074-02), Edition Number: MO-03-007100. Unpublished.

RA-2038/02. Nuesslein, F. 2003. Determination of residues of trifloxystrobin and CGA321113 in/on strawberry following spray application of Flint 50 WG in the field in Northern France, Germany, Netherlands and Belgium. Bayer CropScience AG, Report no. RA-2038/02, Report includes Trial Nos.: R 2002 0080/3 (0080-02), R 2002 0187/7 (0187-02), R 2002 0188/5 (0188-02), R 2002 0189/3 (0189-02), R 2002 0190/7 (0190-02), R 2002 0191/5 (0191-02), Edition Number: MO-03-003484. Unpublished.

RA-2051/02. Nuesslein, F. 2003. Determination of residues of trifloxystrobin and CGA321113 in/on brussels sprouts following spray application of Flint 50 WG in the field in Germany, Northern France and Great Britain. Bayer CropScience AG, Report no. RA-2051/02, Report includes Trial Nos.: R 2002 0221/0 (0221-02), R 2002 0222/9 (0222-02), R 2002 0223/7 (0223-02), R 2002 0224/5 (0224-02), R 2002 0225/3 (0225-02), R 2002 0226/1 (0226-02), Edition Number: MO-03-007534. Unpublished.

RA-2052/02. Nuesslein, F. and Fischer, S. 2003. Determination of residues of Trifloxystrobin and CGA321113 in/on round cabbage and red cabbage following spray application of Flint 50 WG in the field in Germany, Great Britain and Netherlands. Bayer CropScience AG, Report no. RA-2052/02, Report includes Trial Nos.: R 2002 0228/8 (0228-02), R 2002 0229/6 (0229-02), R 2002 0231/8 (0231-02), R 2002 0232/6 (0232-02), R 2002 0233/4 (0233-02), R 2002 0234/2 (0234-02), Edition Number: MO-03-006831. Unpublished.

RA-2196/01. Nuesslein, F. 2002. Determination of residues of trifloxystrobin and CGA321113 in/on carrot following spray application of Flint 50 WG in the field in Sweden, Belgium, Germany and the Netherlands. Bayer AG, Leverkusen, Germany. Bayer CropScience AG, Report no. RA-2196/01, Report includes Trial Nos.: R 2001 0625/4 (0625-01), R 2001 0626/2 (0626-01), R 2001 0627/0 (0627-01), R 2001 0628/9 (0628-01), R 2001 0629/7 (0629-01), R 2001 0630/0 (0630-01), Edition Number: MO-02-010161. Unpublished.

RA-2197/01. Nuesslein, F. and Eberhardt, R. 2002. Determination of residues of trifloxystrobin in/on Brussels sprouts following spray application of Flint 50 WG in the field in Great Britain, Germany, Northern France, Netherlands and Belgium. Bayer AG, Leverkusen, Germany. Bayer CropScience AG, Report no. RA-2197/01, Report includes Trial Nos.: R 2001 0631/9 (0631-01), R 2001 0632/7 (0632-01), R 2001 0633/5 (0633-01), R 2001 0634/3 (0634-01), R 2001 0635/1 (0635-01), R 2001 0637/8 (0637-01), Edition Number: MO-02-010280. Unpublished.

RA-2198/01. Nuesslein, F. and Eberhardt, R. 2002. Determination of residues of trifloxystrobin in/on round cabbage and red cabbage following spray application of Flint 50 WG in the field in Northern France, Germany, Belgium and Netherlands. Bayer AG, Leverkusen, Germany. Bayer CropScience AG, Report no. RA-2198/01, Report includes Trial Nos.: R 2001 0643/2 (0643-01), R 2001 0642/4 (0642-01), R 2001 0641/6 (0641-01), R 2001 0640/8 (0640-01), R 2001 0639/4 (0639-01), R 2001 0638/6 (0638-01), Edition Number: MO-02-010302. Unpublished.

RA-3038/02. Nuesslein, F. 2003. Determination of residues of trifloxystrobin and CGA321113 in/on strawberry (fruit washed, preserve, washings, jam) following spray application of Flint 50 WG in the field in Northern France and Germany. Bayer CropScience AG, Report no. RA-3038/02, Report includes Trial Nos.: R 2002 0191/5, R 2002 0188/5, (0188-02, 0191-02), Edition Number: MO-03-003498. Unpublished.

RA-3198/01. Nuesslein, F. and Eberhardt, R. 2002. Determination of residues of Trifloxystrobin in/on round cabbage (head; head washed; washings; head, cooked; cooking water) following spray application of Flint 50 WG in the field in Germany. Bayer AG, Leverkusen, Germany. Bayer CropScience AG, Report no. RA-3198/01, Report includes Trial Nos.: R 2001 0643/2, R 2001 0640/8, (0643-01, 0640-01), Edition Number: MO-02-010319. Unpublished.

REM 177.02. Kissling, M. 1996. CGA279202: Determination of parent compound by HPLC, fruits, vegetables and liquid processed commodities - Residue method including validation. Ciba-Geigy Limited, Basel, Switzerland. Bayer CropScience AG, Report no. REM 177.02, Edition Number: MO-01-002940. Unpublished.

REM 177.03. Kissling, M. 1996. CGA279202: Determination of parent compound and of metabolite CGA321113 by GC -- cereals, bananas. Ciba-Geigy Limited, Basel, Switzerland. Bayer CropScience AG, Report no. REM 177.03, Edition Number: MO-01-002944. Unpublished.

REM 177.04. Kissling, M. 1997. Determination of parent compound (CGA279202) by GC and of metabolite CGA321113 by HPLC, hops (green and dry cones). Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. REM 177.04, Edition Number: MO-01-014692. Unpublished.

REM 177.05. Kissling, M. 1997. CGA279202: Determination of parent compound and of metabolite CGA321113 in body fluids (urine, blood) by GC. Novartis Crop Protection AG, Basel, Switzerland. Bayer CropScience AG, Report no. REM 177.05, Edition Number: MO-01-013702. Unpublished.

RF0296. Steck, U. 1997. Determination of CGA279202 and CGD 321113 (metabolite of CGD 279202) in hops (green cones and dried cones). Bayerische Landesanstalt fuer Bodenkultur und Pflanzenbau, Muenchen, Germany. Bayer CropScience AG, Report no. RF0296, Edition Number: MO-01-010018. Unpublished.

RF0296. Steck, U. 1997. Feldversuch zur Bestimmung der Rueckstaende von CGD 20540 F in Hopfen. Bayerische Landesanstalt fuer Bodenkultur und Pflanzenbau, Muenchen, Germany. Bayer CropScience AG, Report no. RF0296, Edition Number: MO-01-010016. Unpublished.

RF0396. Steck, U. 1997. Determination of CGA279202 and CGD 321113 (metabolite of CGD 279202) in hops (green cones and dried cones). Bayerische Landesanstalt fuer Bodenkultur und Pflanzenbau, Muenchen, Germany. Bayer CropScience AG, Report no. RF0396, Edition Number: MO-01-010014. Unpublished.

RF0396. Steck, U. 1997. Feldversuch zur Bestimmung der Rueckstaende von CGD 25040 F im Hopfen. Bayerische Landesanstalt fuer Bodenkultur und Pflanzenbau, Muenchen, Germany. Bayer CropScience AG, Report no. RF0396, Edition Number: MO-01-010013. Unpublished.

RF0496. Steck, U. 1997. Determination of CGA279202 and CGA321113 (metabolite of CGA279202) in hops (green cones and dried cones). Bayerische Landesanstalt fuer Bodenkultur und Pflanzenbau, Muenchen, Germany. Bayer CropScience AG, Report no. RF0496, Edition Number: MO-01-010011. Unpublished.

RF0496. Steck, U. 1997. Feldversuch zur Bestimmung der Rueckstaende von CGD 20540 F im Hopfen. Bayerische Landesanstalt fuer Bodenkultur und Pflanzenbau, Muenchen, Germany. Bayer CropScience AG, Report no. RF0496, Edition Number: MO-01-010008. Unpublished.

SAM 4474. Eudy, L. W. 2000. CGA279202 and CGA245704: Magnitude of the residues in or on crop group 10: citrus fruits. Novartis Crop Protection, Inc., Greensboro, NC, USA. Bayer CropScience AG, Report no. SAM 4474, Edition Number: MO-01-008369. Unpublished.