METHIOCARB (132)

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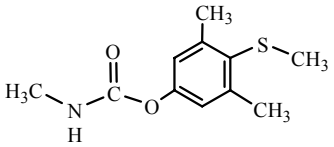
EXPLANATION

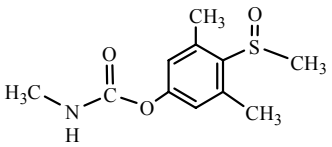
Methiocarb, an insecticide, acaricide, molluscicide and bird repellent, was first reviewed by the Meeting in 1981. Since then it was evaluated in 1983, 1984 (toxicology), 1985 (toxicology), 1986 (residue), 1987 and 1988 (residue). It was reviewed under the Periodic Review Program in 1998 for toxicology and in 1999 for residue. The 1998 JMPR allocated a new ADI of 0−0.02 mg/kg body weight and ARfD of 0.02 mg/kg body weight. It noted that methiocarb sulfoxide, as well as methiocarb, is of acute dietary concern. The 1999 JMPR reviewed information and data on identity, metabolism and environmental fate, methods of residue analysis, use pattern, residues resulting from supervised trials, fate of residues in storage and processing, residues in food in commerce or at consumption, and national maximum residue limits and concluded that the residue should be defined both for enforcement of MRLs and for the estimation of dietary intake as "the sum of methiocarb, methiocarb sulfoxide and methiocarb sulfone, expressed as methiocarb". It estimated provisional maximum residue levels and STMRs for strawberry, leek, cabbages, cauliflower, cucumber, melons, pepper, tomato, pea, maize and hazelnuts. However, due to lack of appropriate storage stability studies covering a period of 1 month to 2 years corresponding to the actual storage period in supervised trials, the 1999 JMPR decided to withdraw the existing Codex MRLs for the above-mentioned commodities (except strawberry) and other commodities for which no data had been submitted to the Meeting; however, it did recommend a new maximum residue level for strawberry.

The 33rd CCPR in 2001 decided to recommend revocation of all CXLs which were then revoked by the 24th Codex Alimentarius Commission. Currently there is one Codex MRL recommended for methiocarb which is for strawberry. Methiocarb was identified by the 36th Session of the CCPR in 2004 for evaluation by the 2005 JMPR.

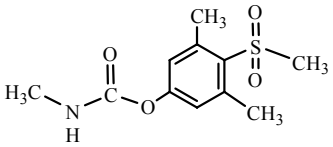
The current Meeting received supervised residue trial data to support MRLs for artichoke, barley, Brussels sprout, cabbages, cauliflower, cucumber, grapes, hazelnut, leek, lettuce, maize, melons, onion, pea, pepper, potato, sugar beet, sunflower, sweet corn, tomato and wheat. The Meeting also received information on new analytical methods and the results of a new 2-year storage stability study in addition to the information on other analytical methods, metabolism and environmental fate which had been submitted to the 1999 JMPR.



Methiocarb



Methiocarb sulfoxide



Methiocarb sulfone

METHODS OF RESIDUE ANALYSIS

Analytical methods

In addition to the information previously submitted methods (Bayer method number 00014 and 00040), the Meeting received information on a new HPLC method which was developed after the last evaluation. Information on the validation of previously reviewed method, Bayer method number 00014, for the determination of methiocarb, methiocarb sulfoxide and methiocarb sulfone in grape and melon pulp and peel was also provided. Information on another HPLC method was also submitted

but its details are not reported in this monograph as it was not used in any of supervised residue trials provided to the Meeting.

Preu (2001; 00616) developed an HPLC-MS/MS method for determination of residues of methiocarb, methiocarb sulfoxide and methiocarb sulfone in plant materials arising from supervised trials. Samples with low lipid content, for example, Brussels sprouts, were extracted with a mixture of acetonitrile/water and an aliquot of the filtrate was concentrated by evaporation. Samples with high lipid content, for example, rapeseeds, were extracted with acetonitrile saturated with n-hexane and the filtrate was partitioned against n-hexane and the acetonitrile phase was then concentrated by evaporation. Starch-containing samples were stabilized by cysteine solution (reduction reagent). After addition of acetic acid, the concentrate was then subjected to further clean-up by solid phase extraction on a non-polar column filled with polymer material (LiChrolut EN). After elution of the analytes with acetonitrile, the eluate was evaporated to dryness and the residue was dissolved in a mixture of acetonitrile/water. An aliquot of this solution was injected into a reverse phase HPLC with an acidic acetonitrile/water eluent on a silica based C_{18} column and the analytes were detected by tandem mass spectrometry with electrospray ionization. The mass spectrometer was run in the multiple-reaction-monitoring mode using nitrogen as the collision gas (Table 1). The limit of quantification (LOQ) was at 0.05 mg/kg for methiocarb, methiocarb-sulfone and methiocarb-sulfoxide in barley straw and wheat straw, and 0.01 mg/kg for the three compounds in all other materials analyzed by this method. The mass spectrometric detector showed a linear response in the range of 0.00025 to 0.05 mg/l for methiocarb, methiocarb sulfone and methiocarb sulfoxide. The method was validated by spiking control samples with the analytes at fortification levels of 0.05 and 0.5 mg/kg for barley and wheat straw and 0.01 and 0.10 mg/kg for all other sample materials included in the validation. The mean recovery rates were in the range of 72 to 96% for methiocarb, 77 to 99% for methiocarb-sulfone and 75 to 99% for methiocarb-sulfoxide with relative standard deviations between 0.0 and 9.9% (Table 2). This method can also be used as a confirmatory method.

Table 1. Mass spectrometer scan parameters for the quantifier ions used in the HPLC-MS/MS method (Preu, 2001; 00616)

Compound	Precursor ion Q1 Mass (amu)	Product ion Q3 Mass (amu)	Dwell time (msec)	Collision energy (eV)
Methiocarb	226.3	169.25	300	-15
Methiocarb sulfone	258.2	122.29	400	-27
Methiocarb sulfoxide	242.3	185.25	300	-19

Table 2. Recoveries of methiocarb, methiocarb sulfone and methiocarb sulfoxide from various plant commodities by the HPLC-MS/MS (Preu, 2001; 00616)

Test matrix	Fortification mg/kg	Methiocarb		Methiocarb sulfone		Methiocarb sulfoxide	
		Mean recovery (%)	RSD (%)	Mean recovery (%)	RSD (%)	Mean recovery (%)	RSD (%)
Grape (bunch)	0.01	84	1.1	95	3.1	97	1.3
	0.1	92	1.4	96	3.3	99	1.9
Grape (wine)	0.01	90	1.1	95	2.6	95	3.8
	0.1	85	2.4	98	1.6	98	0.0
Strawberry	0.01	96	4.3	97	2.1	92	1.9
	0.1	91	3.8	91	2.8	90	1.7
Brussels sprout	0.01	89	2.1	88	0.6	96	0.5
	0.1	88	2.4	88	1.7	97	1.7
Red cabbage	0.01	88	1.3	85	1.4	93	1.1
	0.1	89	1.3	83	0.7	91	1.3
White cabbage	0.01	88	0.0	93	4.4	99	1.2
	0.1	87	3.0	86	1.2	94	1.6
Field pea (seed)	0.01	91	2.2	96	1.6	98	1.0

Test matrix	Fortification mg/kg	Methiocarb		Methiocarb sulfone		Methiocarb sulfoxide	
		Mean recovery (%)	RSD (%)	Mean recovery (%)	RSD (%)	Mean recovery (%)	RSD (%)
	0.1	94	1.6	97	0.0	96	0.6
Potato	0.01	94	7.1	92	0.9	98	0.8
	0.1	96	5.4	99	1.5	94	1.8
Barley (grain)*	0.01	82	2.5	92	1.1	94	2.5
	0.1	85	3.6	90	0.6	91	0.0
Barley (green material)	0.01	73	2.7	82	3.2	82	2.1
	0.1	72	3.5	80	3.3	75	2.3
Barley (straw)	0.05	84	3.8	92	0.6	96	2.2
	0.5	88	0.7	92	3.3	95	1.2
Wheat (grain)**	0.01	88	1.7	98	2.4	96	1.0
	0.1	80	5.6	90	2.8	88	2.9
Wheat (green material)	0.01	85	2.5	77	0.8	99	2.0
	0.1	79	3.9	79	9.9	95	2.8
Wheat (straw)	0.05	86	0.7	94	2.1	92	1.3
	0.5	85	1.8	91	2.3	93	1.1
Maize (cob)	0.01	92	1.9	95	2.4	93	1.6
	0.1	85	3.0	91	6.0	88	2.4
Maize (grain)***	0.01	89	1.7	98	1.0	97	1.6
	0.1	85	3.6	94	1.2	93	0.6
Maize (plant)	0.01	94	6.4	86	3.1	85	1.4
	0.1	82	1.9	84	2.5	78	1.3
Rapeseed (canola)(green material)	0.01	83	3.0	94	4.4	92	1.7
	0.1	84	3.4	95	0.0	94	0.6
Rapeseed (canola)(seed)	0.01	78	8.9	91	3.9	93	2.5
	0.1	78	1.9	87	1.5	93	1.0

* If extraction was done in accordance with that for high-lipid products, the recovery and RSD at the fortification of 0.01 and 0.1 mg/kg of methiocarb are 81% and 7.9%, and 71% and 10.5%, respectively.
** If extraction was done in accordance with that for high-lipid products, the recovery and RSD at the fortification of 0.01 and 0.1 mg/kg of methiocarb are 88% and 5.0%, and 89% and 1.9%, respectively.
*** If extraction was done in accordance with that for high-lipid products, the recovery and RSD at the fortification of 0.01 and 0.1 mg/kg of methiocarb are 70% and 3.3%, and 69% and 4.2%, respectively.

This HPLC-MS/MS method was validated for the determination of methiocarb, methiocarb sulfone and methiocarb sulfoxide in cucumber, pepper and tomato (Preu, 2001; 00616/E002). Extraction, clean-up and final determination were conducted according to the original method. However, as the obtained recoveries were within the acceptable range without addition of cysteine (indicating that its addition is not necessary), it was not added during extraction of the samples of tomato and cucumber. The LOQ was set at 0.01 mg/kg for methiocarb, methiocarb sulfone and methiocarb sulfoxide for all samples. The mass spectrometric detector showed a linear response in the range of 0.00025 to 0.1 mg/l for these three compounds. Validation was conducted by fortifying control samples with the analytes at 0.01 and 0.10 mg/kg for all samples. The mean recoveries for methiocarb, methiocarb sulfone, and methiocarb sulfoxide were between 79 and 104% with relative standard deviations between 1.7 and 17%.

Additional studies were conducted to validate the above method for onion, artichoke, sugar beet (leaf and root) and sunflower seed (Preu, 2001; 00616/E001). Extraction, clean-up and final determinations were conducted according to the original method. For methiocarb, methiocarb sulfone and methiocarb sulfoxide, the LOQ was set at 0.01 mg/kg in plant materials. Validation of the method was conducted by fortifying control samples with the analytes at 0.01 and 0.10 mg/kg. The mean recoveries for methiocarb, methiocarb sulfone and methiocarb sulfoxide were between 85 and 102% with relative standard deviations between 0.0 and 9.3%.

Bayer method number 00014 with the modification M001 (reported in the 1999 JMPR Evaluation) was successfully validated for grape (Blass, 1999; 00014/M001/E009) with the LOQ at 0.02 mg/kg for methiocarb, methiocarb sulfone and methiocarb sulfoxide and mean recoveries of

these compounds at the fortification levels of 0.02, 0.10 and 1.0 m/kg between 79–107%. This method was also successfully validated for melon pulp and melon peel (Blass, 1999; 00014/M001/E010). The LOQ was 0.02 mg/kg for the three compounds and mean recoveries of these compounds at the fortification levels of 0.02, 0.10 and 1.0 mg/kg was between 81 and 126%. The recovery of methiocarb sulfoxide from melon peel with fortification at 0.02 mg/kg was 126%.

Stability of pesticide residues in stored analytical samples

A 2-year deep-freezer storage stability study was conducted with methiocarb, methiocarb sulfone and methiocarb sulfoxide in matrices of plant origin (Preu, 2002; MR-451/01). Shredded samples of grapes (bunch), field pea (seed), potato and rapeseed (canola) representing water-, protein-, starch- and oil-containing materials were fortified with methiocarb, methiocarb sulfone and methiocarb sulfoxide at 0.20 mg/kg, each corresponding to twenty-times the concentration of the LOQ for all matrices. The samples were stored in amber-glass bottles at -18°C or below and were analyzed at the nominal storage intervals of 0, 30, 90, 180, 360, 540 and 720 days. Methiocarb, methiocarb sulfone and methiocarb sulfoxide were analyzed according to Bayer method number 00616. Concurrent recovery experiments were conducted at all storage intervals except day 0 for all matrices by fortifying control samples with methiocarb, methiocarb sulfone and methiocarb sulfoxide at 0.20 mg/kg each. In addition, recoveries for method validation at the respective LOQ were conducted at the nominal storage intervals, 180, 360, 540 and 720 days by fortifying control samples with these three compounds at 0.01 mg/kg each. Recoveries for the total residue, i.e., sum of methiocarb, methiocarb sulfone and methiocarb sulfoxide, expressed as methiocarb, was calculated from the data obtained for the single compounds. The results of the storage stability study are shown in Table 3.

Table 3. Storage stability data and procedural recovery data for various plant materials fortified with 0.2 mg/kg each of methiocarb, methiocarb sulfone and methiocarb sulfoxide (Preu, 2002; MR-451/01)

Storage	% Remaining				Procedural recovery (%)			
(d)	Methiocarb	Sulfone	Sulfoxide	Total	Methiocarb	Sulfone	Sulfoxide	Total
Grape (bunch)								
0	86	94	97	92	-	-	-	-
27	85	93	95	91	89	89	90	89
91	85	97	104	95	91	97	92	93
181	76	92	106	91	92	94	92	93
362	66	100	115	93	96	98	96	97
540	67	95	115	92	83	91	94	89
733	62	91	119	90	88	91	99	93
Field pea (seed)								
0	84	88	91	87	-	-	-	-
27	87	94	99	93	89	96	97	94
89	88	96	100	94	95	101	95	97
181	88	96	101	95	88	98	99	95
362	81	88	88	85	94	97	97	96
538	81	96	98	91	88	95	94	92
734	79	93	96	89	83	90	91	88
Potato								
0	93	99	97	96	-	-	-	-
27	91	93	93	92	92	96	93	93
91	88	99	102	96	92	94	95	93
181	85	99	101	95	90	100	99	96
362	88	106	100	98	98	99	96	98
540	85	97	102	94	90	97	98	95
733	78	92	99	89	91	95	95	94
Rapeseed (canola)								
0	88	91	93	90	-	-	-	-
27	78	83	80	81	85	93	92	90
91	97	96	95	96	90	96	100	95
181	75	72	73	73	80	95	94	90
358	67	71	66	68	87	94	95	92

Storage	% Remaining				Procedural recovery (%)			
(d)	Methiocarb	Sulfone	Sulfoxide	Total	Methiocarb	Sulfone	Sulfoxide	Total
540	75	78	76	76	85	96	97	93
733	70	77	78	75	70	93	91	84

Fortification of the three compounds corresponds to the fortification of 0.56 mg/kg of total methiocarb.
% remaining is not corrected for procedural recovery.

USE PATTERN

The information available to the Meeting on uses on those crops for which trial data were available in support of MRL estimation is summarized in Table 4. Applications are generally foliar, as a seed treatment or granular to soil. The manufacturer provided labels or their English translations and the Netherlands provided information on registered uses.

Table 4. Registered Uses of Methiocarb.

Crops	Country	Formulation	Application			PHI days	GS
			Use/Method	No.	Rate kg ai./ha		
Artichoke	France	4 RB	Spreading	-	0.12	15	
Artichoke	Italy	1 RB	Spreading	-	0.10	21	
Barley	Australia	2 RB	Spreading	1 or more	0.11-0.44	7	
Barley	France	4 RB	Spreading	-	0.12	15	
Barley	Germany	2 RB	Spreading	2	0.10		31
Barley	Ireland	3 RB	Spreading	2	0.15		31
Barley	Poland	2 RB	Spreading	2	0.10	14	
Barley	Poland	4 RB	Spreading	2	0.12	14	
Barley	UK	2 RB 3 RB	Spreading	2	0.15		31
Brussels sprouts	Ireland	4 RB	Spreading	2	0.20	14	
Brussels sprouts	Ireland	3 RB	Spreading	2	0.15	14	
Brussels sprouts	Poland	2 RB	Spreading	2	0.10	14	
Brussels sprouts	UK	2 RB	Spreading	2	0.15	14	
Cabbage, head	Australia	2 RB	Spreading	-	0.11	7	
Cabbage, head	Belgium	500 SC	Spraying	4	0.50	14	
Cabbage, head	Chile	6 RB	Spreading	-	0.025	14	
Cabbage, head	France	4 RB	Spreading	-	0.12	15	
Cabbage, head	Germany	2 RB	Spreading	2	0.10	14	
Cabbage, head	Ireland	3 RB	Spreading	1	0.12	14	
Cabbage, head	Ireland	4 RB	Spreading	-	0.22	7	
Cabbage, head	Italy	75 WP	Spraying	2	0.75	21	
Cabbage, head	New Zealand	50 WP	Spraying	-	1.00	21	
Cabbage, head	Poland	4 RB	Spreading	2	0.12	14	
Cabbage, head	UK	3 RB 2 RB	Spreading	1	0.12	14	
Cauliflower	Australia	2 RB	Spreading	-	0.11	7	
Cauliflower	Chile	6 RB	Spreading	-	0.025	-	
Cauliflower	France	4 RB	Spreading	-	0.12	15	
Cauliflower	Germany	2 RB	Spreading	2	0.10	14	
Cauliflower	Ireland	3 RB	Spreading	2	0.12	14	
Cauliflower	Ireland	4 RB	Spreading	-	0.22	7	
Cauliflower	Italy	1 RB	Spreading	-	0.10	21	
Cauliflower	Poland	2 RB	Spreading	2	0.10	14	
Cauliflower	Poland	4 RB	Spreading	2	0.12	14	
Cauliflower	UK	2 RB 3 RB	Spreading	2	0.12	14	
Cucumber	Belgium	500 SC	Spraying	1	0.425	3	
Cucumber	Greece	50 WP	Spraying	2	1.5	15	
Cucumber	Italy	50 WP	Spraying	2*	1.0	21	
Cucumber (G)	Netherlands	500 SC	Spraying of aerial parts	1-3	0.25-0.5	3	
Cucumber	Spain	50 WP	Spraying	3*	1.5	7	

Crops	Country	Formulation	Application			PHI days	GS
			Use/Method	No.	Rate kg ai./ha		
Field pea	Germany	500 FS	Seed treatment	1	0.50		
Field pea	New Zealand	75 WP	Seed treatment	1	0.40		
Fruit crops	Netherlands	4 GR	Scattering	1	0.12-0.20		-
Grape	Greece	50 WP	Spraying	2	1.0	42	
Grape	Italy	50 WP	Spraying	2	1.0	21	
Grape	Portugal	50 WP	Spraying	1	0.5	*	
Grape	Spain	50 WP	Spraying	2	1.0	*	
Hazelnut	Turkey	50 WP	Spraying	1	0.75	90	
Leek	Belgium	500 SC	Spraying	-	0.75	21	
Leek	France	50 WP	Spraying	3	0.75	21	
Lettuce	Germany	2 RB	Spreading	2	0.10	14	
Lettuce	Ireland	3 RB	Spreading	1	0.12	14	
Lettuce	Ireland	4 RB	Spreading	2	0.20	14	
Lettuce	Italy	1 RB	Spreading	2	0.10	21	
Lettuce	Netherlands	4 RB	Spreading	2	0.20	-	
Lettuce	Poland	2 RB	Spreading	1	0.10	14	
Lettuce	Spain	1 RB	Spreading	1	0.10	-	
Lettuce	UK	2 RB	Spreading	1	0.10	14	
Lettuce	UK	3 RB	Spreading	1	0.12	14	
Maize	Austria	50 WP	Seed treatment	1	0.5 kg ai/dt		
Maize	Belgium	500 FS	Seed treatment	1	0.5 kg ai/dt		
Maize	France	500 FS	Seed treatment	1	0.5 kg ai/dt		
Maize	France	4 RB	Spreading		0.12	15	
Maize	Germany	500 FS	Seed treatment	1	0.5 kg ai/dt		
Maize	Ireland	2 RB	Spreading	2	0.10		31
Maize	Italy	50 WP	Seed treatment	1	0.5 kg ai/dt		
Maize	New Zealand	500 FS	Seed treatment	1	0.5 kg ai/dt		
Maize	Poland	500 FS	Seed treatment	1	0.5 kg ai/dt		
Maize	Poland	2 RB	Spreading	2	0.10	14	
Maize	UK	2 RB 3 RB	Spreading	2	0.15		31
Melon	Italy	50 WP	Spraying	2	1.0	21	
Melon (G)	Netherlands	500 SC	Spraying of aerial parts	1-3	0.25-0.5	3	
Melon	Portugal	50 WP	Spraying	2	1.0	7	
Onion	Belgium	500 SC	Spraying	3	0.75	21	
Pepper	Chile	500 SC	Spraying	1 or more	0.75	21	
Pepper	Greece	50 WP	Spraying	2	1.5	7	
Pepper	Portugal	50 WP	Spraying	2	1.0	14	
Pepper	Spain	50 WP	Spraying	3	1.0	7	
Potato	Ireland	3 RB	Spreading	3	0.15	18	
Potato	Ireland	4 RB	Spreading	3	0.22	**	
Potato	UK	2 RB	Spreading	3	0.15	18	
Potato	UK	3RB	Spreading	3	0.15	18	
Rape	Australia	2 RB	Spreading	1 or more	0.11	7	
Rape	France	50 WP	Seed dressing	1	2.5 kg ai/dt		
Rape	France	4 RB	Spreading	-	0.12	15	
Rape	Germany	2 RB	Spreading	2	0.10		33
Rape	Ireland	3 RB	Spreading	2	0.15		33
Rape	Poland	2 RB	Spreading	2	0.10	14	
Rape	UK	2 RB	Spreading	2	0.15		33
Rape	UK	3 RB	Spreading	2	0.15		33
Sugar beet	France	4 RB	Spreading	2	0.12	-	
Sugar beet	Germany	2 RB	Spreading	2	0.10		15
Sugar beet	Ireland	3 RB	Spreading	1	0.15	6 mo.	
Sugar beet	Italy	1 RB	Spreading	-	0.10	-	
Sugar beet	Netherlands	500 WP	Seed treatment	1	5 g ai./ kg seed	-	-
Sugar beet	UK	2 RB	Spreading	1	0.15	6 mo	
Sugar beet	UK	3 RB	Spreading	1	0.15	6 mo	
Sunflower	France	4 RB	Spreading	-	0.12	15	

Crops	Country	Formulation	Application			PHI days	GS
			Use/Method	No.	Rate kg ai./ha		
Sunflower	Ireland	3 RB	Spreading	2	0.15		33
Sunflower	Poland	2 RB	Spreading	2	0.10	14	
Sunflower	UK	2 RB 3 RB	Spreading	2	0.15		33
Tomato	Chile	500 SC	Spraying	1 or more	0.75	21	
Tomato	New Zealand	75 WP	Spraying	1 or more	0.75	21	
Tomato	Portugal	50 WP	Spraying	2	1.0	14	
Tomato	Spain	50 WP	Spraying	3	1.0	7	
Vegetables (e.g. cucumbers & melons)	Netherlands	4 GR	Scattering	1	0.12-0.20	-	
Wheat	Australia	2 RB	Spreading	1 or more	0.11-0.44	-	
Wheat	France	4 RB	Spreading		0.12	15	
Wheat	Germany	2 RB	Spreading	2	0.10		31
Wheat	Poland	2 RB	Spreading	2	0.10	14	
Wheat	Poland	3 RB	Spreading	2	0.12	14	
Wheat	UK	2 RB 3 RB	Spreading	2	0.15		31

GS = growth stage (BBCH code) before which last application should be made.
* Last application before flowering
** Last application prior to desiccation of leaves.

RESIDUES RESULTING FROM SUPERVISED TRIALS

The Meeting received information on methiocarb supervised field trials for the following crops:

Fruits	Table 5	Grapes
Vegetables	Table 6	Leek
	Table 7	Onion, bulb
	Table 8	Brussels sprout
	Table 9	Cabbages, head
	Table 10	Cauliflower
	Table 11	Cucumber
	Table 12	Melons
	Table 13	Peppers
	Table 14	Tomato
	Table 15	Lettuce
	Table 16	Peas
	Table 17	Potato
	Table 18	Sugar beet
	Table 19	Artichoke, globe
Cereals	Table 20	Barley
	Table 21	Wheat
	Table 22	Maize
Tree nuts	Table 23	Hazelnut
Oil seeds	Table 24	Rapeseed
	Table 25	Sunflower
Feedstuff	Table 26	Pea vines/hay
	Table 27	Sugar beat, leaves or tops
	Table 28	Barley forage/fodder

Table 29 Wheat forage/fodder
Table 30 Maize forage
Table 31 Rape forage

A number of residue trials were carried out using either a 50 WP or a 500 SC formulation. As these formulations are considered to be interchangeable concerning the residue behaviour of an active ingredient, the data generated with any of these formulations can be used to support either of them.

For spread applications of methiocarb, a ready bait formulation (mostly 2, 3 or 4 RB) is used in residue trials, which is designated as RB or GR. Both names refer to the same formulation and the designation RB is used in this monograph.

The analytical methods employed in supervised trials determine residues of methiocarb as methiocarb sulfone or separately as methiocarb, methiocarb sulfone and methiocarb sulfoxide, which are then calculated and expressed as methiocarb.

For the calculation of total residues, the 1999 JMPR agreed that: residues reported as below the LOQ for the individual components of the residues were assigned the value of the LOQ (for example, if methiocarb, methiocarb sulfone and methiocarb sulfoxide were all below the LOQ of 0.02 mg/kg, the total residues for deriving an MRL and STMR would be 0.02 mg/kg); and for residues with individual component(s) exceeding the LOQ, the residue value was taken as being the sum of the residues exceeding the LOQ (for example, if the residue was reported as 0.15 mg/kg methiocarb, < 0.02 mg/kg methiocarb sulfoxide and 0.06 mg/kg methiocarb sulfone, the total residues would be 0.21 mg/kg). This procedure was regarded by the 1999 JMPR as appropriate as the residue in many cases is predominantly (60%) one compound. In the following tables summarizing the results of supervised trials, the total residues were calculated in a similar way as that agreed to by the 1999 Meeting. The only deviation from the 1999 JMPR agreement was where concentrations of three individual compounds were reported as below the LOQ, the total residues would be expressed as below the LOQ, e.g. if methiocarb, methiocarb sulfone and methiocarb sulfoxide were all below the LOQ of 0.05 mg/kg, the total residues would be < 0.05 mg/kg.

Grapes

A total of 8 trials were conducted in France (1), Greece (4), Italy (1), Portugal (1) and Spain (1). These trials were carried out with 2 or 3 applications at 1 kg ai/ha.

Table 5. Residues in grapes from supervised trials in France, Greece, Italy, Portugal and Spain.

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
Spray application										
France	50 WP	3	1.0	0	bunch of	0.92	< 0.01	0.08	0.99	2048/01
2001				21	grapes	0.04	< 0.01	0.13	0.16	0332-01
(Grenache,				35		0.01	< 0.01	0.06	0.07	
red variety)				42		0.02	0.01	0.10	0.12	
				21	berry	0.03	< 0.01	0.12	0.14	
				35		0.02	< 0.01	0.08	0.09	
				42		0.02	< 0.01	0.08	0.09	
Greece	50 WP	2	1.0	0	bunch of	1.7	< 0.02	0.19	1.9	2181/98
1998				42	grapes	< 0.02	< 0.02	0.04	0.04	1709-98
(Soultanina)				61		< 0.02	< 0.02	0.05	0.05	
				70		< 0.02	< 0.02	0.04	0.04	
				61	berry	< 0.02	< 0.02	0.04	0.04	
				70		< 0.02	< 0.02	< 0.02	< 0.02	

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
(Soultanina)	50 WP	2	1.0	0	bunch of	1.8	< 0.02	0.26	2.0	2181/98
				61	grapes	< 0.02	< 0.02	0.04	0.04	1710-98
				61	berry	< 0.02	< 0.02	0.03	0.03	
1999	50 WP	2	1.0	0*	bunch of	< 0.01	< 0.01	0.05	0.05	2133/99
(Soultanina)				0	grapes	1.2	< 0.01	0.12	1.3	0554-99
				35		0.03	< 0.01	0.07	0.10	
				42		0.02	< 0.01	0.05	0.07	
				60		< 0.01	< 0.01	0.03	0.03	
				42	berry	0.02	< 0.01	0.04	0.06	
				60		< 0.01	< 0.01	0.02	0.02	
Greece	50 WP	3	1.0	0*	bunch of	0.01	< 0.01	0.05	0.06	2048/01
2001				0	grapes	0.68	< 0.01	0.13	0.80	
(Soultanina,				21		0.04	< 0.01	0.10	0.13	0330-01
white				35		0.01	< 0.01	0.04	0.05	
variety)				43		< 0.01	< 0.01	0.04	0.04	
				21	berry	0.04	< 0.01	0.07	0.11	
				35		0.01	< 0.01	0.04	0.05	
				43		< 0.01	< 0.01	0.03	0.03	
Italy	50 WP	3	1.0	0*	bunch of	< 0.01	< 0.01	0.10	0.09	2048/01
2001				0	grapes	2.2	< 0.01	0.23	2.4	0122-01
(Troia, red				21		0.06	0.01	0.18	0.24	
variety)				35		0.04	0.01	0.16	0.20	
				42		0.04	0.01	0.16	0.20	
				21	berry	0.06	0.01	0.18	0.24	
				35		0.02	< 0.01	0.07	0.09	
				42		0.01	< 0.01	0.04	0.05	
Portugal	50 WP	3	1.0	0	bunch of	0.59	< 0.01	0.26	0.83	2048/01
2001				21	grapes	0.10	0.02	0.24	0.34	0123-01
(Fernao				35		0.03	0.01	0.15	0.18	
pires, white				42		0.02	0.01	0.14	0.16	
variety)				21	berry	0.10	0.02	0.20	0.30	
				35		0.04	0.01	0.13	0.17	
				42		0.03	0.01	0.12	0.15	
Spain	50 WP	3	1.0	0*	bunch of	0.42	0.02	0.41	0.82	2048/01
2001				0	grapes	0.84	< 0.01	0.41	1.22	0329-01
(Xarelo,				22		0.07	0.02	0.20	0.27	
white				35		0.04	0.01	0.14	0.18	
variety)				42		0.02	< 0.01	0.09	0.10	
				22	berry	0.10	0.02	0.23	0.33	
				35		0.02	0.01	0.11	0.13	
				42		0.02	< 0.01	0.07	0.09	

***** On the day of last application, before application

Leek

Four trials were conducted on leek in the Netherlands using the 500 SC formulation and eight trials in France using the 50 WP formulation. In each trial 3 treatments at approximately 0.75 kg ai/ha were carried out.

Table 6. Residues in leek from supervised trials in France and the Netherlands.

Country, Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
Spray application										
France	50 WP	3	0.75	0*	shoot	0.13	0.03	0.31	0.45	2085/93
1993				0		4.1	0.05	0.94	5.0	0101-93
(Tenor)				7		0.42	0.03	0.32	0.75	
				14		0.07	0.03	0.15	0.24	
				21		0.03	< 0.02	0.06	0.09	

Country, Year (Variety)	Application			PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
	Form.	No.	kg ai/ha							
(Vernal)	50 WP	3	0.75	0*	shoot	0.14	0.04	0.27	0.43	2085/93
				0		4.2	0.06	0.45	4.7	0409-93
				7		0.37	0.05	0.25	0.65	
				14		0.10	0.03	0.16	0.28	
				21		0.04	< 0.02	0.06	0.10	
1994 (Nepal)	50 WP	3	0.75	0*	shoot	0.04	0.03	0.11	0.17	2070/94
				0		2.8	0.05	0.29	3.1	0149-94
				7		0.24	0.06	0.37	0.64	
				14		0.05	0.02	0.11	0.17	
				21		< 0.02	< 0.02	0.07	0.07	
(Arkansas)	50 WP	3	0.75	0*	shoot	0.07	< 0.02	0.09	0.15	2070/94
				0		2.4	0.04	0.37	2.8	0150-94
				21		0.04	< 0.02	0.10	0.13	
1996 (Atal)	50 WP	1	0.80	0*	shoot	0.07	< 0.02	0.13	0.19	2156/96
		2	0.75	0		3.3	0.02	0.47	3.8	0582-96
				7		0.51	0.04	0.34	0.86	
				14		0.22	< 0.02	0.17	0.38	
				21		0.09	< 0.02	0.09	0.17	
				28		0.05	< 0.02	0.06	0.11	
(Roumil)	50 WP	3	0.75	0*	shoot	0.15	0.05	0.18	0.36	2156/96
				0		3.5	0.04	0.52	4.0	0583-96
				21		0.13	< 0.02	0.09	0.21	
(Nepal)	50 WP	3	0.75	0*	shoot	0.50	0.07	0.39	0.93	2156/96
				0		5.0	0.07	0.57	5.6	
				7		0.51	0.08	0.37	0.93	0770-96
				14		0.13	0.05	0.12	0.29	
				21		0.07	0.03	0.08	0.17	
				28		0.02	< 0.02	0.04	0.06	
(Roumil)	50 WP	1	0.71	0*	shoot	0.11	0.03	0.16	0.29	2156/96
		2	0.75	0		2.7	0.05	0.46	3.17	
				21		0.16	0.03	0.15	0.33	0771-96
Netherlands 1993 (Ramy)	500 SC	3	0.75	0*	shoot	0.36	0.04	0.27	0.65	2085/93
			0.79	0		2.0	0.03	0.39	2.4	0071-93
			0.75	7		0.12	0.02	0.23	0.35	
				14		0.03	< 0.02	0.05	0.08	
				21		< 0.02	< 0.02	0.03	0.03	
(Andrea)	500 SC	3	0.75	0*	shoot	0.13	0.04	0.18	0.33	2085/93
			0.71	0		2.2	0.04	0.38	2.6	0408-93
			0.75	7		0.07	< 0.02	0.10	0.16	
				14		< 0.02	< 0.02	0.02	0.02	
				21		< 0.02	< 0.02	< 0.02	< 0.02	
1994 (Andrea)	500 SC	3	0.75	0*	shoot	0.04	< 0.02	0.04	0.08	2070/94
				0		2.6	< 0.02	0.17	2.8	0301-94
				3		0.26	0.04	0.20	0.48	
				7		0.10	< 0.02	0.10	0.19	
				14		0.03	< 0.02	< 0.02	0.03	
				21		< 0.02	< 0.02	< 0.02	< 0.02	
(Rami)	500 SC	3	0.75	0*	shoot	0.03	< 0.02	0.03	0.06	2070/94
				0		1.1	0.05	0.61	1.71	0302-93
				21		0.02	< 0.02	< 0.02	< 0.02	

* on the day of last application, but before application

Onion, bulb

Eight supervised trials were conducted using the 50 WP formulation in France, Greece, Portugal and Spain. In each trial 2 kg ai/ha were applied in two applications.

Table 7. Residues in onion from supervised trials in France, Greece, Portugal and Spain.

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
Spray application										
France 2001 (White-Ebenzer)	50 WP	2	1.0	0 14 21	bulb	3.5 0.06 < 0.01	< 0.01 0.02 < 0.01	0.70 0.79 0.37	4.2 0.82 0.35	2189/01 0591-01
2002 (Rocodoro)	50 WP	2	1.0	0 14 21	bulb	0.40 0.08 0.02	< 0.01 < 0.01 < 0.01	0.07 0.12 0.03	0.47 0.19 0.05	2189/02 0202-02
Greece 2002 (Morada Amposta)	50 WP	2	1.0	0 14 21	bulb	0.10 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01	0.10 < 0.01 < 0.01	2189/02 0267-02
Portugal 2001 (Grakote)	50 WP	2	1.0	0 14 21	bulb	0.29 0.02 < 0.01	< 0.01 < 0.01 < 0.01	0.03 0.04 0.04	0.32 0.06 0.04	2189/01 0599-01
2002 (Benyl)	50 WP	2	1.0	0 0 7 14 21	bulb	0.02 0.09 < 0.01 0.03 0.03	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.02 0.02 0.03 0.04 0.03	0.04 0.11 0.03 0.07 0.06	2189/02 0268-02
Spain 2001 (Victoria)	50 WP	2	1.0	0* 0 6 13 20	bulb	< 0.01 0.17 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.01 0.02 0.03 0.01 < 0.01	0.01 0.19 0.04 0.01 < 0.01	2189/01 0592-01
(Figueras)	50 WP	2	1.0	0* 0 6 14 21	bulb	< 0.01 0.29 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	< 0.01 0.02 < 0.01 < 0.01 < 0.01	0.01 0.31 < 0.01 < 0.01 < 0.01	2189/01 0600-01
2002 (Figueras)	50 WP	2	1.0 1.1	0* 0 7 14 21	bulb	< 0.01 0.04 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.01 0.04 < 0.01 < 0.01 < 0.01	2189/02 0203-02

* on the day of last application, before application

Brussels sprouts

A total of eight supervised trials were conducted in Belgium (1), France (2), Germany (2), the Netherlands (1) and the United Kingdom (2) using the 4RB formulation.

Table 8. Residues in Brussels sprouts from supervised trials in Belgium, France, Germany and the UK.

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI Day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
Treatment by spreading bait										
Belgium 1999 (Diablo)	4RB	2	0.20	0 8 14 21	sprout	< 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01	RA-2139/99 0569-99

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI Day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
France 1999 (Ariston)	4RB	2	0.20	0* 0 7 10 14 21 28	sprout	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01 ≤ 0.01 < 0.01 < 0.01	RA-2139/99 0572-99
2001 (Warrior)	4RB	2	0.20	0 14	sprout	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 ≤ 0.01	RA-2001/00 0013-00
Germany 1999 (Warrior)	4RB	2	0.20	0* 0 7 10 14 21 27	sprout	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01 ≤ 0.01 < 0.01 < 0.01	RA-2139/99 0573-99
2000 (Warrior)	4RB	2	0.20	0 13	sprout	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 ≤ 0.01	RA-2001/00 0015-00
Netherlands 2000 (Estate)	4RB	2	0.20	0 14	sprout	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	0.01 ≤ 0.01	RA-2001/00 0011-00
United Kingdom 1999 (Maximus)	4RB	2	0.20	0 7 14 21	sprout	< 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01	0.01 < 0.01 ≤ 0.01 ≤ 0.01	RA-2139/99 0571-99
2000 (Icarus)	4RB	2	0.20	0 14 35	sprout	0.14 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01	0.01 < 0.01 < 0.01	0.15 ≤ 0.01 < 0.01	RA-2001/00 0014-00

* on the day of last application, before application

Cabbages, Head

Eight supervised trials were conducted on cabbage with methiocarb 500 SC or 50 WP applied as a spray in Belgium, Germany and the Netherlands. Additional trials were conducted in Belgium, France, Germany, the Netherlands and the United Kingdom where methiocarb was applied as a 4 RB formulation.

Table 9. Residues in cabbages from supervised trials in Belgium, Germany and the Netherlands.

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
Spray application										
Belgium 1997 (Riviera) (white)	500 SC	1 2	0.695 0.750	0* 0 6 14 20	head	< 0.02 0.15 < 0.02 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02	< 0.02 0.04 < 0.02 < 0.02 < 0.02	< 0.02 0.19 < 0.02 < 0.02 < 0.02	2004/97 0443-97
(Subaro) (red)	500 SC	1 2	0.70 0.75	0* 0 6 14 20	head	< 0.02 0.19 < 0.02 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02	< 0.02 0.04 0.03 < 0.02 < 0.02	< 0.02 0.23 0.03 < 0.02 < 0.02	2004/97 0446-97
Germany 1997 (Perfecta) (white)	500 SC	3	0.75	0* 0 7 14 21	head	< 0.02 0.54 0.04 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02	0.04 0.10 0.05 < 0.02 < 0.02	0.04 0.63 0.09 < 0.02 < 0.02	2004/97 0445-97

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
(Rodine) (red)	500 SC	3	0.75	0* 0 7 14 21	head	< 0.02 0.81 0.10 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02	0.03 0.15 0.10 0.03 < 0.02	0.03 0.95 0.19 0.05 < 0.02	2004/97 0447-97
Netherlands 1996 (Bartolo) (white)	500 SC	3	0.75	0* 0 7 14 21	head	< 0.02 0.11 < 0.02 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02	0.05 0.10 0.08 0.03 0.03	0.05 0.20 0.07 0.03 0.03	2157/96 0579-96
(Charlton) (white)	500 SC	3	0.75	0* 0 7 14 21	head	< 0.02 0.10 < 0.02 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02	0.07 0.12 0.08 0.03 < 0.02	0.07 0.21 0.07 0.03 < 0.02	2157/96 0785-96
(Huzaro) (red)	500 SC	3	0.75	0* 0 7 14 21	head	0.09 < 0.02 < 0.02 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02	0.05 0.04 0.04 0.03 0.02	0.14 0.04 0.04 0.03 0.02	2157/96 0580-96
(Otoro F) (red)	500 SC	3	0.75	0* 0 7 14 21	head	0.02 0.05 < 0.02 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02	0.04 0.06 0.03 0.02 < 0.02	0.06 0.11 0.03 0.02 < 0.02	2157/96 0784-96
Treatment by spreading bait										
Belgium 2000 (Reliant) (red)	4 RB	2	0.20	0 14	head	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	2002/00 0016-00
France 2000 (Biselet) (white)	4 RB	2	0.20	0 14	head	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	2002/00 0017-00
Germany 1978 (Marner Fruher) (Savoy)	4 RB	1	0.12	0 4 7 14 21	head				< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	2103-78
(Praeco HKZ) (Savoy)	4 RB	1	0.12	0 4 7 14 21	head				< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	2104-78
(Kollner Markt) (Savoy)	4 RB	1	0.12	0 4 7 14 21	head				0.34 0.66 < 0.05 < 0.05 < 0.05	2105-78
1980 (Dithmarscher Fruhstamm 49) (white)	4 RB	2	0.12	0 4 7 14 21	head				0.09 0.24 0.09 < 0.05 < 0.05	2107-80
(Dithmarscher Fruhstamm 49) (white)	4 RB	2	0.12	0 4 7 14 21	head				0.06 < 0.05 < 0.05 < 0.05 < 0.05	2108-80
(Julico Mamer) (white)	4 RB	2	0.12	0 4 7 14 21	head				0.89 0.23 < 0.05 < 0.05 < 0.05	2109-80

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
1999	4 RB	2	0.20	0	head	0.04	< 0.01	< 0.01	0.04	2140/99
(Rodina) (red)				7		< 0.01	< 0.01	< 0.01	≤ 0.01	0577-99
				14		0.01	< 0.01	< 0.01	0.01	
				21		< 0.01	< 0.01	< 0.01	< 0.01	
(Rodina) (red)	4 RB	2	0.20	0	head	0.04	< 0.01	< 0.01	0.04	2140/99
				7		< 0.01	< 0.01	< 0.01	≤ 0.01	0578-99
				14		< 0.01	< 0.01	< 0.01	< 0.01	
				21		< 0.01	< 0.01	< 0.01	< 0.01	
2000	4 RB	2	0.20	0	head	0.01	< 0.01	< 0.01	0.01	2002/00
(Rodina) (red)				14		0.02	< 0.01	< 0.01	0.02	0018-00
2000	4 RB	2	0.20	0	head	< 0.01	< 0.01	< 0.01	< 0.01	
(Lennox) (white)				14		0.03	< 0.01	< 0.01	0.03	
Netherlands	4 RB	2	0.20	0*	head	< 0.01	< 0.01	< 0.01	< 0.01	2140/99
1999				0		< 0.01	< 0.01	< 0.01	< 0.01	0580-99
(Bison) (white)				7		< 0.01	< 0.01	< 0.01	≤ 0.01	
				10		< 0.01	< 0.01	< 0.01	< 0.01	
				14		< 0.01	< 0.01	< 0.01	< 0.01	
				21		< 0.01	< 0.01	< 0.01	< 0.01	
				28		< 0.01	< 0.01	< 0.01	< 0.01	
United Kingdom	4 RB	2	0.20	0*	head	0.15	< 0.01	0.01	0.16	2140/99
1999				0		0.05	< 0.01	< 0.01	0.05	0579-99
(Delphi) (white)				7		0.03	< 0.01	0.04	0.07	
				10		0.06	< 0.01	0.02	0.08	
				14		0.05	< 0.01	< 0.01	0.05	
				21		0.06	< 0.01	< 0.01	0.06	
				28		0.04	< 0.01	< 0.01	0.04	

* on the day of last application, before application

Cauliflower

Four supervised trials were conducted on cauliflower in Germany using the 4 RB formulation. Residues were determined as methiocarb sulfone and calculated as methiocarb.

Table 10. Residues in cauliflower from supervised trials in Germany.

Country, Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Total residues mg/kg	Report no. Trial no.
Treatment by spreading bait							
Germany, 1980	4 RB	2	0.12	0	head	0.96	2110-80
(Delfter Markt)				4	head	0.24	
				7	head	0.12	
				14	head	≤ 0.05	
				28	head	< 0.05	
				0	stalk	0.63	
				4	stalk	0.24	
				7	stalk	3.8	
				14	stalk	0.19	
				28	stalk	< 0.05	
				0	leaf	0.75	
				4	leaf	0.36	
				7	leaf	0.84	
				14	leaf	< 0.05	
				28	leaf	< 0.05	
(Delfter Markt)	4 RB	2	0.12	0	leaf	0.07	2111-80
				4	leaf	0.07	
				7	leaf	< 0.05	
				14	leaf	< 0.05	
				28	leaf	< 0.05	
				28	head	< 0.05	
				28	stalk	< 0.05	

Country, Year (Variety)	Application			PHI day	Portion analyzed	Total residues mg/kg	Report no. Trial no.
	Form.	No.	kg ai/ha				
(Fortados)	4 RB	2	0.12	0	head	0.97	2112-80
				4	head	0.10	
				7	head	0.06	
				14	head	≤ 0.05	
				28	head	< 0.05	
				0	stalk	5.9	
				4	stalk	1.5	
				7	stalk	0.14	
				14	stalk	< 0.05	
				28	stalk	< 0.05	
(Delfter Markt)	4 RB	1	0.12	0	head	< 0.05	2105-81
				4	head	< 0.05	
				7	head	< 0.05	
				14	head	≤ 0.05	
				28	head	< 0.05	
				0	stalk	2.05	
				4	stalk	0.11	
				7	stalk	< 0.05	
				14	stalk	0.14	
				28	stalk	< 0.05	
				0	leaf	0.40	
				4	leaf	< 0.05	
				7	leaf	0.05	
				14	leaf	< 0.05	
				28	leaf	< 0.05	

Cucumber

A total of nine supervised trials were carried out in France (5 in greenhouse), the Netherlands (1 in greenhouse), Portugal (1 in greenhouse) and Spain (2 in field). In the field trials 2 applications at 1.0 kg ai/ha were applied by spraying; and in the greenhouse trials, 1-3 applications were sprayed at rates between 0.8 and 1.1 kg ai/ha.

Table 11. Residues in cucumber from supervised trials in France, the Netherlands, Portugal and Spain.

Country Year (Variety)	Application			PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
	Form.	No.	kg ai/ha							
Spray application										
France	50 WP	1	0.80	0	fruit	0.23	< 0.02	0.06	0.29	2036/94
1994				3		0.13	0.03	0.10	0.25	0144-94
(Flamingo) (G)				7		< 0.02	< 0.02	0.05	0.05	
(Flamingo) (G)	50 WP	1	0.79	0	fruit	0.17	< 0.02	0.05	0.22	2036/94
				3		0.14	0.02	0.10	0.25	0145-94
				7		0.03	< 0.02	0.07	0.10	
(Carmen) (G)	50 WP	1	0.87	0	fruit	0.17	< 0.02	0.04	0.21	2036/94
				3		0.09	< 0.02	0.10	0.18	0146-94
				7		0.02	< 0.02	0.09	0.10	
(Carmen) (G)	50 WP	1	0.86	0	fruit	0.15	< 0.02	0.04	0.19	2036/94
				3		0.04	< 0.02	0.07	0.11	0147-94
				7		< 0.02	< 0.02	0.07	0.07	
2001	50 WP	2	1.0	0*	fruit	< 0.01	< 0.01	< 0.01	0.01	2180/01
(Solverde) (G)				0		0.53	< 0.01	0.09	0.61	0522-01
				3		0.28	0.02	0.09	0.38	
				7		0.14	0.02	0.06	0.21	
Netherlands	500	3	1.1	0*	fruit	0.02	< 0.01	0.07	0.09	2128/00
2000	SC			0		0.24	< 0.01	0.11	0.34	0499-00
(Frida) (G)				1		0.20	< 0.01	0.13	0.32	
				3		0.11	< 0.01	0.12	0.22	
				5		0.03	< 0.01	0.10	0.12	
				7		0.03	< 0.01	0.07	0.10	

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
Portugal	50 WP	2	0.89-1.0	0*	fruit	< 0.01	< 0.01	< 0.01	0.01	2180/01
2001				0		0.06	0.01	0.06	0.12	0523-01
(Jagger) (G)				3		0.26	< 0.01	0.05	0.31	
				7		0.02	< 0.01	0.02	0.04	
Spain	50 WP	2	1.0	0	fruit	0.57	< 0.04	0.18	0.74	0215-90
1990				3		0.22	< 0.04	0.06	0.28	
(Dasher)				7		< 0.04	< 0.04	< 0.04	≤ 0.04	
				15		< 0.04	< 0.04	< 0.04	< 0.04	
(Dasher)	50 WP	2	1.0	0	fruit	0.11	< 0.04	0.10	0.20	0217-90
				3		0.08	< 0.04	0.08	0.15	
				7		< 0.04	< 0.04	< 0.04	≤ 0.04	
				15		< 0.04	< 0.04	< 0.04	< 0.04	

(G), in greenhouse.
* on the day of last application, before application

Melons

A total of eleven supervised trials were conducted on melons in France (4), Italy (1), Portugal (2 in greenhouse) and Spain (4). In these trials methiocarb was sprayed 1 to 3 times at application rates ranging from 0.75 to 1.1 kg ai/ha.

Table 12. Residues in melons from supervised trials in France, Italy, Portugal and Spain.

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
Spray application										
France	50 WP	1	0.75	0*	whole fruit	< 0.02	< 0.02	< 0.02	0.02	2155/96
1996				0		0.42	< 0.02	0.02	0.44	0584-96
(Diego)				2		0.25	< 0.02	0.03	0.28	
				3		0.18	< 0.02	0.04	0.22	
				5		0.08	< 0.02	0.04	0.12	
				3	pulp	< 0.02	< 0.02	< 0.02	< 0.02	
				5		< 0.02	< 0.02	< 0.02	< 0.02	
				3	peel	0.35	< 0.02	0.12	0.46	
				5		0.25	< 0.02	0.10	0.34	
(Galoubet)	50 WP	1	0.75	0*	whole fruit	< 0.02	< 0.02	< 0.02	< 0.02	2155/96
				0		0.19	< 0.02	0.02	0.21	0585-96
				3		0.18	< 0.02	0.05	0.23	
				3	pulp	< 0.02	< 0.02	< 0.02	< 0.02	
				3	peel	0.53	< 0.02	0.23	0.74	
(Figaro)	50 WP	1	0.75	0*	whole fruit	< 0.02	< 0.02	< 0.02	< 0.02	2155/96
				0		0.21	< 0.02	< 0.02	0.21	0768-96
				2		0.09	< 0.02	< 0.02	0.09	
				3		0.15	< 0.02	0.03	0.18	
				5		0.08	< 0.02	0.02	0.10	
				3	pulp	< 0.02	< 0.02	< 0.02	< 0.02	
				5	pulp	< 0.02	< 0.02	< 0.02	< 0.02	
				3	peel	0.59	< 0.02	0.14	0.72	
				5	peel	0.31	< 0.02	0.11	0.41	
1998	50 WP	3	1.0	21	fruit	< 0.02	< 0.02	< 0.02	≤ 0.02	2156/98
(Luna Bel)				28		< 0.02	< 0.02	< 0.02	< 0.02	1601-98
				35		< 0.02	< 0.02	< 0.02	< 0.02	
				28	peel	< 0.02	< 0.02	< 0.02	< 0.02	
				28	pulp	< 0.02	< 0.02	< 0.02	< 0.02	
				28	whole fruit	< 0.02	< 0.02	< 0.02	< 0.02	

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
Italy	50 WP	3	1.0	21	fruit	< 0.02	< 0.02	< 0.02	≤ 0.02	2156/98
1998				28		< 0.02	< 0.02	< 0.02	< 0.02	1601-98
(Riviera)				35		< 0.02	< 0.02	< 0.02	< 0.02	
				28	peel	< 0.02	< 0.02	< 0.02	< 0.02	
				28	pulp	< 0.02	< 0.02	< 0.02	< 0.02	
				28	whole fruit	< 0.02	< 0.02	< 0.02	< 0.02	
Portugal	50 WP	2	1.0	0*	pulp	< 0.02	< 0.02	0.05	0.05	2087/93
1993			1.1	0		0.07	< 0.02	0.12	0.18	0436-93
(Delada/Dikti				3		< 0.02	< 0.02	0.05	0.05	
RZ) (G)				7		< 0.02	< 0.02	0.06	0.06	
				14		< 0.02	< 0.02	0.04	0.04	
				28		< 0.02	< 0.02	< 0.02	< 0.02	
				0*	peel	0.07	< 0.02	0.20	0.26	
				0		1.7	< 0.02	1.2	2.8	
				3		0.74	< 0.02	0.64	1.3	
				7		0.96	< 0.02	0.55	1.5	
				14		0.41	< 0.02	0.32	0.71	
				28		0.19	< 0.02	0.16	0.34	
				0*	whole fruit	0.03	< 0.02	0.10	0.12	
				0	calculated	0.53	< 0.02	0.43	0.93	
				3		0.20	< 0.02	0.21	0.40	
				7		0.29	< 0.02	0.20	0.48	
				14		0.14	< 0.02	0.13	0.26	
				28		0.06	< 0.02	0.05	0.11	
(Galia Plus)	50 WP	2	1.1	0	pulp	< 0.02	< 0.02	0.06	0.06	2087/93
(G)			1.1	0		< 0.02	< 0.02	0.03	0.03	0437-93
				3		0.07	< 0.02	0.08	0.14	
				5		< 0.02	< 0.02	< 0.02	< 0.02	
				7		< 0.02	< 0.02	0.06	0.06	
				14		< 0.02	< 0.02	0.04	0.04	
				28		< 0.02	< 0.02	< 0.02	< 0.02	
				0	Peel	0.51	< 0.02	0.45	0.93	
				0		0.39	< 0.02	0.46	0.82	
				3		1.7	< 0.02	0.74	2.4	
				5		0.68	< 0.02	0.33	0.99	
				7		0.63	< 0.02	0.59	1.2	
				14		0.33	< 0.02	0.25	0.56	
				28		0.15	< 0.02	0.17	0.31	
				0	whole fruit	0.15	< 0.02	0.17	0.31	
				0	calculated	0.14	< 0.02	0.18	0.31	
				3		0.41	< 0.02	0.22	0.62	
				5		0.13	< 0.02	0.07	0.20	
				7		0.11	< 0.02	0.15	0.25	
				14		0.09	< 0.02	0.09	0.17	
				28		0.05	< 0.02	0.06	0.11	
Spain	50 WP	2	1.0	0*	pulp	< 0.02	< 0.02	< 0.02	< 0.02	2087/93
1993				0		0.02	< 0.02	< 0.02	0.02	0442-93
(Picudo)				3		< 0.02	< 0.02	< 0.02	< 0.02	
				5		< 0.02	< 0.02	< 0.02	< 0.02	
				7		< 0.02	< 0.02	< 0.02	< 0.02	
				0*	peel	0.02	< 0.02	0.06	0.08	
				0		1.2	< 0.02	0.40	1.6	
				3		0.26	< 0.02	0.15	0.40	
				5		0.38	< 0.02	0.21	0.58	
				7		0.29	< 0.02	0.22	0.50	
				0*	whole fruit	< 0.02	< 0.02	0.03	0.03	
				0	calculated	0.37	< 0.02	0.13	0.49	
				3		0.09	< 0.02	0.06	0.15	
				5		0.13	< 0.02	0.07	0.20	
				7		0.09	< 0.02	0.07	0.16	

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
(Piel de Sapo)	50 WP	2	1.0	0	pulp	< 0.02	< 0.02	< 0.02	< 0.02	2087/93
				7		< 0.02	< 0.02	< 0.02	< 0.02	0443-93
				0	peel	0.22	< 0.02	0.16	0.37	
				7		0.05	< 0.02	0.14	0.18	
				0	whole fruit	0.08	< 0.02	0.06	0.14	
				7	calculated	0.02	< 0.02	0.05	0.07	
1998 (Piel de Sapo Comun)	50 WP	3	1.0	21	whole fruit	< 0.02	< 0.02	< 0.02	< 0.02	2156/98
				28		< 0.02	< 0.02	< 0.02	< 0.02	1299-98
				35		< 0.02	< 0.02	< 0.02	< 0.02	
				28	peel	< 0.02	< 0.02	< 0.02	< 0.02	
				28	pulp	< 0.02	< 0.02	< 0.02	< 0.02	
				28	whole fruit	< 0.02	< 0.02	< 0.02	< 0.02	
(Pinonet)	50 WP	3	1.0	21	whole fruit	< 0.02	< 0.02	< 0.02	< 0.02	2156/98
				28		< 0.02	< 0.02	< 0.02	< 0.02	1600-98
				35		< 0.02	< 0.02	< 0.02	< 0.02	
				28	peel	< 0.02	< 0.02	< 0.02	< 0.02	
				28	pulp	< 0.02	< 0.02	< 0.02	< 0.02	
				28	whole fruit	< 0.02	< 0.02	< 0.02	< 0.02	

* on the day of last application, before application

Peppers

A total of nine supervised trials were conducted using the 50WP formulation on pepper: two in Portugal (in greenhouse) and seven in Spain (in greenhouse and field). The number of applications was either 2 or 3 with single application rates ranging from 1.16 to 1.5 kg ai/ha.

Table 13. Residues in peppers from supervised trials in Portugal and Spain.

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
Spray application										
Portugal	50 WP	3	1.0	0	Fruit	0.13	< 0.02	0.16	0.28	2087/93
1993			1.2	0		0.57	< 0.02	0.34	0.89	0434-93
(Clovis)(sweet)			1.0	3		0.33	< 0.02	0.24	0.55	
(G)				7		0.36	< 0.02	0.33	0.67	
				14		0.22	< 0.02	0.27	0.47	
				28		0.17	< 0.02	0.13	0.29	
(Clovis)(sweet)	50 WP	3	1.2	0	Fruit	0.06	< 0.02	0.05	0.11	2087/93
(G)			1.3	0		0.18	< 0.02	0.05	0.23	0435-93
			1.3	3		0.08	< 0.02	0.06	0.14	
				5		0.09	< 0.02	0.08	0.16	
				7		0.13	< 0.02	0.10	0.22	
				14		0.03	< 0.02	0.03	0.06	
				28		0.03	< 0.02	0.24	0.25	
Spain	50 WP	3	1.0	0	Fruit	-	-	-	0.81	0719-88
1988				5					0.84	
(Clovis)(sweet)				10					0.55	
(G)				15					0.49	
(Ator)(sweet)	50 WP	3	1.0	0	Fruit	-	-	-	0.71	0720-88
(G)				5					0.48	
				10					0.46	
				15					0.92	
1990	50 WP	2	1.0	0	Fruit	0.86	< 0.04	0.39	1.2	0194-90
(Gedeon)				3		0.89	< 0.04	0.42	1.3	
(sweet) (G)				7		0.81	< 0.04	0.44	1.2	
				14		0.60	< 0.04	0.38	0.95	
(Gedeon)	50 WP	2	1.0	0	Fruit	0.60	< 0.04	0.39	0.96	0195-90
(sweet) (G)				3		0.49	< 0.04	0.44	0.90	
				7		0.78	< 0.04	0.56	1.3	
				14		0.49	< 0.04	0.36	0.83	

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
(Gedeon) (sweet) (G)	50 WP	2	1.0	0 3 7 14	Fruit	0.92 1.0 0.96 0.68	< 0.04 < 0.04 < 0.04 < 0.04	0.33 0.49 0.37 0.33	1.2 1.5 1.3 0.99	0196-90
1991 (Lipari)(sweet)	50 WP	2	1.0 1.5	0 3 7 10	Fruit	2.4 1.3 0.82 0.28	< 0.04 < 0.04 < 0.04 < 0.04	0.32 0.33 0.38 0.22	2.7 1.6 1.2 0.49	2103/91 0203-91
(Lamuyo) (sweet)	50 WP	2	1.0	0 3 7 10	Fruit	2.1 1.2 1.1 0.15	< 0.04 < 0.04 < 0.04 < 0.04	0.20 0.25 0.43 0.14	2.3 1.4 1.5 0.28	2103/91 0205-91

(G), in greenhouse.

Tomato

A total of 11 trials were conducted on tomato in Germany (2 in greenhouse), Greece (1 in greenhouse), Portugal (1 in greenhouse) and Spain (7 in greenhouse and field) using the 50WP formulation. The application rate ranged from 1.0 to 1.5 kg ai/ha and the number of spray applications was either 2 or 3.

Table 14. Residues in tomato from supervised trials in Germany, Greece, Portugal and Spain.

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb Mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
Spray application										
Germany 2001 (Rogella) (G)	50 WP	3	1.0	0* 0 3	Fruit	0.16 0.77 0.16	< 0.01 < 0.01 < 0.01	0.02 0.03 0.02	0.18 0.80 0.18	2186/01 0587-01
(Panovi) (G)	50 WP	3	1.0	0* 0 3	Fruit	0.12 0.59 0.18	< 0.01 < 0.01 < 0.01	0.02 0.03 0.02	0.14 0.62 0.20	2186/01 0593-01
Greece 2001 (Lorry) (G)	50 WP	3	0.53-1.1	0* 0 3	Fruit	0.06 0.31 0.17	< 0.01 < 0.01 < 0.01	0.03 0.04 0.04	0.09 0.35 0.21	2186/01 0594-01
Portugal 1993 (Ramon) (G)	50 WP	2	1.0	0* 0 3 5 7 14 21	fruit	0.33 0.99 0.97 0.72 0.59 0.34 0.26	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02	0.24 0.23 0.28 0.25 0.22 0.26 0.08	0.55 1.20 1.23 0.95 0.80 0.58 0.33	2087/93 0438-93
Spain 1988 (Caruso)	50 WP	3	1.0	0 5 10 15	Fruit		-	-	0.18 0.13 0.12 0.17	0721-88
(Bufalo)	50 WP	3	1.0	0 5 10 15	Fruit		-	-	0.14 0.13 0.08 0.17	0722-88
1990 (Cobra)	50 WP	2	1.0	0 3 7 15	Fruit	0.23 0.18 0.06 < 0.04	< 0.04 < 0.04 < 0.04 < 0.04	0.10 < 0.04 0.05 < 0.04	0.32 0.18 0.11 0.04	0210-90
(Cobra)	50 WP	2	1.0	0 3 7 15	Fruit	0.42 < 0.04 < 0.04 < 0.04	< 0.04 < 0.04 < 0.04 < 0.04	0.13 < 0.04 < 0.04 < 0.04	0.54 < 0.04 < 0.04 < 0.04	0211-90

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb Mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
Spain	50 WP	2	1.0	0	Fruit	0.35	< 0.04	0.13	0.47	0212-90
1990				3		0.32	< 0.04	< 0.04	0.32	
(Dario)				7		< 0.04	< 0.04	< 0.04	≤ 0.04	
				15		< 0.04	< 0.04	< 0.04	< 0.04	
1993	50 WP	2	1.209	0*	Fruit	0.03	< 0.02	0.07	0.10	2087/93
(Daniela) (G)			1.416	0		0.48	< 0.02	0.09	0.56	0439-93
				3		0.30	< 0.02	0.12	0.41	
				5		0.13	< 0.02	0.07	0.20	
				7		0.13	< 0.02	0.10	0.22	
				14		0.08	< 0.02	0.10	0.17	
(Daniela) (G)	50 WP	3	1.5	0	Fruit	0.70	< 0.02	0.17	0.86	2087/93
			1.5	7		0.45	< 0.02	0.13	0.57	0440-93
				14		0.42	< 0.02	0.17	0.58	

(G), in greenhouse.
* on the day of last application, before application

Lettuce

A total of eight supervised trials were conducted on lettuce in Germany (7) and the United Kingdom (1) with an application rate of 0.12 or 0.45 mg ai/ha using the 4RB formulation. Residues were determined as methiocarb sulfone and calculated as methiocarb.

Table 15. Residues in lettuce from supervised trials in Germany and the United Kingdom.

Country, Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Total residues mg/kg	Report no. Trial no.
Treatment by spreading bait							
Germany, 1970	4 RB	1	0.12	0	head	0.24	0188-70
(Tenax)				3		< 0.05	0188-70
				8		0.08	
				10		≤ 0.05	
(Attraktion)	4 RB	1	0.12	0	head	0.07	0190-70
				3		0.1	0190-70
				8		0.1	
				10		≤ 0.05	
(Plenoss)	4 RB	1	0.12	0	head	0.1	0191-70
				3		0.07	0191-70
				8		< 0.05	
				10		≤ 0.05	
(Attraktion)	4 RB	1	0.12	0	head	< 0.05	0192-70
				3		< 0.05	0192-70
				7		< 0.05	
				10		0.5	
				14		≤ 0.05	
(Hilds Neckarriesen)	4 RB	1	0.12	0	head	< 0.05	0193-70
				3		< 0.05	0193-70
				7		< 0.05	
				10		< 0.05	
				14		≤ 0.05	
(Plenoss)	4 RB	1	0.12	0	head	< 0.05	0194-70
				3		< 0.05	0194-70
				10		< 0.05	
				14		≤ 0.05	
(Hilde)	4 RB	1	0.12	0	head	< 0.05	0251-70
				4		< 0.05	0251-70
				7		< 0.05	
				10		< 0.05	
				14		≤ 0.05	
United Kingdom, 1969	4 RB	1	0.45	8	head	0.65	0374-69
(Great Lakes)				15		< 0.05	0374-69

Peas

Eight supervised residue trials were performed in Germany on peas using the 500 FS formulation for seed treatment according to GAP. Residues were determined as methiocarb sulfone and calculated as methiocarb.

Table 16. Residues in peas from supervised trials in Germany.

Country, Year (Variety)	Application			PHI day	Portion analyzed	Total residues mg/kg	Report no. Trial no.
	Form.	No.	kg ai/ha				
Seed treatment							
Germany, 1985 (Columbia)	500 FS	1	0.5	97	pea with pod	≤ 0.05	2100-85
				97	remaining plant	< 0.05	
				132	pea without pod	< 0.05	
(Juwel)	500 FS	1	0.5	63	pea with pod	≤ 0.05	2101-85
				63	remaining plant	< 0.05	
				99	pea, dry	≤ 0.05	
(Kleine Rheinlanderin)	500 FS	1	0.5	69	pea with pod	≤ 0.05	2102-85
				69	remaining plant	< 0.05	
				86	pea without pod	< 0.05	
				106	pea dry	≤ 0.05	
(Progress)	500 FS	1	0.5	65	pea with pod	≤ 0.05	2103-85
				65	remaining plant	< 0.05	
				84	pea without pod	< 0.05	
				113	pea dry	≤ 0.05	
1986 (Progress)	500 FS	1	0.5	51	pea with pod	0.07	2110-86
				51	remaining plant	0.04	
				65	pea without pod	0.08	
				65	pod	0.08	
				89	pod	0.29	
				65	straw	0.08	
				89	straw	0.08	
				89	pea, dry	0.06	
(Rheinperle)	500 FS	1	0.5	63	pea with pod	< 0.05	2111-86
				63	remaining plant	< 0.05	
				75	pea without pod	< 0.05	
				75	pod	< 0.05	
				75	straw	< 0.05	
				96	straw	0.38	
				96	pea dry	≤ 0.05	
(Juwel)	500 FS	1	0.5	62	remaining plant	< 0.05	2112-86
				69	remaining plant	< 0.05	
				62	pea with pod	< 0.05	
				69	pea with pod	< 0.05	
				79	pea with pod	≤ 0.05	
				79	pea without pod	< 0.05	
				91	pea without pod	< 0.05	
				79	straw	< 0.05	
				91	straw	< 0.05	
(Juwel)	500 FS	1	0.5	58	remaining plant	< 0.05	2113-86
				66	remaining plant	< 0.05	
				83	pea without pod	< 0.05	
				92	pea without pod	< 0.05	
				83	pod	< 0.05	
				83	straw	< 0.05	
				92	straw	< 0.05	

Potato

Two supervised trials were performed in the United Kingdom with 3 applications at 0.22 kg ai/ha. Potatoes were harvested after a PHI of 18–20 days. Eight other trials were performed in Germany, the Netherlands and the United Kingdom with a lower annual rate of 2 × 0.15 kg ai/ha and a shorter PHI of 7 days. These trials were carried out using the 3RB or 4RB formulation

Table 17. Residues in potato from supervised trials in Germany, the Netherlands and the United Kingdom.

Country, Year (Variety)	Application			PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
	Form.	No.	kg ai/ha							
Treatment by spreading bait										
Germany 2000 (Cilena)	3 RB	2	0.15	7	tuber	< 0.01	< 0.01	< 0.01	< 0.01	2129/00 0330-00
(Cilena)	3 RB	2	0.15	7	tuber	< 0.01	< 0.01	< 0.01	< 0.01	2129/00 0486-00
(Hansa)	3 RB	2	0.15	7	tuber	< 0.01	< 0.01	< 0.01	< 0.01	2129/00 0487-00
2001 (Cilena)	3 RB	2	0.15	7	tuber	< 0.01	< 0.01	< 0.01	< 0.01	2163/01 0419-01
(Cilena)	3 RB	2	0.15	7	tuber	< 0.01	< 0.01	< 0.01	< 0.01	2163/01 0420-01
Netherlands 2001 (Bintje)	3 RB	2	0.15	7	tuber	< 0.01	< 0.01	< 0.01	< 0.01	2163/01 0422-01
United Kingdom 1991 (Maris Peer)	4 RB	3	0.22	18 18 18 18	tuber tuber peeled peal potato cooked	< 0.02 < 0.02 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02	≤ 0.02 < 0.02 < 0.02 < 0.02	2038/91 0172-91
(Estima)	4 RB	3	0.22	20 20	tuber tuber peeled	< 0.02 < 0.02	< 0.02 < 0.02	< 0.02 < 0.02	≤ 0.02 < 0.02	2038/91 0173-91
2000 (Desiree)	3 RB	2	0.15	7	tuber	< 0.01	< 0.01	< 0.01	< 0.01	2129/00 0488-00
2001 (Desiree)	3 RB	2	0.15	7	tuber	< 0.01	< 0.01	< 0.01	< 0.01	2163/01 0421-01

Sugar beet

Four supervised trials on sugarbeet were conducted with 2 applications at 0.15 kg ai/ha of the 2 RB formulation (France, Germany and the United Kingdom) and 10 trials with 2 applications at 0.12 g ai/ha of the 4 RB formulation (France, Germany, Italy, Spain and the United Kingdom). The last treatment of soil was conducted at growth stages 9-14.

Table 18. Residues in sugar beet from supervised trials in France, Germany, Italy, Spain and the United Kingdom.

Country Year (Variety)	Application			PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
	Form.	No.	kg ai/ha							
Treatment by spreading bait										
France 2002 (Rafal)	4 RB	2	0.12	168 168	root leaf with root collar	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	≤ 0.01 < 0.01	2042/02 0488-02
(Judith)	4 RB	2	0.12	175 175	root leaf with root collar	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	≤ 0.01 < 0.01	2042/02 0490-02

Country Year (Variety)	Application			PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
	Form.	No.	kg ai/ha							
2003 (Sherif)	2 RB	2	0.15	56 137 137	whole plant with root root leaf with root collar	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01	< 0.01 ≤ 0.01 < 0.01	2042/03 0297-03
(Candida)	2 RB	2	0.15	57 118 118	whole plant with root root leaf with root collar	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01	< 0.01 ≤ 0.01 < 0.01	2042/03 0567-03
Germany 2001 (Tatjana)	4 RB	2	0.12	162 162	root leaf with root collar	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	≤ 0.01 < 0.01	2042/01 0109-01
(Wipke)	4 RB	2	0.12	143 143	root leaf with root collar	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	≤ 0.01 < 0.01	2042/01 0110-01
2002 (Impuls)	4 RB	2	0.12	148 148	root leaf with root collar	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	≤ 0.01 < 0.01	2042/02 0161-02
(Impuls)	4 RB	2	0.12	157 157	root leaf with root collar	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	≤ 0.01 < 0.01	2042/02 0487-02
(Impuls)	4 RB	2	0.12	163 163	root leaf with root collar	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	≤ 0.01 < 0.01	2042/02 0491-02
2003 (Achat)	2 RB	2	0.15	56 145 145	whole plant with root root leaf with root collar	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01	< 0.01 ≤ 0.01 < 0.01	2042/03 0568-03
Italy 2001 (Nubia)	4 RB	2	0.12	85 85	root leaf with root collar	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	≤ 0.01 < 0.01	2043/01 0111-01
Spain 2001 (Korcel)	4 RB	2	0.12	205 205	root leaf with root collar	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	≤ 0.01 < 0.01	2043/01 0112-01
UK 2002 (Roberta)	4 RB	2	0.12	151 151	root leaf with root collar	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	≤ 0.01 < 0.01	2042/02 0489-02
2003 (Roberta)	2 RB	2	0.15	56 129 129	whole plant with root root leaf with root collar	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01	< 0.01 ≤ 0.01 < 0.01	2042/03 0569-03

Artichoke, Globe

A total of four supervised trials were conducted on artichoke in France (1) and Italy (3). Methiocarb was applied twice at a rate of 0.1 or 0.12 kg ai/ha.

Table 19. Residues in artichoke from supervised trials in France and Italy.

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
Treatment by spreading bait										
France 2001 (Violet de Provance)	4 RB	2	0.12	21	head	< 0.01	< 0.01	< 0.01	≤ 0.01	2053/01 0312-01
Italy 1993 (Violetto)	1 RB	1	0.10	0 14 21	head	0.12 < 0.005 < 0.005	< 0.005 < 0.005 < 0.005	< 0.005 < 0.005 < 0.005	0.12 ≤ 0.005 < 0.005	LN24-93/2 ITA-315-93
(Violetto)	1 RB	1	0.10	0 14 21	head	< 0.005 < 0.005 < 0.005	< 0.005 < 0.005 < 0.005	< 0.005 < 0.005 < 0.005	< 0.005 ≤ 0.005 < 0.005	LN24-93/2 ITA-316-93
2001 (Violetto)	4 RB	2	0.12	21	head	< 0.01	< 0.01	< 0.01	≤ 0.01	2053/01 0132-01

Barley

A total of 12 residue trials were performed on barley in France, Germany, Greece and Italy using the 4 RB formulation. The trials were conducted with 2 applications at 0.12 kg ai/ha. In all trials the last application was conducted at growth stage 12. PHIs for ripe grains and straw ranged between 76 and 141 days.

Table 20. Residues in barley from supervised trials in France, Germany, Greece and Italy.

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
Treatment by spreading bait										
France 2001 (Cecilia) (spring barely)	4 RB	2	0.12	28 57 114 114	Green material grain straw	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 ≤ 0.01 < 0.05	2133/00 0406-00
(Nevada) (spring barley)	4 RB	2	0.12	15 44 90 90	green material grain straw	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 ≤ 0.01 < 0.05	2038/01 0101-01
(Cecilia) (spring barely)	4 RB	2	0.12	28 64 119 119	green material grain straw	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 ≤ 0.01 < 0.05	2036/01 0096-01
Germany 1980 (Carina) (spring barley)	4 RB	2	0.12	0 0 21 76 76	green material green material green material straw grain	-	-	-	< 0.05 < 0.05 < 0.05 < 0.05 ≤ 0.05	2100-80

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
(Carina) (spring barley)	4 RB	2	0.12	0	green material	-	-	-	< 0.05	2101-80
				0	green material				< 0.05	
				21	green material				< 0.05	
				80	straw				< 0.05	
				80	grain				≤ 0.05	
(Carina) (spring barley)	4 RB	2	0.12	0	green material	-	-		< 0.05	2102-80
				0	green material				< 0.05	
				14	green material				< 0.05	
				92	straw				< 0.05	
				92	grain				≤ 0.05	
2000 (Barconesse) (spring barley)	4 RB	2	0.12	14	green material	< 0.01	< 0.01	< 0.01	< 0.01	2132/00 0337-00
				36		< 0.01	< 0.01	< 0.01	< 0.01	
				106	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
				106	straw	< 0.05	< 0.05	< 0.05	< 0.05	
(Alexis) (spring barley)	4 RB	2	0.12	18	green material	< 0.01	< 0.01	< 0.01	< 0.01	2132/00 0405-00
				43		< 0.01	< 0.01	< 0.01	< 0.01	
				105	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
				105	straw	< 0.05	< 0.05	< 0.05	< 0.05	
2001 (Scarlett) (spring barley)	4 RB	2	0.12	21	green material	< 0.01	< 0.01	< 0.01	< 0.01	2035/01 0094-01
				47		< 0.01	< 0.01	< 0.01	< 0.01	
				92	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
				92	straw	< 0.05	< 0.05	< 0.05	< 0.05	
(Exrakta) (spring barley)	4 RB	2	0.12	20	green material	< 0.01	< 0.01	< 0.01	< 0.01	2035/01 0095-01
				40		< 0.01	< 0.01	< 0.01	< 0.01	
				92	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
				92	straw	< 0.05	< 0.05	< 0.05	< 0.05	
Greece 2000 (Mucho) (spring barley)	4 RB	2	0.12	43	green material	< 0.01	< 0.01	< 0.01	< 0.01	2133/00 0338-00
				64		< 0.01	< 0.01	< 0.01	< 0.01	
				141	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
				141	straw	< 0.05	< 0.05	< 0.05	< 0.05	
Italy 2001 (Locale) (spring barley)	4 RB	2	0.12	27	green material	< 0.01	< 0.01	< 0.01	< 0.01	2036/01 0097-01
				32		< 0.01	< 0.01	< 0.01	< 0.01	
				46		< 0.01	< 0.01	< 0.01	< 0.01	
				79	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
				79	straw	< 0.05	< 0.05	< 0.05	< 0.05	

Wheat

A total of nine residue trials were conducted on wheat in France, Germany, Portugal and the United Kingdom in 1991, 2000 and 2001 using the 4 RB formulation at a rate of 0.12 or 0.22 kg ai/ha applied twice. In these trials, the growth stage at last application ranged between 11 and 33.

Table 21. Residues in wheat from supervised trials in France, Germany, Portugal and the United Kingdom.

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
Treatment by spreading bait										
France 2000 (Furio) (spring wheat)	4 RB	2	0.12	26	green material	< 0.01	< 0.01	< 0.01	< 0.01	2132/00 0407-00 (last application: GS11)
				64		< 0.01	< 0.01	< 0.01	< 0.01	
				120	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
				120	straw	< 0.05	< 0.05	< 0.05	< 0.05	

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
2001 (Furio) (spring wheat)	4 RB	2	0.12	28	green	< 0.01	< 0.01	< 0.01	< 0.01	2133/00 0408-00 (last application: GS12)
				71	material	< 0.01	< 0.01	< 0.01	< 0.01	
				119	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
				119	straw	< 0.05	< 0.05	< 0.05	< 0.05	
(Furio) (spring wheat)	4 RB	2	0.12	12	green	< 0.01	< 0.01	< 0.01	< 0.01	2039/01 0102-01 (last application: GS12)
				42	material	< 0.01	< 0.01	< 0.01	< 0.01	
				79	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
				79	straw	< 0.05	< 0.05	< 0.05	< 0.05	
Germany 2000 (Lavett) (spring wheat)	4 RB	2	0.12	16	green	< 0.01	< 0.01	< 0.01	< 0.01	2132/00 0339-00 (last application: GS12)
				51	material	< 0.01	< 0.01	< 0.01	< 0.01	
				113	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
				113	straw	< 0.05	< 0.05	< 0.05	< 0.05	
2001 (Nandu) (spring wheat)	4 RB	2	0.12	21	green	< 0.01	< 0.01	< 0.01	< 0.01	2038/01 0100-01 (last application: GS12)
				50	material	< 0.01	< 0.01	< 0.01	< 0.01	
				105	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
				105	straw	< 0.05	< 0.05	< 0.05	< 0.05	
Portugal 2001 (Almansor) (spring wheat)	4 RB	2	0.12	23	green	< 0.01	< 0.01	< 0.01	< 0.01	2133/00 0340-00 (last application: GS12)
				41	material	< 0.01	< 0.01	< 0.01	< 0.01	
				91	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
				91	straw	< 0.05	< 0.05	< 0.05	< 0.05	
(Almansor) (spring wheat)	4 RB	2	0.12	23	green	< 0.01	< 0.01	< 0.01	< 0.01	2039/01 0103-01 (last application: GS12)
				41	material	< 0.01	< 0.01	< 0.01	< 0.01	
				91	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
				91	straw	< 0.05	< 0.05	< 0.05	< 0.05	
United Kingdom 1991 (Axona) (spring wheat)	4 RB	2	0.22	0	green material	< 0.1	< 0.1	< 0.1	< 0.1	2039/91 0170-91 (last application: GS33)
				94	straw	< 0.1	< 0.1	< 0.1	< 0.1	
				94	grain	< 0.04	< 0.04	< 0.04	< 0.04	
(Axona) (spring wheat)	4 RB	2	0.22	0	green material	< 0.1	< 0.1	< 0.1	< 0.1	2039/91 0171-91 (last application: GS30)
				98	straw	< 0.1	< 0.1	< 0.1	< 0.1	
				98	grain	< 0.04	< 0.04	< 0.04	< 0.04	

Maize

A total of 23 supervised trials were conducted on maize after seed treatment using the 500 FS formulation in Belgium, France, Germany, Greece, Italy and Spain. The application rate was 0.5 kg ai/100 kg seed. The measured concentrations of parent compound in the treated seeds before sowing were between 4150 and 5450 mg/kg. A small amount of methiocarb sulfoxide was also present (up to 5.7 mg/kg).

An additional four trials were conducted with methiocarb granules applied twice at a rate of 0.12 kg ai/ha in Germany, Italy and Spain. The last application was conducted at growth stages 11-13.

Table 22. Residues in maize from supervised trials in Belgium, France, Germany, Greece, Italy and Spain.

Country Year (Variety)	Application Form.	No.	kg ai/ 100 kg	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
Seed treatment										
Belgium 2001 (Prelude)	500 FS	1	0.5	0	seed treated before sowing	4480	< 0.13	0.92	4480	2014/01 0321-01
				48	whole plant	< 0.01	< 0.01	< 0.01	< 0.01	
				147	without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				147	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				167	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
France 2000 (Cecilia)	500 FS	1	0.5	0	seed treated before sowing	4470	< 0.13	3.4	4470	2131/00 0403-00
				32	whole plant	< 0.01	< 0.01	0.02	0.02	
				98	without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				118		< 0.01	< 0.01	< 0.01	< 0.01	
				98	cob without	< 0.01	< 0.01	< 0.01	< 0.01	
				118	husks	< 0.01	< 0.01	< 0.01	< 0.01	
				161	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
(Forrm I)	500 FS	1	0.5	0	seed treated before sowing	4150	< 0.13	5.7	4160	2130/00 0336-00
				39	whole plant	< 0.01	< 0.01	< 0.01	< 0.01	
				117	without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				138		< 0.01	< 0.01	< 0.01	< 0.01	
				117	cob without	< 0.01	< 0.01	< 0.01	< 0.01	
				138	husks	< 0.01	< 0.01	< 0.01	< 0.01	
				160	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
2001 (Prelude)	500 FS	1	0.5	0	seed treated before sowing	4470	< 0.13	0.80	4470	2014/01 0320-01
				40	whole plant	< 0.01	< 0.01	< 0.01	< 0.01	
				123	without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				123	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				160	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
(Prelude)	500 FS	1	0.5	0	seed treated before sowing	4430	< 0.13	0.84	4430	2015/01 0325-01
				30	whole plant	< 0.01	< 0.01	0.03	0.03	
				105	without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				105	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				133	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
Germany 1982 (Brilliant)	500 FS	1	0.15	90	Whole plant without roots	-	-	-	< 0.1	2100-82
				184	grain				< 0.05	
(Blizzard)	500 FS	1	0.13	91	Whole plant without roots	-	-	-	< 0.1	2102-82
				187	grain				< 0.05	
(Forla)	500 FS	1	0.16	169	grain	-	-	-	< 0.05	2103-82
(Tau)	500 FS	1	0.15	178	grain	-	-	-	< 0.05	2104-82
(Forla)	500 FS	1	0.15	174	grain	-	-	-	< 0.05	2105-82
2000 (Santiago)	500 FS	1	0.5	0	seed treated before sowing	4310	< 0.13	0.96	4310	2130/00 0335-00
				39	whole plant	< 0.01	< 0.01	< 0.01	< 0.01	
				118	without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				168		< 0.01	< 0.01	< 0.01	< 0.01	
				118	cob without	< 0.01	< 0.01	< 0.01	< 0.01	
				168	husks	< 0.01	< 0.01	< 0.01	< 0.01	
				183	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	

Country Year (Variety)	Application Form.	No.	kg ai/ 100 kg	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
2001 (Prelude)	500 FS	1	0.5	3	seed treated before sowing	4570	< 0.13	0.90	4570	2014/01 0052-01
				41	whole plant	< 0.01	< 0.01	0.01	0.01	
				136	without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				136	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				157	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
(Prelude)	500 FS	1	0.5	-1	seed treated before sowing	4550	< 0.13	1.5	4550	2014/01 0127-01
				31	whole plant	< 0.01	< 0.01	0.03	0.03	
				44	without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				117		< 0.01	< 0.01	< 0.01	< 0.01	
				117	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				150	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
(Prelude)	500 FS	1	0.5	0	seed treated before sowing	4250	< 0.13	0.93	4250	2014/01 0319-01
				38	whole plant	< 0.01	< 0.01	0.01	< 0.01	
				130	without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				130	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				154	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
(Prelude)	500 FS	1	0.5	0	seed treated before sowing	4630	< 0.13	1.6	4630	2014/01 0322-01
				27	whole plant	< 0.01	< 0.01	0.07	0.07	
				42	without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				118		< 0.01	< 0.01	< 0.01	< 0.01	
				118	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				151	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
2001 (Pelican)	500 FS	1	0.5	0	seed treated before sowing	4190	< 0.13	0.67	4190	2015/01 0324-01
				114	whole plant without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				29	cob without	< 0.01	< 0.01	0.02	0.02	
				114	husks	< 0.01	< 0.01	< 0.01	< 0.01	
				142	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
Italy 2000 (Tevere)	500 FS	1	0.5	-10	seed treated before sowing	4290	< 0.13	0.45	4290	2131/00 0404-00
				29	whole plant	< 0.01	< 0.01	< 0.01	< 0.01	
				89	without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				111		< 0.01	< 0.01	< 0.01	< 0.01	
				89	cob without	< 0.01	< 0.01	< 0.01	< 0.01	
				111	husks	< 0.01	< 0.01	< 0.01	< 0.01	
				134	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
2001 (Pelican)	500 FS	1	0.5	0	seed treated before sowing	4350	< 0.13	0.75	4350	2015/01 0053-01
				28	whole plant	< 0.01	< 0.01	0.02	0.02	
				108	without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				108	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				142	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
Spain 2000 (Luce)	500 FS	1	0.5	0	seed treated before sowing	5450	< 0.13	0.44	5450	2131/00 0402-00
				30	whole plant	< 0.01	< 0.01	0.03	0.03	
				100	without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				100	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				149	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	

Country Year (Variety)	Application Form.	No.	kg ai/ 100 kg	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
2001 (Pelican)	500 FS	1	0.5	0	seed treated before sowing	4280	< 0.13	0.65	4280	2015/01 0323-01
				41	whole plant	< 0.01	< 0.01	< 0.01	< 0.01	
				113	without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				113	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				148	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	
Treatment by spreading bait										
Germany 2001 (Synfonie)	4 RB	2	0.12	122	whole plant without roots	< 0.01	< 0.01	< 0.01	< 0.01	2049/01 0124-01
				122	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	(last application:GS
				143	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	11)
(Synfonie)	4 RB	2	0.12	119	whole plant without roots	< 0.01	< 0.01	< 0.01	< 0.01	2049/01 0317-01
				119	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	(last application:GS
				143	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	11)
Italy 2001 (Tevere)	4 RB	2	0.12	99	whole plant without roots	< 0.01	< 0.01	< 0.01	< 0.01	2050/01 0125-01
				99	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	(last application:GS
				135	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	12)
Spain 2001 (Mataro)	4 RB	3	0.12	112	whole plant without roots	< 0.01	< 0.01	< 0.01	< 0.01	2050/01 0318-01
				112	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	(last application:GS
				147	grain	< 0.01	< 0.01	< 0.01	≤ 0.01	13)

Hazelnut

Five trials were conducted in Turkey on hazelnut in one year.

Table 23. Residues in hazelnut from supervised trials in Turkey.

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
Dusting										
Turkey 1987 (Tombul, sirri)	2 DP	1	0.7	87	nut without shell	< 0.04	< 0.04	< 0.04	≤ 0.04	2200-87
(Tombul, sirri, palaz, badem)	2 DP	1	0.7	87	nut without shell	< 0.04	< 0.04	< 0.04	≤ 0.04	2101-87
(Tombul, sirri, palaz)	2 DP	1	0.7	86	nut without shell	< 0.04	< 0.04	< 0.04	≤ 0.04	2102-87
Spray application										
(Tombul, sirri, yerli)	50 WP	1	0.75	86	nut without shell	< 0.04	< 0.04	< 0.04	≤ 0.04	2103-87
(Yagli, palaz, yerli)	50 WP	1	0.75	90	nut without shell	< 0.04	< 0.04	< 0.04	≤ 0.04	2104-87

Rapeseed

A total of 10 supervised trials were conducted on rape with methiocarb 500 FS used as a seed dressing at a rate of 2.25 kg ai/100 kg in France (5), Germany (4) and in the United Kingdom (1). The

measured concentrations of parent compound in the treated seeds before sowing were between 16870 and 25650 mg/kg. A small amount of methiocarb sulfoxide was also present (up to 9.6 mg/kg).

Thirteen other trials were conducted using the ready to use bait applied twice at a rate of 0.12 kg ai/ha in Belgium (2), France (3), Germany (5), Sweden (1) and the United Kingdom (2).

Table 24. Residues in rapeseed from supervised trials in Belgium, France, Germany, Sweden and the United Kingdom.

Country, Year (Variety)	Application			PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
	Form.	No.	kg ai/ 100 kg							
Seed treatment										
France 2001 (Zenith) (winter rape)	500 FS	1	2.5	0	seed treated before sowing	25320	< 0.25	8.7	25330	2016/01 0316-01
				103	green material	< 0.01	< 0.01	0.01	0.01	
				180		< 0.01	< 0.01	< 0.01	< 0.01	
				207		< 0.01	< 0.01	< 0.01	< 0.01	
				314	seed	< 0.01	< 0.01	< 0.01	< 0.01	
(Zenith) (winter rape)	500 FS	1	2.5	0	seed treated before sowing	22780	0.25	8.1	22790	2017/01 0059-01
				75	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				180		< 0.01	< 0.01	< 0.01	< 0.01	
				201	seed	< 0.01	< 0.01	< 0.01	< 0.01	
				309		< 0.01	< 0.01	< 0.01	< 0.01	
(Zenith) (winter rape)	500 FS	1	2.5	0	seed treated before sowing	23000	< 0.25	7.8	23010	2017/01 0130-01
				64	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				162		< 0.01	< 0.01	< 0.01	< 0.01	
				180		< 0.01	< 0.01	< 0.01	< 0.01	
				286	seed	< 0.01	< 0.01	< 0.01	< 0.01	
2002 (Woten) (winter rape)	500 FS	1	2.5	0	seed treated before sowing	18250	< 0.13	9.4	18260	2130/02 0685-02
				102	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				195		< 0.01	< 0.01	< 0.01	< 0.01	
				211		< 0.01	< 0.01	< 0.01	< 0.01	
				305	seed	< 0.01	< 0.01	< 0.01	< 0.01	
(Woten) (winter rape)	500 FS	1	2.5	0	seed treated before sowing	16870	< 0.13	9.0	16880	2130/02 0686-02
				197	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				77		< 0.01	< 0.01	< 0.01	< 0.01	
				216		< 0.01	< 0.01	< 0.01	< 0.01	
				320	seed	< 0.01	< 0.01	< 0.01	< 0.01	
Germany 2001 (Zenith) (winter rape)	500 FS	1	2.5	0	seed treated before sowing	23890	< 0.25	9.6	23900	2016/01 0058-01
				78	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				211	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				221	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				303	seed	< 0.01	< 0.01	< 0.01	< 0.01	
(Zenith) (winter rape)	500 FS	1	2.5	0	seed treated before sowing	25650	< 0.25	6.4	25660	2016/01 0313-01
				71	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				203	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				226	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				330	seed	< 0.01	< 0.01	< 0.01	< 0.01	
2002 (Woten) (winter rape)	500 FS	1	2.5	0	seed treated before sowing	23940	< 0.13	9.5	23950	2130/02 0683-02
				69	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				212	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				239	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				320	seed	< 0.01	< 0.01	< 0.01	< 0.01	

Country, Year (Variety)	Application			PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
	Form.	No.	kg ai/ 100 kg							
(Woten) (winter rape)	500 FS	1	2.5	0	seed treated before sowing	23390	< 0.13	9.5	23400	2130/02 0684-02
				71	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				212	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				240	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				316	seed	< 0.01	< 0.01	< 0.01	≤ 0.01	
United Kingdom 2002 (Lisonne) (summer rape)	500 FS	1	2.5	0	seed treated before sowing	22870	< 0.13	9.0	22880	2016/02 0088-02
				26	green material	0.01	0.02	0.22	0.23	
				58	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				142	seed	< 0.01	< 0.01	< 0.01	≤ 0.01	
Treatment by spreading bait										
Belgium 1999 (Alamo) (winter rape)	4 RB	2	0.12	0	green material	< 0.01	< 0.01	0.02	0.02	2169/99 0711-99 (last application: GS 12)
				69	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				145	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				266	seed	< 0.01	< 0.01	< 0.01	≤ 0.01	
2001 (Synergie) (winter rape)	4 RB	2	0.12	0	green material	0.01	0.01	0.03	0.05	2041/01 0107-01 (last application: GS 13)
				39	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				147	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				284	seed	< 0.01	< 0.01	< 0.01	≤ 0.01	
France 1999 (Carolus) (winter rape)	4 RB	2	0.12	0	green material	< 0.01	< 0.01	< 0.01	< 0.01	2169/99 0712-99 (last application: GS 14)
				11	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				154	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				280	seed	< 0.01	< 0.01	< 0.01	≤ 0.01	
2001 (Aviso) (winter rape)	4 RB	2	0.12	0	green material	0.02	< 0.01	0.02	0.04	2040/01 0105-01 (last application: GS 15)
				39	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				125	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				273	seed	< 0.01	< 0.01	< 0.01	≤ 0.01	
(Olara) (winter rape)	4 RB	2	0.12	0	green material	0.32	< 0.01	0.02	0.34	2040/01 0106-01 (last application: GS 15)
				16	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				105	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				238	seed	< 0.01	< 0.01	< 0.01	≤ 0.01	
Germany 1980 (Petranova) (summer rape)	4 RB	2	0.12	-14	green material				2.6	2104-80 (last application: GS 30)
				0	green material				< 0.05	
				21	green material				< 0.05	
				108	straw				< 0.05	
				108	seed				≤ 0.05	
(Petranova) (summer rape)	4 RB	2	0.12	0	green material				0.54	2105-80 (last application: GS 31)
				21	green material				< 0.05	
				98	straw				< 0.05	
				98	seed				≤ 0.05	
(Petranova) (summer rape)	4 RB	2	0.12	-14	green material				0.13	2113-80 (last application: GS 30)
				0	green material				4.5	
				20	green material				< 0.05	
				97	seed				≤ 0.05	
1999 (Express) (winter rape)	4 RB	2	0.12	4	green material	0.05	< 0.01	< 0.01	0.05	2169/99 0714-99 (last application: GS 12)
				7	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				14	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				28	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				284	seed	< 0.01	< 0.01	< 0.01	≤ 0.01	
2001 (Licondor) (winter rape)	4 RB	2	0.12	0	green material	2.3	< 0.01	0.18	2.5	2040/01 0414-01
				35	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				167	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				294	Seed	< 0.01	< 0.01	< 0.01	≤ 0.01	

Country, Year (Variety)	Application			PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
	Form.	No.	kg ai/ 100 kg							
Sweden 2001 (Opera) (winter rape)	4 RB	2	0.12	0 69 161 293	green material green material green material seed	0.66 0.07 0.03 < 0.01	< 0.01 < 0.01 0.01 < 0.01	0.01 < 0.01 0.01 < 0.01	0.67 0.07 0.05 ≤ 0.01	2040/01 0413-01 (last application: GS 13)
United Kingdom 1999 (Madrigal) (winter rape)	4 RB	2	0.12	0 34 141 286	green material green material green material seed	0.04 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01	0.04 < 0.01 < 0.01 ≤ 0.01	2169/99 0713-99 (last application: GS 16)
2002 (Madison) (summer rape)	4 RB	2	0.12	0 7 95	green material green material seed	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 ≤ 0.01	2041/02 0089-02 (last application: GS 32)

Sunflower

Four supervised trials were conducted in France (3) and Italy (1). The last application was performed at growth stage 31–51, which corresponded to a PHI of 80–86 days.

Table 25. Residues in sunflower seed from supervised trials in France and Italy.

Country Year (Variety)	Application			PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
	Form.	No.	kg ai/ha							
France 2001 (Perceval)	4 RB	2	0.12	84[1/]	seed	< 0.01	< 0.01	< 0.01	≤ 0.01	2046/01 0116-01
(Prodisol)	4 RB	2	0.12	84[2/]	seed	< 0.01	< 0.01	< 0.01	≤ 0.01	2046/01 0117-01
(All Star)	4 RB	2	0.12	80[3/]	seed	< 0.01	< 0.01	< 0.01	≤ 0.01	2047/01 0119-01
Italy 2001 (Flora)	4 RB	2	0.12	86[4/]	seed	< 0.01	< 0.01	< 0.01	< 0.01	2047/01 0120-01

1. Last application at GS 31.
2. Last application at GS 31.
3. Last application at GS 37.
4. Last application at GS 53.

Pea vines/hay

Table 26. Residues in pea vine/hay from supervised trials in Germany.

Country, Year (Variety)	Application			PHI day	Portion analyzed	Total residues mg/kg	Report no. Trial no.
	Form.	No.	kg ai/ha				
Germany, 1985 (Columbia)	500 FS	1	0.5	97 97 132	pea with pod remaining plant pea without pod	< 0.05 ≤ 0.05 < 0.05	2100-85
(Juwel)	500 FS	1	0.5	63 63 99	pea with pod remaining plant pea, dry	< 0.05 ≤ 0.05 < 0.05	2101-85
(Kleine Rheinlanderin)	500 FS	1	0.5	69 69 86 106	pea with pod remaining plant pea without pod pea dry	< 0.05 ≤ 0.05 < 0.05 < 0.05	2102-85

Country, Year (Variety)	Application			PHI day	Portion analyzed	Total residues mg/kg	Report no. Trial no.
	Form.	No.	kg ai/ha				
(Progress)	500 FS	1	0.5	65	pea with pod	< 0.05	2103-85
				65	remaining plant	≤ 0.05	
				84	pea without pod	< 0.05	
				113	pea dry	< 0.05	
1986 (Progress)	500 FS	1	0.5	51	pea with pod	0.07	2110-86
				51	remaining plant	0.04	
				65	pea without pod	0.08	
				113	pod	0.08	
				89	pod	0.29	
				65	straw	0.08	
				89	straw	0.08	
				89	pea, dry	0.06	
(Rheinperle)	500 FS	1	0.5	63	pea with pod	< 0.05	2111-86
				63	remaining plant	≤ 0.05	
				75	pea without pod	< 0.05	
				75	pod	< 0.05	
				75	straw	< 0.05	
				96	straw	0.38	
				96	pea dry	< 0.05	
(Juwel)	500 FS	1	0.5	62	remaining plant	< 0.05	2112-86
				69	remaining plant	< 0.05	
				62	pea with pod	< 0.05	
				69	pea with pod	< 0.05	
				79	pea with pod	< 0.05	
				79	pea without pod	< 0.05	
				91	pea without pod	< 0.05	
				79	straw	< 0.05	
				91	straw	≤ 0.05	
(Juwel)	500 FS	1	0.5	58	remaining plant	< 0.05	2113-86
				66	remaining plant	< 0.05	
				83	pea without pod	< 0.05	
				92	pea without pod	< 0.05	
				83	pod	< 0.05	
				83	straw	< 0.05	
				92	straw	≤ 0.05	

Sugar beet, Leaves or Tops

Table 27. Residues in sugar beet leaves and tops from supervised trials in France, Germany, Italy, Spain and the United Kingdom.

Country Year (Variety)	Application			PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
	Form.	No.	kg ai/ha							
France 2002 (Rafal)	4 RB	2	0.12	168	root	< 0.01	< 0.01	< 0.01	< 0.01	2042/02 0488-02
				168	leaf with root collar	< 0.01	< 0.01	< 0.01	≤ 0.01	
(Judith)	4 RB	2	0.12	175	root	< 0.01	< 0.01	< 0.01	< 0.01	2042/02 0490-02
				175	leaf with root collar	< 0.01	< 0.01	< 0.01	≤ 0.01	
2003 (Sherif)	2 RB	2	0.15	56	whole plant with root	< 0.01	< 0.01	< 0.01	< 0.01	2042/03 0297-03
				137	root	< 0.01	< 0.01	< 0.01	< 0.01	
				137	leaf with root collar	< 0.01	< 0.01	< 0.01	≤ 0.01	

Country Year (Variety)	Application			PHI day	Portion analyzed	Methiocarb mg/kg	-sulf one mg/k g	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
	Form .	No.	kg ai/ha							
(Candida)	2 RB	2	0.15	57 118 118	whole plant with root root leaf with root collar	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 ≤ 0.01	2042/03 0567-03
Germany 2001 (Tatjana)	4 RB	2	0.12	162 162	root leaf with root collar	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 ≤ 0.01	2042/01 0109-01
(Wipke)	4 RB	2	0.12	143 143	root leaf with root collar	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 ≤ 0.01	2042/01 0110-01
2002 (Impuls)	4 RB	2	0.12	148 148	root leaf with root collar	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 ≤ 0.01	2042/02 0161-02
(Impuls)	4 RB	2	0.12	157 157	root leaf with root collar	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 ≤ 0.01	2042/02 0487-02
(Impuls)	4 RB	2	0.12	163 163	root leaf with root collar	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 ≤ 0.01	2042/02 0491-02
2003 (Achat)	2 RB	2	0.15	56 145 145	whole plant with root root leaf with root collar	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 ≤ 0.01	2042/03 0568-03
Italy 2001 (Nubia)	4 RB	2	0.12	85 85	root leaf with root collar	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 ≤ 0.01	2043/01 0111-01
Spain 2001 (Korcel)	4 RB	2	0.12	205 205	root leaf with root collar	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 ≤ 0.01	2043/01 0112-01
UK 2002 (Roberta)	4 RB	2	0.12	151 151	root leaf with root collar	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01	< 0.01 ≤ 0.01	2042/02 0489-02
2003 (Roberta)	2 RB	2	0.15	56 129 129	whole plant with root root leaf with root collar	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 ≤ 0.01	2042/03 0569-03

Barley forage/fodder

Table 28. Residues in barley plant from supervised trials in France, Germany, Greece and Italy.

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
France 2001 (Cecilia) (spring barely)	4 RB	2	0.12	28 57 114 114	green material grain straw	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	2133/00 0406-00
(Nevada) (spring barley)	4 RB	2	0.12	15 44 90 90	green material grain straw	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	2038/01 0101-01
(Cecilia) (spring barely)	4 RB	2	0.12	28 64 119 119	green material grain straw	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	2036/01 0096-01
Germany 1980 (Carina) (spring barley)	4 RB	2	0.12	0 0 21 76 76	green material green material green material straw grain	-	-	-	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	2100-80
(Carina) (spring barley)	4 RB	2	0.12	0 0 21 80 80	green material green material green material straw grain	-	-	-	< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	2101-80
(Carina) (spring barley)	4 RB	2	0.12	0 0 14 92 92	green material green material green material straw grain	-	-		< 0.05 < 0.05 < 0.05 < 0.05 < 0.05	2102-80
2000 (Barconesse) (spring barley)	4 RB	2	0.12	14 36 106 106	green material grain straw	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	2132/00 0337-00
(Alexis) (spring barley)	4 RB	2	0.12	18 43 105 105	green material grain straw	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	2132/00 0405-00
2001 (Scarlett) (spring barley)	4 RB	2	0.12	21 47 92 92	green material grain straw	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	2035/01 0094-01
(Exrakta) (spring barley)	4 RB	2	0.12	20 40 92 92	green material grain straw	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	2035/01 0095-01
Greece 2000 (Mucho) (spring barley)	4 RB	2	0.12	43 64 141 141	green material grain straw	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	< 0.01 < 0.01 < 0.01 < 0.05	2133/00 0338-00

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
Italy	4 RB	2	0.12	27	green	< 0.01	< 0.01	< 0.01	< 0.01	2036/01
2001				32	material	< 0.01	< 0.01	< 0.01	< 0.01	0097-01
(Locale)				46		< 0.01	< 0.01	< 0.01	≤ 0.01	
(spring barley)				79	grain	< 0.01	< 0.01	< 0.01	< 0.01	
				79	straw	< 0.05	< 0.05	< 0.05	≤ 0.05	

Wheat fodder

Table 29. Residues in wheat plant from supervised trials in France, Germany, Portugal and the United Kingdom.

Country Year (Variety)	Application Form.	No.	kg ai/ha	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
France	4 RB	2	0.12	26	green	< 0.01	< 0.01	< 0.01	< 0.01	2132/00
2000				64	material	< 0.01	< 0.01	< 0.01	≤ 0.01	0407-00
(Furio) (spring				120	grain	< 0.01	< 0.01	< 0.01	< 0.01	(last application:
wheat)				120	straw	< 0.05	< 0.05	< 0.05	≤ 0.05	GS11)
2001	4 RB	2	0.12	28	green	< 0.01	< 0.01	< 0.01	< 0.01	2133/00
(Furio) (spring				71	material	< 0.01	< 0.01	< 0.01	≤ 0.01	0408-00
wheat)				119	grain	< 0.01	< 0.01	< 0.01	< 0.01	(last application:
				119	straw	< 0.05	< 0.05	< 0.05	≤ 0.05	GS12)
(Furio) (spring	4 RB	2	0.12	12	green	< 0.01	< 0.01	< 0.01	< 0.01	2039/01
wheat)				42	material	< 0.01	< 0.01	< 0.01	≤ 0.01	0102-01
				79	grain	< 0.01	< 0.01	< 0.01	< 0.01	(last application:
				79	straw	< 0.05	< 0.05	< 0.05	≤ 0.05	GS12)
Germany	4 RB	2	0.12	16	green	< 0.01	< 0.01	< 0.01	< 0.01	2132/00
2000				51	material	< 0.01	< 0.01	< 0.01	≤ 0.01	0339-00
(Lavett) (spring				113	grain	< 0.01	< 0.01	< 0.01	< 0.01	(last application:
wheat)				113	straw	< 0.05	< 0.05	< 0.05	≤ 0.05	GS12)
2001	4 RB	2	0.12	21	green	< 0.01	< 0.01	< 0.01	< 0.01	2038/01
(Nandu) (spring				50	material	< 0.01	< 0.01	< 0.01	≤ 0.01	0100-01 (last
wheat)				105	grain	< 0.01	< 0.01	< 0.01	< 0.01	application:
				105	straw	< 0.05	< 0.05	< 0.05	≤ 0.05	GS12)
Portugal	4 RB	2	0.12	23	green	< 0.01	< 0.01	< 0.01	< 0.01	2133/00
2001				41	material	< 0.01	< 0.01	< 0.01	≤ 0.01	0340-00
(Almansor)				91	grain	< 0.01	< 0.01	< 0.01	< 0.01	(last application:
(spring wheat)				91	straw	< 0.05	< 0.05	< 0.05	≤ 0.05	GS12)
(Almansor)	4 RB	2	0.12	23	green	< 0.01	< 0.01	< 0.01	< 0.01	2039/01
(spring wheat)				41	material	< 0.01	< 0.01	< 0.01	≤ 0.01	0103-01
				91	grain	< 0.01	< 0.01	< 0.01	< 0.01	(last application:
				91	straw	< 0.05	< 0.05	< 0.05	≤ 0.05	GS12)
United Kingdom	4 RB	2	0.22	0	green	< 0.1	< 0.1	< 0.1	< 0.1	2039/91
1991					material					0170-91
(Axona) (spring				94	straw	< 0.1	< 0.1	< 0.1	≤ 0.1	(last application:
wheat)				94	grain	< 0.04	< 0.04	< 0.04	< 0.04	GS33)
(Axona) (spring	4 RB	2	0.22	0	green	< 0.1	< 0.1	< 0.1	< 0.1	2039/91
wheat)					material					0171-91
				98	straw	< 0.1	< 0.1	< 0.1	≤ 0.1	(last application:
				98	grain	< 0.04	< 0.04	< 0.04	< 0.04	GS30)

Maize Forage

Table 30. Residues in maize plant from supervised trials in Belgium, France, Germany, Greece, Italy and Spain.

Country Year (Variety)	Application			PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
	Form.	No.	kg ai/ 100 kg							
Seed treatment										
Belgium 2001 (Prelude)	500 FS	1	0.5	0 48 147 147 167	seed treated before sowing whole plant without roots cob without husks kernel	4480 < 0.01 < 0.01 < 0.01 < 0.01	< 0.13 < 0.01 < 0.01 < 0.01 < 0.01	0.92 < 0.01 < 0.01 < 0.01 < 0.01	4480 < 0.01 ≤ 0.01 < 0.01 < 0.01	2014/01 0321-01
France 2000 (Cecilia)	500 FS	1	0.5	0 32 98 118 98 118 161	seed treated before sowing whole plant without roots whole plant cob without husks kernel	4470 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	< 0.13 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	3.4 0.02 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	4470 0.02 < 0.01 ≤ 0.01 < 0.01 < 0.01 < 0.01	2131/00 0403-00
(Forrm I)	500 FS	1	0.5	0 39 117 138 117 138 160	seed treated before sowing whole plant without roots whole plant cob without husks kernel	4150 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	< 0.13 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	5.7 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01	4160 < 0.01 < 0.01 ≤ 0.01 < 0.01 < 0.01 < 0.01	2130/00 0336-00
2001 (Prelude)	500 FS	1	0.5	0 40 123 123 160	seed treated before sowing whole plant without roots cob without husks kernel	4470 < 0.01 < 0.01 < 0.01 < 0.01	< 0.13 < 0.01 < 0.01 < 0.01 < 0.01	0.80 < 0.01 < 0.01 < 0.01 < 0.01	4470 < 0.01 ≤ 0.01 < 0.01 < 0.01	2014/01 0320-01
(Prelude)	500 FS	1	0.5	0 30 105 105 133	seed treated before sowing whole plant without roots cob without husks kernel	4430 < 0.01 < 0.01 < 0.01 < 0.01	< 0.13 < 0.01 < 0.01 < 0.01 < 0.01	0.84 0.03 < 0.01 < 0.01 < 0.01	4430 0.03 ≤ 0.01 < 0.01 < 0.01	2015/01 0325-01
Germany 1982 (Brilliant)	500 FS	1	0.15	90 184	whole plant without roots kernel	-	-	-	< 0.1 < 0.05	2100-82
(Tombrid)	500 FS	1	0.4	90	whole plant without roots	-	-	-	< 0.1	2101-82
(Blizzard)	500 FS	1	0.125	91 187	whole plant without roots kernel	-	-	-	< 0.1 < 0.05	2102-82
1983 (Brilliant)	500 FS	1	0.15	90 152	whole plant without roots cob	-	-	-	< 0.1 n.a.	2100-83
(Brilliant)	500 FS	1	0.15	90 156	whole plant without roots cob	-	-	-	< 0.1 n.a.	2101-83
(Forla)	500 FS	1	0.15	90 126	whole plant without roots cob	-	-	-	< 0.1 n.a.	2102-83
(Forla)	500 FS	1	0.15	90 113	whole plant without roots cob	-	-	-	< 0.1 n.a.	2103-83

Country Year (Variety)	Application Form.	No.	kg ai/ 100 kg	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
2000 (Santiago)	500 FS	1	0.5	0	seed treated before sowing	4310	< 0.13	0.96	4310	2130/00 0335-00
				39	whole plant	< 0.01	< 0.01	< 0.01	< 0.01	
				118	without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				168	whole plant	< 0.01	< 0.01	< 0.01	≤ 0.01	
				118	cob without	< 0.01	< 0.01	< 0.01	< 0.01	
				168	husks	< 0.01	< 0.01	< 0.01	< 0.01	
				183	kernel	< 0.01	< 0.01	< 0.01	< 0.01	
2001 (Prelude)	500 FS	1	0.5	3	seed treated before sowing	4570	< 0.13	0.90	4570	2014/01 0052-01
				41	whole plant	< 0.01	< 0.01	0.01	0.01	
				136	without roots	< 0.01	< 0.01	< 0.01	≤ 0.01	
				136	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				157	kernel	< 0.01	< 0.01	< 0.01	< 0.01	
(Prelude)	500 FS	1	0.5	-1	seed treated before sowing	4550	< 0.13	1.5	4550	2014/01 0127-01
				31	whole plant	< 0.01	< 0.01	0.03	0.03	
				44	without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				117	whole plant	< 0.01	< 0.01	< 0.01	≤ 0.01	
				117	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				150	kernel	< 0.01	< 0.01	< 0.01	< 0.01	
(Prelude)	500 FS	1	0.5	0	seed treated before sowing	4250	< 0.13	0.93	4250	2014/01 0319-01
				38	whole plant	< 0.01	< 0.01	0.01	0.01	
				130	without roots	< 0.01	< 0.01	< 0.01	≤ 0.01	
				130	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				154	kernel	< 0.01	< 0.01	< 0.01	< 0.01	
(Prelude)	500 FS	1	0.5	0	seed treated before sowing	4630	< 0.13	1.6	4630	2014/01 0322-01
				27	whole plant	< 0.01	< 0.01	0.07	0.07	
				42	without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				118	whole plant	< 0.01	< 0.01	< 0.01	≤ 0.01	
				118	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				151	kernel	< 0.01	< 0.01	< 0.01	< 0.01	
Greece 2000 (Studio)	500 FS	1	0.445	0	seed treated before sowing	4300	< 0.13	3.0	4300	2131/00 0400-00
				61	whole plant	< 0.01	< 0.01	< 0.01	< 0.01	
				117	without roots	< 0.01	< 0.01	< 0.01	≤ 0.01	
				117	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
2001 (Pelican)	500 FS	1	0.5	0	seed treated before sowing	4190	< 0.13	0.67	4190	2015/01 0324-01
				114	whole plant without roots	< 0.01	< 0.01	< 0.01	≤ 0.01	
				29	cob without	< 0.01	< 0.01	0.02	0.02	
				114	husks	< 0.01	< 0.01	< 0.01	< 0.01	
				142	kernel	< 0.01	< 0.01	< 0.01	< 0.01	
Italy 2000 (Tevere)	500 FS	1	0.5	-10	seed treated before sowing	4290	< 0.13	0.45	4290	2131/00 0404-00
				29	whole plant	< 0.01	< 0.01	< 0.01	< 0.01	
				89	without roots	< 0.01	< 0.01	< 0.01	< 0.01	
				111	whole plant	< 0.01	< 0.01	< 0.01	≤ 0.01	
				89	cob without	< 0.01	< 0.01	< 0.01	< 0.01	
				111	husks	< 0.01	< 0.01	< 0.01	< 0.01	
				134	kernel	< 0.01	< 0.01	< 0.01	< 0.01	

Country Year (Variety)	Application Form.	No.	kg ai/ 100 kg	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
2001 (Pelican)	500 FS	1	0.5	0	seed treated before sowing	4350	< 0.13	0.75	4350	2015/01 0053-01
				28	whole plant	< 0.01	< 0.01	0.02	0.02	
				108	without roots	< 0.01	< 0.01	< 0.01	≤ 0.01	
				108	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				142	kernel	< 0.01	< 0.01	< 0.01	< 0.01	
Spain 2000 (Luce)	500 FS	1	0.5	0	seed treated before sowing	5450	< 0.13	0.44	5450	2131/00 0402-00
				30	whole plant	< 0.01	< 0.01	0.03	0.03	
				100	without roots	< 0.01	< 0.01	< 0.01	≤ 0.01	
				100	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				149	kernel	< 0.01	< 0.01	< 0.01	< 0.01	
2001 (Pelican)	500 FS	1	0.5	0	seed treated before sowing	4280	< 0.13	0.65	4280	2015/01 0323-01
				41	whole plant	< 0.01	< 0.01	< 0.01	< 0.01	
				113	without roots	< 0.01	< 0.01	< 0.01	≤ 0.01	
				113	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				148	kernel	< 0.01	< 0.01	< 0.01	< 0.01	
Treatment by spreading bait										
Germany 2001 (Synfonie)	4 RB	2	0.12	122	whole plant without roots	< 0.01	< 0.01	< 0.01	≤ 0.01	2049/01 0124-01 (last application:GS 11)
				122	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				143	kernel	< 0.01	< 0.01	< 0.01	< 0.01	
(Synfonie)	4 RB	2	0.12	119	whole plant without roots	< 0.01	< 0.01	< 0.01	≤ 0.01	2049/01 0317-01 (last application:GS 11)
				119	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				143	kernel	< 0.01	< 0.01	< 0.01	< 0.01	
Italy 2001 (Tevere)	4 RB	2	0.12	99	whole plant without roots	< 0.01	< 0.01	< 0.01	≤ 0.01	2050/01 0125-01 (last application:GS 12)
				99	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				135	kernel	< 0.01	< 0.01	< 0.01	< 0.01	
Spain 2001 (Mataro)	4 RB	3	0.12	112	whole plant without roots	< 0.01	< 0.01	< 0.01	≤ 0.01	2050/01 0318-01 (last application:GS 13)
				112	cob without husks	< 0.01	< 0.01	< 0.01	< 0.01	
				147	kernel	< 0.01	< 0.01	< 0.01	< 0.01	

n.a. not analysed (due to non-detectable residues in the green material, cob samples were not analyzed in some trials)

Rape forage

Table 31. Residues in rape forage from supervised trials in Belgium, France, Germany, Sweden and the United Kingdom.

Country, Year (Variety)	Application Form.	No.	kg ai/ 100 kg	PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
Seed dressing										
France 2001 (Zenith) (winter rape)	500 FS	1	2.5	0	seed treated before sowing	25320	< 0.25	8.7	25330	2016/01 0316-01
				103	green material	< 0.01	< 0.01	0.01	0.01	
				180	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				207	green material	< 0.01	< 0.01	< 0.01	≤ 0.01	
				314	seed	< 0.01	< 0.01	< 0.01	< 0.01	

Country, Year (Variety)	Application			PHI day	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
	Form.	No.	kg ai/ 100 kg							
(Zenith)	500 FS	1	2.5	0	seed treated before sowing	22780	0.25	8.1	22790	2017/01
(winter rape)										0059-01
				75	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				180	green material	< 0.01	< 0.01	< 0.01	≤ 0.01	
				201	seed	< 0.01	< 0.01	< 0.01	< 0.01	
				309	seed	< 0.01	< 0.01	< 0.01	< 0.01	
(Zenith)	500 FS	1	2.5	0	seed treated before sowing	23000	< 0.25	7.8	23010	2017/01
(winter rape)										0130-01
				64	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				162	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				180	green material	< 0.01	< 0.01	< 0.01	≤ 0.01	
				286	seed	< 0.01	< 0.01	< 0.01	< 0.01	
2002	500 FS	1	2.5	0	seed treated before sowing	18250	< 0.13	9.4	18260	2130/02
(Woten)										0685-02
(winter rape)				102	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				195	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				211	green material	< 0.01	< 0.01	< 0.01	≤ 0.01	
				305	seed	< 0.01	< 0.01	< 0.01	< 0.01	
(Woten)	500 FS	1	2.5	0	seed treated before sowing	16870	< 0.13	9.0	16880	2130/02
(winter rape)										0686-02
				197	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				77	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				216	green material	< 0.01	< 0.01	< 0.01	≤ 0.01	
				320	seed	< 0.01	< 0.01	< 0.01	< 0.01	
Germany	500 FS	1	2.5	0	seed treated before sowing	23890	< 0.25	9.6	23900	2016/01
2001										0058-01
(Zenith)				78	green material	< 0.01	< 0.01	< 0.01	< 0.01	
(winter rape)				211	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				221	green material	< 0.01	< 0.01	< 0.01	≤ 0.01	
				303	seed	< 0.01	< 0.01	< 0.01	< 0.01	
(Zenith)	500 FS	1	2.5	0	seed treated before sowing	25650	< 0.25	6.4	25660	2016/01
(winter rape)										0313-01
				71	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				203	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				226	green material	< 0.01	< 0.01	< 0.01	≤ 0.01	
				330	seed	< 0.01	< 0.01	< 0.01	< 0.01	
2002	500 FS	1	2.5	0	seed treated before sowing	23940	< 0.13	9.5	23950	2130/02
(Woten)										0683-02
(winter rape)				69	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				212	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				239	green material	< 0.01	< 0.01	< 0.01	≤ 0.01	
				320	seed	< 0.01	< 0.01	< 0.01	< 0.01	
(Woten)	500 FS	1	2.5	0	seed treated before sowing	23390	< 0.13	9.5	23400	2130/02
(winter rape)										0684-02
				71	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				212	green material	< 0.01	< 0.01	< 0.01	< 0.01	
				240	green material	< 0.01	< 0.01	< 0.01	≤ 0.01	
				316	seed	< 0.01	< 0.01	< 0.01	< 0.01	
United Kingdom	500 FS	1	2.5	0	seed treated before sowing	22870	< 0.13	9.0	22880	2016/02
2002										0088-02
(Lisonne)				26	green material	0.01	0.02	0.22	0.23	
(summer rape)				58	green material	< 0.01	< 0.01	< 0.01	≤ 0.01	
				142	seed	< 0.01	< 0.01	< 0.01	< 0.01	
Treatment with granule										
Belgium	4 RB	2	0.12	0	green material	< 0.01	< 0.01	0.02	0.02	2169/99
1999				69	green material	< 0.01	< 0.01	< 0.01	< 0.01	0711-99
(Alamo)				145	green material	< 0.01	< 0.01	< 0.01	≤ 0.01	(last
(winter rape)				266	seed	< 0.01	< 0.01	< 0.01	< 0.01	application: GS 12)

Country, Year (Variety)	Application			PHI	Portion analyzed	Methiocarb mg/kg	-sulfone mg/kg	-sulfoxide mg/kg	Total residues mg/kg	Report no. Trial no.
	Form.	No.	kg ai/ 100 kg	day						
2001 (Synergie) (winter rape)	4 RB	2	0.12	0 39 147 284	green material green material green material seed	0.01 < 0.01 < 0.01 < 0.01	0.01 < 0.01 < 0.01 < 0.01	0.03 < 0.01 < 0.01 < 0.01	0.05 < 0.01 ≤ 0.01 < 0.01	2041/01 0107-01 (last application: GS 13)
France 1999 (Carolus) (winter rape)	4 RB	2	0.12	0 11 154 280	green material green material green material seed	< 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 ≤ 0.01 < 0.01	2169/99 0712-99 (last application: GS 14)
2001 (Aviso) (winter rape)	4 RB	2	0.12	0 39 125 273	green material green material green material seed	0.02 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01	0.02 < 0.01 < 0.01 < 0.01	0.04 < 0.01 ≤ 0.01 < 0.01	2040/01 0105-01 (last application: GS 15)
(Olara) (winter rape)	4 RB	2	0.12	0 16 105 238	green material green material green material seed	0.32 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01	0.02 < 0.01 < 0.01 < 0.01	0.34 < 0.01 ≤ 0.01 < 0.01	2040/01 0106-01 (last application: GS 15)
Germany 1980 (Petranova) (summer rape)	4 RB	2	0.12	-14 0 21 108 108	green material green material green material straw seed				2.6 < 0.05 ≤ 0.05 < 0.05 < 0.05	2104-80 (last application: GS 30)
(Petranova) (summer rape)	4 RB	2	0.12	0 21 98 98	green material green material straw seed				0.54 ≤ 0.05 < 0.05 < 0.05	2105-80 (last application: GS 31)
(Petranova) (summer rape)	4 RB	2	0.12	-14 0 20 97	green material green material green material seed				0.13 4.5 ≤ 0.05 < 0.05	2113-80 (last application: GS 30)
1999 (Express) (winter rape)	4 RB	2	0.12	4 7 14 28 284	green material green material green material green material seed	0.05 < 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01 < 0.01	0.05 < 0.01 < 0.01 ≤ 0.01 < 0.01	2169/99 0714-99 (last application: GS 12)
2001 (Licondor) (winter rape)	4 RB	2	0.12	0 35 167 294	green material green material green material Seed	2.3 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01	0.18 < 0.01 < 0.01 < 0.01	2.5 < 0.01 ≤ 0.01 < 0.01	2040/01 0414-01
Sweden 2001 (Opera) (winter rape)	4 RB	2	0.12	0 69 161 293	green material green material green material seed	0.66 0.07 0.03 < 0.01	< 0.01 < 0.01 0.01 < 0.01	0.01 < 0.01 0.01 < 0.01	0.67 0.07 0.05 < 0.01	2040/01 0413-01 (last application: GS 13)
United Kingdom 1999 (Madrigal) (winter rape)	4 RB	2	0.12	0 34 141 286	green material green material green material seed	0.04 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01 < 0.01	0.04 < 0.01 ≤ 0.01 < 0.01	2169/99 0713-99 (last application: GS 16)
2002 (Madison) (summer rape)	4 RB	2	0.12	0 7 95	green material green material seed	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01	< 0.01 < 0.01 < 0.01	< 0.01 ≤ 0.01 < 0.01	2041/02 0089-02 (last application: GS 32)

FATE OF RESIDUES IN STORAGE AND PROCESSING

In processing

A processing study was conducted on grapes.

Grapes

A wine processing study from grapes was conducted (Neigl, 2001; RA-3133/99). The field trial was performed in Greece. Methiocarb 50 WP was sprayed twice to table grape with an application rate of 1.0 kg methiocarb/ha. The spray volume was 1000 l/ha (spray conc. of 0.2%). The treatments were conducted at an interval of 31 days with the last treatment performed 42 days prior to harvest, which corresponds to PHI in GAP. Grape was processed into wine as shown in Figure 1.

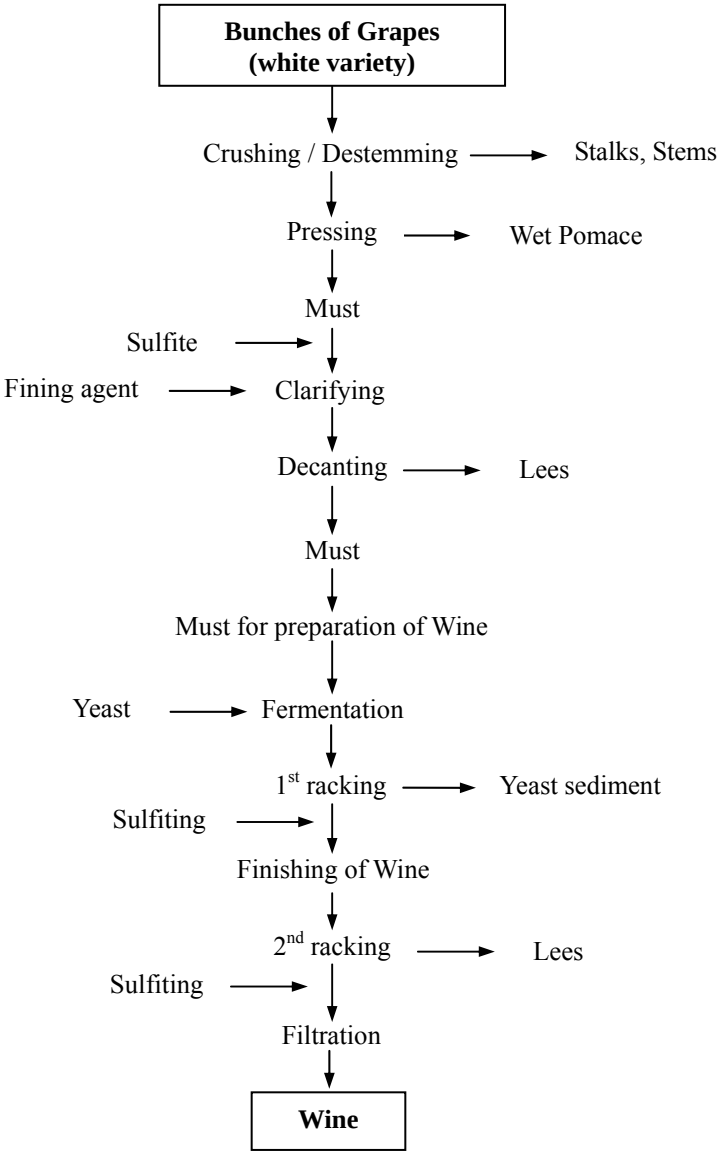


Figure 1. Processing of grapes into wine

Residues of methiocarb, methiocarb sulfone, methiocarb sulfoxide and the total residues were determined in bunches of grapes and berries and in wine. The calculated total residues was

0.06 mg/kg for bunches of grapes and berries and 0.03 mg/kg for wine. The results are shown in Table 32.

Table 32. Residues of methiocarb, methiocarb sulfone and methiocarb sulfoxide in bunch of grapes, berries and wine

Grape	Methiocarb mg/kg	Methiocarb sulfone mg/kg	Methiocarb sulfoxide mg/kg	Total residues mg/kg	Processing factor
Bunch	0.02	< 0.01	0.05	0.07	-
Berry	0.02	< 0.01	0.04	0.06	0.86
Wine	< 0.01	< 0.01	0.03	0.03	0.43

RESIDUES IN FOOD IN COMMERCE OR AT CONSUMPTION

No information was received on residues of methiocarb in food in commerce or at consumption.

APPRAISAL

Methiocarb, an insecticide, acaricide, molluscicide and bird repellent, was first reviewed by the Meeting in 1981. Since then, it was evaluated a number of times both for toxicology and residues.

It was reviewed under the Periodic Review Programme in 1998 for toxicology and in 1999 for residues. The 1998 JMPR allocated a new ADI of 0–0.02 mg/kg body weight and ARfD of 0.02 mg/kg body weight. The 1999 JMPR concluded that the residue should be defined both for enforcement of MRLs and for the estimation of dietary intake as "the sum of methiocarb, methiocarb sulfoxide and methiocarb sulfone, expressed as methiocarb".

The 1999 JMPR estimated provisional maximum residue levels and STMRs for strawberry, leek, cabbages, cauliflower, cucumber, melons, pepper, tomato, pea, maize and hazelnuts. However, due to the lack of appropriate storage stability studies it decided to withdrew the existing Codex MRLs for the above-mentioned commodities (except strawberry) and other commodities for which no data had been submitted to the Meeting.

Methiocarb was identified by the 36th Session of the CCPR in 2004 for evaluation by the 2005 JMPR. The current Meeting received data to support MRLs for artichoke, barley, Brussels sprout, cabbages, cauliflower, cucumber, grapes, hazelnut, leek, lettuce, maize, melons, onion, pea, pepper, potato, sugar beet, sunflower, tomato and wheat. The data of some crops had been submitted to the 1999 JMPR which reviewed them and made provisional recommendations based on them. The Meeting, however, agreed that these data should be reviewed along with new data in view of new GAP information and new JMPR policies established for evaluation since 1999.

Methods of analysis

The Meeting received information on a new HPLC method which was developed after the last evaluation and used in supervised trials conducted in recent years. Information on the validation of previously reviewed method, Bayer method number 00014, for the determination of methiocarb, methiocarb sulfoxide and methiocarb sulfone in grape and melon pulp and peel was also provided.

The new method determines methiocarb, methiocarb sulfoxide and methiocarb sulfone in plant materials separately using HPLC-MS/MS. The analytical procedure includes extraction with either a mixture of acetonitrile/water (samples with low lipid content) or acetonitrile saturated with n-hexane followed by partition with n-hexane (samples with high lipid content), clean-up on a non-polar column, analysis by a reverse phase HPLC with an acidic acetonitrile/water eluent on a

silica based C_{18} column and detection by tandem mass spectrometry with electrospray ionization. In the case of starch-containing sample materials, a cysteine solution was added for stabilization. The product ions of 169, 122 and 185 *amu* were used for quantification of methiocarb, methiocarb sulfone and methiocarb sulfoxide respectively. The limit of quantitation (LOQ) was 0.01 mg/kg for each of the three compounds in matrices in supervised trials except in the analysis of barley straw and wheat straw for which the LOQ was 0.05 mg/kg. Mean recoveries of these compounds from matrices in supervised trials with fortification at LOQ and 10 x LOQ were in the range of 72 to 104% for these compounds with relative standard deviations below 17%.

The above method is generally more sensitive than other methods but as HPLC-MS/MS is not considered common equipment in the world, this HPLC-MS/MS method could not be recommended for enforcement purposes at the international level.

Bayer method number 00014 with the modification M001 (reported in the 1999 JMPR Evaluation; HPLC method with post-column derivatization) was successfully validated for grape with the LOQ at 0.02 mg/kg for each of the three compounds and mean recoveries of these compounds at the fortification levels of 0.02, 0.10 and 1.0 m/kg ranged between 79–107%. This method was also successfully validated for melon pulp and melon peel with the LOQ at 0.02 mg/kg for each of the three compounds and mean recoveries of these compounds at the fortification levels of 0.02, 0.10 and 1.0 mg/kg ranged between 81 and 126%.

Stability of pesticide residues in stored analytical samples

A 2-year deep-freezer storage stability study was conducted with methiocarb, methiocarb sulfone and methiocarb sulfoxide in matrices of plant origin. Shredded samples of grape (bunch), field peas, potato and rapeseed were fortified with methiocarb, methiocarb sulfone and methiocarb sulfoxide at 0.20 mg/kg. The samples were stored at -18°C or below for up to 733–734 days. Methiocarb, methiocarb sulfone and methiocarb sulfoxide were analysed by the HPLC-MS/MS method mentioned above. During the storage period, the sum of methiocarb, methiocarb sulfone and methiocarb sulfoxide did not decrease significantly except in the case of rapeseed, where a 25% decrease was observed, which was still within the acceptable range. In the case of potato, some conversion from the parent compound to sulfoxide was shown.

The Meeting concluded that these results indicate that the data from supervised trials were acceptable for estimating maximum residue levels, STMRs and HRs as samples had been stored no longer than 2 years.

No information was available on the storage stability of these compounds in matrices of animal origin.

Results of supervised trials on crops

The Meeting received supervised trials involving methiocarb on artichoke, barley, Brussels sprout, cabbage, cauliflower, cucumber, grape, hazelnut, leek, lettuce, maize, melon, onion, pea, pepper, potato, sugar beet, sunflower, tomato and wheat.

A number of the residue trials were carried out using a 50 wettable powder (WP) or a 500 soluble concentrate (SC) formulation. These formulations are considered to be interchangeable with regard to the residue behaviour of the methiocarb active ingredient. The Meeting concluded that the data generated with either of the two formulations could be used to support the other.

For spreader applications, ready-to-use (RTU) bait formulations (containing 2, 3 or 4 percent methiocarb) were used in the residue trials. The bait formulations are designated as either RB or GR. Both names refer to the same formulation and the designation RB is used in this review.

Residues were determined as methiocarb sulfone and calculated and expressed as methiocarb (a GLC method using oxidation by permanganate), or determined separately and the sum of the three components was expressed as methiocarb (HPLC methods). For the calculation of total residues, the Meeting took a similar approach as the 1999 JMPR as indicated in the following table.

Table 33. Calculation of total methiocarb residues.

Methiocarb	Methiocarb sulfone	Methiocarb sulfoxide	Total residues
< 0.05	< 0.05	< 0.05	< 0.05
0.15	< 0.05	< 0.05	0.15
0.15	< 0.05	0.06	0.21
0.15	0.05	0.06	0.25

The 1999 Meeting considered that a practical LOQ for enforcement purposes was 0.05 mg/kg for commodities of plant and animal origin except for milk for which the practical LOQ was 0.005 mg/kg. The current Meeting concluded that where total residues arising from supervised trials for a crop were all below LOQ which is smaller than 0.05 mg/kg, a maximum residue level should be recommended at 0.05 * mg/kg.

For commodities where the supporting trials used in the estimation of maximum residue levels all reported residues below the limit of quantification, even at exaggerated rates, the Meeting, taking into account the results of the plant metabolism studies, agreed to estimate STMRs, median residue levels, HRs and highest residue levels of 0 mg/kg, indicating that residues are not expected.

Grapes

A total of eight trials were conducted in France (1), Greece (4), Italy (1), Portugal (1) and Spain (1). These trials were carried out with 2 or 3 spray applications at 1 kg ai/ha.

Table 34. Registered use patterns for grapes related to the supervised trials are as follows:

Country	Form.	Method	No.	Rate kg ai/ha	PHI
Greece	50 WP	Spraying	2	1.0	42
Italy	50 WP	Spraying	2	1.0	21
Portugal	50 WP	Spraying	1	0.5	#
Spain	50 WP	Spraying	2	1.0	#

Last application before flowering

In a total of five trials, one each in France, Greece, Italy, Portugal and Spain, methiocarb was applied three times instead of twice as specified by GAP in Greece, Italy or Spain. The analysis of grapes taken immediately before the last application and 21 days after the last application indicates that one extra application did not have a significant effect on residue concentrations taken at the PHI. The Meeting agreed to use the results of trials with three applications for estimating a maximum residue level, STMR and HR.

All eight trials were evaluated against GAP in Italy. Among all eight trials, five trials (one each in France, Greece, Italy, Portugal and Spain) were in accordance with Italian GAP. Total residues in ranked order, were: 0.13, 0.16, 0.24, 0.27 and 0.34 mg/kg. The Meeting considered it inadequate to estimate a maximum residue level for grapes on a basis of five valid trials.

The Meeting also evaluated these eight trials against the Greek GAP, with a PHI of 42 days. Seven trials were in accordance with Greek GAP and total residues in ranked order, were: 0.04(2), 0.07, 0.10, 0.12, 0.16 and 0.20 mg/kg. The Meeting concluded that seven valid trials were not sufficient to estimate a maximum residue level for grapes.

Leek

Eight supervised residue trials were conducted on leek in France using the 50WP formulation and four trials in the Netherlands using the 500 SC formulation. In each trial, 3 spray treatments at approximately 0.75 kg ai/ha were carried out.

Table 35. Registered use patterns for leek related to the supervised trials are as follows:

Country	Form.	Method	No.	Rate kg ai/ha	PHI
Belgium	500 SC	Spraying	-	0.75	21
France	50 WP	Spraying	3	0.75	21

No GAP information was available from the Netherlands but the results of trials conducted in the Netherlands were reviewed against the GAP of Belgium.

Eight trials conducted in France were in accordance with GAP in France. Residues in leek in these trials were in rank order: 0.07, 0.09, 0.10, 0.13, 0.17, 0.17, 0.21 and 0.33 mg/kg.

Four residue trials conducted in the Netherlands were in accordance with Belgian GAP. Residues in leek in these trials were: < 0.02 (3) and 0.03 mg/kg.

As residues arising from French trials and those from Dutch trials did not appear to belong to the same population, the results from French trials were used to estimate a maximum residue level, STMR and HR. The Meeting estimated a maximum residue level, STMR and HR for leek at 0.5, 0.15 and 0.33 mg/kg respectively.

Onion, bulb

Eight supervised trials were conducted using the 50 WP formulation in France, Greece, Portugal and Spain. In each trial 2 kg ai/ha was applied twice.

Table 36. Registered use pattern for onion related to the supervised trials is as follows:

Country	Form.	Method	No.	Rate kg ai/ha	PHI
Belgium	500 SC	Spraying	3	0.75	21

In all of eight trials, methiocarb was applied only twice instead of three times as specified in the Belgian GAP and the application rate was 1.0 kg ai/ha instead of the 0.75 kg ai/ha GAP rate. As the analysis of samples taken immediately before the last application indicated that no carry-over of residues was expected, the Meeting decided to use these trial data for estimating a maximum residue level. All eight trials reviewed were regarded as in accordance with Belgian GAP and total residues were in ranked order: < 0.01 (4), 0.04, 0.05, 0.06 and 0.35 mg/kg.

The Meeting estimated a maximum residue level, STMR and HR for onion, bulb at 0.5, 0.025 and 0.35 mg/kg respectively.

Brussels sprouts

A total of eight supervised trials were conducted in Belgium (1), France (2), Germany (2), the Netherlands (1) and the United Kingdom (2) using 4RB formulation (ready to use bait).

Table 37. Registered use patterns for Brussels sprouts related to the supervised trials are as follows:

Country	Form.	Method	No.	Rate kg ai/ha	PHI
Ireland	4 RB	Spreading	2	0.20	14
Ireland	3 RB	Spreading	2	0.15	14
Poland	2 RB	Spreading	2	0.10	14
UK	2 RB	Spreading	2	0.15	14

As no GAP information was provided for Belgium, France, Germany and the Netherlands, the results of trials conducted in these countries were reviewed against the Irish GAP for the 4RB formulation. From the six trials conducted in accordance with Irish GAP no quantifiable residues of methiocarb, methiocarb sulfone and methiocarb sulfoxide were found: < 0.01 mg/kg (6).

The two UK trials were also in accordance with the Irish GAP for the 4RB and total residues found were: < 0.01 mg/kg (2).

The Meeting estimated a maximum residue level, STMR and HR for Brussels sprouts at 0.05*, 0.01 and 0.01 mg/kg respectively.

Cabbages, Head

Eight supervised trials were conducted on cabbage with methiocarb 500 SC or 50 WP applied as a spray in Belgium, Germany and the Netherlands. An additional 14 trials were conducted in Belgium, France, Germany, the Netherlands and the United Kingdom where the RTU bait formulation of methiocarb was applied.

Table 38. Registered use patterns for cabbages related to the supervised trials are as follows:

Country	Form.	Method	No.	Rate kg ai/ha	PHI
Belgium	500 SC	Spraying	4	0.50	14
France	4 RB	Spreading	-	0.12	15
Germany	2 RB	Spreading	2	0.10	14
Ireland	3 RB	Spreading	1	0.12	14
Ireland	4 RB	Spreading	-	0.22	7
Italy	75 WP	Spraying	2	0.75	21
Poland	4 RB	Spreading	2	0.12	14
UK	3 RB	Spreading	1	0.12	14
	2 RB				

In two trials conducted in Belgium, two in Germany and four in the Netherlands, methiocarb was sprayed three times at rates ranging from 0.70 to 0.75 kg ai/ha. These trials were regarded as matching the maximum GAP in Belgium by the 1999 JMPR when the GAP at the time permitted a maximum of three applications at a rate of 0.75 kg ai/ha. Due to a change in GAP, which permits a maximum of four applications at a rate of 0.50 kg ai/ha, the trials were no longer in accordance with the maximum GAP of Belgian. In these trials, total residues at a PHI of 14 days ranged from < 0.02 to 0.05 mg/kg. The application rates of these trials were comparable to the Italian GAP (a maximum of 2 applications) but some trials indicate potential carry-over of residues from earlier application and therefore these trials were not used for estimating a maximum residue level.

All six trials conducted in Germany with the application rate of 0.12 kg ai/ha using 4 RB formulation were regarded as in accordance with the maximum GAP of Germany and residues found were: < 0.05 mg/kg (6).

Of eight trials, one conducted with two applications at the rate of 0.20 kg ai/ha in Belgium, one in France, four in Germany, one in the Netherlands and one in the United Kingdom, four trials were in accordance with Irish GAP (application number not specified; 0.22 kg ai/ha, PHI 7 days) the residues found were: < 0.01 (3) and 0.08 mg/kg. In the other four trials, no samples were taken at the PHI of 7 days but all three components were below or at the LOQ of 0.01 mg/kg even on day 0.

Combined residue results in ranked order were: < 0.01 (3), < 0.05 (6) and 0.08 mg/kg. The Meeting estimated a maximum residue level, STMR and HR for cabbages, head at 0.1, 0.05 and 0.08 mg/kg respectively.

Cauliflower

Four supervised trials were conducted on cauliflowers in Germany using a RTU bait formulation. Residues were determined as methiocarb sulfone and calculated as methiocarb.

Table 39. Registered use patterns for cauliflower related to the supervised trials are as follows:

Country	Form.	Method	No.	Rate kg ai/ha	PHI
France	4 RB	Spreading	-	0.12	15
Germany	2 RB	Spreading	2	0.10	14
Ireland	3 RB	Spreading	2	0.12	14
Ireland	4 RB	Spreading	-	0.22	7
Italy	1 RB	Spreading	-	0.10	21
Poland	2 RB	Spreading	2	0.10	14
Poland	4 RB	Spreading	2	0.12	14
UK	2 RB	Spreading	2	0.12	14
	3 RB				

The four trials were conducted in accordance with the maximum GAP of Germany. However, in one trial the cauliflower florets were not analysed. Residues from the three valid trials were all < 0.05 mg/kg.

The Meeting agreed that three trials were insufficient for estimating a maximum residue level and STMR for cauliflower. The 1999 JMPR concluded that the data on cabbages could be extrapolated to cauliflowers as the GAP is identical and the treatments are applied to the ground, not foliar where differences in plant structure might lead to different residue concentrations. The Meeting estimated a maximum residue level, STMR and HR for cauliflower at 0.1, 0.05 and 0.08 mg/kg respectively.

Cucumber

A total of nine supervised trials were carried out in France (5 in greenhouse), the Netherlands (1 in greenhouse), Portugal (1 in greenhouse) and Spain (2 in field). In the field trials 2 spray applications at 1.0 kg ai/ha were carried out, while in the greenhouse trials 1-3 spray applications at rates between 0.8 and 1.1 kg ai/ha were made.

Table 40. Registered use patterns for cucumbers related to the supervised trials are as follows:

Country	Form.	Method	No.	Rate kg ai/ha	PHI
Belgium (F)	500 SC	Spraying	1	0.425	3
Greece (F/G)	50 WP	Spraying	2	1.5	15
Italy (F)	50 WP	Spraying	2*	1.0	21
Netherlands (F)	500 SC	Spraying of aerial parts	1-3	0.25-0.5	3
Spain (F/S)	50 WP	Spraying	3*	1.5	7

* Last application before flowering

Two field trials conducted in Spain were in accordance with Spanish GAP. Residues found were < 0.04 mg/kg (2).

Greenhouse trials conducted in France (1), the Netherlands (1) and in Portugal (1) used application rates of 1.0 and 1.1 kg ai/ha. These were regarded to be in accordance with Spanish GAP as the rates were within ±30% of the maximum rate specified in the Spanish GAP. Residues found were: 0.04, 0.10 and 0.21 mg/kg.

Other trials conducted in greenhouses in France were not in accordance with any reported GAP.

Residues in samples from the greenhouse trials were found to be significantly higher than those from field trials and therefore these results could not be combined. The Meeting concluded that there was insufficient data to estimate a maximum residue level in cucumber.

Melons

A total of eleven supervised trials were conducted on melons in France (4), Italy (1), Portugal (2 in greenhouses) and Spain (4). In these trials methiocarb was sprayed 1 to 3 times at application rates ranging from 0.75 to 1.1 kg ai/ha.

Table 41. Registered use patterns for melons related to the supervised trials are as follows:

Country	Form.	Method	No.	Rate kg ai/ha	PHI
Italy (F)	50 WP	Spraying	2	1.0	21
Netherlands (G)	500 SC	Spraying of aerial parts	1-3	0.25–0.5	3
Portugal (F/G)	50 WP	Spraying	2	1.0	7

Two greenhouse trials conducted in Portugal were in accordance with Portuguese GAP and residues found in whole fruits were 0.25 and 0.48 mg/kg respectively.

Two field trials conducted in Spain in 1993 and two trials in France in 1996 were also in accordance with Portuguese GAP, with residues found in ranked order of: 0.07, 0.10, 0.12 and 0.16 mg/kg.

In one trial in Italy, two other trials in Spain and one other trial in France conducted in the field, samples (whole fruit) were taken at a PHI of 21 days (GAP in Italy) and did not contain any of the three components above the LOQ of 0.02 mg/kg.

Since the residues in whole fruits taken 7 and 21 days after treatment were significantly different, the Meeting decided that these values could not be combined. Residues in samples taken 7 days after treatment in greenhouses and those from field trials were also significantly different and therefore could not be combined. The Meeting estimated a maximum residue level for melons, except watermelon, at 0.2 mg/kg on the basis of four field trials conducted in Spain (2) and France (2).

In these trials residues in pulp were: < 0.02 mg/kg (4). The Meeting estimated an STMR and HR at 0.02 and 0.02 mg/kg.

Peppers

A total of nine supervised trials were conducted on sweet peppers: two in Portugal in greenhouses and seven in Spain in greenhouses (5) and field (2). The number of spray applications was either 2 or 3 with application rates ranging from 1.16 to 1.5 kg ai/ha.

Table 42. Registered use patterns for peppers related to the supervised trials are as follows:

Country	Form.	Method	No.	Rate kg ai/ha	PHI
Greece (F/G)	50 WP	Spraying	2	1.5	7
Portugal (F/G)	50 WP	Spraying	2	1.0	14
Spain (F/G)	50 WP	Spraying	3	1.0	7

All seven greenhouse trials were in accordance with Spanish GAP. In two trials only the sum of the three components was reported with no information on the levels of individual components provided. Residues found in ranked order were: 0.22, 0.67, 0.84, 0.92, 1.2, 1.3 and 1.3 mg/kg.

One field trial conducted in Spain with the variety Lamuyo was in accordance with Spanish GAP. The residues found were 1.5 mg/kg.

Residues from valid trials in ranked order were: 0.22, 0.67, 0.84, 0.92, 1.2, 1.3, 1.3 and 1.5 mg/kg. The Meeting estimated a maximum residue level, STMR and HR for sweet peppers at 2, 1.06 and 1.5 mg/kg respectively.

Tomato

The Meeting received information on supervised residue trials on tomatoes in Germany (2 in greenhouses) France, Greece (1 in greenhouses), Portugal (1 in greenhouses) and Spain (7 in greenhouses and field). The spray application rate ranged from 1.0 to 1.5 kg ai/ha with either 2 or 3 applications made.

Table 43. Registered use patterns for tomato related to the supervised trials are as follows:

Country	Form.	Method	No.	Rate kg ai/ha	PHI
Portugal (F/G)	50 WP	Spraying	2	1.0	14
Spain (F/G)	50 WP	Spraying	3	1.0	7

Two trials conducted in Germany and one in Greece in greenhouses were evaluated against Spanish GAP but samples were taken only up to 3 days post treatment and therefore could not be used for estimating a maximum residue level.

One greenhouse trial conducted in Portugal was in accordance with Spanish GAP with a residue concentration found of 0.80 mg/kg.

Two greenhouse trials conducted in Spain in 1993 used rates more than 30% above the maximum GAP rate. Residues found were 0.22 and 0.58 mg/kg.

Three field trials conducted in Spain in 1990 were in accordance with Spanish GAP with residues levels found of < 0.04 (2) and 0.11 mg/kg.

Two field trials conducted in Spain in 1988 were in accordance with Spanish GAP. However, only the sum of the three components was reported with no information on the levels of individual components provided. The residues found in these were 0.17 mg/kg (2).

The greenhouse trials conducted seemed to result in higher residues than the trials conducted in the field and the Meeting therefore decided these results could not be combined. Residues from field trials matching Spanish GAP in ranked order were: < 0.04 (2), 0.11, 0.17 and 0.17 mg/kg.

The Meeting concluded that five valid trials were insufficient to estimate a maximum residue level for tomato.

Lettuce

A total of eight supervised trials were conducted on lettuce in Germany (7) and the United Kingdom (1) with an application rate of 0.12 or 0.45 mg ai/ha using the RTU bait formulation. Residues were determined as methiocarb sulfone and calculated as methiocarb.

Table 44. Registered use patterns for lettuce related to the supervised trials are as follows:

Country	Form.	Method	No.	Rate kg ai/ha	PHI
Germany	2 RB	Spreading	2	0.10	14
Ireland	3 RB	Spreading	1	0.12	14
Ireland	4 RB	Spreading	2	0.20	14
Italy	1 RB	Spreading	2	0.10	21
Netherlands	4 RB	Spreading	2	0.20	-
Poland	2 RB	Spreading	1	0.10	14
Spain	1 RB	Spreading	1	0.10	-
UK	2 RB	Spreading	1	0.10	14
UK	3 RB	Spreading	1	0.12	14

Seven trials conducted in Germany were in accordance with the maximum GAP in Germany. Residues levels found were: < 0.05 mg/kg (7).

One trial from the United Kingdom used approximately four times (4x) the GAP rate resulting in residues below the LOQ on day 15 after treatment.

The number of valid trials was seven, and together with the supporting information above, the Meeting estimated a maximum residue level, STMR and HR at 0.05*, 0.05 and 0.05 mg/kg respectively.

Peas

Eight supervised residue trials were performed in Germany on peas using the 500 FS seed treatment formulation according to German GAP. Residues were determined as methiocarb sulfone and calculated as methiocarb.

Table 45. Registered use pattern for field peas related to the supervised trials is as follows:

Country	Form.	Method	No.	Rate kg 100 kg seed	PHI
Germany	500 FS	Seed treatment	1	0.50	N/A

Residues in peas with pod were: < 0.05 (6) and 0.07 mg/kg. Residues in dry peas were: < 0.05 (4) and 0.06 mg/kg.

The Meeting estimated a maximum residue level and STMR for both peas (pods and succulent=immature seeds) and pea (dry) at 0.1 and 0.05 mg/kg respectively. An HR of 0.05 mg/kg was estimated for peas (pods and succulent=immature seeds).

Potato

Two supervised trials were performed in the United Kingdom with 3 applications of the ready-to-use bait formulation at 0.22 kg ai/ha. Potatoes were harvested after a PHI of 18-20 days. Eight other trials were performed in Germany, the Netherlands and the United Kingdom with a lower annual rate and frequency of treatment, i.e., 2 x 0.15 kg ai/ha with a shorter PHI of 7 days.

Table 46. Registered use patterns for potatoes related to the supervised trials are as follows:

Country	Form.	Method	No.	Rate kg ai/ha	PHI
Ireland	3 RB	Spreading	3	0.15	18
Ireland	4 RB	Spreading	3	0.22	*
UK	2 RB	Spreading	3	0.15	18
UK	3 RB	Spreading	3	0.15	18

* Last application prior to desiccation of leaves

Two UK trials were in accordance with Irish GAP and no quantifiable residues were found in tubers harvested 18 or 20 days after treatment. Residues were: < 0.02 mg/kg (2).

Concerning the other eight trials, and taking into consideration the shorter PHI of 7 days and that the method of application was spreading, these trials could be regarded as appropriate for estimating a maximum residue level. There were no quantifiable residues found in samples taken: < 0.01 mg/kg (8).

The Meeting estimated a maximum residue level, STMR and HR for potato at 0.05*, 0.01 and 0.02 mg/kg respectively.

Sugar beet

Four supervised trials on sugar beet were conducted with 2 applications at 0.15 kg ai/ha of the ready-to-use formulation (2RB) (France, Germany and the United Kingdom) and 10 trials with 2 applications of 0.12 g ai/ha of the ready-to-use bait formulation (4RB) (France, Germany, Italy, Spain and the United Kingdom). The last treatment of soil was conducted at growth stages 9-14 (BBCH – scale).

Table 47. Registered use patterns for sugar beet related to the supervised trials are as follows:

Country	Form.	Method	No.	Rate kg/100 kg seed or kg ai/ha	PHI	GS
Netherlands	500 WP	Seed treatment	1	0.5	-	-
France	4 RB	Spreading	2	0.12	-	
Germany	2 RB	Spreading	2	0.10		15
Ireland	3 RB	Spreading	1	0.15	6 mo.	
Italy	1 RB	Spreading	-	0.10	-	
UK	2 RB	Spreading	1	0.15	6 mo	
UK	3 RB	Spreading	1	0.15	6 mo	

* Last application should be made before the specified BBCH growth stage.

All of the 14 trials were in accordance with the maximum GAP in France or Germany or within 30% of the maximum GAP in France. There were no quantifiable residues found in sugar beet roots (LOQ 0.01 mg/kg).

The Meeting estimated a maximum residue level, STMR and HR for sugar beet at 0.05*, 0.01 and 0.01 mg/kg respectively.

Artichoke, Globe

A total of four supervised trials were conducted on artichoke in France (1) and Italy (3). Methiocarb was applied as a ready-to-use bait twice at a rate of 0.1 or 0.12 kg ai/ha.

Table 48. Registered use patterns for artichokes related to the supervised trials are as follows:

Country	Form.	Method	No.	Rate kg ai/ha	PHI
France	4 RB	Spreading	-	0.12	15
Italy	1 RB	Spreading	-	0.10	21

One trial in France and one trial in Italy in 2001 were in accordance with maximum GAP rate in France but no samples were analysed 15 days after application. Together with the two other trials from Italy, they were reviewed against Italian GAP although the formulations were not identical.

In all trials no quantifiable residues were found in samples taken either on day 14 (if available) or day 21 (LOQ 0.01 (2) or 0.005 (2) mg/kg).

The Meeting estimated a maximum residue level, STMR and HR for artichoke, globe at 0.05*, 0.005 and 0.01 mg/kg respectively.

Barley

A total of 12 residue trials were performed on barley in France, Germany, Greece and Italy using the RTU bait formulation. The trials were conducted with 2 applications at 0.12 kg ai/ha. In all trials the last application was conducted at growth stage 12. PHIs for ripe grains and straw ranged between 76 and 141 days.

Table 49. Registered use patterns for barley related to the supervised trials are as follows:

Country	Form.	Method	No.	Rate kg ai/ha	PHI	GS*
France	4 RB	Spreading	-	0.12	15	
Germany	2 RB	Spreading	2	0.10		31
Ireland	3 RB	Spreading	2	0.15		31
Poland	2 RB	Spreading	2	0.10	14	
Poland	4 RB	Spreading	2	0.12	14	
UK	2 RB 3 RB	Spreading	2	0.15		31

* Last application should be made before the specified BBCH growth stage.

All twelve trials were in accordance with German GAP. No quantifiable residues were found in the harvested grain (LOQ 0.01 (9) or 0.05 (3) mg/kg).

The Meeting estimated a maximum residue level, STMR and highest residue for barley at 0.05*, 0 and 0 mg/kg respectively.

Wheat

A total of nine residue trials were conducted on wheat in France, Germany, Portugal and the United Kingdom in 1991, 2000 and 2001 using the ready-to-use bait formulation at a rate of 0.12 or 0.22 kg ai/ha applied twice. In these trials, the growth stage at last application ranged between 11 and 33.

Table 50. Registered use patterns for wheat related to the supervised trials are as follows:

Country	Form.	Method	No.	Rate kg ai/ha	PHI	GS*
France	4 RB	Spreading		0.12	15	
Germany	2 RB	Spreading	2	0.10		31
Poland	2 RB	Spreading	2	0.10	14	
Poland	3 RB	Spreading	2	0.12	14	
UK	2 RB 3 RB	Spreading	2	0.15		31

* Last application should be made before the specified BBCH growth stage.

Seven trials conducted in France and Germany were in accordance with German GAP. No quantifiable residues were found in the harvested grains (LOQ 0.01 mg/kg).

In two UK trials, a 2× rate was used with the last application at growth stage 30 or 33. No quantifiable residues were found in harvested grains (LOQ 0.04 mg/kg).

The Meeting estimated a maximum residue level, STMR and highest residue for wheat at 0.05*, 0 and 0 mg/kg respectively.

Maize

A total of 23 supervised trials were conducted on maize using the 500 FS seed treatment formulation. The trials were carried out in Belgium, France, Germany, Greece, Italy and Spain. The application rate was 0.5 kg ai/100 kg seed.

An additional four trials were conducted with methiocarb granules applied twice at a rate of 0.12 kg ai/ha in Germany, Italy and Spain. The last application was conducted at growth stages 11-13.

Table 51. Registered use patterns for maize related to the supervised trials are as follows:

Country	Form.	Method	No.	Rate kg/100kg seed or kg ai/ha	PHI	GS[#]
Austria	50 WP	Seed treatment	1	0.5		
Belgium	500 FS	Seed treatment	1	0.5		
France	500 FS	Seed treatment	1	0.5		
Germany	500 FS	Seed treatment	1	0.5		
Italy	50 WP	Seed treatment	1	0.5		
Poland	500 FS	Seed treatment	1	0.5		
France	4 RB	Spreading		0.12	15	
Ireland	2 RB	Spreading	2	0.10		31
Poland	2 RB	Spreading	2	0.10	14	
UK	2 RB 3 RB	Spreading	2	0.15		31

[#] Last application should be made before the specified BBCH growth stage.

Fifteen trials conducted in Belgium, France, Greece, Italy and Spain, using the 500 FS seed treatment formulation, was all done in accordance with the GAP of Belgium, France and Germany (identical GAP). At the time of harvest no quantifiable residues were found in the grain: < 0.01 mg/kg (15).

In the four trials conducted with the granular treatment, a bait formulation was applied to the ground and not incorporated into the soil and therefore was unlikely to lead to residues in the harvested maize grain: < 0.01 mg/kg (4).

Based on 15 trials using the FS seed treatment formulation, the Meeting estimated a maximum residue level, STMR and highest residue at 0.05*, 0 and 0 mg/kg for maize.

Hazelnut

Five trials were conducted in Turkey on hazelnuts in one year. Methiocarb was applied by dusting or spraying.

Table 52. The registered use pattern for hazelnut available to the Meeting is as follows:

Country	Form.	Method	No.	Rate kg ai/ha	PHI
Turkey	50 WP	Spraying	1	0.75	90

All five Turkish trials were according to Turkish GAP with no quantifiable residues found in hazelnut kernels (LOQ 0.04 mg/kg).

The Meeting estimated a maximum residue level, STMR and HR for hazelnut at 0.05*, 0.04 and 0.04 mg/kg respectively.

Rape-seed

A total of 10 supervised trials were conducted on rape with methiocarb 500 FS used for seed dressing at a seed rate of 2.5 kg ai/100 kg of seed. Trials were carried out in France (5), Germany (4) and in the United Kingdom (1). Thirteen other trials were conducted with a RTU bait formulation applied twice at a rate of 0.12 kg ai/ha in Belgium (2), France (3), Germany (5), Sweden (1) and the United Kingdom (2).

Table 53. Registered use patterns for rape-seed related to the supervised trials are as follows:

Country	Form.	Method	No.	Rate kg/100kg seed or kg ai/ha	PHI	GS
France	50 WP	Seed dressing	1	2.5		
France	4 RB	Spreading	-	0.12	15	33
Germany	2 RB	Spreading	2	0.10		33
Ireland	3 RB	Spreading	2	0.15		
Poland	2 RB	Spreading	2	0.10	14	33
UK	2 RB	Spreading	2	0.15		33
UK	3 RB	Spreading	2	0.15		

* Last application should be made before the specified growth stage.

Ten supervised trials conducted using the 500FS seed treatment formulation were in accordance with French GAP. No quantifiable residues were found in the harvested seeds (LOQ 0.01 mg/kg (10)).

The thirteen granular treatment trials were conducted in accordance with Irish GAP. No quantifiable residues were found in the harvested seeds (LOQ 0.01 (10) or 0.05 (3) mg/kg).

The Meeting estimated a maximum residue level and STMR at 0.05* and 0 mg/kg respectively.

Sunflower seed

Four supervised trials were conducted in France (3) and Italy (1) using the ready-to-use bait formulations. The last application was performed at growth stage 31–51, which corresponded to a PHI of 80-86 days.

Table 54. Registered use patterns for sunflower related to the supervised trials are as follows:

Country	Form.	Method	No.	Rate kg ai/ha	PHI	GS
France	4 RB	Spreading	-	0.12	15	
Ireland	3 RB	Spreading	2	0.15		33
Poland	2 RB	Spreading	2	0.10	14	
UK	2 RB 3 RB	Spreading	2	0.15		33

* Last application should be made before the specified BBCH growth stage.

Three of four trials were in accordance with the GAP in Ireland or the UK. In another trial the last application was carried out at growth stage 53.

There were no quantifiable residues in harvested seeds even with the last application at growth stage 53 (LOQ 0.01 mg/kg).

The Meeting estimated a maximum residue level and STMR for sunflower seed at 0.05* and 0 mg/kg respectively.

Animal Feeds

Pea vines/hay

Residues in whole plant other than pods from trials matching GAP (see the section on peas) in rank order were: 0.04, < 0.05 (7) mg/kg.

No information was available for moisture content in pea vines. The Meeting estimated an STMR and highest residue for pea vines on a fresh weight basis at 0.05 and 0.05 mg/kg respectively for the purpose of calculating the animal dietary burden.

Residues in pea straw at the time of harvest were: < 0.05 (2), 0.08 and 0.38 mg/kg.

No information was available for moisture content in pea hay. The Meeting estimated an STMR and highest residue for pea hay on a fresh weight basis at 0.065 and 0.38 mg/kg respectively for the purpose of calculating the animal dietary burden. The Meeting also estimated a maximum residue level of 0.5 mg/kg (dry weight basis) for pea hay or pea fodder (dry) using the percentage of dry matter of 88% as listed in Appendix IX of the *FAO Manual* (FAO, 2002).

Sugar beet, Leaves or Tops

Residues in sugar beet leaves from trials matching GAP (see the section on sugar beet) were below the LOQ of 0.01 mg/kg (14). No information was available for moisture content in sugar beet leaves. The Meeting estimated an STMR and highest residue for sugar beet leaves on a fresh weight basis at 0.01 and 0.01 mg/kg respectively these values were used to calculate the animal dietary burden.

Barley forage/fodder

Residues in green material from all twelve trials which matched the German GAP (see the section on barley) were: < 0.01 (9) and < 0.05 (3) mg/kg. No information was available for moisture content in the barley forage. The Meeting estimated an STMR and highest residue for barley forage on a fresh

weight basis at 0.01 and 0.05 mg/kg respectively for the purpose of calculating the animal dietary burden.

Residues in straw taken at the time of normal grain harvest from all twelve trials, which matched the German GAP were: < 0.05 (12) mg/kg. No information was available for moisture content in the barley fodder. The Meeting estimated an STMR and highest residue for barley fodder on a fresh weight basis at 0.05 and 0.05 mg/kg respectively for the purpose of calculating the animal dietary burden. The Meeting also estimated a maximum residue level of 0.05 mg/kg (dry weight basis) for barley straw and fodder, using the dry matter percentage of 89% as listed in Appendix IX of the *FAO Manual* (FAO, 2002).

Wheat forage/fodder

Residues in green plant material from seven trials matching German GAP (see the section on wheat) were: < 0.01 (7) mg/kg. In two UK trials, a 2x rate was used with the last application at growth stage 30 or 33. Residues in green plant material were below the LOQ of 0.1 mg/kg. No information was available for moisture content in wheat forage. The Meeting estimated an STMR and highest residue for wheat forage on a fresh weight basis at 0.01 and 0.01 mg/kg respectively for the purpose of calculating the animal dietary burden.

Residues in straw taken at the time of grain harvest from all seven trials, which matched German GAP were: < 0.05 (7) mg/kg. In two UK trials, a 2× rate was used with the last application at growth stage 30 or 33. Residues in straw were below the LOQ of 0.1 mg/kg. No information was available for moisture content in the wheat straw. The Meeting estimated an STMR and highest residue for wheat fodder on a fresh weight basis at 0.05 and 0.05 mg/kg respectively for the purpose of calculating the animal dietary burden. The Meeting also estimated a maximum residue level of 0.05 mg/kg (dry weight basis) for wheat straw and fodder, dry, using the dry matter percentage of 89% as listed in Appendix IX of the *FAO Manual* (FAO, 2002).

Maize Forage

In supervised trials, residues were also determined on a whole plant basis, without roots. Whole plant residues, without roots, found from samples taken on the day of the last harvest of corn-on-the-cob, from trials matching GAP (see the section on maize), and were: < 0.01 mg/kg (16).

No information was available for moisture content in maize forage. The Meeting estimated an STMR and highest residue for maize forage on a fresh weight basis at 0.01 and 0.01 mg/kg respectively for the purpose of calculating the animal dietary burden.

Rape forage

Residues in green plant materials of rape, taken close to normal harvest, from trials matching GAP (see the Section on rape-seed) in ranked order were: < 0.01 (19), < 0.05 (3) and 0.05 mg/kg.

No information was available for moisture content in rape forage. The Meeting estimated an STMR and highest residue for rape forage on a fresh weight basis at 0.01 and 0.05 mg/kg respectively for the purpose of calculating the animal dietary burden.

Fate of residues during processing

Grapes

A wine processing study was conducted with table grapes to which methiocarb 50WP was sprayed twice at an application rate of 1.0 kg ai/ha with the last application occurring 42 days prior to harvest.

Residues of methiocarb, methiocarb sulfone, methiocarb sulfoxide and the total residues were determined in grape bunches, berries and in wine. The calculated total residues were 0.07 mg/kg for grape bunches, 0.06 mg/kg for berries and 0.03 mg/kg for wine. Processing factors are shown below.

Table 1. Grape and wine processing factors

Grape	Processing factor
Bunch	-
Berry	0.86
Wine	0.43

Farm animal dietary burden

The Meeting estimated the farm animal dietary burden of methiocarb residues, using the diets listed in Appendix IX of the *FAO Manual* (FAO, 2002).

In the tables below, farm animal dietary burden was calculated by summing the residue contribution of each feed (mg/kg).

Table 2. Estimated maximum dietary burden of farm animals

Commodity	CC	Residue	Basis	DM	Residue dw mg/kg	*Diet Content (%)*			Residue contribution (mg/kg)		
		mg/kg		%		*Beef cattle*	*Dairy cows*	*Poultry*	Beef cattle	Dairy cows	Poultry
Barley	GC	0	highest residue	88	0						
Barley forage	AF	0.05	highest residue								
Barley fodder	AS	0.05	highest residue	89	0.056						
Maize	GC	0	highest residue	88	0						
Maize forage	AS	0.01	highest residue	40	0.025						
Pea vines	AL	0.05	highest residue	25	0.2						
Pea hay	AL	0.38	highest residue	88	0.43	*25*	*50*		0.11	0.22	
Rape forage	AM	0.05	highest residue	30	0.17	*30*			0.05		
Sugar beet tops	AV	0.01	highest residue	23	0.043						
Wheat	GC	0	highest residue	89	0						
Wheat forage	AF	0.05	highest residue	25	0.2	*25*	*50*		0.05	0.1	
Wheat fodder	AS	0.05	highest residue	88	0.057						
Total						*80*	*100*		0.21	0.32	0

Table 3. Estimated STMR value for dietary burden of farm animals.

Commodity	CC	Residue mg/kg	Basis	DM %	Residue dw mg/kg	*Diet Content (%)* *Beef cattle*	*Dairy cows*	*Poultry*	Residue contribution, mg/kg Beef cattle	Dairy cows	Poultry
Barley	GC	0	STMR	88	0						
Barley forage	AF	0.01	STMR								
Barley fodder	AS		STMR	89	0.056						
Maize	GC	0.01	STMR	88	0.011						
Maize fodder	AS	0.01	STMR	40	0.025						
Pea vines	AL	0.05	STMR	25	0.2						
Pea hay	AL	0.065	STMR	88	0.074	25	50		0.018	0.037	
Rape forage	AM	0.01	STMR	30	0.033	30			0.01		
Sugar beet tops	AV	0.01	STMR	23	0.043						
Wheat	GC	0	STMR	89	0						
Wheat forage	AF	0.01	STMR	25	0.04	25	50		0.01	0.02	
Wheat fodder	AS	0.01	STMR	88	0.057						
Total						80	100		0.04	0.06	0

The dietary burden of methiocarb, for estimates of animal commodity MRLs and STMRs are respectively: beef cattle, 0.21 and 0.04 ppm; dairy cattle, 0.32 and 0.06 ppm; and poultry, 0 and 0 ppm.

Farm animal feeding studies

The 1999 JMPR received and reviewed farm animal feeding studies.

In one feeding study, dairy cows were given feed containing methiocarb at the equivalent of 0, 10, 30 and 100 ppm methiocarb for 29 days. Maximum methiocarb residue in milk on day 29 was 0.007, 0.020 and 0.033 mg/kg at the 10, 30 and 100 ppm feeding levels, respectively. No residues (< 0.05 mg/kg total methiocarb) were found in any tissue at any feeding level, except 0.08-0.1 mg/kg methiocarb in liver at 30 and in kidney at 100 ppm.

At the estimated maximum animal dietary burden of 0.32 mg/kg, maximum residue levels were calculated to be far below the LOQ for enforcement at 0.005 mg/kg in milk and 0.05 mg in meat and edible offal of mammals. The Meeting estimated maximum residue levels in meat and edible offal of mammals at the practical LOQ at 0.05 * mg/kg and STMR at 0 mg/kg and in milk at 0.005 mg/kg and 0 mg/kg respectively. An HR of 0 mg/kg was estimated for meat and edible offal of mammals.

In one poultry feeding study, hens were fed a diet containing methiocarb and methiocarb sulfoxide (9:1) for 28 days, at rates ranging from 0 to 360 ppm in the feed. The sum of methiocarb and methiocarb sulfoxide was below the LOQ of 0.02 mg/kg in muscle, skin and fat at all dose levels except 0.02 mg/kg in skin at the 360 ppm feeding level. In eggs (28 days) residues were 0.03 and 0.06 mg/kg at 120 and 360 ppm level respectively and in giblets (heart, gizzard and liver), 0.06, 0.13 and 0.13 mg/kg at 60, 120 and 360 ppm level respectively.

No residues were expected to occur in feed items for poultry, such as barley, maize and wheat grains. The Meeting therefore concluded that maximum residue levels for poultry tissues and eggs could be estimated at the practical LOQ of 0.05 * mg/kg, STMR at 0 mg/kg and HR at 0 mg/kg for poultry meat, edible offal and eggs.

The above maximum residue levels for animal commodities were, however, not recommended for use as maximum residue limits by Codex as the information on the storage stability in animal tissues had not been submitted.

RECOMMENDATIONS

On the basis of the data from supervised trials the Meeting concluded that the residue levels listed below are suitable for establishing maximum residue limits and for IEDI and IESTI assessment.

Plant commodities and animal commodities

Definition of the residue for compliance with MRLs: the sum of methiocarb, methiocarb sulfoxide and methiocarb sulfone, expressed as methiocarb

Definition of the residue for estimation of dietary intake: the sum of methiocarb, methiocarb sulfoxide and methiocarb sulfone, expressed as methiocarb

Table 4. Summary of recommendations.

Commodity		Recommended MRL mg/kg		STMR/ STMR-P[1)] mg/kg	HR/HR-P[1)] mg/kg
CCN	Name	New	Previous		
VS 0620	Artichoke, Globe	0.05 *	W	0.005	0.01
GC 0640	Barley	0.05 *	-	0	
AS 0640	Barley straw and fodder, dry	0.05	-		
VB 0402	Brussels sprout	0.05 *	W	0.01	0.01
VB 0041	Cabbages, head	0.1	W	0.05	0.08
VB 0404	Cauliflower	0.1	W	0.05	0.08
TN 0666	Hazelnuts	0.05 *	W	0.04	0.04
VA 0384	Leek	0.5	-	0.15	0.35
VL 0482	Lettuce, head	0.05 *	W	0.05	0.05
GC 0645	Maize	0.05 *	-	0	
VC 0046	Melons, except watermelon	0.2	-	0.02	0.02
VA 0385	Onion, bulb	0.5	-	0.25	0.35
AL 0072	Pea hay or pea fodder (dry)	0.5	-		
VP 0063	peas (pods and succulent=immature seeds)	0.1	-	0.05	0.05
VP 0072	Peas (dry)	0.1	-	0.05	
VO 0445	Peppers, sweet	2	-	1.06	1.5
VR 0589	Potato	0.05 *	-	0.01	0.02
SO 0495	Rape seed	0.05 *	W	0	
VR 0596	Sugar beet	0.05 *	W	0.01	0.01
SO 0702	Sunflower seed	0.05 *	-	0	
GC 0654	Wheat	0.05 *	-	0	
AS 0654	Wheat straw and fodder, dry	0.05	-		

DIETARY RISK ASSESSMENT

Long-term intake

The International Estimated Dietary Intakes (IEDIs) were calculated for the five GEMS/Food regional diets using STMR for vegetables, cereals, oil seeds and hazelnuts estimated by the current Meeting and the STMR for strawberry estimated by the 1999 JMPR (Annex 3). The maximum ADI is 0.02 mg/kg and the calculated IEDIs were 0–2% of the maximum ADI. The Meeting concluded that the intake of residues of methiocarb resulting from the uses considered by the current JMPR was unlikely to present a public health concern. The results are shown in Annex 3 of the 2005 JMPR Report.

Short-term intake

The International Estimated Short-Term Intakes (IESTIs) of methiocarb by the general population and by children were calculated for commodities for which STMRs or STMR-Ps estimated by the current Meeting where information on consumption was available. An HR of 0.83 mg/kg was estimated for strawberry on a basis of data submitted to and reviewed by the 1999 JMPR (Annex 4). The ARfD is 0.02 mg/kg and the calculated IESTIs for children up to 6 years range from 0 to 70% and those for general population from 0 to 50% of the ARfD. The Meeting concluded that the short-term intake of residues of methiocarb from uses considered by the current Meeting was unlikely to present a public health concern. The results are shown in Annex 4 of the 2005 JMPR Report.

REFERENCES

MR26879	Anonymous	1970	Anonymous. 1970. BAY 37344; cow; milk, Bayer CropScience AG, Report No.: MR26879, Edition Number: MO-99-007872, Unpublished
MR26848	Anonymous	1970	Anonymous. 1970. BAY 37344; bovine; tissues, Bayer CropScience AG, Report No.: MR26848, Edition Number: MO-99-007887, unpublished
0374-69	Anonymous	1971	Anonymous. 1971. H 321; 4 RB; lettuce; Great Britain; BBA, Bayer CropScience AG, Report No.: 0374-69, Edition Number: MO-02-001435, unpublished
0251-70	Anonymous	1971	Anonymous. 1971. H 321; 4 RB; lettuce; Germany; BBA, Bayer CropScience AG, Report No.: 0251-70, Edition Number: MO-02-001447, unpublished
0194-70	Anonymous	1971	Anonymous. 1971. H 321; 4 RB; lettuce; Germany; BBA, Bayer CropScience AG, Report No.: 0194-70, Edition Number: MO-02-001456, unpublished
0193-70	Anonymous	1971	Anonymous. 1971. H 321; 4 RB; lettuce; Germany; BBA, Bayer CropScience AG, Report No.: 0193-70, Edition Number: MO-02-001474, unpublished
0192-70	Anonymous	1971	Anonymous. 1971. H 321; 4 RB; lettuce; Germany; BBA, Bayer CropScience AG, Report No.: 0192-70, Edition Number: MO-02-001478, unpublished
0191-70	Anonymous	1971	Anonymous. 1971. H 321; 4 RB; lettuce; Germany; BBA, Bayer CropScience AG, Report No.: 0191-70, Edition Number: MO-02-001482, unpublished
0190-70	Anonymous	1971	Anonymous. 1971. H 321; 4 RB; lettuce; Germany; BBA, Bayer CropScience AG, Report No.: 0190-70, Edition Number: MO-02-001537, unpublished
0188-70	Anonymous	1971	Anonymous. 1971. H 321; 4 RB; lettuce; Germany; BBA, Bayer CropScience AG, Report No.: 0188-70, Edition Number: MO-02-001551, unpublished
MR49635	Anonymous	1976	Anonymous. 1976. Mesurol; poultry; tissues, eggs, Bayer CropScience AG, Report No.: MR49635, Edition Number: MO-99-007864, unpublished
2105/78	Anonymous	1978	Anonymous. 1978. H 321; 4 RB; cabbage, Savoy; Germany; BBA, Bayer CropScience AG, Report No.: 2105/78, Edition Number: MO-99-007748, unpublished
2104/78	Anonymous	1979	Anonymous. 1979. H 321; 4 RB; cabbage, Savoy; Germany; BBA, Bayer CropScience AG, Report No.: 2104/78, Edition Number: MO-99-007753, unpublished
2103/78	Anonymous	1979	Anonymous. 1979. H 321; 4 RB; cabbage, Savoy; Germany; BBA, Bayer CropScience AG, Report No.: 2103/78, Edition Number: MO-99-007757, unpublished
2107/80	Anonymous	1980	Anonymous. 1980. H 321; 4 RB; cabbage, white; Germany; BBA, Bayer CropScience AG, Report No.: 2107/80, Edition Number: MO-00-001128, unpublished
2108/80	Anonymous	1980	Anonymous. 1980. H 321; 4 RB; cabbage, white; Germany; BBA, Bayer CropScience AG, Report No.: 2108/80, Edition Number: MO-00-001129, unpublished

2109/80	Anonymous	1980	Anonymous. 1980. H 321; 4 RB; cabbage, white; Germany; BBA, Bayer CropScience AG, Report No.: 2109/80, Edition Number: MO-00-001131, unpublished
2101/80	Anonymous	1980	Anonymous. 1980. H 321; 4 RB; barley, spring; Germany; BBA, Bayer CropScience AG, Report No.: 2101/80, Edition Number: MO-99-007079, unpublished
2100/80	Anonymous	1980	Anonymous. 1980. H 321; 4 RB; barley, spring; Germany; BBA, Bayer CropScience AG, Report No.: 2100/80, Edition Number: MO-99-007081unpublished
2102/80	Anonymous	1980	Anonymous. 1980. H 321; 4 RB; barley, spring; Germany; BBA, Bayer CropScience AG, Report No.: 2102/80, Edition Number: MO-99-007077, unpublished
2113/80	Anonymous	1980	Anonymous. 1980. H 321; 4 GR; rape, summer; Germany; BBA, Bayer CropScience AG, Report No.: 2113/80, Edition Number: MO-99-007766, unpublished
2105/80	Anonymous	1980	Anonymous. 1980. H 321; 4 GR; rape, summer; Germany; BBA, Bayer CropScience AG, Report No.: 2105/80, Edition Number: MO-99-007775, unpublished
2104/80	Anonymous	1980	Anonymous. 1980. H 321; 4 GR; rape, summer; Germany; BBA, Bayer CropScience AG, Report No.: 2104/80, Edition Number: MO-99-007781, unpublished
2110/80	Anonymous	1981	Anonymous. 1981. H 321; 4 GB; cauliflower; Germany; BBA, Bayer CropScience AG, Report No.: 2110/80, Edition Number: MO-99-007619, unpublished
2111/80	Anonymous	1981	Anonymous. 1981. H 321; 4 GB; cauliflower; Germany; BBA, Bayer CropScience AG, Report No.: 2111/80, Edition Number: MO-99-007614, unpublished
2112/80	Anonymous	1981	Anonymous. 1981. H 321; 4 GB; cauliflower; Germany; BBA, Bayer CropScience AG, Report No.: 2112/80, Edition Number: MO-99-007603, unpublished
2105-81	Anonymous	1981	Anonymous. 1981. H 321; 4 GB; cauliflower; Germany; BBA, Bayer CropScience AG, Report No.: 2105-81, Edition Number: MO-99-007597, unpublished
2100-82	Anonymous	1982	Anonymous. 1982. H 321; 500 FS; maize; Germany; BBA, Bayer CropScience AG, Report No.: 2100-82, Edition Number: MO-99-007243, unpublished
2101-82	Anonymous	1982	Anonymous. 1982. H 321; 500 FS; maize; Germany; BBA, Bayer CropScience AG, Report No.: 2101-82, Edition Number: MO-99-007240, unpublished
2102-82	Anonymous	1982	Anonymous. 1982. H 321; 500 FS; maize; Germany; BBA, Bayer CropScience AG, Report No.: 2102-82, Edition Number: MO-99-007233, unpublished
2103-82	Anonymous	1982	Anonymous. 1982. H 321; 500 FS; maize; Germany; BBA, Bayer CropScience AG, Report No.: 2103-82, Edition Number: MO-99-007230, unpublished
2104-82	Anonymous	1982	Anonymous. 1982. H 321; 500 FS; maize; Germany; BBA, Bayer CropScience AG, Report No.: 2104-82, Edition Number: MO-99-007220, unpublished
2105-82	Anonymous	1982	Anonymous. 1982. H 321; 500 FS; maize; Germany; BBA, Bayer CropScience AG, Report No.: 2105-82, Edition Number:

			MO-99-007214, unpublished
2100-83	Anonymous	1983	Anonymous. 1983. H 321; 500 FS; maize; Germany; BBA, Bayer CropScience AG, Report No.: 2100-83, Edition Number: MO-01-010970, unpublished
2101-83	Anonymous	1983	Anonymous. 1983. H 321; 500 FS; maize; Germany; BBA, Bayer CropScience AG, Report No.: 2101-83, Edition Number: MO-01-010971, unpublished
2102-83	Anonymous	1983	Anonymous. 1983. H 321; 500 FS; maize; Germany; BBA, Bayer CropScience AG, Report No.: 2102-83, Edition Number: MO-01-010969, unpublished
2103-83	Anonymous	1983	Anonymous. 1983. H 321; 500 FS; maize; Germany; BBA, Bayer CropScience AG, Report No.: 2103-83, Edition Number: MO-01-010968, unpublished
2100-85	Anonymous	1986	Anonymous. 1986. H 321; 500 FS; pea; Germany; BBA, Bayer CropScience AG, Report No.: 2100-85, Edition Number: MO-99-007541, unpublished
2101-85	Anonymous	1986	Anonymous. 1986. H 321; 500 FS; pea; Germany; BBA, Bayer CropScience AG, Report No.: 2101-85, Edition Number: MO-99-007538, unpublished
2102-85	Anonymous	1986	Anonymous. 1986. H 321; 500 FS; pea; Germany; BBA, Bayer CropScience AG, Report No.: 2102-85, Edition Number: MO-99-007529, unpublished
2103-85	Anonymous	1986	Anonymous. 1986. H 321; 500 FS; pea; Germany; BBA, Bayer CropScience AG, Report No.: 2103-85, Edition Number: MO-99-007523, unpublished
2110-86	Anonymous	1986	Anonymous. 1986. H 321; 500 FS; pea; Germany; BBA, Bayer CropScience AG, Report No.: 2110-86, Edition Number: MO-99-007706, unpublished
2111-86	Anonymous	1986	Anonymous. 1986. H 321; 500 FS; pea; Germany; BBA, Bayer CropScience AG, Report No.: 2111-86, Edition Number: MO-99-007513, unpublished
2112-86	Anonymous	1986	Anonymous. 1986. H 321; 500 FS; pea; Germany; BBA, Bayer CropScience AG, Report No.: 2112-86, Edition Number: MO-99-007506, unpublished
2113-86	Anonymous	1986	Anonymous. 1986. H 321; 500 FS; pea; Germany; BBA, Bayer CropScience AG, Report No.: 2113-86, Edition Number: MO-99-007497, unpublished
2200-87	Anonymous	1988	Anonymous. 1988. H 321; 2 DP; hazelnut; Turkey; BBA, Bayer CropScience AG, Report No.: 2200-87, Edition Number: MO-99-007277, unpublished
2201-87	Anonymous	1988	Anonymous. 1988. H 321; 2 DP; hazelnut; Turkey; BBA, Bayer CropScience AG, Report No.: 2201-87, Edition Number: MO-99-007275, unpublished
2202-87	Anonymous	1988	Anonymous. 1988. H 321; 2 DP; hazelnut; Turkey; BBA, Bayer CropScience AG, Report No.: 2202-87, Edition Number: MO-99-007273, unpublished
2203-87	Anonymous	1988	Anonymous. 1988. H 321; 50 WP; hazelnut; Turkey; BBA, Bayer CropScience AG, Report No.: 2203-87, Edition Number: MO-99-007270, unpublished
2204-87	Anonymous	1988	Anonymous. 1988. H 321; 50 WP; hazelnut; Turkey; BBA, Bayer

			CropScience AG, Report No.: 2204-87, Edition Number: MO-99-007268, unpublished
0719-88	Anonymous	1989	Anonymous. 1989. H 321; 50 WP; pepper; Spain; BBA, Bayer CropScience AG, Report No.: 0719-88, Edition Number: MO-01-017169, unpublished
0720-88	Anonymous	1989	Anonymous. 1989. H 321; 50 WP; pepper; Spain; BBA, Bayer CropScience AG, Report No.: 0720-88, Edition Number: MO-01-017157, unpublished
0721-88	Anonymous	1989	Anonymous. 1989. H 321; 50 WP; tomato; Spain; BBA, Bayer CropScience AG, Report No.: 0721-88, Edition Number: MO-99-007579, unpublished
0722-88	Anonymous	1989	Anonymous. 1989. H 321; 50 WP; tomato; Spain; BBA, Bayer CropScience AG, Report No.: 0722-88, Edition Number: MO-99-007583, unpublished
0194-90	Anonymous	1992	Anonymous. 1992. H 321; 50 WP; pepper; Spain; BBA, Bayer CropScience AG, Report No.: 0194-90, Edition Number: MO-01-017149, unpublished
0195-90	Anonymous	1992	Anonymous. 1992. H 321; 50 WP; pepper; Spain; BBA, Bayer CropScience AG, Report No.: 0195-90, Edition Number: MO-01-017142, unpublished
0196-90	Anonymous	1992	Anonymous. 1992. H 321; 50 WP; pepper; Spain; BBA, Bayer CropScience AG, Report No.: 0196-90, Edition Number: MO-01-017135, unpublished
0210-90	Anonymous	1992	Anonymous. 1992. H 321; 50 WP; tomato; Spain; BBA, Bayer CropScience AG, Report No.: 0210-90, Edition Number: MO-99-007548, unpublished
0211-90	Anonymous	1992	Anonymous. 1992. H 321; 50 WP; tomato; Spain; BBA, Bayer CropScience AG, Report No.: 0211-90, Edition Number: MO-99-007558, unpublished
0212-90	Anonymous	1992	Anonymous. 1992. H 321; 50 WP; tomato; Spain; BBA, Bayer CropScience AG, Report No.: 0212-90, Edition Number: MO-99-007569, unpublished
0215-90	Anonymous	1992	Anonymous. 1992. H 321; 50 WP; cucumber; Spain; BBA, Bayer CropScience AG, Report No.: 0215-90, Edition Number: MO-01-016990, unpublished
0217-90	Anonymous	1992	Anonymous. 1992. H 321; 50 WP; cucumber; Spain; BBA, Bayer CropScience AG, Report No.:, Edition Number: MO-01-016989, unpublished
RA-2130/02	Bardel, P.	2004	Bardel, P. 2004. Determination of residues of methiocarb in/on winter rape following seed treatment with Mesurol 500 FS in the Field in Germany and Northern France, Bayer CropScience AG, Report No.: RA-2130/02, (Trial Nos.: 0683-02, 0684-02, 0685-02, 0686-02, R 2002 0683/6, R 2002 0684/4, R 2002 0685/2, R 2002 0686/0), Edition Number: MO-04-003644, unpublished
RA-2041/02	Bardel, P.	2004	Bardel, P. 2004. Determination of residues of methiocarb in/on summer rape following spread application of Mesurol-Schneckenkorn 4 RB (a.s. methiocarb) to summer rape plants in the field in Great Britain, Bayer CropScience AG, Report No.: RA-2041/02 (Trial Nos.: 0089-02, R 2002 0089/7), Edition Number: MO-04-003934, unpublished
RA-2004/97	Blass, W.	1998	Blass, W. 1998. Determination of residues of methiocarb on red cabbage and round cabbage after treatment with a Mesurol 500 SC

			formulation in the field in Benelux and in the Federal Republic of Germany (Amendment No.1), Bayer CropScience AG, Report No.: RA-2004/97 (Trial Nos.: 704431, 704458, 704466, 704474), Edition Number: MO-00-002965, unpublished
00014/M001/E009	Blass, W	1999	Blass, W. 1999. Supplement E009 of the residue analytical method no. 00014/M001 for the determination of residues of methiocarb as well as of methiocarb-sulfoxide and -sulfone in grapes (berries), Bayer CropScience AG, Report No.: 00014/M001/E009, Edition Number: MO-99-000823, Method Report No.: I 664, Method Report No.: MR-879/98, unpublished
00014/M001/E010	Blass, W.	1999	Blass, W. 1999. Supplement E010 of the residue method no. 00014/M001 for the determination of residues of methiocarb including the two metabolites methiocarb-sulfoxide and methiocarb-sulfone in melon (pulp and peel), Bayer CropScience AG, Report No.: 00014/M001/E010, Edition Number: MO-99-000815, Method Report No.: I 664, Method Report No.: MR-007/99, unpublished
LN24-93/2	Carlo, G. G.	1993	Carlo, G. G. 1993. Residues of methiocarb and its metabolites methiocarb sulfone and methiocarb sulfoxide in artichoke, Bayer CropScience AG, Report No.: LN24-93/2, Edition Number: MO-01-021897, unpublished
P/B 719 G	Class, T	2003	Class, T. 2003. Independent laboratory validation (ILV) of a multi-residue enforcement method for the determination of methiocarb, methiocarb sulfoxide, and methiocarb sulfone residues in plants (Bayer CropScience Enforcement method 00251), Bayer CropScience AG, Report No.: P/B 719 G, Edition Number: MO-03-015580, unpublished
RA-2156/98	Deissler, A. and Blass, W.	1999	Deissler, A. and Blass, W. 1999. Determination of residues of Mesurol 50 WP [A.S. methiocarb] in/on melon in the field in Spain, Italy and France, Bayer CropScience AG, Report No.: RA-2156/98 (Trial Nos.: 1299-98, 1600-98, 1601-98, 1602-98, 812994, 816000, 816019, 816027), Edition Number: MO-99-018643, unpublished
	FAO	2000	FAO. 2000, Pesticide residues in food - 1999, Evaluations 1999, Part 1 - Residues, FAO Plant Production and Protection Paper 157, pp. 531-601
RA-2189/01	Heinemann, O.and Preu, M.	2002	Heinemann, O.and Preu, M. 2002. Determination of residues of Mesurol 50 WP in/on onion after spray application in the field in Southern France, Spain and Portugal, Bayer CropScience AG, Report No.: RA-2189/01 (Trial Nos.: R 2001 0591/6, R 2001 0592/4, R 2001 0599/1, R 2001 0600/9), Edition Number: MO-02-005869, unpublished
RA-2046/01	Heinemann, O.and Preu, M	2002	Heinemann, O.and Preu, M. 2002. Determination of residues of Mesurol-schneckenkorn (4 RB) in/on sunflower after spread application in the field in Northern France, Bayer CropScience AG, Report No.: RA-2046/01(Trial Nos.: R 2001 0116/3, R 2001 0117/1), Edition Number: O-02-002581, unpublished
RA-2047/01	Heinemann, O.and Preu, M.	2002	Heinemann, O.and Preu, M. 2002. Determination of residues of Mesurol-Schneckenkorn (4 RB) in/on sunflower after spread application in the field in Southern France and Italy, Bayer CropScience AG, Report No.: RA-2047/01 (Trial Nos.: R 2001 0119/8, R 2001 0120/1), Edition Number: MO-02-002895, unpublished
RA-2036/94	Heinemann, O.and Seym, M.	1995	Heinemann, O.and Seym, M. 1995. Determination of residues of Mesurol 50 WP on cucumber following spray application in France, Bayer CropScience AG, Report No.: RA-2036/94 (Trial Nos.: 0144-94, 0145-94, 0146-94, 0147-94, 401447, 401455, 401463, 401471), Edition Number: MO-99-007251, unpublished

RA-2133/99	Neigl, A	2001	Neigl, A. 2001. Determination of residues of Methiocarb on tablegrape after spray application of Mesurol 50 WP in the field in Greece, Bayer CropScience AG, Report No.: RA-2133/99 (Trial Nos.: R 1999 0554/8), Edition Number: MO-01-012267, unpublished
RA-3133/99	Neigl, A.	2001	Neigl, A. 2001. Determination of residues of Methiocarb on tablegrape after spray application of Mesurol 50 WP in the field in Greece (wine) - processing study, Bayer CropScience AG, Report No.: RA-3133/99 (Trial Nos.: R 1999 0554/8), Edition Number: MO-01-012255, unpublished
RA-2181/98	Neigl, A.and Blass, W.	2000	Neigl, A.and Blass, W. 2000. Determination of residues of methiocarb on grape after spray application of Mesurol 50 WP in the field in Greece, Bayer CropScience AG, Report No.: RA-2181/98 (Trial Nos.: 817090, 817104), Edition Number: MO-00-005638, unpublished
RA-2129/00	Nuesslein, F.	2001	Nuesslein, F. 2001. Determination of residues of Draza 3 RB (a.s methiocarb) on potato in the field in the Federal Republic of Germany and Great Britain, Bayer CropScience AG, Report No.: RA-2129/00 (Trial Nos.: R 2000 0330/7, R 2000 0486/9, R 2000 0487/7, R 2000 0488/5), Edition Number: MO-01-016446, unpublished
RA-2002/00	Nuesslein, F.	2001	Nuesslein, F. 2001. Determination of residues of Mesurol-Schneckenkorn 4 RB (a.s. methiocarb) in/on red cabbage and round cabbage in the field in Belgium, France and Germany, Bayer CropScience AG, Report No.: RA-2002/00 (Trial Nos.: R 2000 0016/2, R 2000 0017/0, R 2000 0018/9, R 2000 0019/7), Edition Number: MO-01-017795, unpublished
RA-2001/00	Nuesslein, F.	2001	Nuesslein, F. 2001. Determination of residues of Mesurol-Schneckenkorn 4 RB (A.S. methiocarb) in/on Brussels sprouts in the field in the Netherlands, France, Great Britain and Germany, Bayer CropScience AG, Report No.: RA-2001/00 (Trial Nos.: R 2000 0011/1, R 2000 0013/8, R 2000 0014/6, R 2000 0015/4), Edition Number: MO-01-020804, unpublished
RA-2128/00	Nuesslein, F.	2001	Nuesslein, F. 2001. Determination of residues of Mesurol 500 SC (H 321) on cucumber following spray application in the greenhouse in the Netherlands, Bayer CropScience AG, Report No.: RA-2128/00 (Trial Nos.: 0499-00, R 2000 0499/0), Edition Number: MO-01-013687, unpublished
RA-2163/0	Nuesslein, F	2002	Nuesslein, F. 2002. Determination of residues of Draza 3 RB (A.S. Methiocarb) in/on potato following spread application in the field in Germany, Great Britain and Netherlands, Bayer CropScience AG, Report No.: RA-2163/01 (Trial Nos.: R 2001 0419/7, R 2001 0420/0, R 2001 0421/9, R 2001 0422/7), Edition Number: MO-02-012831, unpublished
RA-2180/01	Nuesslein, F.	2002	Nuesslein, F. 2002. Determination of Residues of methiocarb in/on cucumber following spray application of Mesurol 50 WP (H 321) to cucumber plants in the greenhouse in France and Portugal, Bayer CropScience AG, Report No.: RA-2180/01 (Trial Nos.: R 2001 0522/3, R 2001 0523/1), Edition Number: MO-02-015264, unpublished
RA-2048/01	Nuesslein, F.	2002	Nuesslein, F. 2002. Determination of residues of methiocarb, methiocarb-sulfone and methiocarb-sulfoxide in/on grape following spray application of Mesurol 50 WP in the field in Italy, Portugal, Spain, Greece and Southern France, Bayer CropScience AG, Report No.: RA-2048/01 (Trial Nos.: R 2001 0122/8, R 2001 0123/6, R 2001 0329/8, R 2001 0330/1, R 2001 0332/8), Edition Number: MO-02-018642, unpublished

RA-2132/00	Nuesslein, F.	2002	Nuesslein, F. 2002. Determination of residues of Mesurol-Schneckenkorn 4 RB (A.S. methiocarb) in/on spring barley and spring wheat in the field in Germany and France, Bayer CropScience AG, Report No.: RA-2132/00 (Trial Nos.: R 2000 0337/4, R 2000 0339/0, R 2000 0405/2, R 2000 0407/9), Edition Number: MO-02-003205, unpublished
RA-2133/00	Nuesslein, F.	2002	Nuesslein, F. 2002. Determination of residues of methiocarb, methiocarb-sulfone and methiocarb-sulfoxide in/on spring barley and spring wheat following spread application of Mesurol-Schneckenkorn (4 RB) in the Field in Greece, Portugal and Southern France, Bayer CropScience AG, Report No.: RA-2133/00 (Trial Nos.: R 2000 0338/2, R 2000 0340/4, R 2000 0406/0, R 2000 0408/7), Edition Number: MO-02-015283, unpublished
RA-2131/0	Nuesslein, F.	2002	Nuesslein, F. 2002. Determination of residues of Mesurol 500 FS (A.S. methiocarb) on corn following seed treatment in the field in Greece, Spain, France and Italy, Bayer CropScience AG, Report No.: RA-2131/00 (Trial Nos.: 0400-00, 0402-00, 0403-00, 0404-00, R 2000 0400/1, R 2000 0402/8, R 2000 0403/6, R 2000 0404/4), Edition Number: MO-02-001324, unpublished
RA-2130/00	Nuesslein, F.	2002	Nuesslein, F. 2002. Determination of residues of Mesurol 500 FS (A.S. methiocarb) on corn following seed treatment in the field in Germany and France, Bayer CropScience AG, Report No.: RA-2130/00 (Trial Nos.: 0335-00, 0336-00, R 2000 0335/8, R 2000 0336/6), Edition Number: MO-02-001985, unpublished
RA-2049/01	Nuesslein, F.	2002	Nuesslein, F. 2002. Determination of residues of Mesurol-Schneckenkorn 4 RB (A.S. Methiocarb) in/on corn following spread application in the field in Germany, Bayer CropScience AG, Report No.: RA-2049/01 (Trial Nos.: R 2001 0124/4, R 2001 0317/4), Edition Number: MO-02-013308, unpublished
RA-2050/01	Nuesslein, F.	2002	Nuesslein, F. 2002. Determination of residues of Mesurol-Schneckenkorn 4 RB (A.S. Methiocarb) in/on corn following spread application in the field in Italy and Spain, Bayer CropScience AG, Report No.: RA-2050/01 (Trial Nos.: R 2001 0125/2, R 2001 0318/2), Edition Number: MO-02-012823, unpublished
RA-2041/01	Nuesslein, F.	2003	Nuesslein, F. 2003. Determination of residues of methiocarb in/on winter rape following spread application of Mesurol-Schneckenkorn 4 RB (a.s. methiocarb) to winter rape plants in the field in Belgium, Bayer CropScience AG, Report No.: RA-2041/01 (Trial Nos.: 0107-01, R 2001 0107/4), Edition Number: MO-03-015293, unpublished
RA-2016/01	Nuesslein, F.	2004	Nuesslein, F. 2004. Determination of the residues of methiocarb in/on winter rape following seed treatment of Mesurol (500 FS) in Germany and Northern France, Bayer CropScience AG, Report No.: RA-2016/01 (Trial Nos.: 0058-01, 0313-01, 0316-01, R 2001 0058/2, R 2001 0313/1, R 2001 0316/6), Edition Number: MO-04-001763, unpublished
RA-2017/01	Nuesslein, F.	2004	Nuesslein, F. 2004. Determination of residues of methiocarb in/on winter rape following seed treatment of Mesurol 500 FS in the field in Southern France, Bayer CropScience AG, Report No.: RA-2017/01 (Trial Nos.: 0059-01, 0130-01, R 2001 0059/0, R 2001 0130/9), Edition Number: MO-04-001751, unpublished
RA-2040/01	Nuesslein, F.	2004	Nuesslein, F. 2004. Determination of the residues of methiocarb in/on winter rape after spreading of Mesurol-Schneckenkorn (4 RB) in Southern France, Sweden and Germany, Bayer CropScience AG, Report No.: RA-2040/01 (Trial Nos.: 0105-01, 0106-01, 0413-01,

			0414-01, R 2001 0105/8, R 2001 0106/6, R 2001 0413/8, R 2001 0414/6), Edition Number: MO-04-001772, unpublished
00616,	Preu, M.	2001	Preu, M. 2001. Analytical determination of residues of methiocarb, methiocarb-sulfoxide and methiocarb-sulfone in/on plant materials by HPLC-MS/MS, Bayer CropScience AG, Report No.: 00616, Edition Number: MO-01-015466, Method Report No.: MR-692/99, unpublished
00616/E002	Preu, M.	2001	Preu, M. 2001. Supplement E002 to the analytical method 00616 for the determination of residues of methiocarb, methiocarb-sulfone and methiocarb-sulfoxide in/on cucumber (fruit), tomato (fruit), and pepper (fruit) by HPLC-MS/MS, Bayer CropScience AG, Report No.: 00616/E002, Edition Number: MO-01-012411, Method Report No.: MR-189/01, unpublished
00616/E001	Preu, M.	2001	Preu, M. 2001. Supplement E001 to the analytical method 00616 for the determination of residues of methiocarb, methiocarb-sulfone and methiocarb-sulfoxide in/on plant materials and pollen by HPLC-MS/MS, Bayer CropScience AG, Report No.: 00616/E001, Edition Number: MO-01-021105, Method Report No.: MR-134/01, unpublished
MR-451/01	Preu, M.	2002	Preu, M. 2002. Storage stability of methiocarb, methiocarb-sulfoxide and methiocarb-sulfone in/on canola (seed), grapes (bunch of grapes), potato (tuber) and field pea (seed) during freezer storage for 24 months, Bayer CropScience AG, Report No.: MR-451/01, Edition Number: MO-02-017193, unpublished
RA-2042/01	Preu, M.	2002	Preu, M. 2002. Determination of residues of methiocarb in/on sugar beet following spread application of Mesurol-Schneckenkorn 4 RB (a.s. methiocarb) to sugar beet plants in Germany, Bayer CropScience AG, Report No.: RA-2042/01 (Trial Nos.: R 2001 0109/0, R 2001 0110/4), Edition Number: MO-02-013759, unpublished
RA-2043/01	Preu, M.	2002	Preu, M. 2002. Determination of residues of methiocarb in/on sugar beet following spread application of Mesurol-Schneckenkorn 4 RB to sugar beet plants in the field in Italy and Spain, Bayer CropScience AG, Report No.: RA-2043/01 (Trial Nos.: R 2001 0111/2, R 2001 0112/0), Edition Number: MO-02-016154, unpublished
RA-2053/01	Preu, M.	2002	Preu, M. 2002. Determination of residues of methiocarb in/on artichoke following spread application of Mesurol-Schneckenkorn 4RB (a.s. methiocarb) to artichoke plants in the field in Italy and Southern France, Bayer CropScience AG, Report No.: RA-2053/01 (Trial Nos.: R 2001 0132/5, R 2001 0312/3), Edition Number: MO-02-014733, unpublished
RA-2186/01	Preu, M.	2002	Preu, M. 2002. Determination of residues of methiocarb in/on tomato following spray application of Mesurol 50 WP (a.s. methiocarb) to tomato plants in the greenhouse in Germany and Greece, Bayer CropScience AG, Report No.: RA-2186/01 (Trial Nos.: R 2001 0587/8, R 2001 0593/2, R 2001 0594/0), Edition Number: MO-02-014754, unpublished
RA-2042/02	Preu, M.	2003	Preu, M. 2003. Determination of residues of methiocarb in/on sugar beet following spread application of Mesurol-Schneckenkorn 4 RB to sugar beet plants in the field in Germany, Northern France and Great Britain, Bayer CropScience AG, Report No.: RA-2042/02 (Trial Nos.: 0161-02, 0487-02, 0488-02, 0489-02, 0490-02, 0491-02, R 2002 0161/3, R 2002 0487/6, R 2002 0488/4, R 2002 0489/2, R 2002 0490/6, R 2002 0491/4), Edition Number: MO-03-010051, unpublished
RA-2189/02	Preu, M.	2003	Preu, M. 2003. Determination of residues of Methiocarb in/on onion

			following spray application of Mesurol 50 WP to onion plants in the field in Southern France, Spain, Greece and Portugal, Bayer CropScience AG, Report No.: RA-2189/02 (Trial Nos.: 0202-02, 0203-02, 0267-02, 0268-02, R 2002 0202/4, R 2002 0203/2, R 2002 0267/9, R 2002 0268/7), Edition Number: MO-03-006822, unpublished
RA-2039/01	Preu, M.	2003	Preu, M. 2003. Determination of residues of methiocarb in/on spring wheat following spread application of Mesurol-Schneckenkorn 4 RB in the field in Southern France and Portugal, Bayer CropScience AG, Report No.: RA-2039/01 (Trial Nos.: 0102-01, 0103-01, R 2001 0102/3, R 2001 0103/1), Edition Number: MO-03-004009, unpublished
RA-2038/01	Preu, M.	2003	Preu, M. 2003. Determination of residues of methiocarb in/on spring wheat and spring barley following spread application of Mesurol-Schneckenkorn 4 RB in the field in Germany and Northern France, Bayer CropScience AG, Report No.: RA-2038/01 (Trial Nos.: 0100-01, 0101-01, R 2001 0100/7, R 2001 0101/5), Edition Number: MO-03-004002, unpublished
RA-2036/01	Preu, M.	2003	Preu, M. 2003. Determination of residues of methiocarb in/on spring barley following spread application of Mesurol-Schneckenkorn 4 RB in the field in Southern France and Italy, Bayer CropScience AG, Report No.: RA-2036/01 (Trial Nos.: 0096-01, 0097-01, R 2001 0096/5, R 2001 0097/3), Edition Number: MO-03-005137, unpublished
RA-2035/0	Preu, M.	2003	Preu, M. 2003. Determination of residues of methiocarb in/on spring barley following spread application of Mesurol-Schneckenkorn 4 RB in the field in Germany, Bayer CropScience AG, Report No.: RA-2035/01 (Trial Nos.: 0094-01, 0095-01, R 2001 0094/9, R 2001 0095/7), Edition Number: MO-03-002758, unpublished
RA-2014/01	Preu, M.and Eberhardt, R.	2002	Preu, M.and Eberhardt, R. 2002. Determination of residues of Mesurol (500 FS) following seed treatment in/on corn in the field in Germany, Northern France and Belgium, Bayer CropScience AG, Report No.: RA-2014/01 (Trial Nos.: 0052-01, 0127-01, 0319-01, 0320-01, 0321-01, 0322-01, R 2001 0052/3, R 2001 0127/9, R 2001 0319/0, R 2001 0320/4, R 2001 0321/2, R 2001 0322/0), Edition Number: MO-02-001720, unpublished
RA-2015/01	Preu, M.and Eberhardt, R.	2002	Preu, M.and Eberhardt, R. 2002. Determination of residues of Mesurol (500 FS) following seed treatment in/on corn in the field in Italy, Spain, Greece and Southern France, Bayer CropScience AG, Report No.: RA-2015/01 (Trial Nos.: 0053-01, 0323-01, 0324-01, 0325-01, R 2001 0053/1, R 2001 0323/9, R 2001 0324/7, R 2001 0325/5), Edition Number: MO-02-002307, unpublished
RA-2140/99	Schoening, R.and Sur, R.	2001	Schoening, R.and Sur, R. 2001. Determination of residues of Mesurol-Schneckenkorn 4 RB (A.S. methiocarb) on red cabbage and round cabbage in the field in Germany, Great Britain and Netherlands, Bayer CropScience AG, Report No.: RA-2140/99 (Trial Nos.: R 1999 0577/7, R 1999 0578/5, R 1999 0579/3, R 1999 0580/7), Edition Number: MO-01-010876, unpublished
RA-2139/99	Schoening, R.and Sur, R.	2001	Schoening, R.and Sur, R. 2001. Determination of residues of Mesurol-Schneckenkorn 4 RB (A.S. methicarb) on Brussels sprouts in the field in Belgium, Great Britain, France and Germany, Bayer CropScience AG, Report No.: RA-2139/99 (Trial Nos.: R 1999 0569/6, R 1999 0571/8, R 1999 0572/6, R 1999 0573/4), Edition Number: MO-01-010824, unpublished
RA-2169/99	Schoening, R.and Sur, R.	2001	Schoening, R.and Sur, R. 2001. Determination of residues of Mesurol-Schneckenkorn 4 RB (A.S. methiocarb) in/on winter rape in the field in Belgium, France, Great Britain and in Germany, Bayer CropScience AG, Report No.: RA-2169/99 (Trial Nos.: R 1999

			0711/7, R 1999 0712/5, R 1999 0713/3, R 1999 0714/1), Edition Number: MO-01-012756, unpublished
RA-2039/91	Seym, M.	1993	Seym, M. 1993. Determination of residues of Draza 4 RB in/on spring wheat under actual use conditions in Great Britain, Bayer CropScience AG, Report No.: RA-2039/91 (Trial Nos.: 0170-91, 0171-91, 101702, 101710), Edition Number: MO-99-007100, unpublished
RA-2085/93	Seym, M.	1994	Seym, M. 1994. Determination of residues of Mesurol 500 SC and Mesurol 50 WP in/on leek under actual use conditions in the Netherlands and France, Bayer CropScience AG, Report No.: RA-2085/93 (Trial Nos.: 0071-93, 0101-93, 0408-93, 0409-93, 300713, 301019, 304085, 304093), Edition Number: MO-99-007434, unpublished
RA-2070/94	Seym, M.	1995	Seym, M. 1995. Determination of residues of Mesurol 50 WP and Mesurol 500 SC in/on leek in France and the Netherlands, Bayer CropScience AG, Report No.: RA-2070/94 (Trial Nos.: 0149-94, 0150-94, 0301-94, 0302-94, 401498, 401501, 403016, 403024), Edition Number: MO-99-007427, unpublished
RA-2087/9	Seym, M.	1997	Seym, M. 1997. Determination of residues of Mesurol 50 WP on pepper, melon and tomato in Portugal and Spain, Bayer CropScience AG, Report No.: RA-2087/93 (Trial Nos.: 304344, 304352, 304360, 304379, 304387, 304395, 304409, 304425, 304433), Edition Number: MO-99-007130, unpublished
RA-2038/91	Seym, M.and Walz-Tylla, B.	1993	Seym, M.and Walz-Tylla, B. 1993. Determination of residues of Draza 4.0 RB in/on potato under actual use conditions in Great Britain, Bayer CropScience AG, Report No.: RA-2038/91 (Trial Nos.: 0172-91, 0173-91, 101729, 101737), Edition Number: MO-99-007124, unpublished
RA-2103/91	Seym, M.and Walz-Tylla, B.	1993	Seym, M.and Walz-Tylla, B. 1993. Determination of residues of Mesurol 50 WP in/on paprica under actual use conditions in Spain, Bayer CropScience AG, Report No.: RA-2103/91 (Trial Nos.: 0203-91, 0205-91, 102032, 102059), Edition Number: MO-02-001870, unpublished
49639	Strankowski, K. J.and Minor, R. G.	1976	Strankowski, K. J.and Minor, R. G. 1976. Effects of feeding Mesurol/Mesurol sulfoxide (9:1) to chickens for 28 days, Bayer CropScience AG, Report No.: 49639, Edition Number: MO-99-006952, unpublished
RA-2157/96	Walz-Tylla, B.	1998	Walz-Tylla, B. 1998. Determination of residues of Mesurol 500 SC in/on round and red cabbage following spray application in the field in the Netherlands, Bayer CropScience AG, Report No.: RA-2157/96 (Trial Nos.: 605794, 605808, 607851), Edition Number: MO-99-007710, unpublished
RA-2156/96	Walz-Tylla, B.and Deissler, A.	1998	Walz-Tylla, B.and Deissler, A. 1998. Determination of residues of Mesurol 50 WP in/on leek in the field in France, Bayer CropScience AG, Report No.: RA-2156/96 (Trial Nos.: 0582-96, 0583-96, 0770-96, 0771-96, 605824, 605832, 607703, 607711), Edition Number: MO-99-007407, unpublished
RA-2155/96	Walz-Tylla, B.and Deissler, A.	1998	Walz-Tylla, B.and Deissler, A. 1998. Determination of residues of Mesurol 50 WP in/on melon in the field in France, Bayer CropScience AG, Report No.: RA-2155/96 (Trial Nos.: 0584-96, 0585-96, 0768-96, 605840, 605859, 607681), Edition Number: MO-99-007067, unpublished
RA-2042/03	Zimmer, D.	2004	Zimmer, D. 2004. Determination of the residues of methiocarb in/on sugar beet after spreading of Mesurol-Schneckenkorn RB 2 (2 GR) to sugar beet plants in the field in France, Germany and Great Britain, Bayer CropScience AG, Report No.: RA-2042/03 (Trial

Nos.: 0297-03, 0567-03, 0568-03, 0569-03, R 2003 0297/5, R 2003 0567/2, R 2003 0568/0, R 2003 0569/9), Edition Number: MO-04-005672, unpublished

CROSS REFERENCES

Authors	Trial Number
Bardel, P. 2004	0683-02
	0684-02
	0685-02
	0686-02
	R 2002 0683/6
	R 2002 0684/4
	R 2002 0685/2
	R 2002 0686/0
Bardel, P. 2004	0089-02
	R 2002 0089/7
Blass, W. 1998	704431
	704458
	704466
	704474
Deissler, A.and Blass, W. 1999	1299-98
	1600-98
	1601-98
	1602-98
	812994
	816000
	816019
	816027
Heinemann, O.and Preu, M. 2002	R 2001 0591/6
	R 2001 0592/4
	R 2001 0599/1
	R 2001 0600/9
Heinemann, O.and Preu, M. 2002	R 2001 0116/3
	R 2001 0117/1
Heinemann, O.and Preu, M. 2002	R 2001 0119/8
	R 2001 0120/1
Neigl, A. 2001	R 1999 0554/8
Neigl, A.and Blass, W. 2000	817090
	817104
Nuesslein, F. 2001	R 2000 0011/1
	R 2000 0013/8
	R 2000 0014/6
	R 2000 0015/4
Nuesslein, F. 2001	R 2000 0016/2
	R 2000 0017/0
	R 2000 0018/9
	R 2000 0019/7
Nuesslein, F. 2001	R 2000 0330/7
	R 2000 0486/9
	R 2000 0487/7
	R 2000 0488/5
Nuesslein, F. 2002	R 2000 0337/4
	R 2000 0339/0
	R 2000 0405/2
	R 2000 0407/9
Nuesslein, F. 2002	R 2000 0338/2
	R 2000 0340/4
	R 2000 0406/0
	R 2000 0408/7
Nuesslein, F. 2002	0335-00
	0336-00
	R 2000 0335/8
	R 2000 0336/6
Nuesslein, F. 2002	0400-00
	0402-00
	0403-00
	0404-00
	R 2000 0400/1
	R 2000 0402/8
	R 2000 0403/6
	R 2000 0404/4
Nuesslein, F. 2002	R 2001 0122/8
	R 2001 0123/6
	R 2001 0329/8
	R 2001 0330/1
	R 2001 0332/8
Nuesslein, F. 2002	R 2001 0124/4
	R 2001 0317/4
Nuesslein, F. 2002	R 2001 0125/2
	R 2001 0318/2
Nuesslein, F. 2002	R 2001 0419/7
	R 2001 0420/0
	R 2001 0421/9
	R 2001 0422/7
Nuesslein, F. 2003	0107-01
	R 2001 0107/4
Nuesslein, F. 2004	0058-01
	0313-01
	0316-01
	R 2001 0058/2
	R 2001 0313/1
	R 2001 0316/6
Nuesslein, F. 2004	0059-01
	0130-01
	R 2001 0059/0
	R 2001 0130/9

Nuesslein, F. 2004	0105-01
	0106-01
	0413-01
	0414-01
	R 2001 0105/8
	R 2001 0106/6
	R 2001 0413/8
	R 2001 0414/6
Preu, M. 2002	R 2001 0109/0
	R 2001 0110/4
Preu, M. 2002	R 2001 0111/2
	R 2001 0112/0
Preu, M. 2002	R 2001 0132/5
	R 2001 0312/3
Preu, M. 2003	0096-01
	0097-01
	R 2001 0096/5
	R 2001 0097/3
Preu, M. 2003	0100-01
	0101-01
	R 2001 0100/7
	R 2001 0101/5
Preu, M. 2003	0102-01
	0103-01
	R 2001 0102/3
	R 2001 0103/1
Preu, M. 2003	0202-02
	0203-02
	0267-02
	0268-02
	R 2002 0202/4
	R 2002 0203/2
	R 2002 0267/9
	R 2002 0268/7
Preu, M. 2003	0094-01
	0095-01
	R 2001 0094/9
	R 2001 0095/7
Preu, M. 2003	0161-02
	0487-02
	0488-02
	0489-02
	0490-02
	0491-02
	R 2002 0161/3
	R 2002 0487/6
	R 2002 0488/4
	R 2002 0489/2
	R 2002 0490/6
	R 2002 0491/4
Preu, M.and Eberhardt, R. 2002	0052-01
	0127-01
	0319-01
	0320-01
	0321-01
	0322-01
	R 2001 0052/3
	R 2001 0127/9
	R 2001 0319/0
	R 2001 0320/4
	R 2001 0321/2
	R 2001 0322/0
Preu, M.and Eberhardt, R. 2002	0053-01
	0323-01
	0324-01
	0325-01
	R 2001 0053/1
	R 2001 0323/9
	R 2001 0324/7
	R 2001 0325/5
Schoening, R.and Sur, R. 2001	R 1999 0569/6
	R 1999 0571/8
	R 1999 0572/6
	R 1999 0573/4
Schoening, R.and Sur, R. 2001	R 1999 0577/7
	R 1999 0578/5
	R 1999 0579/3
	R 1999 0580/7
Schoening, R.and Sur, R. 2001	R 1999 0711/7
	R 1999 0712/5
	R 1999 0713/3
	R 1999 0714/1
Seym, M. 1993	0170-91
	0171-91
	101702
	101710
Seym, M. 1994	0071-93
	0101-93
	0408-93
	0409-93
	300713
	301019
	304085
	304093
Seym, M. 1995	0149-94
	0150-94
	0301-94
	0302-94
	401498
	401501
	403016
	403024

Seym, M. 1997	304344
	304352
	304360
	304379
	304387
	304395
	304409
	304425
	304433
Seym, M.and Walz-Tylla, B. 1993	0172-91
	0173-91
	101729
	101737
Seym, M.and Walz-Tylla, B. 1993	0203-91
	0205-91
	102032
	102059
Walz-Tylla, B. 1998	605794
	605808
	607851
Walz-Tylla, B.and Deissler, A. 1998	0582-96
	0583-96
	0770-96
	0771-96
	605824
	605832
	607703
	607711
Walz-Tylla, B.and Deissler, A. 1998	0584-96
	0585-96
	0768-96
	605840
	605859
	607681
Zimmer, D. 2004	0297-03
	0567-03
	0568-03
	0569-03
	R 2003 0297/5
	R 2003 0567/2
	R 2003 0568/0
	R 2003 0569/9