MYCLOBUTANIL (181)

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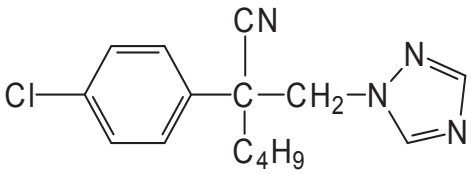
EXPLANATION

Myclobutanil was originally evaluated by the JMPR in 1992 and re-evaluated for residues several times up to 1998. It was reviewed as part of the periodic re-evaluation programme of CCPR on residue and toxicity in 2014 JMPR. Myclobutanil is a systemic protectant fungicide used to control brown rot, powdery mildew and leaf spot in stone fruit crops, and belongs to the sterol demethylation inhibitor (DMI) class of fungicides.

At the Forty-fifth Session of the CCPR (REP13/PR, Appendix XIV), myclobutanil was scheduled for periodic residue review by the 2014 JMPR. The Meeting received information on physical and chemical properties, metabolism, environmental fate, analytical methods and freezer storage stability, national registered use patterns, as well as supervised trials, processing studies and livestock feeding studies.

IDENTITY

ISO Common name	myclobutanil
Chemical name	
IUPAC name	(R,S)-2-(4-chlorophenyl)-2-(1H-1,2,4-triazole-1-ylmethyl)hexanenitrile
CAS name	α-n-butyl-α-(4-chlorophenyl)-1H-1,2,4-triazole-1-propanenitrile
CAS Registry Number	88671-89-0
CIPAC Number	442
Synonyms and trade names	
Manufacturer's codes	RH-53,866
Structural formula	



Molecular formula	C_{15} H_{17} Cl N_4
Molecular weight	288.8 g/mol
Minimum content of ai	

PHYSICAL AND CHEMICAL PROPERTIES

Pure active ingredient		Ref
Appearance (purity 98.75%) (purity 95.4%)	White crystal Colourless to white crystal	134760 134761
Odour (purity 98.75%) (purity 95.4%)	Odourless Faint aldehyde	134760 134761
Vapour pressure (purity 99.9%):	1.98×10^{-4} Pa at 20 °C	94926
Henry's law constant	4.33×10^{-4} kPa m³/mol	94865
Boiling point (purity 98.75%)	390.8 C at 97.6 kPa	94922
Melting point (purity 98.75%)	70.9 C	111087
Octanol-water partition coefficient at 22 °C: (purity 99.9%)	log P_{OW} = 2.556 There is no pH effect as the molecule is neither acidic nor basic. It does not dissociate.	138549
Solubility in water at 20 °C (purity 99.9%):	pH 3-5: 124 g/L pH 7: 132 g/L pH 9–11: 115 g/L	94924
Relative density (purity 98/75%)	1.243 g/cm³ 20.4 °C	95055
Dissociation constant in water (purity 99.6%)	The pure ingredient does not have acidic hydrogen and is expected to be a very weak base. Attempts to measure pKa by titration failed to detect any inflection curve indicating no dissociation	
Hydrolysis rate at pH 4, 7 and 9 under sterile and dark conditions	At 25 °C myclobutanil is hydrolytically stable more than 1 year at pH 4, 7 and 9.	94798
Direct phototransformation in sterile water using artificial light		
Surface tension, 24 °C (purity 99.8%)	46.8 mN/m for 90% saturated aqueous solution at 24 °C.	95055
Quantum yield efficiency (purity 97.3%)		
Solubility in organic solvents at 20 °C:	Acetone > 250 g/L Dichloromethane > 250 g/L Ethyl acetate > 250 g/L n-Heptane 1.02 g/L Methanol > 250 g/L Xylene 270 g/L	134458

Formulations

Myclobutanil is available in various formulations such as the following formulations:

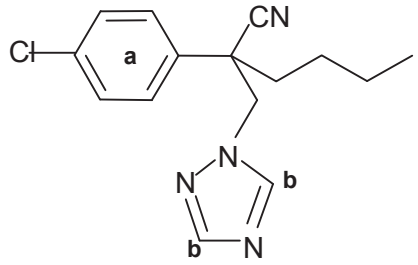
Formulation	Products
Suspension concentrate	45 g/L SC, 60 g/L SC
Wettable Powder	2.25% WP, 40% WP, 35% WP, 10% WP, 10.8% WP, 1% WP, 2.25% WP, 8 g/kg WP, 2.0% WP, 3.8% WP

Emulsion Concentrate	240 g/L EC, 125 g/L EC, 32.4 g/L EC, 75 g/L EC, 25.8% EC, 45 g/L EC, 23.4%EC, 30% EC
Emulsion Oil in Water	200 g/L EW, 45 g/L EW, 25 g/L EW

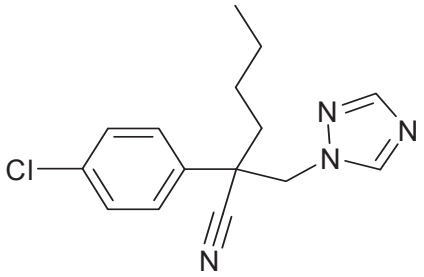
METABOLISM AND ENVIRONMENTAL FATE

The Meeting received information on animal metabolism, plant metabolism and environmental fate studies using [^{14}C]-myclobutanil (phenyl and triazole ring labelled) and unlabelled myclobutanil.

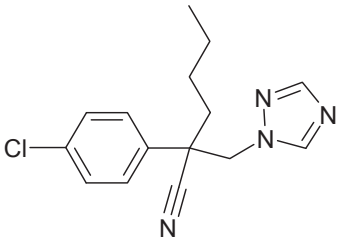
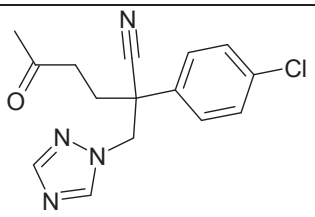
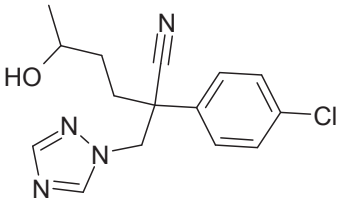
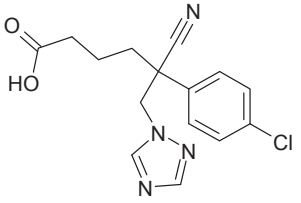
a ^{14}C-Phenyl myclobutanil
b ^{14}C-Triazole myclobutanil

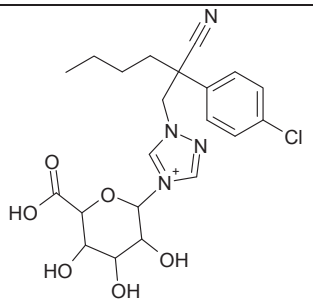
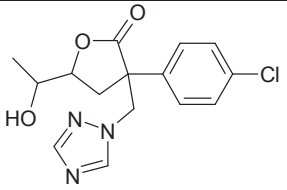
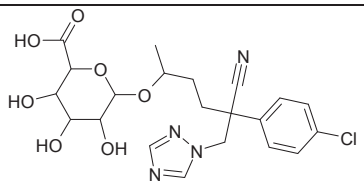
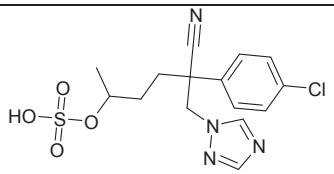
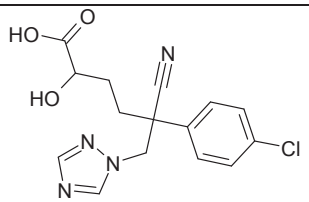
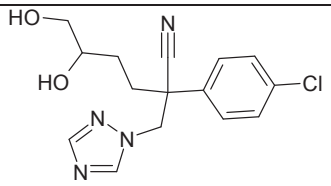
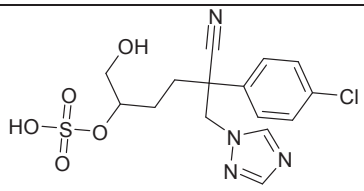
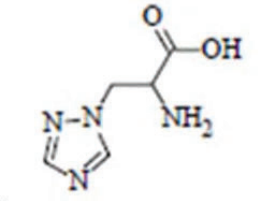


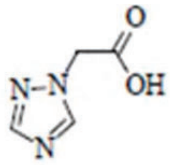
Unlabelled myclobutanil



Structures, names and codes for myclobutanil and its metabolites in metabolism and environmental fate studies are summarized below.

Code Name	Chemical Name	Metabolite Identity	Matrix where found
Myclobutanil Parent	α-butyl-α-(4-chlorophenyl)-1H-1,2,4-triazole-1-propanenitrile		Grapes Apples Wheat Sugar beet Laying hens Ruminants
(RH-9089)	(2RS) -2-(4-chlorophenyl) -5-oxo-2-(1H-1,2,4-triazol-1-ylmethyl)hexanenitrile		Grapes Apples Sugar beet Ruminants
(RH-9090)	α-(4-chlorophenyl)-α-(3-hydroxybutyl)-1H-1,2,4-triazole-1-propanenitrile		Grapes Apples Wheat Sugar beet Ruminants
MW 318 Acid (butyl carboxylic acid of myclobutanil)	5-(4-chlorophenyl)-5-cyano-6-(1H-1,2,4-triazol-1-yl)hexanoic acid		Groundwater Soil Ruminants

Code Name	Chemical Name	Metabolite Identity	Matrix where found
N-Glucuronic Acid Conjugate of Myclobutanil	1-[2-(4-chlorophenyl)-2-cyanohexyl]-4-hexopyranuronosyl-1H-1,2,4-triazol-4-ium		Ruminants
Hydroxy-lactone	3-(4-chlorophenyl)-5-(1-hydroxyethyl)-3-(1H-1,2,4-triazol-1-ylmethyl)dihydrofuran-2(3H)-one		Ruminants
RH-9090 Glucuronic Acid Conjugate	5-(4-chlorophenyl)-5-cyano-6-(1H-1,2,4-triazol-1-yl)hexan-2-yl hexopyranosiduronic acid		Grapes Apples Wheat Sugar beet Ruminants
RH-9090 Sulfate Conjugate	5-(4-chlorophenyl)-5-cyano-6-(1H-1,2,4-triazol-1-yl)hexan-2-yl hydrogen sulfate		Laying hens Ruminants
MW 334 Acid	5-(4-chlorophenyl)-5-cyano-2-hydroxy-6-(1H-1,2,4-triazol-1-yl)hexanoic acid		Ruminants
RH-294 (Diol)	α-(-chlorophenyl)-α-(3,4-hydroxy-butyl)-1H-1,2,4-triazole-1-propane-nitrile		Laying hens Ruminants
RH-294 Sulfate Conjugate	5-(4-chlorophenyl)-5-cyano-1-hydroxy-6-(1H-1,2,4-triazol-1-yl)hexan-2-yl hydrogen sulfate		Ruminants
TA (Triazolyl Alanine)	(2*RS*)-2-amino-3-(1*H*-1,2,4-triazol-1-yl)propanoic acid		Rotational wheat

Code Name	Chemical Name	Metabolite Identity	Matrix where found
TAA (Triazolyl Acetic Acid)	1*H*-1,2,4-triazol-1-ylacetic acid		Rotational wheat

Animal Metabolism

The Meeting received animal metabolism studies with myclobutanil in lactating goats and laying hens.

Lactating goats

Myclobutanil was orally given to lactating goats (Alpine dairy goats) for five days. Individual goats were dosed separately with myclobutanil radiolabelled in either the triazole (TZ) portion or the phenyl ring (PH) at the rate of 24 ppm and 14 ppm (Rotondaro, S. L. *et al*., 2010, 2006417) in dry feed of the diet per day, respectively. Milk, urine and faeces were collected daily. The animals were sacrificed 6–7 hours after the final dose and the following tissues were collected: liver, muscle (flank and loin), fat (subcutaneous, omental, and renal), and kidney. Samples were stored at -10 °C or below until analysis. Levels of total radioactive residues (TRR) in urine and milk samples were determined by direct liquid scintillation counting (LSC). TRR levels in the liver, kidney, muscle and faecal samples were determined by oxidative combustion followed by LSC. TRR levels in fat were determined by the heated solubilisation followed by direct LSC of the liquefied samples. The amount of the milk, fat, excreta and edible tissues, and after extraction with acetone, hexane and acetonitrile/water (80/20) and liquid-liquid partition they were analysed by HPLC. Myclobutanil and metabolites in urine, liver and kidney were identified by MS. The results were summarized in Table 1 and Table 4.

Table 1 TRRs in milk, edible tissues and excreta from goats orally dosed a for 5 consecutive days with either ^{14}C-[PH] myclobutanil or ^{14}C-[TZ] myclobutanil

Matrix	Collection	^{14}C-TZ-label (24.2 mg/kg)			^{14}C-PH-label (14.2 mg/kg)		
	Timing	(mg/kg)	(% dose)	(% dose)	(mg/kg)	(% dose)	(% dose)
Milk	Day 1 pm	0.044	0.02	–	0.021	0.02	–
	Day 1 am	0.031	0.02	–	0.010	0.01	–
	Day 2 pm	0.070	0.02	–	0.028	0.02	–
	Day 2 am	0.042	0.03	–	0.014	0.02	–
	Day 3 pm	0.075	0.02	–	0.027	0.02	–
	Day 3 am	0.043	0.03	–	0.016	0.02	–
	Day 4 pm	0.079	0.03	–	0.033	0.02	–
	Day 4 am	0.043	0.03	–	0.016	0.02	–
	Day 5 pm	0.076	0.02	0.23	0.033	0.02	0.18
Urine	Day 1	19.105	10.59	–	4.863	11.41	–
	Day 2	30.863	11.29	–	7.229	12.81	–
	Day 3	28.153	15.32	–	6.471	14.42	–
	Day 4	23.492	9.29	–	11.039	13.73	–
	Day 5	37.663	2.87	49.36	19.260	5.18	57.55
Faeces	Day 1	3.934	2.34	–	1.593	2.17	–
	Day 2	7.589	4.54	–	3.347	4.49	–
	Day 3	8.377	6.34	–	4.565	4.83	–
	Day 4	9.158	5.79	–	4.595	6.30	–
	Day 5	8.594	2.89	21.90	4.334	3.79	21.58
Cage Rinse	Sacrifice	27.690	7.86	7.86	1.863	1.26	1.26
Muscle—Flank	Sacrifice	0.063	0.03	–	0.023	0.03	–
Muscle—Loin	Sacrifice	0.061	0.04	0.07	0.024	0.02	0.05
Liver	Sacrifice	0.918	0.46	0.46	0.487	0.48	0.48

Matrix	Collection	^{14}C-TZ-label (24.2 mg/kg)			^{14}C-PH-label (14.2 mg/kg)		
Kidney	Sacrifice	0.518	0.04	0.04	0.206	0.04	0.04
Fat—Subcutaneous	Sacrifice	0.040	0.004	–	0.017	0.004	–
Fat—Omental	Sacrifice	0.027	0.014	–	0.016	0.013	–
Fat—Renal	Sacrifice	0.035	0.006	0.02	0.020	0.006	0.02
Total		NA	79.95	79.95	NA	81.15	81.15

Table 2 Summary of characterization and identification of radioactive residues in Day 1 and Day 5 milk from goats dosed a with either ^{14}C-[TZ] myclobutanil or ^{14}C-[PH] myclobutanil

Fraction ID	TZ Label				PH Label			
	Day 1 (pm)		Day 5 (pm)		Day 1 (pm)		Day 5 (pm)	
	%TRR	mg/kg	%TRR	mg/kg	%TRR	mg/kg	%TRR	mg/kg
Organic Extract [a]	95.0	0.042	95.0	0.072	95.0	0.020	88.0	0.029
Myclobutanil	ND	ND	ND	ND	ND	ND	ND	ND
RH-9089	0.6	< 0.001	0.9	< 0.001	ND	ND	0.6	< 0.001
RH-9090	45.0	0.020	28.3	0.022	57.8	0.012	49.3	0.016
MW 318 Acid	10.4	0.005	7.4	0.006	11.9	0.002	5.7	0.002
N-glucuronide of Myclobutanil	ND	ND	ND	ND	ND	ND	0.3	< 0.001
Hydroxy-lactone	3.4	0.001	5.4	0.004	6.5	0.001	6.4	0.002
RH-9090 Conjs	3.7	0.002	0.7	< 0.001	ND	ND	0.5	< 0.001
MW 334 Acid	0.5	< 0.001	ND	ND	ND	ND	0.2	< 0.001
RH-294	13.6	0.006	8.2	0.006	5.5	0.001	4.4	0.001
RH-294 Conj.	ND	ND	ND	ND	ND	ND	ND	ND
Polar Unks. (2–4 Minutes)	ND	ND	7.5	0.006	ND	ND	ND	ND
Unidentified	18.6	0.008	36.5	0.028	13.4	0.003	20.3	0.007
Total Identified	77.2	0.034	50.9	0.039	81.7	0.017	67.4	0.022
Total Characterized	95.0	0.042	95.0	0.072	95.0	0.020	88.0	0.029
Total Extractable	95.0	0.042	95.0	0.072	95.0	0.020	88.0	0.029
Post Extn Solids	5.0	0.002	6.0	0.005	.0	0.002	11.0	0.004
Accountability	100	–	100	–	100	–	100	–

[a] Extracted with acetone.
ND = Not Detectable

Table 3 Summary of characterization and identification of radioactive residues in the edible tissues of a goat dosed with ^{14}C-[TZ] myclobutanil

Fraction ID	Liver		Kidney		Muscle		Fat	
	%TRR	mg/kg	%TRR	mg/kg	%TRR	mg/kg	%TRR	mg/kg
Hexane Extract	NA	NA	NA	NA	NA	NA	7.0	0.003
Organic Extract [a]	98.0	0.900	101.0	0.523	94.0	0.059	75.0	0.030
Myclobutanil	2.1	0.019	ND	ND	ND	ND	ND	ND
RH-9089 [b]	14.8	0.136	12.6	0.065	ND	ND	2.3	< 0.001
RH-9090	16.0	0.147	13.6	0.070	44.0	0.028	35.0	0.014
MW 318 Acid	0.3	0.003	1.5	0.008	ND	ND	ND	ND
N-glucuronide of Myclobutanil	ND	ND	0.4	0.002	ND	ND	ND	ND
Hydroxy-lactone	12.1	0.111	4.7	0.024	0.8	< 0.001	ND	ND
RH-9090 Conjs	43.0	0.395	44.1	0.228	3.3	0.002	10.9	0.004
MW 334 Acid	4.0	0.037	9.6	0.050	0.4	< 0.001	1.8	< 0.001
RH-294	1.9	0.017	10.6	0.055	11.6	0.007	5.0	0.002
RH-294 Conj.	0.6	0.006	ND	ND	ND	ND	ND	ND
Polar Unks. (2–4 Minutes)	ND	ND	ND	ND	10.9	0.007	ND	ND

Fraction ID	Liver		Kidney		Muscle		Fat	
	%TRR	mg/kg	%TRR	mg/kg	%TRR	mg/kg	%TRR	mg/kg
Unidentified	3.2	0.029	3.8	0.020	22.9	0.014	19.0	0.008
Total Identified	94.8	0.870	97.1	0.503	60.1	0.038	56.0	0.022
Total Characterized	98.0	0.900	100.9	0.523	94.0	0.059	75.0	0.030
Total Extractable	98.0	0.900	101.0	0.523	94.0	0.059	82.0	0.033
Post Extn Solids	8.0	0.073	1.0	0.005	4.0	0.003	2.0	< 0.001
Accountability	100	–	100	–	100	–	84	–

[a] Extracted with acetonitrile/water (80/20)
[b] Reported residues for RH-9089 in liver and kidney may be artificially high as the radioactivity eluting in the RH-9089 zone in the HPLC system used was often very broad in nature. Reanalysis of these extracts in another system or by LC-MS often showed only very low levels of RH-9089. Much of the radioactivity during reanalysis appeared to be additional RH-9090 or conjugates of RH-9090.
ND = Not Detectable
NA= Not Applicable

Table 4 Summary of characterization and identification of radioactive residues in the edible tissues of a goat dosed with [^{14}C][PH] myclobutanil

Fraction ID	Liver		Kidney		Muscle		Fat	
	%TRR	mg/kg	%TRR	mg/kg	%TRR	mg/kg	%TRR	mg/kg
Hexane Extract	NA	NA	NA	NA	NA	NA	10.0	0.002
Organic Extract [a]	96.0	0.467	100.0	0.206	96.0	0.022	68.0	0.012
Myclobutanil	6.0	0.029	ND	ND	ND	ND	ND	ND
RH-9089 [b]	0.2	0.001	24.3	0.050	ND	ND	ND	ND
RH-9090	25.0	0.122	17.2	0.035	80.0	0.018	39.1	0.007
MW 318 Acid	4.9	0.024	2.2	0.005	ND	ND	ND	ND
N-glucuronide of Myclobutanil	ND	ND	0.1	< 0.001	ND	ND	ND	ND
Hydroxy-lactone	15.6	0.076	2.5	0.005	3.6	0.001	ND	ND
RH-9090 Conjs	34.8	0.169	43.7	0.099	ND	ND	4.8	0.001
MW 334 Acid	3.0	0.015	4.4	0.009	ND	ND	ND	ND
RH-294	1.2	0.006	4.2	0.009	6.1	0.001	0.9	< 0.001
RH-294 Conj.	0.2	0.001	ND	ND	ND	ND	ND	ND
Polar Unks. (2–4 Minutes)	ND	ND	ND	ND	ND	ND	ND	ND
Unidentified	5.1	0.025	1.3	0.003	6.3	0.001	23.1	0.004
Total Identified	90.9	0.443	98.6	0.203	89.7	0.021	45.1	0.008
Total Characterized	96.0	0.467	99.9	0.206	96.0	0.022	68.2	0.012
Total Extractable	96.0	0.467	100.0	0.206	96.0	0.022	8.0	0.013
Post Extn Solids	9.0	0.044	1.0	0.002	3.0	0.001	4.0	< 0.001
Accountability	100	–	100	–	100	–	82	–

[a] Extracted with acetonitrile/water (80/20)
[b] Reported residues for RH-9089 in liver and kidney may be artificially high as the radioactivity eluting in the RH-9089 zone in the HPLC system used was often very broad in nature. Reanalysis of these extracts in another system or by LC-MS often showed only very low levels of RH-9089. Much of the radioactivity during reanalysis appeared to be additional RH-9090 or conjugates of RH-9090.
ND = Not Detectable
NA= Not Applicable

The unchanged parent compound was only observed in liver. The metabolite RH-9090 and its sulphate and glucuronic acid conjugates were the primary residue in liver, in kidney, in muscle, in fat and in milk. The hydroxyl-lactone was the only other metabolite present in liver more than 10% of the TRR. The only other two metabolites representing 10% or more of the TRR were RH-294 and the MW 318 carboxylic acid in milk and no parent compound was detected in milk.

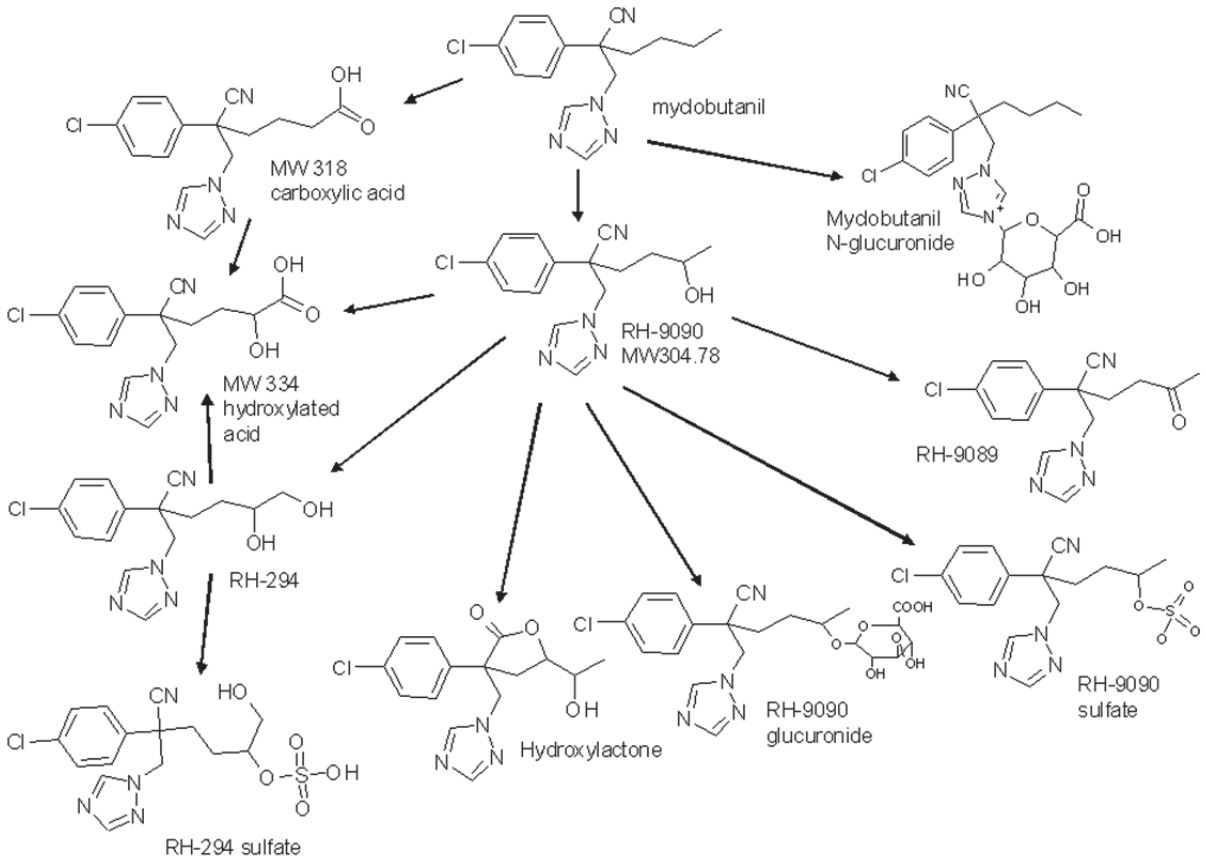


Figure 1 Proposed metabolic profile for myclobutanil in ruminants

Laying hens

[^{14}C]-Myclobutanil or a mixture of RH9090/9089 (82:18) were each administered orally by gelatine capsule to separate groups of three laying hens (Leghorn) once daily for 7 consecutive days at the nominal equivalent of 110 ppm in the diet (Jacobson, 1986, 94610; Martin, 1986, 94169). The test substances were uniformly labelled in the phenyl ring (myclobutanil: 110 ppm) and in the triazole ring (82 ppm RH9090: 18 ppm RH9089). Ten hens were used as a control group. All chickens in these groups were sacrificed 24 hours after final dose. All eggs were separated into yolks and whites on study days 1 and 6. All samples were frozen pending analysis. Radioactivity was measured by liquid scintillation counting (LSC). Whole eggs and muscle were extracted with ethyl acetate, and then extracted with methanol. Fat and edible offal were extracted with n-hexane and methanol. The nature of radioactivity in all tissues was investigated further. The nature of radioactivity in eggs and tissues was investigated further. The results were summarized in Tables 5 to 7.

Table 5 Myclobutanil residue equivalents (expressed as mg myclobutanil equivalents/kg) in tissues from hens dosed orally at rates equivalent to 110 ppm in the diet

	Residue Level (mg/kg)	
Sample Type	Myclobutanil group	RH-9090/RH-9089 group
Liver	0.52	0.31
Kidney	0.32	0.16
Heart	ns	ns
Gizzard	ns	ns
Breast	0.060	0.077
Thigh	0.056	0.065
Fat	0.017	0.010

ns = Not sampled.

Table 6 Summary of characterization and identification of radioactive residues in eggs and the edible tissues of treated with [^{14}C]-myclobutanil

Fraction ID	Eggs	Fat	Breast muscle	Thigh muscle	kidney	liver
	%TRR	%TRR	%TRR	%TRR	%TRR	%TRR
Total extracted	69%	79%	97%	83%	156%	72%
myclobutanil		67.2	4	2	11.5	4.8
RH-294	4.4			8	2.7	
RH-9090-sulphate	4.7		4	5		2.2
RH-9090	35.6		4		14.9	3.9
RH-9089	10.4		72	61		
Lactone	12.3					
Unknown 1	2.3					
Unknown 2						
Less polar than RH-3866						
Hydroxy lactone		9.5				
Organic unknown				6	112.5	58.4
Polar unknown		2.4	0		5.5	3.0
Total characterised	70	79	84	82	147	72
Solids	31%	21%	21%	32%		28%
Total	100%	100%	118%	115%	156%	100%

Table 7 Summary of characterization and identification of radioactive residues in eggs and the edible tissues of treated with a mixture of [^{14}C]-RH9090/9089

Fraction ID	Eggs	Fat	Breast muscle	Thigh muscle	Kidney	Liver
	%TRR	%TRR	%TRR	%TRR	%TRR	%TRR
Total extracted	77%	79%	86%	72%	125%	104%
myclobutanil	0.0					
RH-294	6.9		3	3	2.5	1.8
RH-9090-sulphate	1.0		6	5		
RH-9090	47.2	18.2			20.8	11.2
RH-9089	4.9		57	49		
Lactone	11.8					
Unknown 1	2.2					
Unknown 2	3.1					
Less polar than parent		27.7				
Hydroxy lactone		21.3				
Organic unknown			16	13	100.8	87.1
Polar unknown		12.6				3.9
Total characterised	77.0	79.8	81.6	71.5	124.0	104.0
Solids	23%	21%	20%	18%		
Total	100%	100%	106%	90%	125%	104%

Residues in tissues were extremely low at the exaggerated dose level of 110 ppm. Highest levels were observed in the liver and kidney. Residues in fat were extremely low and there was no evidence of accumulation of residues in fatty tissues. The major components of the residue were attributed to the RH-9090, RH-9089, RH-294 (diol), RH-9090-sulphate and the 4-hydroxy-lactone, which were all detected at very low levels, and would be anticipated to be not-detectable or barely detectable at a normal dose rate.

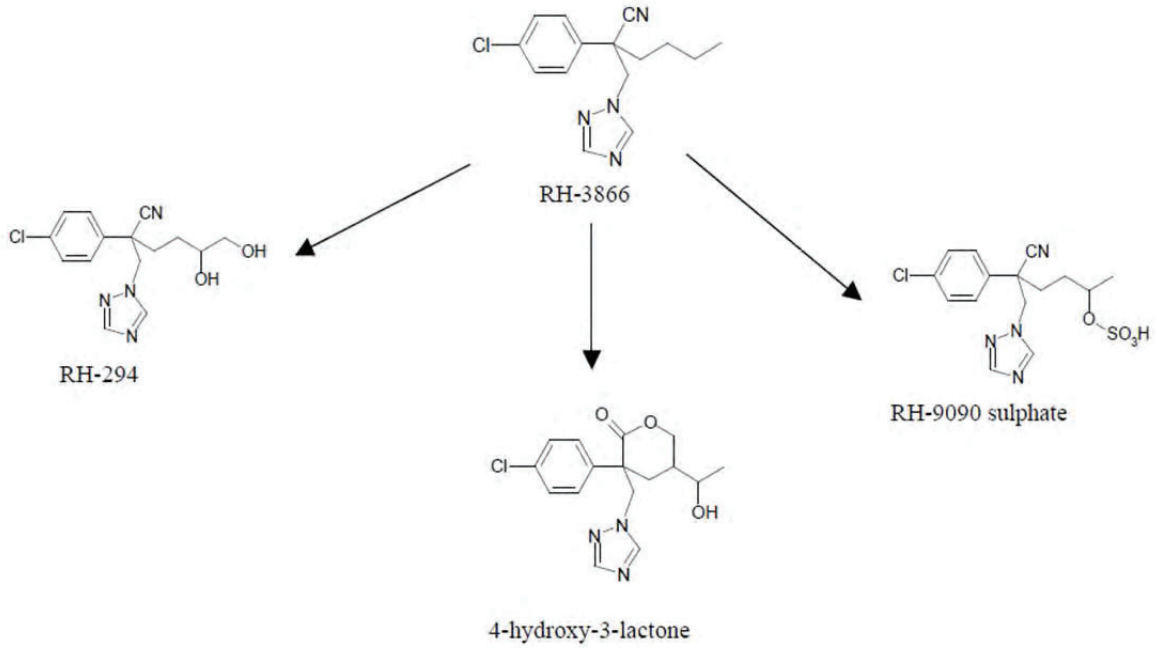


Figure 2 Proposed metabolic pathway of myclobutanil in laying hens

Plant metabolism

The Meeting received plant metabolism studies with myclobutanil in grapes, apples, wheat, and sugar beets.

Grapes

Experiments on grape seedlings (*Vitis*, variety De Chaunac) were conducted in nutrient solution with either 68.5 µg (4.6 mg/L) of ^{14}C-phenyl myclobutanil (specific activity 10.28 mCi/g, radiochemical purity 99%) or 52.4 µg (3.5 mg/L) of ^{14}C-triazole myclobutanil (specific activity 10.98 mCi/g, radiochemical purity 99%). The plants were placed in the greenhouse. Additional nutrient solution was added as needed. The study was terminated after either 7 or 16 days uptake (Nelson, SS, 1984, 94279). The roots were washed in 20 mL of water to remove any radiolabelled material on the root surface. Plants were stored frozen prior to analysis. Radioactivity was measured by liquid scintillation counting (LSC). The plants were extracted with methanol followed by successive partitioning with chloroform and 1-butanol for the 7 day uptake plants and with hexane and chloroform for the 16 day uptake plants. The effect of enzymatic hydrolysis using α–and β-glucosidase enzymes on the chromatographic behaviour of conjugates was investigated. The natures of radioactivity in the selected samples were investigated further with TLC. The results were summarized in Tables 8 and Table 9.

Table 8 Distribution in different extracts (% TRR) of grape seedlings treated with [^{14}C]myclobutanil

	7 Day Uptake		16 Day Uptake	
Solvent	Phenyl	Triazole	Phenyl	Triazole
Hexane	–	–	2.1	1.5
Chloroform	72.6	75.8	64.6	64.7
1-butanol	15.3	11.0	18.0	17.4
Aqueous	0.5	1.8	0.4	2.2
Unextracted	11.6	11.3	15.0	14.1
Total	100.1	99.6	100.1	99.9

– = Not extracted with hexane.

Table 9 Distribution of radioactive residues (%TRR) in grape seedlings among myclobutanil and its metabolites

	7 Day Uptake		16 Day Uptake	
Metabolite	Phenyl	Triazole	Phenyl	Triazole
myclobutanil	36	38	55	51
RH-9090	8	4	7	8
RH-9090 glucoside	11	11	11	14
Polar metabolite	13	15	1	1
unextracted	12	11	15	14
Total	80	79	89	88

Grape vines (variety not stated) received five weekly sprays of myclobutanil, labelled with ^{14}C in the phenyl ring or the triazole ring each at a rate equivalent to 0.05 kg ai/ha (Nelson, SS, 1998, 98373) during August 1984. Samples of grapes and foliage were taken after each treatment. Final harvest was 7 days after the final treatment. Two bunches of grapes (from upper and lower branches) were taken at each harvest except for the final harvest when all remaining fruit were removed from the vines. Grapes and foliage taken after each of the treatments were ground with dry ice. The radioactivity in all samples was determined by combustion of samples and analysed by liquid scintillation counting (LSC). The residues in juice were partitioned successively against chloroform and 1-butanol. Wet pomace and foliage were soxhlet extracted with methanol and subsequently partitioned against hexane. The nature of radioactivity in the selected samples were investigated further with TLC and confirmed by GC-ECD. The results were summarized in Tables 10 to Table 12.

Table 10 Total radioactive residues in grapes receiving up to five weekly applications of [^{14}C]myclobutanil

	Residue Levels (mg myclobutanil equivalents/kg tissue)	
Sampling Date	Phenyl	Triazole
03 Aug 1984	0.047	0.090
09 Aug 1984	0.23	0.014
16 Aug 1984	0.051	0.18
24 Aug 1984	0.036	0.15
30 Aug 1984	0.38	0.31
06 Sept 1984	0.32	0.24

Table 11 Magnitude of radioactive residues (mg myclobutanil equivalents/kg tissue) in grape samples from the final harvest

	Harvest Residue Levels (mg myclobutanil equivalents/kg tissue)	
Fraction	Phenyl	Triazole
Whole Grape	0.32	0.24
Juice	0.042	0.034
Pomace (dried)	2.81	2.43
Pomace (wet)	0.97	0.91

Table 12 Nature of radioactive residues (%TRR) in whole grapes at harvest

	Harvest Residue Levels (mg myclobutanil equivalents/kg tissue)			
Metabolites	Phenyl		Triazole	
	% TRR	mg/kg	% TRR	mg/kg
Myclobutanil	66	0.21	66	0.16
RH-9089	1	0.003	1	0.002
RH-9090	9	0.028	7	0.017
RH-9090 glucoside	6	0.019	5	0.012
Total	82	0.26	79	0.191

Apples

Apple trees (semi-dwarf MacIntosh variety) received ten approximately weekly sprays of myclobutanil, labelled with ^{14}C in the phenyl ring or the Triazole ring in 1984 (Nelson, SS and Streelman, DR, 1984, 94618). One apple tree received phenyl labelled myclobutanil whilst the other received triazole labelled material. The apples from both trees were separately harvested fourteen days after the final application. Applications were begun in mid-June until end August. The application rate was equivalent to 240 g ai/ha. Harvested apples were quartered and separated into juice and pomace. Wet pomace obtained in this way was frozen and ground to a fine consistency with dry ice. Both juice and pomace were stored frozen until analysis. The radioactivity in pomace samples was determined by combustion of samples and analysed by liquid scintillation counting (LSC). Juice samples were assayed directly by LSC. The residues in juice were extracted successively with chloroform and 1-butanol. Pomace was soxhlet extracted with methanol and subsequently partitioned against chloroform. The natures of radioactivity in the selected samples were investigated further with TLC. The results were summarized in Tables 13 and Table 14.

Table 13 Magnitude of radioactive residues in apple fractions from fruit receiving ten sprays of [^{14}C] myclobutanil

	Residue Levels (mg myclobutanil equivalents/kg tissue)	
Fraction	Phenyl	Triazole
Juice	0.15	0.12
Pomace	1.00	0.66
Whole Fruit [a]	0.48	0.32

[a] Calculated from residues in juice and pomace.

Table 14 Nature of radioactive residues (%TRR) in apples

	Harvest Residue Levels (% TRR)	
Fraction	Phenyl	Triazole
Juice		
myclobutanil	21.7	23.8
RH-9089	1.3	1.2
RH-9090	26.5	24.7
Conjugated RH-9090	40.7	30.0
Total	90.2	79.7
Pomace		
myclobutanil	54.9	56.0
RH-9089	1.9	3.4
RH-9090	7.9	7.6
Conjugated RH-9090	19.7	18.3
Total	84.4	85.3
Whole Fruit [a]		
myclobutanil	48.5	48.7
RH-9089	1.8	2.9
RH-9090	11.5	11.5
Conjugated RH-9090	23.7	20.9
Total	85.5	84.0

[a] Calculated from residues in juice and pomace.

Wheat

Approximately 30 wheat (Triticum aestivum, variety Wanser) seedlings were placed in a foil covered jars containing 65 mL of 1/3 strength Hoaglands nutrient solution and either 2700 μg (42 ppm) of ^{14}C-phenyl myclobutanil (specific activity 10.28 mCi/g, radiochemical purity 99%) or 4170 μg (64 ppm) of ^{14}C-triazole myclobutanil (specific activity 10.98 mCi/g, radiochemical purity 99%). The plants were placed in the greenhouse (Nelson, SS, 1984, 94218). After 11 days, the plants' roots were placed in 90 mL of water to wash off any myclobutanil remaining on the root surface. Wheat seedlings,

excised wheat shoots, and excised wheat heads were stored frozen prior to analysis. Radioactivity was measured by liquid scintillation counting (LSC). The different plant parts were homogenized with methanol followed by liquid/liquid partitioning against hexane. The nature of radioactivity in samples was investigated further with TLC or GLC. The results were summarized in Table 15.

Table 15 Distribution (% of total samples radioactivity) and nature of residues in wheat following application of [^{14}C]myclobutanil (Nelson, SS, 1984, 94218)

	Intact Seedlings 11 day Uptake		Excised Shoots 5 day Uptake		Excised Heads 13 day Uptake	
	Ph	Tz	Ph	Tz	Ph	Tz
myclobutanil	62	71	73	72	73	75
RH-9090	2	2	6	6	5	4
RH-9090 glucoside	15	11	5	7	16	18
RH-9090 malonyl glucoside	15	10	5	5	-	-
Non-extractable Residue	2	1	0.5	0.4	1	1
Total	96	95	89.5	90.4	95	96

The metabolism of myclobutanil, radiolabelled in either the phenyl (Ph) or triazole (Tz) ring, was studied in wheat under field conditions at a rate equivalent to 0.28 kg ai/ha (Streelman, DR, 1984, 94246). The Tz labelled wheat received 2× 0.28 kg ai/ha treatments and the Ph treated wheat 1× 0.28 kg ai/ha treatment. The first application was in April 1983 (BBCH 30) and the second in early May (BBCH 32) with Tz labelled myclobutanil. A single application of phenyl labelled myclobutanil was BBCH 45. In a second experiment, wheat grown in the greenhouse was treated with 2× 0.28 kg ai/ha of Ph-labelled myclobutanil. The first application was made to plants as BBCH 31 and the second at BBCH 45. Plants were harvested on the day of application and at 41 days for PH label under field, 68 days for TZ label under field and 43 days for PH label under greenhouse after last treatment (DALT) then separated into straw, chaff and grain by threshing. Samples of all plant fractions were combusted to $^{14}CO_2$ which was determined by liquid scintillation counting (LSC). Straw and grain samples were extracted with methanol and followed by liquid/liquid partitioning between water and chloroform. The nature of radioactivity in the selected samples were investigated further with TLC and/or further analysed by GC-MS or MS. The results are summarized in Tables 16 to 20.

Table 16 Total radioactive residues (expressed as mg eq/kg tissue) in wheat grain and straw from crops treated with [^{14}C]myclobutanil

	Phenyl Field	Triazole Field	Phenyl Greenhouse
Application Regime / Growth stage at application	1× 0.28 kg ai/ha BBCH 45	2× 0.28 kg ai/ha BBCH 30 and 32	2× 0.28 kg ai/ha BBCH 31 and 45
Grain	0.09	3.57	0.07
Straw	3.20	2.76	68.6

Table 17 Distribution and nature of residues in wheat following application of radiolabelled myclobutanil

	Ph Grain	Tz Grain	Ph Straw	Tz Straw	Ph Straw
	Field	Field	Field	Field	Greenhouse [b]
Total Residue (mg/kg)	0.09	3.57	3.20	2.76	68.6
	% Total Radioactive Residues (% TRR)				
myclobutanil	10.5	0.4	29.5	28.7	46.9
RH-9089	3.7	2.4	6.2	4.9	1.0
RH-9090	24.7	7.1	33.3	16.3	2.7
Glucoside	6.3	1.3	5.9	5.8	22.1
Malonate	3.8	0.5	1.9	1.3	10.1
RH-4098 (TAA)	–	25.4	–	15.5	–
RH-3968 (TA)	–	51.3	–	1.2	–
Other—organic [a]	41.9	9.0	21.0	24.7	15.0

	Ph Grain	Tz Grain	Ph Straw	Tz Straw	Ph Straw
	Field	Field	Field	Field	Greenhouse [b]
Other—aqueous	9.2	2.6	2.2	1.7	2.2

[a] Radioactivity could not be assigned to a specific zone on TLC.
[b] Parent and metabolites were quantitated in the straw of the greenhouse experiment.

Sugar beet

The metabolism of myclobutanil, radiolabelled in either the phenyl (specific activity 4.00 mCi/mmole, radiochemical purity 98%) or triazole ring (specific activity 6.10 mCi/mmole, radiochemical purity 98%), was studied in sugar beets (Beta vulgaris cv. Wildcat) at approximately twice the maximum commercial use rate (150 g ai/kg) and approximately 20 times the maximum use rate (1500 g ai/ha) 30 days prior to maturity (MacDonald, AMG, Gray, J, Coyle, D, 2004, 207048). Plants were harvested from each plot on the day of application (when the spray had dried), and at 15 and 30 days after treatment (DAT). All samples were stored frozen (–20 °C). Radioactivity was measured by liquid scintillation counting (LSC). Samples were extracted with acetonitrile, aqueous acetonitrile and where necessary by acid and base hydrolysis. The natures of radioactivity in the selected samples were investigated further with HPLC or by LC-MS. The results are summarized in Tables 18 to 20.

Table 18 TRR from testing with [^{14}C]-phenyl-myclobutanil

Days After Treatment	150 g ai/ha		1500 g ai/ha	
	Raw Agricultural Commodity (mg eq/kg)			
	Roots	Leaves	Roots	Leaves
0	0.043	2.98	0.88	26.1
15	0.21	1.2	0.37	7.1
30	0.081	0.53	0.87	5.32

Table 19 TRR from testing with [^{14}C]-triazole-myclobutanil

Days After Treatment	150 g ai/ha		1500 g ai/ha	
	Raw Agricultural Commodity (mg eq/kg)			
	Roots	Leaves	Roots	Leaves
0	0.13	2.70	1.50	16.0
15	0.072	0.92	2.49	10.1
30	0.044	0.69	1.19	4.57

Table 20 The distribution of TRR between the various components for shoot and roots at maturity (MacDonald, AMG, Gray, J, Coyle, D, 2004, 207048)

		PH	label			TZ	label	
Identified		leaves		roots		leaves		roots
components	%TRR	mg eq/kg	%TRR	mg eq/kg	%TRR	mg eq/kg	%TRR	mg eq/kg
myclobutanil	34.3	0.18	32.8	0.027	16.1	0.11	26.7	0.011
RH-9089	ND	ND	ND	ND	ND	ND	ND	ND
RH-9090	7.2	0.038	ND	ND	ND	ND	4.7	0.002
Glucose conjugate	42.4	0.223	8.4	0.007	61.6	0.427	8.9	0.004
Of RH-9090 uncharacterized components								
Unknown 3	ND	ND	10.5	0.008	ND	ND	ND	ND
Unknown 4	ND	ND	10.5	0.008	ND	ND	10.2	0.004
Unknown 5	ND	ND	ND	ND	ND	ND	5.5	0.002
Unknown 6	7.6	0.040	13.2	0.011	ND	ND	15.6	0.007

		PH	label			TZ	label	
Identified		leaves		roots		leaves		roots
components	%TRR	mg eq/kg	%TRR	mg eq/kg	%TRR	mg eq/kg	%TRR	mg eq/kg
Unknown 7	ND	ND	ND	ND	ND	ND	ND	ND
Uncharacterized fractions								
Extractable	4.9	0.025	17.7	0.014	11.7	0.081	29.8	0.009
Non extractable	1.1	0.006	10.3	0.008	1.17	0.008	12.7	0.006
Recovered	97.5	0.51	103	0.083	90.5	0.63	105	0.045
Original	100	0.53	100	0.081	100	0.69	100	0.044

In summary, the metabolism of myclobutanil in crops is qualitatively consistent and considered comparable except in wheat treatment with TZ label. The conversion of myclobutanil to RH-9090 followed by conjugation with glucose is the major metabolic pathway. Minor amounts of RH-9089 are probably a result of oxidation of RH-9090. The presence of RH-3968 and RH-4098 in wheat treated with TZ label indicates that the phenethyl triazole linkage in parent was metabolically cleaved.

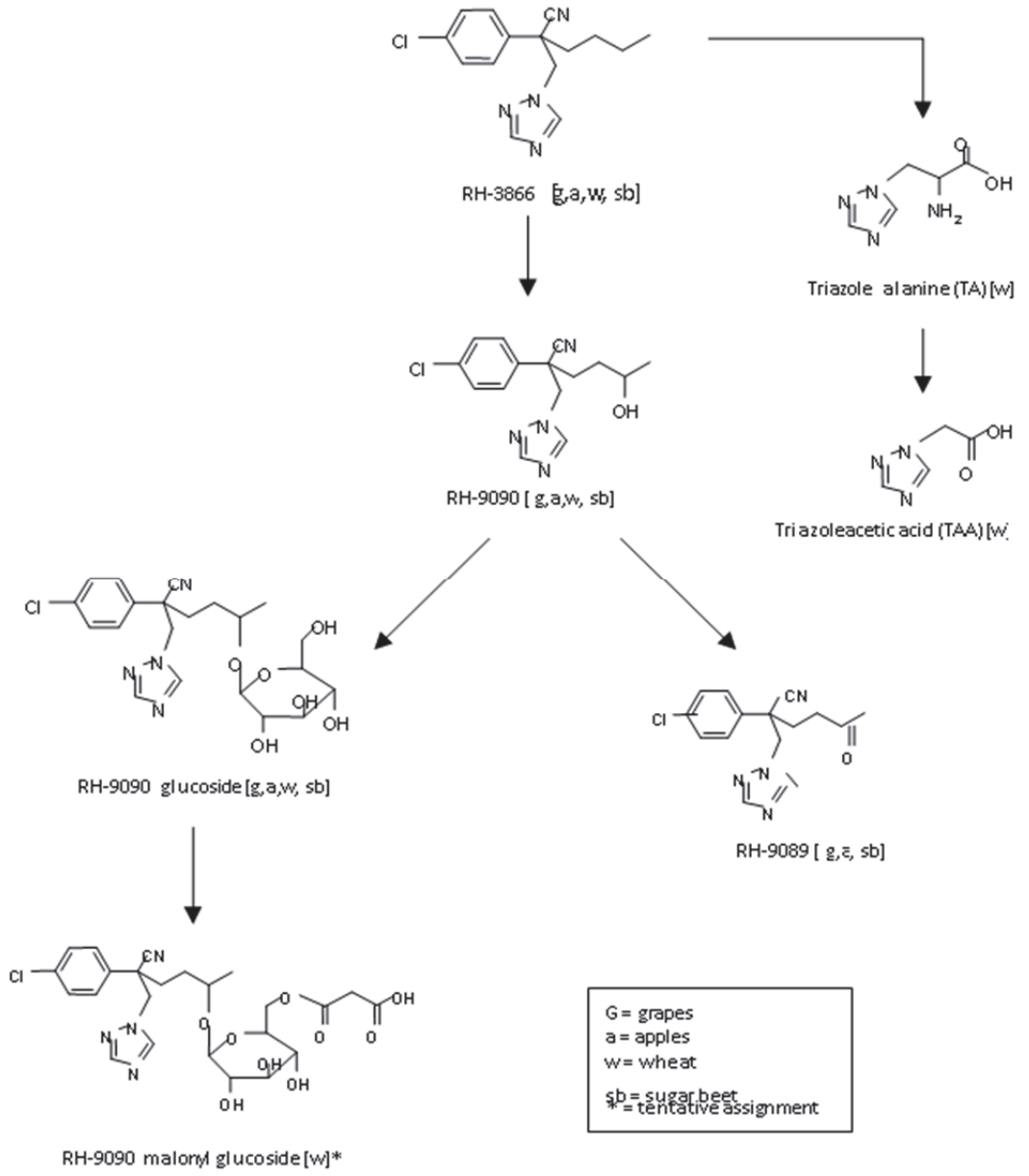


Figure 3 Proposed metabolic pathway of myclobutanil in crops

Environmental fate in soil

The Meeting received information on the environmental fate of myclobutanil in soil, including studies on soil metabolism, and crop rotational studies.

Soil metabolism (aerobic degradation)

The aerobic soil metabolism of myclobutanil was investigated in a silt loam (pH 5.3, 0.7% OC) freshly collected from the farm field and sieved through a 3.45 mm screen before use (Ackermann, IB, 1984, 94786; Ackermann, IB, 1986, 94822). The soil was treated with either ^{14}C-phenyl-myclobutanil (uniformly labelled in the chlorophenyl ring, 22616 DPM/ug, radiochemical purity 99%) or [^{14}C]triazole-myclobutanil (uniformly labelled in the triazole ring, 24380 DPM/ug, radiochemical purity 97%) at a nominal rate of 1 mg per kg dry soil. Soil aliquots of 200 g (dry weight basis) in the flasks were maintained aerobically for one year. The total CO_2 evolved by myclobutanil was measured with the trap solutions. On selected dates, soil samples were removed from the flasks to radioassay the ^{14}C content.

Soil samples were added acetonitrile/1 N acetic acid and placed on a mixer for thirty minutes. The suspension was centrifuged and transferred to a graduate cylinder. This procedure was performed twice. The suspension was vacuum filtered and two 1 mL aliquots were radioassayed. The filtrate was quantitatively transferred to a separatory funnel and water was added. Then it was partitioned three times with methylene chloride. The methylene chloride extract was evaporated for TLC analysis. Triplicate 0.5 gram samples of the air dried soil were radioassayed.

Thirty-five mL of 0.5 N NaOH was added to samples of aged aerobic soil and mixed for seven hours. The suspension was centrifuged and transferred to a graduate cylinder. Duplicate 0.5 mL aliquots were taken for radioassay. Thirty-five mL of 1.0 N NaOH were added to the remaining soil. Then it was mixed overnight (fifteen hours) with a mixer. The suspension was centrifuged and the supernatant was transferred to a graduate cylinder. The extracted soil was washed with 1.0 N NaOH and distilled water, respectively. The supernatant was added to the graduate. Duplicate 1 mL aliquots were taken for radioassay. The soil was dried and then pulverized. Triplicate 0.5 g samples were taken for radioassay. Results are presented in Tables 21 to 23.

Table 21 Distribution of radioactivity and material balance after application of [^{14}C]-triazole-myclobutanil and [^{14}C]-phenyl-myclobutanil

Day		[^{14}C]-triazole				[^{14}C]-phenyl		
	CH_2Cl_2	H_2O	CO_2	Remain in soil	CH_2Cl_2	H_2O	CO_2	Remain in soil
0	100	nd	nd	nd	97	nd	nd	nd
3	98	nd	nd	nd	97	nd	nd	nd
7	96	nd	nd	nd	95	nd	nd	nd
14	94	nd	nd	nd	93	nd	nd	nd
21	89	2	nd	9	88	nd	2	10
30	82	4	nd	14	83	nd	4	13
51	69	10	1	20	69	1	9	21
62	63	13	1	23	63	1	14	22
90	51	16	1	32	56	1	18	25
120	44	17	2	37	49	1	22	28
150	43	18	3	36	52	1	21	26
181	42	18	2	38	46	2	25	27
240	38	15	3	44	42	1	28	29
367	35	13	4	48	40	2	30	28

nd = Not detected

Table 22 Summary of distribution and characterization of radioactivity following extraction and mineralization after application of [^{14}C]-triazole-myclobutanil

	1,2,4-triazole		Metabolites				
Day	(H_2O)	myclobutanil	Polar metabolite	Origin	Other	CO_2	Unextracted
0	0	98	nd	2	nd	0	0
3	0	98	nd	2	nd	0	2
7	0	93	1	2	nd	0	4
14	0	87	5	2	nd	0	6
21	2	78	8	2	nd	0	9
30	4	71	9	2	nd	0	14
51	10	63	5	1	nd	1	20
62	13	54	4	5	nd	1	23
90	16	41	4	nd	5	1	31
120	17	42	nd	nd	3	2	38
150	18	41	nd	nd	nd	3	36
180	18	40	nd	nd	2	2	38
240	15	34	1	nd	3	3	44
367	13	29	nd	2	4	4	48

nd = Not detected.

Table 23 Summary of distribution and characterization of radioactivity following extraction and mineralization after application of [^{14}C]-phenyl-myclobutanil

	1,2,4-triazole		Metabolites				
Day	(H_2O)	myclobutanil	Polar metabolite	Origin	Other	CO_2	Unextracted
0	0	94	nd	3	nd	0	3
3	0	94	1	2	nd	0	3
7	0	91	2	1	1	0	5
14	0	85	6	1	1	1	6
21	0	82	5	1	nd	2	10
30	0	72	9	1	1	4	13
51	1	64	6	1	nd	10	21
62	1	54	7	2	nd	14	22
90	1	50	3	1	2	18	25
120	1	43	3	2	nd	22	28
150	1.5	47	3	1	nd	21	26
180	2	43	nd	nd	nd	25	27
240	1	37	2	nd	3	28	29
367	2	33	nd	3	4	30	28

nd = Not detected.

The majority of radioactivity in the extracts was always the unchanged compound. None of metabolites exceeded 10% TAR. The half-lives were calculated to be 61 to 71 days for degradation of parent compound. Mineralization to $^{14}CO_2$ reached a total of 4.0% to 30% TAR. No other volatile compounds were detected.

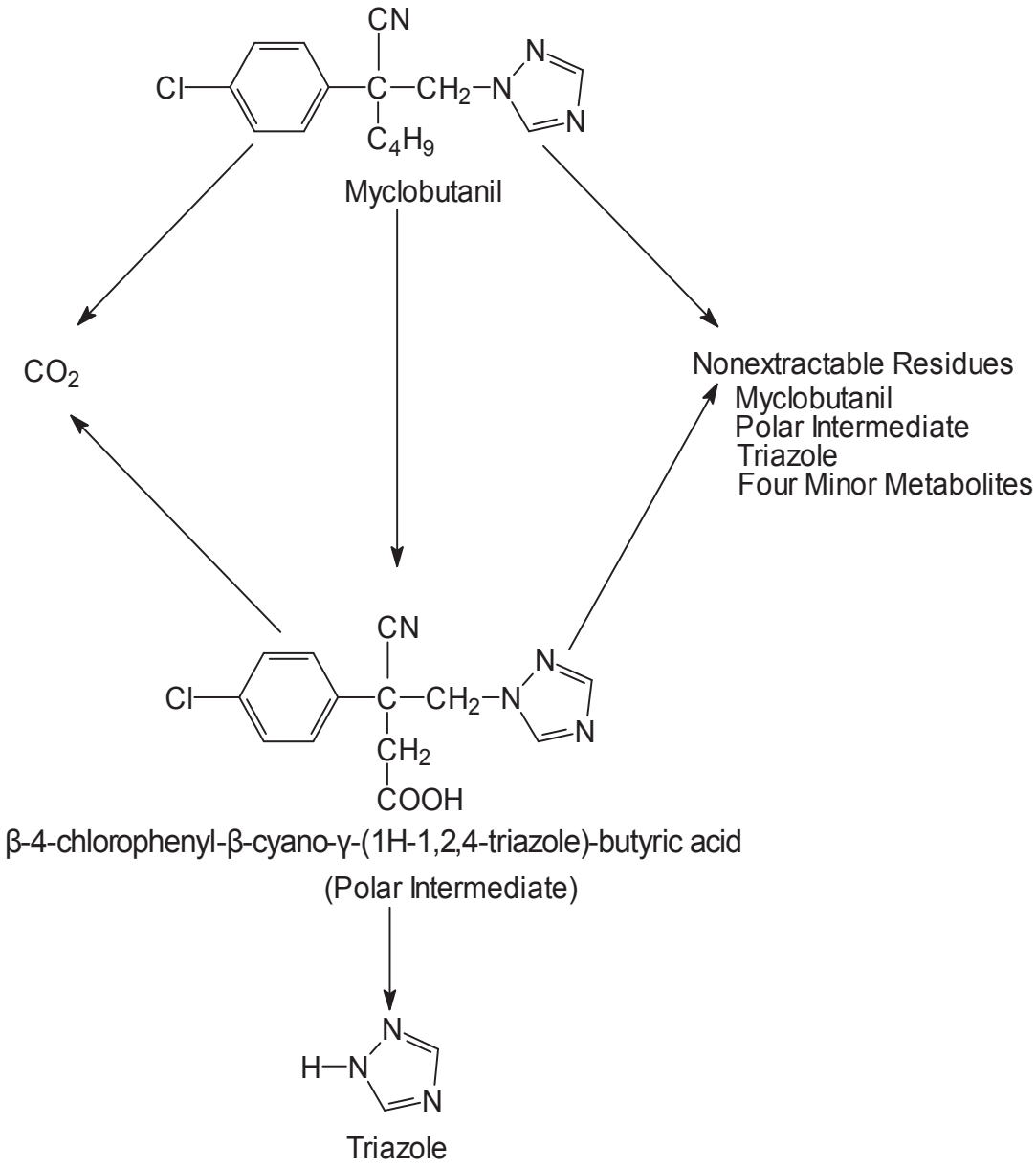


Figure 4 Proposed metabolic pathway of myclobutanil in aerobic soil

Soil Photolysis

The photodegradation of [^{14}C]-myclobutanil (labelled uniformly in the phenyl ring, 10.28 mCi/g, radiochemical purity 98.0%; labelled in the 3,5 position of the triazole ring, 10.98 mCi/g, radiochemical purity 100%) were studied on a silt loam soil (1.20% OM, pH 5.3) under black lamps and fluorescent sun lamps (Nelson, SS, 1985, 94821; Nelson, SS, 1985, 222060). Either [^{14}C]-phenyl-myclobutanil or [^{14}C]-triazole-myclobutanil was fortified on the surface of the dry soil in flasks at the nominal concentration of 5 mg/kg dry soil. The incubation conditions were irradiation from an array of three fluorescent blacklights and three fluorescent sunlamps at 34 °C for 30 days. Samples were taken 0, 3, 7, 16 and 30 days after treatment. Dark control samples were analysed at the same sampling days. Volatiles were measured in appropriate trapping solutions. Soil samples were extracted with 70:30 acetonitrile/1 M acetic acid and the extracts analysed by liquid scintillation

counting (LSC) and GC-ECD or NPD. Bound residues were quantified by combustion and subsequent LSC measuring.

The light source in this study had a range of about 290–480 nm. The intensities of the wavelength emitted from the light source in the 290–480 nm range were greater than that found in natural sunlight. Myclobutanil did not photodegrade to any appreciable extent, even under the greater intensities of the shorter wavelengths. This study was done at 34 °C, somehow higher than the desired range of 20–30 °C. In this experiment the dark controls, which were maintained at the same temperature, were very stable. Comparison of the extracts from day 0 to day 30 dark controls does not indicate any substantial change in the amount of myclobutanil. The extracts from day 30 irradiated samples contained only 88.8% of phenyl ring labelled myclobutanil and 87.7% of triazole ring labelled myclobutanil. Thermal degradation of myclobutanil was slight or non-existent at this higher temperature. Comparison of studies from soil photolysis and metabolism, it is concluded that photolysis will not be a route of degradation of myclobutanil in the soil as soil metabolism will occur more rapidly. The results are shown in Tables 24 to 26.

Table 24 Distribution of radioactivity in silt loam soil after treatment with [phenyl-U-^{14}C]-myclobutanil and incubation under irradiated conditions (% TAR)

Day	CO_2	Volatiles	$CHCl_3$ extract	Remaining aqueous	Non-extracted
0	0	0	95.8	0.07	4.1
3	0.02	0.004	91.7	0.07	8.2
7	0.03	0.002	89.5	0.1	10.4
16	0.3	0.008	94.1	0.2	5.5
30	1.9	0.01	89.7	0.6	7.8
30 dark	0.08	0.008	94.5	0.07	5.3

Table 25 Distribution of radioactivity in silt loam soil after treatment with [triazole-^{14}C]-myclobutanil and incubation under irradiated conditions (% TAR)

Day	CO_2	Volatiles	$CHCl_3$ extract	Remaining aqueous	Non-extracted
0	0	0	95.8	0.06	4.3
3	0.02	0.004	93.5	0.1	6.4
7	0.02	0.002	91.7	0.2	8.1
16	0.05	0.002	94.3	0.4	5.3
30	0.2	0.003	90.8	1.4	7.7
30 dark	0.04	0	91.3	0.1	8.6

Table 26 TLC-analysis of soil extracts after treatment of silt loam soil with [^{14}C]-myclobutanil and incubation under irradiated conditions (%TAR)

	Phenyl ring	labelled [a]	Triazole ring	labelled [a]
Day	Parent	RH-9089	Parent	RH-9089
0	97.4	1.1	98.0	0.6
3	97.5	0.8	96.0	0.7
7	96.6	0.8	97.3	0.7
16	91.7	2.3	93.1	1.9
30	88.8	3.9	87.7	4.2
30 dark	96.0	0.9	96.9	0.7

[a] Average from two different solvent systems.

Myclobutanil was very stable, even using these conditions which are more severe than those encountered in real sunlight. The above studies indicate that the major route of degradation of myclobutanil in the soil will be by soil metabolism and not photolysis.

Crop rotation studies

Information on the fate of myclobutanil in follow-on crop studies was made available to the Meeting.

A confined rotational crop study was conducted with [^{14}C]triazole-labelled myclobutanil (Graper, LK *et al.,* 2012, 090061). The active substance was soil-applied to confined plots of sandy loam soil at a rate of 1× 360 g ai/ha. The nature and the level of radioactive residues were investigated in lettuce (Variety: *butter crunch*), radish (Variety: *cherry belle*) and wheat (Variety: *hard red VNS*) after plant back intervals of 30, 120 and 365 days. Plant samples were harvested at maturity, and additional immature lettuce samples as well as wheat forage samples (in part dried to hay) were taken 30 days, 120 days and 365days after planting or sowing, respectively. Soil (0.5% OM; pH 7.6) samples were taken after ploughing and after harvest of the mature crops for each plant back interval. The sampled material was stored in a freezer. All plant samples were homogenised and the radioactive residues in these samples and in the soil samples were determined by combustion analysis. Lettuce, radish and wheat samples were extracted with an accelerated solvent extractor using 80/20 acetonitrile/water. Extracts were measured with LSC and cleaned up using solid phase extraction (SPE) for HPLC analysis. The remaining tissue after ASE extraction was analysed by oxidative combustion to determine the amount of non-extractable radioactive residue.

Lettuce, radish and wheat were planted at rotational intervals of 30, 120 and 365 days after treatment and total radioactive residues ranging from 0.07 to 2.69 mg eq/kg were found in harvested crops. Residues in immature and mature lettuce and radish roots declined over time, while residues in radish tops increased. Residues in wheat hay, straw and grain did not show consistent increase or decline. All samples at all plant-back time points were subjected to extraction and characterization. For all samples, 62.9 to 104.0% of the TRR was extracted into neutral organic solvent which was analysed by SPE to give load & wash (polar) and eluate (non-polar) fractions requiring HPLC analysis. When the load & wash and eluate fractions were considered together, 63.0 to 105.8% of the sample TRR was analysed by HPLC. The three most abundant non-polar metabolites were myclobutanil at 0.43 mg eq/kg (55.2% TRR) in 30 DAT mature lettuce and MW 309 di-acid at 0.381 mg eq/kg (14.2% TRR) and RH-9090 at 0.47 mg eq/kg (17.3% TRR), both in 30 DAT wheat straw. The largest unidentified non-polar peak was 0.09 mg eq/kg (3.4% TRR) in 30 DAT wheat straw. The two most abundant polar metabolites were the triazole alanine at 0.45 mg eq/kg (30.1% TRR) and triazole acetic acid at 0.43 mg eq/kg (28.8% TRR), both in 120 DAT wheat grain. The highest concentration of the largest polar unidentified peak was 0.21 mg eq/kg (12.8% TRR) in 365 DAT wheat straw. Bound residues exceeded both 10% of the TRR and 0.05 mg eq/kg only in wheat hay, straw and grain at all plant-backs. For wheat grain, the bound residues ranged from 26.0 to 38.8% TRR and from 0.21 to 0.57 mg eq/kg.

Table 27 Total radioactive residues in crops after treatment with [^{14}C]-triazole-myclobutanil

	30 plant-back control	30 plant-back treated	120 plant-back treated	365 plant-back treated
Sample	mg eq/kg	mg eq/kg	mg eq/kg	mg eq/kg
Lettuce-immature	< 0.001	0.782	0.242	0.097
Lettuce-mature	0.001	0.938	0.240	0.067
Radish-mature tops	< 0.001	0.330	0.218	0.163
Radish-mature roots	< 0.001	0.078	0.098	0.137
Wheat Forage	< 0.001	0.533	0.468	0.228
Wheat Hay	< 0.001	1.504	1.668	1.444 [a]
Wheat Straw	0.001	2.692	1.715	1.629
Wheat Grain	< 0.001	0.559	1.500	1.457

[a] As received, the ground and frozen 365 day plant-back wheat hay sample was comprised of 31.2% moisture. At this moisture, the sample residue level was calculated to be 1.168 mg eq/kg. Because OECD guidelines indicate that wheat hay should be dried to a moisture content of 10 to 20 percent, the mg eq/kg value in the table above was arithmetically adjusted as if the moisture was 15%, and the value used for the study was as shown above in the table.

Table 28 Accelerated solvent extraction (ASE) of residues in rotational crops after [^{14}C]-triazole-myclobutanil treatment after plant back intervals of 30, 120 and 365 days

	Total	80/20 CH_3CN /H_2O, 40 °C	80/20 CH_3CN /H_2O, 40 °C	Total extractable	Non-extractable	Total recovered
Sample PBI	mg eq/kg (TRR%)	mg eq/kg (TRR%)	mg eq/kg (TRR%)	mg eq/kg (TRR%)	mg eq/kg (TRR%)	mg eq/kg (TRR%)
Immature	Lettuce					
30	0.782 (100.0)	0.770 (98.4)	0.014 (1.7)	0.784 (100.1)	0.024 (3.1)	0.807 (103.2)
120	0.242 (100.0)	0.211 (87.4)	0.005 (1.9)	0.216 (89.3)	0.017 (7.0)	0.233 (96.3)
365	0.097 (100.0)	0.098 (100.7)	0.003 (3.3)	0.101 (104.0)	0.007 (7.6)	0.109 (111.7)
Mature	Lettuce					
30	0.938 (100.0)	0.741 (78.9)	0.010 (1.0)	0.750 (80.0)	0.048 (5.1)	0.798 (85.1)
120	0.240 (100.0)	0.228 (95.2)	0.006 (2.4)	0.234 (97.6)	0.024 (10.0)	0.258 (107.6)
365	0.067 (100.0)	0.063 (93.8)	0.001 (1.2)	0.064 (95.0)	0.005 (7.1)	0.068 (102.1)
Radish	Tops					
30	0.330 (100.0)	0.305 (92.4)	0.011 (3.3)	0.316 (95.8)	0.010 (3.0)	0.326 (98.8)
120	0.218 (100)	0.203 (93.0)	0.005 (2.3)	0.208 (95.3)	0.008 (3.6)	0.216 (98.9)
365	0.163 (100.0)	0.140 (85.9)	0.007 (4.1)	0.147 (90.1)	0.008 (4.9)	0.155 (95.0)
Radish	Roots					
30	0.078 (100.0)	0.073 (93.2)	0.003 (3.6)	0.076 (96.8)	0.005 (6.3)	0.080 (103.0)
120	0.098 (100.0)	0.087 (88.5)	0.006 (6.0)	0.093 (94.5)	0.009 (9.2)	0.102 (103.7)
365	0.137 (100.0)	0.097 (70.6)	0.004 (3.0)	0.101 (73.7)	0.015 (11.2)	0.116 (84.9)
Wheat	Forage					
30	0.533 (100.0)	0.525 (98.5)	0.010 (1.9)	0.535 (100.4)	0.036 (6.8)	0.572 (107.2)
120	0.468 (100.0)	0.418 (77.9)	0.009 (1.9)	0.427 (91.1)	0.024 (5.0)	0.450 (96.2)
365	0.228 (100.0)	0.177 (77.9)	0.003 (1.4)	0.180 (79.3)	0.016 (7.1)	0.197 (86.4)
Wheat	Hay					
30	1.504 (100.0)	1.259 (83.7)	0.101 (6.7)	1.361 (90.5)	0.171 (11.4)	1.532 (101.9)
120	1.668 (100.0)	0.928 (55.7)	0.229 (13.7)	1.157 (69.4)	0.382 (22.9)	1.539 (92.3)
365	1.444 (100.0)	1.016 (70.4)	0.165 (11.4)	1.181 (81.8)	0.288 (20.0)	1.470 (101.8)
Wheat	Straw					
30	2.692 (100.0)	2.081 (77.3)	0.204 (7.6)	2.285 (84.9)	0.530 (19.7)	2.815 (104.6)
120	1.715 (100.0)	1.238 (72.2)	0.153 (8.9)	1.391 (81.1)	0.287 (16.7)	1.678 (97.8)
365	1.629 (100.0)	1.195 (73.4)	0.141 (8.7)	1.336 (82.0)	0.285 (17.5)	1.621 (99.5)
Wheat	Grain					
30	0.559 (100.0)	0.205 (36.7)	0.147 (26.2)	0.352 (62.9)	0.213 (38.1)	0.565 (101.1)
120	1.500 (100.0)	0.619 (41.2)	0.412 (27.5)	1.030 (68.7)	0.390 (26.0)	1.420 (94.7)
365	1.457 (100.0)	0.666 (45.7)	0.435 (29.9)	1.101 (75.6)	0.565 (38.8)	1.666 (114.4)

Table 29 SPE fractionation of the extractable residues in rotational crops after [^{14}C]-triazole-myclobutanil treatment

	Analysis of extracts by SPE				Reconstituted Wash SPE for	Load & Fractions HPLC	Reconstituted SPE Fractions HPLC	Eluate for
	Total applied	Load & wash	Eluate	Total recovered	Sample for HPLC	Total recovered	Sample for HPLC	Total recovered
Sample PBI	mg eq/kg (TRR%)	mg eq/kg (TRR%)	mg eq/kg (TRR%)	mg eq/kg (TRR%)	mg eq/kg (TRR%)	mg eq/kg (TRR%)	mg eq/kg (TRR%)	mg eq/kg (TRR%)
Immature	Lettuce							
30	0.784 (100.1)	0.046 (5.9)	0.713 (91.1)	(96.9)	0.046 (5.9)	(99.2)	0.693 (88.6)	(97.2)
120	0.216 (89.3)	0.043 (18.0)	0.169 (69.9)	(98.4)	0.045 (18.8)	(104.5)	0.167 (69.3)	(99.0)
365	0.101 (104.0)	0.053 (53.9)	0.049 (50.0)	(99.9)	0.051 (52.2)	(96.8)	0.043 (43.7)	(87.4)
Mature	Lettuce							
30	0.750 (80.0)	0.099 (10.5)	0.634 (67.6)	(97.7)	0.097 (10.3)	(98.2)	0.715 (76.3)	(112.8)
120	0.234	0.079	0.152		0.075		0.153	

	Analysis of extracts by SPE				Reconstituted Wash SPE for	Load & Fractions HPLC	Reconstituted SPE Fractions HPLC	Eluate for
	Total applied	Load & wash	Eluate	Total recovered	Sample for HPLC	Total recovered	Sample for HPLC	Total recovered
Sample PBI	mg eq/kg (TRR%)	mg eq/kg (TRR%)	mg eq/kg (TRR%)	mg eq/kg (TRR%)	mg eq/kg (TRR%)	mg eq/kg (TRR%)	mg eq/kg (TRR%)	mg eq/kg (TRR%)
	(97.6)	(33.0)	(63.5)	(98.8)	(31.1)	(94.3)	(63.8)	(100.5)
365	0.064 (95.0)	0.030 (45.2)	0.032 (47.6)	(97.7)	0.028 (42.0)	(92.9)	0.030 (45.3)	(95.2)
Radish	Tops							
30	0.316 (95.8)	0.071 (21.4)	0.236 (71.7)	(97.2)	0.070 (21.1)	(98.6)	0.230 (69.7)	(97.3)
120	0.208 (95.3)	0.041 (18.9)	0.162 (74.2)	(97.7)	0.047 (21.7)	(114.9)	0.160 (73.3)	(98.8)
365	0.147 (90.1)	0.091 (55.8)	0.047 (28.6)	(93.6)	0.084 (51.5)	(92.3)	0.048 (29.1)	(101.7)
Radish	Roots							
30	0.076 (96.8)	0.025 (32.1)	0.040 (51.3)	(86.2)	0.030 (38.3)	(119.5)	0.042 (54.4)	(105.9)
120	0.093 (94.5)	0.046 (42.1)	0.031 (31.7)	(83.0)	0.045 (46.0)	(98.8)	0.030 (30.9)	(97.3)
365	0.101 (73.7)	0.058 (42.1)	0.039 (28.2)	(95.4)	0.055 (39.9)	(94.7)	0.036 (26.3)	(93.1)
Wheat	Forage							
30	0.535 (100.4)	0.060 (11.3)	0.474 (88.9)	(99.8)	0.059 (11.0)	(97.6)	0.506 (94.8)	(106.7)
120	0.427 (91.1)	0.111 (23.8)	0.293 (62.6)	(94.8)	0.105 (22.5)	(94.7)	0.262 (56.0)	(89.3)
365	0.180 (79.3)	0.093 (41.0)	0.081 (35.8)	(96.8)	0.087 (38.1)	(92.9)	0.081 (35.6)	(99.5)
Wheat	Hay							
30	1.361 (90.5)	0.225 (15.0)	1.110 (73.8)	(98.1)	0.230 (15.3)	(102.4)	1.072 (71.3)	(96.6)
120	1.157 (69.4)	0.550 (33.0)	0.531 (31.8)	(93.4)	0.530 (31.8)	(96.4)	0.520 (31.2)	(98.0)
365	1.181 (81.8)	0.614 (42.6)	0.609 (42.2)	(103.6)	0.556 (38.5)	(90.4)	0.538 (37.3)	(88.3)
Wheat	Straw							
30	2.285 (84.9)	0.293 (10.9)	1.979 (73.5)	(99.4)	0.293 (10.9)	(100.0)	1.936 (71.9)	(97.8)
120	1.391 (81.1)	0.502 (29.3)	0.854 (49.8)	(97.5)	0.523 (30.5)	(104.0)	0.904 (52.7)	(105.9)
365	1.336 (82.0)	0.562 (34.5)	0.703 (43.1)	(94.7)	0.550 (33.8)	(97.8)	0.673 (41.3)	(95.8)
Wheat	Grain							
30	0.352 (62.9)	0.321 (57.5)	0.048 (8.5)	(104.8)	0.323 (57.7)	(100.5)	0.046 (8.3)	(97.3)
120	1.030 (68.7)	0.969 (64.6)	0.057 (3.8)	(99.6)	0.958 (63.9)	(98.9)	0.057 (4.9)	(97.9)
365	1.101 (75.6)	1.006 (69.1)	0.073 (5.0)	(98.0)	0.957 (65.7)	(95.2)	0.071 (4.9)	(97.9)

Table 30 Myclobutanil and metabolite levels in SPE eluate fractions of lettuce and radish

	Immature lettuce mg eq/kg (TRR%)			Mature lettuce mg eq/kg (TRR%)			Radish tops mg eq/kg (TRR%)			Radish roots mg eq/kg (TRR%)		
Metabolits	30	120	365	30	120	365	30	120	365	30	120	365
Applied to HPLC	0.693 (88.6)	0.167 (69.3)	0.043 (43.7)	0.715 (76.3)	0.153 (63.8)	0.030 (45.3)	0.227 (68.9)	0.160 (73.3)	0.048 (29.1)	0.042 (54.4)	0.030 (30.9)	0.036 (26.3)
glu-9090	0.011 (1.4)	0.009 (3.6)	0.002 (2.3)	0.020 (2.1)	0.009 (3.7)	0.002 (3.7)	0.007 (2.0)	0.010 (4.7)	0.002 (1.3)	0.001 (1.2)	– –	0.001 (0.5)

	Immature lettuce mg eq/kg (TRR%)			Mature lettuce mg eq/kg (TRR%)			Radish tops mg eq/kg (TRR%)			Radish roots mg eq/kg (TRR%)		
Metabolits	30	120	365	30	120	365	30	120	365	30	120	365
MW 309 di-acid	0.032 (4.1)	0.018 (7.5)	0.010 (10.1)	0.091 (9.7)	0.027 (11.4)	0.011 (15.7)	0.042 (12.7)	0.061 (28.1)	0.015 (9.3)	0.003 (4.3)	0.002 (1.9)	0.004 (3.0)
butyric acid	0.024 (3.0)	0.022 (9.1)	0.007 (7.4)	0.054 (5.8)	0.022 (9.3)	0.002 (2.3)	0.022 (6.6)	0.027 (12.2)	0.013 (7.9)	0.004 (5.7)	0.004 (4.1)	0.002 (1.6)
mal-glu-9090-2	0.021 (2.7)	0.014 (5.6)	0.001 (0.5)	0.039 (4.1)	– –	0.001 (1.2)	0.033 (10.0)	0.006 (2.8)	0.002 (1.5)	0.001 (1.0)	0.001 (1.4)	– –
RH-9090	0.018 (2.3)	0.023 (9.6)	0.004 (4.1)	0.056 (6.0)	0.021 (8.6)	0.003 (4.6)	0.065 (19.6)	0.012 (5.6)	0.002 (1.3)	0.010 (12.6)	0.005 (4.6)	0.004 (2.6)
MW-232 des-butyl	0.056 (7.2)	0.010 (4.0)	0.001 (1.5)	0.079 (8.4)	0.006 (2.3)	0.002 (2.6)	– –	– –	– –	– –	– –	– –
RH-9089	0.006 (0.8)	0.001 (0.3)	– –	0.006 (0.7)	0.002 (0.7)	– –	– –	– –	– –	– –	– –	– –
myclobutanil+16	0.042 (5.4)	0.012 (5.0)	0.003 (3.3)	0.067 (7.2)	0.008 (3.4)	0.002 (2.5)	0.003 (1.0)	0.001 (0.6)	– –	0.001 (0.9)	– –	– –
MW 305 lactone	0.010 (1.3)	< 0.001 (0.1)	– –	0.008 (0.9)	– –	– –	– –	– –	– –	– –	– –	– –
myclopropyl	– –	0.001 (0.2)	– –	0.003 (0.3)	– –	– –	– –	– –	– –	– –	– –	0.001 (0.8)
myclobutanil	0.432 (55.2)	0.013 (5.5)	0.005 (5.1)	0.196 (20.8)	0.014 (5.9)	0.004 (6.3)	0.018 (5.3)	0.016 (7.5)	0.006 (3.5)	0.021 (26.9)	0.015 (15.6)	0.023 (16.7)
other	0.040 (5.1)	0.046 (18.8)	0.009 (9.3)	0.096 (10.2)	0.044 (18.5)	0.004 (6.5)	0.038 (11.7)	0.026 (11.8)	0.007 (4.3)	0.001 (1.8)	0.003 (3.2)	0.002 (1.1)

– = No detection.

Table 31 Myclobutanil and metabolite levels in SPE eluate fractions of wheat

	Wheat forage mg eq/kg (TRR%)			Wheat hay mg eq/kg (TRR%)			Wheat straw mg eq/kg (TRR%)			Wheat grain mg eq/kg (TRR%)		
Metabolites	30	120	365	30	120	365	30	120	365	30	120	365
Applied to HPLC	0.506 (94.8)	0.262 (56.0)	0.081 (35.6)	1.072 (71.3)	0.520 (31.2)	0.538 (37.3)	1.936 (71.9)	0.904 (52.7)	0.031 (1.9)	0.046 (8.3)	0.057 (3.8)	0.071 (4.9)
glu-9090	0.015 (2.8)	0.007 (1.5)	– –	0.047 (3.1)	0.016 (1.0)	0.025 (1.8)	0.056 (2.1)	0.030 (1.7)	0.031 (1.9)	0.003 (0.5)	0.003 (0.2)	0.002 (0.1)
MW 309 di-acid	0.126 (23.7)	0.079 (17.0)	0.029 (12.8)	0.221 (14.7)	0.140 (8.4)	0.124 (8.6)	0.381 (14.2)	0.224 (13.1)	0.166 (10.2)	0.006 (1.0)	0.006 (0.4)	0.009 (0.6)
butyric acid	0.071 (13.3)	0.038 (8.2)	0.013 (5.9)	0.220 (14.6)	0.053 (3.2)	0.074 (5.1)	0.199 (7.4)	0.101 (5.9)	0.080 (4.9)	0.011 (2.0)	0.014 (0.9)	0.022 (1.5)
mal-glu-9090-1	0.061 (11.5)	– –	– –	0.152 (10.1)	0.040 (2.4)	0.050 (3.5)	0.138 (5.1)	0.073 (4.2)	0.054 (3.3)	– –	– –	– –
mal-glu-9090-2	0.038 (7.1)	0.028 (6.0)	0.015 (6.4)	0.130 (8.6)	0.056 (3.4)	0.068 (4.7)	0.166 (6.2)	0.110 (6.4)	0.113 (6.9)	0.002 (0.4)	0.003 (0.2)	– –
RH-9090	0.050 (9.4)	0.034 (7.3)	0.007 (3.0)	0.026 (1.7)	0.062 (3.7)	0.023 (1.6)	0.467 (17.3)	0.108 (6.3)	0.046 (2.8)	0.001 (0.2)	0.001 (< 0.1)	0.001 (0.1)
MW-232 des-butyl	0.002 (0.4)	– –	– –	0.009 (0.6)	– –	0.013 (0.9)	– –	– –	0.006 (0.3)	0.003 (0.5)	0.003 (0.2)	0.005 (0.3)
RH-9089	– –	– –	– –	0.012 (0.8)	0.003 (0.2)	0.004 (0.3)	0.063 (2.3)	0.019 (1.1)	0.015 (0.9)	< 0.001 (< 0.1)	– –	– –
myclobutanil+16	0.002 (0.4)	– –	– –	0.007 (0.5)	0.012 (0.7)	– –	– –	0.015 (0.9)	– –	< 0.001 (0.1)	– –	– –
MW 305 lactone	0.003 (0.6)	0.002 (0.5)	0.001 (0.4)	0.011 (0.7)	0.002 (0.1)	– –	– –	0.010 (0.6)	– –	< 0.001 (0.1)	– –	– –
myclopropyl	– –	– –	– –	– –	– –	0.007 (0.5)	– –	– –	– –	– –	– –	– –
myclobutanil	0.065 (12.2)	0.028 (6.1)	0.007 (3.3)	0.042 (2.8)	0.008 (0.5)	0.010 (0.7)	0.058 (2.2)	0.020 (1.1)	0.008 (0.5)	– –	– –	– –
other	0.072 (13.4)	0.044 (9.4)	0.009 (3.9)	0.196 (13.0)	0.127 (7.6)	0.140 (9.7)	0.408 (15.1)	0.196 (11.4)	0.156 (9.6)	0.019 (3.4)	0.027 (1.8)	0.033 (2.3)

– = No detection.

Table 32 Myclobutanil and metabolite levels in SPE load & wash fractions of lettuce and radish

	Immature lettuce mg eq/kg (TRR%)			Mature lettuce mg eq/kg (TRR%)			Radish tops mg eq/kg (TRR%)			Radish roots mg eq/kg (TRR%)		
Metabolites	30	120	365	30	120	365	30	120	365	30	120	365
Applied to HPLC	0.046 (5.9)	0.045 (18.8)	0.051 (52.2)	0.097 (10.3)	0.075 (31.1)	0.028 (42.0)	0.070 (21.1)	0.070 (21.7)	0.084 (51.5)	0.030 (38.3)	0.045 (46.0)	0.055 (39.9)
Triazole alanine	0.015 (1.9)	0.011 (4.5)	0.022 (22.8)	0.020 (2.1)	0.007 (2.9)	0.015 (22.6)	0.053 (16.2)	0.034 (15.5)	0.046 (28.4)	0.021 (27.2)	0.030 (31.0)	– (–)
Polar unknown	0.022 (2.8)	0.024 (10.0)	0.019 (19.9)	0.052 (5.5)	0.051 (21.1)	0.013 (19.4)	0.009 (2.6)	0.007 (3.2)	0.024 (14.4)	0.002 (3.0)	0.006 (6.1)	0.018 (13.0)
Triazole acetic acid	– (–)	0.002 (0.7)	– (–)	0.004 (0.5)	0.003 (1.2)	– (–)	– (–)	0.001 (0.6)	0.003 (2.1)	– (–)	– (–)	– (–)
Other	0.009 (1.2)	0.009 (3.7)	0.009 (9.4)	0.021 (2.3)	0.014 (5.9)	– (–)	0.008 (2.3)	0.005 (2.4)	0.011 (6.5)	0.006 (8.1)	0.009 (8.8)	0.037 (26.8)
Largest other	0.008 (1.0)	0.004 (1.6)	0.003 (3.0)	0.012 (1.3)	0.007 (2.9)	– (–)	0.003 (0.8)	0.002 (1.0)	0.003 (1.9)	0.001 (1.5)	0.003 (3.2)	0.030 (21.8)

– = No detection.

Table 33 Myclobutanil and metabolite levels in SPE load & wash fractions of wheat

	Wheat forage mg eq/kg (TRR%)			Wheat hay mg eq/kg (TRR%)			Wheat straw mg eq/kg (TRR%)			Wheat grain mg eq/kg (TRR%)		
Metabolites	30	120	365	30	120	365	30	120	365	30	120	365
Applied to HPLC	0.059 (11.0)	0.105 (22.5)	0.087 (38.1)	0.230 (15.3)	0.530 (31.8)	0.556 (38.5)	0.293 (10.9)	0.523 (30.5)	0.550 (33.8)	0.323 (57.7)	0.958 (63.9)	0.957 (65.7)
Triazole alanine	0.028 (5.3)	0.048 (10.2)	0.040 (17.8)	– (–)	0.176 (10.5)	0.215 (14.9)	0.089 (3.3)	– (–)	0.166 (10.2)	0.176 (31.5)	0.452 (30.1)	0.384 (26.4)
Polar unknown	0.018 (3.3)	– (–)	– (–)	0.075 (5.0)	0.126 (7.6)	0.171 (11.8)	0.122 (4.5)	0.180 (10.5)	0.208 (12.8)	0.009 (1.5)	0.023 (1.6)	0.069 (4.8)
Triazole acetic acid	0.005 (0.9)	0.034 (7.2)	0.026 (11.3)	0.041 (2.7)	0.186 (11.1)	0.142 (9.8)	0.076 (2.8)	0.160 (9.3)	0.135 (8.3)	0.120 (21.4)	0.432 (28.8)	0.371 (25.5)
Other	0.008 (1.5)	0.024 (5.1)	0.021 (9.0)	0.115 (7.6)	0.042 (2.5)	0.028 (1.9)	0.006 (0.2)	0.183 (10.7)	0.041 (2.5)	0.018 (3.3)	0.051 (3.4)	0.133 (9.1)
Largest other	0.007 (1.3)	0.010 (2.1)	0.009 (4.0)	0.037 (2.5)	0.021 (1.2)	0.015 (1.0)	0.006 (0.2)	0.124 (7.2)	0.017 (1.0)	0.018 (3.3)	0.036 (2.4)	0.035 (2.4)

– = No detection.

The parent compound, RH-9090 and its conjugates were found in most part of the four crops. The other two most abundant metabolites were MW 309 di-acid and butyric acid, which were not identified in the metabolism studies of crops.

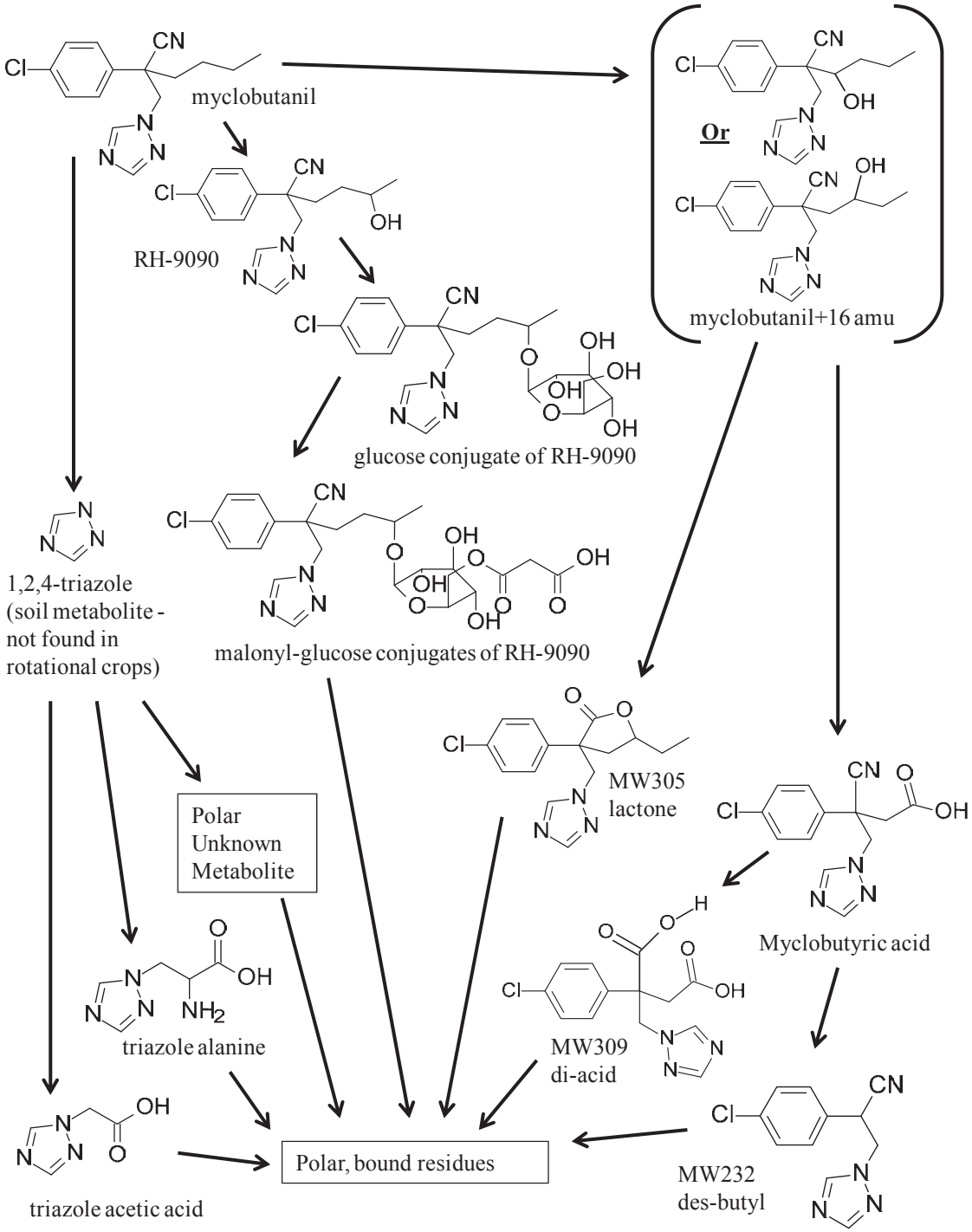


Figure 5 Proposed degradation pathway in ^{14}C-TZ labelled myclobutanil in the confined rotational crop study

RESIDUE ANALYSIS

Analytical methods

The Meeting received descriptions and validation data for analytical methods for residues of myclobutanil and RH-9090 (its alcohol metabolite) in plant and residues of myclobutanil in meat. Myclobutanil residues can be measured in most matrices to an LOQ of 0.01 to 0.05 mg/kg. No stereoselective methods were submitted for two myclobutanil enantiomers.

Analytical Method for the Measure of RH-3866 and RH-9090 Residues in Various Crops, Soil, Meat, Milk and Eggs. (Stavinski, SS *et al.,* 1988, 94356)

Analyte: myclobutanil, RH-9090 GC/ECD or NPD

LOQ: 0.01–0.1 mg/kg

Description Samples are extracted by blending with methanol. However, wheat straw is extracted by soxhlet extraction with methanol and fat is extracted by refluxing in heptane. Water is added and the resulting solution is partitioned with hexane. The hexane is discarded and additional water is added to give a 50/50, v/v, water to methanol ratio. This solution is partitioned with methylene chloride. The aqueous phase is discarded and the methylene chloride is evaporated to dryness under diminished pressure. The residue is dissolved in toluene for Florisil column chromatography. After column chromatography, the eluent is evaporated to dryness and the residue is dissolved in 3% methanol/toluene for quantitation by GC-ECD. Wheat straw samples were quantitated with GC-NPD.

Validation of the Residue Analytical Method for Myclobutanil (RH-3866) in Animal Tissues (Hen Muscle and Bovine Fat). (Wais, A, 2000, 94182)

Analyte: myclobutanil GC-ECD

LOQ: 0.01 mg/kg.

Description Step 1(fat): The samples were extracted with n-heptane under heat reflux about 1 h. After cooling to room temperature the mixture was transferred into the separatory funnel and added methanol and sodium chloride solution. After shaking the n-heptane phase was discarded. The sample proceeded to step 2.

Step 1 (muscle): The samples were extracted with methanol using high speed homogenizer. The mixture was filtered through a glass filter frit covered with Celite. The bottle and the filter cake were washed using methanol. The sample proceeded to step 2.

Step 2. The sample solution was transferred into separatory funnel with addition of hexane and sodium chloride solution. The suspension was shaken for about 1 min. After shake and separation the lower aqueous layer was transferred into separatory funnel. The hexane layer was discarded. The sample was shaken with addition of sodium chloride solution and dichloromethane. The dichloromethane layer was filtered over sodium sulphate into a flask. The solution was evaporated to complete dryness.

Step 3. The extraction residue was redissolved in toluene. The sample solution was transferred onto the Florisil column and repeated this procedure. Myclobutanil was eluted using a methanol/toluene mixture. The solution was evaporated to complete dryness. The residue was dissolved using a methanol/toluene mixture for determination by GC-ECD.

Determination of Residues of Myclobutanil and Its Alcohol Metabolite (RH-9090) in Apples, Tomatoes, Grapes, Soybeans, Wheat and Radishes by Liquid Chromatography with Tandem Mass Spectrometry. (Shackelford, DD*, et al.,* 2003, 137270).

Analyte: myclobutanil, RH-9090 LC-MS/MS GRM 03.01

LOQ: 0.01 mg/kg.

Description Residues of myclobutanil and its alcohol metabolite (RH-9090) are extracted from the crop samples by homogenizing and shaking overnight with methanol. An aliquot is hydrolysed to release conjugated RH-9090 by adding concentrated hydrochloric acid and heating for 2 hours. The sample is then evaporated to dryness, and the residues reconstituted in an 80% water/20% methanol solution. The sample is applied to a SPE column. The column is washed with a 70% water/30% methanol solution, and the analytes are eluted from the column with a 80% methanol 20% water solution. The eluate is then evaporated to dryness, and the residues are reconstituted in a 97% methyl-t-butyl ether/2% methanol/I% acetic acid solution and applied to an NH2 SPE column. The eluate is collected and evaporated to dryness, and the residues reconstituted in a 70% water/ 30% methanol mobile phase containing 5 mM ammonium acetate and analysed with LC/MS/MS (APCI mode).

Validation Report for Method GRM 03.01–Determination of Residues of Myclobutanil and its Alcohol Metabolite (RH-9090) in Apples, Tomatoes, Grapes, Soybeans, Wheat and Radishes by Liquid Chromatography with Tandem Mass Spectrometry. (Shackelford, DD, 2003, 137270)

Analyte: Myclobutanil and RH-9090 HPLC/MS/MS GRM 03.01

LOQ: 0.01 mg/kg.

Description The method mentioned above is applicable for the quantitative determination of residues of myclobutanil and its alcohol metabolite (RH-9090) in whole apples, whole tomatoes, whole grapes, radishes (roots and tops), wheat forage and soybean forage, which are representative of 'wet' crops. The method is also applicable for the quantitative determination of residues of myclobutanil and its alcohol metabolite (RH-9090) in soybeans (seed), a representative 'oily' crop, and in wheat grain, wheat hay and wheat straw, which are representative of 'dry' crops. The method was validated over the concentration range of 0.010–0.50 μg/g.

Independent Laboratory Validation of Method GRM 03.01—Determination of Residues of Myclobutanil and its Alcohol Metabolite (RH-9090) in Apples, Tomatoes, Grapes, Soybeans, Wheat and Radishes by Liquid Chromatography with Tandem Mass Spectrometry. (Reed, RL, 2003, 137271)

Analyte:	Myclobutanil and RH-9090	HPLC/MS/MS	GRM 03.01

LOQ: 0.01 mg/kg.

Description The method mentioned above is applicable for the quantitative determination of residues of myclobutanil and its alcohol metabolite (RH-9090) in whole tomatoes and wheat grain.

Independent Laboratory Validation of the Multi-Residue Method-1 (MRM-1) for the Determination of Myclobutanil in Crops. (Mollica, J and West, S, 2003, 135042)

Analyte:	myclobutanil	LC-MS/MS	The Netherland's MRM-1

LOQ: 0.2 mg/kg.

Description A sample of the plant material was homogenized with acetone. Dichloromethane and petroleum ether were added and the mixture was homogenized again. The sample was centrifuged and the organic extract was decanted through sodium sulphate to remove any remaining water. The extract was transferred to a volumetric flask and brought to volume with the acetone/dichloromethane/petroleum ether solution. For the apple extracts an OPC clean-up procedure was employed. Cyclohexane/ethyl acetate was used as mobile phase. Fractions were collected and then rotary evaporated to dryness under a gentle stream of nitrogen. Final extracts were reconstituted and analysed by GC/MS.

Assessment and Validation of the Multi-Residue Enforcement Method DFG S19 for the Determination of Myclobutanil and its 1,2,4-Triazole Metabolite in Soil and the RH-9090 Metabolite in Animal Tissue. (Teasdale, R, 2003, 34429)

Analyte:	Myclobutanil, 1,2,4-triazole metabolite and RH-9090 metabolite	LC-MS/MS	DSG S19

LOQ: 0.01 mg/kg.

Description Milk, meat, liver and kidney: Water was added to the sample which washomogenized followed by the addition of acetone and further homogenization. Sodium chloride and ethyl acetate/cyclohexane were added and the sample homogenized again. An aliquot of the upper organic phase was filtered through glass wool covered with sodium sulphate. The filter and the measuring cylinder were rinsed four times with portions of ethyl acetate/cyclohexane. The filtrate was evaporated. Ethyl acetate was added to the concentrated residue which was then ultrasonicated. Sodium sulphate/sodium chloride was added and the flask was swirled. Cyclohexane was added and the flask was swirled vigorously again. The extract was filtered for storage until GPC clean-up.

Fat and whole egg: The sample of homogenised matrix was extracted with acetone and acetonitrile and macerated. The homogenate was then suction-filtered through filter paper in a Buchner funnel under a gentle vacuum to minimize filtrate evaporation. The filtrate was then filtered into a graduated cylinder. An aliquot of the filtrate was measured and transferred with acetone rinsings into a round bottom flask. Tri-methyl pentane was added and the solution was concentrated using rotary evaporation with a water bath. The last traces of solvent were removed using a gentle stream of air at room temperature. The residue was dissolved in ethyl acetate/cyclohexane.

Once all substrates were cleaned up by GPC they were adjusted to a final volume and quantitated by GC-ECD.

Validation of Method GRM 05.07.R1-Determination of Residues of Myclobutanil and its RH-9090 Alcohol Metabolite in Soybean Commodities using Online Solid Phase Extraction Coupled to High Performance Liquid Chromatography with Tandem Mass Spectrometry. (Shackelford, DD and Olberding, EL, 2013, 208707)

Analyte:	Myclobutanil and RH-9090	LC-MS/MS	GRM: 05.07.R1

LOQ: 0.01 mg/kg.

Description Residues of myclobutanil and its alcohol metabolite (RH-9090) are extracted from the sample matrix sample by homogenizing and shaking overnight with methanol. An aliquot is hydrolyzed to release conjugated RH-9090 by adding concentrated hydrochloric acid and heating for 2 hours at approximately 70 °C. The pH is adjusted to near neutral using 0.5 M aqueous Tris base. The sample is filtered, and the final solution is analysed using online solid phase extraction coupled to LC/MS/MS (APCI mode).

Method Validation Report for Method GRM 07.06—Determination of Residues of Myclobutanil and Its RH-9090 Alcohol Metabolite in Agricultural Commodities using On-line Solid Phase Extraction Coupled to Liquid Chromatography with Tandem Mass Spectrometry. (Shackelford, DD, 2008, 260120)

Analyte: Myclobutanil and RH-9090 LC-MS/MS GRM 07.06

LOQ: 0.01 mg/kg.

Description Residues of myclobutanil and its alcohol metabolite (RH-9090) are extracted from the crop samples by homogenizing and shaking overnight with methanol. An aliquot is hydrolyzed to release conjugated RH-9090 by adding concentrated hydrochloric acid and heating for 2 hours at approximately 70 °C. The pH is adjusted to near neutral using a 0.5 M aqueous Tris base solution. The sample is filtered, and the final solution is analysed using on-line solid phase extraction coupled to LC/MS/MS (APCI mode).

Summaries of analytical methods and procedural recoveries are presented in Table 34 to Table 43.

Table 34 Recoveries of myclobutanil and RH-9090 added to sample substrate (Stavinski, S and Brackett, C, 1988, 94356)

Matrix	Analyte	LOQ	Fortification Range	n =	Recovery Range	Mean
Apples	myclobutanil	0.01	0.01–0.10	8	74–100	89
Grapes	myclobutanil	0.01	0.01–0.10	6	70–94	87
Raisins	myclobutanil	0.04	0.04–0.05	2	65–88	77
Wine	myclobutanil	0.005	0.005–0.025	8	86–98	90
Wheat Grain	myclobutanil	0.01	0.01–1.0	10	83–100	89
Wheat Straw	myclobutanil	0.1	0.10–5.0	6	83–100	88
Liver Tissue	myclobutanil	0.01	0.01	2	83–87	85
Kidney Tissue	myclobutanil	0.01	0.01–0.05	2	82–91	87
Fat Tissue	myclobutanil	0.01	0.01–0.05	3	76–88	82
Muscle Tissue	myclobutanil	0.01	0.01–0.10	2	73–83	78
Milk	myclobutanil	0.01	0.01	3	68–85	79
Eggs	myclobutanil	0.01	0.01–0.05	4	85–103	91
Apples	RH-9090	0.02	0.02	2	85–92	89
Grapes	RH-9090	0.02	0.02	2	98–109	103
Raisins	RH-9090	0.04	0.04–0.05	2	65–88	77
Wine	RH-9090	0.2	0.2–0.5	4	89–96	94
Wheat Grain	RH-9090	0.01	0.01–0.2	3	85–97	93
Wheat Straw	RH-9090	0.2	0.2–1	6	76–102	91

Table 35 Recovery of myclobutanil added to sample substrate (Wais, A, 2000, 94182)

Matrix	Analyte	Fortification (mg/kg)	n =	Recovery Range (%)	Mean Recovery(%)	%RSD
Hen Muscle	myclobutanil	0.01	5	101–106	104	2
	myclobutanil	0.05	5	89–107	98	8
	myclobutanil	0.1	5	89–94	92	2

Matrix	Analyte	Fortification (mg/kg)	n =	Recovery Range (%)	Mean Recovery(%)	%RSD
Bovine Fat	myclobutanil	0.01	5	71–81	78	6
	myclobutanil	0.05	5	80–84	82	2
	myclobutanil	0.1	5	80–82	81	1

Table 36 Recovery summary of myclobutanil and RH-9090 from apples, tomatoes, grapes, soybean matrices, wheat matrices and radishes (Shackelford, DD, *et al*., 2003, 137270)

	myclobutanil					RH-9090				
matrix	Spiked rate mg/kg	Recover range (%)	Average recovery (%)	RSD (%)	n	Spiked rate mg/kg	Recover range (%)	Average recovery (%)	RSD (%)	n
	0.01	82–106	99	7.7	8	0.01	88–112	98	9.2	8
	0.05	97–103	100	3.1	3	0.05	87–92	90	2.9	3
Apples	0.25	98–104	101	3.1	3	0.25	102–106	103	2.2	3
	0.50	97–107	103	3.5	6	0.50	85–103	95	8.8	6
	0.01–0.50	82–107	100	5.5	20	0.01–0.50	85–112	97	8.4	20
	0.01	86–105	98	7.4	8	0.01	85–113	98	11.3	8
	0.05	96–99	97	1.6	3	0.05	84–87	86	1.8	3
Tomatoes	0.25	103–108	105	2.4	3	0.25	103–105	104	1.1	3
	0.50	92–104	97	4.8	6	0.50	84–102	94	6.6	6
	0.01–0.50	86–108	99	5.9	20	0.01–0.50	84–113	96	9.6	20
	0.01	85–102	94	7.6	8	0.01	82–100	90	5.8	8
	0.05	93–97	96	2.4	3	0.05	100–102	101	1.1	3
Grapes	0.25	80–89	86	5.8	3	0.25	82–88	85	3.5	3
	0.50	82–91	88	5.1	6	0.50	81–103	92	11.8	6
	0.01–0.50	80–102	91	7.3	20	0.01–0.50	81–103	91	8.8	20
	0.01	75–113	91	15.4	8	0.01	85–108	95	7.5	8
Radish	0.05	100–104	102	1.8	4	0.05	87–94	90	4.2	4
Root and	0.25	92–97	95	2.3	4	0.25	95–104	98	4.3	4
Tops	0.50	84–102	94	6.3	8	0.50	88–105	99	5.5	8
	0.01–0.50	75–113	94	9.9	24	0.01–0.50	85–108	96	6.5	24
Wheat	0.01	87–111	102	8.0	8	0.01	97–120	110	5.9	8
Grain	0.05	94–113	107	7.0	5	0.05	96–121	113	9.1	5
and	0.25	101–108	105	3.4	4	0.25	82–112	100	14.7	4
Soybean	0.50	83–110	96	12.0	6	0.50	95–114	102	7.1	6
Seed	0.01–0.50	83–113	102	8.7	23	0.01–0.50	82–121	107	9.5	23
Wheat	0.01	78–104	93	10.1	8	0.01	93–120	110	5.9	8
and	0.05	98–102	100	1.8	4	0.05	100–114	110	6.1	4
Soybean	0.25	100–102	101	1.0	4	0.25	103–106	104	1.4	4
Forage	0.50	76–104	92	12.7	6	0.50	87–122	102	13.4	6
	0.01–0.50	76–104	95	9.2	22	0.01–0.50	87–122	105	8.1	22
Wheat hay	0.01	63–108	87	17.1	11	0.01	90–127	104	10.3	12
and	0.05	86–98	93	6.9	3	0.05	112–120	117	3.7	3
Straw and	0.25	81–97	87	10.3	3	0.25	96–105	101	4.7	3
Soybean	0.50	75–101	88	12.5	5	0.50	90–107	97	8.5	5
Hay	0.01–0.50	63–108	88	13.8	22	0.01–0.50	90–127	104	10.1	23

Table 37 Recovery summary of myclobutanil and RH-9090 from wheat grain and tomato (Reed, RL, 2003, 137271)

Matrix	Analyte	Fortification (mg/kg)	n =	Recovery Range (%)	Mean Recovery (%)	%RSD
	myclobutanil	0.01	5	91–106	98	6
		0.02	3	102–104	103	1
Wheat Grain		0.10	5	96–106	102	4
	RH-9090	0.01	5	66–87	76	14
		0.02	3	80–91	86	6

Matrix	Analyte	Fortification (mg/kg)	n =	Recovery Range (%)	Mean Recovery (%)	%RSD
		0.10	5	67–98	87	15
	myclobutanil	0.01	5	85–94	89	4
Tomato		0.30	5	98–105	101	2
	RH-9090	0.01	5	70–82	77	6
		0.30	5	83–99	92	7

Table 38 Recovery summary of myclobutanil from apples, grapes (Mollica, J and West, S, 2003, 135042)

Matrix	Analyte	Fortification (mg/kg)	n =	Recovery Range (%)	Mean Recovery (%)	%RSD
Apples	myclobutanil	0.2	5	80–92	85	6
		2	5	83–99	94	7
Grapes	myclobutanil	0.2	5	73–86	78	6
		2	5	74–78	77	2

Table 39 Recovery summary of RH-9090 from animal commodities (meat, milk, liver, kidney, fat and eggs) (Teasdale, R., 2003, 34429)

Matrix	Analyte	Fortification (mg/kg)	n =	Recovery Range (%)	Mean Recovery (%)	%RSD
Milk	RH-9090	0.01	4	68–75	70	5
		0.10	5	69–92	77	12
Egg	RH-9090	0.01	5	74–88	81	7
		0.10	5	75–88	83	7
Meat	RH-9090	0.01	5	87–113	105	10
		0.10	5	83–104	92	9
Kidney	RH-9090	0.01	5	74–91	81	8
		0.10	5	91–109	104	7
Liver	RH-9090	0.01	5	75–97	87	10
		0.10	5	74–81	77	4
Fat	RH-9090	0.01	5	0–8	3	143
		0.10	5	1–16	9	67

Table 40 Summary of recovery of myclobutanil from agricultural commodities using the quantitation MS/MS transition Q1/Q3 m/z 289/70 and the confirmation MS/MS transition Q1/Q3 /z 289/125 (Shackelford, DD and Olberding, EL, 2013, 208707)

	Q1/Q3 m/z 289/70					Q1/Q3 m/z 289/125				
matrix	Spiked rate mg/kg	Recover range (%)	Average recovery (%)	RSD (%)	n	Spiked rate mg/kg	Recover range (%)	Average recovery (%)	RSD (%)	n
soybean	0.01	80–112	98	9.3	11	0.01	82–112	99	10.9	11
forage	0.50	101–114	107	5.4	6	0.50	101–115	106	5.7	6
	20.0	94–107	102	4.6	5	20.0	90–101	98	4.6	5
soybean	0.01	80–104	88	8.5	11	0.01	81–112	96	13.0	11
hay	0.50	94–106	100	5.2	6	0.50	92–104	99	5.2	6
	20.0	96–107	101	4.0	5	20.0	95–98	96	1.1	5
soybean	0.01	92–107	98	4.8	8	0.01	82–99	88	6.7	8
seed	0.50	101–112	107	4.1	6	0.50	100–110	105	3.9	6
processed	commodities									
hulls	0.01	104–121	111	6.3	6	0.01	95–110	103	5.0	6
	0.50	107–114	111	2.6	5	0.50	107–116	111	3.1	5
meal	0.01	87–105	93	7.0	6	0.01	75–101	87	10.0	6
	0.50	94–115	106	8.8	5	0.50	92–110	101	8.5	5
oil	0.01	97–110	103	5.9	6	0.01	94–103	99	3.5	6
	0.50	108–115	111	2.3	6	0.50	108–115	112	2.6	6
aspirated	0.01	79–95	87	6.0	6	0.01	80–109	95	10.0	6

	Q1/Q3 m/z 289/70					Q1/Q3 m/z 289/125				
matrix	Spiked rate mg/kg	Recover range (%)	Average recovery (%)	RSD (%)	n	Spiked rate mg/kg	Recover range (%)	Average recovery (%)	RSD (%)	n
grain	0.50	114–130	120	4.8	6	0.50	111–128	119	4.9	6

Table 41 Summary of recovery of RH-9090 from agricultural commodities using the quantitation MS/MS transition Q1/Q3 m/z 305/125 and the confirmation MS/MS transition Q1/Q3 m/z 305/70 (Shackelford, DD and Olberding, EL, 2013, 208707)

	Q1/Q3 m/z 305/125					Q1/Q3 m/z 305/70				
matrix	Spiked rate mg/kg	Recover range (%)	Average recovery (%)	RSD (%)	n	Spiked rate mg/kg	Recover range (%)	Average recovery (%)	RSD (%)	n
soybean	0.01	80–101	91	7.7	11	0.01	72–105	87	10.1	11
forage	0.50	93–101	96	3.5	6	0.50	93–102	96	3.9	6
	20.0	90–95	92	2.3	5	20.0	91–100	97	3.7	5
soybean	0.01	81–107	92	8.3	11	0.01	74–132	93	19.0	11
hay	0.50	72–115	95	19.5	6	0.50	75–116	96	19.0	6
	20.0	93–97	95	1.9	5	20.0	92–99	94	2.7	5
soybean	0.01	64–92	78	12.3	8	0.01	66–88	76	11.0	8
seed	0.50	80–99	86	8.2	6	0.50	79–99	86	8.1	6
processed	commodities									
hulls	0.01	83–101	93	7.4	6	0.01	88–112	99	9.2	6
	0.50	99–107	102	3.0	5	0.50	98–109	102	4.5	5
meal	0.01	75–90	83	5.7	6	0.01	88–101	92	5.3	6
	0.50	82–103	89	10.0	5	0.50	79–98	90	7.8	5
oil	0.01	94–113	103	7.4	6	0.01	91–116	102	8.7	6
	0.50	107–115	111	2.4	6	0.50	111–120	115	2.7	6
aspirated	0.01	74–87	81	5.5	6	0.01	74–111	92	14.1	6
grain	0.50	108–119	115	3.8	6	0.50	115–130	121	4.0	6

Table 42 Summary of recovery of myclobutanil in crops using the quantitation MS/MS transition Q1/Q3 m/z 289/70 and the confirmation MS/MS transition Q1/Q3 m/z 289/125 (Shackelford, DD, 2008, 260120)

	Q1/Q3 m/z 289/70					Q1/Q3 m/z 289/125				
matrix	Spiked rate mg/kg	Recover range (%)	Average recovery (%)	RSD (%)	n	Spiked rate mg/kg	Recover range (%)	Average recovery (%)	RSD (%)	n
	0.01	88–102	93	5.9	5	0.01	82–97	92	6.6	5
apple	2.00	94–101	99	2.8	5	2.00	94–102	98	3.3	5
	0.01–2.00	88–102	96	5.2	10	0.01–2.00	82–102	95	5.9	10
	0.01	70–95	83	12.7	5	0.01	81–115	96	13.5	5
apricot	2.00	86–104	95	8.9	5	2.00	86–100	94	6.9	5
	0.01–2.00	70–104	89	6.7	10	0.01–2.00	81–115	95	10.3	10
	0.01	81–86	84	3.0	5	0.01	83–107	93	9.9	5
cucumber	2.00	93–97	95	1.9	5	2.00	94–104	97	4.3	5
	0.01–2.00	81–97	89	6.7	10	0.01–2.00	83–107	95	7.5	10
green	0.01	96–111	103	6.8	5	0.01	93–112	100	7.8	5
pepper	2.00	96–106	102	4.0	5	2.00	103–106	104	1.1	5
	0.01–2.00	96–111	103	5.3	10	0.01–2.00	93–112	102	5.6	10
melon	0.01	81–91	88	4.8	5	0.01	67–101	89	16.2	5
(peel)	2.00	94–109	99	5.8	5	2.00	96–111	100	6.6	5
	0.01–2.00	81–109	93	8.2	10	0.01–2.00	67–111	94	12.8	10
melon	0.01	77–115	96	18.3	4	0.01	92–118	104	12.0	4
(pulp)	2.00	79–97	89	7.9	5	2.00	78–98	90	8.9	5
	0.01–2.00	77–115	92	13.5	9	0.01–2.00	78–118	96	12.4	9
	0.01	89–103	98	5.6	5	0.01	94–98	96	1.6	5
peach	2.00	76–103	91	12.6	5	2.00	76–103	91	13.6	5
	0.01–2.00	76–103	95	9.8	10	0.01–2.00	76–103	94	9.3	10

	Q1/Q3 m/z 289/70					Q1/Q3 m/z 289/125				
matrix	Spiked rate mg/kg	Recover range (%)	Average recovery (%)	RSD (%)	n	Spiked rate mg/kg	Recover range (%)	Average recovery (%)	RSD (%)	n
	0.01	76–92	84	9.2	5	0.01	76–95	88	8.6	5
strawberry	2.00	70–93	87	11.2	5	2.00	70–94	87	10.9	5
	0.01–2.00	70–93	86	9.8	10	0.01–2.00	70–95	87	9.3	10
	0.01	93–100	97	4.0	3	0.01	74–97	88	14.0	5
tomato	2.00	79–101	95	9.4	5	2.00	75–100	93	11.1	5
	0.01–2.00	79–101	96	7.5	8	0.01–2.00	74–100	91	11.7	10

Table 43 Summary of recovery of RH-9090 in crops using the quantitation MS/MS transition Q1/Q3 m/z 305/125 and the confirmation MS/MS transition Q1/Q3 m/z 305/70 (Shackelford, DD, 2008, 260120)

	Q1/Q3 m/z 305/125					Q1/Q3 m/z 305/70				
matrix	Spiked rate mg/kg	Recover range (%)	Average recovery (%)	RSD (%)	n	Spiked rate mg/kg	Recover range (%)	Average recovery (%)	RSD (%)	n
	0.01	94–107	99	5.3	5	0.01	73–96	89	10.7	5
apple	2.00	94–99	97	1.8	5	2.00	93–98	96	2.1	5
	0.01–2.00	94–107	98	3.9	10	0.01–2.00	73–98	92	8.1	10
	0.01	82–101	91	7.8	5	0.01	63–97	80	16.7	5
apricot	2.00	81–100	92	10.3	5	2.00	81–103	94	11.5	5
	0.01–2.00	81–101	92	8.6	10	0.01–2.00	63–103	87	15.5	10
	0.01	84–92	86	3.7	5	0.01	87–97	91	4.1	5
cucumber	2.00	93–102	97	3.6	5	2.00	92–105	98	4.9	5
	0.01–2.00	84–102	92	7.1	10	0.01–2.00	87–105	95	6.0	10
green	0.01	76–112	100	16.2	5	0.01	72–101	87	15.1	5
pepper	2.00	93–104	99	5.0	5	2.00	92–102	98	3.7	5
	0.01–2.00	76–112	100	11.3	10	0.01–2.00	72–102	93	11.6	10
melon	0.01	73–101	88	15.1	5	0.01	79–104	93	10.9	5
(peel)	2.00	93–109	97	6.6	5	2.00	94–106	97	5.0	5
	0.01–2.00	73–109	93	12.0	10	0.01–2.00	79–106	95	8.2	10
melon	0.01	85–93	89	4.0	4	0.01	81–98	92	8.4	4
(pulp)	2.00	78–93	88	6.7	5	2.00	81–97	89	6.4	5
	0.01–2.00	78–93	88	5.4	9	0.01–2.00	81–98	90	7.0	9
	0.01	89–104	93	6.8	5	0.01	91–108	100	6.8	5
peach	2.00	72–102	88	13.4	5	2.00	67–97	86	14.6	5
	0.01–2.00	72–104	91	10.3	10	0.01–2.00	67–108	93	12.8	10
	0.01	72–102	86	14.1	5	0.01	70–96	79	12.8	5
strawberry	2.00	71–99	88	12.8	5	2.00	71–100	89	13.2	5
	0.01–2.00	71–102	87	12.8	10	0.01–2.00	70–100	84	13.7	10
	0.01	103–109	106	2.8	3	0.01	102–114	108	5.7	3
tomato	2.00	81–95	90	6.1	5	2.00	81–100	90	7.9	5
	0.01–2.00	81–109	96	10.2	8	0.01–2.00	81–114	97	11.7	8

Stability of residues in stored analytical samples

The Meeting received information on the stability of residues of myclobutanil and its alcohol metabolite (RH-9090) in all four types of crops (wet, dry, oily and acidic). Frozen storage stability data is presented here for apples, radish root, soybean, wheat forage, wheat grain, wheat hay, wheat straw, blueberry, cucurbits and snap beans.

Homogenized 5 gram control samples were spiked with 0.1 mg/kg of myclobutanil and RH-9090 (in separate samples) and stored frozen at approximately -20 °C until analysed. Triplicate samples were analysed at 0, 42, 206, 385 and 588 days by analytical method GRM 03.01. A control sample and two fresh fortifications were run concurrently at each sampling interval to validate the analytical procedure (Dial, G., 2006, 240828). The storage stability data are summarized in Table 44.

Table 44 Recoveries for myclobutanil and RH-9090 in stored and freshly spiked plant matrix samples

Day	Apples		Radish roots		Soybean		Wheat forage		Wheat grain		Wheat hay		Wheat straw	
	A: in stored samples, % of nominal concentration; B: procedural recovery in freshly spiked sample													
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
myclobutanil														
0	103	81	105	77	106	83	104	84	105	87	110	70	102	80
42	103	79	99	86	111	84	97	81	121	78	96	75	105	78
206	101	87	102	98	109	93	101	91	104	90	100	80	110	86
385	80	105	84	104	92	107	81	102	78	108	77	90	82	93
588/9	86	90	97	89	100	97	96	86	101	92	102	78	98	86
RH-9090														
0	113	81	80	85	91	101	89	107	90	107	88	99	89	106
42	100	89	80	98	99	84	117	83	108	91	104	105	96	104
206	93	110	97	108	106	102	109	110	93	106	95	79	101	97
385	85	106	98	90	100	110	104	87	97	107	94	104	89	106
588/9	94	88	105	87	110	71	104	87	113	95	91	98	101	102

Homogenized 5-gram control samples (blueberry, cucumber, snapbeans, almond meat and hulls) were spiked with 0.1–2.0 mg/kg of myclobutanil and RH-9090 (in separate samples) and stored frozen at approximately –20 °C or –10 °C until analysed. Triplicate samples were analysed at different sampling intervals with analytical method GRM 03.01 or TR 34S-88-10 (Malegus, R, 2011, 2017296; Batra, R, 1995, 94240; Thompson, DC, 1996, 263134; Batra, R, 1994, 94237). A control sample and one or two fresh fortification(s) were run concurrently at each sampling interval to validate the analytical procedure. The storage stability data are summarized in Table 45.

Table 45 Recoveries for myclobutanil and RH-9090 in stored and freshly spiked plant matrix samples

	Blueberry			Cucumber			Snapbean			Almond meat		Almond hulls	
	A: in stored samples, % of nominal						concentration; B: procedural recovery in freshly spiked sample						
Day	A	B	Month	A	B	Day	A	B	Month	A	B	A	B
myclobutanil													
336	91	100	0	80	78	657	94	98	0	104.5	95.9	90.7	98.2
			3	86	94				3	81.3	84.4	95.1	91.0
			6	74	77				6	96.8	99.2	93.1	88.4
			12	80	107				12	82.7	89.5	108.5	112.5
			18	104	114				18	129.5	127.0	90.2	108.0
			24	98	80								
			30	84	93								
			36	99	100								
RH-9090													
336	87	100	0	96	92	657	94	83	0	89.4	83.7	115.3	133.0
			3	85	86				3	68.2	71.6	77.1	91.9
			6	90	86				6	79.7	83.4	75.5	85.7
			12	93	117				12	71.7	79.2	69.3	66.3
			18	84	88				18	75.4	87.1	57.7	71.3
			24	107	84								
			30	101	112								
			36	89	96								

Liver and muscle samples were fortified at 1.0 mg/kg with myclobutanil or RH-9090 and stored frozen. At specified analysis intervals, the samples were analysed by the residue analytical method TR 31S-88-21 for myclobutanil and TR 34S-88-22 for RH-9090 ((Desai, R and Garstka, TA, 1997, 94239)). Control samples and fresh fortifications were concurrently run at each analysis interval to validate the analytical procedure. The data show no decline in frozen stored samples with time (up to three months) for both myclobutanil and RH-9090 in liver and muscle. The storage stability data are summarized in Tables 46.

Table 46 Recoveries for myclobutanil and RH-9090 in stored and freshly spiked animal matrix samples

	Muscle		Liver	
	A: in stored samples, % of nominal concentration; B: procedural recovery in freshly spiked sample			
Day	A	B	A	B
myclobutanil				
0	102	103	108	106
10	104	99.4	93.3	97.0
30	85.4	84.8	85.6	89.5
50	106	90.9	76.9	70.8
80	82.6	85.8	85.9	88.3
RH-9090				
0	104	81.6	82.0	69.7
10	85.4	75.5	87.7	76.7
30	96.2	88.5	80.3	73.4
50	88.8	79.8	98.9	101
80	102	92.2	94.6	90.2

USE PATTERN

Labels and English translations were available for all the uses. Myclobutanil is a systemic fungicide of the triazole class, providing protectant curative and eradicant activity. Mode of action of myclobutanil is inhibiting sterol biosynthesis which disrupts membrane function. A summary of the current approved label rates are provided in Table 47.

Table 47 Summary of registered uses of myclobutanil

		Formulation		Application		Application rate per treatment			
Crop	Country[a]	Type	g ai/L or g/kg	Method	Number Applications max	g ai/hL max	water (L/ha) min/max	g ai/ha max	PHI (days)
Apple	ARG	WP	400	F	3	6	2500	150	21
Apple	BRA	EC	250	F	n.s	4.5	700–1500	68	14
Apple	BRA	WP	400		3	4.8	700 to 1500	72	14
Apple	CHN	WP	400	F	3	6.7			7
Apple	CRI, GTM, HND, PAN	WP	400	F		6	300–600	36	15
Apple	JPN	WP	20	F	3		2000–7000	280	60
Apple	MAR, DZA	EC	240	F		6.00			14
Apple	TUR	EC	245	F	3	3.675	2500	92	14
Apple	UK/IRL	EW	200	F	10	45	200–500	90	14
Apple	URY	EC	250	F	n.s.	6.25	n.s.		14
Apple	USA	EW	200	F	9	9.38	2806	263	14
Apple	USA	WP	400	F	9	8.99	2806	252	14
Apple	USA	WP	400	F,G or A	8	7.49	3742	280	14
Apple	USA	WP	400	F,G or A	8	7.49	3742	280	14
Apple, pear	HUN	EC	45		3	1.125	1200	13.5	14
Apple, pear	URY	WP	400	F	n.s.	6	n.s.		14
Apples	ARG	EC	250	F	3	6.25	2500	156	21
Apples	BGR	EC	240	F	2	4.8	1000	48	21
Apples	BGR	EC	20	F	4	0.5	1500	8	35
Apples	ITA	SC	45.5 g/L	F	3	11.3	500–1000	56.25	14
Apples	MEX	WP	400	F	n.s.	150	n.s	n.s	n.s
Apples	PER	WP	400	F	2	150	n.s	n.s	14

		Formulation		Application		Application rate per treatment			
Crop	Country[a]	Type	g ai/L or g/kg	Method	Number Applications max	g ai/hL max	water (L/ha) min/max	g ai/ha max	PHI (days)
Apples	TWN	WP	400	F			1200	40	6
Apples/pear	ESP	EW	45	F	3	5.63		84.15	14
Apples/pear	ESP	EC	125	F	4	6.25			28
Apples/pear	ESP	EW	200	F		12.00		84.00	14
Apples/pear	ESP	EC	240	F	4	6.00			28
Apples/pear	ESP	WP	8	F		6.40			28
Apples/pear	ITA	EW	200	F	4	7.0	1000	70	15
Apples/pear	PRT	SC	45	F		7.65		67.50	14
Apples/pear	PRT	EW	45	F	3	5.63		84.15	14
Apricot	USA	EW	200	F	7	6.25	2806	175	0
Apricot	USA	WP	400	F	7	5.99	2806	168	0
Apricot	USA	WP	400	F	7	7.19	2338	168	0
Apricot	USA	WP	400	F	7	5.99	2806	168	0
Banana	Col	WP	400	F	n.s	24	n.s		n/a
Banana	CRI, GTMI, HNDI, PAN	WP	400			84.8			
Banana	DOM	WP	400			6			
Beans	Col	WP	400	F	n.s	200.00	200	16	1
Berries	MEX	WP	400	F	n.s	n.s	1200	91	n.s
Black currant	GBR/IRE	EW	200	F	6	45	200—500	90	14
Cherries	USA	WP	400	F	9	7.19	2338	168	0
Cherries	USA	WP	400	F	9	5.99	2806	168	0
Cherry	ESP	EC	125	F	5	10.00			7
Cherry	GER	EW	200	F	2				21
Cherry	HUN	EC	45	F	3	0.49	1200	5.85	14
Cherry	USA	EW	200	F	8	6.25	2806	175	0
Cherry, nectarine, peach	USA	WP	400	F	9	5.99	2806	168	0
Chili	THA	EC	240	F				24	3
Cucumber	China	WP	400	F	3	6.7			7
Cucurbits	ARG	SC	250	F	n.s	3.5	800 to 1200	42	5
Cucurbits	ARG	WP	400	F	n.s	3.2	800 to 1200	38	5
Cucurbits	CAN	WP	400	F	2		250	70	3
Cucurbits	CHL	EC	240	F	4		200–400	41	5
Cucurbits	CHL	WP	400	F	4		200–400	40	7
Cucurbits	DZA	EC	125	F		9.38			7
Cucurbits	ESP	EC	125	F		10.00			3
Cucurbits	ESP	WP	8	F		6.40		48.00	5
Cucurbits	PAN	WP	400	F	2			48	7
Cucurbits	TUN	EC	75	F				38	
Cucurbits	USA	WP	400	F	5	300	46.76	140	0
Cucurbits	USA	WP	400	F	5			140	0
Currant	CAN	WP	400	F	3		250	136	1
Currant	ESP	EC	125	F		6.25			7
Currant	ESP	EC	240	F	4	6.00			7
Currant	PAK	WP	400	F	8			140	0
Currant	USA	WP	400	F	8			140	0
Currant	USA	WP	400	F	8			140	0
Currant, red and black	ESP	EW	45	F	3	5.99		75	14
Currant, red and black	ESP	EW	200	F	3	15.00		90	14
Currant, red and black	PRT	EW	45	F	3	5.99		75	14
Fruit trees	DZA	EC	125	F		9.38			28

		Formulation		Application		Application rate per treatment			
Crop	Country[a]	Type	g ai/L or g/kg	Method	Number Applications max	g ai/hL max	water (L/ha) min/max	g ai/ha max	PHI (days)
Fruit trees	DZA	EC	125	F		9.38			28
Grape	ARG	EC	250	F		4.25	800–1200	51	21
Grape	ARG	EC	250	F		3.50	800–1200	42	21
Grape	ARG	EC	250	F		10.00	800–1200	120	21
Grape	ARG	WP	400	F		4.80	800–1200	58	21
Grape	ARG	WP	400	F		4.00	800–1200	48	21
Grape	ARG	WP	400	F		8.00	800–1200	96	21
Grape	AUS	EC	125	F	3	3.13	800–1500		14
Grape	BRA	WP	400	F		8.00	700–1000	80	7
Grape	BRA	WP	400	F	3	8	700–1000	80	7
Grape	CAN	WP	400	F	5			80	14
Grape	CHI	WP	400	F	3	10			21
Grape	CHL	EC	240	F	4	2.88	500–2500		10
Grape	CHL	WP	400	F	3	3.20	1000–3000		14
Grape	COL	WP	400	F	n.s	n.s	n.s	50	14
Grape	CRI, GTMI, HNDI, PAN	WP	400	F		13.3–26.7	300–600	80	15
Grape	CZE	EW	200	F	3			36	28
Grape	DOM	WP	400	F			1000–1500	80	15
Grape	DZA	EC	125	F		9.38			15
Grape	DZA, TUN	EC	75	F				23	21
Grape	EGY	EC	125	F		4.38			15
Grape	ESP	EW	45	F	3	5.63		72.90	14
Grape	ESP	EC	125	F		10.00			15
Grape	ESP	EW	200	F	3	14.00		68.00	14
Grape	ESP	EC	240	F		9.60			15
Grape	ESP	WP	8	F		6.40		32.00	21
Grape	GER	EW	200	F	4		400—1600	48	28
Grape	HUN	EC	45	F	3	0.49	1200	5.85	14
Grape	HUN	SC	240	F	3	25.00	1200	300	28
Grape	MAR	EC	45	F		5.63			21
Grape	MAR, DZA	EC	240	F	3	30.00			14
Grape	PRT	EC	125	F	3	3.00			21
Grape	PRT	SC	45	F	3	5.63		56.25	28
Grape	PRT	EW	45	F	3	5.63		72.90	14
Grape	TUR	SC	45	F	3	5.63	1000	56	28
Grape	TUR	EC	245	F	3	18.38	1000	184	14
Grape	URY	EC	250	F		6.25	n.s		21
Grape	URY	WP	400	F		5.60	n.s		21
Grape	USA	EW	200	F	5	n.s	n.s	146	14
Grape	USA	WP	400	F	9	n.s	n.s	73	14
Grape	USA	WP	400	F	5			140	14
Grape	USA	WP	400	F	5			140	14
Grapes	BGR	SC	45	F	3	5.6	1000	56	35
Grapes	BGR	EC	240	F	2	3.6	1000	36	15
Grapes	BGR	EC	20	F	2	0.5	1500	8	35
Grapes	ITA	SC	45.5 g/L	F	4	6.75	n.s		28
Grapes	ITA	SC	45.5 g/L	F	4	37.5	150–1000	56.25	28
Grapes	ITA	EW	200	F	4	7.0	1000	70	15
Grapes	MEX	WP	400	F	n.s	n.s	n.s	91	no

		Formulation		Application		Application rate per treatment			
Crop	Country[a]	Type	g ai/L or g/kg	Method	Number Applications max	g ai/hL max	water (L/ha) min/max	g ai/ha max	PHI (days)
									specified
Grapes	PER	WP	400	F	2	120	n.s	n.s d	14
Grapes	TWN	WP	400	F	4	3.3	1200	40	15
Grapes	TWN	SC	90	F	3	2.8	1200	34	15
Grapes	VEN	WP	400	F	n.s	n.s	n.s	20	14
Hops	ESP	EC	125	F			10.00		15
Hops	ESP	EC	240	F			9.60		15
Hops	GBR	EW	200	F	4			180	14
Hops	GER	EW	200	F	3			180	14
Hops	USA	WP	400	F	4			280.21	14
Melon	BRA	WP	400	F			300–1000	150	7
Melon	BRA	WP	400	F	3	20	300–1000	60	7
Melon	CRI, GTMI, HNDI, PAN	WP	400	F	2		150–200	48	7
Melon	DOM	WP	400	F	2			80	7
Melon	ESP	EW	45	F	3	7.52		75.15	3
Melon	ESP	EW	200	F	3	12.00		76.00	3
Melon	JAP	WP	100	F	3		1500–3000	50	1
Melon	PRT	SC	45	F	3	7.65		56.25	7
Melon	TWN	EC	125	F	3		1200	120	3
Melon, watermelon, pumpkin	MEX	WP	400	F	n.s	n.s	n.s	91	no specified
Melon, watermelon, pumpkin	MEX	WP	400	F	n.s	n.s	400	91	no specified
Melon, watermelon, pumpkin	PER	WP	400	F	2	300	n.s	no specified	0
Melon/ watermelon	ITA	SC	45.5 g/L	F	3	11.3	500–1000	56.25	7
Melon/ watermelon	ITA	EW	200	F	4	7	1000	70	3
Muskmelon	PRT	EW	45	F	3	7.52		75.15	3
Nectarine	ARG	EC	250	F		4.25	2000	85	30
Nectarine	ARG	WP	400	F		4.00	2000	80	30
Nectarine	USA	EW	200	F	8	6.25	2806	175	0
Nectarine	USA	WP	400	F	9	7.19	2338	168	0
Nectarine	USA	WP	400	F	9	5.99	2806	168	0
Peach	ARG	EC	250	F		4.25	2000	85	30
Peach	ARG	WP	400	F		4.00	2000	80	30
Peach	DZA	EC	240	F		6.00			14
Peach	TWN	WP	400	F		13.3	1000–2000	267	18
Peach	USA	EW	200	F	8	6.25	2806	175	0
Peach	USA	WP	400	F	9	7.19	2338	168	0
Peach	USA	WP	400	F	9	5.99	2806	168	0
Peach, apricot, nectarine	PRT	SC	45	F		7.65		67.50	14
Peach, apricot, nectarine, cherry	ESP	EC	240	F	5	7.20			7
Peach, apricot, nectarine, cherry	ESP	WP	8	F		6.40			7
Peach, apricot, nectarine, plum	ESP	EC	125	F	5	7.50			7
Peach, apricot, nectarine, plum, cherry	ESP	EW	200	F	2	13.00		90.00	7
Peach/ nectarine/apricot	ITA	SC	45.5 g/L	F	3	11.3	500–1000	56.25	14
Peach/ nectarine/apricot/plum	ITA	EW	200	F	4	7	1000	70	7
Peach/cherry	JAP	WP	100	F	4		2000–7000	350	1

		Formulation		Application		Application rate per treatment			
Crop	Country[a]	Type	g ai/L or g/kg	Method	Number Applications max	g ai/hL max	water (L/ha) min/max	g ai/ha max	PHI (days)
Pear	ARG	EC	250	F	4	4.25	2500	106	21
Pear	ARG	WP	400	F	4	4	2500	100	21
Pear	CHN	WP	400	F	3	5			7
Pear	UK/IRL	EW	200	F	10	45	200–500	90	14
Pear/Apple	AUS	WP	400	F		4.8			21
Pear/Apple	CAN	WP	400	F	6		500–1000	136	14
Pear/Apple	CHL	WP	400	F	4	5.0	1000–3000		15
Pear/Apple	JPN	WP	100	F	3		2000–7000	350	7
Pear/Apple	ZAF	EW	200	F	6	3			14
Pepper GH	CAN	WP	400	F	3		1000	136	3
Pepper GH	Turkey	EC	245	F	2	7.35	1000	73.50	3
Peppers	ESP	EC	125	F		10.00			3
Peppers	ESP	EW	45	F	3	7.52		75.15	3
Peppers	ESP	EW	200	F	3	12.00		76.00	3
Peppers	ESP	EC	240	F		9.60			3
Peppers	ESP	WP	8	F		6.40		64.00	5
Peppers	HUN	EC	45	F	3	0.84	800	6.75	7
Peppers	ITA	EW	200	F	4	7	1000	70	3
Peppers	JAP	WP	100	F	4		1500–3000	75	1
Peppers	PRT	EW	45	F	3	7.52		75.15	3
Peppers	USA	WP	400	F	4			140	0
Plum	TWN	WP	400	F	4	5	1000	50	6
Plum, cherry, peach, apricot	ESP	EW	45	F	2	5.99		90.00	7
Plum, cherry, peach, apricot	PRT	EW	45	F	2	5.99		90.00	7
Plum, prune	PAK	WP	400	F	7	7.19	2338	168	0
Plum, prune	USA	EW	200	F	7	6.25	2806	175	0
Plum, prune	USA	WP	400	F	7	7.19	2338	168	0
Plum, prune	USA	WP	400	F	7	5.99	2806	168	0
Plum, sour cherry	CZE	EW	200	F	3			140	21
Pome	CZE.	EW	200	F	3			90	14
Pome	GER	EW	200	F	4				14
Plum, prune	USA	WP	400	F	7	5.99	2806	168	0
Snap bean	USA	WP	400	F	4			140	0
Snap bean	USA	WP	400	F	4			140	0
Soybean	ARG	SC	250	F	3	83	150 to 200	125	21
Soybean	BOL	EC	250	F	2	125	100 to 150	125	24
Soybean	BRA	EC	250	Bkp	2	125	100 to 500	125	24
Soybean	BRA	EC	250	Bkp	2	63	100 to 500	125	24
Soybean	URY	EC	250	F	3	125	100 to 150	125	21
Soybean	USA	WP	400	F	2			140	28
Soybean	USA			F	2			140	28
Stone fruit	CAN	WP	400	F	6		1000	136	1
Stone fruit	CHL	WP	400	F	4	5.0	1000–3000	150	15
Strawberry	AUS	WP	400	F			> 500	48	0
Strawberry	BEL	EC	240	F				60.00	3
Strawberry	CAN	WP	400	F	6		1000	136	3
Strawberry	CZE	EW	200	F	3			100	14
Strawberry	ESP	EW	45	F	3	5.99		59.85	3
Strawberry	ESP	EC	125	F	4	7.50			3
Strawberry	ESP	EW	200	F	3	10.00		60.00	3
Strawberry	ESP	EC	240	F	5	7.20			3
Strawberry	ESP	WP	8	F		6.40		48.00	5
Strawberry	GBR/IRE	EW	200	F	6	45	200 to 500	90	3

		Formulation		Application		Application rate per treatment			
Crop	Country[a]	Type	g ai/L or g/kg	Method	Number Applications max	g ai/hL max	water (L/ha) min/max	g ai/ha max	PHI (days)
Strawberry	GER	EW	200	F	3			100	14
Strawberry	ITA	SC	45.5 g/L	F	3	11.3	500–1000	56.25	7
Strawberry	ITA	EW	200	F	4	6	1000	60	3
Strawberry	JAP	WP	100	F	3		1500–3000	75	1
Strawberry	JAP	EC	250	F	3		1500–3000	150	1
Strawberry	MAR	EC	240	F		7.20			3
Strawberry	PRT	EC	125	F		6.25			3
Strawberry	PRT	SC	45	F	3	7.65		56.25	3
Strawberry	PRT	EW	45	F	3	5.99		59.85	3
Strawberry	PRT	EW	45	F	3	5.99	400–1000	59.85	3
Strawberry	USA	WP	400	F	6			140	0
Strawberry	USA	WP	400	F	6			140	0
Tomato	BEL	EC	240	F		7.20		38.40	3
Tomato	CAN	WP	400	F	2		1000	136	3
Tomato	CHL	EC	240	F	4		200–400	48	3
Tomato	Col	WP	400	F	n.s	400	200	32	1
Tomato	ESP	EW	45	F	3	7.52		75.15	3
Tomato	ESP	EC	125	F		10.00			3
Tomato	ESP	EW	200	F	3	12.00		76.00	3
Tomato	ESP	EC	240	F		9.60			3
Tomato	ESP	WP	8	F		6.40		64.00	5
Tomato	ITA	EW	200	F	4	7	1000	70	3
Tomato	JAP	EC	250	F	3		1500–3000	300	1
Tomato	MAR	EC	240	F		7.20			3
Tomato	MEX	WP	400	F	n.s	n.s	n.s	91	
Tomato	PRT	EW	45	F	3	7.52		75.15	3
Tomato	TUN	EC	75	F				38	
Tomatoes	BOL	EC	250	F	4	37.5	100	37.5	5
Tomatoes	USA	WP	400	G or A	4	59.94	94 to 187	112	0
Tomatoes	USA	WP	400	G or A	4	59.94	94 to 187	112	

[a] Countries are indicated with their 3-letter code; A: aerial, Bkp: backpack, G: ground; GH: greenhouse n.s: not specified

RESIDUES RESULTING FROM SUPERVISED TRIALS ON CROPS

The Meeting received information on supervised field trials for myclobutanil uses on the following crops.

Table 48 Crops and crop groups of supervised trials

Crop Group	Commodity	Country	Table No.
Citrus fruits	Orange	ESP	Table 49
	Mandarin	ESP	Table 50
Pome fruits	Apple	AUT, BRA, CAN, FRA, ESP, ITA, GRC, CHL, GER, UK, USA	Table 51
	Pear	BEL, CAN, CHL, FRA, ITA, ESP, USA	Table 52
Stone fruits	Peach	CAN, FRA, GRC, ITA, ESP, USA	Table 53
	Cherry	AUT, BEL, CAN, FRA, GER, HUN, UK, USA	Table 54
	Apricot	FRA, ITA, ESP, USA	Table 55
	Plum	AUT, CAN, C, FRA, GER, HUN, ITA, ESP, USA	Table 56

Crop Group	Commodity	Country	Table No.
Berries and other fruits	Currant	FRA, ITA, UK, USA	Table 57
	Grapes	BRA, FRA, GER, GRC, ITA, PRT, ESP, USA	Table 58
	Strawberry	FRA, ITA, GBR, ESP, USA	Table 59
	Banana	CRI, USA	Table 60, 61
Fruiting vegetable, Cucurbits	Cucumber	FRA, ITA, ESP, USA	Table 62
	Melon	FRA, GRC, ITA, ESP, USA	Table 63
	Squash	ESP, USA	Table 64
	Watermelon	ITA, USA	Table 65
Fruiting vegetables, Other than cucurbits	Pepper	FRA, ITA, ESP, USA	Table 66
	Tomato	FRA, ITA, MAR, ESP, USA	Table 67
Legume vegetables	Snap beans	USA	Table 68
Pulses	Soybeans	ARG, BRA, USA	Table 69
Dried herbs	Hops	GER, UK, USA	Table 70
Legume animal feed	Soybean forage and hay	USA	Table 71

In addition to the description and details of the field trials, each report includes a summary of the analytical method(s) used, together with the corresponding procedural recoveries. In the field trials where multiple analyses are conducted on a single sample or where multiple samples were taken from a single plot, the average residue value is reported. Where results from separate plots with distinguishing characteristics, such as different formulations, varieties or treatment schedules were reported, results are listed for each plot.

Results have not been corrected for concurrent method recoveries unless indicated. Residues and application rates have generally been rounded to 2 or 3 significant figures or, for residues near the LOQ, to one significant figure. Residue values from the trials conducted according to the maximum GAP have been used for the estimation of maximum residue levels. For purposes of MRL estimation and risk assessment in this report, ND values in the reports were considered as < LOQ.

Citrus fruits

Oranges

A total of 15 post-harvest studies on orange were conducted in Spain 1994 and 1995. Results of orange fruits are summarized in Table 49.

Table 49 Residues of myclobutanil in oranges after post-harvest treatment in Spain

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Total of myclobutanil (mg/kg)	Reference
Post havarst										
7/95 Betera, Valencia, ESP 1995 (W. Navel)	EC (120 g ai/L)	1	–	–	50	–	0 30 45 0 30 45 0 30 45 0 30 45	Whole fruit Whole fruit Whole fruit Peel Peel Peel Pulp Pulp Pulp Juice Juice Juice	1.30 1.60 1.00 4.22 3.00 3.40 ND ND ND 0.10 ND ND	242040
8/95	EC	1	–	–	50	–	0	Whole fruit	1.06	242040

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Total of myclobutanil (mg/kg)	Reference
El Puig de Santa Maria, Valencia, ESP 1995 (W. Navel)	(120 g ai/L)						30 45 0 30 45 0 30 45 0 30 45	Whole fruit Whole fruit Peel Peel Peel Pulp Pulp Pulp Juice Juice Juice	1.16 1.10 3.50 3.40 3.30 ND ND ND 0.07 ND ND	
06/94 Betera, Valencia, ESP 1994 (W. navel)	EC (120 g ai/L)	1	–	–	50	–	0 7 14	Whole fruit Whole fruit Whole fruit	1.80 1.70 0.70	242041
08/94 El Puig, Valencia, ESP 1994 (Navel late)	EC (120 g ai/L)	1	–	–	50	–	0	Whole fruit	1.36	242041
09/94 Nules, Castellon, ESP 1994 (Navelina)	EC (120 g ai/L)	1	–	–	50	–	0 7 14	Whole fruit Whole fruit Whole fruit	1.49 1.37 0.69	242041
13/94 Betera, Valencia, ESP 1994 (Navelina)	EC (120 g ai/L)	1	–	–	50	–	0 7 14	Whole fruit Whole fruit Whole fruit	1.53 1.20 1.10	242041
14/94, Nules, Castellon, ESP 1994 (Navelina)	Wax Water Emulsion (3 g ai/L)	1	–	–	3.0	–	0	Whole fruit	2.63	242041
15/94, Cullera, Valencia, ESP 1994 (Valencia late)	Wax Water Emulsion (3 g ai/L)	1	–	–	3.0	–	0	Whole fruit	2.36	242041
20/94, Nules, Castellon, ESP 1994 (Navelina)	Wax Water Emulsion (3 g ai/L)	1	–	–	3.0	–	0	Whole fruit	2.43	242041
22/94 Oliva, Valencia, ESP 1994 (New Hall)	Wax Water Emulsion (3 g ai/L)	1	–	–	3.0	–	0	Whole fruit	2.66	242041
9/95, Oliva, Valencia, ESP 1995 (Valencia late)	Wax Water Emulsion (3 g ai/L)	1	–	–	3.0	–	0 30 60 90 0 30 60 90 0 30 60 90 0 30	Whole fruit Whole fruit Whole fruit Whole fruit Peel Peel Peel Peel Pulp Pulp Pulp Pulp Juice Juice	2.30 1.99 2.60 1.88 7.10 5.03 7.10 6.00 ND ND ND ND ND ND	260333

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Total of myclobutanil (mg/kg)	Reference
							60	Juice	ND	
							90	Juice	ND	
10/95, Puzol, Valencia, ESP 1995 (Valencia late)	Wax Water Emulsion (3 g ai/L)	1	–	–	3.0	–	0	Whole fruit	0.87	260333
							30	Whole fruit	1.04	
							60	Whole fruit	1.66	
							90	Whole fruit	0.74	
							0	Peel	1.77	
							30	Peel	3.20	
							60	Peel	4.60	
							90	Peel	2.12	
							0	Pulp	ND	
							30	Pulp	ND	
							60	Pulp	ND	
							90	Pulp	ND	
							0	Juice	ND	
							30	Juice	ND	
							60	Juice	ND	
							90	Juice	ND	
11/95, Carlet, Valencia, ESP 1995 (Valencia late)	Wax Water Emulsion (3 g ai/L)	1	–	–	3.0	–	0	Whole fruit	1.47	260333
							30	Whole fruit	1.44	
							60	Whole fruit	0.80	
							90	Whole fruit	1.24	
							0	Peel	3.80	
							30	Peel	5.50	
							60	Peel	3.00	
							90	Peel	3.80	
							0	Pulp	ND	
							30	Pulp	ND	
							60	Pulp	ND	
							90	Pulp	ND	
							0	Juice	ND	
							30	Juice	ND	
							60	Juice	ND	
							90	Juice	ND	
12/95, Simat de Valldigna, Valencia, ESP 1995 (Valencia late)	Wax Water Emulsion (3 g ai/L)	1	–	–	3.0	–	0	Whole fruit	2.60	260333
							30	Whole fruit	2.60	
							60	Whole fruit	2.00	
							90	Whole fruit	1.80	
							0	Peel	6.60	
							30	Peel	6.50	
							60	Peel	6.10	
							90	Peel	2.18	
							0	Pulp	ND	
							30	Pulp	ND	
							60	Pulp	ND	
							90	Pulp	ND	
							0	Juice	ND	
							30	Juice	ND	
							60	Juice	ND	
							90	Juice	ND	
13/95, Polina Del Jucar, Valencia, ESP 1995 (Valencia late)	Wax Water Emulsion (3 g ai/L)	1	–	–	3.0	–	0	Whole fruit	1.23	260333
							30	Whole fruit	1.60	
							60	Whole fruit	1.98	
							90	Whole fruit	1.90	
							0	Peel	3.22	
							30	Peel	5.00	
							60	Peel	7.80	
							90	Peel	4.80	
							0	Pulp	ND	
							30	Pulp	ND	
							60	Pulp	ND	
							90	Pulp	ND	

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Total of myclobutanil (mg/kg)	Reference
							0 30 60 90	Juice Juice Juice Juice	ND ND ND ND	

Mandarin

A total of 12 post-harvest studies on mandarin were conducted in Spain 1994 and 1995. Results of mandarin fruits are summarized in Table 50.

Table 50 Residues of myclobutanil in mandarin after post-harvest treatment in Spain

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Total of myclobutanil (mg/kg)	Reference
Post havarst										
5/95 Chilches, Castellon, ESP 1995 (Clemenules)	EC (120 g ai/ L)	1	–	–	50	–	0 30 45 0 30 45 0 30 45 0 30 45	Whole fruit Whole fruit Whole fruit Peel Peel Peel Pulp Pulp Pulp Juice Juice Juice	1.15 1.40 1.00 2.75 3.40 2.00 ND ND ND 0.10 ND ND	242040
6/95 Nules, Castellon, ESP 1995 (Hernandina)	EC (120 g ai/ L)	1	–	–	50	–	0 30 45 0 30 45 0 30 45 0 30 45	Whole fruit Whole fruit Whole fruit Peel Peel Peel Pulp Pulp Pulp Juice Juice Juice	0.94 1.50 1.10 3.35 3.80 3.10 ND ND ND 0.09 ND ND	242040
05/94 Betera, Valencia, ESP 1994 (Oroval)	EC (120 g ai/ L)	1	–	–	50	–	0 7 14	Whole fruit Whole fruit Whole fruit	2.00 1.70 1.10	242041
07/94 El Puig, Valencia, ESP 1994 (Clemenules)	EC (120 g ai/ L)	1	–	–	50	–	0	Whole fruit	1.56	242041
10/94 Nules, Castellon, ESP 1994 (Satsuma)	EC (120 g ai/ L)	1	–	–	50	–	0 7 14	Whole fruit Whole fruit Whole fruit	1.33 1.09 0.57	242041
11/94 Carlet, Valencia, ESP 1994 (Satsuma)	EC (120 g ai/ L)	1	–	–	50	–	0 7 14	Whole fruit Whole fruit Whole fruit	1.50 1.20 1.10	242041
12/94	EC	1	–	–	50	–	0	Whole fruit	1.71	242041

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Total of myclobutanil (mg/kg)	Reference
Betera, Valencia, ESP 1994 (Oroval)	(120 g ai/ L)						7 14	Whole fruit Whole fruit	1.20 1.00	
16/94 Chilches, Castellon, ESP 1994 (Oroval)	Wax Water Emulsion (3 g ai/L)	1	–	–	3.0	–	0 7 14	Whole fruit Whole fruit Whole fruit	2.61 2.35 2.26	242041
17/94 Chilches, Castellon, ESP 1994 (Satsuma)	Wax Water Emulsion (3 g ai/L)	1	–	–	3.0	–	0 7 14	Whole fruit Whole fruit Whole fruit	2.80 2.54 2.36	242041
18/94 Chilches, Castellon, ESP 1994 (Satsuma)	Wax Water Emulsion (3 g ai/L)	1	–	–	3.0	–	0 7 14	Whole fruit Whole fruit Whole fruit	2.75 2.18 2.40	242041
19/94 Chilches, Castellon, ESP 1994 (Satsuma)	Wax Water Emulsion (3 g ai/L)	1	–	–	3.0	–	0 7 14	Whole fruit Whole fruit Whole fruit	2.72 2.53 2.51	242041
21/94, Oliva, Valencia, ESP 1994 (Oroval)	Wax Water Emulsion (3 g ai/L)	1	–	–	3.0	–	0	Whole fruit	2.90	242041

Pome fruits

Apples

A total of 144 trials on apple were conducted in different representative growing areas in Austria, Brazil, Canada, Chile, France, Germany, Italy, Spain, UK and USA during 1984 through 2011 growing seasons. Results of apple fruits are summarized in Table 51.

Table 51 Residues of myclobutanil in apple after treatment in variouscountries

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
90-0201 USA 1990 (Twenty ounce)	40 WP (40 %W/W)	10	0.224	56.1	–	7–27	14	Whole fruit	0.02	< 0.01	0.03	94312
90-0201 USA 1990 (Twenty ounce)	40 WP (40 %W/W)	10	0.224	935.3	–	7–27	14	Whole fruit	0.13	0.03	0.16	94312
90-0136 USA 1990 (Twenty ounce)	40 WP (40 %W/W)	4	0.224	93.5	–	7	14	Whole fruit	0.04	< 0.01	0.05	94312
90-0136 USA 1990 (Twenty ounce)	40 WP (40 %W/W)	4	0.224	935.3	–	7	14	Whole fruit	0.18	0.01	0.19	94312
21801070, ID, USA 2001 (Red delicious)	40 WP (40 %W/W)	12	0.19	1100	–	13–16	14	Whole fruit	0.28	< 0.01	0.29	135365
21801069 CA, USA	40 WP (40	12	0.19	1100	–	14–17	14	Whole fruit	0.07	< 0.01	0.08	135365

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
2001 (Fuji)	%W/W)											
21801068, AZ USA 2001 (Red delicious)	40 WP (40 %W/W)	12	0.19	1870	–	12–17	10	Whole fruit	0.21	< 0.01	0.22	135365
84-0313, WA USA 1984 (Jonathan)	40 WP (40 %W/W)	5	0.50	4677	–	–	129	Whole fruit	0.02	0.13	0.15	94378 94484/85
84-0238, VA USA 1984 (Rome)	40 WP (40 %W/W)	6	0.28	3741	–	–	23 23 23 23	Cider Pomace, dry Pomace, wet Whole fruit	0.02 0.27 0.08 0.01	< 0.01 0.03 0.01 0.04	0.03 0.30 0.09 0.05	94378 94484/85
84-0238, VA USA 1984 (Rome)	40 WP (40 %W/W)	6	0.56	3741	–	–	23	Whole fruit	0.07	0.04	0.11	94378 94484/85
84-0212, SC USA 1984 (Del, wsap. grd)	40 WP (40 %W/W)	14	0.16	–	–	–	6	Whole fruit	0.32	0.12	0.44	94378 94484/85
84-0274, WI USA 1984 (McIntosh)	40 WP (40 %W/W)	9	0.43	2806	–	–	14	Whole fruit	0.17	0.04	0.21	94378 94484/85
84-0274, WI, USA 1984 (McIntosh)	40 WP (40 %W/W)	9	0.43	2806	–	–	11 11 11	Cider Pomace, dry Pomace, wet	0.02 0.60 0.18	0.02 0.09 (0.04) [a] 0.03	0.04 0.69 21	94378 94484/85
84-0241, PA USA 1984 (Multi)	40 WP (40 %W/W)	15	0.27	3701	–	–	14	Whole fruit	0.24	0.09	0.33	94378 94484/85
84-0384, PA USA 1984 (Roam beauty)	40 WP (40 %W/W)	11	0.53	2806	–	–	13	Whole fruit	0.11	0.02	0.13	94378 94484/85
84-0300, WI USA 1984 (McIntosh)	40 WP (40 %W/W)	10	0.10	2806	–	–	12	Whole fruit	0.03	0.01	0.04	94378 94484/85
85-0521, OR USA 1985 (Granny Smith)	40 WP (40 %W/W)	4	0.28	2338	–	–	139	Whole fruit	< 0.01	< 0.01	< 0.02	94300
85-0481, OR USA 1985 (Newtown)	40 WP (40 %W/W)	4	0.28	2338	–	–	124	Whole fruit	0.02	< 0.01	0.03	94300
85-0320, PA USA 1985 (G. Delicious)	40 WP (40 %W/W)	13	0.27	3741	–	–	14	Whole fruit	0.15	0.04	0.19	94311
85-0334, VA USA 1985 (Rome)	40 WP (40 %W/W)	11	0.40	1402	–	–	13	Whole fruit	0.09	0.07	0.16	94311
85-0542, OH USA	40 WP (40	14	0.28	3741	–	–	14	Whole fruit	0.19	0.06	0.25	94311

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
1985 (G. Delicious)	%W/W)											
85-0543, OH USA 1985 (R. Delicious)	40 WP (40 %W/W)	14	0.28	3741	–	–	14	Whole fruit	0.30	0.01	0.31	94311
85-0422, OR USA 1985 (Newtown)	40 WP (40 %W/W)	9	0.28	2338	–	–	14	Whole fruit	0.20	0.05	0.25	94311
85-0551, WA USA 1985 (Rome)	40 WP (40 %W/W)	8	0.42	5612	–	–	14	Whole fruit	0.08	0.02	0.10	94311
85-0490, MI USA 1985 (R. Delicious)	40 WP (40 %W/W)	10	0.28	2806	–	–	7 14 [b] 21	Whole fruit Whole fruit Whole fruit	0.15 < 0.01 0.14	0.01 < 0.01 0.02	0.16 < 0.02 0.16	94308 94472
85-0542, OH USA 1985 (G. Delicious)	40 WP (40 %W/W)	14	0.28	3741	–	–	21 21 21 7 14 21	Cider Pomace, dry Pomace, wet Whole fruit Whole fruit Whole fruit	0.02 1.47 0.45 0.21 0.19 0.15	0.02 0.11 0.03 0.06 0.06 0.08	0.04 1.58 0.48 0.27 0.25 0.23	94308 94472
86-0297, OR USA 1986 (Granny Smith)	40 WP (40 %W/W)	5	0.24	786	–	13–21 and 92 at last application	0 7 14 21	Whole fruit Whole fruit Whole fruit Whole fruit	0.21 0.12 0.06 0.03	< 0.01 < 0.01 < 0.01 < 0.01	0.22 0.13 0.07 0.04	94309
86-0260, PA USA 1986 (Macintosh)	40 WP (40 %W/W)	1	0.27	3741	–	–	0 7 14 21	Whole fruit Whole fruit Whole fruit Whole fruit	0.07 0.07 0.02 0.03	< 0.01 < 0.01 < 0.01 < 0.01	0.08 0.08 0.03 0.04	94309
86-0297, OR USA 1986 (Granny Smith)	DF 60 (60% W/W)	5	0.24	786	–	13–21 and 92 at last application	0 7 14 24	Whole fruit Whole fruit Whole fruit Whole fruit	0.18 0.10 0.09 0.03	< 0.01 < 0.01 < 0.01 < 0.01	0.19 0.11 0.10 0.04	94292
86-0296, OR USA 1986 (Newtown)	DF 60 (60% W/W)	5	0.24	786	–	11–19 and 80 at last application	0 8 15 22	Whole fruit Whole fruit Whole fruit Whole fruit	0.17 0.09 0.06 0.05	< 0.01 < 0.01 < 0.01 < 0.01	0.18 0.10 0.07 0.06	94292

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
88-0319, PA USA 1988 (R. Delicious)	DF 60 (60% W/W)	8	0.17	374	–	7–18 and 91 at last application	14	Whole fruit	0.01	< 0.01	0.02	94298
88-0319, PA USA 1988 (R. Delicious)	DF 60 (60% W/W)	8	0.17	2235	–	7–18 and 91 at last application	14	Whole fruit	0.03	< 0.01	0.04	94298
88-0320, VA USA 1988 (R. Delicious)	40 WP (40 %W/W)	8	0.17	374	–	7–18 and 91 at last application	14	Whole fruit	0.04	< 0.01	0.05	94298
88-0320, VA USA 1988 (R. Delicious)	40 WP (40 %W/W)	8	0.17	2235	–	7–18 and 91 at last application	14	Whole fruit	0.04	< 0.01	0.05	94298
88-0342, WA USA 1988 (R. Delicious)	40 WP (40 %W/W)	8	0.17	468	–	11–29	14	Whole fruit	0.20	0.02	0.22	94298
88-0342, WA USA 1988 (R. Delicious)	40 WP (40 %W/W)	8	0.17	2338	–	11–29	14	Whole fruit	0.28	0.03	0.31	94298
88-0343, WA USA 1988 (R. Delicious)	DF 60 (60% W/W)	8	0.17	468	–	11–29	14	Whole fruit	0.18	0.02	0.20	94298
88-0343, WA USA 1988 (R. Delicious)	DF 60 (60% W/W)	8	0.17	2338	–	11–29	14	Whole fruit	0.20	0.02	0.22	94298
88-0331, VA USA 1988 (Rome)	DF 60 (60% W/W)	8	0.029	290	–	11–29	14	Whole fruit	0.02	< 0.01	0.03	94298
88-0331, VA USA 1988 (Rome)	DF 60 (60% W/W)	8	0.029	2002	–	11–29	14	Whole fruit	0.02	< 0.01	0.03	94298
88-0332, VA USA 1988 (Stayman)	40 WP (40 %W/W)	8	0.029	290	–	7–14 and 105 at last application	14	Whole fruit	0.03	< 0.01	0.04	94298
88-0332, VA USA 1988 (Stayman)	40 WP (40 %W/W)	8	0.029	2002	–	7–14 and 105 at last application	14	Whole fruit	0.03	< 0.01	0.04	94298
90-0029 Pelotas BRA 1989 (Gala)	EC (25.8% W/W)	4	0.0224	500	4.5	6–7	0 6 13 27	Whole fruit	0.11 0.17 0.01 0.11	0.04 0.07 0.01 0.08	0.14 0.24 0.02 0.19	94315
90-0029 Pelotas BRA 1989 (Gala)	EC (25.8% W/W)	4	0.0448	500	9	6–7	0 6 13 27	Whole fruit	0.39 0.30 0.19 0.17	0.10 0.11 0.12 0.15	0.49 0.41 0.31 0.32	94315
9325701 Dame Marie les Bois FRA 1993 (Golden Delicious)	WP (6%WP)	15	0.06	475–800	–	8–12	0 21	Whole fruit Whole fruit	0.28 0.16	0.03 0.03	0.31 0.19	241989

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
4919356 Sudanel, ESP 1993 (Golden Delicious)	EC (125 g/L)	1	0.075	1398	–	–	0	Whole fruit	0.18	< 0.01	0.19	138353
4919356 Sudanel, ESP 1993 (Golden Delicious)	EC (125 g/L)	3	0.075	1166–1398	–	–	14	Whole fruit	0.20	0.02	0.22	138353
4919356 Sudanel, ESP 1993 (Golden Delicious)	EC (125 g/L)	4	0.075	1166–1398	–	14	0 14 21	Whole fruit	0.32 0.13 0.20	0.03 0.02 0.03	0.35 0.15 0.23	138353
93 FAR RS 01 Orgueil, FRA 1993 (Golden)	WP (6%WP)	4	0.06	300	–	8–11	0 21	Whole fruit	0.09 0.04	< 0.01 0.02	0.10 0.06	241988
RAS 21/1/I Lombardia ITA 1997 (Golden Delicious)	EW (200g ai/L)	6	0.052–0.067	1165–1479	4.5	11–14	0 14	Whole fruit	0.08 0.07	< 0.01 < 0.01	0.09 0.08	241824
RAS 21/1/G Imathia region GRC 1997 (Jonagold)	EW (200 g ai/L)	6	0.068	1499-1502	4.5	10	0 14	Whole fruit	0.04 0.03	< 0.01 < 0.01	0.05 0.04	241824
AF/7780/DE/2 Calatorao ESP, 2004 (Golden)	EW (200 g ai/L)	4	0.085–0.091	1409–1517	6	8–12	14 26 48 56	Whole fruit	0.04 0.06 0.03 0.03	< 0.01 < 0.01 < 0.01 < 0.01	0.05 0.07 0.04 0.04	241776
AF/7780/DE/2 Calatorao ESP, 2004 (Golden)	EW (200 g ai/L)	6	0.070–0.073	1448–1527	6	8–12	14	Whole fruit	0.06	< 0.01	0.07	241776
AF/7780/DE/1 Barboles ESP, 2004 (Golden)	EW (200 g ai/L)	4	0.086–0.092	1433–1533	6	10–12	< 0 0 7 14 28 35	Whole fruit	0.09 0.12 0.14 0.10 0.06 0.07	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.10 0.13 0.15 0.11 0.07 0.08	241776
AF/7780/DE/1 Barboles ESP, 2004 (Golden)	EW (200 g ai/L)	6	0.086–0.095	1433–1583	6	7–12	< 0 0 7 14 28 35	Whole fruit	0.10 0.20 0.08 0.07 0.07 0.06	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.11 0.21 0.09 0.08 0.08 0.07	241776
AF/7780/DE/4 Moissac FRA, 2004 (Granny)	EW (200 g ai/L)	4	0.088–0.098	1472–1632	6	8–12	14 26 44 55	Whole fruit	0.04 0.02 0.02 0.02	< 0.01 < 0.01 < 0.01 < 0.01	0.05 0.03 0.03 0.03	241776
AF/7780/DE/4 Moissac FRA, 2004 (Granny)	EW (200 g ai/L)	6	0.087–0.094	1458–1563	6	8–12	14	Whole fruit	0.07	< 0.01	0.08	241776
AF/7780/DE/3 Moissac FRA, 2004 (Granny Smith)	EW (200 g ai/L)	4	0.085–0.096	1416–1603	6	9–11	< 0 0 7 14 28 35	Whole fruit	0.09 0.13 0.04 0.05 0.05 0.03	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.10 0.14 0.05 0.06 0.06 0.04	241776
AF/7780/DE/3 Moissac FRA, 2004	EW (200 g ai/L)	6	0.085–0.092	1413–1528	6	9–12	< 0 0 7	Whole fruit	0.08 0.15 0.06	< 0.01 < 0.01 < 0.01	0.09 0.16 0.07	241776

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
(Granny Smith)							14 28 35		0.05 0.04 0.04	< 0.01 < 0.01 < 0.01	0.06 0.05 0.05	
85-0119 Rosario CHL, 1984 (Delicious)	40 WP (40 %W/W)	8	0.25	–	–	–	60	Whole fruit	0.03	0.05	0.08	94313
86-0279 Kentville CAN, 1985 (Mcintosh)	40 WP (40 %W/W)	8	0.125	–	–	–	45	Whole fruit	0.01	0.01	0.02	94304
R&H/205/3/G Niedersachsen GER 1996 (Winterglock–enapfel)	EW (200 g ai /L)	12	0.090–0.095	499–527	18	11–16	0 7 15	Whole fruit Whole fruit Whole fruit	0.16 0.16 0.12	0.02 0.02 0.02	0.18 0.18 0.14	241760
R&H/205/1/G Nordrhen Westfalen GER 1996 (Jonagold)	EW (200 g ai /L)	12	0.088–0.095	1429–1587	6	10–14	0 7 14	Whole fruit Whole fruit Whole fruit	0.22 0.16 0.13	< 0.01 < 0.01 < 0.01	0.23 0.17 0.14	241760
R&H/205/2/G Neidersachsen GER 1996 (Golster)	EW (200 g ai /L)	12	0.090–0.093	1497–1557	6	11–13	0 7 14	Whole fruit Whole fruit Whole fruit	0.28 0.19 0.19	0.02 0.01 0.02	0.30 0.20 0.21	241760
R&H/205/4/G Kheinland Pfalz GER 1996 (Golden Delicious)	EW (200 g ai /L)	12	0.087–0.093	481–515	18	10–14	0 7 14	Whole fruit Whole fruit Whole fruit	0.51 0.54 0.38	0.02 0.03 0.02	0.53 0.57 0.40	241760
R&H/216/1/I Lombardia ITA, 1996 (Golden Delicious)	EW (200 g ai /L)	6	0.066–0.091	1458.3–2020.8	4.5	14	0 14	Whole fruit	0.22 0.11	0.01 0.01	0.23 0.12	241831
R&H/216/2/I Lombardia ITA, 1996 (Golden Delicious)	EW (200 g ai /L)	6	0.068–0.091	1518.1–2025.4	4.5	13–15	0 14	Whole fruit	0.19 0.09	0.01 0.01	0.20 0.10	241831
AP/3201/HL/1 F, St Porchaire FRA, 1996 (Golden Delicious)	EW (200 g ai /L)	6	0.036–0.041	794–917	4.5	10–11	0 14	Whole fruit	0.04 0.04	< 0.01 < 0.01	0.05 0.05	241831
AP/3201/HL/2 F, Villemade FRA, 1996 (Red Chief)	EW (200 g ai /L)	6	0.071–0.126	1576–2791	4.5	10–14	0 14	Whole fruit	0.10 0.05	< 0.01 < 0.01	0.11 0.06	241831
R&H/214/1/I Lombardia ITA, 1996 (Golden Delicious)	EC (240 g ai /L)	6	0.067–0.091	1497.3–2020.8	–	14	0 14	Whole fruit	0.23 0.18	0.01 0.01	0.24 0.19	138355
R&H/214/2/I Lombardia ITA, 1996	EC (240 g ai /L)	6	0.066–0.106	1471–1996.4	–	13–15	0 14	Whole fruit	0.22 0.14	0.01 0.01	0.23 0.15	138355

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
(Golden Delicious)												
AP/3199/HL/1 F, St Porchaire FRA, 1996 (Golden Delicious)	EC (240 g ai /L)	6	0.035–0.039	781–867	–	10–11	0 14	Whole fruit	0.05 0.04	< 0.01 < 0.01	0.06 0.05	138355
AP/3199/HL/2 F, Villemade FRA, 1996 (Red Chief)	EC (240 g ai /L)	6	0.071–0.136	1570–3023	–	10–14	0 14	Whole fruit	0.09 0.09	< 0.01 0.01	0.10 0.10	138355
R&H/217/1/I Lombardia ITA, 1996 (Golden Delicious)	EW (60 g ai/ L	6	0.067–0.091	1486.2–2020.8	–	14	0 14	Whole fruit	0.27 0.17	0.01 < 0.01	0.28 0.18	137145
R&H/217/2/I Lombardia ITA, 1996 (Golden Delicious)	EW (60 g ai/ L	6	0.066–0.091	1463.9–2029	–	13–15	0 14	Whole fruit	0.20 0.13	< 0.01 < 0.01	0.21 0.14	137145
AP/3202/HL/1 F, St Porchaire FRA, 1996 (Golden Delicious)	EW (60 g ai/ L	6	0.036–0.040	792–885	–	10–11	0 14	Whole fruit	0.07 0.04	< 0.01 < 0.01	0.08 0.05	137145
AP/3202/HL/2 F, Villemade FRA, 1996 (Red Chief)	EW (60 g ai/ L	6	0.070–0.123	1561–2738	–	10–14	0 14	Whole fruit	0.16 0.10	< 0.01 < 0.01	0.17 0.11	137145
R&H/215/1/I Lombardia ITA, 1996 (Golden Delicious)	EC (120 g ai /L)	6	0.068–0.092	1490.3–2041.6	4.5	14	0 14	Whole fruit	0.20 0.16	0.02 0.02	0.22 0.18	241758
R&H/215/2/I Lombardia ITA, 1996 (Golden Delicious)	EC (120 g ai /L)	6	0.066–0.092	1471–2050	4.5	13–15	0 14	Whole fruit	0.18 0.11	0.01 0.01	0.19 0.12	241758
AP/3200/HL/1 F, St Porchaire FRA, 1996 (Golden Delicious)	EC (120 g ai /L)	6	0.038–0.041	833–906	4.5	10	0 14	Whole fruit	0.08 0.05	< 0.01 < 0.01	0.09 0.06	241758
AP/3200/HL/2 F, Villemade FRA, 1996 (Red Chief)	EC (120 g ai /L)	6	0.068–0.128	1512–2852	4.5	10–14	0 14	Whole fruit	0.14 0.09	< 0.01 0.01	0.15 0.10	241758
AK/3637/HL/1 GBR, Nottinghamshire UK, 1997 (Bramley)	EW (200 g ai /L)	12	0.088–0.094	1468.2–1561.1	6	10–14	0 7 14	Whole fruit	0.16 0.12 0.15	0.01 0.01 0.02	0.17 0.13 0.17	241828
AK/3637/HL/2 GBR, Kent, 1997 (Jonagold)	EW (200 g ai /L)	12	0.090–0.091	1491.8–1519.4	6	10 –14	0 7 14	Whole fruit	0.14 0.12 0.14	< 0.01 < 0.01 0.01	0.15 0.13 0.15	241828
AK/3637/HL/3 UK Glouces–tershire, GBR 1997	EW (200 g ai /L)	12	0.087–0.092	480.3–506.8	18	10–14	0 7 14	Whole fruit	0.18 0.20 0.12	0.01 0.03 0.03	0.19 0.23 0.15	241828

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
(Worcester Permain)												
AK/3637/HL/4 UK, Kent GBR, 1997 (Cox)	EW (200 g ai /L)	12	0.091–0.093	504–519.1	18	10–14	13	Whole fruit	0.09	0.01	0.10	241828
010139_010135, Sao Paulo BRA, 2001)	EC (250 g ai /L)	3	0.045	1000	4.5	6–7	0 7 14 21 28	Whole fruit	–[c] – – – –	– – – – –	0.06 0.04 0.02 0.01 0.01	102702 150882
010139_010135, Sao Paulo BRA, 2001	EC (250 g ai /L)	3	0.090	1000	9	6–7	0 7 14 21 28	Whole fruit	– – – – –	– – – – –	0.11 0.05 0.03 0.02 0.02	102702 150882
010139_010135, Santa Catarina BRA 2001–2002 (Fuji)	EC (250 g ai /L)	3	0.045	1000	4.5	5–7	15	Whole fruit	–	–	0.08	102702 150882
010139_010135, Santa Catarina BRA 2001–2002 (Fuji)	EC (250 g ai /L)	3	0.090	1000	9	5–7	15	Whole fruit	–	–	0.25	102702 150882
010139_010135, Rio Grande do Sul, BRA 2001–2002 (Royal Gala)	EC (250 g ai /L)	3	0.045	1000	4.5	6–8	14	Whole fruit	–	–	0.06	102702 150882
010139_010135, Rio Grande do Sul, BRA 2001–2002 (Royal Gala)	EC (250 g ai /L)	3	0.090	1000	9	6–8	14	Whole fruit	–	–	0.12	102702 150882
010139_010135, Sao Paulo BRA, 2001 (BRA)	WP (400 g ai /kg)	3	0.048	1000	4.8	6–7	0 7 14 21 28	Whole fruit	– – – – –	– – – – –	0.08 0.03 0.02 0.01 < 0.01	102701 204447
010139_010135, Sao Paulo BRA, 2001 (BRA)	WP (400 g ai /kg)	3	0.096	1000	9.6	6–7	0 7 14 21 28	Whole fruit	– – – – –	– – – – –	0.14 0.07 0.04 0.02 0.02	102701 204447
010139_010135, Santa Catarina BRA 2001–2002 (Fuji)	WP (400 g ai /kg)	3	0.048	1000	4.8	5–7	14	Whole fruit	–	–	0.07	102701 204447
010139_010135 Santa Catarina BRA 2001–2002 (Fuji)	WP (400 g ai /kg)	3	0.096	1000	9.6	5–7	14	Whole fruit	–	–	0.08	102701 204447
010139_010135, Rio Grande do Sul, BRA 2001–2002 (Royal Gala)	WP (400 g ai /kg)	3	0.048	1000	4.8	6–8	14	Whole fruit	–	–	0.09	102701 204447
010139_01013	WP	3	0.096	1000	9.6	6–8	14	Whole	–	–	0.06	10270

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
5 Rio Grande do Sul, BRA 2001–2002 (Royal Gala)	(400 g ai /kg)							fruit				1 20444 7
AF/8164/DE2 Uchizy, FRA 2004 (Golden)	EW (200 g ai /L)	4	0.086–0.091	1429–1518	6	9–11	14	Whole fruit	0.21	< 0.01	0.22	10140 5
AF/8164/DE2 Uchizy, FRA 2004 (Golden)	EW (200 g ai /L)	12	0.085–0.10	1411–1673	6	8–11	14	Whole fruit	0.16	0.02	0.18	10140 5
AF/8164/DE3 Corze, FRA 2004 (Fuji No. 6)	EW (200 g ai /L)	4	0.093–0.094	1545–1568	6	9–12	< 0 0 7 14 28 35	Whole fruit	0.02 0.08 0.05 0.03 0.03 0.03	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.03 0.09 0.06 0.04 0.04 0.04	10140 5
AF/8164/DE3 Corze, FRA 2004 (Fuji No. 6)	EW (200 g ai /L)	12	0.090–0.097	1426–1614	6	8–12	< 0 0 7 14 28 35	Whole fruit	0.05 0.10 0.05 0.06 0.04 0.03	< 0.01 < 0.01 < 0.01 0.01 0.01 0.01	0.06 0.11 0.06 0.07 0.05 0.04	10140 5
AF/8164/DE4 St Remy La Varenne FRA, 2004 (Granny Smith)	EW (200 g ai /L)	4	0.094–0.097	1560–1620	6	7–15	14 14 14 14 14 14 14 14 14	Whole fruit Whole fruit (processing) Cooked fruit washed fruit Juice Peel and seed Pomace, dry Pomace, wet Puree Raw juice Washing water	0.11 0.08 0.04 0.08 < 0.01 0.10 0.99 0.23 0.02 0.01 0.02	< 0.01 0.01 < 0.01 < 0.01 < 0.01 < 0.01 0.06 0.23 < 0.01 < 0.01 < 0.01	0.12 0.09 0.05 0.09 < 0.02 0.11 1.05 0.24 0.03 0.02 0.03	10140 5
AF/8164/DE4 St Remy La Varenne FRA, 2004 (Granny Smith)	EW (200 g ai /L)	12	0.089–0.098	1487–1627	6	7–15	14	Whole fruit	0.18	0.03	0.21	10140 5
AF/8164/DE4 St Remy La Varenne FRA, 2004 (Granny Smith)	EW (200 g ai /L)	4	0.45–0.48	1490–1593	30	7–15	14 14 14 14 14	Whole fruit Whole fruit (processing) Washed fruit Cooked fruit Apple juice	0.65 0.51 0.52 0.28 0.06	0.03 0.05 0.03 0.03 0.02	0.68 0.56 0.55 0.31 0.08	10140 5

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
							14	Peel and seed	0.59	0.04	0.63	
							14	Pomace, dry	6.00	0.25	6.25	
							14	Pomace, wet	1.57	0.05	1.62	
							14	Puree	0.13	0.02	0.15	
							14	Raw juice	0.06	0.02	0.08	
							14	Washing water	0.08	< 0.01	0.09	
AF/8164/DE5 Varennes Le Grand, FRA 2004 (Elstar)	EW (200 g ai /L)	4	0.089–0.093	1487–1549	6	8–12	< 0	Whole fruit	0.04	< 0.01	0.05	101405
							0		0.16	< 0.01	0.17	
							7		0.17	< 0.01	0.18	
							14		0.15	< 0.01	0.16	
							28		0.09	0.01	0.10	
							35		0.08	0.01	0.09	
AF/8164/DE5 Varennes Le Grand, FRA 2004 (Elstar)	EW (200 g ai /L)	12	0.082–0.095	1374–1575	6	8–11	< 0	Whole fruit	0.15	0.02	0.17	101405
							0		0.19	0.01	0.20	
							7		0.16	0.02	0.18	
							14		0.16	0.02	0.18	
							28		0.15	0.03	0.18	
							35		0.10	0.02	0.12	
F06W067R Languedoc-Roussillon, FRA, 2006 (Ggolden)	EW (200 g ai /L)	6	0.093–0.095	1492–1521	6.2	9–11	< 0	Whole fruit	0.16	0.01	0.17	2009748
							0		0.14	< 0.01	0.15	
							7		0.14	0.01	0.15	
							14		0.06	< 0.01	0.07	
							21		0.09	0.01	0.10	
							28		0.09	0.01	0.10	
CEMS-4638A Piedmont, ITA, 2010 (Red Chief)	EW (45 g ai/ L)	3	0.066–0.067	1286.1–1344.2	5.1	10	< 0	Whole fruit	0.06	< 0.01	0.07	2017192
							0		0.09	< 0.01	0.10	
							3		0.05	< 0.01	0.06	
							8		0.04	< 0.01	0.05	
							14		0.03	< 0.01	0.04	
CEMS-4638B Langurdoc–Roussillon Southern FRA, 2010 (Braeburn)	EW (45 g ai/ L)	3	0.064–0.066	1053–1095	6.1	10–11	< 0	Whole fruit	0.03	0.01	0.04	2017192
							0		0.14	< 0.01	0.15	
							3		0.05	< 0.01	0.06	
							7		0.04	0.01	0.05	
							14		0.01	< 0.01	0.02	
CEMS-4638E Berkshire RG42 6EY GBR 2010 (Bramley)	EW (45 g ai/ L)	3	0.066–0.067	494.5–496.7	13.4	11–12	< 0	Whole fruit	0.10	0.01	0.11	2017192
							0		0.24	0.01	0.25	
							3		0.24	0.01	0.25	
							8		0.17	0.01	0.18	
							15		0.11	0.01	0.12	
CEMS-4638F Upper AUT AUT, 2010 (Pinova)	EW (45 g ai/ L)	3	0.064–0.066	960.2–986.7	6.7	11	< 0	Whole fruit	0.07	< 0.01	0.08	2017192
							0		0.11	< 0.01	0.12	
							3		0.09	< 0.01	0.10	
							7		0.08	< 0.01	0.09	
							14		0.15	0.01	0.16	
CEMS-4943A Piedmont ITA, 2011 (Red Chief)	EW (45 g ai/ L)	3	0.083–0.085	1190.7–1209.3	7	9–10	< 0	Whole fruit	0.04	< 0.01	0.05	2019282
							0		0.09	< 0.01	0.10	
							3		0.08	< 0.01	0.09	
							7		0.08	< 0.01	0.09	
							14		0.05	< 0.01	0.06	
CEMS-4943B Langue–Roussillon Southern FRA, 2011 (Early Red)	EW (200 g ai /L)	3	0.083–0.087	991.7–1033.3	8.4	9–12	< 0	Whole fruit	0.08	< 0.01	0.09	2019282
							0		0.18	< 0.01	0.09	
							3		0.13	0.01	0.14	
							7		0.10	0.01	0.11	
							14		0.07	0.01	0.08	
CEMS-4943E	EW	3	0.067	498	13.4	10–11	< 0	Whole	0.21	< 0.01	0.22	20192

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Suffolk, IP29 5AE GBR 2011 (Jonagored)	(45 g ai/ L)						0 3 7 14	fruit	0.61 0.36 0.29 0.34	0.01 0.01 0.01 0.01	0.62 0.37 0.30 0.35	82
CEMS-4943F Upper AUT AUT, 2011 (Greenstar)	EW (200 g ai /L)	3	0.066–0.069	978.7–1036	6.7	10	< 0 0 3 7 14	Whole fruit	0.04 0.07 0.06 0.05 0.03	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.05 0.08 0.07 0.06 0.04	20192 82
F-20211 Roenne Harburg West GER 1985 (Golster)	WP (60 g ai/ kg)	12	0.041×3 0.054×2 0.068×7	900x3 1200x3 1500x7	7.5	7–14	0 5 10 14	Whole fruit	0.14 0.09 0.08 0.07	< 0.01 < 0.01 0.01 0.01	0.15 0.10 0.09 0.08	94301
F-20212 Elbstorf–Harburg West GER 1985 (Golden Delicious)	WP (60 g ai/ kg)	12	0.041×3 0.054×2 0.068×7	900x3 1200x3 1500x7	7.5	7–14	0 5 10 14	Whole fruit	0.16 0.09 0.10 0.13	< 0.01 < 0.01 < 0.01 0.01	0.17 0.10 0.11 0.14	94301
F-20221 Pfeddersheim GER 1985 (Golden Delicious)	WP (60 g ai/ kg)	12	0.041×3 0.054×2 0.068×7	900×3 1200×3 1500×7	7.5	7–14	0 5 10 14	Whole fruit	0.30 0.25 0.23 0.20	0.02 0.02 0.02 0.02	0.32 0.27 0.25 0.22	94301
F-20231 Langenau GER 1985 (Goldparmane)	WP (60 g ai/ kg)	12	0.041×3 0.054×2 0.068×7	900×3 1200×3 1500×7	7.5	7–14	0 6 10 14	Whole fruit	0.12 0.02 0.02 0.03	0.01 < 0.01 < 0.01 < 0.01	0.13 0.03 0.03 0.04	94301
F-20241 Hattersheim GER 1985 (Roter Cox)	WP (60 g ai/ kg)	12	0.041×3 0.054×2 0.068×7	900×3 1200×3 1500×7	7.5	7–14	0 5 10 14	Whole fruit	0.08 0.11 0.08 0.07	< 0.01 0.01 0.02 0.02	0.09 0.12 0.10 0.09	94301
F-20211 Roenne Harburg GER 1985 (Golster)	WP (60 g ai/ kg)	12	0.054×3 0.072×2 0.090×7	900×3 1200×3 1500×7	10	7–14	0 5 10 14	Whole fruit	0.18 0.19 0.12 0.13	0.01 0.01 0.01 0.02	0.19 0.20 0.13 0.15	94301
F-20212 Elbstorf–Harburg GER 1985 (Golden Delicious)	WP (60 g ai/ kg)	12	0.054×3 0.072×2 0.090×7	900×3 1200×3 1500×7	10	7–14	0 5 10 14	Whole fruit	0.16 0.15 0.10 0.18	< 0.01 0.01 < 0.01 0.02	0.17 0.16 0.11 0.20	94301
F-20221 Pfeddersheim West GER 1985 (Golden Delicious)	WP (60 g ai/ kg)	12	0.054×3 0.072×2 0.090×7	900×3 1200×3 1500×7	10	7–14	0 5 10 14	Whole fruit	0.42 0.38 0.24 0.30	0.02 0.02 0.02 0.02	0.44 0.40 0.26 0.32	94301
F-20231 Langenau GER 1985 (Goldparmane)	WP (60 g ai/ kg)	12	0.054×3 0.072×2 0.090×7	900×3 1200×3 1500×7	10	7–14	0 6 10 14	Whole fruit	0.14 0.09 0.17 0.10	< 0.01 0.01 0.02 0.02	0.15 0.10 0.19 0.12	94301
F-20241 Hattersheim West GER 1985 (Roter Cox)	WP (60 g ai/ kg)	12	0.054×3 0.072×2 0.090×7	900×3 1200×3 1500×7	10	7–14	0 5 10 14	Whole fruit	0.14 0.13 0.12 0.09	0.01 0.02 0.02 0.02	0.15 0.15 0.14 0.11	94301
4218531, La Reole Southern	WP (60 g ai/	16	0.043–0.050	960–1080	4.5	–	4	Whole fruit	–	–	0.05	24188 8

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FRA, 1985 (Belle de Boskoop)	kg)		0.060–0.065		6.0			Whole fruit	–	–	0.08	
4618420 Estillac Southern FRA, 1984 (Golden Delicious)	EW (70 g ai/L)	10	0.029–0.072	130–320	22.5	14–19	23	Whole fruit	–	–	0.04	241898
4618420 Estillac Southern FRA, 1984 (Golden Delicious)	WP (400 g ai/kg)	10	0.029–0.072	130–320	22.5	14–19	23	Whole fruit	–	–	0.04	241899
FRG72F01 St Antoine de Breuilh Southern FRA, 1986 (Jonnee)	WP (22.5 g ai/L)	10	0.03	670	4.5	10–22	7	Whole fruit	–	–	0.05	242044
FRG77F4 Liguieres de Touraine Northern FRA, 1986 (Golden Delicious)	WP (22.5 g ai/L)	13	0.04	900	4.5	9–19	26	Whole fruit	–	–	0.04	242046
DEU86F21211 Elbstorf GER, 1986 (Golden Delicious)	WP (60 g ai/L)	12	0.090	500	18	8–10	0 7 14 21 28	Whole fruit	0.25 0.21 0.09 0.16 0.10	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.26 0.22 0.10 0.17 0.11	242051
DEU86F21221 Pfeddersheim GER, 1986 (Golden Delicious)	WP (60 g ai/L)	12	0.090	500	18	8–10	0 7 14 21 28 14 14	Whole fruit Juice Wet pomace	0.21 0.18 0.15 0.16 0.13 0.02 0.08	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.22 0.19 0.16 0.17 0.14 0.03 0.09	242051
DEU86F21231 Langeman GER, 1986 (Gold–parmaene)	WP (60 g ai/L)	12	0.090	500	0.018	8–10	0 7 14 21 28	Whole fruit	0.19 0.16 0.11 0.07 0.09	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.20 0.17 0.12 0.08 0.10	242051
DEU86F21241 Mainz-Drais GER, 1986 (Golden Delicious)	WP (60 g ai/L)	12	0.090	500	18	8–10	0 7 14 21 28 14 14	Whole fruit Juice Wet pomace	0.23 0.34 0.35 0.28 0.19 0.04 0.23	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.24 0.35 0.36 0.29 0.20 0.05 0.24	242051
F34.01.86 St Martin de Sescas Southern FRA, 1986 (Golden)	WP (60 g ai/L)	1	0.030	1000	3	–	0 5 9 14 21 28	Whole fruit	– – – – – –	– – – – – –	0.03 0.03 0.02 0.02 0.02 0.01	242060
F34.01.86 St Martin de Sescas Southern FRA, 1986 (Golden)	WP (35 g ai/L)	1	0.035	1000	3.5	–	0 5 9 14 21 28	Whole fruit	– – – – – –	– – – – – –	0.10 0.05 0.04 0.01 < 0.05 < 0.05	242062

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
F34.01.86 St Martin de Sescas Southern FRA, 1986 (Golden)	WP (35 g ai/L)	1	0.045	1000	4.5	–	0 5 9 14 21 28	Whole fruit	– – – – – –	– – – – – –	0.10 0.04 0.04 0.01 < 0.05 0.05	24206 2
F17.01.86 St Seve Southern FRA, 1986 (Jersey Mac)	WP (35 g ai/L)	9	0.035	1000	3.5	13–15	21	Whole fruit	–	–	< 0.05	24206 3
F17.01.86 St Seve Southern FRA, 1986 (Jersey Mac)	WP (35 g ai/L)	9	0.045	1000	4.5	13–15	21	Whole fruit	–	–	< 0.05	24206 3
427/84/09 Colchester Essex, England, 1984 (Cox's orange pippin)	EW (60 g ai/L)	9 9	0.12 0.24	2000 2000	6.0 12	– –	0 14 34 0 14 34	Whole fruit	0.22 0.25 0.04 0.39 0.22 0.10	– – – – – –	– – – – – –	24216 1
427/84/06 Faversham Kent, England, 1984 (Cox's orange pippin)	WP (400 g ai /kg)	7	0.030	500	6.0	–	51	Whole fruit	0.07	–	–	24216 1
427/84/05 Ashford, Kent England, 1984 (Cox's orange pippin)	EW (60 g ai/L)	6 6	0.12 0.24	2000 2000	6.0 12	– –	0 7 14 21 28 35 42 0 7 14 21 28 35 42	Whole fruit	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.02 0.01 0.02 0.01 0.01 0.01 0.01	– – – – – – – – – – – – – –	– – – – – – – – – – – – – –	24216 1
427/84/04 Faversham Kent, England 1984 (Cox's orange pippin)	WP (400 g ai /kg)	9 9	0.12 0.24	2000 2000	6.0 12	– –	33 33	Whole fruit	0.06 0.08	– –	– –	24216 1
427/84/04 Faversham Kent, England 1984 (Cox's orange pippin)	EC (125 g ai /L)	9	0.24	2000	12	–	33	Whole fruit	0.08	–	–	24216 1
427/84/03 Loughall Armagh, N. Irelang, 1984 (Bramley seedling)	WP (400 g ai /kg)	9	0.065	1100	6.0	–	48	Whole fruit	0.04	– –	– –	24216 1
427/84/02 Bristol Avon,	WP (400 g ai	8	0.17	2800	6.0	–	14 72	Whole fruit	0.09 0.02	– –	– –	24216 1

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
England 1984 (Cox's orange pippin)	/kg)											
427/84/01 Maidstone, Kent, England 1984 (Cox's orange pippin)	WP (400 g ai /kg)	7	0.12	2000	6.0	–	14 42	Whole fruit	0.19 0.11	– –	– –	24216 1
Colchester Essex, England, 1985 (Cox's orange pippin)	WP (400 g ai /kg)	10 10	0.09 0.18	2000 2000	4.5 9.0	– –	20 20	Whole fruit	0.24 0.35	0.02 0.03	0.26 0.38	24216 1
Selling, Kent England, 1985 (Cox's orange pippin)	WP (400 g ai /kg)	10 10	0.09 0.18	2000 2000	4.5 9.0	– –	25 25	Whole fruit	0.13 0.19	0.02 0.03	0.15 0.22	24216 1
Ledbury Gloucester-shire, England, 1985 (Cox's orange pippin)	EW (60 g ai/ L)	10 10	0.09 0.18	2000 2000	4.5 9.0	– –	31 31	Whole fruit	0.06 0.07	0.01 0.01	0.07 0.08	24216 1
Wisbech Cambridge-shire, England, 1985 (Bramley seedling)	WP (400 g ai /kg)	10 10	0.09 0.18	2000 2000	4.5 9.0	– –	34 34	Whole fruit	0.03 0.03	0.01 0.01	0.04 0.04	24216 1
Ledbury Gloucester-shire, England, 1985 (Cox's orange pippin)	WP (400 g ai /kg)	10 10	0.09	600	15	–	0 14 48	Whole fruit	0.23 0.12 0.08	0.01 0.01 0.01	0.24 0.13 0.09	24216 1
Wisbech Cambridge-shire, England, 1985 (Bramley seedling)	WP (400 g ai /kg)	10	0.09	1100	8.0	–	0 12 40	Whole fruit	0.08 0.05 0.03	0.01 0.01 < 0.01	0.09 0.06 0.04	24216 1
Colchester Essex, England, 1985 (Cox's orange pippin)	WP (400 g ai /kg)	11	0.09	500	18	–	0 14 48	Whole fruit	0.24 0.08 0.04	0.01 0.01 < 0.01	0.25 0.09 0.05	24216 1
Rainham, Kent England, 1985 (Cox's orange pippin)	WP (400 g ai /kg)	14	0.09	500	18	–	0 14 42	Whole fruit	0.18 0.09 0.04	0.01 0.01 < 0.01	0.19 0.10 0.05	24216 1
Selling, Kent England, 1985 (Cox's orange pippin)	WP (400 g ai /kg)	14	0.045– 0.09	500 500	9.0 18	– –	0 14 36	Whole fruit	0.09 0.04 0.03	0.01 0.01 < 0.01	0.10 0.05 0.04	24216 1
FRG72F06 Lignieres de Touraine, FRA	WP (225 g ai /kg)	11	0.075	1650	4.5	–	26	Whole fruit	–	–	0.03	24216 1
4048706/1 Montebello della Battaglia PV, ITA, 1987	WP (175 g ai /kg)	14	0.045– 0.063	1300– 1800	3.5	6–15	15	Whole fruit	0.13	< 0.01	0.14	24216 1

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
(Cooper-4)												
4048706/3 Montebello della Battaglia PV, ITA, 1987 (Cooper-4)	WP (350 g ai /kg)	14	0.045–0.063	1300–1800	3.5	6–15	15	Whole fruit	0.14	< 0.01	0.15	242161
4048706/1 Montebello della Battaglia PV, ITA, 1987 (Cooper-4)	WP (175 g ai /kg)	15	0.045–0.063	1300–1800	3.5	6–15	15	Whole fruit	0.13	< 0.01	0.14	242161
4048706/4 Montebello della Battaglia PV, ITA, 1987 (Cooper-4)	WP (350 g ai /kg)	15	0.045–0.063	1300–1800	3.5	6–15	30	Whole fruit	0.09	< 0.01	0.10	242161

[a] Residues found in control sample.
[b] Sampling error.
[c] Not analysed.

Pears

A total of 25 trials on pear were conducted in different representative growing areas in Belgium, Canada, Chile, France, Italy, Spain and USA during 1984 through 2011 growing seasons. Results of pear fruits are summarized in Table 52.

Table 52 Supervised trials on pear in various countries

Trial ID/Location Country/Year (variety)	Form No.	No. of Appls	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
85-0412 Medford, OR USA 1985 (Bartlett)	WP (40 %W/W)	8	0.22	3741	–	–	22	Whole fruit	0.07	0.07	0.14	94327
85-0393 Orefield, PA USA 1985 (Bartlett)	WP (40 %W/W)	8	0.28	3741	–	–	7 14	Whole fruit Whole fruit	0.20 0.11	0.08 0.07	0.28 0.18	94327
85-0356 Hood River OR, USA, 1985 (U'Anjuu)	WP (40 %W/W)	7	0.22	2806	–	–	17	Whole fruit	0.26	0.02	0.28	94327
85-0314 Newtown, PA USA 1985 (Bartlett)	WP (40 %W/W)	13	0.27	3741	–	–	7 14 21	Whole fruit Whole fruit Whole fruit	0.16 0.11 0.06	0.07 0.07 0.05	0.23 0.18 0.11	94327
85-0421 Lansing, MI USA 1985 (Bartlett)	WP (40 %W/W)	8	0.28	2806	–	–	7 14 21	Whole fruit Whole fruit Whole fruit	0.42 0.20 0.13	0.09 0.10 0.09	0.51 0.30 0.22	94327
4738625 Veneto, ITA 1986 (Kaiser)	EC (125 g ai/L)	3	0.35–0.070	1000–2000	3.5	14–20	16	Whole fruit	0.23	< 0.01	0.24	94390

Trial ID/Location Country/Year (variety)	Form No.	No. of Appls	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
4738625 Veneto, ITA 1986 (Abate)	EC (125 g ai/L)	3	0.035–0.070	1000–2000	3.5	14–20	16	Whole fruit	0.23	< 0.01	0.24	94390
4918751A Valencia ESP, 1987 (Castell)	EC (125 g ai/L)	3	0.10	2000	5	26–28	27	Whole fruit	–	–	0.03	242161
4918751A Valencia ESP, 1987 (Castell)	EC (125 g ai/L)	3	0.12	2000	6	26–28	27	Whole fruit	–	–	0.04	242161
4918751B Valencia ESP, 1987 (Castell)	EC (125 g ai/L)	3	0.12	2000	6	26–28	27	Whole fruit	–	–	0.05	242161
56, Kentville, NS, CAN, 2005 (Bartlett)	WP (400 g ai/L)	6	0.134–0.139	1379–1444	9.3–9.8	6–8	14	Whole fruit	0.27	0.10	0.37	2017298
57, Jordan Station ON, CAN, 2005 (Bartlett)	WP (400 g ai/L)	6	0.135–0.137	1084–1107	12.4–12.5	6–9	14	Whole fruit	0.05	0.07	0.12	2017298
58, Jordan Station, ON, CAN, 2005 (Bosc)	WP (400 g ai/L)	6	0.135–0.136	1090–1096	12.4	6–7	14	Whole fruit	0.09	0.01	0.10	2017298
59, Vineland Station, ON CAN, 2005 (Swiss Bartlett)	WP (400 g ai/L)	6	0.139–0.142	1127–1150	12.3–12.4	6–9	14	Whole fruit	0.08	0.08	0.16	2017298
85-0120 Rosario CHL, 1984 (Triumph)	WP (40 %W/W)	8	0.12	–	–	–	60	Whole fruit	0.03	< 0.01	0.04	94327
85-0120 Rosario CHL, 1984 (Triumph)	WP (40 %W/W)	8	0.25	–	–	–	60	Whole fruit	0.05	0.01	0.06	94327
CEMS-4638C Languedoc-Roussillon, Southren FRA, 2010 (Conference)	EW (45 g ai/L)	3	0.065–0.073	1060.3–1198.4	6.1	10	14	Whole fruit	0.28	0.01	0.29	2017192
CEMS-4638D Valencia ESP, 2010 (Ercolini)	EW (45 g ai/L)	3	0.065–0.069	1151.2–1226	5.6	10	14	Whole fruit	0.03	0.02	0.05	2017192
CEMS-4638G Burgundy, FRA, 2010 (Conference)	EW (45 g ai/L)	3	0.066–0.067	491–501.6	13.4	9–11	14	Whole fruit	0.10	0.01	0.11	2017192
CEMS-4638H Nodebais, BEL, 2010 (Conference)	EW (45 g ai/L)	3	0.065–0.069	1203.7–1283.1	5.4	10–11	13	Whole fruit	0.04	0.01	0.05	2017192
CEMS-4943C Languedoc-Roussillon, FRA, 2011 (Conference)	EW (45 g ai/L)	3	0.084–0.089	1101.6–1163.5	7.6	10–11	14	Whole fruit	0.32	0.03	0.35	2019282

Trial ID/Location Country/Year (variety)	Form No.	No. of Appls	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
CEMS-4943D Valencia, ESP, 2011 (Ercolini)	EW (45 g ai/L)	3	0.066–0.084	1157.7–1216.3	5.5–6.9	10–11	13	Whole fruit	0.03	0.02	0.05	2019282
CEMS-4943G Burgundy, FRA, 2011 (Conference)	EW (45 g ai/L)	3	0.067	496.8–498.9	13.4	10	14	Whole fruit	0.05	0.01	0.06	2019282
CEMS-4943H Nodebais, BEL, 2011 (Conference)	EW (45 g ai/L)	3	0.064–0.066	1193.1–1209	5.4	10–11	14	Whole fruit	0.06	0.01	0.07	2019282
491875A Valencia ESP, 1987 (Castell)	EC (125 g ai/L)	3 3	0.10 0.12	2000 2000	5.0 6.0	26–28	27 27	Whole fruit Whole fruit	– –	– –	0.03 0.04	242147

Stone fruits

Peaches

A total of 25 trials on <u>peach</u> were conducted in different representative growing areas in Canada, France, Greece, Italy, Spain and USA during 1984 through 2011 growing seasons. Results of peach fruits are summarized in Table 53.

Table 53 Supervised trials on peach in variuos countries

Trial ID/Location Country/Year (variety)	Form	No. of Appls	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
84-0434, NC USA 1984 (Norman)	WP (40% W/W)	11	0.28	1871	–	–	1	Fruit, pitted	1.36	0.35	1.71	94349
85-0402, CA USA 1985 (Carnival)	WP (40% W/W)	4	0.28	3741	–	5–8 (app # 3 at 178 day interval)	6	Fruit, pitted	0.32	0.01	0.33	94357
87-0172, Traver, CA USA 1987 (June Lady)	DF (60% W/W)	7	0.21	3666	–	8–27	0 7 14 20	Fruit, pitted Fruit, pitted Fruit, pitted Fruit, pitted	0.74 0.36 0.24 0.11	0.17 0.25 0.22 0.11	0.91 0.61 0.46 0.22	94363 94328
87-0235, Laton, USA, 1987 (Loadel)	DF (60% W/W)	7	0.21	3666	–	16–38	0 7	Fruit, Pitted (0 day PHI) Fruit, pitted	0.66 0.27	0.10 0.18	0.76 0.45	94363 94328
87-0235, Laton, USA, 1987 (Loadel)	DF (60% W/W)	7	0.43	3666		16–38	0	Fruit, Pitted (0 day PHI)	1.86	0.18	2.04	94363 94328
87-0490, Ripon, CA USA 1987 (Fay Elberta)	DF (60% W/W)	9	0.21	2806	–	14–30	0 7	Fruit, Pitted (0 day PHI) Fruit, pitted	0.38 0.23	0.17 0.15	0.55 0.38	94363 94328

Trial ID/Location Country/Year (variety)	Form	No. of Appls	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
87-0165, Clarksville, AR, USA, 1987 (Redhaven)	DF (60% W/W)	9	0.21	935.3	–	6–15	0 7	Fruit, Pitted (0 day PHI) Fruit, pitted	0.33 0.21	0.02 0.10	0.35 0.31	94363 94328
87-0165, Clarksville, AR, USA, 1987 (Redhaven)	DF (60% W/W)	9	0.43	935.3	–	6–15	0	Fruit, Pitted (0 day PHI)	0.35	0.09	0.44	94363 94328
87-0243, Jackson SPR, NC, USA, 1987 (Winblo)	DF (60% W/W)	10	0.21	1871	–	6–15	0 7	Fruit, Pitted (0 day PHI) Fruit, pitted	0.84 0.84	0.28 0.69	1.12 1.53	94363 94328
87-0554, New Franklin USA 1987 (July Elberta)	DF (60% W/W)	11	0.21	187	–	7–14	0	Fruit, Pitted (0 day PHI)	0.62	0.20	0.82	94363 94328
87-0372 Winchester, VA, USA, 1987 (Red Haven)	DF (60% W/W)	9	0.14–0.21	1871	–	7–20	0	Fruit, Pitted (0 day PHI)	0.85	0.21	1.06	94363 94328
87-0372 Winchester, VA, USA, 1987 (Red Haven)	DF (60% W/W)	9	0.28–0.42	1871	–	7–20	0	Fruit, Pitted (0 day PHI)	1.77	0.32	2.09	94363 94328
87-0274, PA USA 1987 (Sunhigh)	DF (60% W/W)	8	0.22	2806	–	7–32	0 7	Fruit, Pitted (0 day PHI) Fruit, pitted	1.23 0.45	0.31 0.46	1.54 0.91	94363 94328
87-0274, PA USA 1987 (Sunhigh)	DF (60% W/W)	8	0.45	2806	–	7–32	0	Fruit, Pitted (0 day PHI)	3.22	0.52	3.74	94363 94328
88-0142, GA USA 1988 (June Gold)	DF (60% W/W)	7	0.21	2806	–	10–11	14	Fruit, pitted	0.15	0.16	0.31	94363 94328
88-0143, GA USA 1988 (June Gold)	EC (25.8% W/W)	7	0.21	2806	–	10–11	14	Fruit, pitted	0.17	0.17	0.34	94363 94328
88-0144, GA USA 1988 (June Gold)	SYSTHANE (40 %W/W)	7	0.21	2806	–	10–11	14	Fruit, pitted	0.12	0.10	0.22	94363 94328
88-0249, Centreville, GA, USA, 1988 (Loring)	EC (25.8% W/W)	7	0.21	2806	–	14–19	14	Fruit, pitted	0.07	0.08	0.15	94363 94328
88-0250 Centreville, GA, USA, 1988 (Loring)	WP (40 %W/W)	7	0.21	2806	–	14–19	14	Fruit, pitted	0.07	0.09	0.16	94363 94328

Trial ID/Location Country/Year (variety)	Form	No. of Appls	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
88-0251 Centreville, GA, USA, 1988 (Loring)	DF (60% W/W)	7	0.21	2806	–	14–19	14	Fruit, pitted	0.13	0.18	0.31	94363 94328
89-0319, Byron, GA USA 1989 (Rio Osa Gem)	WP (40 %W/W)	7	0.21	393	–	4–39	14	Fruit, pitted	0.14	0.14	0.28	94363 94328
89-0319, Marysville, CA, USA, 1989 (Lodell)	WP (40 %W/W)	7	0.21	2338	–	4–39	14	Fruit, pitted	0.19	0.24	0.43	94363 94328
89-0163 Byron, GA USA 1989 (Rio Osa Gem)	WP (40 %W/W)	7	0.21	468	–	9–16	14	Fruit, pitted	0.10	0.13	0.23	94363 94328
89-0163 Byron, GA USA 1989 (Rio Osa Gem)	WP (40 %W/W)	7	0.21	2338	–	9–16	14	Fruit, pitted	0.16	0.13	0.29	94363 94328
91-0033, Farmersville, CA, USA, 1991 (Queen Crest)	WP (40 %W/W)	2	0.14	196	–	14	5	Fruit, pitted	0.06	0.03	0.09	94363 94328
91-0033, Farmersville, CA, USA, 1991 (Queen Crest)	WP (40 %W/W)	2	0.14	870-889	–	14	5	Fruit, pitted	0.14	0.07	0.21	94363 94328
87-0556, New Franklin, MO USA 1987 (Red Haven)	DF (60% W/W)	11	0.43	187	–	7–14	7 14	Fruit, pitted Fruit, pitted	1.10 0.65	0.40 0.49	1.50 1.14	94353
87-0557, New Franklin, MO USA 1987 (Loring)	DF (60% W/W)	11	0.43	187	–	7–14	7 14	Fruit, pitted Fruit, pitted	0.94 0.65	0.22 0.28	1.16 0.91	94353
87-0165, Clarksville, AR, USA, 1987 (Redhaven)	DF (60% W/W)	9	0.21	935.3	–	6–15	0 7 14	Fruit, Pitted (0 day PHI) Fruit, pitted Fruit, pitted	0.34 0.18 0.10	0.03 0.04 0.04	0.37 0.22 0.14	94354
87-0172, Traver, CA USA 1987 (June Lady)	DF (60% W/W)	7	0.21	3666	–	8–27	0 7 14	Fruit, pitted Fruit, pitted Fruit, pitted	0.75 0.28 0.23	0.07 0.06 0.06	0.82 0.34 0.29	94354

Trial ID/Location Country/Year (variety)	Form	No. of Appls	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
87-0235, Laton, USA, 1987 (Loadel)	DF (60% W/W)	7	0.43	3666		16–38	7 14	Fruit, Pitted Fruit, Pitted	0.30 0.24	0.11 0.11	0.41 0.35	94355
87-0274, PA USA 1987 (Sunhigh)	DF (60% W/W)	8	0.45	2806	–	7–32	7	Fruit, Pitted	0.48	0.21	0.69	94355
87-0243, Jackson SPR, NC, USA, 1987 (Winblo)	DF (60% W/W)	10	0.21	1871	–	6–15	0 7 14 21	Fruit, Pitted (0 day PHI) Fruit, pitted Fruit, pitted Fruit, pitted	1.40 0.90 0.38 0.63	0.18 0.25 0.29 0.37	1.58 1.15 0.67 1.00	94362
RF 2072 14-2 Rhone Southern FRA, 1992 (Gilda)	EC (75 g ai/L)	7	–	500	0.0038	7–16 (app # 6 at 82 day interval)	2	Whole fruit	-	-	0.03	241980
4839322 Verona, ITA 1993 (Maria Bianca)	EC (125 g ai/L)	4	0.063 – 0.116	1012–1855	6.25	9–11	0 7 14	Whole fruit	0.24 0.10 0.04	0.04 0.05 0.03	0.28 0.15 0.07	242018
RAS/31/1/I Lombardia ITA, 1997 (Spring Lady)	EC (240 g ai/L)	5	0.077 – 0.117	1023–1561	7.48–7.60	13–15	0 3 7 0 3 7	Flesh Whole fruit 	0.08 0.11 0.05 0.07 0.09 0.04	0.01 0.01 < 0.01 0.01 0.01 < 0.01	0.09 0.12 0.06 0.08 0.10 0.05	241821
RAS/31/2/I Lombardia ITA, 1997 (Maycrest)	EC (240 g ai/L)	5	0.076 – 0.117	1008–1565	7.48–7.49	13–16	0 3 7 0 3 7	Flesh Whole fruit 	0.23 0.09 0.06 0.21 0.08 0.06	0.02 0.03 0.02 0.01 0.03 0.02	0.25 0.12 0.08 0.22 0.11 0.08	241821
RAS/31/1/G East Peloponese GRC, 1997 (Maycrest)	EC (240 g ai/L)	5	0.097 – 0.112	1299–1503	7.46–7.47	10–12	0 3 7 0 3 7	Flesh Whole fruit 	0.34 0.24 0.14 0.30 0.22 0.13	0.02 0.03 0.04 0.02 0.02 0.04	0.36 0.27 0.18 0.32 0.24 0.17	241821
RAS/31/3/I Veneto, ITA 1997 (La Fayette)	EC (240 g ai/L)	5	0.091 – 0.114	1222–1523	7.49	10–11	0 3 7 0 3 7	Flesh Whole fruit 	0.26 0.10 0.05 0.23 0.10 0.05	0.01 0.02 0.01 0.01 0.02 0.01	0.27 0.12 0.06 0.24 0.12 0.06	241821
CEMS-4944A Piedmont ITA, 2011 (Rome star)	EW (45 g ai/L)	3	0.089 – 0.091	987.62 – 1014.29	9	10–11	< 0 0 3 6 15 < 0 0 3 6 15	Flesh Whole Fruit (calculated) 	0.05 0.09 0.09 0.08 0.03 0.04 0.09 0.09 0.07 0.03	< 0.01 < 0.01 0.01 0.01 0.01 < 0.01 < 0.01 0.01 0.01 0.01	0.06 0.10 0.10 0.09 0.04 0.05 0.10 0.10 0.08 0.04	2017646

Trial ID/Location Country/Year (variety)	Form	No. of Appls	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
CEMS-4944F Languedoc-Roussillon Southern FRA, 2011 (Western Red)	EW (45 g ai/L)	3	0.091 – 0.094	1015.6 – 1046.7	9	9–11	< 0 0 3 7 14 < 0 0 3 7 14	Flesh Whole Fruit (calculated)	0.06 0.12 0.10 0.06 0.04 0.05 0.11 0.09 0.05 0.04	0.02 0.02 0.02 0.01 0.03 0.02 0.02 0.02 0.01 0.03	0.08 0.14 0.12 0.07 0.07 0.07 0.13 0.11 0.06 0.07	2017646
RF 2072 Rhone Southern FRA, 1992 (Corine)	EC (75 g ai/L)	5	–	500	3.75	8–16	42	Whole fruit	–	–	< 0.02	241979
93FARRS02 Noves FRA, 1993 (Snow Queen)	EC (125 g ai/L)	4	0.0625	300	62.5	10–14	0 8 15	Whole fruit	0.22 0.10 0.04	0.07 0.04 0.05	0.29 0.14 0.09	241995
93FARRS03 Cabannes FRA, 1993 (Super Crimson Gold)	EC (125 g ai/L)	4	0.0625	300	62.5	12–14	0 7 14	Whole fruit	0.08 0.03 0.02	0.03 0.02 0.02	0.11 0.05 0.04	241994
97RHC09-C British Col CAN, 1997 (NA)	WP (40 %W/W)	6	0.12–0.15	2178–2480	5.4–6.1	7–9 (app # 4 at 72 day interval)	1	Fruit, pitted	0.28	–	–	135366
97RHC09-F Ontario CAN, 1997 (Viglo)	WP (40 %W/W)	6	0.13–0.14	936.5–1025	13.6	7–12 (app # 4 at 84 day interval)	1	Fruit, pitted	0.44	–	–	135366
97RHC09-G Ontario CAN, 1997 (Viglo)	WP (40 %W/W)	6	0.13–0.14	945–1034.5	13.5–13.6	9–21 (app # 4 at 48 day interval)	1	Fruit, pitted	0.24	–	–	135366
97RHC09-H Ontario CAN, 1997 (Viglo)	WP (40 %W/W)	6	0.12–0.14	905.5–1029	13.4–13.6	9–15 (app # 4 at 48 day interval)	1	Fruit, pitted	0.39	–	–	135366
S06W046R Valencia ESP, 2006 (Royal Gladys)	EW (200 g ai/L)	6	0.13	1796–1810	7.2	9–12	< 0 0 7 14 21 27 < 0 0 7 14 21 27	Flesh Whole fruit	0.18 0.44 0.19 0.11 0.08 0.05 0.15 0.37 0.16 0.09 0.07 0.05	0.04 0.05 0.04 0.04 0.03 0.03 0.03 0.04 0.03 0.04 0.03 0.03	0.22 0.49 0.23 0.15 0.11 0.08 0.18 0.41 0.19 0.13 0.10 0.08	2009589
F06W066R Languedoc-Roussillon Southern FRA, 2006 (Western Red)	EW (200 g ai/L)	6	0.13–0.14	1773–1966	7.2	9–11	7 7	Flesh Whole fruit	0.11 0.09	0.03 0.03	0.14 0.12	2009589

Trial ID/Location Country/Year (variety)	Form	No. of Appls	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
F07W074R Languedoc-Roussillon Southern FRA, 2007 (Tardibelle)	EW (200 g ai/L)	6	0.12–0.13	1583–1813	7.5	9–12	< 0 0 3 7 14 21	Whole fruit	0.09 0.28 0.22 0.11 0.07 0.04	0.03 0.03 0.04 0.03 0.03 0.02	0.12 0.31 0.26 0.14 0.10 0.06	2000789
CEMS-4639A Piedmont ITA, 2010 (Rome star)	EW (45 g ai/)	3	0.060–0.061	997.1–1017.1	6.0	10	< 0 0 3 7 14 < 0 0 3 7 14	Flesh Whole Fruit (calculated)	0.04 0.05 0.05 0.03 0.01 0.03 0.05 0.05 0.03 0.01	0.01 < 0.01 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.05 0.06 0.06 0.04 0.02 0.04 0.06 0.06 0.04 0.02	2017193
CEMS-4639B Languedoc-Roussillon Southern FRA, 2010 (Western Red)	EW (45 g ai/)	3	0.058–0.060	961.7–998.3	6.0	10	< 0 0 3 7 14 < 0 0 3 7 14	Flesh Whole Fruit (calculated)	0.06 0.18 0.12 0.08 0.05 0.05 0.15 0.10 0.07 0.04	0.02 0.01 0.02 0.02 0.02 0.02 0.01 0.01 0.02 0.02	0.08 0.19 0.14 0.10 0.07 0.07 0.16 0.11 0.09 0.06	2017193
4918518 Lleida, ESP 1985 (Catarina)	WP (60 g ai/L)	5	0.108 0.081	1800 1800	6.0 4.5	15–17	20 20	Whole fruit Whole fruit	– –	– –	0.03 0.02	241918
4318660 Ginesta Southern FRA, 1986 (Cans)	EC (125 g ai/L)	8 8 9 9	0.05 0.075 0.05 0.075	1000 1000 1000 1000	5.0 7.5 5.0 7.5	13–20	23 23 9 9	Whole fruit w/o stone	– – – –	– – – –	0.05 0.07 0.02 0.07	242050
4318740b Le Somail Southern FRA, 1987 (Cans)	EC (75 g ai/L)	7	0.056	1000	5.6	13–26	7 14 7 14	Whole fruit w/o stone Whole fruit with stone	– – – –	– – – –	0.25 0.12 0.20 0.10	242131
F91.01.87 St Martin de Grau, Southern FRA, 1987 (Henry)	EC (125 g ai/L)	1	0.062	1200	5.0	–	0 2 4 7 10 14	Whole fruit	– – – – – –	– – – – – –	0.50 0.20 0.20 0.15 0.10 0.10	242144
4918714 Valencia ESP, 1987 (Spring Crees)	EC (125 g ai/L)	3	0.15 0.10	2000 2000	7.5 5.0	13–16	20 20	Whole fruit Whole fruit	– –	– –	0.03 0.03	242145
4918703A Tarragona ESP, 1987 (Catherine)	EC (75 g ai/L)	8	0.045	1000	4.5	6–31	0 4 14 0 4 14	Whole fruit w/o stone Whole fruit with stone	– – – – – –	– – – – – –	0.40 0.10 0.10 0.35 0.10 0.10	242172
F60.04.87 St gilles Southern	EC (125 g ai/L)	10	0.075	400	18	13–22	11	Whole fruit w/o stone	–	–	0.11	242182

Trial ID/Location Country/Year (variety)	Form	No. of Appls	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
FRA, 1987 (Gold 9)							11	Whole fruit with stone	–	–	0.10	
F31.02.86 Bessan Southern FRA, 1986 (O'Henry)	EC (125 g ai/L)	1	0.075	1000	7.5	–	0 5 10 14 21 28 0 5 10 14 21 28	Whole fruit w/o stone Whole fruit with stone	– – – – – – – – – – – –	– – – – – – – – – – – –	0.11 0.05 0.04 0.03 0.03 0.02 0.10 0.05 0.03 0.03 0.02 0.02	242185
4918803 Valencia ESP, 1988 (Coigua)	WP (8 g ai/L)	1 1	0.08 0.12	2500 2500	3.2 4.8	– –	7 7	Whole fruit w/o stone Whole fruit with stone	– – – –	– – – –	0.03 0.04 0.03 0.03	242196

Cherries

A total of 65 trials on cherry were conducted in different representative growing areas in Austria, Belgium, Canada, France, Germany, Hungary, UK and USA during 1984 through 2011 growing seasons. Results of cherry fruits are summarized in Table 54.

Table 54 Supervised trials on cherry in various countries

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
Sour Cherries 84-0166, MI USA 1984 (Mon)	WP (40 %W/W)	5	0.43	–	–	11–15	0	Fruit, pitted	2.64	0.44	3.08	94338
Sour Cherries 84-0210, WI USA 1984 (Montgomery)	WP (40 %W/W)	6	0.42	2806	–	9–15	9	Fruit, pitted	0.56	0.39	0.95	94338
Sour Cherries 84-0210, WI USA 1984 (Montgomery)	WP (40 %W/W)	7	0.42	2806	–	9–15	1	Fruit, pitted	1.00	0.48	1.48	94338
Sour Cherries 88-0026, UT USA 1987 (Montmorency)	DF (60% W/W)	8	0.14	187	–	5–16	14	Fruit, pitted	0.16	0.07	0.23	94335
Sour Cherries 88-0026, UT USA 1987 (Montmorency)	DF (60% W/W)	8	0.28	187	–	5–16	14	Fruit, pitted	0.39	0.07	0.46	94335
Sour Cherries	DF (60%	6	0.21	2806	–	7–19	0	Fruit,	1.04	0.57	1.61	94401

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
87-0262, MI USA 1987 (Montmorency)	W/W)						7	Pitted (0 day PHI) Fruit, pitted	0.77	0.95	1.72	110749
Sour Cherries 87-0262, MI USA 1987 (Montmorency)	DF (60% W/W)	6	0.43	2806	–	7–19	0	Fruit, Pitted (0 day PHI)	2.10	0.95	3.05	94401 110749
Sour Cherries 87-0332, WI USA 1987 (Montmorency)	DF (60% W/W)	6	0.21	1871	–	13–15	0 7	Fruit, Pitted (0 day PHI) Fruit, pitted	1.12 1.01	0.40 0.94	1.52 2.05	94401 110749
Sour Cherries 87-0332, WI USA 1987 (Montmorency)	DF (60% W/W)	6	0.43	1871	–	13–15	7	Fruit, pitted	0.56	0.72	1.28	94401 110749
Sour Cherries 89-0128, PA USA 1989 (Montmorency)	WP (40 %W/W)	6	0.21	468	–	7–14	7	Fruit, pitted	0.02	0.32	0.34	94401 110749
Sour Cherries 89-0128, PA USA 1989 (Montmorency)	WP (40 %W/W)	6	0.21	1684	–	7–14	7	Fruit, pitted	0.02	0.43	0.45	94401 110749
Sweet cherry 87-0108, CA USA 1987 (Bing)	DF (60% W/W)	5	0.21	4882	–	8–19	0 7 15 21	Fruit, pitted	0.68 0.44 0.27 0.16	0.11 0.23 0.21 0.46	0.79 0.67 0.48 0.62	94401 110749
Sweet cherry 87-0111, CA USA 1987 (Bing)	DF (60% W/W)	5	0.21	4882	–	4–15	0 7 15 21	Fruit, Pitted	0.85 0.41 0.22 0.23	0.22 0.19 0.27 0.39	1.07 0.60 0.49 0.62	94401 110749
Sweet cherry 87-0111, CA USA 1987 (Bing)	DF (60% W/W)	5	0.43	4882	–	4–15	0	Fruit, Pitted (0 day PHI)	1.09	0.26	1.35	94401 110749
Sweet cherry 87-0209, OR USA 1987 (Bing)	DF (60% W/W)	5	0.21	921	–	11–19	0 7	Fruit, Pitted	0.20 0.08	0.02 0.05	0.22 0.13	94401 110749
Sweet cherry 87-0209, OR USA 1987 (Bing)	DF (60% W/W)	5	0.43	921	–	11–19	0 7	Fruit, Pitted	0.47 0.15	0.06 0.11	0.53 0.26	94401 110749
Sweet cherry 87-0261, MI USA 1987 (Hedelfinger)	DF (60% W/W)	6	0.21	2806	–	7–19	0 7 14	Fruit, Pitted	1.44 0.44 0.90	0.61 0.69 1.51	2.05 1.13 2.41	94401 110749
Sweet cherry 88-0124, CA USA 1988 (Bing)	DF (60% W/W)	5	0.21	1057	–	7–26	14	Fruit, pitted	0.09	0.09	0.18	94401 110749
Sweet cherry 88-0125, CA USA	EC (25.8 g ai/L)	5	0.21	1057	–	7–26	14	Fruit, pitted	0. 30	0.21	0.51	94401 110749

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
1988 (Bing)												
Sweet cherry 88-0126, CA USA 1988 (Bing)	WP (40 %W/W)	5	0.21	1057	–	7–26	14	Fruit, pitted	0.09	0.10	0.19	94401 110749
Sweet cherry 88-0198, WA USA 1988 (Bing)	DF (60% W/W)	5	0.21	3058	–	14–16	14	Fruit, pitted	0.11	0.15	0.26	94401 110749
Sweet cherry 88-0199, WA USA 1988 (Bing)	EC (25.8 g ai/ L)	5	0.21	–	–	14–16	14	Fruit, pitted	0.05	0.08	0.13	94401 110749
Sweet cherry 88-0197, WA USA 1988 (Bing)	WP (40 %W/W)	5	0.21	3058	–	13–16	14	Fruit, pitted	0.08	0.04	0.12	94401 110749
Sweet cherry 90-0023, ID USA 1989 (Bing)	WP (40 %W/W)	6	0.21	393	–	5–12	14	Fruit, pitted	0.34	0.55	0.89	94401 110749
Sweet cherry 90-0023, ID USA 1989 (Bing)	WP (40 %W/W)	6	0.21	2338	–	5–12	14	Fruit, pitted	0.21	0.39	0.60	94401 110749
Sweet cherry 87-0261, MI USA 1987 (Hedelfinger)	DF (60% W/W)	6	0.21	187	–	7–19	7 14	Fruit, pitted	0.92 0.61	0.60 0.73	1.52 1.34	94331
Sour Cherries 87-0262, MI USA 1987 (Montmorency)	DF (60% W/W)	6	0.21	187	–	7–19	7 14	Fruit, pitted	0.84 0.35	0.58 0.60	1.42 0.95	94331
Sour Cherries 87-0332, WI USA 1987 (Montmorency)	DF (60% W/W)	6	0.21	1871	–	13–15	8 14	Fruit, Pitted Fruit, pitted	0.38 0.19	0.43 0.51	0.81 0.70	94331
Sweet cherry 87-0111, CA USA 1987 (Bing)	DF (60% W/W)	5	0.43	4882	–	4–15	7 15	Fruit, Pitted Fruit, Pitted	0.36 0.53	0.09 0.23	0.45 0.76	94332
Sweet cherry 87-0108, CA USA 1987 (Bing)	DF (60% W/W)	5	0.21	4882	–	8–19	0 7 15 21	Fruit, pitted	0.92 0.45 0.39 0.01	0.13 0.06 0.11 0.01	1.05 0.51 0.50 0.02	94332
Sweet cherry 87-0209, OR USA 1987 (Bing)	DF (60% W/W)	5	0.21	921	–	11–19	0 7 14 21	Fruit, Pitted	0.28 0.19 0.10 0.03	0.04 0.04 0.05 0.03	0.32 0.23 0.15 0.06	94402
Sweet cherry 87-0172, CA USA 1987 (June Lady)	DF (60% W/W)	7	0.21	3666	5.7	8–27	0 7 14 20	Fruit, Pitted	0.75 0.28 0.23 0.11	0.07 0.06 0.06 0.07	0.82 0.34 0.29 0.18	94402
Cherries G07W041R Lower Saxony	EW (200 g ai/L)	3	0.133 – 0.139	1470–1539	9	10, 11	< 0 0 3	Whole fruit	0.06 0.21 0.19	0.03 0.03 0.05	0.09 0.24 0.24	200078 8

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
GER 2007 (Regina)							7 14		0.21 0.06	0.09 0.05	0.30 0.11	
Cherries G07W041R Lower Saxony GER 2007 (Regina)	EW (45 g ai/L)	3	0.128 – 0.136	1457–1545	8.8	10, 11	< 0 0 3 7 14	Whole fruit	0.06 0.19 0.25 0.16 0.07	0.04 0.04 0.06 0.06 0.05	0.10 0.23 0.31 0.22 0.12	2000788
Cherries G07W544R Lower Saxony GER 2007 (Bianca)	EW (200 g ai/L)	3	0.135 – 0.148	1490–1640	9.04	9 , 11	< 0 0 3 7 14 21	Whole fruit	0.07 0.15 0.22 0.13 0.09 0.05	0.04 0.04 0.06 0.06 0.07 0.07	0.11 0.19 0.28 0.19 0.16 0.12	2000788
Cherries G07W544R Lower Saxony GER 2007 (Bianca)	EW (45 g ai/L)	3	0.132 – 0.143	1499–1629	8.8	9, 11	< 0 0 3 7 14 21	Whole fruit	0.09 0.19 0.15 0.12 0.08 0.05	0.04 0.06 0.05 0.07 0.07 0.06	0.13 0.25 0.20 0.19 0.15 0.11	2000788
Sour Cherries R&H/206/1/G Nordrhein–Westfalen GER 1996 (Morellenfeuer)	EW (200 g ai/L)	3	0.134 – 0.136	1482–1510	9	3, 44	0 14 21 21	Flesh Whole fruit	1.20 0.07 0.02 0.01	< 0.01 0.01 < 0.01 < 0.01	1.21 0.08 0.03 0.02	241759
Sour Cherries R&H/206/3/G Neidersachsen GER 1996 (Johanna)	EW (200 g ai/L)	3	0.130 – 0.146	481–538	27	3, 48	0 14 21 21	Flesh Whole fruit	3.81 0.24 0.08 0.07	< 0.01 0.03 < 0.01 < 0.01	3.82 0.27 0.09 0.08	241759
Sweet Cherries R&H/206/2/G Neidersachsen GER 1996 (Johanna)	EW (200 g ai/L)	3	0.136 – 0.142	1508–1583	9	4, 45	0 14 21 21	Flesh Whole fruit	0.75 0.12 < 0.01 < 0.01	< 0.01 0.02 < 0.01 < 0.01	0.76 0.14 < 0.02 < 0.02	241759
Sweet Cherries R&H/206/4/G Brandenburg GER 1996 (Van)	EW (200 g ai/L)	3	0. 134–0.168	498–623	27	3, 35	0 14 21 28 21 28	Flesh Whole fruit	0.40 0.02 < 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.41 0.03 < 0.02 < 0.02 < 0.02 < 0.02	241759
Sour Cherries RAS/19/1/G Rheinland–Pfalz GER 1997 (Schattenmorellen)	EW (200 g ai/L)	3	0.134 – 0.139	1484–1540	9	17, 66	0 14 21 0 14 21	Flesh Whole fruit	0.57 0.13 0.03 0.50 0.11 0.03	< 0.01 0.02 < 0.01 < 0.01 0.02 < 0.01	0.58 0.15 0.04 0.51 0.13 0.04	241820
Sour Cherries RAS/19/3/G Nordrhein–Westfalen GER 1997 (Morellenfeuer)	EW (200 g ai/L)	3	0.134 – 0.138	496–511	27	15, 43	0 14 21 0 14 21	Flesh Whole fruit	0.42 0.12 0.04 0.33 0.11 0.03	< 0.01 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.43 0.13 0.05 0.34 0.12 0.04	241820
Sweet Cherries RAS/19/2/G Niedersachsen GER 1997 (Karina)	EW (200 g ai/L)	3	0.136 – 0.137	1510–1518	9	7, 60	0 14 21 0 14 21	Flesh Whole fruit	0.56 0.22 0.02 0.24 0.13 0.02	< 0.01 0.04 < 0.01 < 0.01 0.02 < 0.01	0.57 0.26 0.03 0.25 0.15 0.03	241820

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
Sweet Cherries RAS/19/4/G Brandenburg GER 1997 (Van)	EW (200 g ai/L)	3	0.134 – 0.139	496–515	27	4, 42	0 14 21 0 14 21	Flesh Whole fruit	0.51 0.17 0.01 0.26 0.11 < 0.01	< 0.01 0.03 < 0.01 < 0.01 0.02 < 0.01	0.52 0.20 0.02 0.27 0.13 < 0.02	241820
Sweet Cherries CEMS-4641F Gyorszentivan HUN 2010, (Germesdorfer)	EW (45 g ai/L)	2	90.4 90.5	1004.3 1004.6	9 9	10	< 0 0 3 7 14 < 0 0 3 7 14	Flesh Whole Fruit (calculated)	0.33 0.75 0.75 0.40 0.29 0.31 0.70 0.70 0.37 0.27	0.10 0.09 0.13 0.15 0.25 0.10 0.08 0.12 0.14 0.23	0.43 0.84 0.88 0.55 0.54 0.41 0.78 0.82 0.51 0.50	2018493
Sweet Cherries CEMS-4641D 4257 Rosoux–Crenwick BEL 2010 (Kordia)	EW (45 g ai/L)	2	90 90.5	1199.4 1207	7.5 7.5	10	6 6	Flesh Whole Fruit (calculated)	0.19 0.18	0.07 0.07	0.26 0.25	2018493
Sweet Cherries CEMS-4641A Herefordshire HR9 7UD GBR 2010 (Sweet Heart)	EW (45 g ai/L)	2	89.2 89.4	495.6 496.4	17.9 17.9	10	< 0 0 3 7 13 < 0 0 3 7 13	Flesh Whole Fruit (calculated)	0.18 0.81 0.56 0.66 0.28 0.17 0.74 0.51 0.61 0.27	0.10 0.10 0.11 0.21 0.17 0.09 0.10 0.10 0.20 0.16	0.28 0.91 0.67 0.87 0.45 0.26 0.84 0.61 0.81 0.43	2018493
Sweet Cherries CEMS-4641B Bayern GER 2010 (Regina)	EW (45 g ai/L)	2	89.2 83.9	1239 1165.3	7.2 7.2	10	< 0 0 3 7 14 < 0 0 3 7 14	Flesh Whole Fruit (calculated)	0.09 0.17 0.14 0.07 0.06 0.08 0.15 0.13 0.06 0.06	0.06 0.04 0.06 0.05 0.08 0.05 0.03 0.05 0.05 0.07	0.15 0.21 0.20 0.12 0.14 0.13 0.18 0.18 0.11 0.13	2018493
Sweet Cherries CEMS-4946C Burgundy FRA, 2011 (Sunburst)	EW (45 g ai/L)	2	0.091	504	18	10	7 7	Flesh Whole Fruit (calculated)	0.27 0.24	0.11 0.10	0.38 0.34	2018481
Sweet Cherries CEMS-4946D Gyorszentivan HUN, 2011 (Germesdorfer)	EW (45 g ai/L)	2	0.090 – 0.091	1001.2 – 1010.3	9	10	7 7	Flesh Whole Fruit (calculated)	0.38 0.31	0.14 0.11	0.52 0.42	2018481
Sweet Cherries CEMS-4946B Upper AUT AUT, 2011 (Regina)	EW (45 g ai/L)	2	0.087 – 0.089	966.2–991.2	9	10	< 0 0 3 7 14 < 0 0 3 7	Flesh Whole Fruit (calculated)	0.08 0.14 0.18 0.09 0.10 0.07 0.12 0.16 0.08	0.05 0.03 0.06 0.05 0.07 0.04 0.03 0.05 0.04	0.13 0.17 0.24 0.14 0.17 0.11 0.15 0.21 0.12	2018481

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
							14		0.09	0.06	0.15	
Sweet Cherries CEMS-4946A Herefordshire, HR9 7UD GBR 2011 (Sweet Heart)	EW (45 g ai/L)	2	0.090	498	18	11	< 0 0 3 8 14 < 0 0 3 8 14	Flesh Whole Fruit (calculated)	0.12 0.70 0.44 0.22 0.16 0.10 0.54 0.35 0.18 0.13	0.11 0.10 0.09 0.11 0.12 0.09 0.08 0.08 0.09 0.10	0.23 0.80 0.53 0.33 0.28 0.19 0.62 0.43 0.27 0.23	2018481
Sweet Cherries 97RHC09-B British Col CAN, 1997 (Sunburst)	WP (40 %W/W)	6	0.125 – 0.154	2293–2503	5.5–6.1	7 (app #4 at 39 day int)	1	Fruit, pitted	0.32	–	–	135366
Sweet Cherries 97RHC09-A British Col CAN, 1997 (Lapins)	WP (40 %W/W)	6	0.131 – 0.152	1706–1992	7.6–7.7	7–10 (app # 4 at 31 day int)	1	Fruit, pitted	0.64	–	–	135366
Sweet Cherries 97RHC09-E Ontario CAN, 1997 (690618)	WP (40 %W/W)	6	0.127 – 0.145	958.5–1065	13.6	10–15	1	Fruit, pitted	0.19	–	–	135366
DEU87F21111, Elbstorf GER 1987 (Schatten–morelle)	WP (60 g ai/L)	2	0.090	1000	9.0	–	35 49 63 83	Whole fruit	0.01 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01	0.02 0.02 < 0.02 < 0.02	242171
DEU87F21131, Langenau GER 1987 (Schatten–morelle)	WP (60 g ai/L)	2	0.090	1000	9.0	–	73 80 87 94	Whole fruit	< 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01	< 0.02 < 0.02 < 0.02 < 0.02	242171
DEU87F20531, Langenau GER 1988 (Schatten–morelle)	WP (60 g ai/L)	3	0.090	1000	9.0	–	0 7 14 21 28	Whole fruit	0.38 0.09 0.04 0.02 0.01	< 0.01 0.04 < 0.01 < 0.01 < 0.01	0.39 0.13 0.05 0.03 0.02	242171
DEU87F20541, Kloppenheim GER 1988 (Schatten–morelle)	WP (60 g ai/L)	3	0.135	1500	9.0	–	0 7 14 21 27	Whole fruit	0.49 0.23 0.08 0.05 0.02	< 0.01 0.02 < 0.01 < 0.01 < 0.01	0.50 0.25 0.09 0.06 0.03	242171
DEU87F20511, Drage GER 1988 (Schatten–morelle)	WP (60 g ai/L)	3	0.135	1000	9.0	–	0 7 14 21 28	Whole fruit	0.45 0.03 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.46 0.04 0.02 < 0.02 < 0.02	242171
DEU87F20521, Bornheim GER 1988 (Schatten–morelle)	WP (60 g ai/L)	3	0.135	1500	9.0	–	0 7 14 21 28	Whole fruit	0.43 0.23 0.09 0.02 0.01	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.44 0.24 0.10 0.03 0.02	242171
DEU87F20111, Elbstorf GER 1987 (Schatten–	WP (60 g ai/L)	3	0.090	1000	9.0	–	0 7 14 21	Whole fruit	0.46 0.02 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01	0.47 0.03 0.02 < 0.02	242171

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
morelle)												
DEU87F20131, Langenau GER 1987 (Schatten–morelle)	WP (60 g ai/L)	3	0.135	1500	9.0	–	0 7 14 21	Whole fruit	0.19 0.02 0.02 0.02	0.02 < 0.01 < 0.01 < 0.01	0.21 0.03 0.03 0.03	242171
DEU87F20021, Bornheim GER 1987 (Schatten–morelle)	WP (60 g ai/L)	3	0.135	1500	9.0	–	0 7 14 21 21	Whole fruit Juice	0.94 0.17 0.06 0.02 0.01	0.02 0.03 0.02 < 0.01 < 0.01	0.96 0.20 0.08 0.03 0.02	242171
DEU87F20041, Rosbach GER 1987 (Schatten–morelle)	WP (60 g ai/L)	3	0.135	1500	9.0	–	0 7 14 21 21	Whole fruit Juice	0.36 0.12 0.05 0.02 0.02	0.01 0.02 0.01 < 0.01 < 0.01	0.37 0.14 0.06 0.03 0.03	242171

Apricot

A total of 21 trials on apricot were conducted in different representative growing areas in France, Italy, Spain and USA during 1986 through 2011 growing seasons. Results of apricot fruits are summarized in Table 55.

Table 55 Supervised trials on apricot in various countries

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
92-0045, Bakersfield, CA, USA, 1992 (Lulubelle)	WP (40 %W/W)	7	0.17	150–151	–	4–21	0	Fruit, pitted	0.12	0.02	0.14	94310
92-0038, Laton, CA USA 1992 (Katy)	WP (40 %W/W)	7	0.17	128	–	3–21	0	Fruit, pitted	0.23	0.06	0.29	94310
92-0039, Orange Cove, CA, USA, 1992 (Castlerbright)	WP (40 %W/W)	7	0.17	101	–	3–23	0	Fruit, pitted	0.11	0.02	0.13	94310
92-0037, Winters, CA USA 1992 (Tilton)	WP (40 %W/W)	7	0.17	90–127	–	6–21	0	Fruit, pitted	0.17	0.08	0.25	94310
92-0046, Zillah, WA USA 1992 (Perfection)	WP (40 %W/W)	7	0.17	100	–	6–22	0	Fruit, pitted	0.62	0.08	0.70	94310
48395 05,	EW	5	0.071	944.2–	7.5	14	0	Pulp	0.12	0.02	0.14	242021

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
Francolinn ITA, 1995 (Palummella)	(60 g ai/L)		–0.12	1558.02			3 7 0 3 7	Whole fruit	0.04 0.03 0.11 0.04 0.03	< 0.01 0.02 0.01 < 0.01 0.01	0.05 0.05 0.12 0.05 0.04	
CEMS-4944C Piedmont, ITA, 2011 (Hargrand)	EW (45 g ai/L)	3	0.089 – 0.091	993.18–1007.95	9	10–11	< 0 0 3 8 14 < 0 0 3 8 14	Flesh Whole Fruit (calculated)	0.04 0.27 0.13 0.08 0.05 0.04 0.25 0.12 0.07 0.05	0.01 < 0.01 0.01 0.01 0.01 0.01 < 0.01 0.01 0.01 0.01	0.05 0.28 0.14 0.09 0.06 0.05 0.26 0.13 0.08 0.06	2017646
CEMS-4944E Huesca, ESP 2011 (Farclo)	EW (45 g ai/L)	3	0.088 – 0.091	980.9–1010.5	9	9–11	< 0 0 3 7 13 < 0 0 3 7 13	Flesh Whole Fruit (calculated)	0.16 0.41 0.29 0.27 0.16 0.15 0.37 0.27 0.25 0.15	0.02 0.02 0.02 0.02 0.03 0.02 0.01 0.02 0.02 0.02	0.18 0.43 0.31 0.29 0.19 0.17 0.38 0.29 0.27 0.17	2017646
I06W030R Ferrara, ITA 2006 (Precoce di Imola)	EW (200 g ai/L)	6	0.128 – 0.132	1777–1830	7.2	9–11	7 7	Flesh Whole fruit	0.05 0.04	0.02 0.02	0.07 0.06	2009590
S06W042R Murcia, ITA 2006 (Tadeo)	EW (200 g ai/L)	6	0.126 – 0.137	1744–1891	7.2	9–11	< 0 0 7 14 < 0 0 7 14	Flesh Whole fruit	0.14 0.36 0.21 0.21 0.13 0.34 0.20 0.19	0.04 0.05 0.03 0.07 0.03 0.04 0.03 0.06	0.18 0.41 0.24 0.28 0.16 0.38 0.23 0.25	2009590
F07W075R Rhone-Alpes FRA, 2007 (Orange de Provence)	EW (200 g ai/L)	6	0.135 – 0.139	1784–1845	7.5	9–12	< 0 0 3 7 14 22	Whole fruit	0.12 0.18 0.14 0.15 0.09 0.06	0.02 0.03 0.02 0.03 0.02 0.02	0.14 0.21 0.16 0.18 0.11 0.08	2000789
CEMS-4639D Valencia ESP, 2010 (Mitger)	EW (45 g ai/L)	3	0.061	994.3–1004.8	6.0	10	< 0 0 3 7 15 < 0 0 3 7 15	Flesh Whole Fruit (calculated)	0.04 0.33 0.22 0.08 0.02 0.04 0.31 0.21 0.08 0.02	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01	0.05 0.34 0.23 0.09 0.03 0.05 0.32 0.22 0.09 0.03	2017193
CEMS-4639C Piedmont ITA, 2010 (Hargrand)	EW (45 g ai/L)	3	0.058 – 0.060	971.6–997.7	6.0	10	< 0 0 3 7 13 < 0	Flesh Whole	0.02 0.07 0.04 0.04 0.02 0.02	0.01 0.01 0.01 0.01 0.01 0.01	0.03 0.08 0.05 0.05 0.03 0.03	2017193

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
							0 3 7 13	Fruit (calculated)	0.07 0.04 0.04 0.02	0.01 0.01 0.01 0.01	0.08 0.05 0.05 0.03	
F60.03.87 Florensac Southern FRA, 1987 (Belliance)	EW (60 g ai/L)	6	0.060	600–800	7.5–10	12–16	8 8	Whole fruit Whole fruit w/o stone	– –	– –	0.04 0.04	242136
F60.01.87 Graveson Southern FRA, 1987 (Colomer)	EW (60 g ai/L)	6	0.060	1000	6.0	–	7 7	Whole fruit Whole fruit w/o stone	– –	– –	0.08 0.09	242137
F60.01.87 Graveson Southern FRA, 1987 (Colomer)	EC (125 g ai/L)	6 6	0.062 0.075	1000 1000	6.2 7.5	–	7	Whole fruit Whole fruit w/o stone	– –	– –	0.06 0.07 0.10 0.11	242138
F60.03.87 Florensac Southern FRA, 1987 (Belliance)	EC (125 g ai/L)	6 6	0.062 0.075	600–800 600–800	6.0–10 9.0–10	12–16	8	Whole fruit Whole fruit w/o stone	– – – –	– – – –	0.04 0.05 0.05 0.06	242139
F33.01.86 Camps Southern FRA, 1986 (Colomer)	EC (125 g ai/L)	1	0.075	1000	7.5		0 5 10 14 21 28 0 5 10 14 21 28	Whole fruit Whole fruit w/o stone	– – – – – – – – – – – –	– – – – – – – – – – – –	0.40 0.40 0.17 0.10 0.05 0.02 0.55 0.50 0.20 0.11 0.06 0.02	242140
F60.02.87 Aramon Southern FRA, 1987 (Rouge du Roussillon)	EW (60 g ai/L)	7	0.060	400	15	–	14	Whole fruit Whole fruit w/o stone	– –	– –	0.04 0.04	242174
F60.02.87 Aramon Southern FRA, 1987 (Rouge du Roussillon)	EC (125 g ai/L)	7 7	0.062 0.075	400 400	15 18	13–14 13–14	14 14	Whole fruit Whole fruit w/o stone	– – – –	– – – –	0.04 0.05 0.04 0.05	242175
4148808 Imola, BO ITA, 1988 (S. Castrese)	EC (125 g ai/L)	5 5	0.050 – 0.075 0.10–0.15	1000–1500 1000–1500	5.0 10	8–71 8–71	18 18	Whole fruit w/o stone	0.02 0.04	< 0.01 < 0.01	0.03 0.05	242991

Plums

A total of 71 trials on plum were conducted in different representative growing areas in Austria, Canada, Czech Republic, France, Germany, Hungary, Italy, Spain and USA during 1987 through 2011 growing seasons. Results of plum fruits are summarized in Table 56.

Table 56 Supervised trials on plum in various countries

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
87-0201 Fresno, CA USA 1987 (Eldorado)	DF (60% W/W)	9	0.21	2933	–	8–16 (app # 3 at 36 day interval)	0	Fruit, pitted	0.25	0.11	0.36	94384
87-0201 Fresno, CA USA 1987 (Eldorado)	DF (60% W/W)	9	0.43	2933	–	8–16 (app # 3 at 36 day interval)	0	Fruit, pitted	0.22	0.10	0.32	94384
87-0161 Woodlake, CA USA 1987 (Red Butte)	DF (60% W/W)	7	0.21	2933	–	7–27	0	Fruit, pitted	0.09	0.02	0.11	94384
87-0260 Zillah, WA USA 1987 (Early Ital.)	DF (60% W/W)	8	0.21	1515	–	13–18	0	Fruit, pitted	0.28	0.12	0.40	94384
87-0260 Zillah, WA USA 1987 (Early Ital.)	DF (60% W/W)	8	0.43	1515	–	13–18	0	Fruit, pitted	0.83	0.32	1.15	94384
87-0366 Fennville, MI USA 1987 (Stanley)	DF (60% W/W)	6	0.21	2806	–	7–42	0	Fruit, pitted	0.59	0.14	0.73	94384
88-0017 Biglerville, PA USA 1987 (Stanley)	WP (40 %W/W)	12	0.224	991	–	7–15	0	Fruit, pitted	1.12	0.33	1.45	94384
88-0299 Nampa, ID USA 1988 (Empress)	DF (60% W/W)	6	0.21	935	–	11–42	14	Fruit, pitted	0.03	< 0.01	0.04	94385
88-0300 Nampa, ID USA 1988 (Empress)	WP (40 %W/W)	6	0.21	935	–	11–42	14	Fruit, pitted	0.06	< 0.01	0.07	94385
88-0301 Nampa, ID USA 1988 (Empress)	EC (25.8% W/W)	6	0.21	935	–	11–42	14	Fruit, pitted	0.04	0.01	0.05	94385
88-0286 Tecumseh, MI USA 1988 (Stanley)	DF (60% W/W)	11	0.21	1889–3648	–	3–14	13	Fruit, pitted	0.30	0.06	0.36	94385
88-0287	WP (40	11	0.21	1889–	–	3–14	13	Fruit,	0.16	0.02	0.18	94385

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
Tecumseh, MI USA 1988 (Stanley)	%W/W)			3648				pitted				
88-0288 Tecumseh, MI USA 1988 (Stanley)	EC (25.8% W/W)	11	0.21	1889–3648	–	3–14	13	Fruit, pitted	0.23	0.04	0.27	94385
90-0124 Orange Cove, CA, USA, 1990 (Freyer)	WP (40 %W/W)	3	0.17	187	–	14–26	14	Fruit, pitted	< 0.01	0.02	0.03	94514
90-0124 Orange Cove, CA, USA, 1990 (Freyer)	WP (40 %W/W)	3	0.17	1992	–	14–26	14	Fruit, pitted	< 0.01	0.03	0.04	94514
89-0233 Stockton, CA USA 1989 (French)	WP (40 %W/W)	6	0.21	393	–	7–17 (app # 4 at 36 day int and #5 at 54 day int)	14 14	Dried, pitted Fruit, pitted	0.45 0.52	0.19 0.03	0.64 0.55	94383
89-0233 Stockton, CA USA 1989 (French)	WP (40 %W/W)	6	0.21	2338	–	7–17 (app # 4 at 36 day int and #5 at 54 day int)	14 14	Dried, pitted Fruit, pitted	0.54 0.29	0.24 0.11	0.76 0.40	94383
89-0235 Linden, CA USA 1989 (French)	WP (40 %W/W)	6	0.21	393	–	7–12 (app # 4 at 46 day int and #5 at 54 day int)	14 14	Dried, pitted Fruit, pitted	0.43 0.13	0.24 < 0.01	0.67 0.14	94383
89-0235 Linden, CA USA 1989 (French)	WP (40 %W/W)	6	0.21	2338	–	7–12 (app # 4 at 46 day int and #5 at 54 day int)	14 14	Dried, pitted Fruit, pitted	1.05 0.15	0.21 0.01	1.26 0.16	94383
89-0234 Stockton, CA USA 1989 (French)	WP (40 %W/W)	6	0.21	393	–	4–17 (app # 4 at 36 day int and #5 at 54 day int)	14 14	Dried, pitted Fruit, pitted	0.76 0.12	0.12 < 0.01	0.88 0.13	94383
89-0234 Stockton, CA USA 1989 (French)	WP (40 %W/W)	6	0.21	2338	–	4–17 (app # 4 at 36 day int and #5 at 54 day int)	14 14	Dried, pitted Fruit, pitted	0.30 0.12	0.09 0.03	0.39 0.15	94383
90-0021 Caldwell, ID USA 1989 (Empress)	WP (40 %W/W)	6	0.21	393	–	7–45	14 14	Dried, pitted Fruit, pitted	0.30 0.06	< 0.01 0.01	0.31 0.07	94383

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
90-0021 Caldwell, ID USA 1989 (Empress)	WP (40 %W/W)	6	0.21	2338	–	7–45	14 14	Dried, pitted Fruit, pitted	0.14 0.04	0.04 < 0.01	0.18 0.05	94383
90-0022 Ontario, OR USA 1989 (Empress)	WP (40 %W/W)	6	0.21	393	–	7–52	14 14	Dried, pitted Fruit, pitted	0.37 0.09	0.31 0.03	0.68 0.12	94383
90-0022 Ontario, OR USA 1989 (Empress)	WP (40 %W/W)	6	0.21	2338	–	7–52	14 14	Dried, pitted Fruit, pitted	0.34 0.08	0.39 0.05	0.73 0.13	94383
87-0201 Fresno, CA USA 1987 (Eldorado)	DF (60% W/W)	9	0.21	2933	–	8–16 (app # 3 at 36 day interval)	0 6 13	Fruit, pitted	0.11 0.07 0.06	0.04 0.03 0.03	0.15 0.10 0.09	94513
RAS/14/4/G Nordrrhein–Westfalen GER 1997 (Buhler)	EW (200 g ai/L)	5	0.11–0.12	480–516	22.5	10–14	0 3 7 14 0 3 7 14	Flesh Whole fruit 	0.27 0.13 0.07 0.07 0.22 0.12 0.07 0.07	0.05 0.02 0.02 0.02 0.04 0.02 0.02 0.02	0.32 0.15 0.09 0.09 0.26 0.14 0.09 0.09	241826
RAS/14/4/G Nordrrhein–Westfalen GER 1997 (Buhler)	EW (60 g ai/L)	5	0.11–0.12	479–515	22.5	10–14	0 3 7 14 0 3 7 14	Flesh Whole fruit 	0.15 0.06 0.08 0.06 0.12 0.05 0.07 0.06	0.03 0.02 0.02 0.02 0.02 0.02 0.02 0.02	0.18 0.08 0.10 0.08 0.14 0.07 0.09 0.08	241826
RAS/14/1/G Rheinland–Pfalz GER 1997 (Ortenauer)	EW (200 g ai/L)	5	0.11	1492–1525	7.5	10–12	0 3 7 0 3 7	Flesh Whole fruit 	0.25 0.21 0.16 0.24 0.20 0.15	0.07 0.07 0.06 0.07 0.07 0.06	0.32 0.28 0.22 0.31 0.27 0.21	241826
RAS/14/1/G Rheinland–Pfalz GER 1997 (Ortenauer)	EW (60 g ai/L)	5	0.11	1475–1492	7.5	10–12	0 3 7 0 3 7	Flesh Whole fruit 	0.22 0.14 0.17 0.20 0.13 0.16	0.04 0.05 0.06 0.04 0.05 0.06	0.26 0.19 0.23 0.24 0.18 0.22	241826
RAS/14/3/G Rheinland–Pfalz, GER 1997 (Ortenauer)	EW (200 g ai/L)	5	0.11	1466–1510	7.5	10–14	0 3 7 3 3 0 3 7	Flesh Prunes Puree Whole fruit 	0.08 0.10 0.07 0.21 0.06 0.08 0.10 0.07	0.03 0.03 0.03 0.08 0.03 0.03 0.03 0.03	0.11 0.13 0.10 0.29 0.09 0.11 0.13 0.10	241826
RAS/14/3/G Rheinland–Pfalz GER 1997 (Ortenauer)	EW (60 g ai/L)	5	0.11–0.12	1482–1537	7.5	10–14	0 3 7 0 3	Flesh Whole fruit 	0.10 0.08 0.08 0.09 0.08	0.04 0.02 0.04 0.04 0.02	0.14 0.10 0.12 0.13 0.10	241826

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
							7		0.08	0.04	0.12	
RAS/14/2/G Niedersachsen GER 1997 (Hauszwetsche)	EW (200 g ai/L)	5	0.11–0.12	497–514	22.5	10–12	0 3 7 3 3 0 3 7	Flesh Prunes Puree Whole fruit 	0.60 0.67 0.80 2.02 0.71 0.55 0.64 0.74	0.09 0.09 0.03 0.39 0.15 0.08 0.09 0.03	0.69 0.76 0.83 2.41 0.86 0.63 0.73 0.77	241826
RAS/14/2/G Niedersachsen GER 1997 (Hauszwetsche)	EW (60 g ai/L)	5	0.11–0.12	501–524	22.5	10–12	0 3 7 0 3 7	Flesh Whole fruit 	0.56 0.45 0.56 0.53 0.43 0.52	0.07 0.06 0.08 0.07 0.06 0.07	0.63 0.51 0.64 0.60 0.49 0.59	241826
4839504 Leno, BS ITA, 1995 (Satsuma)	EW (60 g ai/L)	5	0.096–0.12	1283.7–1557.77	7.5	14–19	0 3 7 0 3 7	Flesh Whole fruit 	0.07 0.05 0.06 0.06 0.04 0.05	0.02 0.03 0.04 0.01 0.02 0.03	0.09 0.08 0.10 0.07 0.06 0.08	242020
4839501 Boara, FE ITA, 1995 (Fryar)	EW (60 g ai/L)	5	0.072–0.077	997.07–1027.77	7.5	14	0 3 7 0 3 7	Flesh Whole fruit 	0.07 0.03 0.02 0.07 0.02 0.01	0.04 0.03 0.04 0.03 0.02 0.03	0.11 0.06 0.06 0.10 0.04 0.04	242020
4839503 Molinella, BO ITA, 1995 (Angeleno)	EW (60 g ai/L)	5	0.087–0.090	1165–1206	7.5	11–14	0 3 7 0 3 7	Flesh Whole fruit 	0.07 0.05 0.03 0.06 0.04 0.03	0.03 0.03 0.04 0.02 0.02 0.03	0.10 0.08 0.07 0.08 0.06 0.06	242020
4839502 Boara, FE ITA, 1995 (Angeleno)	EW (60 g ai/L)	5	0.086–0.090	1141.66–1196.6	7.5	10–12	0 3 7 0 3 7	Flesh Whole fruit 	0.23 0.19 0.15 0.21 0.17 0.13	0.03 0.04 0.05 0.03 0.04 0.04	0.26 0.23 0.20 0.24 0.21 0.17	242020
95FARRSP08 Sorgues Southern FRA, 1995 (Allo)	EC (125 g ai/L)	5	0.074–0.080	992–1061	7.5	10–12	0 3 7 0 3 7	Flesh Whole fruit 	0.20 0.15 0.09 0.18 0.13 0.08	0.06 0.07 0.09 0.05 0.07 0.08	0.26 0.22 0.18 0.23 0.20 0.16	243827
95FARRSP07 Beaucaire Southern FRA, 1995 (Quetsche)	EC (125 g ai/L)	5	0.073–0.078	961–1041	7.5–7.61	10–12	0 3 7 0 3 7	Flesh Whole fruit 	0.40 0.30 0.25 0.36 0.27 0.22	0.10 0.08 0.16 0.09 0.08 0.14	0.50 0.38 0.41 0.45 0.35 0.36	243827
95FARRSP05 Moissan Southern FRA, 1995 (Prune d'Ente)	EC (125 g ai/L)	5	0.074–0.076	913–1014	7.5–8.12	13–15	7 7 0 3 7 0 3 7	Dried, pitted Dried, whole Flesh Whole fruit 	0.16 0.14 0.15 0.15 0.16 0.13 0.14 0.14	0.15 0.13 0.07 0.03 0.10 0.06 0.02 0.09	0.31 0.27 0.22 0.18 0.26 0.19 0.16 0.23	243827

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
95FARRSP06 Amans Southern FRA, 1995 (Prune d'Ente)	EC (125 g ai/L)	5	0.071–0.077	797–929	8.19–9.11	12–14	7 7 0 3 7 0 3 7	Dried, pitted Dried, whole Flesh Whole fruit	0.64 0.56 0.28 0.24 0.22 0.25 0.21 0.20	0.21 0.19 0.07 0.06 0.10 0.07 0.05 0.09	0.85 0.75 0.35 0.30 0.32 0.32 0.26 0.29	243827
97RHC09-D British Col CAN, 1997 (Italian Prune Plum)	WP (40 %W/W)	6	0.12–0.15	2159–2458	–	7 (app # 4 at 104 day interval)	1	Fruit, pitted	0.13	–	–	135366
97RHC09-I Pelham Township Ontario CAN, 1997 (Shirow)	WP (40 %W/W)	6	0.14–0.15	996.5–1101.5	–	10–15 (app # 4 at 48 day interval)	1	Fruit, pitted	0.20	–	–	135366
97RHC09-J Ridgeville Ontario CAN, 1997 (Italian Plum)	WP (40 %W/W)	6	0.11–0.14	808–1034.5	–	7–12 (app # 4 at 75 day interval)	1	Fruit, pitted	0.32	–	–	135366
97RHC09-K Kentville, Nova Scotia CAN, 1997 (Stanley)	WP (40 %W/W)	6	0.14	1000	–	7–20 (app # 2 at 70 day interval)	1	Fruit, pitted	0.97	–	–	135366
AF/4287/HL/3 Indre-Loire Northern FRA, 1998 (Stanley)	EW (200 g ai/L)	5	0.11–0.13	1400–1701	7.5	10–12	0 3 7 0 3 7	Flesh Whole fruit	0.12 0.12 0.12 0.12 0.11 0.11	0.01 0.01 < 0.01 0.01 0.01 < 0.01	0.13 0.13 0.13 0.13 0.12 0.12	241768
AF/4287/HL/1 Loiret, Northern FRA, 1998 (Quetsche)	EW (200 g ai/L)	5	0.080–0.11	1064–1507	7.5	10–14	0 3 7 0 3 7	Flesh Whole fruit	0.04 0.05 0.04 0.04 0.05 0.04	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.05 0.06 0.05 0.05 0.06 0.05	241768
AF/4287/HL/2 Meurthe–Moselle Northern FRA, 1998 (Quetsche)	EW (200 g ai/L)	5	0.090–0.11	1158–1483	7.5	14	0 3 7 0 3 7	Flesh Whole fruit	0.08 0.04 0.04 0.08 0.04 0.04	0.01 0.02 0.02 0.01 0.02 0.02	0.09 0.06 0.06 0.09 0.06 0.06	241768
AF/4287/HL/4 Meurthe–Moselle FRA, 1998 (Quetsche)	EW (200 g ai/L)	5	0.090–0.11	1179–1522	7.5	14	0 3 7 0 3 7	Flesh Whole fruit	0.10 0.09 0.06 0.10 0.09 0.06	0.03 0.03 0.02 0.03 0.03 0.02	0.13 0.12 0.08 0.13 0.12 0.08	241768
S07W024R Llombai Valencia ESP, 2007 (Larian)	EW (200 g ai/L)	6	0.13	1660–1761	7.6	8–11	< 0 0 3 7 14	Flesh	< 0.01 0.25 0.13 0.08 0.05	< 0.01 0.09 0.09 0.06 0.09	< 0.02 0.34 0.22 0.14 0.14	2001319

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
							21 < 0 0 3 7 14 21	 Whole fruit	0.01 < 0.01 0.25 0.13 0.08 0.05 < 0.01	0.04 < 0.01	0.05 < 0.02	
S07W024R Llombai Valencia ESP, 2007 (Larian)	EW (45 g ai/L)	6	0.12–0.13	1669–1746	7.4	8–11	< 0 0 3 7 14 21 < 0 0 3 7 14 21	Flesh Whole fruit	< 0.01 0.15 0.05 0.10 0.04 0.01 < 0.01 0.15 0.05 0.09 0.04 0.01	< 0.01 0.07 0.06 0.09 0.07 0.07	< 0.02 0.22 0.11 0.19 0.11 0.08	2001319
F07W073R Saint Sauveur–Gouvernet Rhone Alpes FRA, 2007 (President)	EW (200 g ai/L)	6	0.13	1702–1759	7.6	9–11	< 0 0 3 7 14 22 < 0 0 3 7 14 22	Flesh Whole fruit	0.17 0.19 0.14 0.15 0.10 0.14 0.16 0.18 0.14 0.14 0.10 0.13	0.02 0.02 0.02 0.02 0.02 0.02	0.19 0.21 0.16 0.17 0.12 0.16	2001319
F07W073R Saint Sauveur–Gouvernet Rhone Alpes FRA, 2007 (President)	EW (45 g ai/L)	6	0.13	1708–1771	7.5	9–11	< 0 0 3 7 14 22 < 0 0 3 7 14 22	Flesh Whole fruit	0.18 0.19 0.24 0.29 0.33 0.13 0.17 0.18 0.23 0.28 0.32 0.13	0.02 0.02 0.02 0.03 0.03 0.02	0.20 0.21 0.26 0.32 0.36 0.15	2001319
CEMS-4640C L'Honor de Cos, Midi-Pyrenees FRA, 2010 (Reine Claude)	EW (45 g ai/L)	3	0.059–0.062	977.8–1035	6	10	7 7	Flesh Whole Fruit (calc.)	0.03 0.03	0.01 0.01	0.04 0.04	2017194
CEMS-4640D Belgida Valencia ESP, 2010 (Black Diamond)	EW (45 g ai/L)	3	0.060–0.062	996.3–1023	6	10	8 8	Flesh Whole Fruit (calc.)	0.02 0.02	0.03 0.03	0.05 0.05	2017194
CEMS-4640B L'Honor de Cos, Midi-Pyrenees FRA, 2010	EW (45 g ai/L)	3	62.1 60.1 60.8	1035.6 1001.1 1013.3	6 6 6	10	< 0 0 3 7 14	Flesh	0.07 0.07 0.07 0.04 0.03	0.02 0.01 0.01 0.01 0.01	0.09 0.08 0.08 0.05 0.04	2017194

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
(Bavay)							< 0 0 3 7 14	Whole Fruit (calc.)	0.06 0.06 0.06 0.03 0.03	0.02 0.01 0.01 0.01 0.01	0.08 0.07 0.07 0.04 0.04	
CEMS-4640H Sayat Auvergne FRA, 2010 (Mirabelle)	EW (45 g ai/L)	2	0.087 – 0.089	481.7–491.7	18	10	7 7	Flesh Whole Fruit (calc.)	0.03 0.03	< 0.01 < 0.01	0.04 0.04	2017194
CEMS-4640F Gyorszentivan HUN, 2010 (Stanley)	EW (45 g ai/L)	2	0.090 – 0.091	978.2–991.7	9.2	10	< 0 0 3 7 14 < 0 0 3 7 14	Flesh Whole Fruit (calc.)	0.19 0.44 0.40 0.38 0.36 0.18 0.40 0.37 0.35 0.33	0.01 0.01 0.02 0.02 0.03 0.01 0.01 0.02 0.02 0.02	0.20 0.43 0.42 0.40 0.39 0.19 0.41 0.39 0.37 0.35	2017194
CEMS-4640A Piedmont ITA, 2010 (Angeleno)	EW (45 g ai/L)	3	0.058 – 0.061	958.3–1016.7	6	10	< 0 0 3 6 14 < 0 0 3 6 14	Flesh Whole Fruit (calc.)	0.03 0.06 0.06 0.05 0.02 0.03 0.05 0.06 0.05 0.02	0.02 0.01 0.02 0.01 0.01 0.02 0.01 0.02 0.01 0.01	0.05 0.07 0.08 0.06 0.03 0.05 0.06 0.08 0.06 0.03	2017194
CEMS-4640G Tlumacov Zlinsky, CZE 2010 (Svestka domaci)	EW (45 g ai/L)	2	0.091	1006.9–1009.3	9	11	8 8	Flesh Whole Fruit (calc.)	0.32 0.30	0.03 0.02	0.35 0.32	2017194
CEMS-4640I Dasenhofen Lower AUT AUT, 2010 (Cacaks–Schone)	EW (45 g ai/L)	2	0.092 – 0.094	509.4–524.2	18	11	< 0 0 3 7 14 < 0 0 3 7 14	Flesh Whole Fruit (calc.)	0.03 0.09 0.08 0.09 0.05 0.03 0.09 0.08 0.08 0.05	< 0.01 < 0.01 < 0.01 0.01 0.01 < 0.01 < 0.01 < 0.01 0.01 < 0.01	0.04 0.10 0.09 0.10 0.06 0.04 0.10 0.09 0.09 0.06	2017194
CEMS-4945C L'Honor de Cos, Midi-Pyrenees FRA, 2011 (Reine Claude)	EW (45 g ai/L)	3	0.087 – 0.090	0.097–0.10	9	10–11	7 7	Flesh Whole Fruit (calculated)	0.04 0.04	0.01 0.01	0.05 0.05	2018494
CEMS-4945D Belgida Valencia ESP, 2011 (Black Diamond)	EW (45 g ai/L)	3	0.088 – 0.090	983–994.8	9	9–11	7 7	Flesh Whole Fruit (calculated)	0.05 0.05	0.02 0.02	0.07 0.07	2018494
CEMS-4945B L'Honor de Cos, Midi-	EW (45 g ai/L)	3	0.088 – 0.090	976.7–997.8	9	10	< 0 0 3	Flesh	0.05 0.10 0.08	0.01 0.01 0.01	0.06 0.11 0.09	2018494

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
Pyrenees Southern FRA 2011 (Bavay)							7 14 < 0 0 3 7 14	Whole Fruit (calculated)	0.06 0.03 0.05 0.09 0.07 0.06 0.03	0.02 0.01 0.01 0.01 0.01 0.01 0.01	0.08 0.04 0.06 0.10 0.08 0.07 0.04	
CEMS-4945F Koszeg, Vas HUN, 2011 (Cacanska Lepotica)	EW (45 g ai/L)	2	0.089 – 0.091	991.7–1016.3	9	10	< 0 0 3 7 14 < 0 0 3 7 14	Flesh Whole Fruit (calculated)	0.12 0.20 0.14 0.12 0.16 0.11 0.18 0.13 0.12 0.16	0.02 0.02 0.02 0.02 0.03 0.02 0.02 0.02 0.02 0.03	0.14 0.22 0.16 0.14 0.19 0.13 0.20 0.15 0.14 0.19	2018494
CEMS-4945H Sayat Auvergne FRA, 2011 (Mirabelle)	EW (45 g ai/L)	2	0.088 – 0.089	489.2–492.8	18	11	6 6	Flesh Whole Fruit (calculated)	0.08 0.07	0.01 0.01	0.09 0.08	2018494
CEMS-4945A Manta, Piedmont ITA, 2011 (Angeleno)	EW (45 g ai/L)	3	0.089 – 0.091	983.3–1015	9	8–11	< 0 0 3 8 13 < 0 0 3 8 13	Flesh Whole Fruit (calculated)	0.03 0.08 0.04 0.03 0.03 0.03 0.08 0.04 0.03 0.03	0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02	0.05 0.10 0.06 0.05 0.05 0.05 0.10 0.06 0.05 0.05	2018494
CEMS-4945E Dasenhofen Lower AUT AUT, 2011 (President)	EW (45 g ai/L)	2	0.090	498.1–501	18	10	< 0 0 3 6 14 < 0 0 3 6 14	Flesh Whole Fruit (calculated)	0.10 0.22 0.20 0.21 0.13 0.09 0.21 0.19 0.20 0.12	0.01 0.01 0.01 0.02 0.02 0.01 0.01 0.01 0.02 0.02	0.11 0.23 0.21 0.23 0.15 0.10 0.22 0.20 0.22 0.14	2018494
CEMS-4945G 67128 Jaroslavice CZE 2011 (Elena)	EW (45 g ai/L)	2	0.090	1003.3–1004.7	9	10	7 7	Flesh Whole Fruit (calculated)	0.22 0.21	0.01 0.01	0.23 0.22	2018494
4148811 Ponte del Castello, ITA 1988 (Stanley)	EC (120 g ai/L)	4	0.05–0.15	1000–1500	5 10	–	14 14	fruit	0.01 0.07	0.03 0.03	0.04 0.10	262066

Berries and other small fruits

Currants

A total of 26 trials on currants were conducted in different representative growing areas in France, Italy, UK and USA during 1990 through 2008 growing seasons. Results of currants are summarized in Table 57.

Table 57 Supervised trials on currants in various countries

Trial ID/ Location Country Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
WA09 Benton county, WA USA	WP (40 %W/W)	8	0.14	1029–1515	–	10–17	0 3 7	Berries Berries Berries	1.48 0.83 1.17	0.27 0.26 0.30	1.75 1.09 1.47	241757
1995 (Wilder)	WP (40 %W/W)	8	0.28	1029–1515	–	10–17	0 3 7	Berries Berries Berries	4.05 3.24 2.50	0.42 0.51 0.43	4.47 3.75 2.93	
WA10, Benton county, WA USA	WP (40 %W/W)	8	0.14	1029–1515	–	10–17	0 3 7	Berries Berries Berries	1.92 1.06 1.10	0.26 0.28 0.25	2.18 1.34 1.35	241757
1995 (Wilder)	WP (40 %W/W)	8	0.28	1029–1515	–	10–17	0 3 7	Berries Berries Berries	3.99 2.76 3.22	0.38 0.38 0.43	4.27 3.14 3.65	
WA37, Prosser WA, USA, 2000 (Wilder)	WP (40 %W/W)	8	0.14–0.15	909–1018	–	13–15	0	Berries	0.76	0.18	0.94	135322
30-91B Newent, GBR 1991 (Ben Lomond)	EW (60 g ai/L)	5	0.18	2000	9.0	12–18	21	Whole fruit	0.22	0.20	0.42	241904
		5	0.090	2000	4.5	12–18	0 8 17 21	Whole fruit	0.57 0.31 0.08 0.20	0.16 0.64 0.14 0.09	0.73 0.95 0.22 0.29	241904
30-91C Ross-on-Wye Herefordshire GBR, 1991 (Ben Lomond)	EW (60 g ai/L)	5	0.090	2000	4.5	13–20	0 7 13 20	Whole fruit	0.52 0.11 0.04 0.16	< 0.01 0.03 0.04 0.05	0.53 0.14 0.08 0.21	241904
30-91A Ledbury Herefordshire GBR, 1991 (Ben Lomond)	EW (60 g ai/L)	5	0.18	2000	9.0	9–18	20	Whole fruit	0.10	0.10	0.20	241904
		5	0.090	2000	4.5	9–18	0 7 13 20	Whole fruit	0.72 0.26 0.07 0.13	0.67 0.66 0.19 0.29	1.39 0.93 0.26 0.42	241904
AK/2875/RH/1 Stonall Staffs England,	EW (60 g ai/L)	6	0.090	500	18	–	14	Whole fruit	0.35	0.04	0.39	241767

Trial ID/ Location Country Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
1995 (Baldwin)												
AK/2875/ RH/2 Worcestershire England, 1995 (Baldwin)	EW (60 g ai/L)	6	0.090	500	18	–	14	Whole fruit	0.30	0.05	0.35	241767
AK/2875/ RH/3 Kent, England 1995 (Ben Alder)	EW (60 g ai/L)	6	0.090	500	18	–	14	Whole fruit	0.19	0.02	0.21	241767
AK/2875/ RH/4 Kent, England 1995 (Ben Lomand)	EW (60 g ai/L)	6	0.090	500	18	–	14	Whole fruit	0.24	0.04	0.28	241767
AK/2875/ RH/1 Stonall Staffs England, 1995 (Baldwin)	WP (6% W/W)	6	0.090	500	18	–	14	Whole fruit	0.42	0.04	0.46	241767
AK/2875/ RH/2 Worcestershire England, 1995 (Baldwin)	WP (6% W/W)	6	0.090	500	18	–	14	Whole fruit	0.29	0.05	0.34	241767
AK/2875/ RH/3 Kent, England 1995 (Ben Alder)	WP (6% W/W)	6	0.090	500	18	–	14	Whole fruit	0.31	0.03	0.34	241767
AK/2875/ RH/4 Kent, England 1995 (Ben Lomand)	WP (6% W/W)	6	0.090	500	18	–	14	Whole fruit	0.26	0.05	0.31	241767
AK/2875/ RH/1 Stonall Staffs England, 1995 (Baldwin)	EW (200 g ai/L)	6	0.090	500	18	–	14	Whole fruit	0.43	0.04	0.47	241767
AK/2875/ RH/2 Worcester	EW (200 g ai/L)	6	0.090	500	18	–	14	Whole fruit	0.30	0.07	0.37	241767

Trial ID/ Location Country Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
shire England, 1995 (Baldwin)												
AK/2875/RH/3 Kent, England 1995 (Ben Alder)	EW (200 g ai/L)	6	0.090	500	18	–	14	Whole fruit	0.24	0.04	0.28	241767
AK/2875/RH/4 Kent, England 1995 (Ben Lomand)	EW (200 g ai/L)	6	0.090	500	18	–	14	Whole fruit	0.26	0.05	0.31	241767
450/RH/90/BLA/A, Ledbury Herefordshire UK, 1990 (Ben Lomond)	EW (60 g ai/L)	6	0.12	2000	6	–	16 16 16	Whole fruit Juiced fruit Canned fruit	0.46 0.04 0.09	0.06 0.13 0.20	0.52 0.17 0.29	241959
450/RH/90/BLA/B, Newent Herefordshire UK, 1990 (Baldwin)	EW (60 g ai/L)	6	0.12	2000	6	–	16 16	Whole fruit Juiced fruit	0.21 0.07	0.11 0.14	0.32 0.21	241959
450/RH/90/BLA/C, Ledbury Herefordshire UK, 1990 (Baldwin)	EW (60 g ai/L)	6	0.12	2000	6	–	12 12	Whole fruit Juiced fruit	0.57 < 0.01	0.22 0.15	0.79 0.16	241959
SRPV Villevequ e FRA, 1992 (Tenach)	EC (125 g ai/L)	3 3 3	0.0625	400	15.6	14 14 13–14	35 21 7	Green fruit Green fruit Maturity	0.04 0.07 0.08	– – –	– – –	241976
AGRI 022/08 Vigolo Vattaro, TN, ITA, 2008 (Red pool)	EW (45 g ai/L)	4	0.057 – 0.058	994–1013	–	10–11	< 0 0 3 7 14 21 28	Berries Berries Berries Berries Berries Berries Berries	0.06 0.21 0.09 0.07 0.07 0.06 0.03	– – – – – – –	– – – – – – –	2001160
AGRI 023/08 Vigolo Vattaro, TN, ITA, 2008 (Red	EW (45 g ai/L)	4	0.056 – 0.060	976–1053	–	10–11	14	Berries	0.09	–	–	2001162

Trial ID/ Location Country Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
pool)												

Grapes

A total of 70 trials on grapes were conducted in different representative growing areas in Brazil, France, Germany, Greece, Italy, Portugal, Spain and USA during 1987 through 2004 growing seasons. Results of grape fruits are summarized in Table 58.

Table 58 Supervised trials on grapes in various countries

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
87-0318 McFarland, CA, USA, 1987 (Ruby), Table grapes	DF (60% W/W)	6	0.112	935.3	12	15–43	11 16	Grapes	0.03 0.05	< 0.01 0.02	0.04 0.07	94280
87-0319 Earlimart, CA USA 1987 (Ruby) Table grapes	DF (60% W/W)	6	0.112	935.3	12	10–43	7 16	Grapes	0.14 0.30	0.01 0.02	0.15 0.32	94280
87-0320 Madera, CA USA 1987 (Ruby) Table grapes	DF (60% W/W)	6	0.112	935.3	12	13–37	7 15	Grapes	0.20 0.12	0.01 0.03	0.21 0.15	94280
86-0231, Greenfield, CA USA 1986 (Muscat) Wine grapes	WP (40 %W/W)	4	0.084	935.3	–	15–34	14	Grapes	0.09	0.04	0.13	94276
86-0233 Soledad, CA USA 1986 (Riesling) Wine grapes	WP (40 %W/W)	4	0.084	935.3	–	15–34	14	Grapes	0.16	0.04	0.20	94276
85-0323 Reedley, CA USA 1985 (Thompson)	WP (40% W/W)	5	0.112	935.3	–	–	7 14 21 14 14	Grapes Dry pomace Wet pomace	0.16 0.14 0.09 0.74 0.07	0.03 0.05 0.06 – –	0.19 0.19 0.15 – –	94275
85-0637 Naples, NY USA 1985 (Rosette)	WP (40% W/W)	5	0.168	1871	–	–	7 14 21	Grapes	0.22 0.32 0.20	0.05 0.08 0.06	0.27 0.40 0.26	94275
85-360 Newtown, PA USA 1985 (Concord)	WP (40% W/W)	8	0.112	935.3	–	–	7 14 20	Grapes	1.30 1.08 0.33	0.18 0.17 0.07	1.48 1.25 0.40	94275
86-175, Exeter CA, USA, 1986 (Flame)	WP (40% W/W)	4	0.112	–	–	–	14	Grapes	0.10	0.03	0.13	94277
86-195, Fresno, CA	WP (40%	5	0.082	–	–	–	7 14	Grapes	0.35 0.24	0.01 0.01	0.36 0.25	94277

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
USA 1986, (Thompson)	W/W)											
85-0360, PA USA 1985 (-)	WP (40% W/W)	8	0.112	–	–	–	7 14 20	Grapes	1.30 1.08 0.33	0.18 0.17 0.07	1.48 1.25 0.40	94443
85-0372 Soledad, CA USA 1985 (Savignon)	–	5	0.112	935.3	–	–	14	Grapes	0.31	0.03	0.34	94443
85-0373 Calistoga, CA USA 1985 (Riesling)	–	5	0.112	935.3	–	–	14	Grapes	0.48	0.10	0.58	94443
85-0374 Greenfield, CA USA 1985 (Muscat Can)	WP (40% W/W)	5	0.112	935.3	–	–	13	Grapes	0.25	0.04	0.29	94443
85-0383,CA USA 1985 (-)	WP (40% W/W)	5	0.112	–	–	–	7 14 21	Grapes	0.16 0.14 0.09	0.03 0.05 0.06	0.19 0.19 0.15	94443
85-0419 Napa, CA, USA, 1985 (Pinot Noir)	–	5	0.112	935.3	–	–	14 14 14 14 14 14	Grapes Dry pomace Wet pomace Juice Wine Stem	0.53 1.16 0.67 0.06 0.07 1.25	0.07 0.10 0.14 0.01 0.06 0.27	0.60 1.26 0.81 0.07 0.13 1.52	94443
85-0637 Naples, NY USA 1985 (Rosette)	WP (40% W/W)	5	0.17	1871	–	–	7 14 21	Grapes	0.22 0.32 0.20	0.05 0.08 0.06	0.27 0.40 0.26	94443
85-0323 Reedley, CA USA 1985 (Thompson)	WP (40% W/W)	5	0.112	935.3	–	–	14 14 14 14 14 14 14 14 14 14 14	Grapes Juice Dry pomace Wet pomace Wine Filtered wine A+B raisin C raisin Midget raisin Waste raisin Wine lees	0.13 0.04 0.74 0.07 0.04 0.04 0.78 0.82 0.69 3.43 0.22	0.04 0.02 0.26 0.02 0.02 < 0.01 0.16 0.25 0.24 0.80 0.02	0.17 0.06 1.00 0.09 0.06 0.05 0.94 1.07 0.93 4.23 0.24	94607
86-0262 Newtown, PA USA 1986 (Niagra)	DF (60% W/W)	1	0.14	93.53	150	–	0 7 14 21	Grapes Grapes Grapes Grapes	1.12 1.07 0.39 0.49	< 0.01 0.01 0.01 < 0.01	1.13 1.08 0.40 0.50	99505
86-0263 Newtown, PA USA 1986 (Concord)	DF (60% W/W)	1	0.14	93.53	150	–	0 7 14 21	Grapes	0.60 0.46 0.38 0.24	< 0.01 < 0.01 0.01 < 0.01	0.61 0.47 0.39 0.25	99505
86-0264 Newtown, PA	DF (60%	1	0.14	93.53	150	–	0 7	Grapes	1.38 0.69	< 0.01 0.01	1.39 0.70	99505

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
USA 1986 (Catawba)	W/W)						14 21		0.64 0.43	0.03 0.04	0.67 0.47	
R&H/202/4/GD-74360 Schozach GER, 1996 (Spatburgunder), Wine grapes	EC (240 g ai/L)	8	0.029 – 0.048	319–533	9	10–15	0 14 28	Whole fruit	0.41 0.21 0.20	0.01 0.01 0.02	0.42 0.22 0.22	94404
R&H/202/3/GD-67150 NiederkirchenGER, 1996 (Portugieser) Wine grapes	EC (240 g ai/L)	8	0.012 – 0.047	388–1556	3	10–16	0 14 28 14 14 14	Whole fruit Young Wine Aged wine Juice	0.41 0.25 0.24 0.03 0.03 0.06	< 0.01 < 0.01 0.01 < 0.01 < 0.01 < 0.01	0.42 0.26 0.25 0.04 0.04 0.07	94404 243161
R&H/202/2/GD-67150 NiederkirchenGER, 1996 (Muller–Thurgau) Wine grapes	EC (240 g ai/L)	8	0.030 – 0.047	334–525	9	10–16	0 14 28 14 14 14	Whole fruit Young Wine Aged wine Juice	0.48 0.27 0.29 0.05 0.04 0.07	0.01 < 0.01 0.01 < 0.01 < 0.01 < 0.01	0.49 0.28 0.30 0.06 0.05 0.08	94404 242161
R&H/202/1/GD-54518 GER, 1996 (Riesling) Wine grapes	EC (240 g ai/L)	8	0.012 – 0.061	403–2030	3	10–14	0 14 28	Whole fruit	0.70 0.47 0.35	0.02 0.02 0.02	0.72 0.49 0.37	94404
R&H/211/2/F82290 La Ville Dieu du Temple FRA, 1996 (Syrah) Wine grapes	EC (240 g ai/L)	6	0.028 – 0.030	733–800	3.75	10–13	0 14	Whole fruit	0.04 0.03	< 0.01 < 0.01	0.05 0.04	138357
R&H/211/1/ICazzago, lombardia, ITA, 1996 (Chardonnay) Wine grapes	EC (240 g ai/L)	6	0.036 – 0.061	980.8–1564	3.68–3.91	7–14	0 14	Whole fruit	0.16 0.06	< 0.01 < 0.01	0.17 0.07	138357
R&H/211/2/ICalvagese Lombardia ITA, 1996 (Reisling renano) Wine grapes	EC (240 g ai/L)	6	0.035 – 0.057	960–1515.9	3.6–3.79	10–14	0 14	Whole fruit	0.16 0.05	< 0.01 < 0.01	0.17 0.06	138357
R&H/211/1/F17520 Archiac FRA, 1996 (Ugni-Blanc) Wine grape	EC (240 g ai/L)	6	0.030 – 0.036	793–947	3.75	10–11	0 14	Whole fruit	0.06 0.02	< 0.01 <.0.01	0.07 0.03	138357
R&H/212/2/F82290 La Ville Dieu du Temple FRA, 1996 (Syrah) Wine grapes	EC (120 g ai/L)	6	0.026 – 0.030	680–810	3.75	10–13	0 14	Whole fruit	0.05 0.03	< 0.01 < 0.01	0.06 0.04	138356
R&H/212/1/F17520 Archiac FRA, 1996 (Ugni-Blanc)	EC (120 g ai/L)	6	0.029 – 0.038	773–1000	3.75	10–11	0 14	Whole fruit	0.06 0.04	< 0.01 < 0.01	0.07 0.05	138356

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
Wine grape												
R&H/212/1/I Cazzago, lombardia, ITA, 1996 (Chardonnay) Wine grapes	EC (120 g ai/L)	6	0.037 – 0.059	993.7–1532.1	3.68–3.83	7–14	0 14	Whole fruit	0.15 0.06	< 0.01 < 0.01	0.16 0.07	138356
R&H/212/2/I Calvagese Lombardia ITA, 1996 (Reisling renano) Wine grapes	EC (120 g ai/L)	6	0.036 – 0.058	981.4–1521.3	3.68–3.80	10–14	0 14	Whole fruit	0.11 0.05	< 0.01 < 0.01	0.12 0.06	138356
R&H/213/2/F 2290 La Ville Dieu du Temple FRA, 1996 (Syrah) Wine grapes	EW (200 g ai/L)	6	0.024 – 0.030	647–787	3.75	10–13	0 14	Whole fruit	0.06 0.03	< 0.01 < 0.01	0.07 0.04	241764
R&H/213/2/I Calvagese Lombardia ITA, 1996 (Reisling renano) Wine grapes	EW (200 g ai/L)	6	0.037 – 0.057	992–1513.3	3.65–3.78	10–14	0 14	Whole fruit	0.18 0.03	< 0.01 < 0.01	0.19 0.04	241764
R&H/213/1/I Cazzago, lombardia, ITA, 1996 (Chardonnay) Wine grapes	EW (200 g ai/L)	6	0.036 – 0.058	977.6–1519.2	3.66–3.80	7–14	0 14	Whole fruit	0.14 0.07	< 0.01 < 0.01	0.15 0.08	241764
R&H/213/1/F 17520 Archiac FRA, 1996 (Ugni-Blanc) Wine grape	EW (200 g ai/L)	6	0.031 – 0.035	827–927	3.75	10–11	0 14	Whole fruit	0.04 0.03	< 0.01 < 0.01	0.05 0.04	241764
RAS/23/2/I Calvagese Lombardia ITA, 1997 (Groppello) Wine grapes	EC (240 g ai/L)	6	0.038 – 0.058	1000–1525	3.76–3.79	13–14	0 14	Whole fruit	0.18 0.10	0.01 0.01	0.19 0.11	241823
RAS/23/3/I Prato ottesole Emilia R, ITA 1997 (Barbera) Wine grapes	EC (240 g ai/L)	6	0.037 – 0.055	1000–1477	3.71	10–17	0 14	Whole fruit	0.26 0.13	0.01 0.01	0.27 0.14	241823
RAS/23/1/I Cazzago lombardia ITA, 1997 (Chardonnay) Wine grapes	EC (240 g ai/L)	6	0.038 – 0.056	1000–1500	3.72–3.76	10–11	0 14	Whole fruit	0.08 0.04	< 0.01 < 0.01	0.09 0.05	241823
RAS/23/1/G Korinthia North Peloponese GRC, 1997 (Savatiano) Wine grapes	EC (240 g ai/L)	6	0.056	1495–1512	3.7	10–11	0 14	Whole fruit	0.37 0.09	0.02 0.01	0.39 0.10	241823
R&H/203/4/G	EW	8	0.031	343–	9	10–15	0	Grapes	0.39	0.02	0.41	94403

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
D-74360 Schozach GER, 1996 (Spatburgunder), Wine grape	(200 g ai/L)		– 0.049	543			14 28		0.28 0.22	0.03 0.03	0.31 0.25	241765
R&H/203/3/GD-67150 NiederkirchenGER 1996 (Portugisesr) Wine grape	EW (200 g ai/L)	8	0.012 – 0.048	406–1600	3	10–16	0 14 28 14 14 14	Grapes Juice (must) Mature wine Young Wine	0.46 0.34 0.33 0.07 0.04 0.04	< 0.01 0.01 0.02 < 0.01 < 0.01 < 0.01	0.47 0.35 0.35 0.08 0.05 0.05	94403 241765
R&H/203/2/GD-67150 NiederkirchenGER 1996 (Muller–Thurgau) Wine grape	EW (200 g ai/L)	8	0.028 – 0.048	312–531	9	10–16	0 14 28 14 14 14	Grapes Juice (must) Mature wine Young Wine	0.45 0.41 0.35 0.09 0.07 0.06	< 0.01 0.02 0.01 < 0.01 < 0.01 < 0.01	0.46 0.43 0.36 0.10 0.08 0.06	94403 241765
R&H/203/1/GD-54518 Kesten GER, 1996 (Riesling) Wine grape	EW (200 g ai/L)	8	0.012 – 0.060	410–2008	3	10–14	0 14 28	Grapes	0.43 0.29 0.28	0.02 0.02 0.02	0.45 0.31 0.30	94403 241765
RAS/18/2/F Roschwihr Elsaβ, FRA 1997 (Spatburgunder) Wine grapes	EW (200 g ai/L)	8	0.011 – 0.049	375–1625	3	13–15	0 7 14 21 28	Whole fruit	0.36 0.25 0.16 0.14 0.16	0.02 0.02 0.02 0.02 0.02	0.38 0.27 0.18 0.16 0.18	110206
RAS/18/4/F Wissembourg Elsaβ, FRA 1997 (Spatburgunder) Wine grapes	EW (200 g ai/L)	8	0.012 – 0.048	394–1609	3	10–15	0 7 14 21 28 14 14 14	Whole fruit Juice Mature wine Young wine	0.71 0.51 0.51 0.47 0.38 0.08 0.05 0.04	0.03 0.03 0.03 0.03 0.03 0.01 0.02 0.01	0.74 0.54 0.54 0.50 0.41 0.09 0.07 0.05	110206
RAS/18/1/F Roschwihr Elsaβ, FRA 1997 (Silvaner) Wine grapes	EW (200 g ai/L)	8	0.009 – 0.030	288–1000	3	13–15	0 7 14 21 28	Whole fruit	0.25 0.14 0.07 0.07 0.09	0.01 0.01 0.01 < 0.01 < 0.01	0.26 0.15 0.08 0.08 0.10	110206
RAS/18/3/F Wissembourg Elsaβ, FRA 1997 (Muller–Thurgau) Wine grapes	EW (200 g ai/L)	8	0.009 – 0.030	306–1006	3	10–15	0 7 14 21 28 14 14 14	Whole fruit Juice Mature wine Young wine	0.39 0.31 0.25 0.26 0.25 0.04 0.01 0.02	< 0.01 0.01 < 0.01 0.01 0.01 < 0.01 < 0.01 < 0.01	0.40 0.32 0.26 0.27 0.26 0.05 0.02 0.03	110206
AF/7409/DE/2 Gocklingen, 76831	EW (200 g ai/L)	8	0.036 – 0.084	600–1400	6	7–18	14 28 35	Whole fruit	0.07 0.08 0.05	0.04 0.05 0.04	0.11 0.13 0.09	204469

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
GER, 2003 (Kerner) Wine grape	SC (45 g a i/L)	5	0.036 – 0.084	600–1400	6	7–42	14 28 35	Whole fruit	0.15 0.06 0.08	0.03 0.03 0.04	0.18 0.09 0.12	
AF/7409/DE/1 Gennes, 49320, FRA 2003 (Cabernet franc), Wine grape	EW (200 g ai/L)	8	0.055 – 0.061	577–985	6.1–9.5	7–35	< 0 0 7 14 28 35	Whole fruit	0.13 0.25 0.26 0.07 0.11 0.06	0.05 0.06 0.06 0.02 0.03 0.02	0.18 0.31 0.32 0.09 0.14 0.08	204469
	SC (45 g a i/L)	5	0.058 – 0.061	617–969	6.1–9.6	2–57	< 0 0 7 14 28 35	Whole fruit	0.11 0.14 0.15 0.04 0.06 0.05	0.02 0.02 0.03 0.01 0.02 0.03	0.13 0.16 0.18 0.05 0.08 0.08	
AF/7410/DE/1 Pizay, 69220, Rhone, FRA 2003 (Chardonnay) Wine grape	EW (200 g ai/L)	8	0.064 – 0.065	478–679	9.0–13	7–22	< 0 0 7 14 28 35	Whole fruit	0.04 0.04 0.03 0.02 0.02 0.02	< 0.01 < 0.01 < 0.01 < 0.01 0.01 < 0.01	0.05 0.05 0.04 0.03 0.03 0.03	204468
	SC (45 g a i/L)	8	0.055 – 0.061	577–985	6.1–9.5	6–36	< 0 0 7 14 28 35	Whole fruit	0.03 0.03 0.03 0.03 0.02 0.02	< 0.01 < 0.01 < 0.01 < 0.01 0.01 0.02	0.04 0.04 0.04 0.04 0.03 0.04	
AF/7410/DE/2 Poggio Grande, 40024 Emilia	EW (200 g ai/L)	8	0.034 – 0.058	562–967	6	6–19	14 28 35	Whole fruit	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01	< 0.02 < 0.02 < 0.02	204468
Romagna, ITA 2003 (Barbera) Wine grape	SC (45 g a i/L)	5	0.034 – 0.059	573–990	6	8–36	14 28 35	Whole fruit	0.01 < 0.01 0.01	0.02 < 0.01 0.02	0.03 < 0.02 0.03	
AF/8165/DE/1 71700 Uchizy FRA, 2004 (Chardonnay) Wine grape	EW (200 g ai/L)	4	0.048 – 0.052	997–1083	4.8	10–11	< 0 0 7 14 28 35	Whole fruit	0.06 0.07 0.06 0.04 0.05 0.02	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.07 0.08 0.07 0.05 0.06 0.03	241777
	EW (200 g ai/L)	8	0.046 – 0.052	954–1054	4.8	8–11	< 0 0 7 14 28 35	Whole fruit	0.06 0.09 0.08 0.07 0.04 0.04	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.07 0.10 0.09 0.08 0.05 0.05	
AF/8165/DE/2 71260, St Pierre de Lanques FRA, 2004 (Chardonnay)	EW (200 g ai/L)	4	0.046 – 0.049	958–1023	4.8	10–11	< 0 0 7 14 28 35	Whole fruit	0.12 0.22 0.08 0.07 0.05 0.07	0.02 < 0.01 < 0.01 0.01 < 0.01 < 0.01	0.14 0.23 0.09 0.08 0.06 0.08	241777
Wine grape	EW (200 g ai/L)	8	0.044 – 0.052	925–1088	4.8	8–11	< 0 0 7 14 28 35	Whole fruit	0.18 0.41 0.07 0.08 0.10 0.11	0.03 0.03 < 0.01 0.01 0.02 0.01	0.21 0.44 0.08 0.09 0.12 0.12	
AF/8165/DE/3 49560 Nueil sur Layon	EW (200 g ai/L)	4	0.046 – 0.051	961–1061	4.8	7–10	14	Whole fruit	0.06	< 0.01	0.07	241777
FRA, 2004 (Gamay)	EW (200 g	8	0.046 –	979–1061	4.8	7–12	14	Whole fruit	0.14	0.02	0.16	

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
Wine grape	ai/L)		0.051									
AF/8165/DE/4 49560 Nueil sur Layon	EW (200 g ai/L)	4	0.046 – 0.052	961–1082	4.8	8–12	14	Whole fruit	0.10	< 0.01	0.11	241777
FRA, 2004 (Cabernet Sauvignon) Wine grape	EW (200 g ai/L)	8	0.048 – 0.051	996–1056	4.8	8–12	14	Whole fruit	0.08	0.01	0.09	
GHB-P 794-03 Jundiai, SP BRA, 2001	WP (400 g ai/L)	3	0.16	1000	16	10	7	Grapes	0.31	–	–	102070
(Niagara) Table grape	WP (400 g ai/L)	3	0.080	1000	8	10	7	Grapes	0.12	–	–	
GHB-P 794-02 Marialva, PR BRA, 2002	WP (400 g ai/L)	3	0.16	1000	16	10–44	7	Grapes	0.01	–	–	102070
(Italia) Table grape	WP (400 g ai/L)	3	0.080	1000	8	10–11	7	Grapes	< 0.01	–	–	
GHB-P 794-01 Monte Mor, SP, BRA 2002 (Niagara) Table grape	WP (400 g ai/L)	3	0.16	1000	16	9	0 3 7 10 14	Grapes Grapes Grapes Grapes Grapes	0.29 0.12 0.11 0.09 0.06	– – – – –	– – – – –	102070
	WP (400 g ai/L)	3	0.080	1000	8	9	0 3 7 10 14	Grapes Grapes Grapes Grapes Grapes	0.11 0.04 0.04 0.03 0.02	– – – – –	– – – – –	
005934 Versuchsfeld Deutscher wetterdienst West GER 1984 (Kerner) Wine grapes	EC (125 g ai/L)	8	0.016	920–1440	1.6	13–15	0 14 21 28 35 42 35 35	Grapes Grapes Grapes Grapes Grapes Grapes Must Wine	0.03 0.03 0.02 0.02 0.01 0.01 0.01 0.01	– – – – – – – –	– – – – – – – –	94270
005928 (Trollinger) Wine grapes		7	0.032	800–1000	3.2	11–17	49	Grapes	0.01	–	–	
005931 (Muller Thrugau) Wine Grapes		8	0.048	500–667	4.8	8–15	58	Grapes	0.04	–	–	
4318546, La Tamarissiere Southern FRA, 1985 (Carignan)	EC (125 g ai/L)	8	0.030	60–100	3.0–5.0	–	14 26	Grapes	– –	– –	0.06 0.04	241839
4518502, Allas Bocage Southern FRA, 1985 (Ugni blanc)	EC (125 g ai/L)	12 9	0.020 0.030	250 250	8.0 12	– –	19 31 41 18 30 40	Grapes	– – – – – –	– – – – – –	0.05 0.05 0.04 0.05 0.05 0.04	241890
4518501, St Caprais Southern FRA, 1985 (Ugni blanc)	EC (125 g ai/L)	11 8	0.020 0.030	250 250	8.0 12	– –	19 31 41 18 30 40	Grapes	– – – – – –	– – – – – –	0.06 0.04 0.06 0.05 0.05 0.05	242161

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
4229203, 2580 Alenquer PRT, 1992 (Cardinal)	EC (125 g ai/L)	7	0.020 – 0.030	160–240	12.5	13–15	21	Grapes	–	–	0.05	241981
4229207, 2580 Alenquer PRT, 1992 (Cardinal)	EC (125 g ai/L)	6	0.020 – 0.030	160–240	12.5	12–16	28	Grapes	–	–	0.04	241983
431.86.66 Coursan FRA, 1986 (Muscat de Hambourg)	EC (75 g a i/L)	11	0.019	700	2.7	10–21	30	Grapes	–	–	0.01	242098
421.86.15B Moulon FRA, 1986 (Ugni blanc)	EC (75 g a i/L)	11	0.019	500	4.0	8–13	30	Grapes	–	–	0.05	242106
4918898 Matola Alicante, ESP 1988 (-)	EC (75 g a i/L)	3	0.023	1000	2.3	14	0 7	Grapes	– –	– –	0.10 0.02	242162
4918897 Matola Alicante, ESP 1988 (–)	EC (75 g a i/L)	3	0.023	1000	2.3	14	0 7	Grapes	– –	– –	0.10 0.03	242166
		3	0.023	1000	2.3	14	0 7 14 24	Grapes	– – – –	– – – –	0.24 0.25 0.08 0.08	
	EC (325 g ai/L)	3	0.098	1000	9.7	14	0 7	Grapes	– –	– –	0.25 0.05	
		3	0.098	1000	9.7	14	0 7 14 24	Grapes	– – – –	– – – –	< 0.10 < 0.10 < 0.10 < 0.10	

Strawberry

A total of 47 trials on strawberry were conducted in different representative growing areas in France, Italy, Spain, UK and USA during 1988 through 2007 growing seasons. Results of strawberry fruits are summarized in Table 59.

Table 59 Supervised trials on strawberry in various countries

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH–9090 (mg.kg)	Total of myclobutanil (mg/kg)	Ref.
FL40 USA 1990 (–)	WP (40 %W/W)	6	0.035			13–15	0 3 7	Whole fruit	0.05 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02	0.07 < 0.04 < 0.04	94590 110951
	WP (40 %W/W)	6	0.070			13–15	0 3 7	Whole fruit	0.10 0.04 < 0.02	< 0.02 < 0.02 < 0.02	0.12 0.06 < 0.04	
	WP (40 %W/W)	6	0.14			13–15	0 3 7	Whole fruit	0.20 0.08 0.02	< 0.02 < 0.02 < 0.02	0.22 0.10 0.04	
CA39 USA 1991 (–)	WP (40 %W/W)	6	0.035			14–17	0 3 7	Whole fruit	0.04 0.02 0.02	< 0.02 < 0.02 < 0.02	0.06 0.04 0.04	94590 110951

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH–9090 (mg.kg)	Total of myclobutanil (mg/kg)	Ref.
	WP (40 %W/W)	6	0.070			14–17	0 3 7	Whole fruit	0.08 0.06 0.04	< 0.02 < 0.02 < 0.02	0.10 0.08 0.06	
	WP (40 %W/W)	6	0.14			14–17	0 3 7	Whole fruit	0.15 0.13 0.10	< 0.02 < 0.02 < 0.02	0.17 0.15 0.12	
CA30 USA 1991 (–)	WP (40 %W/W)	6	0.035			20–21	0 4 7	Whole fruit	0.07 0.02 0.04	< 0.02 < 0.02 < 0.02	0.09 0.04 0.06	94590 110951
	WP (40 %W/W)	6	0.070			20–21	0 4 7	Whole fruit	0.07 0.06 0.05	< 0.02 0.02 < 0.02	0.09 0.08 0.07	
	WP (40 %W/W)	6	0.14			20–21	0 4 7	Whole fruit	0.23 0.12 0.12	0.02 < 0.02 < 0.02	0.25 0.14 0.14	
OH01 USA 1991 (–)	WP (40 %W/W)	6	0.035			7–14	0 4 7	Whole fruit	0.02 0.02 < 0.02	< 0.02 < 0.02 < 0.02	0.04 0.04 < 0.04	94590 110951
	WP (40 %W/W)	6	0.070			7–14	0 4 7	Whole fruit	0.06 0.09 0.04	< 0.02 < 0.02 < 0.02	0.08 0.11 0.06	
	WP (40 %W/W)	6	0.14			7–14	0 4 7	Whole fruit	0.10 0.08 0.10	< 0.02 < 0.02 < 0.02	0.12 0.10 0.12	
OR06 USA 1991 (–)	WP (40 %W/W)	6	0.035			10–22	0 3 7	Whole fruit	0.02 0.02 < 0.02	< 0.02 < 0.02 < 0.02	0.04 0.04 < 0.04	94590 110951
	WP (40 %W/W)	6	0.070			10–22	0 3 7	Whole fruit	0.03 0.03 0.02	< 0.02 < 0.02 < 0.02	0.05 0.05 0.04	
	WP (40 %W/W)	6	0.14			10–22	0 3 7	Whole fruit	0.02 0.04 0.04	< 0.02 < 0.02 < 0.02	0.04 0.06 0.06	
NC15 USA 1992 (–)	WP (40 %W/W)	6	0.035			7–14	0 3 7	Whole fruit	0.11 0.05 0.03	< 0.02 < 0.02 < 0.02	0.13 0.07 0.05	94590 110951
	WP (40 %W/W)	6	0.070			7–14	0 3 7	Whole fruit	0.16 0.08 0.05	< 0.02 < 0.02 < 0.02	0.18 0.10 0.07	
	WP (40 %W/W)	6	0.14			7–14	0 3 7	Whole fruit	0.31 0.19 0.13	< 0.02 < 0.02 < 0.02	0.33 0.21 0.15	
PA03 USA 1992 (–)	WP (40 %W/W)	6	0.035			6–11	0 3 7	Whole fruit	< 0.02 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02	< 0.04 < 0.04 < 0.04	94590 110951
	WP (40 %W/W)	6	0.070			6–11	0 3 7	Whole fruit	< 0.02 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02	< 0.04 < 0.04 < 0.04	
	WP (40 %W/W)	6	0.14			6–11	0 3 7	Whole fruit	0.03 0.02 < 0.02	< 0.02 < 0.02 < 0.02	0.05 0.04 < 0.04	
451A/RH/90/STR, Leeds, Kent, UK 1990 (Rapells)	EW (60 g ai/L)	6	0.090	1000	9.0	9–25	0 5 8 18	Whole fruit	1.21 0.36 0.11 0.07	0.07 < 0.01 < 0.01 < 0.01	1.28 0.37 0.12 < 0.01	241905
451B/RH/90/STR, Lamberburst Kent, UK 1990 (Rapells)	EW (60 g ai/L)	6	0.090	1000	9.0	10–25	0 7 17	Whole fruit	0.25 0.23 0.03	0.08 < 0.01 0.06	0.33 0.24 0.09	241905
RES/83/93/3	EW	5	0.090	500	18	12–28	0	Whole	0.38	< 0.01	0.39	242010

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH–9090 (mg.kg)	Total of myclobutanil (mg/kg)	Ref.
Cupar, Fife UK, 1993 (Elsanta)	(60 g ai/L)						3 7 14	fruit	0.24 0.09 0.04	< 0.01 < 0.01 < 0.01	0.25 0.10 0.05	
RES/83/93/4 Inchture Tayside Scotland, 1993 (Honeoye)	EW (60 g ai/L)	5	0.090	500	18	11–28	0 3 7 14	Whole fruit	0.83 0.50 0.27 0.06	< 0.01 < 0.01 < 0.01 < 0.01	0.84 0.51 0.28 0.07	242010
RES/83/93/1 Ross on Wye	EW (60 g ai/L)	5	0.180	500	36	11–14	0 7	Whole fruit	1.01 0.20	< 0.01 < 0.01	1.02 0.21	242010
HerefordshireUK, 1993 (Etsanta)		5	0.090			11–14	0 3 7 14	Whole fruit	0.36 0.48 0.12 0.02	< 0.01 < 0.01 < 0.01 < 0.01	0.37 0.49 0.13 0.03	
RES/83/93/2 Ledbury Herefordshire UK, 1993 (Totem)	EW (60 g ai/L)	5	0.090	500	18	11–14	0 3 7 14	Whole fruit	0.48 0.69 0.28 0.03	< 0.01 < 0.01 < 0.01 < 0.01	0.49 0.70 0.29 0.04	242010
4839312 Francolino Ferrara, ITA 1993 (Addie)	EC (125 g ai/L)	3	0.058 – 0.067	930–1070	6.25	7	0 3 7	Whole fruit	0.07 0.07 0.05	< 0.01 < 0.01 < 0.01	0.08 0.08 0.06	242017
AP/3194/HL/3F, Meauzac Southern FRA, 1996 (Mara des bois)	EW (200 g ai/L)	6	0.064 – 0.068	853–911	7.5	9–13	0 3 7	Whole fruit	0.13 0.05 0.04	< 0.01 < 0.01 < 0.01	0.14 0.06 0.05	241761
AP/3194/HL/1F, Saint Porcharie Southern FRA, 1996 (Elsanta)	EW (200 g ai/L)	6	0.037 – 0.055	490–738	7.5	10–11	0 3 7	Whole fruit	0.16 0.07 0.07	< 0.01 < 0.01 < 0.01	0.17 0.08 0.08	241761
AP/3194/HL/2F, Bonnes Southern FRA, 1996 (Elsanta)	EW (200 g ai/L)	6	0.035 – 0.049	469–659	7.5	10–12	0 3 7	Whole fruit	0.17 0.08 0.05	< 0.01 < 0.01 < 0.01	0.18 0.09 0.06	241761
AP/3194/HL/4F, Cendrieux Southern FRA, 1996 (Seascape)	EW (200 g ai/L)	7	0.062 – 0.071	829–952	7.5	10–14	0 3 7	Whole fruit	0.31 0.26 0.19	< 0.01 0.01 < 0.01	0.32 0.27 0.20	241761
AK/3279/HL/1 Notts, UK 1996 (Elsanta)	EW (200 g ai/L)	6	0.062 – 0.076	1235 – 1527	5.0	10–11	3 3 0 3	Jam Preserve Whole fruit	0.04 0.06 0.12 0.08	< 0.01 < 0.01 < 0.01 < 0.01	0.05 0.07 0.13 0.09	241762
AK/3279/HL/2 Kent, UK 1996 (Elsanta)	EW (200 g ai/L)	6	0.067 – 0.080	1339 – 1604	5.0	10–11	3 3 0 3	Jam Preserve Whole fruit	0.04 0.07 0.15 0.08	< 0.01 < 0.01 < 0.01 < 0.01	0.05 0.08 0.16 0.09	241762
AF/3548/HL/4I, Buttapietra ITA, 1997 (Eddie)	EC (240 g ai/L)	4	0.051 – 0.075	680–1000	8.0	10	0 3 7	Whole fruit	0.25 0.22 0.18	< 0.01 < 0.01 < 0.01	0.26 0.23 0.19	241822
AF/3548/HL/3I, Forli, ITA 1997 (Marmolada)	EC (240 g ai/L)	4	0.076 –0.11	1018 – 1464	8.0	10	0 3 7	Whole fruit	0.75 0.60 0.48	0.01 0.02 0.02	0.76 0.62 0.50	241822
AF/3548/HL/1S, Lepe, ESP 1998 (Camarrosa)	EC (240 g ai/L)	6	0.036 – 0.050	474–664	8.0	11–14	0 3 7	Whole fruit	0.55 0.46 0.31	0.01 0.01 0.01	0.56 0.47 0.32	241822
AF/3548/HL/2S Lepe, ESP	EC (240 g ai/L)	6	0.061 –	815–910	8.0	10–11	0 3	Whole fruit	0.23 0.18	< 0.01 < 0.01	0.24 0.19	241822

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH–9090 (mg.kg)	Total of myclobutanil (mg/kg)	Ref.
1998 (Camarrosa)			0.068				7		0.11	< 0.01	0.12	
RAS/180-01 Conadado ESP, 2000 (Tudla)	EC (245.2 g ai/L)	5	0.061 – 0.062	796–807	7.7	10–13	0 3 7	Whole fruit	0.07 0.08 0.05	< 0.01 < 0.01 < 0.01	0.08 0.09 0.06	260329
RAS/180-02 Conadado ESP, 2000 (Tudla)	EC (245.2 g ai/L)	5	0.062 – 0.066	807–866	7.7	10–13	0 3 7	Whole fruit	0.18 0.12 0.08	< 0.01 < 0.01 < 0.01	0.19 0.13 0.09	260329
S06W048R Canals Valencia ESP, 2006 (Camarosa)	EW (200 g ai/L)	6	0.069 – 0.079	947–1088	7.2	7–8	< 0 0 3 7	Whole fruit	0.15 0.28 0.30 0.14	0.01 0.01 0.01 0.01	0.16 0.29 0.31 0.15	2009747
S07W023R Canals Valencia ESP, 2007	EW (200 g ai/L)	6	0.073 – 0.077	962–1020	7.5	6–8	< 0 0 3 7	Whole fruit	0.15 0.34 0.37 0.20	0.01 0.01 0.01 0.01	0.16 0.35 0.38 0.21	2001900
(Pajaro)	EW (45 g ai/L)	6	0.070 – 0.075	934–1006	7.5	6–8	< 0 0 3 7	Whole fruit	0.18 0.46 0.46 0.27	< 0.01 0.01 0.01 0.01	0.19 0.47 0.47 0.28	
F07W071R Carpentras Provence-Alpes-Cote d'Azur	EW (200 g ai/L)	6	0.070 –0.80	927–1067	7.5	7	< 0 0 3 7	Whole fruit	0.15 0.21 0.16 0.10	0.01 0.01 0.01 < 0.01	0.16 0.22 0.17 0.11	2001900
FRA, 2007 (Pajaro)	EW (45 g ai/L)	6	0.072 – 0.076	960–1020	7.5	7	< 0 0 3 7	Whole fruit	0.12 0.12 0.20 0.12	0.01 < 0.01 0.01 < 0.01	0.13 0.13 0.21 0.13	
S07W152R Quatretonda Valencia ESP, 2007	EW (200 g ai/L)	6	0.071 – 0.079	947–1051	7.5	7–8	< 0 0 3 7	Whole fruit	0.10 0.30 0.19 0.08	< 0.01 0.01 0.01 < 0.01	0.11 0.31 0.20 0.09	2001900
(Candonga)	EW (45 g ai/L)	6	0.070 – 0.074	943–994	7.5	7–8	< 0 0 3 7	Whole fruit	0.09 0.21 0.18 0.12	0.01 0.01 0.01 0.01	0.10 0.22 0.19 0.13	
S07W153R Quatretonda Valencia ESP, 2007	EW (200 g ai/L)	6	0.071 – 0.079	942–1049	7.5	7–8	< 0 0 3 7	Whole fruit	0.10 0.21 0.24 0.10	< 0.01 0.01 0.01 0.01	0.11 0.22 0.25 0.11	2001900
(Camarrosa)	EW (45 g ai/L)	6	0.074 – 0.077	984–1034	7.5	7–8	< 0 0 3 7	Whole fruit	0.07 0.15 0.13 0.09	< 0.01 < 0.01 < 0.01 < 0.01	0.08 0.16 0.14 0.10	
S07W025R Quatretonda Valencia ESP, 2007 (Pajaro)	EW (200 g ai/L)	6	0.072 – 0.078	957–1033	7.5	7–8	< 0 0 3 7	Whole fruit	0.06 0.28 0.14 0.09	< 0.01 0.01 0.01 0.01	0.07 0.29 0.15 0.10	2001320
AK/2876/RH/1 Nr Retford Notts, England 1995 (Elsanta)	EW (60 g ai/L)	6	0.090	500	18	–	3	Whole fruit	0.20	< 0.01	0.21	241766
AK/2876/RH/2 Southwell Notts, England 1995 (Elsanta)	EW (60 g ai/L)	6	0.090	500	18	–	3	Whole fruit	0.19	< 0.01	0.20	241766
AK/2876/RH/3 Kings Lynn Norfolk England 1995 (Elsanta)	EW (60 g ai/L)	6	0.090	500	18	–	3	Whole fruit	0.22	< 0.01	0.23	241766

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH–9090 (mg.kg)	Total of myclobutanil (mg/kg)	Ref.
AK/2876/RH/4 Warmington Northants England, 1995 (Elsanta)	EW (60 g ai/L)	6	0.090	500	18	–	3	Whole fruit	0.19	< 0.01	0.20	241766
AK/2876/RH/1 Nr Retford Notts, England 1995 (Elsanta)	WP (6% W/W)	6	0.090	500	18	–	3	Whole fruit	0.17	< 0.01	0.18	241766
AK/2876/RH/2 Southwell Notts, England 1995 (Elsanta)	WP (6% W/W)	6	0.090	500	18	–	3	Whole fruit	0.20	< 0.01	0.21	241766
AK/2876/RH/3 Kings Lynn Norfolk England 1995 (Elsanta)	WP (6% W/W)	6	0.090	500	18	–	3	Whole fruit	0.15	< 0.01	0.16	241766
AK/2876/RH/4 Warmington Northants England, 1995 (Elsanta)	WP (6% W/W)	6	0.090	500	18	–	3	Whole fruit	0.18	< 0.01	0.19	241766
AK/2876/RH/1 Nr Retford Notts, England 1995 (Elsanta)	EW (200 g ai/L)	6	0.090	500	18	–	3	Whole fruit	0.18	< 0.01	0.19	241766
AK/2876/RH/2 Southwell Notts, England 1995 (Elsanta)	EW (200 g ai/L)	6	0.090	500	18	–	3	Whole fruit	0.19	< 0.01	0.20	241766
AK/2876/RH/3 Kings Lynn Norfolk England 1995 (Elsanta)	EW (200 g ai/L)	6	0.090	500	18	–	3	Whole fruit	0.10	< 0.01	0.11	241766
AK/2876/RH/4 Warmington Northants England, 1995 (Elsanta)	EW (200 g ai/L)	6	0.090	500	18	–	3	Whole fruit	0.19	< 0.01	0.20	241766
4919212 Bonmati, GI ESP, 1992 (Selva)	EC (125 g ai/L)	2	0.088	800	11	7	0 3 7 13	Whole fruit	0.20 0.15 0.08 0.08	– – – –	– – – –	241969
		1	0.088	800	11	–	0 3 7 13	Whole fruit	0.20 0.07 0.12 0.03	– – – –	– – – –	
4918840 Condado, Huelva ESP, 1988	EC (125 g ai/L)	5	0.093	1500	6.2	15–20	3 7 14	Whole fruit	0.12 0.07 0.04	– – –	– – –	242195
(Chandler)		5	0.11	1500	7.5	15–20	3 7 14	Whole fruit	0.15 0.08 0.05	– – –	– – –	
4048871 Coriano, VR ITA, 1988	EC (125 g ai/L)	3	0.038 – 0.075	750–1500	5.0	14	7	Whole fruit	0.09	< 0.01	0.10	242989
(Addie)		3	0.075 –0.15	750–1500	10.0	14	7	Whole fruit	0.12	< 0.01	0.13	

Assorted tropical fruits, inedible peal

Banana

A total of 11 trials on banana were conducted in USA and Costa Rica according to treatment of myclobutanil at banana packing stations in Costa Rica in 1991 through 1993. All treatments consisited of one application of mcyclobutanil, and banana hands were sprayed or dipped at various concentrations. Results of bananas are summarized in Table 60. The total residues were calculated on the basis of peel and pulp and summarized Table 61.

Table 60 Supervised trials on banana in Costa Rica and USA

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
91-0011 San Leandro, CA USA, 1991 (Cavendish)	EC (250 g ai/L)	1	–		200 Spray	–	0	Peel	0.36	0.01	0.37	94396
							7	Peel	0.30	0.01	0.31	
							14	Peel	0.33	0.01	0.34	
							21	Peel	– [a]	0.03	–	
							0	Pulp	< 0.01	< 0.01	< 0.02	
							7	Pulp	0.01	< 0.01	0.02	
							14	Pulp	0.02	< 0.01	0.03	
							21	Pulp	0.02	< 0.01	0.03	
	EC (250 g ai/L)	1	–		400 Spray	–	0	Peel	0.36	< 0.01	0.37	94396
							7	Peel	0.51	0.01	0.52	
							14	Peel	0.34	0.02	0.36	
							21	Peel	0.82	0.02	0.84	
							0	Pulp	< 0.01	< 0.01	< 0.02	
							7	Pulp	0.02	< 0.01	0.03	
							14	Pulp	0.02	0.01	0.03	
							21	Pulp	0.03	< 0.01	0.04	
	EC (250 g ai/L)	1	–		800 Spray	–	0	Peel	0.03	0.01	0.04	94396
							7	Peel	0.66	0.01	0.67	
							14	Peel	0.15	< 0.01	0.16	
							21	Peel	0.09	< 0.01	0.10	
							0	Pulp	< 0.01	< 0.01	< 0.02	
							7	Pulp	0.01	< 0.01	< 0.02	
							14	Pulp	0.02	< 0.01	0.03	
							21	Pulp	< 0.01	< 0.01	< 0.02	
91-0014 Walnut Creek CA, USA, 1991 (Not applicable)	EC (250 g ai/L)	1	–		200 Dip		0	Peel	0.67	< 0.01	0.68	94396
							7	Peel	0.93	0.02	0.95	
							14	Peel	1.12	0.02	1.14	
							21	Peel	1.00	0.02	1.02	
							0	Pulp	< 0.01	< 0.01	< 0.02	
							7	Pulp	0.03	0.01	0.04	
							14	Pulp	0.03	< 0.01	0.04	
							21	Pulp	0.03	< 0.01	0.04	
	EC (250 g ai/L)	1	–		200 Spray		0	Peel	0.03	< 0.01	0.04	94396
							7	Peel	0.02	< 0.01	0.03	
							14	Peel	0.03	< 0.01	0.04	
							21	Peel	0.02	< 0.01	0.03	
							0	Pulp	0.01	< 0.01	0.02	
							7	Pulp	< 0.01	< 0.01	< 0.02	
							14	Pulp	–	< 0.01	–	
							21	Pulp	< 0.01	< 0.01	< 0.02	
	EC (250 g ai/L)	1	–		400 Dip		0	Peel	1.33	0.01	1.34	94396
							7	Peel	1.71	0.03	1.74	
							14	Peel	1.61	0.03	1.64	
							21	Peel	1.44	0.04	1.48	
							0	Pulp	0.01	< 0.01	0.02	
							7	Pulp	0.01	0.01	0.02	
							14	Pulp	0.04	0.01	0.05	
							21	Pulp	0.05	< 0.01	0.06	
	EC	1	–		400		0	Peel	< 0.01	< 0.01	< 0.02	94396

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
	(250 g ai/L)				Spray		7	Peel	0.01	< 0.01	0.02	
							14	Peel	0.06	< 0.01	0.07	
							21	Peel	0.13	< 0.01	0.14	
							0	Pulp	< 0.01	< 0.01	< 0.02	
							7	Pulp	0.02	< 0.01	0.03	
							14	Pulp	0.01	< 0.01	0.02	
							21	Pulp	0.01	< 0.01	0.02	
91-0012 San Jose, CA USA 1991 (Cavendish)	EC (250 g ai/L)	1	–		200 Dip	–	0	Peel	1.08	0.01	1.09	94396
							7	Peel	1.14	0.08	1.22	
							14	Peel	1.10	0.05	1.15	
							21	Peel	1.58	0.04	1.62	
							0	Pulp	< 0.01	< 0.01	< 0.02	
							7	Pulp	0.03	0.01	0.04	
							14	Pulp	0.03	0.01	0.04	
							21	Pulp	0.07	0.01	0.08	
	EC (250 g ai/L)	1	–		400 Dip	–	0	Peel	1.64	0.01	1.65	94396
							7	Peel	2.06	0.08	2.14	
							14	Peel	2.34	0.07	2.41	
							21	Peel	2.54	0.06	2.60	
							0	Pulp	< 0.01	< 0.01	< 0.02	
							7	Pulp	0.05	0.02	0.07	
							14	Pulp	0.06	0.01	0.07	
							21	Pulp	–	0.01	–	
	EC (250 g ai/L)	1	–		800 Dip	–	0	Peel	3.01	< 0.01	3.02	94396
							7	Peel	3.77	0.02	3.79	
							14	Peel	3.21	0.06	3.27	
							21	Peel	4.59	0.01	4.60	
							0	Pulp	< 0.01	< 0.01	< 0.02	
							7	Pulp	0.11	0.03	0.14	
							14	Pulp	0.09	0.02	0.11	
							21	Pulp	0.14	0.01	0.15	
91-0013 Gilroy, CA USA 1991 (Not available)	EC (250 g ai/L)	1	–		200 Spray		0	Peel	0.13	< 0.01	0.14	94396
							7	Peel	0.21	0.01	0.22	
							14	Peel	0.41	0.01	0.42	
							21	Peel	0.36	0.01	0.37	
							0	Pulp	< 0.01	< 0.01	< 0.02	
							7	Pulp	0.02	< 0.01	0.01	
							14	Pulp	–	< 0.01	–	
							21	Pulp	< 0.01	< 0.01	< 0.02	
	EC (250 g ai/L)	1	–		400 Spray		0	Peel	0.28	< 0.01	0.29	94396
							7	Peel	0.56	0.02	0.58	
							14	Peel	0.60	0.03	0.63	
							21	Peel	0.72	< 0.01	0.73	
							0	Pulp	< 0.01	< 0.01	< 0.02	
							7	Pulp	0.02	< 0.01	0.03	
							14	Pulp	0.03	0.01	0.04	
							21	Pulp	0.02	< 0.01	0.03	
	EC (250 g ai/L)	1	–		800 Spray		0	Peel	0.04	< 0.01	0.05	94396
							7	Peel	0.20	0.01	0.21	
							14	Peel	0.59	0.03	0.62	
							21	Peel	0.65	0.01	0.66	
							0	Pulp	< 0.01	< 0.01	< 0.02	
							7	Pulp	0.02	0.01	0.03	
							14	Pulp	0.02	< 0.01	0.03	
							21	Pulp	0.02	< 0.01	0.03	
92-0063 Keaau Plantation, Inc. Hilo, Hawaii, USA 1992 (Williams, Grand Maine,	EC (250 g ai/L)	1	–		400 Spray		0	Peel	2.26	< 0.01	2.27	94256
							7	Peel	2.72	0.03	2.75	
							14	Peel	2.08	0.05	2.13	
							21	Peel	2.84	0.06	2.90	
							28	Peel	2.58	0.07	2.65	
							0	Pulp	0.02	< 0.01	0.03	
							7	Pulp	0.10	< 0.01	0.11	

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
Valerie)							14	Pulp	0.13	0.01	0.14	
							21	Pulp	0.17	0.02	0.19	
							28	Pulp	0.15	0.03	0.18	
	EC (250 g ai/L)	1	–		800 Spray		0	Peel	4.93	0.01	4.94	94256
							7	Peel	6.94	0.05	6.99	
							14	Peel	4.93	0.08	5.01	
							21	Peel	5.74	0.11	5.85	
							28	Peel	5.60	0.10	5.70	
							0	Pulp	0.04	< 0.01	0.05	
							7	Pulp	0.23	< 0.01	0.24	
							14	Pulp	0.27	0.02	0.29	
							21	Pulp	0.32	0.03	0.35	
							28	Pulp	0.28	0.03	0.31	
	WP (40% W/W)	1	–		400 Spray		0	Peel	1.56	< 0.01	1.57	94256
							14	Peel	1.45	0.05	1.50	
							28	Peel	1.67	0.05	1.72	
							0	Pulp	0.02	< 0.01	0.03	
							14	Pulp	0.19	0.01	0.20	
							28	Pulp	0.10	0.02	0.12	
	WP (40% W/W)	1	–		800 Spray		0	Peel	1.96	< 0.01	1.97	94256
							14	Peel	3.33	0.06	3.69	
							28	Peel	2.88	0.09	2.97	
							0	Pulp	0.03	< 0.01	0.04	
							14	Pulp	0.24	0.01	0.25	
							28	Pulp	0.24	0.03	0.27	
92-0064 Robert Ha Inc. Hilo, Hawaii USA 1992 (Williams,	EC (250 g ai/L)	1	–		200 Spray		0	Peel	1.25	< 0.01	1.26	94256
							14	Peel	1.58	0.05	1.63	
							28	Peel	1.10	0.05	1.15	
							0	Pulp	0.02	< 0.01	0.03	
							14	Pulp	0.14	0.01	0.15	
							28	Pulp	0.08	0.03	0.11	
Grand Maine, Valerie)	EC (250 g ai/L)	1	–		400 Spray		0	Peel	2.72	0.01	2.73	94256
							14	Peel	2.26	0.07	2.33	
							28	Peel	3.24	0.11	3.35	
							0	Pulp	0.04	< 0.01	0.05	
							14	Pulp	0.22	0.02	0.24	
							28	Pulp	0.28	0.03	0.31	
	WP (40% W/W)	1	–		400 Spray		0	Peel	1.79	< 0.01	1.80	94256
							14	Peel	2.33	0.06	2.39	
							28	Peel	2.67	0.08	2.75	
							0	Pulp	0.03	< 0.01	0.04	
							14	Pulp	0.21	0.03	0.24	
							28	Pulp	0.41	0.04	0.45	
92-0061 Valery Banana Company Kurtistown Hawaii, USA, 1992 (Williams, Grand Maine, Valerie)	EC (240 g ai/L)	1	–		200 Spray		0	Peel	1.02	< 0.01	1.03	94256
							7	Peel	1.14	0.03	1.17	
							14	Peel	1.14	0.04	1.18	
							21	Peel	1.28	0.04	1.32	
							28	Peel	1.16	0.04	1.20	
							0	Pulp	0.01	< 0.01	0.02	
							7	Pulp	0.09	< 0.01	0.10	
							14	Pulp	0.11	< 0.01	0.12	
							21	Pulp	0.09	0.05	0.14	
							28	Pulp	0.07	0.04	0.11	
	EC (250 g ai/L)	1	–		400 Spray		0	Peel	1.93	0.01	1.94	94256
							7	Peel	2.21	0.06	2.27	
							14	Peel	1.76	0.06	1.82	
							21	Peel	2.25	0.08	2.33	
							28	Peel	1.99	0.08	2.07	
							0	Pulp	0.03	< 0.01	0.04	
							7	Pulp	0.19	0.01	0.20	
							14	Pulp	0.19	0.02	0.21	
							21	Pulp	0.22	0.06	0.28	

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
							28	Pulp	0.17	0.07	0.24	
	EC (250 g ai/L)	1	–		800 Spray		0	Peel	5.18	0.01	5.19	94256
							7	Peel	4.92	0.08	5.00	
							14	Peel	4.20	0.08	4.28	
							21	Peel	4.05	0.13	4.18	
							28	Peel	3.69	0.14	3.83	
							0	Pulp	0.03	< 0.01	0.04	
							7	Pulp	0.26	0.02	0.28	
							14	Pulp	0.33	0.03	0.36	
							21	Pulp	0.47	0.09	0.56	
							28	Pulp	0.30	0.05	0.35	
92-0062 Keaau Plantation, Inc. Hilo, Hawaii, USA 1992	EC (250 g ai/L)	1	–		200 Dip		0	Peel	1.34	< 0.01	1.35	94256
							14	Peel	1.14	0.04	1.18	
							28	Peel	0.98	0.08	1.06	
							0	Pulp	0.02	< 0.01	0.03	
							14	Pulp	0.11	< 0.01	0.12	
							28	Pulp	0.17	0.02	0.19	
(Williams,Grand Maine, Valerie)	EC (250 g ai/L)	1	–		400 Dip		0	Peel	2.04	0.01	2.05	94256
							14	Peel	1.94	0.06	2.00	
							28	Peel	1.53	0.09	1.62	
							0	Pulp	0.03	< 0.01	0.04	
							14	Pulp	0.21	0.01	0.22	
							28	Pulp	0.20	0.08	0.28	
	EC (250 g ai/L)	1	–		400 Spray		0	Peel	2.56	0.01	2.57	94256
							14	Peel	2.27	0.07	2.34	
							28	Peel	3.65	0.12	3.77	
							0	Pulp	0.05	< 0.01	0.06	
							14	Pulp	0.25	0.01	0.26	
							28	Pulp	0.27	0.05	0.32	
	WP (40% W/W)	1	–		400 Dip		0	Peel	1.58	0.01	1.59	94256
							14	Peel	1.27	0.06	1.33	
							28	Peel	1.60	0.07	1.67	
							0	Pulp	0.03	< 0.01	0.04	
							14	Pulp	0.17	0.03	0.20	
							28	Pulp	0.12	0.02	0.14	
	WP (40% W/W)	1	–		400 Spray		0	Peel	1.32	< 0.01	1.33	94256
							14	Peel	1.38	0.06	1.44	
							28	Peel	1.48	0.07	1.55	
							0	Pulp	0.02	< 0.01	0.03	
							14	Pulp	0.21	0.01	0.22	
							28	Pulp	0.18	0.04	0.22	
93-0039 Finca La Guaria, Canton de Matina Provincea de Limon, Costa	EC (250 g ai/L)	1	–		100 Spray		7	Peel	0.45	0.01	0.46	94255
							14	Peel	0.63	0.02	0.65	
							21	Peel	0.53	0.03	0.56	
							7	Pulp	0.05	0.00	0.05	
							14	Pulp	0.07	0.00	0.07	
							21	Pulp	0.07	0.00	0.07	
Rica, 1993 (Cavendish)	EC (250 g ai/L)	1	–		200 Spray		7	Peel	1.11	0.02	1.13	94255
							14	Peel	1.18	0.03	1.21	
							21	Peel	1.32	0.05	1.37	
							7	Pulp	0.10	0.00	0.10	
							14	Pulp	0.10	0.00	0.10	
							21	Pulp	0.14	0.02	0.16	
	EC (250 g ai/L)	1	–		400 Spray		7	Peel	3.26	0.04	3.30	94255
							14	Peel	3.62	0.06	3.68	
							21	Peel	3.77	0.09	3.86	
							7	Pulp	0.23	0.00	0.23	
							14	Pulp	0.31	0.02	0.33	
							21	Pulp	0.35	0.03	0.38	
93-0040 Finca Sahara	EC (250 g ai/L)	1	–		100 Spray		7	Peel	0.54	0.01	0.55	94255
							14	Peel	0.63	0.02	0.65	

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
Canton de Matina Provincea de Limon, Costa							21	Peel	0.51	0.02	0.53	
							7	Pulp	0.05	0.00	0.05	
							14	Pulp	0.06	0.00	0.06	
							21	Pulp	0.05	0.00	0.05	
Rica, 1993 (Cavendish)	EC (250 g ai/L)	1	–		200 Spray		7	Peel	1.17	0.02	1.19	94255
							14	Peel	1.07	0.01	1.08	
							21	Peel	1.57	0.03	1.60	
							7	Pulp	0.09	0.01	0.10	
							14	Pulp	0.11	0.00	0.11	
							21	Pulp	0.16	0.01	0.17	
	EC (250 g ai/L)	1	–		400 Spray		7	Peel	2.95	0.03	2.98	94255
							14	Peel	2.81	0.05	2.86	
							21	Peel	2.91	0.06	2.97	
							7	Pulp	0.17	0.00	0.17	
							14	Pulp	0.29	0.02	0.31	
							21	Pulp	0.26	0.03	0.29	
93-0041 Finca La Guaria, Canton de Matina Provincea de Limon, 1993	EC (250 g ai/L)	1	–		100 Spray		7	Peel	0.53	0.02	0.55	94255
							14	Peel	0.57	0.03	0.60	
							21	Peel	0.51	0.02	0.53	
							7	Pulp	0.05	0.00	0.05	
							14	Pulp	0.08	0.00	0.08	
							21	Pulp	0.09	0.00	0.09	
(Cavendish)	EC (250 g ai/L)	1	–		200 Spray		7	Peel	0.99	0.02	1.01	94255
							14	Peel	1.33	0.04	1.37	
							21	Peel	1.22	0.06	1.28	
							7	Pulp	0.12	0.00	0.12	
							14	Pulp	0.12	0.00	0.12	
							21	Pulp	0.13	0.00	0.13	
	EC (250 g ai/L)	1	–		400 Spray		7	Peel	2.70	0.04	2.74	94255
							14	Peel	2.86	0.06	2.92	
							21	Peel	3.83	0.09	3.92	
							7	Pulp	0.32	0.00	0.32	
							14	Pulp	0.29	0.02	0.31	
							21	Pulp	0.39	0.02	0.41	

[a] Lack of myclobutanil data in peel

Table 61Residues of myclobutanil in banana presented on whole fruit basis from 400 g ai/hL treated plots

Trial ID / Trial Year	Form No.	No. of Appls	Appl Conc (ppm)	DAT	Peel Myclobutanil (mg/kg)	Pulp Myclobutanil (mg/kg)	Weight Factor [a]	Total Myclobutanil (mg/kg) [b]	Reference
91-0011	EC (250 g ai/L)	1	400	0	0.36	0	NA	0.13	94396
USA			Spray	7	0.51	0.02	NA	0.19	
1991				14	0.34	0.02	NA	0.13	
				21	0.82	0.03	NA	0.30	
91-0014	EC (250 g ai/L)	1	400	0	1.33	0.01	NA	0.47	94396
USA			Dip	7	1.71	0.01	NA	0.61	
1991				14	1.61	0.04	NA	0.59	
				21	1.44	0.05	NA	0.54	
91-0014	EC (250 g ai/L)	1	400	0	0	0	NA	0	94396
USA			Spray	7	0.01	0.01	NA	0.01	
1991				14	0.06	0.01	NA	0.03	
				21	0.13	0.01	NA	0.05	
91-0012	EC (250 g ai/L)	1	400	0	1.64	0	NA	0.57	94396
USA			Dip	7	2.06	0.05	NA	0.75	
1991				14	2.34	0.06	NA	0.86	
				21	2.54	–	NA	0.89	

Trial ID Trial Year	Form No.	No. of Appls	Appl Conc (ppm)	DAT	Peel Myclobutanil (mg/kg)	Pulp Myclobutanil (mg/kg)	Weight Factor [a]	Total Myclobutanil (mg/kg) [b]	Reference
91-0013	EC (250 g ai/L)	1	400	0	0.28	0	NA	0.10	94396
USA			Spray	7	0.56	0.02	NA	0.21	
1991				14	0.60	0.03	NA	0.23	
				21	0.72	0.02	NA	0.27	
92-0063	EC (250 g ai/L)	1	400	0	2.26	0.02	0.55	1.03	94256
USA			Spray	7	2.72	0.10	0.57	1.23	
1992				14	2.08	0.13	0.58	0.95	
				21	2.83	0.17	0.61	1.21	
				28	2.58	0.15	0.64	1.02	
92-0063	WP (40% W/W)	1	400	0	1.57	0.02	0.54	0.73	94256
USA			Spray	14	1.45	0.19	0.58	0.72	
1992				28	1.67	0.10	0.65	0.65	
92-0064	EC (250 g ai/L)	1	400	0	2.71	0.04	0.55	1.24	94256
USA			Spray	14	2.26	0.22	0.62	1.00	
1992				28	3.24	0.28	0.67	1.26	
92-0064	WP (40% W/W)	1	400	0	1.79	0.03	0.55	0.82	94256
USA			Spray	14	2.33	0.21	0.64	0.97	
1992				28	2.68	0.41	0.7	1.09	
92-0061	EC (250 g ai/L)	1	400	0	1.93	0.03	0.55	0.89	94256
USA			Spray	7	2.21	0.19	0.58	1.04	
1992				14	1.76	0.19	0.6	0.82	
				21	2.25	0.22	0.62	0.99	
				28	1.99	0.17	0.66	0.79	
92-0062	EC (250 g ai/L)	1	400	0	2.04	0.03	0.57	0.89	94256
USA			Dip	14	1.94	0.21	0.6	0.90	
1992				28	1.52	0.20	0.69	0.61	
92-0062	EC (250 g ai/L)	1	400	0	2.57	0.05	0.57	1.13	94256
USA			Spray	14	2.27	0.25	0.62	1.02	
1992				28	3.65	0.28	0.7	1.29	
92-0062	WP (40% W/W)	1	400	0	1.57	0.03	0.56	0.71	94256
USA			Dip	14	1.27	0.17	0.64	0.56	
1992				28	1.6	0.12	0.67	0.61	
92-0062	WP (40% W/W)	1	400	0	1.32	0.02	0.54	0.62	94256
USA			Spray	14	1.38	0.21	0.61	0.66	
1992				28	1.48	0.18	0.65	0.63	
93-0039	EC (250 g ai/L)	1	400	7	3.26	0.23	0.58	1.50	94255
CRI			Spray	14	3.62	0.31	0.609	1.61	
1993				21	3.77	0.35	0.638	1.59	
93-0040	EC (250 g ai/L)	1	400	7	2.95	0.17	0.58	1.34	94255
CRI			Spray	14	2.81	0.29	0.609	1.28	
1993				21	2.91	0.26	0.638	1.22	
93-0041	EC (250 g ai/L)	1	400	7	2.70	0.32	0.58	1.32	94255
CRI			Spray	14	2.86	0.29	0.609	1.29	
1993				21	3.83	0.39	0.638	1.64	

[a] Weight factor = Weight of pulp/ Weight of whole banana This was only available for 1992 and 1993 studies.
[b] total residues were calculated from the residues measured in peel and pulp based on weight factot

Fruiting vegetables cucurbits

Cucumber

A total of 31 trials on cucumber were conducted in different representative growing areas in France, Italy, Spain and USA during 1986 through 2007 growing seasons. Results of cucumber fruits are summarized in Table 62.

Table 62 Supervised trials on cucumber in various countries

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
86-0240 Harrison, Camilla, GA USA 1986 (Pickling)	WP (40 %W/W)	6	0.071	–	–	6–8	0 5	Whole fruit	0.02 0.01	0.01 0.00	0.03 0.00	94399 94397
86-0240 Harrison, Camilla, GA USA 1986 (Pickling)	WP (40 %W/W)	6	0.14	–	–	6–8	0	Whole fruit	0.02	0.01	0.03	94399 94397
86-0240 Harrison, Camilla, GA USA 1986 (Pickling)	DF (60% W/W)	6	0.071			6–8	0 5	Whole fruit	0.02 0.00	0.01 0.00	0.03	94399 94397
86-0220 Fleischfresser, Homestead, FL USA 1986 (Poinsett 76)	WP (40 %W/W)	8	0.071	477	–	7–8	0 3 5	Whole fruit	0.05 < 0.01 0.01	0.01 0.01 0.01	0.06 0.02 0.02	94399
86-0203 Green, Cleveland, MS USA 1986 (Poinsett)	WP (40 %W/W)	5	0.071	15	–	7	5	Whole fruit	0.01	0.00	0.01	94399
86-0203 Green, Cleveland, MS USA 1986 (Poinsett)	WP (40 %W/W)	5	0.14	29	–	7	5	Whole fruit	0.02	0.00	0.02	94399
86-0269 Holowid, Celeryville, OH USA 1986 (Roadside Fan)	WP (40 %W/W)	7	0.071	–	–	7	0 3 5	Whole fruit	0.02 0.02 0.01	0.00 0.00 0.00	0.02 0.02 0.01	94399
86-0265 Laughner, Newtwon, PA USA 1986 (Marketer)	WP (40 %W/W)	3	0.071	486	–	7–9	5	Whole fruit	0.01	0.00	0.01	94399
86-0265 Laughner, Newtwon, PA USA 1986 (Marketer)	WP (40 %W/W)	3	0.14	486	–	7–9	5	Whole fruit	0.01	0.00	0.01	94399
86-0226 Fresno, CA USA 1986 (Bounty)	WP (40 %W/W)	3	0.14	281	–	6–7	0 4 6 11	Whole fruit	0.01 < 0.01 0.00 0.00	0.00 0.00 0.00 0.00	0.01 < 0.01 0.00 0.00	94438
90-0089 Fremont, OH USA 1990 (Endeavor)	WP (40 %W/W)	5	0.071	327	–	7–11	0	Whole fruit	0.05	0.01	0.06	94397
90-0089 Fremont, OH USA 1990 (Endeavor)	WP (40 %W/W)	5	0.14	327	–	7–11	0	Whole fruit	0.04	0.00	0.04	94397
90-0115	WP	5	0.071	327	–	7–10	0	Whole	0.02	0.00	0.02	94397

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
Blissfield, MI USA 1990 (Calypso)	(40 %W/W)							fruit				
90-0115 Blissfield, MI USA 1990 (Calypso)	WP (40 %W/W)	5	0.14	327	–	7–10	0	Whole fruit	0.07	0.00	0.07	94397
90-0163 Bull Tall, NC USA 1990 (Dasher II)	WP (40 %W/W)	5	0.071	309	–	6–8	0	Whole fruit	0.00	0.00	0.00	94397
90-0163 Bull Tall, NC USA 1990 (Dasher II)	WP (40 %W/W)	5	0.14	309	–	6–8	0 3 7	Whole fruit	0.02 0.03 0.02	0.00 0.01 0.01	0.02 0.04 0.03	94397
94-0109 Westfield, NY USA 1994 (Marketmore)	WP (40 %W/W)	6	0.112	274	–	5–8	0	Whole fruit	0.03	0.01	0.04	94444
94-0160 Boyntonbeach, FL, USA, 1994 (Poinsett 76)	WP (40 %W/W)	6	0.112	281	–	6–9	0	Whole fruit	0.04	0.00	0.04	94444
AP/3192/HL/2F, Villaries FRA, 1996 (Bronco)	EC (240 g ai/L)	6	0.050 – 0.062	671–824	7.5	10–13	0 3 7	Whole fruit	0.04 0.04 0.02	< 0.01 < 0.01 < 0.01	0.05 0.05 0.03	242160
AP/3192/HL/1S, Los Palacios, Andalucia, ESP, 1996 (Dasher II)	EC (240 g ai/L)	6	0.096 –0.23	1279–3076	7.5	10–11	0 3 7	Whole fruit	0.06 0.06 0.03	< 0.01 < 0.01 < 0.01	0.07 0.07 0.04	242160
AP/3192/HL/3F, Sainte Livade, FRA 1996 (Tiria)	EC (240 g ai/L)	5	0.049 – 0.069	647–923	7.5	10–11	0 3 7	Whole fruit	0.07 0.06 0.03	< 0.01 < 0.01 < 0.01	0.08 0.07 0.04	242160
AP/3192/HL/1F, Villaries, FRA, 1996 (Girola)	EC (240 g ai/L))	6	0.049 – 0.073	653–973	7.5	10–11	0 3 7	Whole fruit	0.05 0.03 0.02	0.00 < 0.01 < 0.01	0.05 0.04 0.03	242160
AP/3192/HL/3S, Sanlucar de Barrarneda, Provincia de Cadiz, ESP 1996 (Dasher II)	EC (240 g ai/L)	6	0.15–0.20	2029–2622	7.5	11–14	0 3 7	Whole fruit	0.05 0.04 0.01	0.00 < 0.01 < 0.01	0.05 0.05 0.02	242160
AP/3192/HL/2S, Los Palacios, Andalucia, ESP, 1996 (Dasher II)	EC (240 g ai/L)	5	0.16–0.28	2075–3688	7.5	11–14	0 3 7	Whole fruit	0.09 0.06 0.00	0.00 0.00 0.00	0.09 0.06 0.00	242160
S07W027R Canals, Valencia, ESP 2007 (Tipo Espanol)	EW (200 g ai/L)	8	0.095 –0.11	945–1051	10	6–10	< 0 0 3 7	Whole fruit	0.01 0.07 0.02 0.01	0.00 0.00 0.00 0.00	0.01 0.07 0.02 0.00	2001321
F07W076R Pernes-les-Fontaines, Provence – Alpes-Cote d'Azur, ESP 2007 (Noa) Greenhouse	EW (200 g ai/L)	6	0.093 –0.10	928–1038	10	7–10	< 0 0 3 7	Whole fruit	0.03 0.09 0.04 0.02	0.01 0.01 0.01 0.01	0.04 0.10 0.05 0.03	2001321

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
S07W028R Llanera, Valencia, ESP 2007 (Tipo Espanol)	EW (200 g ai/L)	8	0.096 –0.10	974–1040	10.1	7–8	< 0 0 3 7	Whole fruit	0.02 0.02 0.05 0.01	< 0.01 0.00 < 0.01 0.00	0.03 0.02 0.06 0.01	20013 21
I07W011R Giovinazzo, Puglia, ITA 2007 (Polignanese) Greenhouse	EW (200 g ai/L)	8	0.094 –0.10	939–102	10	7–9	< 0 0 3 7	Whole fruit	0.05 0.06 0.04 0.05	0.01 0.01 0.01 0.01	0.06 0.07 0.05 0.06	20013 21
S06W043R Canals, Valencia, ESP 2006 (Serena)	EW (200 g ai/L)	8	0.093 – 0.098	940–1019	9.6	7–9	< 0 0 3 7	Whole fruit	0.01 0.12 0.08 0.03	0.00 0.00 0.00 0.00	0.01 0.12 0.08 0.03	20095 86
I06W031R Granarolo, Emilia Romagna,Region, Bologna, ITA, 2006 (Dinero)	EW (200 g ai/L)	8	0.095 – 0.098	985–1035	9.6	7–9	< 0 0 3 7	Whole fruit	0.00 0.04 0.03 0.01	0.00 0.00 0.00 0.00	0.00 0.04 0.03 0.01	20095 86
F06W064R Brouilla, Languedoc-Roussillon, FRA 2006 (Jazzer)	EW (200 g ai/L)	8	0.096 –0.10	998–1042	9.6	7–9	< 0 0 3 7	Whole fruit	0.01 0.04 0.04 0.01	0.00 0.00 0.00 0.00	0.01 0.04 0.04 0.01	20095 86

Melons

A total of 21 trials on melon were conducted in different representative growing areas in France, Greece, Italy, Spain and USA during 1986 through 1997 growing seasons. Results of melon fruits are summarized in Table 63.

Table 63 Supervised trials on melon in various countries

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
86-0271 Celeryville, OH USA 1986, (Summit) Cantaloupe	WP (40 %W/W)	8	0.067	–	–	7	0 3 5 10	Whole fruit	0.01 0.02 0.01 0.01	0.01 0.00 0.00 0.00	0.02 0.02 0.01 0.01	94262
86-0281 Belridge, CA USA 1986, (Top Mark) Cantaloupe	WP (40 %W/W)	2	0.28	327	–	21	11	Whole fruit	0.03	0.01	0.04	94262
86-0369 Salisbury, MO USA 1986 (Jaeger) Cantaloupe	WP (40 %W/W)	7	0.071	468	–	5–9	0 3 5 10	Whole fruit	0.04 0.03 0.03 0.01	0.07 0.03 0.04 < 0.01	0.11 0.06 0.07 0.02	94261
88-0148 Yuma, AZ USA 1987 (Topmark) Cantaloupe	DF (60% W/W)	8	0.067	187	–	7–20	0	Whole fruit	0.16	0.00	0.16	94260
87-0249	DF	6	0.067	187	–	7	0	Whole	0.02	0.01	0.03	94260

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
Camilla, GA USA 1987 (Planters jun) Cantaloupe	(60% W/W)						2 5	fruit	0.01 0.00	0.01 0.01	0.02 0.01	
87-0356 Von Ormy, TX USA 1987 (Grande Gold) Cantaloupe	DF (60% W/W)	7	0.067	187	–	6–8	0 5	Whole fruit	0.06 0.03	0.01 0.01	0.07 0.04	94260
86-0284 Newtown, PA USA 1986 (Harvestqueen) Cantaloupe	WP (40 %W/W)	5	0.14	486	–	7–9	3 5	Whole fruit	0.01 0.01	0.01 0.00	0.02 0.01	94283
86-0338 Vincennes, IN USA 1986 (Superstar) Muskmelon	WP (40 %W/W)	5	0.13	636	–	6–7	0 3 5 10	Whole fruit	0.02 0.02 0.00 0.01	0.00 0.00 0.00 0.00	0.02 0.02 0.00 0.01	94283
86-0271 Celeryville, OH USA 1986 (Summit)	WP (40 %W/W)	8	0.067	–	–	7	0	Whole fruit	0.02	0.01	0.03	94397
87-0356 Von Ormy, TX USA 1987 (Grande gold)	DF (60% W/W)	7 7	0.067 0.13	187 187	– –	5–8 5–8	0 0	Whole fruit	0.05 0.03	0.01 0.01	0.06 0.04	94397
88-0148 Yuma, AZ USA 1988 (Topmark)	DF (60% W/W)	8	0.071	187	–	7–20	0	Whole fruit	0.03	0.00	0.03	94397
90-0128 Woodland, CA USA 1990 (PMR45)	WP (40 %W/W)	6 6	0.071 0.14	187 187	– –	6–12 6–12	0 3 7 0 3 7	Whole fruit	0.03 0.04 0.04 0.08 0.06 0.04	0.00 0.00 0.00 0.00 0.01 0.00	0.03 0.04 0.04 0.08 0.07 0.04	94397
90-0133 Huron, CA USA 1990 (Durango)	WP (40 %W/W)	6	0.071 0.14	– –	– –	10 10	0 0	Whole fruit	0.05 0.07	0.00 0.00	0.05 0.07	94397
94-0126 Noblesville, IN USA 1994 (Iriquois)	WP (40 %W/W)	6	0.112	196	–	7–12	0	Whole fruit	0.05	0.00	0.05	94444
94-0177 Waller, TX USA 1994 (Magnum 45)	WP (40 %W/W)	7	0.112	188	–	8–17	0	Whole fruit	0.02	< 0.01	0.03	94444
4839507 Francolino, Ferrara, ITA 1995 (Creso)	EC (125 g ai/L)	6	0.13–0.14	527–1058	13–26	10–11	0 3 7	Whole fruit	0.09 0.05 0.04	0.01 0.01 < 0.01	0.10 0.06 0.05	242022
4839506 Mirabello, Ferrara, ITA 1995 (Gordon)	EC (125 g ai/L)	6	0.13–0.15	505–1013	13–26	10–12	0 3 7	Whole fruit	0.10 0.09 0.05	< 0.01 0.01 0.02	0.11 0.10 0.07	242022

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
AP/3191/HL/1F Montalzat FRA, 1996 (Manta)	EC (240 g ai/L)	6	0.084–0.11	886–1452	7.5	10–12	0 3 7	Whole fruit	0.06 0.05 0.02	0.00 0.00 0.00	0.06 0.05 0.02	241832
AP/3191/HL/2F Labarthe, FRA 1996 (Cezane)	EC (240 g ai/L)	6	0.053–0.10	708–1392	7.5	10–14	0 3 7	Whole fruit	0.04 0.02 0.02	0.00 0.00 0.00	0.04 0.02 0.02	241832
AF/345/HL/1S Sanlucar De Barrameda, Provincia de Cadiz, ESP 1997 (Melina)	EC (240 g ai/L)	5	0.088–0.20	1171–2673	7.5	11–14	0 3 7	Whole fruit	0.04 0.04 0.04	0.00 0.00 0.00	0.04 0.04 0.04	241819
RAS/28/1/G Koutala, Korinthia, North Peloponnese, GRC, 1997 (Galia)	EC (240 g ai/L)	6	0.037–0.090	499–1201	7.5	10–11	0 3 7	Whole fruit	0.03 0.04 0.02	0.00 0.00 0.00	0.03 0.04 0.02	241819

Squash

A total of 12 trials on squash were conducted in different representative growing areas in Italy, Spain and USA during 1986 through 1998 growing seasons. Results of squash fruits are summarized in Table 64.

Table 64 Supervised trials on squash in various countries

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
86-0239 Camilla, GA USA 1986 (Crookneck)	WP (40% W/W)	4	0.12	–	–	7	0	Whole fruit	0.05	0.00	0.05	94397
86-0270 Celeryville, OH, USA, 1986 (Elite)	WP (40% W/W)	7	0.071	–	–	7	0	Whole fruit	0.02	0.00	0.02	94397
86-0270 Celeryville, OH, USA, 1986 (Elite)	WP (40% W/W)	7	0.14	–	–	7	0	Whole fruit	0.06	< 0.01	0.07	94397
88-0147 Yuma, AZ USA 1988 (Viceroy)	DF (60% W/W)	7 7	0.071 0.14	– –	– –	7–8 7–8	0 0 5 10 15	Whole fruit	0.06 0.16 0.01 0.00 0.00	< 0.01 0.00 0.02 0.01 0.01	0.07 0.16 0.03 0.01 0.01	94397
90-0127 Waller, TX USA 1990 (Multi-pick)	WP (40% W/W)	5	0.071 0.14	374 374	– –	7 7	0 0	Whole fruit	0.02 0.04	0.00 0.00	0.02 0.04	94397
90-0134 Newtown, PA USA	WP (40% W/W)	5 5	0.071 0.14	486 486	– –	7–8 7–8	0 0	Whole fruit	0.01 0.01	0.00 0.00	0.01 0.01	94397

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
1990 (Straightneck)												
94-0091 Waller, TX USA 1994 (Table king)	WP (40% W/W)	6	0.112	192	–	5–10	0	Whole fruit	0.10	0.01	0.11	94444
94-0106 Fresno, CA USA 1994, Zucchini (Ambassador)	WP (40% W/W)	6	0.112	281	–	7	0	Whole fruit	0.01	0.01	0.02	94444
94-0110 Westfield, NY USA 1994 (Multipick)	WP (40% W/W)	6	0.112	274	–	5–8	0	Whole fruit	0.02	0.01	0.03	94444
94-0159 Zellwood, FL USA 1994 (Dixie Hybrid)	WP (40% W/W)	6	0.112	281	–	6–9	0	Whole fruit	0.02	0.01	0.03	94444
4919214 Viladecans ESP, 1992 (Diamant F1)	EC (125 g ai/L)	2 1	0.088 0.088	1000 1000	8.8 8.8	7 –	0 3 7 14 0 3 7 14	Whole fruit	0.19 0.03 < 0.02 < 0.02 0.22 0.04 < 0.02 < 0.02	– – – – – – – –	– – – – – – – –	24197 1
4048835 Asti AT, Itlay 1988 (Marketer Ibrido F1)	EC (125 g ai/L)	3 3	0.050 – 0.075 0.10–0.15	1000 – 1500 1000 – 1500	5.0 10.0	12, 10 12, 10	7 7	Whole fruit	0.03 0.02	0.01 0.00	0.04 0.02	24299 0

Watermelon

A total of two trials on watermelon were conducted in different representative growing areas in Italy and USA during 1988 and 1994 growing seasons. Results of watermelon fruits are summarized in Table 65.

Table 65 Supervised trials on watermelon in Italy and USA

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
94-0105 Waller, TX USA 1994 (Jubilee)	WP (40% W/W)	8	0.112	188	–	8–10	0	Whole fruit	0.00	< 0.01	< 0.01	94444
4048870 Roncole, PR	EC (125 g	2 2	0.10 0.20	2000 2000	5.0 10	8 8	7 7	Whole fruit	0.06 0.04	0.41 0.41	0.47 0.45	24299 3

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
ITA, 1988 (Sweet favourite F1)	ai/L)											

Fruiting vegetable other than Cucurbits

Peppers

A total of 26 trials on peppers were conducted in different representative growing areas in France, Italy, Spain and USA during 1996 through 2007 growing seasons. Results of pepper fruits are summarized in Table 66.

Table 66 Supervised trials on pepper in various countries

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
CA88 Coalinga, CA USA 1997 (Excalibur pepper) Bell	WP (40 %W/W)	4	0.13–0.14	469	–	14	0	Whole fruit	0.03	< 0.02	0.05	94387
TX39 Weslaco, TX USA 1998 (Capistrano pepper) Bell	WP (40 %W/W)	4	0.13	545–787	–	13–15	1	Whole fruit	0.47	0.17	0.64	94387
CA83 Gilroy, CA USA 1997 (Jalapeno Grande pepper) Non-bell	WP (40 %W/W)	4	0.13–0.14	523–546	–	14–15	0	Whole fruit	0.09	0.03	0.12	94387
CA82 Parlier, CA USA 1997 (Copacabana pepper) Non-bell	WP (40 %W/W)	4	0.14–0.15	492–517	–	13–15	0 3 7 14	Whole fruit	0.16 0.18 0.15 0.11	0.04 0.05 0.06 0.07	0.20 0.23 0.21 0.18	94387
TX36 Weslaco, TX USA 1997 (Jalapeno pepper) Non-bell	WP (40 %W/W)	4	0.13	562	–	14–15	1	Whole fruit	1.19	0.20	1.39	94387
TX38 Weslaco, TX USA 1997 (Sonora Anaheim pepper) Non-bell	WP (40 %W/W)	4	0.13	562	–	14–15	1	Whole fruit	2.03	0.37	2.40	94387
AP/3205/HL/1 S, El Viso del Alcor, Provincia de Sevilla, ESP 1996 (F2-F3 of	EC (240 g ai/L)	6	0.093–0.20	1242–2612	7.5	10–14	0 3 7	Whole fruit	0.27 0.11 0.12	< 0.01 < 0.01 < 0.01	0.28 0.12 0.13	207056

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
Dulce Italino) Sweet red pepper												
AP/3205/HL/2 S, Alcala del Rio, Provincia de Sevilla, ESP, 1996 (Dulce Itliano Italico) Sweet red pepper	EC (240 g ai/L)	6	0.083 –0.18	1103– 2350	7.5	10–14	0 3 7	Whole fruit	0.28 0.19 0.16	0.01 0.01 0.02	0.29 0.20 0.18	207056
AP/3205/HL/3 S, Sanlucar de Barrameda, Provincia ESP, 1996 (Zafio) Sweet red pepper	EC (240 g ai/L)	6	0.093 –0.15	1240– 1938	7.5	11–14	0 3 7	Whole fruit	0.12 0.11 0.11	0.02 0.01 0.02	0.14 0.12 0.13	207056
AP/3205/HL/4 S, Sanlucar de Barrameda, Provincia ESP, 1996 (Dulce Italico) Sweet red pepper	EC (240 g ai/L)	6	0.060 –0.12	800– 1580	7.5	10–13	0 3 7	Whole fruit	0.34 0.22 0.21	< 0.01 < 0.01 0.01	0.35 0.23 0.22	207056
AP/3206/HL/1 S, El Viso del Alcor, Provincia de Sevilla, ESP 1996 (F2-F3 of Dulce Italino) Sweet peppers	EW (200 g ai/L)	6	0.070 –0.18	932– 2433	7.5	10–14	0 3 7	Whole fruit	0.15 0.13 0.07	< 0.01 < 0.01 < 0.01	0.16 0.14 0.08	207055
AP/3206/HL/2 S Alcala del Rio, Provincia de Sevilla, ESP, 1996 (Dulce Itliano Italico) Sweet peppers	EW (200 g ai/L)	6	0.10– 0.19	1375– 2540	7.5	10–14	0 3 7	Whole fruit	0.33 0.27 0.17	0.01 0.01 0.01	0.34 0.28 0.18	207055
AP/3206/HL/3 S, Sanlucar de Barrameda, Provincia ESP, 1996 (Zafio) Sweet peppers	EW (200 g ai/L)	6	0.12– 0.16	1642– 2073	7.5	11–14	0 3 7	Whole fruit	0.16 0.13 0.07	0.02 0.02 0.01	0.18 0.15 0.08	207055
AP/3206/HL/4 S, Sanlucar de Barrameda, Provincia ESP, 1996 (Dulce Italico) Sweet peppers	EW (200 g ai/L)	6	0.066 –0.12	880– 1575	7.5	10–13	0 3 7	Whole fruit	0.29 0.31 0.22	0.01 0.01 < 0.01	0.30 0.32 0.23	207055
RAS/26/1/G Lakonia, South Peloponnese, ITA, 1997 (Sonar) Bell pepper	EC (240 g ai/L)	6	0.060 –0.11	798– 1506	7.5	10–11	0 3 7	Whole fruit	0.13 0.12 0.10	< 0.01 < 0.01 < 0.01	0.14 0.13 0.11	207058
RAS/26/1/I	EC	6	0.063	833–	7.5	13–15	0	Whole	0.10	< 0.01	0.11	207058

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
Villanova d'Albenga, Liguria, ITA 1997 (Quadrato giallo) Bell pepper	(240 g ai/L)		–0.23	3019			3 7	fruit	0.19 0.09	0.01 < 0.01	0.20 0.10	
RAS/26/2/I Codogno, Lombardia, ITA, 1997 (Lamuyo) Bell pepper	EC (240 g ai/L)	6	0.061 –0.17	800–2280	7.5	13–15	0 3 7	Whole fruit	0.11 0.10 0.06	< 0.01 < 0.01 < 0.01	0.12 0.11 0.07	207058
RAS/26/3/I Cernusco S. N., Lombardia, ITA, 1997 (Corallo) Bell pepper	EC (240 g ai/L)	6	0.059 –0.12	785–1526	7.5	12–15	0 3 7	Whole fruit	0.11 0.10 0.07	< 0.01 0.01 0.01	0.12 0.11 0.08	207058
S06W047R Xativa, Valencia, ESP, 2006 (Stilo) Bell peppers	EW (200 g ai/L)	6	0.096 – 0.097	1002–1014	9.6	7–10	< 0 0 3 7	Whole fruit	0.14 0.73 0.42 0.25	0.01 0.01 0.02 0.03	0.15 0.74 0.44 0.28	2009588
I06W033R Bitonto, Puglia ITA, 2006 (Fribello) Bell peppers	EW (200 g ai/L)	6	0.091 – 0.098	946–1018	9.6	7–9	3	Whole fruit	0.28	0.03	0.31	2009588
S07W051R Navarres, Valencia, ESP, 2007 (4 Cantos) Bell pepper	EW (200 g ai/L)	6	0.092 –0.11	912–1067	10.1	7–8	< 0 0 3 7	Whole fruit	0.06 0.30 0.11 0.04	0.01 0.01 0.01 0.01	0.07 0.31 0.12 0.05	2001325
F07W108R Brouilla, Languedoc–Roussillon, FRA, 2007 (Camayo) Bell pepper	EW (200 g ai/L)	6	0.099 –0.10	990–1018	10.0	7–10	< 0 0 3 7	Whole fruit	0.07 0.09 0.14 0.08	0.02 0.02 0.03 0.02	0.09 0.11 0.17 0.10	2001325
I07W012R Molfetta, Puglia, ITA 2007 (Cornetto di Molfetta) Bell pepper	EW (200 g ai/L)	6	0.10	1007–1030	10.1	7–9	< 0 0 3 7	Whole fruit	0.08 0.38 0.17 0.17	0.02 0.02 0.03 0.04	0.10 0.40 0.20 0.21	2001325
S07W052R Llanera, Valencia, ESP, 2007 (Italiana) Bell pepper	EW (200 g ai/L)	6	0.097 –0.11	963–1089	10.0	7–8	3	Whole fruit	0.16	0.02	0.18	2001325
F07W109R Alenya, Languedoc–Roussillon, FRA, 2007 (Mariniez) Bell pepper	EW (200 g ai/L)	6	0.10	992–1038	10.0	7–8	3	Whole fruit	0.24	0.03	0.27	2001325
I07W013R Giovinazzo, Puglia, ITA 2007	EW (200 g ai/L)	6	0.10–0.11	989–1076	10.1	6–9	3	Whole fruit	0.15	0.04	0.19	2001325

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
(Frigitello) Bell pepper												

Tomato

A total of 50 trials on tomato were conducted in different representative growing areas in France, Italy, Morocco, Spain and USA during 1986 through 2007 growing seasons. Results of tomato fruits are summarized in Table 67.

Table 67 Supervised trials on tomato in some countries.

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	PHI (days)	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
93-0085 Fresno, CA USA 1993 (Dwarf	WP (40% W/W)	4	0.070	281	–	13–14	0 5 10 15	Whole fruit	0.01 0.01 0.01 0.01	0.00 0.00 0.00 0.01	0.01 0.01 0.01 0.02	94552
Cherry) Cherry tomato	WP (40% W/W)	4	0.14	281	–	13–14	0 5 10 15	Whole fruit	0.02 0.02 0.02 0.02	0.00 0.01 0.01 0.01	0.02 0.03 0.03 0.03	
93-0156 Fremont, OH USA	WP (40% W/W)	5	0.070	935.3	–	14–15	0	Whole fruit	0.02	0.00	0.02	94552
1993 (Sweet 100) Cherry tomato	WP (40% W/W)	5	0.14	935.3	–	14–15	0	Whole fruit	0.07	0.02	0.09	
93-0127 Carneys Point NJ, United	WP (40% W/W)	4	0.070	327	–	14–16	0	Whole fruit	0.05	0.01	0.06	94552
States, 1993 (Sweet 100) Cherry tomato	WP (40% W/W)	4	0.14	327	–	14–16	0	Whole fruit	0.10	0.02	0.12	
93-0154 San Luis Rey CA, USA, 1993	WP (40% W/W)	4	0.070	935.3	–	10–14	0	Whole fruit	0.03	0.01	0.04	94552
(BHN 101) Cherry tomato	WP (40% W/W)	4	0.14	935.3	–	10–14	0	Whole fruit	0.08	0.02	0.10	
94-0001 Boynton Beach FL, United States, 1993	WP (40% W/W)	4	0.070	926	–	13–14	0 5 10 15	Whole fruit	0.02 0.01 0.01 0.01	0.01 0.01 0.01 0.01	0.03 0.02 0.02 0.02	94552
(Cherry Grande) Cherry tomato	WP (40% W/W)	4	0.14	926	–	13–14	0 5 10 15	Whole fruit	0.03 0.02 0.03 0.01	0.01 0.01 0.02 0.01	0.04 0.03 0.05 0.02	
94-0042 Ft. Pierce, FL USA 1994 (Cherry	WP (40% W/W)	4	0.070	744	–	11–13	0	Whole fruit	0.02	0.00	0.02	94552
Grande) Cherry tomato	WP (40% W/W)	4	0.14	744	–	11–13	0	Whole fruit	0.04	< 0.01	0.05	
21801050 Huron, CA USA 2001 (Hines 98-	EC (250 g ai/L)	5	0.10	373–386	–	10–11	0	Whole fruit	0.09	< 0.01	0.10	135359 135364

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	PHI (days)	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
88) Tomato												
21801050 Huron, CA USA 2001 (Hines 98-88) Tomato	WP (40 %W/W)	5	0.10	372–385	–	10–11	0	Whole fruit	0.10	< 0.01	0.11	135359 135364
21801049 Lemoore, CA USA 2001 (Asgro 410), Tomato	WP (40 %W/W)	5	0.10	373–394	–	10–11	0	Whole fruit	0.07	0.00	0.07	135359 135364
21801046 Tracy, CA USA 2001 (9775) Tomato	WP (40 %W/W)	5	0.10	232–239	–	14–15	0	Whole fruit	0.03	0.00	0.03	135359 135364
21801044 Dunnigan, CA USA 2001 (Heinz 9492) Tomato	WP (40 %W/W)	5	0.10	192–223	–	13–15	0	Whole fruit	0.07	0.00	0.07	135359 135364
21801047 Los Banos, CA USA 2001 (3155) Tomato	WP (40 %W/W)	5	0.10	231–239	–	12–15	0	Whole fruit	0.08	0.00	0.08	135359 135364
21801048 Hickman, CA USA 2001 (9775) Tomato	WP (40 %W/W)	5	0.10	235–249	–	13–14	0	Whole fruit	0.07	0.00	0.07	135359 135364
21801043 North Rose, NY, USA, 2001 (Floradade) Tomato	WP (40 %W/W)	5	0.10	228–240	–	14–15	0	Whole fruit	0.04	< 0.01	0.05	135359 135364
21801051 San Ardo, CA USA 2001 (Better Boy) Tomato	EC (250 g ai/L)	5	0.10	277–315		14	0	Whole fruit	0.11	< 0.01	0.12	135359 135364
21801051 San Ardo, CA USA 2001 (Better Boy) Tomato	WP (40 %W/W)	5	0.10	277–302		14	0	Whole fruit	0.06	0.00	0.06	135359 135364
21801045 Williams, CA USA 2001 (3155) Tomato	WP (40 %W/W)	5	0.10	207–224	–	10–14	0	Whole fruit	0.07	< 0.01	0.08	135359 135364
90-0040 Homestead FL, USA, 1990 (Floradade)	WP (40 %W/W)	4	0.094	468	–	14	0	Whole fruit	0.22	0.03	0.25	94548
89-0265 Woodland, CA	WP (40	4	0.071	281		10–12	5	Canned Catsup	0.01 0.07	0.01 0.00	0.02 0.07	94609

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	PHI (days)	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
USA 1989 (Harris Moran)	%W/W)							Dry pomace	0.43	0.00	0.43	
								Hot break	0.00	0.00	0.00	
								Juice	0.02	0.00	0.02	
								Paste	0.08	0.03	0.11	
								Paste juice	0.04	0.04	0.08	
								Puree	0.02	0.02	0.04	
								Unwashed	0.03	0.00	0.03	
								Washed	0.02	0.00	0.02	
								Wet pomace	0.25	0.00	0.25	
89-0265 Woodland, CA USA 1989 (Harris Moran)	WP (40 %W/W)	4	0.14	281		10–12	5	Canned	0.02	0.03	0.05	94609
								Catsup	0.00	0.03	0.03	
								Dry pomace	1.03	0.01	1.04	
								Hot break	0.02	0.01	0.03	
								Juice	0.04	0.02	0.06	
								Paste	0.17	0.08	0.25	
								Paste juice	0.02	0.06	0.08	
								Puree	0.05	0.03	0.08	
								Unwashed	0.04	0.02	0.06	
								Washed	0.06	0.02	0.08	
								Wet pomace	0.03	0.01	0.04	
R&H/209/1/I Diano Marina , Liguria, ITA 1996 (Marmade) Tomato	EC (240 g ai/L)	6	0.064–0.11	850–1517	7.5	14	0	Whole fruit	0.24	< 0.01	0.25	241830
							3		0.18	< 0.01	0.19	
							7		0.05	< 0.01	0.06	
R&H/209/2/I Villanova D'Albenga, Liguria, ITA 1996 (Arlette) Tomato	EC (240 g ai/L)	6	0.061–0.11	820–1505	7.5	14	0	Whole fruit	0.24	< 0.01	0.25	241830
							3		0.18	< 0.01	0.19	
							7		0.06	< 0.01	0.07	
AP/3172/HL/2F, Bressols FRA, 1996 (Laurelia) Tomato	EC (240 g ai/L)	6	0.098–0.12	1308–1600	7.5	10–14	3	Juice	0.01	0.00	0.01	241830
							3	Preserve	< 0.01	0.00	0.00	
							3	Puree	0.06	0.00	0.06	
							0	Whole fruit	0.05	0.00	0.05	
							3		0.03	0.00	0.03	
							7		0.03	0.00	0.03	
AP/3172/HL/1F, Aucamville FRA, 1996 (Delfine) Tomato	EC (240 g ai/L)	6	0.093–0.11	1245–1423	7.5	10–13	3	Juice	0.02	0.00	0.02	241830
							3	Preserve	< 0.01	0.00	< 0.01	
							3	Puree	0.06	0.00	0.06	
							0	Whole fruit	0.05	0.00	0.05	
							3		0.02	0.00	0.02	
							7		0.03	0.00	0.03	
R&H/210/1/I Diano Marina Liguria, ITA 1996	EW (200 g ai/L)	6	0.061–0.11	810–1495	7.5	14	0	Whole fruit	0.24	< 0.01	0.25	241829
							3		0.18	< 0.01	0.19	
							7		0.06	< 0.01	0.07	

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	PHI (days)	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
(Marmade) Tomato												
R&H/210/2/I Villanova D'Albenga ITA, 1996 (Arlette) Tomato	EW (200 g ai/L)	6	0.060–0.11	800–1492	7.5	14	0 3 7	Whole fruit	0.22 0.13 0.08	< 0.01 < 0.01 < 0.01	0.23 0.14 0.09	241829
AP/3173/HL/2/F, Bressols FRA, 1996 (Laurelia) Tomato	EW (200 g ai/L)	6	0.098–0.11	1300–1533	7.5	10–13	3 3 3 0 3 7	Juice Preserve Puree Whole fruit	0.01 < 0.01 0.05 0.11 0.05 0.01	0.00 0.00 0.00 < 0.01 0.00 0.00	0.01 < 0.01 0.05 0.12 0.05 0.01	241829
AP/3173/HL/1/F, Aucamville FRA, 1996 (Delfine) Tomato	EW (200 g ai/L)	6	0.097–0.11	1293–1420	7.5	10–13	3 3 3 0 3 7	Juice Preserve Puree Whole fruit	0.01 0.01 0.04 0.07 0.04 0.02	0.00 0.00 0.00 0.00 0.00 0.00	0.01 0.01 0.04 0.07 0.04 0.00	241829
F07W067R Brouilla Languedoc-Roussillon	EW (200 g ai/L)	6	0.075–0.077	987–1024	7.5	6–11	< 0 0 3 7	Whole fruit	0.02 0.02 0.02 0.02	0.00 0.00 0.00 0.00	0.02 0.02 0.02 0.02	2001330
FRA, 2007 (Cobra) Tomato	EW (45 g ai/L)	6	0.073–0.075	980–1017	7.5	6–11	< 0 0 3 7	Whole fruit	0.02 0.02 0.01 0.03	< 0.01 0.00 0.00 < 0.01	0.03 0.02 0.01 0.04	
F07W070R Thoree les Pins Pays de Loire FRA, 2007	EW (200 g ai/L)	7	0.069–0.083	980–1093	7.5	6–9	< 0 0 3 7	Whole fruit	0.01 0.04 0.03 0.01	0.00 0.00 0.00 0.00	0.01 0.04 0.03 0.01	2001330
(Roma) Tomato	EW (45 g ai/L)	7	0.068–0.079	973–1077	7.5	6–9	< 0 0 3 7	Whole fruit	0.01 0.06 0.04 0.02	0.00 0.00 0.00 0.00	0.01 0.06 0.04 0.02	
F07W068R Alenya Languedoc-Roussillon	EW (200 g ai/L)	6	0.074–0.079	987–1047	7.5	7–11	< 0 0 3 7	Whole fruit	0.02 0.08 0.02 0.01	< 0.01 < 0.01 < 0.01 < 0.01	0.03 0.09 0.03 0.02	2001330
FRA, 2007 (Marbonne) Tomato	EW (45 g ai/L)	6	0.071–0.077	963–1043	7.5	7–11	< 0 0 3 7	Whole fruit	0.03 0.07 0.02 0.01	< 0.01 < 0.01 < 0.01 < 0.01	0.04 0.08 0.03 0.02	
F07W069R Longue, La Ptoterie FRA, 2007	EW (200 g ai/L)	6	0.075–0.080	987–1060	7.5	7–8	< 0 0 3 7	Whole fruit	0.01 0.20 0.09 0.03	0.00 < 0.01 0.01 < 0.01	0.01 0.21 0.10 0.04	2001330
(Topkapi) Tomato	EW (45 g ai/L)	6	0.072–0.076	987–1030	7.5	7–8	< 0 0 3 7	Whole fruit	0.12 0.25 0.13 0.05	0.01 0.01 0.01 0.01	0.13 0.26 0.14 0.06	
S06W041R Alberic Valencia ESP, 2006 (Bon) Tomato	EW (200 g ai/L)	6	0.10–0.11	1473–1531	7.1	7–10	< 0 0 3 7	Whole fruit	0.07 0.10 0.04 0.03	< 0.01 < 0.01 < 0.01 < 0.01	0.08 0.11 0.05 0.04	2009587
F06W062R Brouilla, Languedoc-	EW (200 g ai/L)	6	0.10–0.12	1479–1638	7.0	7–10	3	Whole fruit	0.03	< 0.01	0.04	2009587

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	PHI (days)	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
Roussillon, FRA, 2006 (Cobra)												
S06W039R Teresa de Cofrentes, Valencia ESP, 2006 (Malpica) Tomato	EW (200 g ai/L)	6	0.071–0.077	991–1073	7.2	7–8	3	Whole fruit	0.01	< 0.01	0.02	2009587
I06W029R Emilia Romagna Region (Fe) ITA, 2006 (Asterix) Tomato	EW (200 g ai/L)	6	0.069–0.075	963–1025	7.2	8–9	3	Whole fruit	0.07	0.00	0.07	2009587
F06W061R Brouilla, Languedoc-Roussillon, FRA, 2006 (Cobra) Tomato	EW (200 g ai/L)	6	0.070–0.075	975–1035	7.2	7–8	< 0 0 3 7	Whole fruit	0.01 0.04 0.02 0.01	< 0.01 0.00 0.01 0.00	0.02 0.04 0.03 0.01	2009587
S06W040R Quatretonda Valencia ESP, 2006 (Malpica) Tomato	EW (200 g ai/L)	6	0.071–0.078	990–1081	7.2	7–8	< 0 0 3 7	Whole fruit	0.04 0.11 0.08 0.06	< 0.01 < 0.01 < 0.01 0.01	0.05 0.12 0.09 0.07	2009587
4918529 Premier de Dalt, Barcelone ESP, 1985 (Floritalia)	EC (125 g ai/L)	8 5 3 2	0.24 0.24 0.24 0.24	3000 3000 3000 3000	8.0 8.0 8.0 8.0	3–7 3–7 3 3	0 3 5 8 15 22 8 8 15	Whole fruit	0.06 0.04 0.03 0.02 0.02 0.02 0.06 0.03 0.03	– – – – – – – – –	– – – – – – – – –	241921
4219040JNL Mouton FRA, 1990 (Merveille des Marches)	EC (125 g ai/L)	8	0.075	500	15	10–13	0 2 4 7	Whole fruit	0.13 0.12 0.02 0.02	– – – –	– – – –	241953
4219040JL Mouton FRA, 1990 (Merveille des Marches)	EC (125 g ai/L)	8	0.075	500	15	10–13	0 2 4 7	Whole fruit	0.06 0.09 0.09 0.03	– – – –	– – – –	241954
4919290 Chtouka Azemmour MAR, 1992 (H236)	EC (125 g ai/L)	4	0.063	1000	6.3	2–3	0 3 5 7	Whole fruit	0.10 0.04 0.05 0.04	– – – –	– – – –	241972
4919290 Chtouka Azemmour MAR, 1992 (H236)	EC (125 g ai/L)	4	0.094	1500	6.3	2–3	0 3 5 7	Whole fruit	0.04 0.06 < 0.02 < 0.02	– – – –	– – – –	241973

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	PHI (days)	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
4919354 Viladecans, B ESP, 1993 (Precolor)	EC (125 g ai/L)	3 2	0.13 0.13	1000–1562 1000–1562	3.8–13 3.8–13	7, 8 7	0 3 7 14 8	Whole fruit	0.16 0.24 0.16 0.04 0.23	0.01 0.02 0.03 0.02 < 0.01	0.17 0.26 0.19 0.06 0.24	241992
9319369 Muchamiel, A ESP, 1993 (Rami)	EC (125 g ai/L)	3	0.13	1077	12	7	0 7 0 4 7 14	Whole fruit	0.03 0.02 0.02 0.03 0.03 0.04	< 0.01 0.02 < 0.01 < 0.01 < 0.01 0.02	0.04 0.04 0.03 0.04 0.04 0.06	241996
4919390 Mohammedia MAR, 1993 (Hamra)	EC (125 g ai/L)	1 3 4	0.094 0.094 0.094	1500 1500 1500	6.3 6.3 6.3	– – –	0 7 0 3 7 14	Whole fruit	0.06 0.09 0.04 0.02 0.02 0.01	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.07 0.10 0.05 0.03 0.03 0.02	241997
4919391 Mohammedia MAR, 1993 (Daniella)	EC (125 g ai/L)	1 3 4	0.094 0.094 0.094	1500 1500 1500	6.3 6.3 6.3	– – –	0 7 0 3 7 14	Whole fruit	0.03 0.06 0.11 0.05 0.04 0.03	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.04 0.07 0.12 0.06 0.05 0.04	241998
4918620 Viladecans, B ESP, 1986 (Carmelo)	EC (125 g ai/L)	5 4	0.02 0.04	250 250	8.0 16	2–8 2–4	0 2 4 8 16 0 2 4 8	Whole fruit	0.10 0.15 0.07 0.10 0.05 0.25 0.30 0.40 0.10	– – – – – – – – –	– – – – – – – – –	242156
4918417 La Roqueta Almeria ESP, 1984 (–)	EC (125 g ai/L)	6	0.08	900	9.0	13–15	6	Whole fruit	0.04	–	–	242213
4918667 Premier de Dalt, Barcelona ESP, 1986 (Carmelo)	EC (125 g ai/L)	5 3	0.08 0.16	670 670	12 24	2–3 3, 4	3 5 7 9 12 5 9 12	Whole fruit	< 0.01 0.01 < 0.01 < 0.01 < 0.01 0.03 0.01 < 0.01	– – – – – – – –	– – – – – – – –	241988

Legume vegetables

Snap beans

A total of 10 trials on snap beans were conducted in different representative growing areas in USA during 1989 and 1999 growing seasons. Results of snap beans are summarized in Table 68.

Table 68 Supervised trials on snap beans in the USA

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
89-0305/ TN_89/3966 Crossville, TN	WP (40 %W/W)	2	0.067	374	–	7	0 3 7	Whole bean	0.12 0.06 0.05	< 0.02 < 0.02 0.02	0.14 0.08 0.07	94516 263134 263135
USA, 1989 (Eagle)	WP (40 %W/W)	2	0.14	374	–	7	0 3 7	Whole bean	0.15 0.14 0.04	< 0.02 0.03 0.02	0.17 0.17 0.06	110950
	WP (40 %W/W)	2	0.28	374	–	7	0 3 7	Whole bean	0.36 0.30 0.14	< 0.02 < 0.02 0.02	0.38 0.32 0.16	
90-0087/ GA_90/3966 Tifton, GA, USA	WP (40 %W/W)	4	0.12	374	–	7–11	0 3 7	Whole bean	0.22 0.11 0.13	< 0.02 < 0.02 0.02	0.24 0.13 0.15	94516 263134 263135
1990 (Bountiful)	WP (40 %W/W)	4	0.24	374	–	7–11	0 3 7	Whole bean	0.61 0.48 0.18	< 0.02 0.02 0.04	0.63 0.50 0.22	110950
90-0203 NY_90/3966 Geneva, NY	WP (40 %W/W)	4	0.12	920	–	7–8	0 3 7	Whole bean	0.47 0.29 0.16	0.03 0.05 0.02	0.50 0.34 0.18	94516 263134 263135
USA, 1990 (Labrador)	WP (40 %W/W)	4	0.24	920	–	7–8	0 3 7	Whole bean	1.21 0.52 0.30	0.06 0.07 0.05	1.27 0.59 0.35	110950
90-0231 WI_90/3966 Madison, WI	WP (40 %W/W)	4	0.125	208	–	7–9	0 3 7	Whole bean	0.14 0.10 0.09	< 0.02 0.02 0.03	0.16 0.12 0.12	94516 263134 263135
USA, 1990 (root rot res line)	WP (40 %W/W)	4	0.25	208	–	7–9	0 3 7	Whole bean	0.29 0.15 0.15	0.02 0.02 0.04	0.31 0.17 0.19	110950
91-0083 TN_91/3966 Crossville, TN,	WP (40 %W/W)	4	0.125	187	–	7–8	0 3 7	Whole bean	0.20 0.09 0.07	< 0.02 < 0.02 0.02	0.22 0.11 0.09	94516 263134 263135
USA, 1991 (Tenderlake)	WP (40 %W/W)	4	0.25	187	–	7–8	0 3 7	Whole bean	0.23 0.14 0.09	< 0.02 0.03 0.03	0.25 0.17 0.12	110950
91-0085 MI_91/3966 East Lansing, MI	WP (40 %W/W)	4	0.125			8–10	0 3 7	Whole bean	0.04 0.03 0.03	< 0.02 < 0.02 < 0.02	0.06 0.05 0.05	94516 263134 263135
USA, 1991 (–)	WP (40 %W/W)	4	0.25			8–10	0 3 7	Whole bean	0.07 0.05 0.04	< 0.02 < 0.02 < 0.02	0.09 0.07 0.06	110950
91-0019 OR_91/3966 Hillsboro, OR,	WP (40 %W/W)	4	0.125	–	–	5–7	0 3 7	Whole bean	0.18 0.19 0.12	< 0.02 0.02 < 0.02	0.20 0.21 0.14	94516 263134 263135
USA, 1991 (–)	WP (40 %W/W)	4	0.25	–	–	5–7	0 3 7	Whole bean	0.33 0.23 0.15	< 0.02 < 0.02 0.02	0.35 0.25 0.17	110950

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
92-0015 FL_92/3966 Gainesville, FL, USA, 1992 (Podsouad)	WP (40 %W/W)	4	0.125	234	–	7–11	0 3 8	Whole bean	0.37 0.26 0.12	0.02 0.02 0.02	0.39 0.28 0.14	94516 263134 263135
	WP (40 %W/W)	4	0.25	234	–	7–11	0 3 8	Whole bean	0.57 0.43 0.31	0.02 0.02 0.03	0.59 0.45 0.34	110950
99-WI08, A3966 Arlington, WI, USA, 1999 (Hystyle)	WP (40 %W/W)	4	0.12–0.13	313–321	–	7–8	0	Whole pods	0.09	< 0.02	0.11	104615
99-CA42, A3966 Salines, CA, USA 1999 (Envoy)	WP (40 %W/W)	4	0.12–0.13	519–755	–	7–8	0	Whole pods	0.30	< 0.02	0.32	104615

Pulses

Soya beans

A total of 33 trials on soya bean were conducted in different representative growing areas in Argentina, Brazil and USA during 1999 and 2006 growing seasons. Results for soya bean seed are summarized in Table 69.

Table 69 Supervised trials on soya bean in Argentina, Brazil and USA

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
NE York, NE, USA, 2004 (Dyna-Gro 32M32 RR)	EW (200 g ai/L)	2	0.14	186	–	15	14	Seed	0.01	0.00	0.01	220163 224527 221174
IL2 Wyoming, IL USA 2004 (Asgrow AG3302)	EW (200 g ai/L)	2	0.14	151–153	–	14	14	Seed	0.04	0.00	0.04	220163 224527 221174
OH1 Newholland, OH USA 2004 (SC 388)	EW (200 g ai/L)	2	0.14	149–150	–	10	14	Seed	0.03	0.00	0.03	220163 224527 221174
OH2 Atlanta, OH USA 2004 (SC 9373)	EW (200 g ai/L)	2	0.14	151–152	–	10	14	Seed	0.02	0.00	0.02	220163 224527 221174
IA1 Richland, IA USA 2004 (Pioneer 93B87)	EW (200 g ai/L)	2	0.14	149–173	–	14	14	Seed	0.02	0.00	0.02	220163 224527 221174
MO Kirksville, MO USA 2004 (Pioneer DG 3390)	EW (200 g ai/L)	2	0.14	167–170	–	15	14	Seed	0.03	0.00	0.03	220163 224527 221174
IA2 Bagley, IA USA 2004 (Pioneer 92M70)	EW (200 g ai/L)	2	0.14	132–133	–	12	14	Seed	0.01	0.00	0.01	220163 224527 221174

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
IA3 Cooper, IA USA 2004 (Pioneer 92M30)	EW (200 g ai/L)	2	0.14–0.15	136–138	–	12	14	Seed	0.03	0.00	0.03	220163 224527 221174
WI Arkansaw, WI USA 2004 (Cropplan RT 1447)	EW (200 g ai/L)	2	0.14	185–188	–	12	14	Seed	< 0.01	0.00	< 0.01	220163 224527 221174
ND2 Northwood, ND USA 2004 (Roughrider)	EW (200 g ai/L)	2	0.14	169–171	–	14	14	Seed	< 0.01	0.00	< 0.01	220163 224527 221174
IL1 Carlyle, IL USA 2004 (BT 383 CR)	EW (200 g ai/L)	2	0.14–0.15	163–169	–	15	13	Seed	< 0.01	0.00	< 0.01	220163 224527
VA Bumpass, VA USA 2004 (Pioneer 9492 RR)	EW (200 g ai/L)	2	0.14	162–163	–	10	14	Seed	0.15	0.02	0.17	220163 224527 221174
LA Washington, LA USA 2004 (DP 5915 RR)	EW (200 g ai/L)	2	0.14	163–166	–	14	14	Seed	< 0.01	0.00	< 0.01	220163 224527 221174
ND1 Oakes, ND USA 2004 (DeKalb 814)	EW (200 g ai/L)	2	0.14	154–156	–	11	14	Seed	0.00	0.00	0.00	220163 224527 221174
SD Frankfort, SD USA 2004 (Cenex 8031)	EW (200 g ai/L)	2	0.14	154–155	–	11	14	Seed	0.00	0.00	0.00	220163 224527 221174
AR2 Tuckerman, AR USA 2004 (Garst 572 STS)	EW (200 g ai/L)	2	0.14	167–168	–	14	14	Seed	0.00	0.00	0.00	220163 224527 221174
MN Paynesville, MN USA 2004 (Cenex 8031)	EW (200 g ai/L)	2	0.14	156	–	11	14	Seed	0.00	0.00	0.00	220163 224527 221174
IN Danville, IN USA 2004 (BT 383 CR)	EW (200 g ai/L)	2	0.14	173	–	14	14	Seed	< 0.01	0.00	< 0.01	220163 224527 221174
GA1 Chula, GA USA 2004 (DeKalb 0212647)	EW (200 g ai/L)	2	0.14–0.15	145–147	–	14	14	Seed	< 0.01	0.00	0.00	220163 224527 221174
GA2 Sycamore, GA USA 2004 (DeKalb 0212647)	EW (200 g ai/L)	2	0.14	144–145	–	14	14	Seed	0.01	0.00	0.01	220163 224527 221174
AR1 Newport, AR USA 2004 (Genesisi C	EW (200 g ai/L)	2	0.71 0.70	139–141	–	14	14 14 14	Meal Oil, refined Seed	0.03 0.15 0.07	0.01 0.00 < 0.01	0.04 0.15 0.08	220163 224527 221174
444 NRR)	EW (200 g ai/L)	2	0.14	188–189	–	14	14	Seed	< 0.01	0.00	< 0.01	
ZONE 2 COMP	EW	2	0.14			14	14	Seed	0.04	0.01	0.05	220163

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
40053 USA	(200 g ai/L)											224527
ZONE 4 COMP 40053 USA	EW (200 g ai/L)	2	0.14			14	14	Seed	< 0.01	0.00	< 0.01	220163 224527
ZONE 5 COMP 40053 USA	EW (200 g ai/L)	2	0.14			14	14	Seed	0.02	0.00	0.02	220163 224527
33199016 BRA 1999 (CAC-1)	EC (250 g ai/L)	1	0.125	–	–	NA	24	Seed	< 0.02	–	–	207033
	EC (250 g ai/L)	1	0.25	–	–	NA	24	Seed	< 0.02	–	–	
33199017 BRA 1999 (CAC-1)	EC (250 g ai/L)	1	0.125	–	–	NA	24	Seed	< 0.02	–	–	207033
	EC (250 g ai/L)	1	0.25	–	–	NA	24	Seed	< 0.02	–	–	
GHB-P 803 BRA 2002 (Cometa)	EC (250 g ai/L)	1	0.125	–	–	NA	24	Seed	< 0.01	–	–	102063
	EC (250 g ai/L)	1	0.25	–	–	NA	24	Seed	0.03	–	–	
050077-01 BRA 2006 (BRS-133)	EC (250 g ai/L)	2	0.125	–	–	21	24	Seed	< 0.01	–	–	240111
	EC (250 g ai/L)	2	0.25	–	–	21	24	Seed	0.03	–	–	
050077-02 BRA 2006 (BRS MG	EC (250 g ai/L)	2	0.125	–	–	21	24	Seed	< 0.01	–	–	240108
68-Vencedora)	EC (250 g ai/L)	2	0.25	–	–	21	24	Seed	0.02	–	–	
050077-03 BRA 2006 (Silvania RR)	EC (250 g ai/L)	2	0.125	–	–	21	14 24 28 35 0	Seed Seed Seed Seed Whole pods	0.03 0.01 0.02 0.02 0.19	– – – – –	– – – – –	240109
	EC (250 g ai/L)	2	0.25	–	–	21	14 24 28 35 0	Seed Seed Seed Seed Whole pods	0.03 0.03 0.03 0.10 0.36	– – – – –	– – – – –	
050077 BRA 2006 (Codetec-213)	EC (250 g ai/L)	2	0.125	–	–	22	14 24 28 35 0	Seed Seed Seed Seed Whole pods	0.02 0.03 < 0.01 < 0.01 0.68	– – – – –	– – – – –	240110
	EC (250 g ai/L)	2	0.25	–	–	22	14 24 28 35	Seed Seed Seed Seed	0.02 0.03 0.02 0.03	– – – –	– – – –	

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
							0	Whole pods	1.12	–	–	
TRIAL02 Pdo de pergamino,	SC (261 g ai/L)	1	0.10	170		NA	24	Seed	< 0.01	–	–	136923
Buenous Aires, ARG, 2003 (Asgrow 6445)	SC (261 g ai/L)	1	0.21	170		NA	24	Seed	< 0.01	–	–	
TRIAL01 Gualeguaychu, Entre Rios,	SC (261 g ai/L)	1	0.10	170		NA	51	Seed	< 0.01	–	–	136923
ARG 2003 (Asgrow 3901)	SC (261 g ai/L)	1	0.21	170		NA	51	Seed	< 0.01	–	–	

Dried herbs

Hops

A total of 19 trials on hops were conducted in different representative growing areas in Germany, the UK and the USA during 1997 through 2007 growing seasons. Results of hops are summarized in Table 70.

Table 70 Supervised trials on hops in Germany, the UK and the USA

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
98-ID18 Parma ID, USA, 1998 (Galena hops)	WP (40 %W/W)	9	0.13–0.25	0.072–0.103	–	8–12	0 6 14	Dried hops	8.50 7.75 4.49	< 0.50 < 0.50 < 0.33	9.00 8.25 4.82	94386
98-OR24 Hubbard, OR USA 1998 (Nugget hops)	WP (40 %W/W)	9	0.12–0.25	0.069–0.10	–	9–12	12	Dried hops	2.64	< 0.33	2.97	94386
98-WA44 Prosser, WA USA 1998 (Nugget hops)	WP (40 %W/W)	9	0.25–0.42	0.094–0.23	–	7–10	14	Dried hops	1.34	< 0.15	1.49	94386
1991-N, ADAS, Rosemaund W. Midlands UK, 1991 (N. Brewer)	EW (60 g ai /L)	6	0.059–0.10	1300–2250	4.5	3–22	7	Dried hops	0.50	< 0.20	0.70	242012
1991-Y ADAS, Rosemaund W. Midlands UK, 1991 (Yeoman)	EW (60 g ai /L)	6	0.059–0.10	1300–2250	4.5	3–22	13	Dried hops	0.30	< 0.20	0.50	242012
1992-C ADAS, Rosemaund W. Midlands UK, 1992	EW (60 g ai /L)	6	0.059–0.10	1300–2250	4.5	4–14	9	Dried hops	0.27	< 0.20	0.47	242012

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
(Challenger)												
1992-Z ADAS, Rosemaund W. Midlands UK, 1992 (Zenith)	EW (60 g ai/L)	6	0.059–0.10	1300–2300	4.5	7–14	8	Dried hops	1.20	< 0.20	1.40	242012
1993-Y Perton Hereford, UK 1993 (Yeoman)	EW (60 g ai/L)	6	0.059–0.090	1300–2000	4.5	5–14	4	Dried hops	1.60	< 0.20	1.80	242012
1993-ND Brierley Leominster UK, 1993 (North Down)	EW (60 g ai/L)	6	0.059–0.10	1300–2300	4.5	5–21	3	Dried hops	1.80	< 0.20	2.00	242012
R&H/207/1/G Bayern GER 1996 (Hersbrucker)	EW (200 g ai/L)	4	0.18–0.30	2976–5060	6	13–14	14 14 0 7 14 14 14 14	Beer Dried hops Green hops Spent hops Trub Yeast	< 0.01 1.02 0.27 0.15 0.28 0.09 < 0.02 < 0.02	< 0.01 < 0.50 0.07 0.04 0.09 < 0.02 < 0.02 < 0.02	< 0.02 1.52 0.34 0.19 0.37 0.11 < 0.04 < 0.04	94412
R&H/207/2/G Bayern GER 1996 (Brewers Gold)	EW (200 g ai/L)	4	0.19–0.30	3099–5052	6	11–14	14 0 7 14	Dried hops Green hops	0.53 0.22 0.46 0.22	< 0.15 0.02 0.10 0.03	0.68 0.24 0.56 0.25	94412
R&H/207/3/G Bayern GER 1996 (Hersbrucker)	EW (200 g ai/L)	4	0.20–0.31	2202–3423	9	11–14	14 0 7 14	Dried hops Green hops	1.54 0.63 0.49 0.41	< 0.50 0.14 0.04 0.07	2.04 0.77 0.53 0.48	94412
R&H/207/4/G Bayern GER 1996 (Brewers Gold)	EW (200 g ai/L)	4	0.19–0.31	2057–3385	9	11–14	14 0 7 14	Dried hops Green hops	1.14 0.97 0.17 0.35	< 0.50 0.13 < 0.02 0.04	1.64 1.10 0.19 0.39	94412
RAS/20/3/G Bayern GER 1997 (Selekt)	EW (200 g ai/L)	4	0.18–0.30	2000–3300	9	11–13	14 0 7 14	Dried hops Green hops	0.63 2.41 1.00 0.16	< 0.50 0.10 0.16 0.03	1.13 2.51 1.16 0.19	94441
RAS/20/4/G Bayern GER 1997 (Tradition)	EW (200 g ai/L)	4	0.19–0.30	2050–3300	9	11–13	14 14 0 7 14 14 14 14	Beer Dried hops Green hops Spent hops Trub Yeast	< 0.01 0.73 0.82 0.21 0.33 0.04 < 0.02 < 0.005	< 0.01 < 0.50 0.05 0.06 0.09 < 0.005 < 0.02 < 0.02	< 0.02 1.23 0.87 0.27 0.42 0.05 < 0.04 < 0.03	94441
RAS/20/1/G Bayern GER 1997 (Hersbrucker)	EW (200 g ai/L)	4	0.18–0.30	2975–5025	6	11–13	14 0 7 14	Dried hops Green hops	1.06 2.42 0.25 0.35	< 0.50 0.23 0.07 0.16	1.56 2.65 0.32 0.51	94441

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
RAS/20/2/G Bayern GER 1997 (Magnum)	EW (200 g ai/L)	4	0.18–0.30	2950–5000	6	11–13	14 0 7 14	Dried hops Green hops	< 0.50 2.63 0.89 0.49	< 0.50 0.13 0.11 0.05	<1.00 2.76 1.00 0.54	94441
G07W386R Wolnzach Bavaria GER 2007 (Perle)	EW (200 g ai/L)	6	0.28–0.32	4724–5242	6.03	7	< 0 0 3 7 14 21 28 < 0 0 3 7 14 21 28	Dried hops Green hops 	4.80 11.0 6.10 4.90 3.50 0.97 1.30 1.30 4.60 2.20 1.80 1.40 0.62 0.65	2.40 2.90 1.00 2.00 2.10 0.92 0.98 0.39 0.52 0.30 0.47 0.62 0.52 0.62	7.20 13.9 7.10 6.90 5.60 1.89 2.28 1.69 5.12 2.50 2.27 2.02 1.14 1.27	20013 22
G07W387R Tettnang Baden–Wurttemberg GER 2007 (Spalter)	EW (200 g ai/L)	6	0.30–0.32	4935–5227	6.03	6–9	14 14	Dried hops Green hops	1.80 0.98	1.40 0.80	3.20 1.78	20013 22

Legume animal feed

Soybean

A total of 24 trials on soybean were conducted in different representative growing areas in USA during 2004 growing seasons. Results of soybean forage and hay are summarized in Table 71.

Table 71 Supervised Trials on Soybean in USA

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
NE York, NE, USA, 2004 (Dyna-Gro 32M32 RR)	EW (200 g ai/L)	2	0.14	186–187	–	14	14 14	Forage Hay	0.37 1.43	0.04 0.35	0.41 1.78	220163 224527 221174
IL2 Wyoming, IL USA 2004 (Asgrow AG3302)	EW (200 g ai/L)	2	0.14	154–166	–	17	14 14	Forage Hay	3.01 7.31	0.23 0.78	3.24 8.09	220163 224527 221174
OH1 Newholland, OH USA 2004 (SC 388)	EW (200 g ai/L)	2	0.14	150–151	–	14	13 13	Forage Hay	2.80 8.73	0.06 0.59	2.86 9.32	220163 224527 221174
OH2 Atlanta, OH USA 2004 (SC 9373)	EW (200 g ai/L)	2	0.14	150–153	–	14	13 13	Forage Hay	1.30 3.20	0.21 0.86	1.51 4.06	220163 224527 221174
IA1 Richland, IA USA 2004 (Pioneer 93B87)	EW (200 g ai/L)	2	0.14	157–180	–	13	14 14	Forage Hay	1.97 4.40	0.05 0.37	2.02 4.77	220163 224527 221174

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
MO Kirksville, MO USA 2004 (Pioneer DG 3390)	EW (200 g ai/L)	2	0.14	157–180	–	14	14 14	Forage Hay	1.77 7.75	0.11 1.01	1.88 8.76	220163 224527 221174
IA2 Bagley, IA USA 2004 (Pioneer 92M70)	EW (200 g ai/L)	2	0.14–0.15	150–175	–	14	0 7 14 21 28 14	Forage Forage Forage Forage Forage Hay	9.77 4.28 2.49 1.68 1.01 3.85	0.02 0.05 0.05 0.05 0.04 0.28	9.79 4.33 2.54 1.73 1.05 4.13	220163 224527 221174
IA3 Cooper, IA USA 2004 (Pioneer 92M30)	EW (200 g ai/L)	2	0.14–0.15	152–180	–	14	14 14	Forage Hay	1.97 3.68	0.03 0.40	2.00 4.08	220163 224527 221174
WI Arkansaw, WI USA 2004 (Cropplan RT 1447)	EW (200 g ai/L)	2	0.14	186–188	–	14	14 14	Forage Hay	1.17 3.96	0.03 0.24	1.20 4.20	220163 224527 221174
ND2 Northwood, ND USA 2004 (Roughrider)	EW (200 g ai/L)	2	0.14	168–169	–	11	14 14	Forage Hay	0.73 1.82	0.06 0.78	0.79 2.60	220163 224527 221174
IL1 Carlyle, IL USA 2004 (BT 383 CR)	EW (200 g ai/L)	2	0.12–0.13	159–168	–	14	14 24	Forage Hay	1.66 4.08	0.04 0.31	1.70 4.39	220163 224527
VA Bumpass, VA USA 2004 (Pioneer 9492 RR)	EW (200 g ai/L)	2	0.14	161	–	14	14 14	Forage Hay	1.28 3.38	0.18 1.46	1.46 4.84	220163 224527 221174
LA Washington, LA USA 2004 (DP 5915 RR)	EW (200 g ai/L)	2	0.14	160	–	14	14 14	Forage Hay	1.73 3.72	0.33 0.86	2.06 4.58	220163 224527 221174
ND1 Oakes, ND USA 2004 (DeKalb 814)	EW (200 g ai/L)	2	0.14	154–155	–	11	14 14	Forage Hay	0.18 0.00	0.00 0.00	0.18 0.00	220163 224527 221174
SD Frankfort, SD USA 2004 (Cenex 8031)	EW (200 g ai/L)	2	0.14	154–155	–	11	14 14	Forage Hay	0.05 0.00	0.00 0.00	0.05 0.00	220163 224527 221174
AR2 Tuckerman, AR USA 2004 (Garst 572 STS)	EW (200 g ai/L)	2	0.14	168	–	12	14 14	Forage Hay	2.62 8.63	0.46 2.31	3.08 10.9	220163 224527 221174
MN Paynesville, MN USA 2004 (Cenex 8031)	EW (200 g ai/L)	2	0.14	154–156	–	12	14 14	Forage Hay	0.09 0.00	0.00 0.00	0.09 0.00	220163 224527 221174
IN Danville, IN USA 2004 (BT 383 CR)	EW (200 g ai/L)	2	0.13–0.14	187–202	–	10	14 14	Forage Hay	0.88 1.58	0.03 0.12	0.91 1.70	220163 224527 221174
GA1 Chula, GA USA 2004 (DeKalb 0212647)	EW (200 g ai/L)	2	0.14	144–155	–	14	14 14	Forage Hay	1.42 3.83	0.26 1.60	1.68 5.43	220163 224527 221174
GA2 Sycamore, GA USA 2004	EW (200 g ai/L)	2	0.14	143–157	–	14	14 14	Forage Hay	1.86 6.65	0.11 1.02	1.97 7.67	220163 224527 221174

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
(DeKalb 0212647)												
AR1 Newport, AR USA 2004 (Genesisi C 444 NRR)	EW (200 g ai/L)	2	0.71 0.70	139–141	–	14	14 14	Aspirated grain fractions Hulls	5.03 0.08	0.21 0.01	5.24 0.09	220163 224527 221174
	EW (200 g ai/L)	2	0.14	186	–	14	0 7 14 21 28 14	Forage Forage Forage Forage Forage Hay	16.1 4.03 2.06 1.30 0.67 7.22	0.07 0.11 0.11 0.07 0.06 0.73	16.2 4.14 2.17 1.37 0.73 7.95	
ZONE 2 COMP 40053 USA	EW (200 g ai/L)	2	0.14			14	14 14	Forage Hay	1.49 4.56	–	–	220163 224527
ZONE 4 COMP 40053 USA	EW (200 g ai/L)	2	0.14			14	14 14	Forage Hay	1.85 5.98	–	–	220163 224527
ZONE 5 COMP 40053 USA	EW (200 g ai/L)	2	0.14			14	14 14	Forage Hay	1.12 3.24	–	–	220163 224527

FATE OF RESIDUES IN STORAGE AND PROCESSING

Information and Data from Residues in Processed Commodities

The Meeting received information on the fate of myclobutanil residues during aqueous hydrolysis and also received the processing studies on apples, grapes, tomatoes, soybeans and hops.

The hydrolytic stability of myclobutanil was investigated in aqueous buffer solutions at pH 4, 7 and 9 at 50 °C over a 5 day period (94798). No degradation of myclobutanil was observed under these conditions.

The two supervised trials on apple (var. Golden delicious) were conducted in Germany to provide bulk samples for processing studies. Apple trees were treated with 12 foliar applications of a formulation of myclobutanil (containing 60 g ai/kg). The first two applications were made at the rate of 0.006 kg as/hL (0.036–0.054 kg ai/ha) when trees were near or at-flowering growth stage. The last ten applications were made at 0.018 kg as/hL (0.072–0.090 kg ai/ha) per application with the last application made at fruit maturity. Bulk samples of treated apples for the processing studies were harvested at 14 days after the last application and processed into juice and wet pomace. The analytical results are listed in Table 72.

Table 72 Residue levels in processed apple products

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT)	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
DEU86F21221 Pfeddersheim GER, 1986 (Golden Delicious)	WP (60 g ai/L)	12	0.090	500	18	8–10	0 7 14 21 28 14 14	Whole fruit Juice Wet pomace	0.21 0.18 0.15 0.16 0.13 0.02 0.08	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.22 0.19 0.16 0.17 0.14 0.03 0.09	242051

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT)	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
DEU86F21241 Mainz-Drais GER, 1986 (Golden Delicious)	WP (60 g ai/L)	12	0.090	500	18	8–10	0	Whole fruit	0.23	< 0.01	0.24	242051
							7		0.34	< 0.01	0.35	
							14		0.35	< 0.01	0.36	
							21		0.28	< 0.01	0.29	
							28		0.19	< 0.01	0.20	
							14	Juice	0.04	< 0.01	0.05	
							14	Wet pomace	0.23	< 0.01	0.24	

Apple trees (Granny Smith variety) were treated with four foliar applications of a formulation of myclobutanil (EW, containing 200 g ai/L) at either 1× or 5× recommended rate. The 5× treatment rate was included in order to improve the ability to quantify residue levels in certain processed fractions of apples, such as apple juice. In the 1× treatment myclobutanil was applied at the rate of 0.006 kg ai/hL (0.094–0.097 kg ai/ha) per application, while in the 5× treatment myclobutanil was applied at the rate of 0.030 kg ai/hL (0.447–0.478 kg ai/ha) per application. The first of the four treatment applications began near the end of fruit enlargement (BBCH 78) with subsequent applications continuing on approximately 10 day intervals through ripe fruit (BBCH 85). Bulk samples of treated apples (both 1× and 5× application rates) were harvested at 14 days after the last application for processing into processed apple products (pasteurized apple juice, wet pomace and apple puree). The analytical results are listed in Table 73.

Table 73 Residue levels in processed apple products

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
AF/8164/DE4 St Remy La Varenne FRA, 2004 (Granny Smith)	EW (200 g ai/L)	4	0.094–0.097	1560–1620	6	7–15	14	Whole fruit	0.11	< 0.01	0.12	101405
							14	Whole fruit (processing)	0.08	0.01	0.09	
							14	Cooked fruit	0.04	< 0.01	0.05	
							14	washed fruit	0.08	< 0.01	0.09	
							14	Juice	**< 0**.01	< 0.01	< 0.02	
							14	Peeland seed	0.10	< 0.01	0.11	
							14	Pomace, dry	0.99	0.06	1.05	
							14	Pomace, wet	0.23	0.01	0.24	
							14	Puree	0.02	< 0.01	0.03	
							14	Raw juice	0.01	< 0.01	0.02	
							14	Washing water	0.02	< 0.01	0.03	
AF/8164/DE4 St Remy La Varenne FRA, 2004 (Granny Smith)	EW (200 g ai/L)	4	0.45–0.48	1490–1593	30	7–15	14	Whole fruit	0.65	0.03	0.68	101405
							14	Whole fruit (processing)	0.51	0.05	0.56	
							14	Washed fruit	0.52	0.03	0.55	
							14	Cooked fruit	0.28	0.03	0.31	

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
							14	Apple juice	0.06	0.02	0.08	
							14	Peeland seed	0.59	0.04	0.63	
							14	Pomace, dry	6.00	0.25	6.25	
							14	Pomace, wet	1.57	0.05	1.62	
							14	Puree	0.13	0.02	0.15	
							14	Raw juice	0.06	0.02	0.08	
							14	Washing water	0.08	< 0.01	0.09	

Two supervised trials on wine grapes (white and red varieties) were conducted in Northern Franc. Grape vines were treated with eight foliar applications of a formulation of myclobutanil (EW, 200 g ai/L) at the rate of 0.003 kg ai/hL (0.01–0.05 kg ai/ha) per application. The first application was made at pre-bloom and continued on a 10 to14-day interval until the grapes were harvested. Bulk samples of treated grapes for the processing studies were harvested at 14 days after the last application and transported to a processing facility in Germany. Samples of whole grapes, grape must (juice), young and mature wine were analysed for myclobutanil using an analytical method with limits of quantitation and detection of 0.01 mg/kg and 0.0025 mg/kg, respectively. Summary of data is shown in Table 74.

Table 74 Residue levels in processed grape products.

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclubutanil (mg/kg)	Ref.
RAS/18/4/F Wissembourg Elsaβ, FRA 1997 (Spatbur–gunder) Wine grapes	EW (200 g ai/L)	8	0.012–0.048	394–1609	3	10–15	0	Whole fruit	0.71	0.03	0.74	110206
							7		0.51	0.03	0.54	
							14		0.51	0.03	0.54	
							21		0.47	0.03	0.50	
							28		0.38	0.03	0.41	
							14	Juice	0.08	0.01	0.09	
							14	Wine after half year	0.05	0.02	0.07	
							14	Wine at bottling	0.04	0.01	0.05	
RAS/18/3/F Wissembourg Elsaβ, FRA 1997 (Muller–Thurgau) Wine grapes	EW (200 g ai/L)	8	0.009–0.030	306–1006	3	10–15	0	Whole fruit	0.39	< 0.01	0.40	110206
							7		0.31	0.01	0.32	
							14		0.25	< 0.01	0.26	
							21		0.26	0.01	0.27	
							28		0.25	0.01	0.26	
							14	Juice	0.04	< 0.01	0.05	
							14	Wine after half year	0.01	< 0.01	0.02	
							14	Wine at bottling	0.02	< 0.01	0.03	

Two supervised trials on wine grapes (white and red varieties) were conducted in Germany to provide bulk samples for processing studies. Grapevines were treated with eight foliar applications of a formulation of myclobutanil (EW, 200 g ai/L). White grape was treated at the rate of 0.009 kg ai/hL (0.028–0.048 kg ai/ha) per application while red grapes was treated at 0.003 kg as/hL (0.012–0.048 kg ai/ha) per application. The first application was made at pre-bloom and continued on a 10

to14-day interval until the grapes were harvested. Bulk samples of control and treated grapes for the processing studies were harvested 14 days after the last application and transported to a processing facility in Germany. Samples of whole grapes, grape must (juice), young wine (8–10 weeks aging) and mature wine (5–6 months aging) were analysed for myclobutanil using an analytical method with limits of quantitation and detection of 0.01 mg/kg and 0.0025 mg/kg, respectively. Summary of data is shown in Table 75.

Table 75 Residue levels in processed grape products

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
R&H/203/3/G D-67150 Niederkirchen GER 1996 (Portugisesr) Wine grape	EW (200 g ai/L)	8	0.012 – 0.048	406–1600	3	10–16	0 14 28 14 14 14	Grapes Juice (must) Mature wine Young Wine	0.46 0.34 0.33 0.07 0.04 0.04	< 0.01 0.01 0.02 < 0.01 < 0.01 < 0.01	0.47 0.35 0.35 0.08 0.05 0.05	94403 241765
R&H/203/2/G D-67150 Niederkirchen GER 1996 (Muller–Thurgau) Wine grape	EW (200 g ai/L)	8	0.028 – 0.048	312–531	9	10–16	0 14 28 14 14 14	Grapes Juice (must) Mature wine Young Wine	0.45 0.41 0.35 0.09 0.07 0.06	< 0.01 0.02 0.01 0.00 < 0.01 < 0.01	0.46 0.43 0.36 0.09 0.08 0.07	94403 241765

Grapes grown at Napa, CA, and Reedley, CA, were treated with myclobutanil five times at 0.11 kg ai/ha. Samples were harvested at 14 days. The fruit was processed at California State University at Fresno to yield juice, dry pomace, wet pomace, wine, and stems. In addition, filtered wine, A&B raisins, C raisins, midget raisins, waste raisins, and wine lees were produced. Summary of data is shown in Table 76.

Table 76 Residue levels in processed grape products

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
85-0323 Reedley, CA USA 1985 (Thompson)	WP (40% W/W)	5	0.112	935.3	–	–	14 14 14 14 14 14 14 14 14 14 14	Grapes Juice Dry pomace Wet pomace Wine Filtered wine A+B raisin C raisin Midget Waste raisin Wine lees	0.13 0.04 0.74 0.07 0.04 0.04 0.78 0.82 0.69 3.43 0.22	0.04 0.02 0.26 0.02 0.02 0.00 0.16 0.25 0.24 0.80 0.02	0.17 0.06 1.00 0.09 0.06 0.04 0.94 1.07 0.93 4.23 0.24	94607

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
85-0419 Napa, CA, USA, 1985 (Pinot Noir)	–	5	0.112	935.3	–	–	14	Grapes	0.53	0.07	0.60	94443
							14	Dry pomace	1.16	0.10	1.26	
							14	Wet pomace	0.67	0.14	0.81	
							14	Juice	0.06	0.01	0.07	
							14	Wine	0.07	0.06	0.13	
							14	Stem	1.25	0.27	1.52	

Supervised trials on tomatoes were conducted at two sites in France to provide bulk samples for processing studies. Tomatoes were treated with six foliar applications of a formulation of myclobutanil (EW, 200 g ai/L). The first application was made approximately 11 weeks pre–mid-commercial harvest and at 10–14 days thereafter for the next five applications. Bulk samples of tomatoes were taken at 3 days after the last application and processed into juice and preserves and puree. Samples of whole fruit, juice, preserves and puree were analysed for myclobutanil using a method with a limit of quantitation of 0.01 mg/kg. Summary of data is shown in Table 77.

Table 77 Residue levels in processed tomato products

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
AP/3173/HL/2/F, Bressols FRA, 1996 (Laurelia) Tomato	EW (200 g ai/L)	6	0.098–0.11	1300–1533	7.5	10–13	3	Juice	0.01	0.00	0.01	24182
							3	Preserve	< **0**.01	0.00	< **0**.01	9
							3	Puree	0.05	0.00	0.05	
							0	Whole fruit	0.11	< 0.01	0.12	
							3		0.05	0.00	0.05	
							7		0.01	0.00	0.01	
AP/3173/HL/1/F, Aucamville FRA, 1996 (Delfine) Tomato	EW (200 g ai/L)	6	0.097–0.11	1293–1420	7.5	10–13	3	Juice	0.01	0.00	0.01	24182
							3	Preserve	0.01	0.00	0.01	9
							3	Puree	0.04	0.00	0.04	
							0	Whole fruit	0.07	0.00	0.07	
							3		0.04	0.00	0.04	
							7		0.02	0.00	0.02	

Supervised trials on tomatoes were conducted at two sites in France to provide bulk samples for processing studies. Tomatoes were treated with six foliar applications of a formulated product of myclobutanil (EC, 240 g ai/L). The first application was made approximately 11 weeks pre–mid-commercial harvest and at 10–14 days thereafter for the next five applications. Bulk samples of tomatoes for the processing studies were harvested at 3 days after the last application and processed into juice and preserves and puree. Samples of whole fruit, juice, preserves and puree were analysed for myclobutanil using a method with a limit of quantitation of 0.01 mg/kg. Summary of data is shown in Table 78.

Table 78 Residue levels in processed tomato products

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
AP/3172/HL/2F, Bressols FRA, 1996 (Laurelia) Tomato	EC (240 g ai/L)	6	0.098–0.12	1308–1600	7.5	10–14	3	Juice	0.01	0.00	0.01	24183
							3	Preserve	< 0.01	0.00	< 0.01	0
							3	Puree	0.06	0.00	0.06	
							0	Whole fruit	0.05	0.00	0.05	
							3		0.03	0.00	0.03	
							7		0.03	0.00	0.03	

AP/3172/HL/1F, Aucamville FRA, 1996 (Delfine) Tomato	EC (240 g ai/L)	6	0.093–0.11	1245–1423	7.5	10–13	3 3 3 0 3 7	Juice Preserve Puree Whole fruit	0.02 < **0**.01 0.06 0.05 0.02 0.03	0.00 0.00 0.00 0.00 0.00 0.00	0.02 < **0**.01 0.06 0.05 0.02 0.03	24183 0

A supervised trial on tomatoes was conducted at a field location in California, USA to provide bulk samples for processing studies. Tomatoes were treated with four foliar applications of a formulated product (WP, 40% W/W). The four applications were made at 10–15 day intervals in approximately 74 L/ha spray volumes. Bulk samples of tomatoes for the processing studies were taken at 5 days after the last application and processed into canned, wet pomace, dry pomace, juice, puree, paste, and catsup. Samples of whole fruit and tomato processed fraction were analysed for myclobutanil using a method with a limit of quantitation of 0.01 mg/kg. Summary of data is shown in Table 79.

Table 79 Residue levels in processed tomato products

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
89-0265 Woodland, CA USA 1989 (Harris Moran)	WP (40 %W/W)	4	0.071	281		10–12	5	Canned Catsup Dry pomace Hot break Juice Paste Paste juice Puree Unwashed Washed Wet pomace	0.01 0.07 0.43 < 0.01 0.02 0.08 0.04 0.02 0.03 0.02 0.25	0.01 0.00 0.00 0.00 0.00 0.03 0.04 0.02 0.00 0.00 0.00	0.02 0.07 0.43 < 0.01 0.02 0.11 0.08 0.04 0.03 0.02 0.25	94609
89-0265 Woodland, CA USA 1989 (Harris Moran)	WP (40 %W/W)	4	0.14	281		10–12	5	Canned Catsup Dry pomace Hot break Juice Paste Paste juice Puree Unwashed Washed Wet pomace	0.02 < 0.01 1.03 0.02 0.04 0.17 0.04 0.05 0.04 0.06 0.03	0.03 0.03 0.01 0.01 0.02 0.08 0.06 0.03 0.02 0.02 0.01	0.05 0.04 1.04 0.03 0.06 0.25 0.10 0.08 0.06 0.08 0.04	94609

Supervised trials on soybeans were conducted at a site in USA to provide bulk samples for processing studies. Soybeans were treated with two foliar broadcast applications of EW fungicide (208 g ai/L). The first application was made at BBCH 15 and the second application was made 14 days later at growth stage BBCH 63. Bulk samples of soybeans for the processing studies were taken at 14 days after the last application and processed into hulls, meal and oil. Aspirated grain fractions (dust) were also collected during the processing. Samples of seed, dust, hulls, meal and oil were

analysed for myclobutanil using a method with a limit of quantitation of 0.01 mg/kg. Summary of data is shown in Table 80.

Table 80 Residue levels in processed soybean products

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
AR1 Newport, AR USA 2004 (Genesisi C 444 NRR)	EW (200 g a i/L)	2	0.71 0.70	139–141	–	14	14	Aspirated grain fractions	5.03	0.21	5.24	220163 224527 221174
							14	Hulls	0.08	0.01	0.09	
							14	Meal	0.03	0.01	0.04	
							14	Oil, refined	0.15	0.00	0.15	
							14	Seed	0.07	< 0.01	0.08	

A supervised trial on hops was conducted at a site in Germany to provide bulk samples for processing studies. Hops were treated with four foliar applications of EW fungicide (200 g ai/L). Applications were made at a 1.5× rate of 9 g ai/hL applying a maximum spray volume of approximately 3400 L/ha. The first application was made at approximately 8 weeks prior to mid-commercial harvest and the second, third and fourth applications were made at 10–14 day intervals thereafter. Bulk samples of green hops for the processing studies were taken at 14 days after the last application (14 DAT), dried in the field then sent to be processed into spent hops, trub, yeast, and beer. Samples of green hops, dried hops, spent hops, trub, yeast, and beer were analysed for myclobutanil using a method with a limit of quantitation of 0.50 for dried hops, 0.02 mg/kg for green hops, spent hops, trub and yeast and 0.01 mg/kg for beer. Summary of data is shown in Table 81.

Table 81 Residue levels in processed hops products

Trial ID/Location Country/Year (variety)	Form	No. of Apps	Appl Rate (kg ai/ha)	Spray Vol (L/ha)	Appl Conc (g ai/hL)	Application Interval (days)	DAT	Portion Analysed	Myclobutanil (mg/kg)	RH-9090 (mg/kg)	Total of myclobutanil (mg/kg)	Ref.
R&H/207/1/G Bayern GER 1996 (Hersbrucker)	EW (200 g a i/L)	4	0.18–0.30	2976–5060	6	13–14	14	Beer	< 0.01	< 0.01	< 0.02	94412
							14	Dried hops	1.02	< 0.50	1.52	
							0	Green hops	0.27	0.07	0.34	
							7	Green hops	0.15	0.04	0.19	
							14	Green hops	0.28	0.09	0.37	
							14	Spent hops	0.09	< 0.02	0.11	
							14	Trub	< 0.02	< 0.02	< 0.04	
							14	Yeast	< 0.02	< 0.02	< 0.04	
RAS/20/4/G Bayern GER 1997 (Tradition)	EW (200 g a i/L)	4	0.19–0.30	2050–3300	9	11–13	14	Beer	< 0.01	< 0.01	< 0.02	94441
							14	Dried hops	0.73	< 0.50	1.23	
							0	Green hops	0.82	0.05	0.87	
							7	Green hops	0.21	0.06	0.27	
							14	Green hops	0.33	0.09	0.42	
							14	Spent hops	0.04	0.00	0.04	
							14	Trub	< 0.02	< 0.02	< 0.04	
							14	Yeast	0.00	< 0.02	< 0.02	

Residues in animal commodities

Farm animal feeding studies

The Meeting received a lactating cow and laying hens feeding study, which provided information on likely residues resulting in animal tissues and milk from residues in the animal diet.

Lactating cows

A cow feeding study was conducted to determine the extent to which residues of myclobutanil in livestock feedstuffs transfer to edible tissues and milk. Lactating Holstein cows ranging in age from approximately 3 to 5 years and in weight from 434 to 675 kilograms were used as the test animals in this study. Sixteen cows were randomly assigned to four treatment groups based on concentration of myclobutanil in the diet. Each of the four treatment groups consisted of four cows. Each cow was tagged with a neck chain which contained a unique identification number that matched the number on a card affixed to the individual stall. The dosing levels of myclobutanil in the four feeding groups were as follows: a control group (0 ppm), low dose level (1.3× feeding level, equivalent to 1.6 ppm in feed), medium dose level (3.9× feeding level, equivalent to 4.8 ppm in feed) and a high dose level (13× feeding level, equivalent to 16.0 ppm in feed). The dose preparations were based on the highest feed consumption through day 14 of the quarantine period. The cows were orally dosed using gelatin capsules containing the test substance. The test substance was administered to the cows once daily for 28 consecutive days. Gelatin capsules containing no test substance were administered to the group of control cows during the 28 day dosing period.

The cows were weighed weekly throughout the study. Feed consumption was determined daily. Observations were made twice daily for mortality, morbidity, and pharmacotoxic signs. Milk was collected and measured gravimetrically twice daily. Milk samples were collected for analysis on test days –1, 1, 4, 7, 10, 14, 17, 21, 24, 28 and 31. A milk sample (divided into two containers each with 125 mL of milk) for each cow on each of the sample collection days was obtained by pooling the milk collected from that cow for the a.m. and p.m. milkings in proportion to the cow's total daily production. On test day 28 three cows from each of the four treatment groups were humanely sacrificed. The one remaining cow from each of the four treatment groups was placed on a three-day withdrawal period and then sacrificed on test day 31 to evaluate depuration of residues in tissues. For each cow, a representative sample of liver, kidney, peritoneal fat, and pectoral muscle tissue was taken at the scheduled sacrifices and frozen immediately.

Myclobutanil as well as the metabolite RH-9090 were quantitated in all matrices (milk, fat, muscle, kidney and liver). Additionally, the metabolite RH-0294 was quantitated in milk. Analytical methods used are listed below by matrix and analyte. The limit of quantitation (LOQ) and limit of detection (LOD) for all analytes (myclobutanil, RH-9090, and RH-0294) in the analytical methods listed below is 0.01 ppm and 0.003 ppm, respectively. The results are shown in Table 82 and Table 84.

Table 82 Residues of myclobutanil and RH-0294 in milk from cows dosed with myclobutanil in a 28-day feeding study

Treatment Group	Day	Residues, myclobutanil (mg/kg) [a]					Residues, RH-0294 (mg/kg) [a, b]				
		Cow A	Cow B	Cow C	Cow D	Avg. [c]	Cow A	Cow B	Cow C	Cow D	Avg. [c]
Low Dose— 1.6 ppm	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	14	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	21	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	24	ND	ND	ND	ND	ND	ND	ND	ND	< 0.01	ND
	28	ND	ND	ND	ND	ND	< 0.01	< 0.01	< 0.01	ND	< 0.01
	31 [d]	–	–	–	ND	–	–	–	–	ND	–

Treatment Group	Day	Residues, myclobutanil (mg/kg) [a]					Residues, RH-0294 (mg/kg) [a, b]				
		Cow A	Cow B	Cow C	Cow D	Avg. [c]	Cow A	Cow B	Cow C	Cow D	Avg. [c]
Medium Dose— 4.8 ppm	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4	ND	ND	ND	ND	ND	< 0.01	< 0.01	< 0.01	ND	< 0.01
	7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10	ND	ND	ND	ND	ND	ND	ND	ND	< 0.01	ND
	14	ND	ND	ND	ND	ND	ND	ND	ND	< 0.01	ND
	17	ND	ND	ND	ND	ND	< 0.01	ND	ND	ND	ND
	21	ND	ND	ND	ND	ND	ND	< 0.01	ND	ND	ND
	24	ND	ND	ND	ND	ND	< 0.01	< 0.01	ND	ND	< 0.01
	28	ND	ND	ND	ND	ND	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
	31 [d]	–	–	–	ND	–	–	–	–	ND	–
High Dose— 16.0 ppm	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4	ND	ND	ND	ND	ND	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
	7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10	ND	ND	ND	ND	ND	0.010	0.010	< 0.01	< 0.01	< 0.01
	14	ND	ND	ND	ND	ND	0.010	< 0.01	< 0.01	0.012	< 0.01
	17	ND	ND	ND	ND	ND	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
	21	ND	ND	ND	ND	ND	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
	24	ND	ND	ND	ND	ND	0.015	0.011	< 0.01	0.010	0.010
	28	ND	ND	ND	ND	ND	< 0.01	< 0.01	< 0.01	0.011	< 0.01
	31 [d]	–	–	–	ND	–	–	–	–	ND	–

[a] ND = residue not detected with a limit of detection (LOD) of 0.003 mg/kg.
[b] The conversion factor for RH-9090 to myclobutanil equivalents is 0.9475, based on molecular weights of 288.78 and 304.78 for myclobutanil and RH-9090, respectively.
[c] For purposes of calculating an average, ND residues were assigned a value of ½ the LOD (0.003 mg/kg/2). Average residue values < 0.003 mg/kg were designated as ND. Residues below the LOQ (< 0.01 mg/kg) were assigned a value of ½ of the LOQ (0.01 mg/kg/2). Average residue values > 0.003 mg/kg, but < 0.01 mg/kg were designated as < 0.01 mg/kg.
[d] Residues following a three day withdrawal period.

Table 83 Residues of myclobutanil and RH-9090 in muscle and fat tissue from cows dosed with myclobutanil in a 28-day feeding study

Treatment Group	Cow #	Residues in Muscle (mg/kg) [a]			Residues in Fat (mg/kg) [a]		
		Myclobutanil	RH-9090	RH-9090— expressed as myclobutanil [b]	Myclobutanil	RH-9090	RH-9090— expressed as myclobutanil [b]
Control	10	ND	ND	ND	ND	ND	ND
	7	ND	ND	ND	ND	ND	ND
	13	ND	ND	ND	ND	ND	ND
Average [c]		ND	ND	ND	ND	ND	ND
3-day Withdrawal	12	ND	ND	ND	ND	ND	ND
Low Dose— 1.6 ppm	15	ND	ND	ND	ND	ND	ND
	11	ND	ND	ND	ND	ND	ND
	1	ND	ND	ND	ND	ND	ND
Average [c]		ND	ND	ND	ND	ND	ND
3-day Withdrawal	2	ND	ND	ND	ND	ND	ND
Medium Dose— 4.8 ppm	9	ND	ND	ND	ND	ND	ND
	6	ND	ND	ND	ND	ND	ND
	4	ND	ND	ND	ND	ND	ND
Average [c]		ND	ND	ND	ND	ND	ND
3-day Withdrawal	5	ND	ND	ND	ND	ND	ND
High Dose– 16 ppm	3	ND	< 0.01	< 0.01	ND	ND	ND
	14	ND	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
	8	ND	< 0.01	< 0.01	ND	< 0.01	< 0.01
Average [c]		ND	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
3-day	16	ND	ND	ND	ND	ND	ND

Treatment Group	Cow #	Residues in Muscle (mg/kg) [a]			Residues in Fat (mg/kg) [a]		
		Myclobutanil	RH-9090	RH-9090—expressed as myclobutanil [b]	Myclobutanil	RH-9090	RH-9090—expressed as myclobutanil [b]
Withdrawal							

[a] ND = residue not detected with a limit of detection (LOD) of 0.003 mg/kg.
[b] The conversion factor for RH-9090 to myclobutanil equivalents is 0.9475, based on molecular weights of 288.78 and 304.78 for myclobutanil and RH-9090, respectively.
[c] For purposes of calculating an average, ND residues were assigned a value of ½ the LOD (0.003 ppm/2). Average residue values < 0.003 ppm were designated as ND. Residues below the LOQ (< 0.01 mg/kg) were assigned a value of ½ of the LOQ (0.01 mg/kg/2). Average residue values > 0.003 mg/kg, but < 0.01 mg/kg were designated as < 0.01 mg/kg.

Table 84 Residues of myclobutanil and RH-9090 in liver and kidney tissue from cows dosed with myclobutanil in a 28-day feeding study

Treatment Group	Cow #	Residues in Liver (mg/kg) [a]			Residues in Kidney (mg/kg) [a]		
		Myclobutanil	RH-9090	RH-9090—expressed as myclobutanil [b]	Myclobutanil	RH-9090	RH-9090—expressed as myclobutanil [b]
Control	10	ND	ND	ND	ND	ND	ND
	7	ND	ND	ND	ND	ND	ND
	13	ND	ND	ND	ND	ND	ND
Average [c]		ND	ND	ND	ND	ND	ND
3-day Withdrawal	12	ND	ND	ND	ND	ND	ND
Low Dose—1.6 ppm	15	ND	ND	ND	ND	ND	ND
	11	ND	ND	ND	ND	ND	ND
	1	ND	ND	ND	ND	ND	ND
Average [c]		ND	ND	ND	ND	ND	ND
3-day Withdrawal	2	ND	ND	ND	ND	ND	ND
Medium Dose—4.8 ppm	9	ND	< 0.01	< 0.01	ND	< 0.01	< 0.01
	6	ND	0.010	0.010	ND	ND	ND
	4	ND	< 0.01	< 0.01	ND	< 0.01	< 0.01
Average [c]		ND	< 0.01	< 0.01	ND	< 0.01	< 0.01
3-day Withdrawal	5	ND	ND	ND	ND	ND	ND
High Dose—16 ppm	3	< 0.01	0.014	0.013	ND	ND	ND
	14	0.011	0.032	0.030	ND	ND	ND
	8	< 0.01	0.015	0.014	ND	< 0.01	< 0.01
Average [c]		< 0.01	0.020	0.019	ND	< 0.01	< 0.01
3-day Withdrawal	16	ND	ND	ND	ND	ND	ND

[a] ND = residue not detected with a limit of detection (LOD) of 0.003 mg/kg
[b] The conversion factor for RH-9090 to myclobutanil equivalents is 0.9475, based on molecular weights of 288.78 and 304.78 for myclobutanil and RH-9090, respectively.
[c] For purposes of calculating an average, ND residues were assigned a value of ½ the LOD (0.003 ppm/2). Average residue values < 0.003 ppm were designated as ND. Residues below the LOQ (< 0.01 mg/kg) were assigned a value of ½ of the LOQ (0.01 mg/kg/2). Average residue values > 0.003 mg/kg, but < 0.01 mg/kg were designated as < 0.01 mg/kg.

Laying Hens

A poultry feeding study was conducted to determine the extent to which residues of myclobutanil in poultry feedstuffs transfer to edible tissues and eggs.

Eighty white leghorn laying hens in top laying condition (38 weeks old) were used in this study and acclimated to the testing facility for (7) days. Ten hens were randomly assigned to each of (5) groups. Groups 6 and 7 were not utilized for residue analysis. Each hen received the radiocarbon

dose in a gelatin capsule for 28 days followed by < 24 hr, 7, and 14 day withdrawal periods (groups 1–5).

Eggs were collected each day (AM) from each hen for egg production records. All eggs for a group were kept on days -1,1,2,4,7,10,14,21,28,29,30,31,32,35 and 42, deshelled and stored frozen. Necropsy was performed for dose groups 1–5 on days 28, 35, and 42 (3–4 hens per group). At necropsy, the following tissues and whole organs were collected after exsanguinations, and immediately frozen: Breast muscle, thigh muscle, liver, kidneys, gizzard (washed, w/o contents), heart, fat, On each sacrifice day, the control hens were necropsied first, followed by the low dose group, working finally to the higher dose group hens last. Terminal body weights were taken for hens in groups 1–5.

All egg samples were homogenized by blending, aliquoted and combusted in duplicate. Tissue samples were blended with dry ice to a fine consistency and aliquoted for combustion. Combusted samples were quantitated for radiocarbon content using a liquid scintillation spectrometer in the external standardization mode. The results are shown in Table 85.

Table 85 Residues of myclobutanil in tissues from poultry dosed with myclobutanil in a 28-day feeding study

		Residues, myclobutanil (mg/kg) [a]			
Tissue	Day	1.0 ppm	3.0 ppm	10.0 ppm	30.0 ppm
Whole Eggs	–1	ND	ND	ND	ND
	1	ND	ND	ND	ND
	2	ND	0.005	0.019	0.054
	4	0.002	0.008	0.023	0.081
	7	0.005	0.011	0.034	0.118
	10	0.003	0.012	0.027	0.107
	14	0.003	0.011	0.029	0.094
	21	0.004	0.012	0.030	0.100
	28	0.003	0.013	0.031	0.122
	29	0.003	0.010	0.030	0.129
	30	ND	0.005	0.013	0.046
	31	0.003	0.003	0.012	ND
	32	ND	0.003	0.007	0.026
	35	ND	ND	ND	ND
	41	ND	ND	ND	ND
Liver	28	0.003	0.006	0.018	0.047
	35	ND	ND	ND	ND
	42	ND	ND	ND	ND
Kidney	28	ND	0.003	ND	0.021
	35	ND	ND	ND	ND
	42	ND	ND	ND	ND

The results presented in each group are the average of 10 hens. Actual feed concentrations were 1.05, 3.57, 10.2, and 28.3 ppm. Results reported as RH-3866 equivalents.

[a] ND = no detectable residue. The minimum quantifiable limit for tissue except fat was 0.002 ppm for groups 1 to 3, 0.006 ppm for group 4, and 0.018 ppm for group 5. The minimum quantifiable limit for fat was 0.005 ppm for groups 1 to 3, 0.015 ppm for group 4, and 0.045 ppm for group 5.

RESIDUES IN FOOD IN COMMERCE OR AT CONSUMPTION

There are no data on market-basket monitoring studies available for myclobutanil.

NATIONAL RESIDUE DEFINITIONS

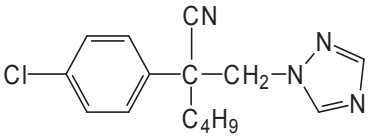
Information wasn’t provided on national residue definitions for myclobutanil.

APPRAISAL

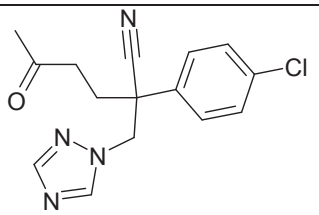
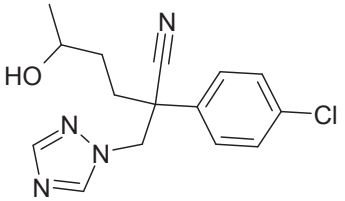
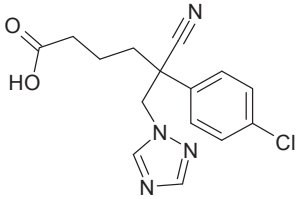
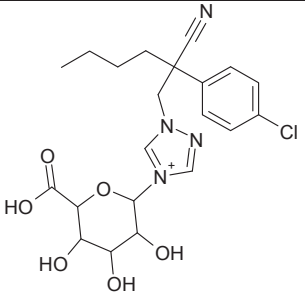
Myclobutanil was originally evaluated by the JMPR in 1992 and re-evaluated for residues several times up to 1998. Myclobutanil is a systemic protectant fungicide used to control brown rot, powdery mildew and leaf spot in stone fruit crops, and belongs to the sterol demethylation inhibitor (DMI) class of fungicides.

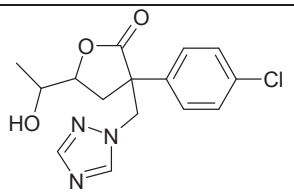
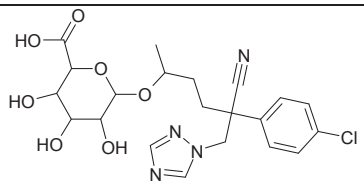
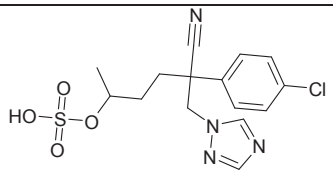
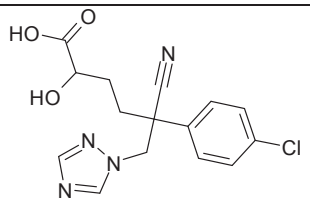
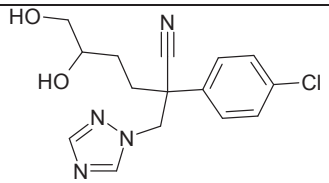
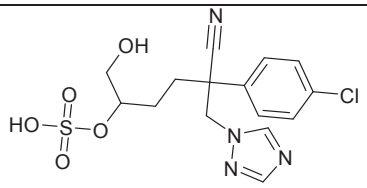
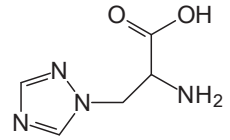
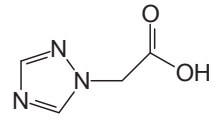
At the Forty-fifth Session of the CCPR (REP13/PR, Appendix XIV), myclobutanil was scheduled for periodic residue review by the 2014 JMPR. The Meeting received information on physical and chemical properties, metabolism, environmental fate, analytical methods and freezer storage stability, national registered use patterns, as well as supervised trials, processing studies and livestock feeding studies.

Myclobutanil is (R, S)-2-(4-chlorophenyl)-2-(1H-1, 2, 4-triazol-1-ylmethyl) hexanenitrile and exists as a racemate.



The following compound codes are used for the metabolites discussed below:

RH-9089	(2RS) -2-(4-chlorophenyl) -5-oxo-2-(1H-1,2,4-triazol-1-ylmethyl)hexanenitrile	
RH-9090	α-(4-chlorophenyl)-α-(3-hydroxybutyl)-1H-1,2,4-triazole-1-propanenitrile	
MW 318 Acid (butyl carboxylic acid of myclobutanil)	5-(4-chlorophenyl)-5-cyano-6-(1H-1,2,4-triazol-1-yl)hexanoic acid	
N-Glucuronic Acid Conjugate of Myclobutanil	1-[2-(4-chlorophenyl)-2-cyanohexyl]-4-hexopyranuronosyl-1H-1,2,4-triazol-4-ium	

Hydroxy-lactone	3-(4-chlorophenyl)-5-(1-hydroxyethyl)-3-(1H-1,2,4-triazol-1-ylmethyl)dihydrofuran-2(3H)-one	
RH-9090 Glucuronic Acid Conjugate	5-(4-chlorophenyl)-5-cyano-6-(1H-1,2,4-triazol-1-yl)hexan-2-yl hexopyranosiduronic acid	
RH-9090 Sulfate Conjugate	5-(4-chlorophenyl)-5-cyano-6-(1H-1,2,4-triazol-1-yl)hexan-2-yl hydrogen sulfate	
MW 334 Acid	5-(4-chlorophenyl)-5-cyano-2-hydroxy-6-(1H-1,2,4-triazol-1-yl)hexanoic acid	
RH-294 (Diol)	α-(-chlorophenyl)-α-(3,4-hydroxy-butyl)-1H-1,2,4-triazole-1-propane-nitrile	
RH-294 Sulfate Conjugate	5-(4-chlorophenyl)-5-cyano-1-hydroxy-6-(1H-1,2,4-triazol-1-yl)hexan-2-yl hydrogen sulfate	
RH-3968 (Triazolyl Alanine, TA)	(2*RS*)-2-amino-3-(1*H*-1,2,4-triazol-1-yl)propanoic acid	
RH-4098 (Triazolyl Acetic Acid, TAA)	1*H*-1,2,4-triazol-1-ylacetic acid	

Animal metabolism

Information was available on metabolism of myclobutanil in rats, lactating goats and laying hens.

Laboratory animals: Myclobutanil was mainly and rapidly absorbed (> 89%), extensively metabolised and rapidly and completely excreted after oral administration in rats. Peak plasma and tissue radiolabelled myclobutanil were achieved within 1 hr after oral administration and plasma elimination was biphasic. No significant tissue accumulation was observed 96 hr post-dosing. Metabolism appears to have occurred mainly through a variety of oxygenation reactions of the butyl group. The major metabolic processes involved oxygenation to the butyl group and among the

metabolites formed are the RH9090 and RH9089, the major unconjugated phenethyl triazole-containing metabolites found in plants.

Lactating goats: Myclobutanil was orally dosed to lactating goats for 5 days. Individual goats were dosed separately with myclobutanil radiolabelled in either the triazole (TZ) portion or the phenyl ring (PH) at the rate of 24 ppm and 14 ppm in the diet per day, respectively. Approximately 71% and 79% of TAR was recovered in the faeces and urine for the TZ-label and PH-label dosed animal. Most of administered dose was rapidly absorbed, metabolised and rapidly eliminated via the urine (49–58% TAR) and faeces (22% TAR). TRR levels in tissues ranged from 0.016 mg eq/kg in omental fat to 0.49 mg eq/kg in liver for the low dosed goat (PH label) and from 0.027 mg eq/kg in omental fat to 0.92 mg eq/kg in liver for the high dosed goat (TZ label). Residue levels were highest in liver and kidney and significantly lower in muscle and fat.

Milk and edible tissues were extracted with acetone, hexane and acetonitrile/water (80/20) and 78–101% radioactive residues were recovered. Unchanged parent compound was only observed in liver (2.1–6.0% TRR, 0.019–0.029 mg/kg). The metabolite RH-9090 and its sulphate and glucuronic acid conjugates were the primary residue in liver (total 59–60% TRR, 0.29–0.54 mg eq/kg), in kidney (total 58–61% TRR, 0.13–0.30 mg eq/kg), in muscle (total 47–80% TRR, 0.02–0.03 mg eq/kg) and in fat (total 44–46% TRR, 0.01–0.02 mg eq/kg). The hydroxy-lactone was the only other metabolite present in liver at levels in excess of 10% of the TRR (12–16% TRR, 0.08–0.11 mg eq/kg).

For both labels in milk, the residue levels reached a plateau within 4 days after the initiation of dosing at a level of approximately 0.033–0.079 mg eq/kg. The primary residue was RH-9090 which constituted about 28–58% of the TRR, while the only other two metabolites representing 10% or more of the TRR were RH-294 and the MW 318 carboxylic acid. No parent compound was detected in milk.

Laying hens: [^{14}C]-Myclobutanil was administered orally to groups of three laying hens once daily for 7 consecutive days at the nominal equivalent of 110 ppm in a diet. Over 95% of the dosed radioactivity was recovered in the excreta. Whole eggs and muscle were extracted with ethyl acetate, and then extracted with methanol. Fat and edible offal were extracted with n-hexane and methanol. The extracted radioactive residues accounted for 69% TRR in whole eggs, 79% TRR in fat, 83% TRR in thigh muscle, 97% TRR in breast muscle, 156% TRR in kidney (118% TRR as uncharacterized) and 72% TRR in liver (61% TRR as uncharacterized), respectively.

Total radioactive residues were observed in the liver (0.52 mg eq/kg) and the kidney (0.32 mg eq/kg), while lower residues were found in muscle (0.06 mg eq/kg) and fat (0.02 mg eq/kg). Parent myclobutanil was a main residue in fat (67% TRR) in kidney (12% TRR) in liver (4.8% TRR), and in muscle (up to 4% TRR). A band that co-chromatographed with RH-9090/RH9089 and lactone accounted for 15% TRR in kidney. The major component of the residue in muscle was RH-9089 (61-72% TRR). The major component of the residue in eggs was RH-9090 accounting for 36% TRR. No parent compound was observed in eggs.

In summary, the metabolism found in livestock was qualitatively comparable with that observed in laboratory animals. Characterization of the residues show myclobutanil together with RH-9090 and its conjugates are the major residues in the animal tissues, milk and eggs except RH-9089 as a major component in the muscle of laying hens.

Plant metabolism

The Meeting received plant metabolism studies with myclobutanil on grapes, apples, wheat, and sugar beets.

Grape seedlings in the greenhouse were placed in nutrient solution containing either ^{14}C-phenyl myclobutanil or ^{14}C-triazole myclobutanil. An average of 37% TRR remained as the parent compound. RH-9090 accounted for 6% TRR, with 11% TRR present as the RH-9090 glucoside and 14% TRR as an unknown polar component. In the 16-day uptake samples, parent compound accounted for an average of 53% TRR, RH-9090 8% TRR and RH-9090 glucoside 12% TRR.

Grape vines were sprayed five times weekly with myclobutanil, labelled with ^{14}C in the phenyl ring or the triazole ring each at a rate equivalent to 0.05 kg ai/ha. The overall recovery of identified radioactive residues ranged from 79% to 82%. TRR in whole grapes at harvest were 0.32 and 0.24 mg eq/kg for PH and TZ grapes, respectively. The major component of residue was the parent compound accounting for 66% TRR, RH-9090 for 7–9% TRR, RH-9090 glucoside for 5–6% and RH-9089 for 1%, respectively.

Apple trees received ten approximately weekly sprays of myclobutanil, labelled with ^{14}C in the phenyl ring or the triazole ring, at 0.24 kg ai/ha. After extraction with chloroform or methanol, the overall recoveries of identified radioactive residues ranged from 84% to 86% TRR. TRR in whole grapes at harvest were 0.48 and 0.32 mg eq/kg for PH and TZ grapes, respectively. The major component of the terminal residue remained parent compound accounting for 49% of TRR. Conjugated RH-9090 accounted for 21–24% TRR. Free RH-9090 accounted for 12% TRR. A minor component was RH-9089 present at 1.9% TRR. There were no differences in the metabolic profile between the two radiolabelled experiments.

Wheat seedlings were exposed to ^{14}C-myclobutanil at either 42 mg/kg (PH label) or 64 mg/kg (TZ label) in nutrient solutions for an 11 day period placed in the greenhouse. After extraction with methanol, the overall recovery including the unextracted residue ranged from 90% to 96%. In the wheat seedlings, most of the radioactivity (62–71% TRR) remained as parent compound. The total conjugates constituted the complement of the total residues (accounting for 21–30% TRR). In the excised wheat shoots, more than 72% of TRR maintained as unchanged parent compound. In the excised heads of 13-day uptake samples, parent compound accounted for up to 75% TRR, free RH-9090 for 5% TRR, RH-9090 glucoside for up to 18% TRR for both labelling forms.

The metabolism of myclobutanil, using either PH or TZ labels, was studied in wheat under field conditions and greenhouse at a rate equivalent to 0.28 kg ai/ha. After extraction with methanol, the overall recovery of identified radioactive residues ranged between 77% and 102%. TRRs in wheat grain ranged from 0.07 to 3.6 mg eq/kg, and those in wheat straw were from 2.8–69 mg eq/kg. The main components of the residue in wheat straw were parent myclobutanil (under field: 29–47% TRR), RH-9090 and its conjugates (under field: 23–41% TRR). The main components of the residue in wheat grains were RH-9090 and its conjugates (35% TRR) and parent myclobutanil (11% TRR) treated with PH label under field conditions. However, the main components of the residue in wheat grains were RH-3968 (51% TRR) and RH-4098 (25% TRR), and RH-9090 and its conjugates (8.9% TRR) treated with TZ label under field conditions while unchanged myclobutanil was a minor component of residue treated with TZ label accounting for 0.4% TRR.

Foliar applications were made to sugar beet at application rates equivalent to 0.15 kg ai/ha and 1.50 kg ai/ha using two radiolabelled forms ([14C]-phenyl-myclobutanil and [14C]-triazole-myclobutanil) 30 days prior to maturity. After extracted with acetonitrile, the overall recovery ranged between 91% and 105%. The main components of the residue in roots were parent myclobutanil (27–33% TRR, 0.01–0.03 mg eq/kg), conjugated RH-9090 and free RH-9090 (total 8–14%TRR, 0.006–0.007 mg eq/kg). The main components of the residue in leaves at maturity were RH-9090 (50–62% TRR, 0.26–0.43 mg eq/kg) and parent myclobutanil (16–34% TRR, 0.11–0.18 mg/kg), respectively.

In summary, the metabolism of myclobutanil in crops is qualitatively consistent and considered comparable except in wheat treatment with TZ label. The conversion of myclobutanil to RH-9090 followed by conjugation with glucose is the major metabolic pathway. Minor amounts of RH-9089 are probably a result of oxidation of RH-9090. The presence of RH-3968 and RH-4098 in wheat treated with TZ label indicates that the phenethyl triazole linkage in parent was metabolically cleaved.

Environmental fate in soil

The Meeting received information on the environment fate of myclobutanil in confined and field crop rotational studies. A study on degradation of myclobutanil in aerobic soil showed that half-life values reached up to 574 days. Myclobutanil could be a persistent compound in some soils.

Confined rotational crop

The metabolism of ^{14}C-triazole-myclobutanil in succeeding crops was investigated in wheat, radish and lettuce cultivated at three different plant back intervals for all crops (30, 120 and 365 days) at 1× 0.36 kg ai/ha. Lettuce, radish and wheat were planted at rotational intervals of 30, 120 and 365 days after soil treatment, TRRs ranged from 0.07 to 2.7 mg eq/kg were found in harvested crops. Radioactive residues in immature and mature lettuce and radish tops declined over time, while residues in radish roots increased. Residues in wheat hay, straw and grain did not show consistent increase or decline. The three most abundant non-polar components in crops planted 30 days after soil application were myclobutanil at 0.43 mg/kg (55% TRR) in mature lettuce, MW 309 di-acid at 0.38 mg eq/kg (14% TRR) and RH-9090 at 0.47 mg eq/kg (17% TRR), both in wheat straw. The two most abundant polar metabolites were the triazole alanine at 0.45 mg eq/kg (30% TRR) and triazole acetic acid at 0.43 mg eq/kg (29% TRR), both in 120 DAT wheat grain. Unextracted residues exceeded both 10% of the TRR and 0.05 mg eq/kg only in wheat hay, straw and grain at all plant-backs. In wheat hay and straw, the unextracted residues ranged from 11 to 23% TRR and from 0.17 to 0.53 mg eq/kg. For wheat grain, the unextracted residues ranged from 26 to 39% TRR and from 0.21 to 0.57 mg eq/kg.

The unchanged parent molecule was found as main component in samples of immature, mature lettuce (30-day PBI), radish roots (30, 120, 365-day PBI) and wheat forage (30 day PBI). Myclobutanil was detected as minor component in other samples. Metabolites were generally detected in lower concentrations. The parent compound, RH-9090 and its conjugates were found in most parts of the four crops. The other two most abundant metabolites were MW 309 di-acid (0.4–28% TRR) and butyric acid (0.9–15% TRR), were not identified in the metabolism studies of crops. This study indicates a potential uptake of residues for myclobutanil into plant commodities.

Field succeeding crop

Myclobutanil was applied at 6×0.14 kg ai/ha to zucchini in the USA (California and Georgia) approximating the estimated plateau level in soil after subsequent annual application. Within 2 days after the last application, zucchini fruit were harvested and removed from the plots. The remaining plant parts were incorporated into the soil 7–10 days after harvest and then rotational crops (soya bean, radish and wheat) were planted 30 days after the last application to the target zucchini crop. Rotational crops were sampled ranging between 71 and 258 days after final treatment. The plants were soxhlet extracted with methanol and analysed for the parent compound and RH-9090. Residues of myclobutanil and RH-9090 occurred up to 0.36 and 0.15 mg/kg in soya bean forage, 0.093 and 0.19 mg/kg in soya bean hay, 0.052 and < 0.01 mg/kg in radish root, 0.044 and 0.12 mg/kg in radish tops, 0.071 and 0.11 mg/kg in wheat forage, 0.18 and 0.63 mg/kg in wheat straw, respectively. Myclobutanil and RH-9090 residues were higher in vegetative matrices (forage, hay and straw) than the respective seed or grain crop matrix. Residue values for soya bean seeds and wheat grains were all below LOQ (0.01 mg/kg).

Methods of analysis

The Meeting received descriptions and validation data for analytical methods for residues of myclobutanil and RH-9090 in plant and meat. Myclobutanil residues can be measured in most matrices to the LOQ range of 0.01 to 0.05 mg/kg. No stereo-selective methods were submitted for two myclobutanil enantiomers.

The crop and animal methods typically use an initial extraction with methanol or acetone or acetonitrile, and clean-up with partition and/or column steps. The final solution was analysed by GC-ECD, GC-MS or LC/MS/MS. If RH-9090 and its conjugates are determined, hydrolysis with concentrated acid and heating is applied after extraction. Myclobutanil residues can be measured in most matrices to an LOQ of 0.01 mg/kg. All methods are considered sufficiently validated. Multi-residue enforcement method DFG S19 and MRM-1 were provided and validated. The DFG S19 was valid for RH-9090 in animal tissues except fat and MRM-1 was valid for myclobutanil in crops with the LOQ of 0.2 mg/kg. Analytical methods in the feeding studies were valid for determination of

myclobutanil and total RH-9090 in milk, myclobutanil and free RH-9090 in muscle, fat, liver and kidney.

Stability of residues in stored analytical samples

The Meeting received information on the freezer storage stability of residues of myclobutanil in plant and animal commodities.

Storage stability studies were conducted on apples, radish root, soya bean, wheat forage, wheat grain, wheat hay, wheat straw, blueberry, cucurbits and snap beans. Analytical results demonstrated that myclobutanil and RH-9090 were stable in the different plant matrices for at least one year, the duration of the test period.

Storage stability studies on liver and muscle were carried out. Analytical results demonstrated that myclobutanil and its metabolite RH-9090 were stable for at least 80 days, the duration of the study.

Definition of the residue

The composition of the residue in the metabolism studies, the available residue data in the supervised trials, the toxicological significance of metabolites, the capabilities of enforcement analytical methods and the national residue definitions already operating all influence the decision on residue definition.

The metabolism studies of lactating goats showed that the unchanged parent compound was only observed in liver. RH-9090 and its conjugates were the primary residues in liver, kidney, muscle and fat. The primary residue was RH-9090, constituted about 28–58% of the TRR in milk and no parent compound was observed.

In laying hens studies, the highest ^{14}C levels were observed in liver and kidney, while fewer residues were found in muscle and fat. Parent was one of the main components detected in liver and in kidney. RH-9090-sulphate was another main residue detected in liver. A band that co-chromatographed with RH-9090/RH9089 and hydroxy-lactone accounted for 15% TRR in kidney. The major component of the residue in muscle extracts was RH-9089. The major component of residue in fat was parent compound. RH-9090 was the major component of the residue in eggs. No parent compound was observed in eggs.

RH-9090 and its conjugates are the main residues in the animal tissues, milk and eggs. Parent compound is also identified in most of tissues and as a major component in fat and kidney. Although RH-9090 and RH-9089 are found in tissues of animal metabolism study, no residues of parent compound and metabolites were expected above LOQ on the basis of dietary burden calculation and animal feeding studies. The Meeting recommended that, parent myclobutanil is the appropriate residues of concern for MRL enforcement and dietary risk assessment in animal commodities.

The octanol-water partition coefficient of myclobutanil (log K_{OW} = 2.56) suggested that myclobutanil is not fat-soluble. Noting that myclobutanil residues in animal fat were less than those in muscle, the Meeting agreed that myclobutanil residue is not fat-soluble.

Metabolism studies on plants, and confined rotational crop showed that the main residues in food or feed of plant origin were myclobutanil and/or conjugated RH-9090 and free RH-9090. The Meeting decided that for plant commodities, parent myclobutanil is the appropriate residue of concern for MRL enforcement, and myclobutanil and RH-9090 and its conjugates for dietary risk assessment.

Definition of the residue (for compliance with the MRL) for plant and animal commodities: *myclobutanil.*

Definition of the residue (for estimation of dietary intake) for animal commodities: *myclobutanil.*

Definition of the residue (for estimation of dietary intake) for plant commodities: *sum of myclobutanil, α-(4-chlorophenyl)-α-(3-hydroxybutyl)-1H-1,2,4-triazole- 1-propanenitrile (RH-9090) and its conjugates, expressed as myclobutanil.*

The residue is considered as not fat-soluble.

Results of supervised residue trials on crops

The Meeting received supervised trials data for myclobutanil formulations for apple, pear, peach, cherry, apricot, plum, currant, grapes, strawberry, banana, hops, tomato, squash, pepper, cucumber, melon, watermelon, snap beans and soya beans.

The method for calculation of the total residues is illustrated as follows (similar molecular weight, suggest to sum up residue of myclobutanil and RH-9090 as total residue).

RH-9090 less than LOQ (0.01 mg/kg) and more than LOD (0.0025 mg/kg)

Myclobutanil, mg/kg	RH-9090, mg/kg	Total, mg/kg
< 0.01	< 0.01	< 0.02
0.08	< 0.01	0.09

RH-9090 less LOD (0.0025 mg/kg)

Myclobutanil, mg/kg	RH-9090, mg/kg	Total, mg/kg
< 0.01	< 0.0025	< 0.01
0.08	< 0.0025	0.08

RH-9090 equal to or more than LOQ (0.01 mg/kg)

Myclobutanil, mg/kg	RH-9090, mg/kg	Total, mg/kg
0.21	0.03	0.24

Pome fruits

The critical GAP for myclobutanil on pome fruits is in Czech Republic, 3×0.09 kg ai/ha, 14-day PHI. Seven trials were available from Europe on apple against Czech GAP with myclobutanil residue of 0.03(2), 0.05, 0.07, 0.11, 0.20 and 0.34 mg/kg, with total residue of 0.03, 0.04, 0.05, 0.08, 0.12, 0.22 and 0.35 mg/kg.

Eight trials were available from Europe on pear against Czech GAP with myclobutanil residue of 0.03(2), 0.04, 0.05, 0.06, 0.10, 0.28 and 0.32 mg/kg, and with total residue of 0.05(3), 0.06, 0.07, 0.11, 0.29 and 0.35 mg/kg.

Noting the similar data population from apple and pear and medians of the datasets differed less than 5-fold, The Meeting agree to combined residues expressed in terms of myclobutanil of 0.03(4), 0.04, 0.05(2), 0.06, 0.07, 0.10, 0.11, 0.20, 0.28, 0.32 and 0.34 mg/kg. The residues expressed in terms of total residues were: 0.03, 0.04, 0.05(4), 0.06, 0.07, 0.08, 0.11, 0.12, 0.22, 0.29 and 0.35(2) mg/kg. On the basis of myclobutanil residues, the Meeting estimated a maximum residue level of 0.6 mg/kg pome fruits to replace the previous recommendation of 0.5 mg/kg. The Meeting also agreed to combine two datasets to estimate an HR of 0.35 mg/kg, an STMR of 0.07 mg/kg based on the total residue.

Stone fruits

The critical GAP for myclobutanil on peach, nectarine and cherry is in the USA, 8× 0.18 kg ai/ha with PHI of 0 day. Nine trials were conducted with application number from 7 to 11 within ± 25% GAP rate in the USA. No significant contribution should be expected from the treatments more than 3 half-lives to the final residue. Myclobutanil residues with 0 day PHI on peach were: 0.34, 0.38, 0.62, 0.66, 0.75, 0.84, 0.85 and 1.23 mg/kg and the total residues were: 0.37, 0.55, 0.76, 0.82, 0.91, 1.06, 1.12 and 1.54 mg/kg.

Eight trials were available from the USA on cherry with myclobutanil residue 0.20, 0.28, 0.75, 0.85, 0.92, 1.04, 1.12 and 1.44 mg/kg, and with total residue 0.22, 0.32, 0.82, 1.05, 1.07, 1.52, 1.61 and 2.05 mg/kg.

The Meeting estimated an HR of 2.05 mg/kg, an STMR 1.06 mg/kg, and maximum residue level of 3 mg/kg for cherry.

The critical GAP for myclobutanil on apricot, plum and prune is in the USA, 7× 0.18 kg ai/ha with PHI of 0 day. Seven trials were available from the USA and Europe on apricot against US GAP with myclobutanil residue 0.11, 0.12, 0.17, 0.18, 0.23, 0.34 and 0.62 mg/kg, and with total residue 0.13, 0.14, 0.21, 0.25, 0.29, 0.38 and 0.70 mg/kg.

Eight trials were available from the USA on plum against US GAP with myclobutanil residue 0.09, 0.13, 0.20, 0.25, 0.28, 0.59, 0.97 and 1.12 mg/kg, and with total residue 0.11, 0.36, 0.40, 0.73 and 1.45 mg/kg.

The Meeting estimated an HR of 1.45 mg/kg, an STMR 0.40 mg/kg, and maximum residue level of 2 mg/kg and agreed to replace the previous recommendation of 0.2 mg/kg for plums.

Considering the higher residues came from peach, the Meeting decided not to combine datasets of peach and apricot, and estimated an HR of 1.54 mg/kg, STMR 0.865 mg/kg, and maximum residue level of 3 mg/kg for peach, nectarine and apricot on the basis of residues of peach. The Meeting agreed to withdraw the previous recommendation of 2 mg/kg for stone fruits (except plums) and 0.5 mg/kg for prunes.

Currants

The critical GAP for myclobutanil on currants is in the UK, 6× 0.09 kg ai/ha with PHI of 14 days. Twelve trials were available from the UK on black currants against GAP with myclobutanil residue 0.19, 0.24(2), 0.26(2), 0.29, 0.30(2), 0.31, 0.35, 0.42 and 0.43 mg/kg, and with total residue 0.21, 0.28(2), 0.31(2), 0.34(2), 0.35, 0.37, 0.39, 0.46 and 0.47 mg/kg.

The Meeting agreed to estimate an HR 0.47 mg/kg, an STMR 0.34 mg/kg, and maximum residue level of 0.9 mg/kg for currants to replace the previous recommendation of 0.5 mg/kg on currants, black.

Grapes

The critical GAP for myclobutanil on grapes is in the USA, 5× 0.15 kg ai/ha with PHI of 14 days. Nine trials were available from the USA on grapes against US GAP with myclobutanil residue in grape 0.13, 0.14(2), 0.25, 0.31, 0.32(2), 0.48 and 0.53 mg/kg, and with total residue in grape 0.17, 0.19(2), 0.29, 0.34, 0.40(2), 0.58 and 0.60 mg/kg.

The Meeting estimated an HR of 0.60 mg/kg, an STMR 0.34 mg/kg, and maximum residue level of 0.9 mg/kg for to replace the previous recommendation of 1 mg/kg for grapes.

Strawberry

The critical GAP for myclobutanil on strawberry is in the USA, 6× 0.14 kg ai/ha with PHI of 0 day. Seven outdoor trials from the USA against US GAP gave residues 0.03, 0.04, 0.10, 0.15, 0.20, 0.23 and 0.31 mg/kg.

The critical GAP for myclobutanil on strawberry is in the UK, 6× 0.09 kg ai/ha with PHI of 3 day. In 19 outdoor trials from Europe at UK GAP, myclobutanil residues were 0.08, 0.10, 0.14, 0.15, 0.17, 0.18(2), 0.19(4), 0.20(2), 0.22, 0.24, 0.30, 0.48, 0.50 and 0.69 mg/kg, and total residues were 0.09, 0.10, 0.15(2), 0.17, 0.18(2), 0.19(4), 0.20(2), 0.22, 0.24, 0.31, 0.48, 0.50 and 0.69 mg/kg. Eight indoor trials were available from Europe on strawberry against UK GAP with myclobutanil residue of 0.13, 0.16, 0.18, 0.19, 0.20, 0.24, 0.37and 0.46 mg/kg, and with total residue of 0.14, 0.17, 0.19, 0.20, 0.21, 0.25, 0.38 and 0.47 mg/kg.

Considering the higher residues came from Europe, residue populations from indoor and outdoor European trials were similar, the Meeting decided to combine the two datasets. The residues in 27 trials were 0.08, 0.10, 0.13, 0.14, 0.15, 0.16, 0.17, 0.18(3), 0.19(5), 0.20(3), 0.22, 0.24(2), 0.30, 0.37, 0.46, 0.48, 0.50 and 0.69 mg/kg for myclobutanil and 0.09, 0.10, 0.14, 0.15(2), 0.17(2), 0.18(2), 0.19(5), 0.20(3), 0.21, 0.22, 0.24, 0.25, 0.31, 0.38, 0.47, 0.48, 0.50 and 0.69 mg/kg for myclobutanil and RH-9090 and its conjugates. The Meeting estimated a maximum residue level of 0.8 mg/kg on the basis of parent residues for strawberry to replace the previous recommendation of 1 mg/kg on strawberry. The Meeting also estimated an HR of 0.69 mg/kg and an STMR of 0.19 mg/kg on the basis of total residues.

Banana

Myclobutanil is registered in Costa Rica for use as a post-harvest run-off or dip application at 84.8 g ai/hL, application before packaging fruits. Three trials from Costa Rica on banana against GAP gave myclobutanil residues in whole fruits of 0.028(2) and 0.29 mg/kg. Total residues in banana pulp were 0.06, 0.07 and 0.09 mg/kg.

The Meeting agreed that there is not sufficient evidence that the proportionality principal is applicable to post-harvest treatment. Three trials on banana were not enough for estimation of an MRL, an STMR and an HR for banana. The Meeting agreed to withdraw the previous recommendation of 2 mg/kg for banana.

Fruiting vegetables, other than Cucurbits

Tomatoes

The critical GAP for myclobutanil on tomatoes is in the USA, 4× 0.11 kg ai/ha with PHI 0 day. Seventeen outdoor trials were available from the USA on tomatoes against US GAP with myclobutanil residue 0.02, 0.03(2), 0.04(2), 0.06, 0.07(5), 0.08(2), 0.09, 0.10, 0.11 and 0.22 mg/kg, and with total residue 0.02, 0.03, 0.04(2), 0.05, 0.06, 0.07(4), 0.08, 0.09, 0.10(2), 0.11, 0.12 and 0.25 mg/kg.

The Meeting decided to estimate an HR of 0.25 mg/kg, an STMR of 0.07 mg/kg based on total residues, and a maximum residue level of 0.3 mg/kg based on myclobutanil residues for tomatoes to confirm the previous recommendation.

Peppers

The critical GAP for myclobutanil on peppers is in the USA, 4× 0.14 kg ai/ha with PHI of 0 day. Two outdoor trials were available from the USA on sweet pepper against US GAP with myclobutanil residue 0.03 and 0.47 mg/kg, and with total residue 0.05 and 0.64 mg/kg. Four outdoor trials were available from the USA on chilli pepper against US GAP with myclobutanil residue 0.09, 0.18, 1.19 and 2.03 mg/kg, and with total residue 0.12, 0.23, 1.39, 2.40 mg/kg.

Considering residues from sweet and chilli peppers were similar, the Meeting decided to combine two datasets. The residues in six trials were 0.03, 0.09, 0.18, 0.47, 1.19 and 2.03 mg/kg for myclobutanil and 0.05, 0.12, 0.23, 0.64, 1.39, 2.40 mg/kg for myclobutanil and RH-9090 and its conjugates. The Meeting estimated an HR 2.40 mg/kg, an STMR 0.435 mg/kg based on total residues, and maximum residue level of 3 mg/kg based on myclobutanil residues for peppers.

On the basis of residues in peppers and dehydration factor of 7, the Meeting estimated an HR of 16.8 mg/kg, an STMR of 2.45 mg/kg and recommended a maximum residue level of 40 mg/kg for myclobutanil on peppers chilli, dried.

Fruiting vegetables, Cucurbits

The critical GAP for myclobutanil on cucurbits is in the USA, 5 applications at 0.14 kg ai/ha with a PHI of 0 days.

Summer Squash

Nine outdoor trials were available from the USA on summer squash matching US GAP. Myclobutanil residues in squash were: 0.01(2), 0.02(2), 0.04, 0.05, 0.06, 0.10 and 0.16 mg/kg, and with total residue 0.01, 0.02, 0.03(2), 0.04, 0.05, 0.07, 0.11 and 0.16 mg/kg.

Cucumber

Seven outdoor trials were available from the USA on cucumbers matching US GAP. Myclobutanil residues were: 0.02, 0.03(2), 0.04(2) and 0.07 mg/kg, and with total residue of 0.03(2), 0.04 (3) and 0.07 mg/kg.

Melons

Four outdoor trials were available from the USA on melons matching US GAP with myclobutanil residue of 0.02, 0.05, 0.07 and 0.08 mg/kg, and with total residue of 0.02, 0.05, 0.07 and 0.08 mg/kg. Two outdoor trials were available from Southern Europe on melon matching US GAP with myclobutanil residues of 0.09 and 0.10 mg/kg, and total residue of 0.10 and 0.11 mg/kg.

The US GAP is the same for cucumbers, melons and squash. The Meeting considered that the residues from trials with the foliar application on cucumber, melon and squash were similar. The Meeting agreed to propose a group maximum residue level for fruiting vegetables, cucurbits. The residues expressed in terms of myclobutanil were: 0.01(2), 0.02(4), 0.03(2), 0.04(3), 0.05(2), 0.06, 0.07(2), 0.08, 0.09, 0.10(2) and 0.16 mg/kg. The residues expressed in terms of myclobutanil and RH-9090 and its conjugates were: 0.01, 0.02(2), 0.03(4), 0.04(4), 0.05(2), 0.07(3), 0.08, 0.10, 0.11(2) and 0.16 mg/kg

Based on the trials for cucumbers, melons and squash in the USA and Southern Europe, the Meeting estimated an HR of 0.16 mg/kg, an STMR of 0.04 mg/kg and a maximum residue level of 0.2 mg/kg for fruiting vegetables, cucurbits respectively.

Legume vegetables

Common bean

The critical GAP for myclobutanil on snap beans is from the USA, i.e., 4 × 0.14 kg ai/ha with a PHI of 0 days. Nine trials were available from the USA on snap beans matching US GAP. Myclobutanil residues found were: 0.04, 0.09, 0.14, 0.19, 0.20, 0.22, 0.30, 0.37 and 0.47 mg/kg, and with total residues of 0.06, 0.11, 0.16, 0.21, 0.22, 0.24, 0.32, 0.39 and 0.49 mg/kg.

On the basis of the trials on snap beans, the Meeting estimated an HR of 0.49 mg/kg, an STMR 0.22 mg/kg based on the total residues dataset, and a maximum residue level of 0.8 mg/kg for beans, except broad bean and soya bean (green pods and immature seeds), respectively.

Soya bean (dry)

The critical GAP for myclobutanil on soya beans is from Brazil, 2 × 0.125 kg ai/ha with a PHI of 24 days. Nine trials were available from Brazil on soya bean matching Brazilian GAP with parent residues of < 0.01(5), < 0.02(2), 0.02 and 0.03 mg/kg.

Noting that total residues were not available from the Brazilian trials, the Meeting decided to not estimate a maximum residue level for soya bean.

Hops

The critical GAP for myclobutanil on hops is from the USA, 4 × 0.28 kg ai/ha with a PHI of 14 days. Ten trials were available from Germany on hops matching US GAP, myclobutanil residues in dried hops were: < 0.50, 0.53, 0.63, 0.73, 1.02, 1.06, 1.14, 1.54, 1.80 and 3.50 mg/kg, and with total residues of 0.53, < 1.00, 1.13, 1.23, 1.52, 1.56, 2.04, 3.20 and 5.60 mg/kg.

The Meeting estimated an HR of 5.60 mg/kg, an STMR 1.52 mg/kg based on the total residue dataset, and a maximum residue level of 5 mg/kg for dry hops based on myclobutanil residues to replace the previous recommendation of 2 mg/kg on dry hops.

Animal feedstuffs

The critical GAP for myclobutanil on soya bean is in the USA, 2× 0.14 kg ai/ha with PHI of 28 days.

Soya bean forage

Two trials were available from the USA on soya bean forage against US GAP with residue 0.67 and 1.01 mg/kg.

Two trials on soya bean forage were not sufficient for estimation of a median and highest residue.

soya bean hay (dry)

Noting no trials on soya bean hay were available from the USA against US GAP, the Meeting decided not to make recommendations for soya bean hay.

Rotational crops

The Meeting noted that myclobutanil may accumulate in soil and be taken up by follow-crops in significant amounts. Residues were reported in field rotational crop studies following application to zucchini at rates of 6× 0.14 kg ai/ha. Since the foliage of the crop was incorporated into soil after harvest of the fruits, this application rate can be assumed to approximate the estimated soil plateau level following annual treatment according to the GAPs considered by the Meeting.

Residues for parent myclobutanil in respective field studies were < 0.003 mg/kg for soya bean seeds, 0.03 mg/kg to 0.36 mg/kg for soya bean forage and 0.017 mg/kg to 0.093 mg/kg for soya bean straw. The Meeting concluded that for pulses no significant transfer into seeds is expected. Median and highest residues were estimated at levels of 0.195 mg/kg and 0.36 mg/kg for legume forages and of 0.055 and 0.093 mg/kg for legume fodders.

Based on the average dry-matter content of 85% for soya bean hay, the Meeting estimated a maximum residue level of 0.2 mg/kg (DM) for legume animal feeds.

In leaves of radish grown as rotational crops myclobutanil residues were 0.015 mg/kg to 0.044 mg/kg. Extrapolating the residues found in radish leaves to all Brassica vegetables and leafy vegetables (including leafy Brassica vegetables), the Meeting estimated maximum residue levels of 0.05 mg/kg and HR and STMR values of 0.044 mg/kg and 0.030 mg/kg for Brassica vegetables and leafy vegetables (including leafy Brassica vegetables), respectively.

The roots of radish grown as a rotational crop contained myclobutanil residues of 0.026 mg/kg to 0.052 mg/kg. The Meeting decided to extrapolate the results to all bulb vegetables and all root and tuberous vegetables. The Meeting estimated a maximum residue level of 0.06 mg/kg and HR and STMR values of 0.039 mg/kg and 0.052 mg/kg for bulb vegetables and root and tuber vegetables, respectively.

Residues in wheat matrices obtained from field rotational crop studies contained myclobutanil residues < 0.003 mg/kg in the grain, 0.023 mg/kg to 0.071 mg/kg in forage and 0.015 mg/kg to 0.18 mg/kg in hay and straw. The Meeting concluded that for cereal grains no significant transfer of residues into seeds is expected. Median and highest residues were estimated at levels of 0.047 mg/kg and 0.071 mg/kg for cereal forages and of 0.098 and 0.18 mg/kg for cereal straw and fodder.

Based on the average dry-matter content of 88% for wheat straw, the Meeting estimated a maximum residue level of 0.3 mg/kg (DM) for straw and fodder (dry) of cereal grains.

The Meeting also concluded that the contribution of residues by uptake of myclobutanil from soil is insignificant compared to direct treatment for the uses evaluated.

Fate of residues during processing

The Meeting received information on the hydrolysis of myclobutanil as well as processing studies during the food processing of apples, grapes, tomatoes, soya beans and hops.

No degradation of myclobutanil was observed in a hydrolysis study at pH 4, 7 and 9 held at 50 °C, over a 5 day period.

In the following table all processing factors based on parent residues relevant for recommendation of maximum residue levels and estimation of animal dietary burden for processed commodities are summarized.

Portion Analysed		Median Processing Factor	Median resiudes	
			Raw commoditeis	Processed commodities
Apple			0.06	
	Wet pomace	1.61		0.097
	Dry pomace	12.1		0.726
Grapes			0.295	
	Wet pomace	0.90		0.266
	Dry pomace	3.94		1.16
	Raisin	6.31		1.86
Tomato			0.07	
	Dry pomace	20.05		1.40
	Wet pomace	4.54		0.318
soya bean			0	
	Hulls	1.14		0
	Meal	0.43		0
	Oil, refined	2.14		0
Hops			1.04	
	Beer	0.0145		0.015

Based on the median processing factor of 6.31, the Meeting estimated a maximum residue level of 6 mg/kg for raisin.

In the following table all processing factors based on total residues relevant for the estimation of the dietary intake for processed commodities are summarized.

Raw and processed commodity		Median Processing Factor	STMR (mg/kg)	STMR-P (mg/kg)	HR (mg/kg)	HR-P (mg/kg)
Apple			0.07			
	Juice	0.17		0.012		
	Puree	0.30		0.021		
Grapes			0.34		0.60	
	Juice	0.20		0.068		
	Wine after half year	0.17		0.058		
	Wine at bottling	0.14		0.048		
	Raisin	6.29		2.14		3.77
Tomato			0.07			
	Juice	0.50		0.031		
	Puree	1.33		0.093		
	Preserve	0.29		0.020		
	Paste	3.92		0.27		
Hops	Beer	0.015	1.52	0.023		

Residues in animal commodities

Estimated maximum and mean dietary burdens of farm animals

Dietary burden calculations for beef cattle, dairy cattle, broilers and layers are provided in Annex 6 to the 2014 Report. The calculations were made according to the animal diets from US-Canada, EU, Australia and Japan in the OECD Feed Table 2009.

The calculations are then summarised and the highest dietary burdens are selected for MRL and STMR estimates on animal commodities.

	Animal dietary burden, myclobutanil, ppm of dry matter diet							
	US-Canada		EU		Australia		Japan	
	max	mean	max	mean	max	mean	max	mean
Beef cattle	0.046	0.26	1.22	0.83	1.47 [a]	0.96 [b]	0.096	0.055
Dairy cattle	0.63	0.45	0.86	0.58	1.31 [c]	0.88 [d]	0.18	0.10
Poultry-broiler	0	0	0.035	0.026	0	0	0.051	0.028
Poultry-layer	0	0	0.22 [e]	0.13 [f]	0	0	0	0

[a] Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian meat.
[b] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian meat.
[c] Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk.
[d] Highest mean dairy cattle dietary burden suitable for STMR estimates for mammalian milk.
[e] Highest maximum poultry dietary burden suitable for MRL estimates for poultry meat and eggs.
[f] Highest mean poultry dietary burden suitable for STMR estimates for meat and eggs.

Lactating cows were orally administered myclobutanil equivalent to 0 ppm, 1.6 ppm, 4.8 ppm and 16 ppm in the feed, respectively. Residues of myclobutanil and RH-9090 in whole milk and tissues of the cows in all groups were < 0.01 mg/kg.

Dietary burden calculations showed the highest dietary burdens were less than the lowest feeding level. The Meeting decided to estimate maximum residue levels of 0.01*, and STMRs and HRs of 0 mg/kg for all milk, eggs and animal tissues. Confirming the previous recommendations of 0.01* mg/kg for cattle meat, milk and edible offal, and eggs, poultry meat and edible offal of the 1992 JMPR.

RECOMMENDATIONS

On the basis of the data from supervised trials, the Meeting concluded that the residue concentrations listed below are suitable for establishing MRLs and for assessing IEDIs and/or IESTIs.

Definition of the residue (for compliance with the MRL for plant and animal commodities and for estimation of dietary intake for animal commodities): *myclobutanil*.

Definition of the residue (for estimation of dietary intake for plant commodities): *sum of myclobutanil, α-(4-chlorophenyl)-α-(3-hydroxybutyl)-1H- 1,2,4-triazole-1-propanenitrile (RH-9090) and its conjugates, expressed as myclobutanil*.

CCN	Commodity	MRL, mg/kg		STMR or STMR-P, mg/kg	HP or HR-P, mg/kg
		new	previous		
FL 0327	Banana	W	2		
VP 0061	Beans, except broad bean and soya bean	0.8		0.22	0.49
VB 0040	Brassica (Cole or Cabbage) Vegetables, Head Cabbage, Flowerhead Brassicas	0.05		0.03	0.044
VA 0035	Bulb vegetables	0.06		0.039	0.052
FS 0013	Cherries	3		1.06	2.05
FB 0021	Currants, Black, Red, White	0.9	0.5	0.34	0.47

CCN	Commodity	MRL, mg/kg		STMR or STMR-P, mg/kg	HP or HR-P, mg/kg
		new	previous		
DF 0269	Dried grapes (=currants, Raisins and Sultanas)	6		2.14	3.77
MO 0105	Edible offal (mammalian)	0.01*		0	0.01
PE 0112	Eggs	0.01*		0	0.01
VC 0045	Fruiting vegetables, Cucurbits	0.2		0.04	0.16
FB 0269	Grapes	0.9	1	0.34	0.6
DH 1100	Hops, dry	5	2	1.52	5.6
VL 0053	Leafy vegetables	0.05		0.03	0.044
AL 0157	Legume animal feeds	0.2		0.055	0.093
MF 0100	Mammalian fats (except milk fats)	0.01*		0	0
MM 0095	Meat (from mammals other than marine mammals)	0.01*	0.01*	0	0.01
ML 0106	Milks	0.01*	0.01*	0	0.01
FS 2001	Peaches	3	-	0.865	1.54
VO 0051	Peppers	3	-	0.435	2.4
HS 0444	Peppers Chili, dried	30	-	4.35	24
FS 0014	Plums (including prune)	2	0.2	0.4	1.45
FP 0009	Pome fruits	0.6	0.5	0.07	0.35
PF 0111	Poultry fats	0.01*		0	0
PM 0110	Poultry meat	0.01*	0.01*	0	0.01
PO 0111	Poultry, Edible offal of	0.01*	0.01*	0	0.01
DF 0014	Prunes	W	0.5		
VR 0075	Root and tuber vegetables leaves	0.06	-	0.039	0.052
FS 0012	Stone fruits (except plums)	W	2		
AS 0081	Straw and fodder (dry) of cereal grains	0.3	-	0.098	0.18
FB 0275	Strawberry	0.8	1	0.19	0.69
VO 0448	Tomato	0.3	0.3	0.07	0.25
JF 0226	Apple juice			0.012	
	Beer			0.023	
JF 0269	Grape juice			0.068	
	Grape wine			0.048	
JF 0448	Tomato juice			0.031	
VW 0448	Tomato paste			0.27	
	Tomato preserve			0.02	
	Tomato purée			0.093	

* At or about the limit of quantification.

Animal commodities and processed foods for which no maximum residue levels were recommended:

CCN	Commodity	Median residue, mg/kg	Highest residue, mg/kg
–	Apple pomace, wet	0.097	
–	Apple pomace, dry	0.726	
–	Cereal forage	0.047	0.071
–	Grapes pomace, wet	0.266	
AB 0269	Grapes pomace, dry	1.16	
–	Legume forage	0.195	0.36
–	Tomato pomace, wet	0.318	
–	Tomato pomace, dry	1.40	

DIETARY RISK ASSESSMENT

Long term intake

The evaluation of myclobutanil resulted in recommendations for MRLs and STMR values for raw and processed commodities. Data on consumption were available for 33 food commodities and were used to calculate dietary intake. The results are shown in Annex 3 to the 2014 Report.

The International Estimated Daily Intakes (IEDIs) of myclobutanil, based on the STMRs estimated, represented 1–6% of the upper bound of the maximum ADI of 0.03 mg/kg bw for the 17 GEMS/Food cluster diets. The Meeting concluded that the long-term intake of residues of myclobutanil resulting from its uses that have been considered by JMPR was unlikely present a public health concern.

Short-term intake

The 2014 Meeting established an ARfD of 0.3 mg/kg bw for women of childbearing age only; ARfD was unnecessary for the general population.

The International Estimated Short Term Intake (IESTI) for myclobutanil was calculated for the food commodities for which STMRs, HRs and maximum residue levels were estimated by the current Meeting and for which consumption data were available. The results are shown in Annex 4 to the 2014 Report. The IESTI represented up to 10% (peach) for women of childbearing age only. The Meeting concluded that the short-term intake of residues of myclobutanil resulting from uses considered by the current Meeting was unlikely to present a public health concern.

REFERENCES

Code	Author(s)	Year	Title, Institution, Report reference
94213	Williams, M and Lawman, KJ	1984	^{14}C RH-3866 Dairy Cow Residue Metabolism And Feeding Study 31726
94215	Butterworth, DG	1984	RH-3866 ^{14}C Cow Metabolism Study—Residue Levels In Milk, Tissue And Excreta And Metabolites In Excreta (An Interim Report). 310-84-12
94218	Nelson, SS	1984	Laboratory Metabolism Studies of ^{14}C RH3866 in Wheat TR 310-84-10
94246	Streelman, DR	1984	The Metabolism RH3866 in Wheat TR 310-84-17
94225	Jacobson, AH	1986	Addendum To Technical Report 310-84-12: Characterization Of Metabolites In Urine And Milk From Cows Fed ^{14}C RH-3866 31H-86-19
94279	Nelson, SS	1984	Laboratory Metabolism Studies of ^{14}C RH3866 in Grapes. TR 310-84-15.
94618	Nelson, SS and Streelman, DR	1984	The Metabolism of RH3866 in Apples. TR 310-84-31
94747	Streelman, D	1984	A Material Balance and Metabolism Study of ^{14}C RH-3866 in Rats 310-84-16
94786	Ackermann, IB	1984	RH-3866: Laboratory Soil Metabolism TR 31O-84-14
98373	Nelson, SS	1984	Metabolism of ^{14}C RH3866 in Field Treated Grapes. TR 310-84-30
94169	Martin, JJ	1986	Disposition and Metabolism of RH3866 and Metabolites in Laying Hens. TR 31H-86-17
94252	Jacobson, A	1986	Characterization and Identification of Metabolites in Cows Fed a ^{14}C Mixture of RH3866 / RH9090 / RH9098. TR 31H-86-18
94610	Jacobson, A	1986	^{14}C RH3866 Feeding Study in Poultry. TR 31H-86-16
94619	Jacobson, A	1986	^{14}C RH3866 Feeding Study in Cows. TR 31H-86-13

Code	Author(s)	Year	Title, Institution, Report reference
94746	Steigerwalt, R *et al.*	1986	RH-3866 Kinetic and Metabolism Study in Mice 83R-175
94822	Ackermann, IB	1986	Addendum To RH-3866 Soil Metabolism Study, TR No. 310-84-14 TR 31H-86-15
94898	Steigerwalt, R *et al.*	1986	RH-3866 Kinetic and Metabolism Study in Rats 83R-144
2000666	Stumpf, K	1990	Myclobutanil (RH3866 Systhane) Degradation, Transformation, Metabolism and Leaching in Soil OE90/042, OE90-43
207048	MacDonald, AMG, Gray, J and Coyle, D	2004	The Metabolism of Myclobutanil in Sugar Beet. DN0015662
2006417	Rotondaro, SL, Adelfinskaya, Y and Ma, M	2010	A Nature of Residue Study in the Ruminant with [^{14}C]Myclobutanil 090070
94179	Brackett, CK	1984	Analytical Method For The Measure Of RH3866 Residues In Various Crops, Soil, Meat, Milk And Eggs And RH9090 Residues In Various Crops And Soil TR 31O-84-13; LM 31O-86-09
94183	Deakyne, RO, Brackett, CK and Stavinski, SS	1984	RH3866 Total Residue Analytical Method For Apple And Grape TR 31O-84-27
94186	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	Addendum To RH3866 Total Residue Analytical Method For Grape And Apple (Tr 310-84-27) 31H-86-15
94192	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1987	Addendum 3 to the Systhane Total Residue Analytical Method (TR 310-84-27, addendum 31H-86-15) 31S-87-06
94221	Deakyne, RO, Brackett, CK and Stavinski, SS	1986	Addendum To Technical Report 310-84-13 Analytical Method For RH3866 And RH9090. TR 310-86-09
94185	Martin, JJ	1987	RH9090: Residue Analytical Method And Validation Data For Meat, Milk/Poultry And Eggs TR 34S-88-22
94210	Deakyne, RO, Brackett, CK and Stavinski, SS	1988	RH3866 Total Residue Analytical Method For Apple And Grape TR 34S-88-10
94356	Stavinski, S, Brackett, C and Deakyne, RO	1988	Analytical Method for the Measure of RH3866 and RH9090 Residues in Various Crops, Soil, Meat, Milk and Eggs 34S-88-21
94768	Brackett, CK, Deakyne, RO and Stravinski, SS	1984	RH-3866 Storage Stability in Soil 310-84-08
94232	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	RH-3866 Storage Stability Study In Grapes TR 31H-86-06
94233	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	RH-3866 Storage Stability Study In Apples TR 31H-86-04
94236	Deakyne, RO and Brackett, CK	1985	RH-3866 Storage Stability Study In Apples—An Interim Report At 6 Months 310-85-03

Code	Author(s)	Year	Title, Institution, Report reference
94241	Batra, R	1997	Storage Stability Study: RH-3866 And RH-9090 In Tomatoes 34-96-157
94237	Batra, R	1994	Storage Stability Study: RH-3866 & RH-9090 In Almond Meat & Hulls—Data To 18 Months TR 34A-94-15
94240	Batra, R	1995	Storage Stability Study: RH-3866 And RH-9090 In Cucurbits AR 34A-94-30
94239	Desai, R and Garstka, TA	1997	RH-3866 And RH-9090 Storage Stability In Liver And Muscle 34S-88-21; TR 34-97-118; TR 34S-88-22
110199	Gilbert, JM	1998	Myclobutanil And Its Metabolite RH-9090—Validation Of The Method Of Analysis For The Determination Of Residues In Green Hops, Beer, Dry And Spent Hops, Trub And Yeast, Cherries, Grapes, Grape Juice And Wine, Apples, Artichokes, And Other Agricultural Commodities TM 31O-84-13
94182	Wais, A	2000	Validation Of The Residue Analytical Method For Myclobutanil (RH-3866) In Animal Tissues (Hen Muscle And Bovine Fat) TR 34-00-11; TR 34S-88-21
107324	Pinheiro, AC, Oliveira, RC and Rampazzo, PE	2002	Determination of Residues of Myclobutanil in High Water and High Oil Content Crops Using GC-MS Detection GRM 02.16
137270	Shackelford, DD	2003	Validation Report For Method GRM 03.01—Determination Of Residues Of Myclobutanil And Its Alcohol Metabolite (RH-9090) In Apples, Tomatoes, Grapes, Soybeans, Wheat And Radishes By Liquid Chromatography With Tandem Mass Spectrometry 021213; GRM 03.01
137271	Reed, RL	2003	Independent Laboratory Validation Of Dow Agrosciences LLC Method GRM 03.01— Determination Of Residues Of Myclobutanil And Its Alcohol Metabolite (RH-9090) In Apples, Tomatoes, Grapes And Rotational Crops By Liquid Chromatography With Positive-Ion APCI Tandem Mass Spectrometry GRM 03.01
208707	Shackelford, DD and Olberding, EL	2013	Validation Of Method GRM 05.07.R1—Determination Of Residues Of Myclobutanil And Its RH-9090 Alcohol Metabolite In Soybean Commodities Using On-Line Solid Phase Extraction Coupled To High Performance Liquid Chromatography With Tandem Mass Spectrometry (Revision) 040052; GRM 05.07.R1
134429	Teasdale, R and West, SD	2003	Assessment And Validation Of The Multi-Residue Enforcement Method DFG S19 For The Determination Of Myclobutanil And Its 1,2,4-Triazole Metabolite In Soil And The RH-9090 Metabolite In Animal Tissues DFG S19; 020134
135042	Mollica, J and West, SD.	2003	Independent Laboratory Validation Of The Multi-Residue Method-1 (MRM-1) For The Determination Of Myclobutanil In Crops 020115; MRM-1
260120	Shackelford, DD	2008	Method Validation Report For Method GRM 07.06—Determination Of Residues Of Myclobutanil And Its RH-9090 Alcohol Metabolite In Agricultural Commodities Using On-Line Solid Phase Extraction Coupled To Liquid Chromatography With Tandem Mass Spectrometry 071001; GRM 07.06
288736	Shackelford, DD, Hastings, JJ, Arnold, BH and Dial, GE	2003	Determination of Residues of Myclobutanil and Its Alcohol Metabolite (RH9090) in Apples, Tomatoes, Grapes, Soybeans, Wheat and Radishes by Liquid Chromatography with Tandem Mass Spectrometry
137270	Shackelford, DD	2003	Validation Report for Method GRM 03.01—Determination of Residues of Myclobutanil and Its Alcohol Metabolite (RH9090) in Apples, Tomatoes, Grapes, Soybeans, Wheat and Radishes by Liquid Chromatography with Tandem Mass Spectrometry

Code	Author(s)	Year	Title, Institution, Report reference
137271	Reed, RL	2003	Independent Laboratory Validation of Dow AgroSciences LLC Method GRM 03.01—Determination of Residues of Myclobutanil and Its Alcohol Metabolite (RH9090) in Apples, Tomatoes, Grapes and Rotation Crops by Liquid Chromatography with Positive-Ion APCI Tandem Mass Spectrometry
135042	Mollica, J and West, S	2003	Independent laboratory Validation of the Multi-Residue Method-1 (MRM-1) for the Determination of Myclobutanil in Crops
242040	Orpin, C	1995	Documentacion Complementaria De La Solicitud De Ampliacion De Los L.M.R.S De Miclobutanil En Frutos Citricos (Complementary Documentation Of The Request Of Extension Of The L.M.R.S Of Myclobutanil In Citrus Fruits)[Systhane—Residue Tests 1995 Results: Oranges And Mandarins With Deccotanil (120 g/L 20.064; 5/95; 6/95; 7/95; 8/95
242041	Orpin, C	1995	Solicitud De Ampliacion De Los L.M.R.S De Miclobutanil En Frutos Citricos (Request Of Extension Of The L.M.R.S Of Myclobutanil In Citrus Fruits) [Systhane—Residue Tests 1995 Results: Oranges And Mandarins With Deccotanil (120 g/L Emulsifiable Concentrate Formulation) And Citrashine-Tanil (3 g/L Water 05/94; 06/94; 07/94; 08/94; 09/94; 10/94; 11/94; 12/94; 13/94; 14/94; 15/94; 16/94; 17/94; 18/94; 19/94; 20/94; 21/94; 22/94
260333	Orpin, C	1995	Myclobutanil Systhane Residues On Oranges In ESP. 1995 Results. 19.949
94348	Mestres, R and Decacqueray, GP	1986	Systhane Residues On Peaches In ESP 491.85.18
94349	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	Analytical Report For Residues Due To RH-3866 In Peaches. 31A-86-62
241918	Maigrot, P	1986	Determination Of The Residues Of Myclobutanil In Peaches In ESP, 1985 491.85.18
94332	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1987	RH-3866 Residue Data For Cherries, RAR-87-0108 And 87-0111 31A-87-53; 87-0108; 87-0111
94338	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1987	Analytical Report For Residues Due To RH-3866 In Cherries: 84-0166, 84-0210 34A-88-15
94354	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1987	RH-3866 Residue Data For Peaches, RAR 87-0165 And RAR 87-0172. 31A-87-54; 87-0165; 87-0172
94402	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1987	RH-3866 (Systhane) Residue Data And Half-Life Of Decline For Cherry, RAR 87-0209 And Peach RAR 87-0172 34A-88-18
116860	Walton, LC	1987	RH-7592, Rally 60DF, Dithane M-45 Residue Program In Peaches At Clarksville, Arkansas 11335
122119	Neidlinger, TJ	1987	Rally/Dithane M-45/RH-7592 Residue Decline: Cherry At The Dalles, Oregon 11194
123464	Falconer, R	1987	Stone Fruit Fungicide Residue Trial At Woodlake, California 11443
123465	Falconer, R	1987	Stone Fruit Fungicide Residue Trial At Porterville, California 11444
123466	Falconer, R	1987	Stone Fruit Fungicide Residue Trial At Fresno, California 11445
123467	Falconer, R	1987	Stone Fruit Fungicide Residue Trial At Traver, California 11446
123468	Falconer, R	1987	Stone Fruit Fungicide Residue Trial At Laton, California 11447
123469	Falconer, R	1987	Stone Fruit Fungicide Residue Trial At Patterson, California 11448
123470	Falconer, R	1987	Stone Fruit Fungicide Residue Trial At Patterson, California 11449

Code	Author(s)	Year	Title, Institution, Report reference
242131	Maigrot, P	1987	Determination Of The Residues Of Myclobutanil In Peaches In FRA, 1987 431.87.40B; RH-A-36
242135	Mestres, R	1987	Myclobutanil: Residue Data From An Individual Trial—Apricots, 1987 F 61.01.87; RH-A-43
94331	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1988	RH-3866 Residue Data For Cherry—RAR 87-0261, RAR 87-0262, And RAR 87-0332 2428722; 2768703; 2768704; 34A-88-31; RAR 87-0261; RAR 87-0262; RAR 87-0352
94335	Stavinski, SS, Burnett, TF, Deakyne, RO and Brackett, CK	1988	RH-3866 Residue Data For Cherry, RAR 88-0026 34A-88-57
94353	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1988	RH-3866 Residue Data For Peach—RAR 87-0556 And RAR 87-0557 34A-88-36; RAR 87-0556; RAR 87-0557
94355	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1988	RH-3866 Residue Data For Peach—RAR-87-0274 And RAR-87-0235 34A-88-32; RAR 0235; RAR 0274
94359	Burnett, TF, Deakyne, RO, Brackett, CK, and Stavinski, SS	1988	RH-3866 Residue Data For Peach, RAR 87-0490 And RAR 87-0554 34A-88-35; RAR 87-0490; RAR 87-0554
94362	Brackett, CK and Stavinski, SS	1988	RH-3866 Residue Data And Half-Life Of Decline For Peach, RAR 87-0243 34A-88-33; RAR 87-0243
94513	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, S .	1988	RH-3866 Residue Data And Half-Life Of Decline For Plum—RAR 87 0201 34A-88-37; RAR 87-0207
94652	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1988	RH-3866 Residue Data For Plum, RAR 87-0260 34A-88-54
123404	West, LD	1988	Dithane, Rally, And RH-7592 Residue Trial On Sour Cherries At Farmington, Utah 11383
123933	Harrison, WE	1988	Dithane M-45 Fungicide Peach Field Residues At Hartsfield, Georgia 12468
124717	Klauzer, JC	1988	RH-3866 60DF Cherry Field Residues At Nampa, Idaho 12668
124718	Klauzer, JC	1988	RH-3866 40WP Cherry Field Residues At Nampa, Idaho 12669
124719	Klauzer, JC	1988	RH-3866 2E Cherry Field Residues At Nampa, Idaho 12670
124753	Harrison, WE	1988	RH-3866 Fungicide Peach Field Residue At Georgia 12705
124754	Harrison, WE	1988	RH-3866 Peach Field Residues At Georgia 12704
124755	Harrison, WE	1988	RH-3866 Peach Field Residues At Georgia 12706
124764	Harrison, WE	1988	RH-3866 Peach Field Residues At Georgia 12715
124765	Harrison, WE	1988	RH-3866 Peach Field Residues At Georgia 12716
124766	Harrison, WE	1988	RH-3866 Peach Field Residues At Georgia 12717
124769	Neidlinger, TJ	1988	Cherry Residue Trial Nova At Washington 12720
124770	Neidlinger, TJ	1988	Cherry Residue Trial Nova At Washington 12721
124771	Neidlinger, TJ	1988	Cherry Residue Trial Nova At Washington 12722
124774	Neidlinger, TJ	1988	Peach Residue Trial Nova At Washington 12725
124775	Neidlinger, TJ	1988	Peach Residue Trial Nova At Washington 12726
124779	Neidlinger, TJ	1988	Cherry Residue Trial Nova At Washington 12730
124781	Neidlinger, TJ	1988	Cherry Residue Trial/Nova 2E At Zillah, Washington 12732
124800	West, LD	1988	RH-3866 Residue Trial In Peaches At California 12751
124801	West, LD	1988	RH-3866 Residue Trial In Peaches At California 12752

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124802	West, LD	1988	RH-3866 Residue Trial In Peaches At California 12753
125168	Thilsted, WE	1988	RH-3866 60DF Peach Field Residue Experiment At Pontiac, South Carolina 12819
125169	Thilsted, WE	1988	RH-3866 40W Peach Field Residue Experiment At Pontiac, South Carolina 12820
125170	Thilsted, WE	1988	RH-3866 2E Peach Field Residue Experiment At Pontiac, South Carolina 12821
125177	Holowid, JR	1988	RH-3866 60DF Peach Field Residues At Tecumseh, Michigan 12828
125178	Holowid, JR	1988	RH-3866 40W Peach Field Residues At Tecumseh, Michigan 12829
125179	Holowid, JR	1988	RH-3866 2E Peach Field Residues At Tecumseh, Michigan 12830
125187	Holowid, JR	1988	RH-3866 Cherry Field Residues At Michigan 12838
125188	Holowid, JR	1988	RH-3866 Cherry Field Residues At Michigan 12839
125189	Holowid, JR	1988	RH-3866 Cherry Field Residues At Michigan 12840
125203	West, LD	1988	RH-3866 Residue Trial In Cherries At California 12854
125204	West, LD	1988	RH-3866 Residue Trial In Cherries At California 12855
125205	Keathley, JP	1988	RH-3866 2E Residue Trial In Cherries At Lodi, California 12856
125702	Neidlinger, TJ	1988	Peach Residue Trial Nova At Washington 13805
242177	Mestres, R	1988	Myclobutanil: Residue Data From An Individual Trial—Apricots, 1987 F 61.03.87; RH-A-61B
242179	Mestres, R	1988	Myclobutanil: Residue Data From An Individual Trial—Peaches, 1986 F 16.06.86; RH-A-55
242184	Mestres, R	1988	Myclobutanil: Residue Data From An Individual Trial—Apricots, 1986 F 16.01.86; RH-A-60
94336	Burnett, TF, Deakyne, RO, Brackett, CK, Spencer, WO and Stavinski, SS	1989	Multiple Formulation RH-3866 Residue Data For Cherry, RAR 88-0197, 88-0198, 88-0199, 88-0213, 88-0214, 88-0215, 88-0191, 88-0192, 88-0193 34A-89-25
94339	Burnett, TF, Deakyne, RO, Brackett, CK, Spencer, WO and Stavinski, SS	1989	Multiple Formulation RH-3866 Residue Data For Cherry, RAR 88-0124, 88-0125, 88-0126 34A-89-17
94357	Burnett, TF, Deakyne, RO, Brackett, CK Stavinski, SS	1989	Analytical Report For Residues Due To RH-3866 In Peaches 34A-88-28
94360	Burnett, TF, Deakyne, RO, Brackett, CK, Spencer, WO and Stavinski, SS	1989	Multiple Formulation RH-3866 Residue Data For Peach, RAR 88-0142, 88-0143, 88-0144 34A-88-80
94361	Burnett, TF, Deakyne, RO, Brackett, CK, Spencer, WO and Stavinski, SS	1989	Multiple Formulation RH-3866 Residue Data For Peach RAR 88-0249, 88-0250, 88-0251 34A-89-20
94385	Burnett, TF, Deakyne, RO, Brackett, CK, Spencer, WO and Stavinski, SS	1989	Multiple Formulation RH-3866 Residue Data For Plum, RAR 88-0286, 88-0287, 88-0288, 88-0299, 88-0300, 88-0301 TR 34A-89-36
123929	Harrison, WE	1989	RH-3866 40W Fungicide Peach Field Residues At Hartsfield, Georgia 12464
123930	Harrison, WE	1989	RH-3866 2E Peach Field Residues At Hartsfield, Georgia 12465
124784	West, LD	1989	RH-3866 2E Residue Trial In Cherries At Linden, California 12735

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124788	West, LD	1989	RH-3866 40W Residue Trial In Plums At Ripon, California 12739
124789	West, LD	1989	RH-3866 60DF Residue Trial In Plums At Ripon, California 12740
124790	West, LD	1989	RH-3866 2E Residue Trial In Plums At Ripon, California 12741
124907	Holowid, JR	1989	RH-3866 Concentrate Vs. Dilute Cherry Residue Study At Michigan 13059
125209	West, LD	1989	RH-3866 40W Residue Trial In Cherries At Linden, California 12860
125210	Keathley, JP and West, LD	1989	RH-3866 60DF Residue Trial In Cherries At Linden, California 12861
125243	Klauzer, JC	1989	RH-3866 Concentrate Vs. Dilute Cherry Residue At Idaho 13495
125270	Holowid, JR	1989	RH-3866 Concentrate Dilute Cherry Residue Study At Michigan 13521
125749	Crane, SE	1989	Residue Study In Stone Fruits With Kelthane At New Jersey 13852
125778	Douglas-West, L	1989	RH-3866 Concentrate Vs. Dilute Peach Residue Study At California 13882
223547	Carley, HE	1989	Field Residue Samples To Support Myclobutanil Use On Assorted Stone Fruits HEC-89-110
262066	Foschi, S	1989	Summary Residue Data For Myclobutanil From Trials In ITA On Plum And Apricot 4148808; 4148811;
94383	Brackett, CK and Stavinski, SS	1990	RH-3866 Prune Plum Residue Data RAR 89-0233, 89-0234, 89-0235, 90-0021, 90-0022 34A-90-38; RAR 89-0233; RAR 89-0234; RAR 89-0235; RAR 90-0021; RAR 90-0022
94328	Ding, N	1991	RH-3866 Total Residue Data For Peaches, RAR, 87-0172, 87-0165, 87-0274, 87-0235, 87-0490, 87-0243, 88-0142, 88-0143, 88-0144, 88-0249, 88-0250, 88-0251, 89-0163, 89-0319, 91-0033 34A-91-26; RAR 87-0165; RAR 87-0172; RAR 87-0235; RAR 87-0243; RAR 87-0274; RAR 87-0490; RAR 88-0142; RAR 88-0143; RAR 88-0144; RAR 88-0249; RAR 88-0250; RAR 88-0251; RAR 89-0163; RAR 89-0319; RAR 91-0033
94340	Spina, MJ	1991	Residue Analysis Of Cherries Treated With RH-3866 At Zero Day Tsi 34A-91-34
94363	Ding, N and Carley, HE	1991	RH-3866 Total Residue Data At 0 Day TSI For Peaches, RAR 87-0165, 87-0235, 87-0243, 87-0274, 87-0372, 87-0490, 87-0554 34A-91-32
94384	Ding, N and Carley, HE	1991	RH-3866 Residue Data At 0 Day TSI For Plums: RAR 87-0161, 87-0201, 87-0260, 87-0366, 88-0017 34A-91-33
94401	Spina, MJ	1991	Residue Analysis Of Cherries Treated With RH-3866 34A-91-29; 87-0108; 87-011; 87-0209; 87-0261; 87-0262; 87-0332; 88-0124; 88-0125; 88-0126; 88-0128; 88-0197; 88-0198; 88-0199; 90-0023
94514	Ding, N	1991	RH-3866 Total Residue Data At 14 Day TSI For Plums With Aerial Vs. Ground Applications, RAR 90-0124 34A-91-28; RAR 90-0124
110749	Spina, MJ	1991	Residue Analysis Of Cherries Treated With RH-3866 At Zero Day TSI 87-0111; 87-0209; 87-0261; 87-0262; 87-0332; AR 34A-91-34
126191	Harrison, WE	1991	RH-3866 40W Concentrate Versus Dilute Peach Residue Study At Byron, Georgia 14292
126197	Harrison, WE	1991	RH-3866 40W Concentrate Versus Dilute Peach Residue Study At Byron, Georgia 14298
94829	Hamilton, JD	1992	Response To Usepa Eeb Review: Plums And Dried Prunes Tolerance Pet. For Myclobutanil (Epa Ppno.S 1f03954 And 1h05608) 92R-1001; TD 92M-111
94310	Zogorski, WJ, Regetta, RC and Batra, R	1993	RH-3866 40W Fungicide Field Residue Study On Apricots: Zero Day Treatment To Sampling Interval; RAR 92-0037, 93-0038, 92-0039, 92-0045, 92-0046 AR 34A-93-06
242171	Distler, B (U203482)	1993	Myclobutanil Sour Cherries Residue Studies 1987 Deu87f20021 To Deu87f21131 With Systhane 6w (60 G/Kg Myclobutanil Wp Formulation) DEU87F20021; DEU87F20041; DEU87F20111; DEU87F20131; DEU87F20511; DEU87F20521; DEU87F20531; DEU87F20541;

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			DEU87F21111; DEU87F21131
242991	Martellini, B	1993	Residue Data Summary Of Supervised Trials: Myclobutanil And Its Metabolite On Apricot (Imola Bo, ITA) 1988 414.88.08
241979	Conraux, MT	1994	Determination Of The Residues Of Myclobutanil In Peaches In FRA, 1992 SEFRA/92
241995	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil And Its Metabolites In Peaches In FRA, 1993 93 FAR RS 02
242050	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Peaches In FRA, 1986 431.86.60; S-10
242136	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Apricots In FRA, 1987 F 60.03.87; RH-A-40
242137	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Apricots In FRA, 1987 F 60.01.87; RH-A-42
242138	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Apricots In FRA, 1987 F 60.01.87; RH-A-41
242139	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Apricots In FRA, 1987 F 60.03.87; RH-A-39
242140	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Apricots In FRA, 1987 F 33.01.86; RH-A-38
242141	Mestres, R	1994	Myclobutanil: Residue Data From An Individual Trial—Apricots, 1987 F 61.01.87; RH-A-44
242144	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Peaches In FRA, 1987 F 91.01.87; RH-A-47
242145	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Peaches In FRA, 1987 491.87.14; RH-A-48
242172	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Peaches In ESP, 1987 491.87.03; 491.87.03A; RH-A-53BIS
242174	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil (Systhane 6 FLO) In Apricots In FRA, 1987 F 60.02.87
242175	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil (Systhane 12E) In Apricots In FRA, 1987 F 60.02.87
242176	Mestres, R	1994	Myclobutanil: Residue Data From An Individual Trial—Apricots, 1987 F 61.03.87; RH-A-61A
242182	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Peaches In FRA, 1987 F 60.04.87; RH-A-58
242183	Mestres, R	1994	Myclobutanil: Residue Data From An Individual Trial—Peaches, 1987 F 61.02.87; RH-A-59
242185	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Peaches In FRA, 1986 F 31.02.86; RH-A-62
241980	Conraux, MT	1994	Determination of the Residues of Myclobutanil in Peaches in FRA, 1992 R86.5
241994	Maigrot, P	1994	Determination of the Residues of Myclobutanil and its Metabolites in Peaches in FRA, 1993 R87.5
242018	Pessina, F	1995	Magnitude of Myclobutanil Residues (Systhane 12 E Formulation) in Peach R92.6
242020	Pessina, F	1995	Magnitude of Myclobutanil Residues in Plums Following Five Applications with Systhane 6 FLO R93.4
242021	Pessina, F	1995	Magnitude of Myclobutanil Residues in Apricot Following Five Applications with Systhane 6 FLO R93.5
243827	Barboza, A and	1996	Myclobutanil (RH 3866) and its Metabolite (RH 9090) in Plums and Prunes

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	Mattioda, H		with Systhane 12E R97.03
241759	Gilbert, JM	1997	To Determine The Magnitude Of Residues Of Myclobutanil And The Metabolite RH-9090 During The Twenty-One Days Following The Final Application In The Raw Agricultural Commodity Of Cherries Resulting From Sequential Directed Application Of Systhane 20EW In GER 206/971941
241821	Feilden, AD	1998	Myclobutanil And Its Metabolite RH-9090: To Determine The Magnitude Of Residues During The Seven Days Following The Final Application In The Raw Agricultural Commodity Of Peaches Resulting From Sequential Directed Application Of Systhane 24E In ITA And GRC RAS 31/974506
241826	Feilden, AD	1998	Myclobutanil and its metabolite RH-9090: To Determine the Magnitude of Residues During the Seven Days following the Final Application in the Raw Agriultural an dProcessed Commodity of Plumbs Resulting from Sequential Directed Application of systhane 20EW and Systhane 6W in GER 34-98-84
241820	Gilbert, J	1998	Myclobutanil and its Metabolite RH-9090: To Determine the Magnitude of Residues During the Twenty-One Days Following the Final Application in the Raw Agricultural Commodity of Cherries Resulting from Sequential Directed Application of Systhane 20EW in GER R103.2
241768	Gilbert, JM	1999	Myclobutanil and its Metabolite RH-9090: To Determine the Magnitude of Residues During the Seven Days Following the Final Application in the Raw Agricultural Commodity of Plums Resulting From Sequential Directed Application of Systhane 20EW in Northern FRA R105.1
135366	McLeod, P	2003	Magnitude of Residues of Myclobutanil in Stone fruit Following Six Applications of Nova 40@ Fungicide at the Maximum Label Rate 97RHC09
242196	Maigrot, P	2007	Determination Of The Residues Of Myclobutanil In Peaches In ESP, 1988 491.88.03; RH-B-45
2000788	Wedemeyer, N	2009	Residues of Myclobutanil in Cherries at Interval and Harvest Following Multiple Applications of GF-1317 or GF-1985 (Northern European Zone) 2007 GHE-P-11901
2000789	Wedemeyer, N	2009	Residues of Myclobutanil in Apricots and Peaches at Interval and harvest Following Multiple Applications of GF-1317, Southern FRA, 2007 GHE-P-12139
2001319	Wedemeyer, N	2009	Residues Of Myclobutanil in Plums At Interval and Harvest Following Multiple Applications of GF-1317 or GF-1985 (Southern European Zone) 2007 GHE-P-11903
2009589	Balluff, M	2011	Residues of Myclobutanil in Peach at Interval or at Harvest Following Multiple Applications of GF-1317, Southern European Zone (FRA, ESP) 2006 GHE-P-11905
2009590	Baluff, M	2011	Residues of Myclobutanil in Apricots at Interval or at Harvest following multiple Applications of GF-1317, Southern European Zone (ITA, ESP), 2006 GHE-P-12140
2017193	Devine, HC	2013	Residues of Myclobutanil in Peaches and Apricots at Intervals Following Multiple Applications of GF-1985 Southern Europe 2010 GHE-P-12790 CEMS-4639
2017646	Devine, HC	2013	Residues of Myclobutanil in Peaches and Apricots at Intervals Following Multiple Applications of GF-1985 Southern Europe 2011 GHE-P-12842 CEMS 4944
2017194	Devine, HC	2013	Residues of Myclobutanil in Plums at Intervals and at Harvest Following Multiple Applications of GF-1985–Northern and Southern Europe–2010 GHE-P-12791 CEMS-4640
2018481	Devine, HC	2013	Residues of Myclobutanil in Cherries at Intervals and at Harvest Following Multiple Applications of GF-1985–Northern Europe–2011 GHE-P-12844 CEMS-4946
2018494	Devine, HC	2013	Residues of Myclobutanil in Plums at Intervals and at Harvest Following Multiple Applications of GF-1985–Northern and Southern Europe–2011 GHE-P-12843 CEMS-4945

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2018493	Devine, HC	2013	Residues of Myclobutanil in Cherries at Intervals and at Harvest Following Multiple Applications of GF-1985 Northern Europe 2010 GHE-P-12792 CEMS-4641
241916	Anonymous, A	1983	Analytical Reports For Residues Of RH-3866 And RH-9090 In Grapes
94227	Anonymous, A	1984	Analytical Reports For Residues Of RH-3866 In Grapes 1428AGREG
94267	Anonymous, A	1984	Analytical Reports For Residues Of RH-9090 In Grapes 1426AGREG
94273	Nelson, SS	1984	Residue Decline Study Of RH-3866 In Grapes TR 310-84-29
94269	Ollinger, J	1985	Analytical Reports For Residues Due To RH-3866 In French Grapes 1431AGREG; JO MEMO 85-03
94270	Specht, W and Decacqueray, GP	1985	West German RH-3866 Residue Results On Grapes 5928; 5931; 5934; 9049
94278	Deakyne, RO and Brackett, CK	1985	Analytical Reports For RH-3866 And RH-9090 In Wine 31A-85-17
241844	Mestres, R	1985	Myclobutanil: Residue Data Summary Of Supervised Trials—Grapes, 1985 431.85.30; 431.85.35; 431.85.40
241845	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1985 431.85.30; 431.85.35; 431.85.40
241846	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1985 431.85.30; 431.85.35; 431.85.40
241847	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1985 431.85.30; 431.85.35; 431.85.40
241848	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1985 431.85.30; 431.85.35; 431.85.40
241849	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1985 431.85.30; 431.85.35; 431.85.40
241850	Mestres, R	1985	Myclobutanil: Residue Data Summary Of Supervised Trials—Grapes, 1985 431.85.34; 431.85.38
241851	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1985 431.85.34; 431.85.38
241852	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1985 431.85.34; 431.85.38
241853	Mestres, R	1985	Myclobutanil: Residue Data Summary Of Supervised Trials—Grapes, 1985 431.85.32; 431.85.37
241854	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1985 431.85.32; 431.85.37
241855	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1985 431.85.32; 431.85.37
241861	Mestres, R	1985	Myclobutanil: Residue Data Summary Of Supervised Trials—Grapes, 1985 431.85.31; 431.85.36; 431.85.41
241862	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1985 431.85.31; 431.85.36; 431.85.41
241863	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1985 431.85.31; 431.85.36; 431.85.41
241864	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1985 431.85.31; 431.85.36; 431.85.41
241865	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1985 431.85.31; 431.85.36; 431.85.41
241867	Anonymous, A	1985	Myclobutanil Residue Trial On Vines: Summary Of The Meteorological Conditions Of The Colmar Region For The Months Of May, June, July And August, 1985 432.85.01

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241868	Anonymous, A	1985	Myclobutanil Residue Trial On Vines: Summary Of The Meteorological Conditions (Rhone) For The Months Of May, June, July, August And September, 1985 432.85.06
241873	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1985 421.85.27
241891	Mestres, R	1985	Determination Of The Residues Of Myclobutanil In Grapes In FRA, 1985 451.85.02
241892	Mestres, R	1985	Determination Of The Residues Of Myclobutanil In Grapes In FRA, 1985 451.85.02
241893	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1985 451.85.04
241909	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1985 431.85.39; 431.85.44
241910	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1985 431.85.39; 431.85.44
241911	Mestres, R	1985	Myclobutanil: Residue Data From Individual Trials—Grapes, 1985 431.85.39; 431.85.44
241912	Mestres, R	1985	Myclobutanil: Residue Data From Individual Trials—Grapes, 1985 431.85.39; 431.85.44
241913	Maigrot, P	1985	Determination Of The Residues Of Myclobutanil In Grapes In FRA, 1985 451.85.01
241923	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1985 491.85.20
94266	Mestres, R, Mestres, G and Decacqueray, GP	1986	Residue Results For 1986—Systhane In ESP And PRT (Grapes) 422.86.25; 422.86.26; 491.86.11; 491.86.12; 491.86.26
94275	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	Analytical Reports For Residues Due To RH-3866 In Grapes 31A-86-42
94276	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	Analytical Reports For Residues Due To RH-3866 In California Grapes 31A-86-63
94277	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	Analytical Reports Due To RH-3866 In Grapes 31A-86-56
94370	Chan, PK and Fisher, PM	1986	Rally 40W Fungicide, Rally 60DF Fungicide Application For Federal Registration For Uses On Apples And Grapes: Section C—Iii Hazard Evaluation Of Rally 60 Df Fungicide: Humans And Domestic Animals 1279AGREG
94376	Chan, PK and Fisher, PM	1986	Rally 40W Fungicide, Rally 60DF Fungicide Application For Federal Registration For Uses On Apples And Grapes: Section C—Ii Hazard Evaluation Of Rally 40W Fungicide: Humans And Domestic Animals 1280AGREG
94443	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	RH-3866 Residue Decline Study In Grapes 31A-86-50; RAR 85-0323; RAR 85-0360; RAR 85-0372; RAR 85-0373; RAR 85-0383; RAR 85-0419; RAR 85-0637; RAR-85-0374
94607	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	RH-3866 Grape Processed Fraction Study. 31H-86-11; RAR 85-0323; RAR 85-0419
94614	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	Residues Due To RH-3866 In Grape Fermentation Broth LM 31H-86-41; RAR 86-0558
262085	Mestres, G and	1985	Determination Of RH3866 (Myclobutanil) Residues In Grapes RHMM-09

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	Mestres, R		
262084	Mestres, G and Mestres, R	1986	Determination Of Myclobutanil Metabolite Residues In Grapes RHMM-10
242067	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1986 491.86.26; SE-11
242068	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1986 491.86.12; SE-12
242069	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1986 422.86.26; SE-13
242070	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1986 422.86.25; SE-14
242085	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1986 431.86.14; S-12
242086	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1986 431.86.15; S-13
242087	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1986 431.86.17; S-14
242088	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1986 431.86.18; S-15
242093	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1986 431.86.66; S-25
242098	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1986 431.86.66; S-20
242103	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1986 431.86.65; S-30
242105	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1986 431.86.15A; S-33
242106	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1986 431.86.15B; S-32
242076	Mestres, R	1987	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1986 491.86.13; SE-21
242115	Mestres, R	1987	Myclobutanil: Residue Data From An Individual Trial—Grapes, 1986 491.86.13; RH-A-18
94280	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1987	RH-3866 Residue Data For Grapes, RAR-87-0318, 87-0319, And 87-0320 AR 31A-87-67; RAR 0320; RAR 87-0318; RAR 87-0319
99505	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1987	RH-3866 Residue Decline Studies In Grapes–60DF Formulation AR 31A-87-07US; RAR 86-0262; RAR 86-0263; RAR 86-0264
241839	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Grapes In FRA, 1985 431.85.46
241890	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Grapes In FRA, 1985 451.85.02
241981	Conraux, MT	1994	Determination Of The Residues Of Myclobutanil In Grapes In PRT, 1992 422.92.03
241983	Conraux, MT	1994	Determination Of The Residues Of Myclobutanil In Grapes In PRT, 1992 422.92.07
242162	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Grapes In ESP, 1988 491.88.98; RH-B-56
242166	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Grapes In ESP, 1988 491.88.97; RH-B-55

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110206	Howie, D and Feilden, A	1998	Determine The Magnitude Of Residues During The Twenty Eight Days Following Final Application In The Raw Agricultural And Processed Commodity Of Wine Grapes Resulting From Sequential Directed Application Of Systhane 20EW In N- FRA RAS 18/980226; TR 34-98-43
241765	Gilbert, JM	1997	To Determine The Magnitude Of Residues Of Myclobutanil And The Metabolite RH-9090 During The Twenty-Eight Following The Final Application In The Raw Agricultural Commodity Of Grapes Resulting From Sequential Directed Application Of Systhane 20EW In GER 203/971083
241763	Gilbert, JM	1997	To Determine The Magnitude Of Residues Of Myclobutanil And The Metabolite RH-9090 During The Twenty-Eight Days Following The Final Application In The Raw Agricultural Commodity Of Grapes Resulting From Sequential Directed Application Of Systhane 24E In GER 202/971082
241764	Gilbert, JM	1997	To Determine The Magnitude Of Residues Of Myclobutanil And The Metabolite RH-9090 During The Fourteen Days Following The Final Application In The Raw Agricultural Commodity Of Wine Grapes Resulting From Sequential Directed Application Of Systhane 20EW In Europe 213/971164
138356	Brereton, RV and Gilbert, JM	1997	To Determine The Magnitude Of Residues Of Myclobutanil And The Metabolite RH-9090 During The Fourteen Days Following The Final Application In The Raw Agricultural Commodity Of Wine Grapes Resulting From Sequential Directed Application Of Systhane 12E In Europe 212/971125
94282	West, S	2000	Rally Fungicide Field Residue And Residue Decline Study In Grapes In MEX TR 34-99-46
241823	Feilden, A	2007	Myclobutanil And Its Metabolite RH-9090: To Determine The Magnitude Of Residues During The Fourteen Days Following The Final Application In The Raw Agricultural Commodity Of Wine Grapes Resulting From Sequential Directed Application Of Systhane 24E In ITA And GRC RAS 23/974501
94404	Gilbert, JM	1997	To Determine The Magnitude Of Residues Of Myclobutanil And The Metabolite RH-9090 During The Twenty-Eight Days Following The Final Application In The Raw And Processed Agricultural Commodity Of Grapes Resulting From Sequential Directed Application Of Systhane 24E In GER AGREG7982; 202/971082
138357	Brereton, RV and Gilbert, JM	1997	To Determine The Magnitude Of Residues Of Myclobutanil And The Metabolite RH-9090 During The Fourteen Days Following The Final Application In The Raw Agricultural Commodity Of Wine Grapes Resulting From Sequential Directed Application Of Systhane 24E In Europe 211/971126
94403	Gilbert, JM	1997	To Determine The Magnitude Of Residues Of Myclobutanil And The Metabolite RH-9090 During The Twenty-Eight Days Following The Final Application In The Raw And Processed Agricultural Commodity Of Grapes Resulting From Sequential Directed Application Of Systhane 20EW In GER AGREG7983; 203/971083
265736	Williamson, JB	1996	Myclobutanil Residues In Grape Leaves
242195	Jousseaume, C (U203488)	1989	Systhane 12E Residue Tests 1988 Results—Strawberry 491.88.40; RH-B-47
94396	Zogorski, WJ and Ding, N	1992	Post-Harvest Residue Study On Bananas Treated With Myclobutanil RAR 91-0011, 91-0012, 91-0013, 91-0014 34A-92-02; LAB MEMO 34-94-99
94256	Zogorski, WJ and Batra, R	1993	Post-Harvest Residue Study On Bananas Treated With Myclobutanil, RAR 92-0061, 92-0062, 92-0063, 92-0064 34A-93-13; LAB MEMO 34-95-19
94255	Batra, R	1994	Post-Harvest Residue Study On Bananas Treated With Myclobutanil Under Latin America Conditions RAR 93-0039, 0040, 0041 34A-93-24
242007	Costlow, RD	1997	Myclobutanil—Evaluation Of Residues In Or On Bananas [Prepared For The 1997 FAO Evaluation Of Maximum Residue Limits (MRL's) For Pesticides In Food, Joint Meeting On Pesticide Residues (JMPR)] AGREG-97-08
94590	Biehn, WL	1993	Myclobutanil: Magnitude Of Residue On Strawberries 5536AGREG; IR-4 PR 4015

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241905	Murray, A	1993	Systhane Strawberry Residue Studies 1990 With Systhane 6 FLO (60 g/Litre Myclobutanil Emulsion In Water (EW) Formulation) 10290; 451A/RH/90/STR; 451B/RH/90/STR; AC/STP/003
241969	Conraux, MT	1993	Determination Of The Residues Of Myclobutanil In Strawberries In ESP, 1992 491.92.12
242989	Martellini, B	1993	Residue Data Summary Of Supervised Trials: Myclobutanil And Its Metabolite On Strawberry (Coriano Vr, ITA) 1988 404.88.71
242010	Murray, AV (U079528)	1994	Systhane (Myclobutanil) Strawberry 1993 Residue Studies With Systhane 6 FLO (60 g ai/L Myclobutanil Ew Formulation) 83/STR/1; 83/STR/2; 83/STR/3; 83/STR/4; RES/83/93/RH
241761	Gilbert, JM	1997	To Determine The Magnitude Of Residues Of Myclobutanil And The Metabolite RH-9090 During The Seven Days Following The Final Application In The Raw Agricultural Commodity Of Strawberries Resulting From Sequential Directed Application Of Systhane 20EW In Europe R&H 221; R&H/3194/HL/1F; R&H/3194/HL/2F; R&H/3194/HL/3F; R&H/3194/HL/4F
241762	Gilbert, JM	1997	To Determine The Magnitude Of Residues Of Myclobutanil And The Metabolite RH-9090 During The Three Days Following The Final Application In The Raw Agricultural Commodity Of Strawberries Resulting From Sequential Directed Application Of Systhane 20EW In Europe AK/3279/HL/1; AK/3279/HL/2; R&H 229
110951	Reiche, P	1992	IR-4 National Pesticide Clearance Research Program: Myclobutanil: Magnitude Of Residue In Or On Strawberry (PR 4015) IR4-002
242017	Pessina, F, Goberti, M and Patroncini, A	1995	Magnitude Of Myclobutanil Residues (Systhane 12 E Formulation) In Strawberry 483.93.12; 4839312/LN21-94
241766	Howie, D	1996	Study To Determine The Magnitude Of Residues Of Myclobutanil (And The Metabolite RH-9090) In Strawberry Whole Fruit Following Six Sequential Field Applications Of Systhane 6 FLO, Systhane 6 W Or Systhane 20EW AK/2876/RH1; AK/2876/RH2; AK/2876/RH3; AK/2876/RH4
241959	Murray, A	1985	Systhane Blackcurrant Residue Studies 1990 With Systhane 6 FLO (60g/Litre Myclobutanil Emulsion In Water (EW) Formulation) 450/RH/90/BLA/A; 450/RH/90/BLA/B; 450/RH/90/BLA/C; 450/RH/90/BLK
241904	Murray, A	1993	Systhane Blackcurrant Residue Studies 1991 With Systhane 6 FLO (60 g/Litre Myclobutanil Emulsion In Water (EW) Formulation) 10290; AC/STP/007; RES/30/91/RH
241976	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Blackcurrants In FRA, 1992 HUBERDEAU; SRPV
241767	Howie, D	1996	Study To Determine The Magnitude Of Residues Of Myclobutanil (And The Metabolite RH-9090) In Blackcurrant Whole Fruit Following Six Sequential Field Applications Of Systhane 6 FLO, Systhane 6 W Or Systhane 20EW AK/2875/RH/1; AK/2875/RH/2; AK/2875/RH/3; AK/2875/RH/4
241757	Thompson, DC	1997	Myclobutanil: Magnitude Of Residue On Currant—Volume 3 Of 3 05309
94394	Costlow, RD	1997	Myclobutanil: Evaluation Of Residues In Or On Bananas AGREG-97-08
241822	Gilbert, JM	1998	Myclobutanil and Its Metabolite RH-9090: To Determine the Magnitude of Residues During the Seven Days Following the Final Application in the Raw Agricultural commodity of Protected and outdoor Strawberries Resulting from Sequential Directed Application of Systhane 24E in ESP and ITA R102.2
260329	Farrell, P and Howie, D	2001	Myclobutanil: Raw Agricultural Commodity Study with Systhane Applied to Strawberries in ESP R106.3
102070	Pinheiro, AC, Frateschi, A;Rosseto, J and Meneghel, D	2002	Residues of Myclobutanil in Grapes After Multiple Applications of Systhane PM–Fungicide, BRA, 2001–02 GHB-P-794

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135322	Corley, JS and Chen, H	2003	Myclobutanil: Magnitude Of The Residue On Currant DN0007863
204469	Oxspring, S	2004	Residues of Myclobutanil in Grapes at Intervals and Harvest Following Multiple Application s of Either GF-1062 or GF-1160, Northern FRA and GER 2003 GHE-P-10780 AF/7409/DE
204468	Oxspring, S	2004	Residues of Myclobutanil in Grapes at Intervals and Harvest Following Multiple Applications of Either GF-1062 or GF-1160, Southern FRA and ITA 2003 GHE-P-10738 AF/7410/DE
241777	Oxspring, S	2005	To Determine the Magnitude of Myclobutanil Residues at harvest and at Intervals in the Raw Agricultural Commodity Grapes Resulting From Sequential Overall Applications of GF-1317, in Northern FRA, 2004 GHE-P-10966 AF/8165/DE
241778	Oxspring, S	2005	To Determine the Magnitude of Myclobutanil Residues at Harvest and at Intervals in the Raw Agricultural Commodity Table Grapes Resulting from Sequential overall Applications of GF-1317 in ITA and ESP, 2004 GHE-P-10965
2001160	Baravelli, PL	2009	Magnitude of the Residue of Quinoxyfen and Myclobutanil (Decline Curve Study) in Red Currant Raw Agricultural Commodity After Four Applications Respectively of Arius and of the Thiocur Forte AGRI 022/09 GLP DEC Glp018-08-sm
2001162	Baravelli, PL	2009	Magnitude of the Residue of Quinoxyfen and Myclobutanil (At Harvest Study) in Red Currant Raw Agricultural Commodity After Four Applications Respectively of Arius and of Thiocur Forte AGRI 023/09 GLP HAR Glp015-08-sm
2001900	Wedemeyer, N	2009	Residues of Myclobutanil in Strawberries (Indoor) at Intervals and Harvest Following Multiple Applications of GF-1317 or GF-1985 Southern Europe 2007 GHE-P-11902 20074014/E1-FGST
2001320	Wedemeyer, N	2009	Residues of Myclobutanil in Open Field Strawberries at Interval and Harvest Following Multiple Applications of GF-1317, ESP 2007 GHE-P-11904 20074014/S1-FPST
2009747	Balluff, M	2011	Residues of Myclobutanil in Strawberries at Interval Following Multiple Applications of GF-1317, Southern European Zone (ESP) 2006 GHE-P-12141 20064016/S1-FPST
94392	Beltran, JA	Null date	Protocol: Post Harvest Residue Decline Study On Bananas Treated With Myclobutanil
241914	Anonymous, A	1983	Analytical Reports For Residues Of RH-3866 And RH-9090 In Apples ITA, 1984 RAR 84-0053
94294	Anonymous, A	1984	Analytical Reports For Residues Of RH-9090 In Apples 1462AGREG
94295	Anonymous, A	1984	Analytical Reports For Residues Of RH-3866 In Apples 1463AGREG
94307	Nelson, SS	1984	Residue Decline Study Of RH-3866 In Apples 310-84-28
125667	Douglas-West, L	1984	RH-3866 Pear Field Residue Samples At California 13770
241915	Anonymous, A	1984	Analytical Reports For Residues Of RH-3866 And RH-9090 In Apples Wisconsin, 1984 RAR 84-0300
241940	Mestres, R	1984	Myclobutanil: Residue Data From An Individual Trial—Pear, 1984 491.84.22
94317	Anonymous, A	1985	RH-3866 Residues In Apples 1455AGREG; JO MOMO 85-06
94389	Mestres, R and Decacqueray, GP	1985	1985 Systhane Residue Results On Pears In ESP 491.84.17
109631	Brackett, CK	1985	Analytical Reports For RH-3866 Residues In Apples AR 31A-85-36
241941	Mestres, R	1985	Myclobutanil: RH-3866 And Metabolites Residue Data From Individual Trials—Apple, 1984 491.84.20; 491.84.21
241942	Mestres, R	1985	Myclobutanil: Residue Data From An Individual Trial—Apple, 1984 491.84.21

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94378	Anonymous	1985	Analytical Reports for Residues Due to RH-3866 in Apples 1461-agreg
94300	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	Analytical Report For Residues Due To RH-3866 In Apples With A Long TSI, RAR: 85-0521, 85-0481 31A-86-43; RAR 85-0481; RAR 85-0521
94301	Specht, W, Tillkes, M and Bieri, R	1986	Systhane Residues Results Apples GER 1985 F-20211; F-20212; F-20221; F-20231; F-20241
94304	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	RH-3866 Residues In Canadian Apples AR 31A-86-77; RAR 86-0279
94305	Mestres, R and Decacqueray, GP	1986	Residue Results For 1986 Systhane Mz In FRA—Apples FRF 70F 01; FRG 70F 04A; FRG 70F 04B; FRG 70F 04C; FRG 70F 04D; FRG 71F 16; FRG 72F 01; FRG 77F 04; FRG 77F 06
94308	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	RH-3866 Residue Decline Studies In Apples—40 W Formulation 31A-86-51; RAR 85-0490; RAR 85-0542
94309	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	RH-3866 Residue Decline Studies In Apples 31A-86-70; RAR 86-0260; RAR 86-0297
94311	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	Analytical Reports For Residues Due To RH-3866 In Apples 31A-86-44; RAR 85-0320; RAR 85-0334; RAR 85-0422; RAR 85-0542; RAR 85-0543; RAR 85-0551
94327	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	RH-3866 Residue Data For Pears, 85-0120, 85-0314, 85-0393, 85-0412, 85-0421, 85-0356 31A-86-61
94352	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	Analytical Reports Due To RH-3866 In Pears 31A-86-61; RAR 85-0120; RAR 85-0314; RAR 85-0356; RAR 85-0393; RAR 85-0412; RAR 85-0421
94358	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	RH-3866 Residue Decline Studies In Pears 31A-86-60
94370	Chan, PK and Fisher, PM	1986	Rally 40W Fungicide, Rally 60DF Fungicide Application For Federal Registration For Uses On Apples And Grapes: Section C—III Hazard Evaluation Of Rally 60 DF Fungicide: Humans And Domestic Animals 1279AGREG
94376	Chan, PK and Fisher, PM	1986	Rally 40W Fungicide, Rally 60DF Fungicide Application For Federal Registration For Uses On Apples And Grapes: Section C—II Hazard Evaluation Of Rally 40W Fungicide: Humans And Domestic Animals 1280AGREG
94380	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	Analytical Reports For Residues Due To RH-3866 In Apples—Atypical Results TR 310-86-45
94313	Deakyne R and Burnett, TF	1986	Analytical Reports for Residues Due to RH-3866 in Apples: RAR 85-0119 31A-86-01
94472	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	RH-3866 Apple Processed Fraction Study 31H-86-09
94484	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1986	Analytical Report For Residues Due To RH-3866 In Apple Processed Fractions—RAR 84-0238, 84-0274 310-86-39
241917	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Pear, 1984 491.84.17
94390	Anonymous	1986	Systhane: Residue Trials Pears in ITA 1409agreg
241919	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Apples, 1985

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			491.85.15
241920	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Apples, 1985 491.85.14
242042	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Apple, 1986 FRF.70F.01; RHOD-11
242043	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Apple, 1986 FRG.71F.16; RHOD-2
242048	Mestres, R	1986	Myclobutanil: Residue Data From An Individual Trial—Apple, 1986 FRG.76F.09; RHOD-16
94292	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1987	RH-3866 Residue Decline Studies In Apples AR 31A-87-08; RAR 86-0296; RAR 86-0297
94414	Baynon, GT	1987	Summaries Of Systhane Residue Analysis In New Zealand On Apples And Grapes 1472AGREG
242059	Mestres, R	1987	Myclobutanil: Residue Data From An Individual Trial—Apples, 1986 F 18.03.86; RH-A-4
242061	Mestres, R	1987	Determination Of The Residues Of Myclobutanil In Apples In FRA, 1986 F 34.02.86; RH-A-12
242064	Mestres, R	1987	Myclobutanil: Residue Data From An Individual Trial—Apple, 1986 F 18.03.86; RH-A-3
242065	Mestres, R	1987	Myclobutanil: Residue Data From An Individual Trial—Apple, 1986 F 34.02.86; RH-A-11A
94485	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1988	Technical Report For Residues Due To RH-3866 In Apple Processed Fractions: RAR 84-0238 RAR 84-0238; TR 34S-88-19
124693	Covey, MF	1988	RH-3866 Residue On Apples At Pennsylvania 12644
124738	Jaeger, JJ	1988	RH-3866 On Apples For Residues Sprayed Dilute And Concentrate At Virginia 12688
94298	Burnett, TF, Deakyne, RO, Brackett, CK, Spencer, WO and Stavinski, SS	1989	RH-3866 Comparative Formulation Residue Data For Apples RAR 88-0319, 88-0320, 88-0331, 88-0332, 88-0342, 88-0343 34A-89-16
94299	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1989	Analytical Report For Residues Due To RH-3866 In Apples From New Zealand: 87-0052 34A-88-27
125301	Jaeger, JJ	1989	Kelthane Residue Program In Apples At West Virginia 13553
125668	Douglas-West, L	1989	RH-3866 Pear Field Residue Samples At California 13771
125669	Douglas-West, L	1989	Pear Field Residue Samples At California 13772
94391	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1991	RH-3866: Residue Decline Data For Pears 31A-86-60
94312	Stavinski, SS	1991	RH-3866 Apple Residue Data RAR 90-0201/20-0136, Air vs. Ground Application 34P-91-15
94315	Ding, N	1991	Residue Analysis of Apple Treated with RH-3866 34A-91-25
126212	Neidlinger, TJ	1991	RH-3866 40W / Air Vs Ground / Residue / Apple At Harrah, Washington 14313
126213	Neidlinger, TJ	1991	RH-3866 40W / Air Vs Ground / Residue / Pear At Harrah, Washington 14314
241924	Distler, B (U203482)	1993	Myclobutanil Apple Residue Studies 1985 DEU85F20211 To DEU85F21241 With Systhane 6W (60 g/kg Myclobutanil WP Formulation) DEU85F20211; DEU85F20212; DEU85F20221; DEU85F20231; DEU85F20241; DEU85F21211; DEU85F21212; DEU85F21221; DEU85F21231;

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			DEU85F21241
242051	Distler, B (U203482)	1993	Myclobutanil Apple Residue Studies 1986 DEU86F21211 To DEU86F21241 With Systhane 6W (60 g/kg Myclobutanil WP Formulation) DEU86F21211; DEU86F21221; DEU86F21231; DEU86F21241
138353	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil And Its Metabolites In Apples In ESP, 1993 491-93-56; RF 3110 03
241888	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Apples In FRA, 1985 421.85.31
241898	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Apples In FRA, 1984 461.84.20
241899	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Apples In FRA, 1984 461.84.20
241989	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil And Its Metabolites In Apples In FRA, 1993 9325701
242044	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Apples In FRA, 1986 FRG.72F.01; RHOD-3
242046	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Apples In FRA, 1986 FRG.72F.04; FRG.77F.04; RHOD-6
242060	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Apples In FRA, 1986 F 34.01.86; RH-A-10
242062	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Apples In FRA, 1986 F 34.01.86; RH-A-7
242063	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Apples In FRA, 1986 F 17.01.86; RH-A-6
241988	Maigrot, P	1994	Determination of the Residues of Myclobutanil and its Metabolites in Apples in FRA, 1993 R86.13
242147	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Pears In ESP, 1987 491.87.51A; RH-A-49
242148	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil In Pears In ESP, 1987 491.87.51B; RH-A-49
102701	Kalvan, HC, Rampazzo, PE and Meneghel, D	2002	Residues of Myclobutanil in Apples After Multiple Applications of Systhane PM, Fungicide BRA, 2001–2002 GHB-P 808
204447	Kalvan, HC, Rampazzo, PE and Meneghel, D	2002/ 2004	Residues of Myclobutanil in Apples After Multiple Applications of Systhane PM, Fungicide BRA, 2001–2002 GHB-P 808R1
102702	Kalvan, HC, Rampazzo, PE and Meneghel, D	2002	Residues of Myclobutanil in Apples After Multiple Applications of Systhane CE Fungicide BRA, 2001–2002 GHB-P-809
150882	Kalvan, HC, Rampazzo, PE and Meneghel, D	2002/ 2004	Residues of Myclobutanil in Apples After Multiple Applications of Systhane CE, Fungicide BRA, 2001–2001 (Revised Report) GHB-P 809R2 010139
137145	Gilbert. J and Howie, D	1997 2004	To Determine the Magnitude of Residues of Myclobutanil and the Metabolite RH-9090 During the Fourteen Days Following the Final Application in the Raw Agricultural Commodity of Apples Resulting from Sequential Directed Application of Systhane FLO in Europe R&H 217/972023 R97.2
135365	Schofield, CM and Kludas, RS	2003	Myclobutanil (RH-3866) Field Residue Study In Apple 34P-01-06; DN0008176
101405	Oxspring, S	2004	To Determine the Magnitude of Myclobutanil Residues at harvest and at Intervals in the Raw Agricultural Commodity Apple and processed Fractions Resulting from Sequential Overall Applications of GF-1317, in Northern FRA, 2004 GHE-P-10967

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241776	Oxspring S	2005	To Determine the Magnitude of Residues at Harvest and at Intervals in the Raw Agricultural Commodity Apples Resulting from Sequential Overall Applications of GF-1317, in Southern FRA and ESP, 2004 GHE-P-10964
2017298	Malegus, R	2009	Myclobutanil: Magnitude Of The Residue On Pear AAFC04-089R
288736	Dial, GE, Arnold, BH, Hastings, MJ and Shackelford, DD	2003	Determination Of Residues Of Myclobutanil And Its Alcohol Metabolite (RH-9090) In Apples, Tomatoes, Grapes, Soybeans, Wheat And Radishes By Liquid Chromatography With Tandem Mass Spectrometry GRM 03.01
2009748	Balluff, M	2011	Residues of myclobutanil in Apple at Interval Following Multiple Applications of GF-1317, Southern European Zone (FRA) 2008 GHE-P-12142
2017192	Devine, HC	2013	Residues of Myclobutanil in Apples and Pears at Intervals and at Harvest Following Multiple Applications of GF-1985 Northern and Southern Europe 2010 GHE-P-12789 CEMS-4638
2019282	Devine, HC	2013	Residues of Myclobutanil in Apples and Pears at Intervals and at Harvest Following Multiple Applications of GF-1985 Northern and Southern Europe 2011 GHE-P-12841 CEMS-4943
241758	Gilbert, JM	1997	To Determine The Magnitude Of Residues Of Myclobutanil And The Metabolite RH-9090 During The Fourteen Days Following The Final Application In The Raw Agricultural Commodity Of Apples Resulting From Sequential Directed Application Of Systhane 12E In Europe 215/972166
241760	Gilbert, JM	1997	To Determine The Magnitude Of Residues Of Myclobutanil And The Metabolite RH-9090 During The Fourteen Days Following The Final Application In The Raw Agricultural Commodity Of Apples Resulting From Sequential Directed Application Of Systhane 20EW In GER 205/971531
241828	Gilbert, JM	1998	Myclobutanil And Its Metabolite RH-9090: To Determine The Magnitude Of Residues During The Fourteen Days Following The Final Application In The Raw Agricultural Commodity Of Apples Resulting From Sequential Directed Application Of Systhane 20EW In The UK RAS 11/982572
241824	Gilbert, JM	1998	Myclobutanil And Its Metabolite RH-9090: To Determine The Magnitude Of Residues During The Fourteen Days Following The Final Application In The Raw Agricultural Commodity Of Apples Resulting From Sequential Directed Application Of Systhane 20EW In ITA And GRC RAS 21/974499
241831	Gilbert, JM	1997	To Determine The Magnitude Of Residues Of Myclobutanil And The Metabolite RH-9090 During The Fourteen Days Following The Final Application In The Raw Agricultural Commodity Of Apples Resulting From Sequential Directed Application Of Systhane 20EW In Europe 216/971976
138355	Howie, D and Gilbert, JM	1997	To Determine The Magnitude Of Residues Of Myclobutanil And The Metabolite RH-9090 During The Fourteen Days Following The Final Application In The Raw Agricultural Commodity Of Apples Resulting From Sequential Directed Application Of Systhane 24E In Europe 214/971972
262083	Mestres, G and Mestres, R	1984	Determination Of RH2866 Residues In Apples And Pears RHMM-04
242213	Jousseaume, C (U203488)	1984	Systhane 12E Residue Tests 1984 Results—Tomatoes 491.84.14
241921	Jousseaume, C (U203488)	1985	Systhane 12E Residue Tests 1985 Results—Tomatoes 491.85.29
242156	Jousseaume, C (U203488)	1986	Systhane 12 E Residue Tests 1986 Results—Tomatoes 491.86.20; SE-5
242988	Jousseaume, C	1986	Systhane 12E Residue Tests 1986 Results–Tomatoes R76.7
124906	Holowid, JR	1989	RH-3866 Tomato Field Residue Decline Study at Ohio 13058

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125237	Schlesselman, JT	1989	RH-3866 Tomato Field Residue Decline Study at California 13489
125258	Thilsted, WE	1989	RH-3866 Tomato Field Residue Decline Study At South Carolina 13510
125269	Holowid, JR	1989	RH-3866 Tomato Field Residue Decline Study at Michigan 13520
125273	Holowid, JR	1989	RH-3866 Tomato Field Residue Decline Study at Indiana 13524
125678	Douglas-West, L	1989	RH-3866 Tomato Field Residue Decline Study at California 13781
125679	Douglas-West, L	1989	RH-3866 Tomato Process Component Study at California 13782
125680	Douglas-West, L	1989	RH-3866 Tomato Field Residue Decline Study at California 13783
125750	Crane, SE	1989	RH-3866 Tomato Field Residue Decline Study at New Jersey 13853
94483	Filchner, LJ and Stavinski, SS	1991	RH-3866 Tomato Residue Data And Residue Decline—RAR 89-0200, 89-0298, 89-0209, 89-0210, 89-0215, 89-0282, 89-0321, 89-0322 AR 34A-91-06; RAR 89-0200; RAR 89-0209; RAR 89-0210; RAR 89-0215; RAR 89-0282; RAR 89-0298; RAR 89-0321; RAR 89-0322
94609	Spina, MJ, Ding, N, Filchner, LJ and Stavinski, SS	1991	RH-3866: Total Residue Data For Tomato Processed Fraction RAR 89-0265. 34A-91-20; RAR 89-0265
241953	Herisse, C	1991	Systhane 12E Residue Tests 1990 Results—Tomatoes 4219040JNL
241954	Herisse, C	1991	Systhane 12E Residue Tests 1990 Results—Tomatoes 4219040JL
94548	Zogorski, WJ and Ding, N	1992	RH-3866 Residue Data At 0 Day Tsi For Florida Tomatoes, RAR 90-0040, Supplement To Analytical Report No. 34A-91-06, Mrid # 42019202 34A-92-03; RAR 90-0040
241973	Conraux, MT	1994	Determination Of The Residues Of Myclobutanil In Tomatoes In MAR, 1992 491.92.91
241992	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil And Its Metabolites In Tomatoes In ESP, 1993 491.93.54
241996	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil And Its Metabolites In Tomatoes In ESP, 1993 491.93.69
241997	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil And Its Metabolites In Tomatoes In MAR, 1993 491.93.90
241998	Maigrot, P	1994	Determination Of The Residues Of Myclobutanil And Its Metabolites In Tomatoes In MAR, 1993 491.93.91
94552	Batra, R	1995	Myclobutanil Field Residue Trials On Salad-Type Tomatoes: RAR 93-0085, 93-0127, 93-0154, 93-0156, 94-0001, 94-0042 34A-94-16; RAR 93-0085; RAR 93-0127; RAR 93-0154; RAR 93-0156; RAR 94-0001; RAR 94-0002
207055	Howie, D and Gilbert, JM	1997	To Determine The Magnitude Of Residues Of Myclobutanil And The Metabolite RH-9090 During The Seven Days Following The Final Application In The Raw Agricultural Commodity Of Protected Peppers Resulting From Sequential Directed Application Of Systhane 20EW In Europe R&H 227/973098; R97.8
207056	Howie, D and Gilbert, JM	1997	To Determine The Magnitude Of Residues Of Myclobutanil And The Metabolite RH-9090 During The Seven Days Following The Final Application In The Raw Agricultural Commodity Of Protected Peppers Resulting From Sequential Directed Application Of Systhane 24E In Europe R&H 226/973097; R97.7
241830	Gilbert, J	1997	To Determine the Magnitude of Residues of Myclobutanil and the Metabolite RH9090 During the Seven Days Following the Final Application in the Processed and Raw Agricultural Commodity of Protected Tomatoes Resulting from Sequential Directed Application of Systhane 24E in Europe 1997 Report No. R&H 209/972890 Dow AgroSciences, Indianapolis, IN, U.S.A., 22 October 1997. R97.5
241829	Gilbert, J	1997	To Determine the Magnitude of Residues of Myclobutanil and the Metabolite RH9090 During the Seven Days Following the Final Application in the Processed and Raw Agricultural Commodity of Protected Tomatoes Resulting

Code	Author(s)	Year	Title, Institution, Report reference
			from Sequential Directed Application of Systhane 20EW in Europe 1997 Report No. ER R97.6 R&H 210/971891 Dow AgroSciences, Indianapolis, IN, U.S.A., 22 October 1997. R97.6
207058	Gilbert, J	1998	Myclobutanil and its Metabolite RH-9090: To Determine the Magnitude of Residues During the Seven Days Following the Final Application in the Raw Agricultural Commodity of Protected Peppers Resulting from Sequential Directed Application of Systhane 24E in ITA and GRC R102.1
95687	Longacre, SL	1999	Myclobutanil [707-210] On Tomato, Cucurbits, Rotational Crop Groups, Pome Fruit, Asparagus, Cane berry (Blackberry & Raspberry), Currant, Gooseberry, Mint, Snap Bean, And Strawberry: An Assessment Of The Risk Criteria Established In The Food Quality Protection Act [FQPA] 9807AGREG; AGREG9807
135479	Longacre, SL	2001	Myclobutanil [707-210] On Hops, Peppers, Eggplant, And Okra AGREG-01-02
94387	Thompson, DC	2001	Myclobutanil: Magnitude Of The Residue On Pepper (Bell & Non-Bell) Volume 3 Of 3 IR-4 STUDY 06071
135359	Schofield, CM and Kludas, RS	2003	Myclobutanil (RH-3866) Field Residue And Formulation Bridging Study In Tomato DN0008087
135364	Schofield, CM and Kludas, RS	2003	Myclobutanil (RH-3866) Field Residue And Formulation Bridging Study In Tomato 34P-01-05; DN0008180
2002741	Thompson, DC	2006	Myclobutanil: Magnitude Of The Residue On Pepper (Bell And Non-Bell) (Amended) (Volume 2)
241972	Conraux, MT	2007	Determination Of The Residues Of Myclobutanil In Tomatoes In MAR, 1992 491.92.90
288736	Dial, GE, Arnold, BH, Hastings, MJ and Shackelford, DD	2003	Determination Of Residues Of Myclobutanil And Its Alcohol Metabolite (RH-9090) In Apples, Tomatoes, Grapes, Soybeans, Wheat And Radishes By Liquid Chromatography With Tandem Mass Spectrometry GRM 03.01
2001330	Khoshab, A	2009	Residues of Myclobutanil in Outdoor Tomatoes at Interval and Harvest Following Multiple Applications of Gf-1317 or GF-1985 (Northern and Southern FRA) 2007 GHE-P-11916 20074014/F1-FPTO
2001325	Khoshab, A	2009	Residues of Myclobutanil in Open Field Peppers at Intervals and Harvest Following Multiple Applications of GF-1317, Southern European Zone (ESP, FRA, ITA) 2007 GHE-P-11908 20074014/E1-FPGP
2009587	Rosser, S	2011	Residues of Myclobutanil in Tomato (Indoor and Outdoor) at Interval or at Harvest Following Multiple Applications of Gf-1317, Southern European Zone (FRA, ITA, ESP) 2006 GHE-P-12137 20064016/E1-FPTO
2009588	Balluff, M	2011	Residues of Myclobutanil in Peppers (Outdoor) at Interval or at Harvest Following Multiple Applications of GF-1317, Southern European Zone (ITA, ESP) 2006 GHE-P-12138 20064016/E1-FPGP
94545	Burnett, TF, Deakyne, RO, Brackett, CK and Stavinski, SS	1987	Analytical Report For Residues Due To RH-3866 In Squash 31A-87-15
116314	Fleischfresser, MH	1987	Rally Residue Trials—Summer Squash At Homestead, Florida 16428
116317	Anonymous, A	1987	Rally 60DF Residue Trials—Muskmelon At Homestead, Florida 16431
116319	Anonymous, A	1987	Residue Trial On Cucumber, Cantaloupe, And Summer Squash At Cleveland, Mississippi 16433
122065	Holowid, JR	1987	Rally Residue Trial On Summer Squash In Ohio 11130
122066	Holowid, JR	1987	Rally Residue Trial On Muskmelons In Ohio 11131
123428	Bruno, PH	1987	Rally 60DF/Residue Study In Cucurbits At Pearsall, Texas 11408
123438	Bruno, PH	1987	Rally 60DF Residue Study In Cucurbits At Von Ormy, Texas 11418
123472	Falconer, R	1987	Rally Cucurbit Residue Trial At California 11451

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123473	Falconer, R	1987	Rally Cucurbit Residue Trial At California 11452
123474	Falconer, R	1987	Rally Cucurbit Residue Trial At California 11453
121240	Edgecomb, DW	1988	Foliar Disease Control In Cucurbits With Rally 60DF—Cucumbers/Residue At West Lafayette, Indiana 10888
121243	Edgecomb, DW	1988	Foliar Disease Control In Cucurbits With Rally 60DF—Muskmelon/Residue At West Lafayette, Indiana 10890
123987	Jaeger, JJ	1988	Rally On Summer Squash With Residue Samples At Virginia 11620
94399	Stavinski, SS, Brackett, CK, Burnett, TF, Deakyne, R.O and Spencer, WO	1989	RH-3866 Residue Data for Cucumber, RAR 86-0240, 86-0203, 06-0269, 86-0220, 86-0265 34A-89-05
94438	Deakyne, RO	1989	Analytical Report for Residues Due to RH-3866 in Cucumbers 86-0226 34A-88-24
94283	Burnett, TF, Deakyne, RO, Brackett, CK, Spencer, WO and Stavinski, SS	1989	RH-3866 Residue Data For Melons, RAR 86-0284 And 86-0338 34A-89-06
94262	Stavinski, SS, Brackett, CK, Burnett, TF, Deakyne, RO and Spencer, WO	1989	RH-3866 Residue Data for Cantaloupe, RAR 86-0271 and 85-0281 34A-89-08
94261	Deakyne, RO	1989	RH-3866 Residue Decline Studies in Cantaloupe 31A-87-33
94260	Stavinski, SS, Brackett, CK, Burnett, TF, Deakyne, RO and Spencer, WO	1989	RH-3866 Residue Data for Cantaloupe, RAR 88-0148, 87-0249, 87-0356 34A-89-38
94519	Burnett, TF, Deakyne, RO, Brackett, CK, Spencer, WO and Stavinski, SS	1989	RH-3866 Residue Data For Squash, RAR 86-0239 And 86-0270 34A-89-07
94518	Burnett, TF, Deakyne, RO, Brackett, CK, Spencer, WO and Stavinski, SS	1990	RH-3866 Residue Data For Squash RAR 87-0256, 87-0159 34A-89-47
125812	Holowid, JR	1990	RH-3866 Fungicide Cucurbit Field Residue Studies At Michigan 13916
125813	Holowid, JR	1990	RH-3866 Fungicide Cucurbit Field Residue Studies At Ohio 13917
125951	Schlesselman, JT	1990	RH-3866 40W Fungicide Cucurbit Field Residue Study At Fresno, California 14055
125961	Douglas-West, L	1990	RH-3866 40W Fungicide Cucurbit Field Residues At Woodland, California 14065
126105	Thilsted, WE	1990	RH-3866 40W: Fungicide Cucurbit Field Residue Study At Waller, Texas 14211
126090	Covey, MF	1991	RH-3866 Residue Study On Cucurbits At Newtown, Pennsylvania 14196
126245	Thilsted, WE	1991	RH-3866 40W: Fungicide Cucurbit Field Residue Study 14346
126294	Smith, RL	1991	RH-3866 40W Fungicide Cucurbit Field Residue Study At Huron, California 14396
94397	Spina, MJ, Zogorski, WJ and Ding, N	1992	RH-3866 Residue Data For Cucurbits, RAR 86-0240, 86-0220, 90-0089, 90-0163, 90-0115, 88-0147, 86-0270, 86-0239, 90-0127, 90-0134, 88-0148, 86-0271, 87-0356, 90-0133, 90-0128 34A-91-31; LM 34-92-11
94442	Zogorski, WJ and Regetta, RC	1992	RH-3866 Residue Data At 0 Day Tsi For California Cucurbits And 0, 3, And 7 Day Tsi For Florida Cucurbits, RAR 92-0001 And 91-0072, Supplement To Analytical Report No. 34a-91-31 34A-92-13

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241971	Conraux, MT	1993	Determination of the Residues of Myclobutanil in Squashes in ESP, 1992 R85.7
242990	Martellini, B	1993	Residue Data Summary Of Supervised Trials: Myclobutanil And Its Metabolite On Summer Squash (Asti At, ITA) 1988 404.88.35
242993	Martellini, B	1993	Residue Data Summary Of Supervised Trials: Myclobutanil And Its Metabolite On Watermelon (Roncole Pr, ITA) 1988 404.88.70
242022	Pessina, F	1995	Magnitude of Myclobutanil Residues in Melon Following Six Applications with Systhane 12 E 95R 03 48395 06
94444	Batra, R	1996	RH-3866 40W Field Residue Trials In Cucurbits: RAR 94-0091, 94-0105, 94-0106, 94-0109, 94-0110, 94-0126, 94-0159, 94-0160, 94-0177 TR 34-95-101
241832	Gilbert, JM	1997	To Determine The Magnitude Of Residues Of Myclobutanil And The Metabolite RH-9090 During The Seven Days Following The Final Application In The Raw Agricultural Commodity Of Protected Melons Resulting From Sequential Directed Application Of Systhane 24E In Europe R96.10 220/973202
242160	Gilbert, J	1997	To Determine the Magnitude of Residues of Myclobutanil and the Metabolite RH-9090 During the Seven Days Following the Final Application in the Raw Agricultural Commodity of Protected Cucumbers Resulting from Sequential Directed Application of Systhane 24E in Europe R96.9 223/973203
241819	Gilbert, J	1998	Myclobutanil and its Metabolite RH-9090: To Determine the Magnitude of Residues During the Seven Days Following the Final Application in the Raw Agricultural Commodity of Protected and Outdoor Melons Resulting from Sequential Directed Application of Systhane 24E in ESP and GRC. R101.4 RAS 28/974504
95687	Longacre, SL	1999	Myclobutanil [707-210] On Tomato, Cucurbits, Rotational Crop Groups, Pome Fruit, Asparagus, Cane berry (Blackberry & Raspberry), Currant, Gooseberry, Mint, Snap Bean, And Strawberry: An Assessment Of The Risk Criteria Established In The Food Quality Protection Act [FQPA] 9807AGREG; AGREG9807
2001321	Wedemeyer, N	2009	Residues of Myclobutanil in Cucumber (Indoor and Outdoor) at Interval and harvest Following Multiple Applications of GF-1317, Southern European Zone (ESP, FRA, ITA), 2007 GHE-P-11906
2009586	Balluff, M	2011	Residues of Myclobutanil in Cucumber (Indoor and Outdoor) at Interval or at Harvest Following Multiple Applications of GF-1317, Southern European Zone (FRA, ITA, ESP)-2006 GHE-P-12136
110950	Reiche, P	1992	IR-4 National Pesticide Clearance Research Program: Myclobutanil: Magnitude Of Residue In Or On Snap Beans (IR4-001) IR4-001
94516	Thompson, DC	1997	Magnitude Of Residue On Beans (Snap) (Volume 2 Of 2, Part 1 Of 3) IR-4 STUDY 03966
263134	Thompson, DC	1997	Myclobutanil: Magnitude of Residue on Beans (snap)
263135	Thompson, DC	1997	Myclobutanil: Magnitude of Residue on Beans (Snap)
104615	Thompson, DC and Chen, H	2002	Myclobutanil: Magnitude Of The Residue On Bean (Snap) A3966 (IR-4)
220163	Shackelford, DD and Mccormick, RW	2005	Residues of Myclobutanil and Myclobutanil Alcohol Metabolite (RH-9090) in Soybeans and Soybean Processed Products DN0017675
221174	Shackelford, DD and Mccormick, RW	2005	Residues Of Myclobutanil And Myclobutanil Metabolites In Soybeans And Soybean Processed Products DN0016163
224527	Shackelford, DD and Mccormick, RW	2006	Residues of Myclobutanil and Myclobutanil Metabolites in Soybeans and Soybean Processed Products–Triazole Metabolites DN0019720
2008547	Devine, JM and Cenni, M	2011	Residues of Myclobutanil and its RH-9090 Alcohol Metabolite in Soybean Forage, Hay and Seed 14SRU10R-3
102063	Pinheiro, AC and Frateschi, A	2002	Residues of Myclobutanil in Soybean After Treatment with Systhane Ce-Fungicide, BRA, 2001-02 GHB-P-803

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288736	Dial, GE, Arnold, BH, Hastings, MJ and Shackelford, DD	2003	Determination Of Residues Of Myclobutanil And Its Alcohol Metabolite (RH-9090) In Apples, Tomatoes, Grapes, Soybeans, Wheat And Radishes By Liquid Chromatography With Tandem Mass Spectrometry GRM 03.01
136923	Madaloni, A, Sanjuan, M, Olavarria, P and Abello, E	2003	Residues of Myclobutanil in Soybeans After Application of Systhane E–ARG, 2002-2003 10000569
207033	Rodrigues, NR	2005	Determination of Residues of Myclobutanil (Systhane RH-3866) in Soybeans Without Decay Curve RH09-10/99 BR98103
288822	Shackelford, DD and Hastings, MJ	2005	Determination Of Residues Of Myclobutanil And Its RH-9090 Alcohol Metabolite In Soybean Commodities Using On-Line Solid Phase Extraction Coupled To High Performance Liquid Chromatography With Tandem Mass Spectrometry GRM 05.07
220163	Shackelford, DD and McCormick, RW	2005	Residues of Myclobutanil and Myclobutanil Alcohol Metabolite (RH9090) in Soybeans and Soybean Processed Products 2005 040053.01
240111	Carvalho, JC	2006	Residues of Myclobutanil in Soybean Grains After Two Applications of Systhane EC, Fungicide–BRA, 2005-2006 GHB-P-1298
240108	Matos, NC, Rosseto, JA and Rampazzo, PE	2006	Residues of Myclobutanil in Soybean Grains After Two Applications of Systhane EC, Fungicide-BRA, 2005-2006 GHB-P-1299
240109	Cason, JB, Matos, NC and Rampazzo, PE	2006	Residues of Myclobutanil in Soybean Grains After Two Applications of Systhane EC, Fungicide–BRA, 2005-2006 GHB-P-1297
240110	Cason, JB, Matos, NC and Rampazzo, PE	2006	Residues of Myclobutanil in Soybean Grains After Two Applications of Systhane EC, Fungicide–BRA, 2005-2006 GHB-P-1296
242012	National Hop Association	1995	Systhane–6 Flo Residue Tests 1995 Results Hops R91.2
94441	Gilbert, J	1998	To Determine the Magnitude of Residues During the Fourteen Days Following the Final Application in the Raw Agricultural and Processed Commodity of Hops Resulting from Sequential Directed Applications of Systhane 20EW in GER 34-98-23
94412	Gilbert, J	1998	To Determine the Magnitude of Residues of Myclobutanil and the Metabolite RH9090 During the Fourteen Days Following the Final Application in the Raw and Processed Agricultural Commodity of Hops Resulting from Sequential Directed Application of Systhane 20EW in GER 1998 R99.3/TR-34-98-22
94386	Thompson, DC	2001	Myclobutanil: Magnitude Of The Residue On Hops (Volume 2 Of 3) IR-4 STUDY 06939
2001322	Khoshab, A	2009	Residues of Myclobutanil in Hops at Interval and Harvest Following Multiple Applications of GF-1317, Northern European Zone (GER) 2007 GHE-P-11907 20074014/G1-FPHO
245793	Rotondaro, SL	2007	Processing Study to Determine the Nature of Residues of Myclobutanil Following Industrial or Household Preparation DN0024454
242001	Orpin, C	1997	Myclobutanil—Part 5: Residues Resulting From Supervised Trials (Europe) And Part 6: Fate Of Residues In Storage And Processing [An Evaluation Of Myclobutanil Prepared For The 1997 FAO Panel Of Experts On Pesticide Residues In Food And The Environment] AGREG-10
242161	Orpin, C	1998	An Evaluation of Myclobutanil Residues Resulting From Supervised Trials and Processing Prepared for the EU MRL's Working Group R104.2
94191	Desai, R, Garstka, T	1998	Systhane–(Myclobutanil) Cow Feeding Study: Magnitude of Residue in

Code	Author(s)	Year	Title, Institution, Report reference
	and Cui, Y		Lactating Dairy Cows TR 34-97-31
95051	Allen, S and Streelman D	1983	The Octanol/Water Partition Coefficient of RH-3866 31O-83-18
94219	Nelson, SS	1984	The Adsorptive and Desorptive Properties of RH-3866 on Soils 310-84-06
94800	Allen, SS	1984	A Hydrolysis Study Of RH-3866 TR 31O-84-04
94947	Allen, SS	1984	The Adsorptive And Desorptive Properties Of RH-3866 On Soils TR 310-84-05
94951	Ackermann, IB	1984	Laboratory Leaching Study With RH-3866 TR 310-84-09
94821	Nelson, SS	1985	Laboratory Soil Photolysis Study Of RH-3866 31H-86-19; TR 310-85-08; TR 31O-85-08
94638	Meyer, AL and Jacobson, AH	1986	Octanol-Water Partition Coefficient Of RH-3866, RH-9090, RH-9089, And Triazole 31H-86-12
94761	Stavinski, SS, Deakyne, RO, Brackett, CK and Burnett, TF	1986	Triazole Field Soil Accumulation Study 31H-86-03
94875	Ackermann, IB	1986	Aqueous Photolysis Of RH-3866 LAB MEMO 34S-88-60; TR 31H-86-08
134696	Burnett, TF, Deakyne, RO, Spencer, WO and Stavinski, S .	1990	Systhane (Myclobutanil) California Field Soil Dissipation Study TR 34-90-15