PYRACLOSTROBIN (210)

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EXPLANATION

The first evaluation of pyraclostrobin residues was carried out by the 2004 JMPR, when maximum residue levels were recommended for a large number of fruits, vegetables, cereals and products of animal origin. The residue was defined as pyraclostrobin for commodities of plant and animal origin.

Due to insufficient number of trials or registered uses no maximum residue levels could be estimated for apple, beans, coffee, cucumber, head lettuce, peppers, raspberry and soybean. Further information and results of supervised trials conducted with these commodities were submitted for evaluation to this Meeting.

Furthermore, trial data for a number of additional crops including broccoli, Brussels sprouts, cauliflower, head cabbage, hops, kale, leek, cantaloupe, sunflower and vining peas were provided for evaluation.

The Meeting evaluated the new data together with those included in the 2004 evaluation. The relevant data reported by the 2004 JMPR are also listed in this evaluation for convenience.

USE PATTERN

Pyraclostrobin is used as fungicide with foliar application alone or in combination with other active substances (e.g., boscalid is a new fungicide that extended the scope of the use of pyraclostrobin). Information provided on registered uses (Regenstein 2006/1009448, Bross M., Mackenroth C. 2005/1023124) on crops evaluated by the Meeting is summarized in Tables 1 and 2.

Table 1. Registered uses in Europe (mix formulation: BAS 516 07 F, WG 6.7% ai for foliar application by spraying).

Crop	Country	Application rate per treatment					PHI (days)	Total amount within a season [kg ai/ha]
		Number min max	Interval between applications (days)	kg ai/hL min max	water L/ha min max	kg ai/ha min max		
Apple[1]	Belgium	3	7-12	0.022	300	0.067	7	
Beans, dry	Denmark	2	14-21	0.017-0.033	200-400	0.067	21	0.134
Broccoli	Denmark	3	14-21	0.023	300	0.067	14	
Broccoli	Germany	3	14-28	0.011-0.017	400-600	0.067	14	
Brassica[2]	UK	3				0.067	14	0.201
Brussels sprout	Cyprus	2	8-12	0.007	1000	0.067	14	0.134
Brussels sprout	UK	3	21 - 28	0.007 - 0.04	200 - 1000	0.067	14	0.201
Brussels sprouts	Denmark	3	14-21	0.023	300	0.067	14	
Brussels sprouts	Germany	3	14-28	0.011-0.017	400-600	0.067	14	
Cabbage	Belgium	3	21 – 28 (7 - 14)*	0.017	400	0.067	14	0.201
Cabbage	Cyprus	2	8 - 12	0.007	1000	0.067	14	0.134
Cabbage	Nether-lands	3	14	0.033 -0.067	200-400	0.067	14	0.201
Cabbage	Nether-lands	3	21 - 28	0.033 -0.067	200-400	0.067	14	0.201
Cabbage	UK	3	21 - 28	0.007 - 0.04	200 - 1000	0.067	14	0.201
Cabbages	Poland	3	7 - 10	0.008 - 0.011	600 - 800	0.050 - 0.067	14	0.150 - 0.201
Cauliflower	Cyprus	2	8 - 12	0.007	1000	0.067	14	0.135
Cauliflower	UK	3	21 - 28	0.007 - 0.033	200 - 1000	0.067	14	0.135
Hops[1]	France	3	8-14	0.01-0.042	600-2700	0.057-0.252	21	

Crop	Country	Application rate per treatment					PHI (days)	Total amount within a season [kg ai/ha]
		Number min max	Interval between applications (days)	kg ai/hL min max	water L/ha min max	kg ai/ha min max		
Leek	Belgium	3	21 - 28 (10 - 14)*	0.017	400	0.100	14	0.400
Leek	Netherlands	2-3	10 - 14	0.025 -0.040	250-400	0.100	14	0.200
Lettuce	Belgium	2	14 - 21	0.013	500	0.100	14	0.200
Lettuce (outdoor and protected)	UK	2	10 - 14	0.007 - 0.033	200 - 900	0.100	14	0.200
Pepper	Italy	3	7-10	0.007-0.01		0.067-0.1	3	
Pome fruit	Belgium	3	7-12	0.022	300	0.067	7	
Pome fruit[1]	France	4	8-14	0.01	1000	0.1	7	4
Pome fruit[1]	Greece	4	10-14	0.006-0.01	1000-1500	0.1	7	4
Pome fruit[1]	Italy	3	8-14	0.0067	1500	0.1	7	3
Pome fruit[1],[4]	Italy	1-2	7-14	0.0033	1500	0.1	7	1-2
Pome fruit[1]	Netherlands	4	7-12	0.007-0.01	1000-1500	0.1	7	4
Pome fruit[1]	UK	4	10-14	0.007-0.067	300-1500	0.1	7	4
Root vegetables[5]	UK	2				0.100	21	0.200
Solanaceae (Tomato)	Poland	3	7 - 10	0.008 - 0.017	600 - 800	0.067– 0.10	3	0.200 – 0.300
Tomato	Italy							
Spelt[6]	Belgium	2				0.027	2	
	Luxemburg	2				0.027	2	
Stonefruit[7]	Hungary	2 - 3	7 - 10	0.017	400	0.05-0.07	7	0.200
Stonefruit[7]	Italy	3	7 - 14			0.04-0.06	3	0.200
Strawberry[8]	Belgium	2	7 - 10	0.012	1000	0.120	3	0.240
Strawberry	Cyprus	2	8 - 12	0.012	1000	0.120	3	0.240
Strawberry	Netherlands	4	7	0.020 -0.04	300-600	0.120	3	0.480
Strawberry[9]	Poland	2		0.024	1200– 500	0.120	3	0.480
Strawberry (outdoor)	UK	2	7 - 10	0.006 - 0.012	1000 - 2000	0.120	3	0.240
Strawberry (protected)[10]	UK	2				0.120	3	0.240
Vining peas[6]	France	2				0.1	35	2

1. WG formulation containing 12.8% active ingredient in combination with boscalid 25.2%
2. Outdoor crops of kale, collards (including spring greens), Chinese cabbage, leafy brassica crops grown for baby leaf production (i.e. crops harvested up to 8 true leaf stage), pak choi and komatsuna
3. Leaf herbs (outdoor and protected), leafy brassica crops (protected) grown for baby leaf production (i.e. harvested up to 8 true leaf stage)
4. Storage disease control
5. Parsnip, horseradish; both outdoor
6. SE formulation with 133g ai/L
7. Plums cherries, apricots, peaches, nectarines
8. Both F and G
9. Using pressure sprayer with field beam; 500 – 700 L/ha using beam “Fragraria III” or fan sprayer.
10. G

Table 2. Registered uses of pyraclostrobin outside of Europe.

Crop	Country	Formulation		Application					PHI day
		Type	Conc.	No	Interval	Rate kg/hL	Water L/ha	Rate kg ai/ha	
Apple	Brazil	EC	250g/L	4	7-14	0.010	1000	0.100	14
Beans, dry	Canada	EC	250 g/L	2	10-14	0.1	100	0.1	
Beans, dry	USA	EG	20%	2	7-14			0.169	21
Bell pepper	USA	WG	20%	6	7-14			0.224	0
Blackberry	USA	WG	20%	4	7-14			0.196	0
Blueberry	USA	WG	20%	4	7-14			0.196	0
Brassica head and	USA	WG	20%	4	7-14			0.21-0.28	0

Crop	Country	Formulation		Application					PHI day
		Type	Conc.	No	Interval	Rate kg/hL	Water L/ha	Rate kg ai/ha	
stem vegetables									
Brassica leafy vegetables	USA	WG	20%	4	7-10			0.21-0.28	3
Cantaloupe	USA	WG	20%	4	7-10			0.224	0
Chilli pepper	USA	WG	20%	6	7-14			0.224	0
Coffee	Brazil	EC	250g/L	2	60	0.040	500	0.15-0.2	45
Coffee	Brazil	SE	133g/L	2	90	0.040	500	0.2	45
Cucumber	USA	WG	20%	4	7-14			0.224	0
Cucumber	Brazil	EC	250g/L	4	7-14	0.01	1000	0.100	7
Cucurbits	Canada	WG	20%	4	7-14	0.05-0.07	350	0.112-0.168	3
Cucurbits	USA	EG	20%		7-14			0.168	3
Eggplant	USA	WG	20%	6	7-14			0.224	0
Fruiting vegetables	Canada	WG	20%	6	7-14	0.05-0.08	225	0.112-0.2	0
Fruiting vegetables	USA	EG	20%	6	7-		225	0.2	0
Leafy vegetables except brassicas	USA	EG	20%	4	7-14			0.17-0.23	0
Leek	USA	WG	20%	6	14			0.168	7
Pepper red	Korea	WG	6.3%	3	10	0.006	1500	0.095	7
Pepper red	Brazil	EC	250g/L	3	10	0.01	500-1000	0.1	3
Pome fruit	USA	WG	20%	4	7-10			0.16-0.21	0
Raspberry	USA	WG	20%	4	7-14			0.196	0
Snap beans	USA	WG	20%	2	7-14			0.087-0.13	7
Soybean	Argentina	EC	250g/L	1		0.025	200	0.050	15
Soybean	Brazil	EC	250g/L	2	15	0.03	300	0.09-0.1	14
Soybean[1]	USA	EC	250g/L	2	7-21			0.21-0.42	21
Stone fruits	Canada	WG	20%	5	7-14	0.013	1000	0.134	10
Stone fruits	USA	WG	20%	5	7-14			0.134	0
Sunflower	USA	EC	250g/L	2	7-14			0.21-0.42	21
Tomato	USA	WG	20%	6	7-14			0.224	0
Tomato	USA	WG	6.3%	5	7-14			0.36	4

1. Do not feed forage before 14 days after application.

RESIDUES RESULTING FROM SUPERVISED TRIALS

The composition of the formulations which were used in the residue trials (Regenstein 2006/1009448) are described in Table 3.

Table 3. Formulations used in residue trials.

BAS-Code	Type	ai	Other active substances		Use
BAS 500 00 F	EC	250 g/L	none		Grapes
BAS 500 01 F	EC	250 g/L	none		Cereals
BAS 500 02 F	WG	20%	none		
BAS 512 00 F	SE	133 g/L	epoxiconazole	50 g/L	Cereals
BAS 513 00 F	SE	133 g/L	Epoxiconazole; kresoxim-methyl	50 g/L 67 g/L	Cereals
BAS 518 01 F	WG	5%	metiram	55%	Grapes and vegetables
BAS 516 00 F	WG	6.7%	boscalid	26.7%	Fruit and vegetables
BAS 516 01 F	SE	100 g/L	boscalid	200 g/L	
BAS 516 04 F	WG	12.8%	boscalid	25.3%	
BAS 516 GA F	WG	6.7%	boscalid	50 g/L	
BAS 518 00 F	WG	5%	metiram	55%	Grapes
BAS 528 00 F	EC	100 g/L	fenpropimorph	375 g/L	Cereals
BAS 529 00 F	SE	114.3 g/L	fenpropimorph,	214 g/L	Cereals

BAS-Code	Type	ai	Other active substances		Use
			epoxiconazole	43 g/L	
BAS 531 00 F	SE	100 g/L	fenpropimorph, epoxiconazole, quinoxyfen	187.5 g/L, 37.5 g/L, 37.5 g/L	Cereals
BAS 533 00 F	SE	133 g/L	epoxiconazole, quinoxyfen	50 g/L, 50 g/L	Cereals
BAS 536 00 F	WG	6.7%	dimethomorph	12%	Grapes[1]
BAS 537 00 F	SE	40 g/L	folpet	400 g/L	Grapes

1. No longer supported by BASF

The meeting reviewed information on supervised trials for the following crops:

Table No(s)	Crop	Page
4,5	Apple	4
8	Broccoli	10
9	Brussels sprouts	12
10	Cabbage, head	14
13	Cantaloupe	17
8	Cauliflower	10
28	Coffee	31
11,12	Cucumber	16
29	Hops	31
19	Kale	23
7	Leek	8
20-22	Lettuce, head	23
14, 15,17	Pepper	18
6	Raspberry	8
23	Snap beans	26
25, 26	Soybean	28
27	Sunflower	30
16, 18	Tomato	18
24	Vining peas	27

The samples were analysed with analytical methods based on LC/MS/MS detection providing an LOQ of 0.02 mg/kg (Jones J., 2001, D9908, Benz A. 2000BASF 445/0). The methods are described in detail in the 2004 Evaluations (FAO 2005). The applicability of the methods was confirmed with concurrent recovery tests in each study. The average recoveries were typically between 80 and 99% for pyraclostrobin and 500M07.

No interference of plant matrices was observed in most of the studies. Where low levels of apparent residues were detected, they were taken into consideration.

The storage intervals of samples from sampling to analysis were within the period covered by the storage stability tests reported by the 2004 JMPR.

The total residue was calculated as the sum of the parent pyraclostrobin and the major metabolite 500M07 [BF500-3, methyl-N-[[[1-(4-chlorophenyl)-pyrazol-3-yl]oxy]-o-tolyl]carbamate] and expressed as parent pyraclostrobin in this evaluation.

Apple

During the 2000 and 2001 growing seasons, four studies (Raunft E., BASF 2001/1006135 2001/1015029, and Schulz H., BASF2001/1000946 and 2001/1015046) with a total of 18 field trials were conducted in different representative apple growing areas in Belgium, Germany, France, Italy and the Netherlands. Four applications were made about 5, 4, 3 and 2 weeks before commercial

harvest of the crop in each trial at a rate of 1.0 L/ha in a spray volume of 1000 L/ha. Apple fruits were taken directly after the last application (day 0) as well as about 1, 2, 3 and 4 weeks thereafter.

During the 2003 growing season, one bridging study (Schulz H., BASF 2003/1001291) with another 4 field trials was conducted in the representative apple growing areas in Germany, Northern and Southern France and Italy. The BAS 516 01 F (100 g/L pyraclostrobin, 200 g/L boscalid, SE) and BAS 516 04 F (12.8% pyraclostrobin, 25.2% boscalid, WG) were compared, both with four applications at growth stages BBCH 74-78, 75-81, 76-85 and 77-87. In both variants, the application rates were about 100 g ai/ha of pyraclostrobin for all treatments and the spray volumes were 1000 L/ha.

The results are summarized in Table 4.

Table 4. Residues in apples derived from supervised trials carried out with BAS 516 01 F.

CROP	Application				Residues [mg/kg]			Ref. Report No
Country/ year trial code	No.	kg ai/ha	kg ai/hL	Day	Parent	500M07	Total	
GAP in European countries: 3 × 0.067-0.1 kg ai/ha, PHI=7 days								
Belgium	4	0.100	0.01	0	0.134	< 0.02	0.154	#2001/
2001				6	0.118	< 0.02	0.138	1015029
(AGR/15/01)				13	0.063	< 0.02	0.083	
				22	0.083	< 0.02	0.103	
				27	0.029	< 0.02	0.049	
Germany	4	0.100	0.01	0	0.087	0.026	0.113	#2001/
2000				6	0.034	< 0.02	0.054	1006135
(ACK/06/00)				14	0.022	< 0.02	0.042	
				21	0.024	< 0.02	0.044	
				28	< 0.02	< 0.02	< 0.04	
Germany	4	0.100	0.01	0	0.111	0.022	0.133	#2001/
2000				7	0.081	0.034	0.115	1006135
(DU2/12/00)				14	0.034	< 0.02	0.054	
				21	0.034	< 0.02	0.054	
				28	0.031	< 0.02	0.051	
Germany	4	0.100	0.01	0	0.115	< 0.02	0.135	#2001/
2000				7	0.058	< 0.02	0.078	1006135
(DU4/11/00)				14	0.041	< 0.02	0.061	
				21	0.032	< 0.02	0.052	
				28	0.034	< 0.02	0.054	
Germany	4	0.100	0.01	0	0.265	0.03	0.297	#2001/
2001				7	0.131	0.03	0.162	1015029
(DU2/07/01)				14	0.124	0.04	0.161	
				21	0.082	0.03	0.111	
				27	0.091	0.03	0.120	
France	4	0.100	0.01	0	0.182	< 0.02	0.202	#2001/
2000				6	0.095	< 0.02	0.115	1000946
(X006203)				13	0.085	0.023	0.108	
				21	0.051	< 0.02	0.071	
				28	0.036	< 0.02	0.056	
France	4	0.100	0.01	0	0.205	0.037	0.242	#2001/
2000				7	0.163	0.053	0.216	1000946
(X006204)				15	0.088	0.040	0.129	
				22	0.117	0.034	0.151	
				28	0.113	0.038	0.151	

CROP	Application				Residues [mg/kg]			Ref. Report No
Country/ year trial code	No.	kg ai/ha	kg ai/hL	Day	Parent	500M07	Total	
France 2000 (X006205)	4	0.100	0.01	0 7 14 21 28	0.205 0.256 0.290 0.200 0.176	< 0.02 0.025 0.038 0.022 0.025	0.225 0.281 0.328 0.222 0.202	#2001/ 1000946
France 2000 (X006206)	4	0.100	0.01	0 7 14 21 28	0.208 0.142 0.143 0.084 0.075	0.028 0.033 0.034 < 0.02 < 0.02	0.236 0.175 0.177 0.104 0.095	#2001/ 1000946
F - France 2001 (FBM/02/01)	4	0.100	0.01	0 8 14 20 28	0.124 0.070 0.050 0.042 0.030	< 0.02 0.04 0.03 0.03 < 0.02	0.144 0.107 0.078 0.073 0.050	#2001/ 1015029
France 2001 (X 01 062 08)	4	0.100	0.01	0 7 14 21 28	0.233 0.143 0.068 0.058 0.063	< 0.02 0.025 < 0.02 < 0.02 < 0.02	0.253 0.170 0.088 0.078 0.083	#2001/ 1015046
France 2001 (X 01 062 09)	4	0.100	0.01	0 7 14 21 28	0.227 0.120 0.091 0.061 0.039	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02	0.247 0.140 0.111 0.081 0.059	#2001/ 1015046
Italy 2000 (0025R)	4	0.100	0.01	0 7 13 20 27	0.118 0.064 0.024 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02	0.138 0.084 0.044 < 0.04 < 0.04	#2001/ 1000946
Italy 2000 (0026R)	4	0.100	0.01	0 8 14 22 28	0.124 0.066 0.070 0.043 0.036	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02	0.144 0.086 0.090 0.063 0.056	#2001/ 1000946
Italy 2001 (0148R)	4	0.100	0.01	0 7 14 21 27	0.036 0.041 < 0.02 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02	0.056 0.061 < 0.04 < 0.04 < 0.04	#2001/ 1015046
Italy 2001 (0149R)	4	0.100	0.01	0 7 14 21 28	0.107 0.070 0.060 0.070 0.046	< 0.02 0.021 < 0.02 < 0.02 < 0.02	0.127 0.092 0.080 0.090 0.066	#2001/ 1015046
Italy 2001 (0150R)	4	0.100	0.01	0 6 13 20 27	0.069 0.030 < 0.02 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02	0.089 0.050 < 0.04 < 0.04 < 0.04	#2001/ 1015046
Netherlands 2001 (AGR/16/01)	4	0.100	0.01	0 8 13 21 29	0.106 0.101 0.066 0.064 0.039	< 0.02 < 0.02 < 0.02 < 0.02 < 0.02	0.126 0.121 0.086 0.084 0.059	#2001/ 1015029

CROP	Application				Residues [mg/kg]			Ref. Report No
Country/ year trial code	No.	kg ai/ha	kg ai/hL	Day	Parent	500M07	Total	
Germany	4	0.100	0.01	0	0.133	0.025	0.158	#2003/
2003				8	0.057	0.029	0.086	1001291
(ACK/11/03)				15	< 0.02	< 0.02	< 0.04	
				21	< 0.02	< 0.02	< 0.04	
				28	< 0.02	< 0.02	< 0.04	
	4[a]	0.100	0.01	0	0.098	< 0.02	0.120	
				8	0.051	< 0.02	0.073	
				15	0.035	< 0.02	0.057	
				21	0.025	< 0.02	0.047	
				28	< 0.02	< 0.02	< 0.04	
France	4	0.100	0.01	0	0.123	< 0.02	0.145	#2003/
2003				8	0.139	< 0.02	0.161	1001291
(FAN/18/03)				15	0.116	< 0.02	0.138	
				22	0.093	< 0.02	0.115	
				29	0.061	< 0.02	0.083	
	4[a]	0.100	0.01	0	0.201	< 0.02	0.223	
				8	0.104	< 0.02	0.126	
				15	0.074	< 0.02	0.096	
				22	0.097	< 0.02	0.119	
				29	0.051	< 0.02	0.073	
France	4	0.100	0.01	0	0.358	0.023	0.381	#2003/
2003				7	0.289	0.037	0.326	1001291
(FTL/15/03)				14	0.191	0.023	0.214	
				21	0.159	0.023	0.182	
				28	0.222	0.036	0.258	
	4[a]	0.100	0.01	0	0.373	< 0.02	0.395	
				7	0.276	0.028	0.304	
				14	0.234	0.029	0.263	
				21	0.191	0.031	0.222	
				28	0.165	0.025	0.190	
Italy	4	0.100	0.01	0	0.184	< 0.02	0.206	#2003/
2003				7	0.167	0.023	0.190	1001291
(ITA/09/03)				15	0.142	0.030	0.172	
				21	0.129	0.024	0.153	
				28	0.068	< 0.02	0.090	
	4[a]	0.100	0.01	0	0.222	< 0.02	0.244	
				7	0.184	< 0.02	0.206	
				15	0.066	< 0.02	0.088	
				21	0.081	< 0.02	0.103	
				28	0.074	< 0.02	0.096	

(a) BAS 516 04 F was used

The 2004 JMPR reported the results of supervised trials carried out in Brazil which are copied into Table 5.

Table 5. Pyraclostrobin residues in apple derived from supervised trials in Brazil (reported by the 2004 JMPR).

	Appl. per treatment						Residues [mg/kg]				Trials
Location	kg ai/ha	Water L/ha	kg ai/hL	No of tr.	Growth stage	Portion analysed	Parent	500M07	Total	PHI days	method
Brazilian GAP: 4 × 0.1 kg ai/ha, PHI =14days											
BR/Santagro	0.150	1000	0.015	4	72	apples	0.34	0.08	0.42	14	#2000/5241
2000/049	0.300	1000	0.030	03/02/00			1.00	0.19	1.19	14	D9908

	Appl. per treatment						Residues [mg/kg]				Trials
Location	kg ai/ha	Water L/ha	kg ai/hL	No of tr.	Growth stage	Portion analysed	Parent	500M07	Total	PHI days	method
BR/Santagro 2000/905	0.150	1000	0.015	4 03/02/00	72	apples	0.35	0.09	0.44	14	#2000/5241 D9908
	0.300	1000	0.030			apples	0.93	0.21	1.14	14	
BR Fitopesquisa 2000/050	0.150	1000	0.015	4 10/03/00	ripening	apples	0.16	0.02	0.18	0	#2000/5241 D9908
							0.19	0.05	0.24	7	
							0.15	0.03	0.18	14	
BR Fitopesquisa 2000/050							0.11	< 0.02	0.13	21	
							0.04	< 0.02	0.06	28	
							< 0.02	< 0.02	< 0.04	35	
BR/BR5 2000/051	0.150	1000	0.015	4 18/02/00	coloured fruits	apples	0.11	0.04	0.16	14	#2000/5241 D9908
	0.300	1000	0.030				0.30	0.11	0.41	14	
BR/BR5 2000/052	0.150	1000	0.015	4 18/02/00	coloured fruits	apples	0.06	0.02	0.08	14	#2001/500242 D9908
	0.300	1000	0.030				0.09	0.03	0.12	14	
BR Fitopesquisa CDR/F 2000/053	0.150	1000	0.015	4 10/03/00	ripening	apples	< 0.02	< 0.02	< 0.04	0	#2001/500242 D9908
							0.12	< 0.02	0.14	7	
							0.14	< 0.02	0.16	14	
							0.03	< 0.02	0.05	21	
							0.04	< 0.02	0.06	28	
							0.04	< 0.02	0.06	35	
BR Santagro 2000/054	0.150	1000	0.015	4 03/02/00	87	apple	0.38	0.05	0.43	14	#2001/5002427 D9908
	0.300	1000	0.030				0.94	0.07	1.01	14	
BR Santagro 2000/906	0.150	1000	0.015	4 03/02/00	87	apple	0.25	0.05	0.30	14	#2001/5002427 D9908
	0.300	1000	0.030				0.57	0.08	0.65	14	

Raspberry

During the 1999 and 2004 growing seasons five trials were performed in USA and one in Canada (Versoi P.L., *et al*. BASF 1999/5143, Leonard R. and Gooding R. BASF 2005/5000144). In each trial four broadcast foliar applications were made 6-7 days apart with a WG formulation containing 12.8% pyraclostrobin using 267–798 L/ha water. An adjuvant was added to all spray solutions for all applications. The samples of mature fruits were collected on the day of last application (day 0). The maximum storage interval for the samples was 182 days.

The trial conditions and results are given in Table 6.

Table 6. Pyraclostrobin residues in raspberries from supervised trials in USA.

	Appl. per treatment[1]					Residues[2] [mg/kg]				Trial number
Location	kg ai/ha	Water L/ha	kg ai/hL	No of tr[2].	Portion analyzed	Parent	500M07	Total	PHI days	Method
US GAP: 4 times 0.16-0.21 kg ai/ha with 0-day PHI										
Penn Yau. Yates Co.. New York (RCN 99277)[3]	0.20	570	0.035	4	Mature fruit	0.78	0.03	0.81	0	# 1999/5143 421/0
						0.53	0.02	0.55	2	
						0.52	0.03	0.55	4	
						0.41	0.03	0.44	6	
						0.30	< 0.02	0.32	8	
Oregon Washington[3]	0.20	546	0.037	4	Mature fruit	0.50	< 0.02	0.52	0	# 1999/5143 421/0
Oregon Washington[3]	0.20	522	0.038	4	Mature fruit	0.63	0.03	0.66	0	# 1999/5143 421/0
Nodine, MN RCN 20044143	0.21	565-575	0.037	4	Mature fruit	1.18, 1.28	0.05, 0.48	1.23, 1.33	0	2005/5000144/ D9908
Corvallis, OR RCN 20044144	0.21	702	0.03	4	Mature fruit	0.82, 0.89	0.051, 0.049	0.87, 0.94	0	2005/5000144/ D9908

	Appl. per treatment[1]					Residues[2] [mg/kg]				Trial number
Location	kg ai/ha	Water L/ha	kg ai/hL	No of tr[2].	Portion analyzed	Parent	500M07	Total	PHI days	Method
US GAP: 4 times 0.16-0.21 kg ai/ha with 0-day PHI										
Abbotsford, QC Canada RCN 20044145	0.19-0.21	606-798	0.026-0.032	4	Mature fruit	0.73, 1.03	0.035, 0.051	0.76, 1.08	0	2005/5000144/ D9908
Yates, NY 99277	0.2			4	Mature fruit	0.94, 0.62	0.03, < 0.02	0.97, 0.64	0	1999/5143/ D9808
Washington, OR 99280	0.2			4	Mature fruit	0.51, 0.44	< 0.02, < 0.02	0.53, 0.46	0	1999/5143/ D9808
Washington, OR 99281	0.2			4	Mature fruit	0.78, 0.47	0.04, < 0.02	0.82, 0.49	0	1999/5143/ D9808

1. Application rates and spray volumes are rounded
2. Treatments were made at intervals of 6-7 days
3. Trials reported by the 2004 JMPR

Leek

During the 1999 and 2003 growing seasons, three studies with a total of 11 field trials on five varieties of leek were conducted in different representative growing areas in Belgium, Germany, Great Britain, France and The Netherlands (Raunft E. BASF 2001/1006130 and BASF 2001/1006131, Schulz H. BASF 2004/1015937). The applications were done about 5, 3 and 2 weeks before commercial harvest of the crop and the intended PHI was 14 days. For the analysis, plants without roots were sampled immediately after the last application as well as about 7, 14 and 21 days thereafter.

The results are summarized in Table 7.

Table 7. Results of supervised trials performed on leek[1] with BAS 516 GA F containing 6.7% pyraclostrobin.

CROP	Application			Residues [mg/kg]				Ref. Report No
Country/ year trial code	No.	kg ai/ha	kg ai/hL	Day	Parent	500M07	Total	
GAP (The Netherlands and Belgium): 2-3 × 0.1 kg ai/ha with a PHI of 14 days								
Belgium 1999 (AGR/19/99)	3	0.100	0.025	0	1.04	< 0.02	1.06	#2001/ 1006130
				7	0.41	< 0.02	0.43	
				14	0.24	< 0.02	0.26	
				21	0.23	< 0.02	0.25	
Belgium 2000 (AGR/08/00)	3	0.100	0.025	0	1.15	0.02	1.17	#2001/ 1006131
				7	0.26	< 0.02	0.28	
				14	0.18	< 0.02	0.20	
				20	0.19	< 0.02	0.21	
Germany 1999 (ACK/09/99)	3	0.100	0.025	0	0.51	< 0.02	0.53	#2001/ 1006130
				7	0.31	< 0.02	0.33	
				14	0.25	< 0.02	0.27	
				20	0.14	< 0.02	0.16	
Germany 1999 (DU2/14/99)	3	0.100	0.025	0	0.98	0.04	1.02	#2001/ 1006130
				7	0.59	0.05	0.64	
				14	0.42	0.04	0.46	
				21	0.26	0.02	0.28	
Germany 2000 (DU2/09/00)	3	0.100	0.025	0	0.90	0.03	0.93	#2001/ 1006131
				7	0.24	< 0.02	0.26	
				14	0.22	< 0.02	0.24	
				21	0.15	< 0.02	0.17	

CROP	Application			Residues [mg/kg]				Ref. Report No
Country/ year trial code	No.	kg ai/ha	kg ai/hL	Day	Parent	500M07	Total	
Germany	3	0.100	0.025	0	0.60	< 0.02	0.62	#2001/
2000				7	0.31	< 0.02	0.33	1006131
(DU4/08/00)				14	0.22	< 0.02	0.24	
				21	0.17	< 0.02	0.19	
Great Britain	3	0.100	0.025	0	0.68	< 0.02	0.70	#2001/
2000				7	0.18	< 0.02	0.20	1006131
(OAT/10/00)				14	0.12	< 0.02	0.14	
				21	0.09	< 0.02	0.11	
The Netherlands	3	0.100	0.025	0	1.04	< 0.02	1.06	#2001/
1999				7	0.55	< 0.02	0.57	1006130
(AGR/18/99)				14	0.24	< 0.02	0.26	
				21	0.29	< 0.02	0.31	
The Netherlands	3	0.100	0.025	0	0.53	< 0.02	0.55	#2001/
2000				7	0.23	< 0.02	0.25	1006131
(AGR/09/00)				13	0.16	< 0.02	0.18	
				20	< 0.02	< 0.02	< 0.04	
France	3	0.100	0.025	0	0.81	0.02	0.83	#2004/
2003				8	0.10	< 0.02	0.12	1015937
(FAN/12/03)				14	0.05	< 0.02	0.07	
				21	0.02	< 0.02	0.04	
France	3	0.100	0.025	0	0.60	0.03	0.63	#2004/
2003				7	0.25	0.04	0.29	1015937
(FBM/06/03)				14	0.15	0.03	0.18	
				20	0.16	0.02	0.18	

Brassica vegetables

Broccoli and cauliflower

During the 2003 and 2004 growing seasons, two studies (Schulz H., BASF 2004/1015910, Johnston R. L., BASF 2004/7007476) with a total of 13 field trials were conducted in different representative cauliflower and broccoli growing areas in Europe. Eleven trials were performed in the Northern EU (Great Britain, Netherlands, Denmark, Germany, Sweden and France) and two trials in the Southern EU (France).

The WG formulation BAS 516 00F was applied three times at a rate of 1.0 kg formulated product/ha, resulting in a dosage of 0.067 kg ai/ha of pyraclostrobin. The applications took place at about 28, 21 and 14 days before harvest. The intended PHI was 14 days. The product was applied with a spray volume of 300 L/ha.

In all trials, samples were taken directly after the last application (day 0) as well as about 7, 14 and 21 days thereafter.

During the 1999 and 2000 growing seasons, a total of 11 field trials (Beck J., BASF 2001/1001001 and BASF 2001/1001000, Funk H., BASF 2001/1009065 and 2001/1009066, Schulz H., BASF 2001/1000932) were conducted in different representative brassica growing areas in Germany, Denmark, France, Great Britain, the Netherlands and Sweden. The BAS 516 GA F was tested in cauliflower and broccoli using four applications at 1.5 kg product/ha each in a spray volume of 300 L/ha. The applications were done about 5, 4, 3 and 2 weeks before commercial harvest of the crop. The samples were taken directly after the last application (day 0) as well as about 1, 2, and 3 weeks thereafter. The mix formulation BAS 516 GA F was replaced by the formulations BAS 516 00 F and BAS 516 07 F later on in the development phase.

The results are summarized in Table 8

Table 8. Summary of results of field trials carried out with BAS 516 on flowering brassica.

CROP	Application					Residues [mg/kg]			Ref. Report No
Country/ year trial code	Formulation	No.	kg ai/ha	kg ai/hL	Day	Parent	500M07	Total	
CAULIFLOWER (GAP: 2-3 × 0.067 kg ai/ha with a PHI of 14 days)									
Netherlands	BAS 516 00 F	3	0.067	0.022	0	< 0.02	0.02	0.04	#2004/
2003					8	< 0.02	< 0.02	< 0.04	1015910
(AGR/26/03)					15	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
Denmark	BAS 516 00 F	3	0.067	0.022	0	0.02	< 0.02	0.04	#2004/
2003					7	< 0.02	< 0.02	< 0.04	1015910
(ALB/16/03)					14	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
England	BAS 516 00 F	3	0.067	0.022	0	0.24	< 0.02	0.26	#2004/
2003					7	0.10	< 0.02	0.12	1015910
(OAT/22/03)					13	0.04	< 0.02	0.06	
					20	0.04	< 0.02	0.06	
France	BAS 516 00 F	3	0.067	0.022	0	< 0.02	< 0.02	< 0.04	#2004/
2003					6	< 0.02	< 0.02	< 0.04	1015910
(FBD/15/03)					13	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
France	BAS 516 00 F	3	0.067	0.022	0	0.11	< 0.02	0.13	#2004/
2004					7	< 0.02	< 0.02	< 0.04	7007476
(FAN/09/04)					15	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
Germany	BAS 516 00 F	3	0.067	0.022	0	< 0.02	< 0.02	< 0.04	#2004/
2004					7	< 0.02	< 0.02	< 0.04	7007476
(DU4/04/04)					14	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
France	BAS 516 00 F	3	0.067	0.022	0	< 0.02	< 0.02	< 0.04	#2004/
2004					6	< 0.02	< 0.02	< 0.04	7007476
(FTL/11/04)					13	< 0.02	< 0.02	< 0.04	
					20	< 0.02	< 0.02	< 0.04	
Germany	BAS 516 GA F	4	0.100	0.033	0	0.07	< 0.02	0.09	#2001/
1999					6	< 0.02	< 0.02	< 0.04	1001001
(DU4/05/99)					13	< 0.02	< 0.02	< 0.04	
					20	< 0.02	< 0.02	< 0.04	
France	BAS 516 GA F	4	0.100	0.033	0	0.34	< 0.02	0.36	#2001/
2000					7	< 0.02	< 0.02	< 0.04	1009065
(F00W027R)					14	< 0.02	< 0.02	< 0.04	
					22	< 0.02	< 0.02	< 0.04	
France	BAS 516 GA F	4	0.100	0.033	0	< 0.02	< 0.02	< 0.04	#2001/
2000					7	< 0.02	< 0.02	< 0.04	1009065
(F00W031R)					14	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
Great Britain	BAS 516 GA F	4	0.100	0.033	0	0.16	< 0.02	0.18	#2001/
1999					7	< 0.02	< 0.02	< 0.04	1001001
(OAT/16/99)					14	< 0.02	< 0.02	< 0.04	
					20	< 0.02	< 0.02	< 0.04	
Netherlands	BAS 516 GA F	4	0.100	0.033	0	0.04	< 0.02	0.06	#2001/
2000					7	0.04	< 0.02	0.06	1001000
(AGR/05/00)					13	0.04	0.03	0.07	
					20	0.05	0.04	0.09	
Sweden	BAS 516 GA F	4	0.100	0.033	0	1.30	0.03	1.32	#2001/
2000					7	0.04	< 0.02	0.06	1001000
(HUS/07/00)					15	< 0.02	< 0.02	< 0.04	

CROP	Application					Residues [mg/kg]			Ref. Report No
Country/ year trial code	Formulation	No.	kg ai/ha	kg ai/hL	Day	Parent	500M07	Total	
					21	< 0.02	< 0.02	< 0.04	
BROCCOLI (GAP: 3 × 0.067 kg ai/ha with a PHI of 14 days)									
Germany 2003 (ACK/17/03)	BAS 516 00 F	3	0.067	0.022	0 7 14 21	0.27 0.05 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02	0.29 0.07 < 0.04 < 0.04	#2004/ 1015910
France 2003 (FAN/24/03)	BAS 516 00 F	3	0.067	0.022	0 7 14 20 28	0.83 0.14 < 0.02 < 0.02 < 0.02	< 0.02 0.03 < 0.02 < 0.02 < 0.02	0.85 0.17 < 0.04 < 0.04 < 0.04	#2004/ 1015910
France 2003 (FTL/19/03)	BAS 516 00 F	3	0.067	0.022	0 7 15 22	0.13 0.02 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02	0.15 0.04 < 0.04 < 0.04	#2004/ 1015910
Sweden 2004 (HUS/02/04)	BAS 516 00 F	3	0.067	0.022	0 7 14 21	0.28 0.06 < 0.02 0.06	< 0.02 < 0.02 < 0.02 < 0.02	0.30 0.08 < 0.04 0.08	#2004/ 7007476
Denmark 2004 (ALB/05/04)	BAS 516 00 F	3	0.067	0.022	0 8 15 23	0.21 0.10 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02	0.23 0.12 0.04 < 0.04	#2004/ 7007476
France 2004 (FBD/10/04)	BAS 516 00 F	3	0.067	0.022	0 7 14 21	0.18 0.05 0.03 0.02	< 0.02 < 0.02 < 0.02 < 0.02	0.20 0.07 0.05 0.04	#2004/ 7007476
Denmark 1999 (ALB/10/99)	BAS 516 GA F	4	0.100	0.033	0 7 14 21	1.72 0.08 < 0.02 < 0.02	0.08 < 0.02 < 0.02 < 0.02	1.80 0.10 < 0.04 < 0.04	#2001/ 1001001
France 1999 (X 99 62 01)	BAS 516 GA F	4	0.100	0.033	0 7 13 20	0.72 0.09 0.04 0.03	< 0.02 < 0.02 < 0.02 < 0.02	0.74 0.11 0.06 0.05	#2001/ 1000932
France 2000 (F00W034R)	BAS 516 GA F	4	0.100	0.033	0 7 14 21	0.60 0.02 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02	0.62 0.04 < 0.04 < 0.04	#2001/ 1009066
Great Britain 2000 (OAT/20/00)	BAS 516 GA F	4	0.100	0.033	0 8 14 21	1.65 0.31 0.18 0.11	0.03 0.03 < 0.02 < 0.02	1.68 0.34 0.20 0.13	#2001/ 1001000
The Netherlands 1999 (AGR/08/99)	BAS 516 GA F	4	0.100	0.033	0 8 14 21	0.52 0.05 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02	0.54 0.07 < 0.04 < 0.04	#2001/ 1001001

Brussels sprouts

During the 2003 and 2004 growing seasons, three studies (Schulz H., BASF 2004/1015912, Johnston R.L., BASF 2004/7007478 and 2004/7007477) with a total of nine field trials were conducted in Brussels sprouts. The trials were performed in Great Britain, Netherlands, Denmark, Germany, Sweden and France.

The WG formulation BAS 516 00 F was applied three times with an application rate of 1.0 kg formulated product/ha, resulting in application rates of 0.067 kg ai/ha for pyraclostrobin. The applications took place at about 28, 21 and 14 days before harvest. The intended PHI was 14 days. The product was applied with a spray volume of 300 L/ha.

In all trials, samples were taken directly after the last application (day 0) as well as about 7, 14 and 21 days thereafter.

During the 1999 and 2000 growing seasons, two studies (Beck J., BASF 2001/1001001 and BASF 2001/1001000,) with a total of nine field trials was conducted in Brussels sprouts in Germany, Denmark, Great Britain, the Netherlands and Sweden. The BAS 516 GA F was applied four times with 1.5 kg product/ha each in a spray volume of 300 L/ha. The applications were done about 5, 4, 3 and 2 weeks before commercial harvest of the crop.

The results are summarized in Table 9.

Table 9. Residues derived from supervised field trials with BAS 516 00 F on Brussels sprouts.

CROP	Application			Residues [mg/kg]				Ref. Report No
Country/ year trial code	No.	kg ai/ha	kg ai/hL	Day	Parent	500M07	Total	
(GAP: 2-3 × 0.067 kg ai/ha with a PHI of 14 days)								
Germany 2003 (ACK/16/03)	3	0.067	0.022	0 8 13 20	0.05 0.07 0.05 <u>0.10</u>	< 0.02 < 0.02 < 0.02 < 0.02	0.07 0.09 0.07 0.12	#2004/ 1015912
The Netherlands 2003 (AGR/25/03)	3	0.067	0.022	0 6 13 20	0.09 0.10 0.05 <u>0.08</u>	< 0.02 < 0.02 < 0.02 < 0.02	0.11 0.12 0.07 0.10	#2004/ 1015912
Denmark 2003 (ALB/15/03)	3	0.067	0.022	0 7 14 21	0.10 0.03 <u>0.03</u> < 0.02	< 0.02 < 0.02 < 0.02 < 0.02	0.12 0.05 0.05 < 0.04	#2004/ 1015912
Sweden 2003 (HUS/07/03)	3	0.067	0.022	0 8 15 22	0.05 < 0.02 <u>0.03</u> < 0.02	< 0.02 < 0.02 < 0.02 < 0.02	0.07 < 0.04 0.05 < 0.04	#2004/ 1015912
England 2003 (OAT/19/03)	3	0.067	0.022	0 7 14 21	< 0.02 < 0.02 <u>< 0.02</u> < 0.02	< 0.02 < 0.02 < 0.02 < 0.02	< 0.04 < 0.04 < 0.04 < 0.04	#2004/ 1015912
Germany 2004 (DU2/04/04)	3	0.067	0.022	0 7 14 21	0.22 0.17 <u>0.14</u> 0.09	< 0.02 < 0.02 < 0.02 < 0.02	0.24 0.19 0.16 0.11	#2004/ 7007478
France 2004 (FAN/08/04)	3	0.067	0.022	0 7 13 21	0.07 0.06 0.05 <u>0.06</u>	< 0.02 < 0.02 < 0.02 < 0.02	0.09 0.08 0.07 0.08	#2004/ 7007478
Sweden 2004 (HUS/01/04)	3	0.067	0.022	0 7 15 21	0.07 0.02 <u>< 0.02</u> < 0.02	< 0.02 < 0.02 < 0.02 < 0.02	0.09 0.04 < 0.04 < 0.04	#2004/ 7007478

CROP	Application			Residues [mg/kg]				Ref. Report No
Country/ year trial code	No.	kg ai/ha	kg ai/hL	Day	Parent	500M07	Total	
England	3	0.067	0.022	0	0.05	< 0.02	0.07	#2004/
2004				7	0.03	< 0.02	0.05	7007477
(OAT/08/04)				13	< 0.02	< 0.02	< 0.04	
				21	< 0.02	< 0.02	< 0.04	
Germany	4	0.100	0.033	0	0.28	< 0.02	0.30	#2001/
2000				-	-	-	-	1001000
(DU4/10/00)				15	0.21	< 0.02	0.23	
				21	0.21	< 0.02	0.23	
Denmark	4	0.100	0.033	0	0.61	0.04	0.65	#2001/
1999				7	0.09	< 0.02	0.11	1001001
(ALB/11/99)				14	0.11	< 0.02	0.13	
				21	0.06	< 0.02	0.08	
Denmark	4	0.100	0.033	0	0.29	< 0.02	0.31	#2001/
2000				7	0.08	< 0.02	0.10	1001000
(ALB/06/00)				14	0.07	< 0.02	0.09	
				21	0.05	< 0.02	0.07	
Great Britain	4	0.100	0.033	0	0.15	< 0.02	0.17	#2001/
1999				7	0.12	< 0.02	0.14	1001001
(OAT/17/99)				14	0.06	< 0.02	0.08	
				21	0.08	< 0.02	0.10	
Great Britain	4	0.100	0.033	0	0.12	< 0.02	0.14	#2001/
1999				8	0.05	< 0.02	0.07	1001001
(OAT/18/99)				15	0.04	< 0.02	0.06	
				22	0.08	0.02	0.10	
Great Britain	4	0.100	0.033	0	0.16	< 0.02	0.18	#2001/
2000				7	0.07	< 0.02	0.09	1001000
(OAT/05/00)				13	0.06	< 0.02	0.08	
				22	0.05	< 0.02	0.07	
The Netherlands	4	0.100	0.033	0	0.29	< 0.02	0.31	#2001/
1999				7	0.19	< 0.02	0.21	1001001
(AGR/09/99)				15	0.13	< 0.02	0.15	
				22	0.08	< 0.02	0.10	
The Netherlands	4	0.100	0.033	0	0.20	< 0.02	0.22	#2001/
2000				7	0.19	< 0.02	0.21	1001000
(AGR/06/00)				14	0.13	< 0.02	0.15	
				21	0.09	< 0.02	0.11	
Sweden	4	0.100	0.033	0	0.14	< 0.02	0.16	#2001/
1999				7	0.12	< 0.02	0.14	1001001
(HUS/07/99)				14	0.12	< 0.02	0.14	
				21	0.11	< 0.02	0.13	

Cabbage

During the 2003 and 2004 growing seasons, two studies (Schulz H., BASF 2004/1015911, Johnston R.L., BASF 2004/7007477) with a total of 11 field trials were conducted in different representative head cabbage growing areas in the EU to determine the residue levels of pyraclostrobin. Nine trials were performed in the Northern EU (Germany, Sweden, Denmark, Great Britain, Netherlands and France) and two trials in the Southern EU (France).

The WG formulation BAS 516 00 F was applied three times with a rate of 1.0 kg formulated product/ha (0.067 kg ai/ha for pyraclostrobin). The applications took place at about 28, 21 and 14 days before harvest. The intended PHI was 14 days. The product was applied with a spray volume of 300 L/ha.

In all trials, samples were taken directly after the last application (0 day) as well as about 7, 14 and 21 days thereafter.

During the 1999 and 2000 growing seasons, five studies (Beck J, BASF 2001/1001000 and 2001/1001001 Schulz H., 2001/1000932 Funk H., BASF 2001/1000945 and 2001/1009064) with a total of 12 field trials were conducted in different representative brassica growing areas in Germany, Denmark, France, Great Britain, the Netherlands and Sweden to determine the residue levels of pyraclostrobin. The BAS 516 GA F was applied four times with 1.5 kg product/ha each in a spray volume of 300 L/ha. The applications were done about 5, 4, 3 and 2 weeks before commercial harvest of the crop.

The results are summarized in Table 10

Table 10. Summary of residues derived from field trials carried out with BAS 516 F on cabbages.

CROP	Application			Residues [mg/kg]					Ref. Report No
Country/ year trial code	No.	kg ai/ha	kg ai/hL	Matrix	Day	Parent	500M07	Total	
(GAP: 3 × 0.067 kg ai/ha with a PHI of 14 days)									
France	3	0.067	0.022	White	0	0.43	< 0.02	0.45	#2004/
2003				Cabbage	7	0.11	< 0.02	0.13	1015911
(FAN/23/03)					15	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
France	3	0.067	0.022	White	0	0.73	0.04	0.77	#2004/
2003				Cabbage	7	0.27	0.05	0.32	1015911
(FTL/18/03)					14	0.05	< 0.02	0.07	
					21	0.04	< 0.02	0.06	
England	3	0.067	0.022	White	0	0.03	< 0.02	0.05	#2004/
2004				Cabbage	7	< 0.02	< 0.02	< 0.04	7007477
(OAT/13/04)					14	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
Sweden	3	0.067	0.022	White	0	< 0.02	< 0.02	< 0.04	#2004/
2004				Cabbage	6	< 0.02	< 0.02	< 0.04	7007477
(HUS/05/04)					14	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
France	4	0.100	0.033	White	0	0.17	< 0.02	0.19	#2001/
1999				Cabbage	7	< 0.02	< 0.02	< 0.04	1000932
(X 99 62 02)					14	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
France	4	0.100	0.033	White	0	0.38	< 0.02	0.40	#2001/
2000				Cabbage	7	0.06	< 0.02	0.08	1000945
(F00W033R)					14	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
Great Britain	4	0.100	0.033	White	0	0.02	< 0.02	0.04	#2001/
1999				Cabbage	8	< 0.02	< 0.02	< 0.04	1001001
(OAT/20/99)					14	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
The Netherlands	4	0.100	0.033	White	0	< 0.02	< 0.02	< 0.04	#2001/
1999				Cabbage	7	< 0.02	< 0.02	< 0.04	1001001
(AGR/10/99)					14	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
Sweden	3	0.067	0.022	Red	0	0.06	< 0.02	0.08	#2004/
2003				Cabbage	7	< 0.02	< 0.02	< 0.04	1015911
(HUS/08/03)					14	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	

CROP	Application			Residues [mg/kg]					Ref. Report No
Country/ year trial code	No.	kg ai/ha	kg ai/hL	Matrix	Day	Parent	500M07	Total	
France	3	0.067	0.022	Red	0	0.37	< 0.02	0.39	#2004/
2004				Cabbage	7	0.14	< 0.02	0.16	7007477
(FBM/09/04)					14	0.06	< 0.02	0.08	
					21	0.09	< 0.02	0.11	
France	3	0.067	0.022	Red	0	< 0.02	< 0.02	< 0.04	#2004/
2004				Cabbage	7	< 0.02	< 0.02	< 0.04	7007477
(FBD/15/04)					14	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
Germany	4	0.100	0.033	Red	0	0.49	< 0.02	0.51	#2001/
1999				Cabbage	8	0.10	< 0.02	0.12	1001001
(DU4/06/99)					14	< 0.02	< 0.02	< 0.04	
					20	< 0.02	< 0.02	< 0.04	
France	4	0.100	0.033	Red	0	< 0.02	< 0.02	< 0.04	#2001/
2000				Cabbage	7	< 0.02	< 0.02	< 0.04	1009064
(F00W026R)					14	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
France	4	0.100	0.033	Red	0	0.06	< 0.02	0.08	#2001/
2000				Cabbage	7	< 0.02	< 0.02	< 0.04	1009064
(F00W032R)					14	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
Great Britain	4	0.100	0.033	Red	0	0.06	< 0.02	0.08	#2001/
2000				Cabbage	7	0.02	< 0.02	0.04	1001000
(OAT/06/00)					14	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
Great Britain	4	0.100	0.033	Red	0	0.05	< 0.02	0.07	#2001/
2000				Cabbage	7	< 0.02	< 0.02	< 0.04	1001000
(OAT/07/00)					14	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
Sweden	4	0.100	0.033	Red	0	< 0.02	< 0.02	< 0.04	#2001/
1999				Cabbage	8	< 0.02	< 0.02	< 0.04	1001001
(HUS/05/99)					15	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
Denmark	3	0.067	0.022	Savoy	0	0.28	< 0.02	0.30	#2004/
2003				Cabbage	7	0.10	< 0.02	0.12	1015911
(ALB/13/03)					14	0.09	< 0.02	0.11	
					21	0.02	< 0.02	0.04	
England	3	0.067	0.022	Savoy	0	0.16	< 0.02	0.18	#2004/
2003				Cabbage	7	0.07	< 0.02	0.09	1015911
(OAT/20/03)					14	0.04	< 0.02	0.06	
					21	0.05	< 0.02	0.07	
Germany	3	0.067	0.022	Savoy	0	0.13	< 0.02	0.15	#2004/
2004				Cabbage	8	0.03	< 0.02	0.05	7007477
(DU4/09/04)					14	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	
The Netherlands	3	0.067	0.022	Savoy	0	0.12	< 0.02	0.14	#2004/
2004				Cabbage	7	< 0.02	< 0.02	< 0.04	7007477
(AGR/14/04)					14	< 0.02	< 0.02	< 0.04	
					21	< 0.02	< 0.02	< 0.04	

CROP	Application			Residues [mg/kg]					Ref. Report No
Country/ year trial code	No.	kg ai/ha	kg ai/hL	Matrix	Day	Parent	500M07	Total	
Denmark	4	0.100	0.033		0	0.59	< 0.02	0.61	#2001/
2000					6	0.23	< 0.02	0.25	1001000
(ALB/07/00)					13	0.07	< 0.02	0.09	
					20	0.03	< 0.02	0.05	
The Netherlands	4	0.100	0.033		0	0.70	< 0.02	0.72	#2001/
2000					7	0.20	< 0.02	0.22	1001000
(AGR/07/00)					13	0.06	< 0.02	0.08	
					20	0.08	< 0.02	0.10	

Fruiting vegetables

Cucumber

Supervised field trials were conducted at eight sites in USA (Wofford T. *et al*., BASF 1999/5083). Each plot received 6 sequential applications (7 ± 1 day apart) with 0.224 kg ai/ha and a total seasonal rate of 1.34 kg ai/ha according to the US GAP. Duplicate samples were collected from each site at day 0. In addition decline studies were performed at two sites. The results are given in Table 11.

The residues in cucumber from Brazilian trials reported by the 2004 JMPR are given in Table 12.

Table 11. Pyraclostrobin residues in cucumber resulting from supervised trials with BAS 500 F in USA.

Location/ trial code	Application		Residues (mg/kg)				Ref. Report No
	No.	kg ai/ha	Day	Parent	500M07	Total residue	
(GAP: 4 × 0.224 kg ai/ha with a PHI of 0 day)							
Macon County, GA, 98003	6	0.224	0	0.36, 0.41	< 0.02, < 0.02	0.38, 0.43	1999/5083/ D9908
Barnwell County, SC 98004	6	0.224	0	0.06, 0.05	< 0.02, < 0.02	0.08, 0.07	1999/5083/ D9908
Tift County, GA	6	0.224	0	< 0.02, 0.05	< 0.02, < 0.02	0.04, 0.07	1999/5083/
98005			3	< 0.02, < 0.02	< 0.02, < 0.02	0.04, 0.04	D9908
			7	< 0.02, < 0.02	< 0.02, < 0.02	0.04, 0.04	
			10	< 0.02, < 0.02	< 0.02, < 0.02	0.04, 0.04	
			15	< 0.02, < 0.02	< 0.02, < 0.02	0.04, 0.04	
Seminole County, FL 98008	6	0.224		0.09, 0.08	< 0.02, < 0.02	0.11, 0.10	1999/5083/ D9908
Ottawa County, MI 98010	6	0.224		0.03, 0.02	< 0.02, < 0.02	0.05, 0.04	0999/5083/ D9908
Pepin County, WI 98011	6	0.224		0.06, 0.07	< 0.02, < 0.02	0.08, 0.09	1999/5083/ D9908
Uvalde county, TX 98014	6	0.224		0.14, 0.11	< 0.02, < 0.02	0.16, 0.13	1999/5083/ D9908
Tulare county, CA	6	0.224	0	0.12, 0.09	< 0.02, < 0.02	0.14, 0.11	1999/5083/
98016			3	0.03, 0.03	< 0.02, < 0.02	0.05, 0.05	D9908
			7	< 0.02, < 0.02	< 0.02, < 0.02	0.04, 0.04	
			10	< 0.02, < 0.02	< 0.02, < 0.02	0.04, 0.04	
			15	< 0.02, < 0.02	< 0.02, < 0.02	0.04, 0.04	

Table 12. Pyraclostrobin residues in cucumber resulting from supervised trials in Brazil (Reported by the 2004 JMPR).

	Appl.. per treatment				Residues, [mg/kg]				Trial number
Location	kg ai/ha	Water (L/ha)	kg ai/hL	No of tr.	Parent	500M07	Total	PHI days (d)	Method
(GAP: 4 × 0.1 kg ai/ha with a PHI of 7 days)									
BR/BRV Tapuirama-2000/155/	0.100	400	0.025	4	< 0.02	0.02	< 0.04	7	#2001/5002342 D9908
	0.200	400	0.050		< 0.02	0.02	< 0.04	7	
BR/BRU Elias Fausto 2000/156	0.100	400	0.025	4	< 0.02	< 0.02	< 0.04	7	#2001/5002342 D9908
	0.200	400	0.050		0.03	< 0.02	0.05	7	
BR/BRT Marilia-SP 2000/157/	0.100	400	0.025	4	0.02	< 0.02	< 0.04	0	#2001/5002342 D9908
					0.02	< 0.02	< 0.04	3	
					0.02	< 0.02	< 0.04	7	
					0.02	< 0.02	< 0.04	14	
BR/BRT Morretes-PR 2000/158/	0.100	400	0.025	4	< 0.02	< 0.02	< 0.04	7	#2001/5002342 D9908
	0.200	400	0.050		< 0.02	< 0.02	< 0.04	7	

Cantaloupe

In the six trials performed in cantaloupe, BAS 500 00 F was applied six times at a use rate of 0.224 kg ai/ha (Wofford T. et al. BASF 1999/5083). The crops were harvested directly after last application (day 0). This use pattern corresponds to agricultural practice in USA.

The results are summarized in Table 13.

Table 13. Residues in cantaloupe treated with BAS 500 00 F in supervised trials conducted in USA.

Location/ trial code	Application		Residues (mg/kg)				Ref. Report No
	No.	kg ai/ha	Day	BAS 500 F	500M07	Total residue	
(GAP: 4 × 0.224 kg ai/ha with a PHI of 0 days)							
Henry county, AL 98006	6	0.224	0	0.10, 0.11	< 0.02, < 0.02	0.12, 0.13	995083/ D9908
Ottawa County, MI 98012	6	0.224	0	0.10, 0.10	< 0.02, < 0.02	0.12, 0.12	
Caddo County, OK 98015	6	0.224	0	0.08, 0.06	0.03, 0.02	0.11, 0.08	
Tulare County, CA 98017	6	0.224	0	0.13, 0.12	< 0.02, < 0.02	0.15, 0.14	
Glenn County, CA 98018	6	0.224	0	0.12, 0.08	< 0.02, < 0.02	0.14, 0.10	
Fresno County, CA	6	0.224	0	0.09, 0.09	< 0.02, < 0.02	0.11, 0.11	
Tift County, GA 98005	6	0.224	0	< 0.02, 0.05	< 0.02, < 0.02	0.04, 0.07	995083/ D9908
			3	< 0.02, < 0.02	< 0.02, < 0.02	0.04, 0.04	
			7	< 0.02, < 0.02	< 0.02, < 0.02	0.04, 0.04	
			10	< 0.02, < 0.02	< 0.02, < 0.02	0.04, 0.04	
			15	< 0.02, < 0.02	< 0.02, < 0.02	0.04, 0.04	
Tulare county, CA 98016	6	0.224	0	0.12, 0.09	< 0.02, < 0.02	0.14, 0.11	995083/ D9908
			3	0.03, 0.03	< 0.02, < 0.02	0.05, 0.05	
			7	< 0.02, < 0.02	< 0.02, < 0.02	0.04, 0.04	
			10	< 0.02, < 0.02	< 0.02, < 0.02	0.04, 0.04	
			15	< 0.02, < 0.02	< 0.02, < 0.02	0.04, 0.04	

Peppers and tomato

During the growing seasons from 1999 to 2003, eleven studies with a total of 23 field and 20 greenhouse trials were conducted in different representative areas for pepper and tomato cultivation in France, Greece, Italy and Spain (Balluf M., BASF 2001/1009067 and BASF 2001/1009060, Treiber S., 2001/1006129, Schulz H., BASF 2004/1015938).

The applications were done about 17, 10 and 3 days before commercial harvest of the crop. The intended PHI was 3 days. For the analysis, fruits were sampled immediately after the last application as well as about 3, 7 and 10 days thereafter.

The 2004 JMPR reported field trials on peppers from Brazil and USA. The latter ones were performed according to GAP.

The results of European trials are summarized in Tables 14 and 16-18 and 17-18. Table 15 contains the trial data reported by the 2004 JMPR.

Table 14. Results of supervised trials conducted on field peppers in Europe.

Country/ year trial code	Application[1]			Residues[2] (mg/kg)				Ref. Report No
	No.	kg ai/ha	kg ai/hL	Day	BAS 500 F	500M07	Total residue	
Italy 2000 (I00W018R)	3	0.100	0.01	0	0.03	< 0.02	0.05	#2001/ 1009087
				3	0.03	< 0.02	0.05	
				7	< 0.02	< 0.02	< 0.04	
				14	< 0.02	< 0.02	< 0.04	
Italy 2000 (I00W019R)	3	0.100	0.01	0	0.03	< 0.02	0.05	#2001/ 1009087
				3	0.03	< 0.02	0.05	
				7	< 0.02	< 0.02	< 0.04	
				14	< 0.02	< 0.02	< 0.04	
Italy 2000 (I00W020R)	3	0.100	0.01	0	0.04	< 0.02	0.06	#2001/ 1009087
				3	0.02	< 0.02	0.04	
				7	< 0.02	< 0.02	< 0.04	
				14	0.03	< 0.02	0.05	
I Italy 2000 (I00W021R)	3	0.100	0.01	0	0.11	< 0.02	0.13	#2001/ 1009087
				3	0.13	< 0.02	0.15	
				7	0.08	< 0.02	0.10	
				14	0.04	< 0.02	0.06	
Spain[1] 2001 (ALO/05/01)	3	0.100	0.01	0	0.22	< 0.02	0.24	#2001/ 1015036
				3	0.13	< 0.02	0.15	
				7	0.10	< 0.02	0.12	
				14	0.04	< 0.02	0.06	
Spain[1] 2001 (ALO/05/01)	3	0.100	0.01	0	0.36	0.02	0.38	#2001/ 1015036
				2	0.25	0.03	0.28	
				7	0.10	< 0.02	0.12	
				14	0.04	< 0.02	0.06	
Spain[1] 2001 (ALO/05/01)	3	0.100	0.01	0	0.06	< 0.02	0.08	#2001/ 1015036
				3	0.03	< 0.02	0.05	
				7	0.02	< 0.02	0.04	
				14	< 0.02	< 0.02	< 0.04	
Spain[1] 2001 (ALO/05/01)	3	0.100	0.01	0	0.09	< 0.02	0.11	#2001/ 1015036
				3	0.09	< 0.02	0.11	
				6	0.07	< 0.02	0.09	
				14	0.04	< 0.02	0.06	

1 BAS 516 GA F formulation is not indicated, BAS 518 01 F is marked with superscript 1.

2 Residues were measured in pepper fruits

Table 15. Pyraclostrobin residues in pepper resulting from supervised trials in Brazil and USA (reported by the 2004 JMPR).

Location	Application		Residues, mg/kg			PHI days	Ref Report No.
	No.	kg ai/ha	BAS 500F	500M07	Total		Methods
(GAP: 3 × 0.1 kg ai/ha with a PHI of 7 days)							
BR/BRX 2000/577	4	0.15	0.12	< 0.02	0.14	0	#2001/5002342 D9908
			0.11	0.02	0.13	1	
			0.04	0.02	0.07	3	
			< 0.02	0.02	< 0.04	7	
			< 0.02	0.02	< 0.04	10	
BR/BRU 2000/502	4	0.15	0.17	< 0.02	0.19	3	#2001/5002342 D9908
		0.30	0.52	< 0.02	0.54	3	
BR/BRT 2000/574	4	0.15	0.22	< 0.02	0.24	3	#2001/5002342 D9908
		0.30	0.17	< 0.02	0.19	3	
BR/BRV 2000/576	4	0.15	0.32	0.07	0.39	3	#2001/5002342 D9908
		0.30	0.28	0.05	0.33	3	
USA Oklahoma Dill City.	6	0.224	0.82	0.04	0.86	0	# 1999/5151 421/0 (g)
USA Texas Claude.	6	0.224	0.22	< 0.02	0.24	0	# 1999/5151 421/0 (g)
USA New Mexico Hatch.	6	0.224	0.14	< 0.02	0.16	0	# 1999/5151 421/0 (g)

Table 16. Results of supervised trials conducted on field tomato in Europe.

Country/ year trial code	Application[1]			Residues[2] (mg/kg)				Ref. Report No
	No.	kg ai/ha	kg ai/hL	Day	BAS 500 F	500M07	Total residue	
GAP: 3 × 0.067-0.1 kg ai/ha with a PHI of 3 days								
Italy 2000 (I00W022R)	3	0.100	0.025	0	0.07	< 0.02	0.09	#2001/ 1009086
				3	< 0.02	< 0.02	< 0.04	
				7	0.02	< 0.02	0.04	
				13	< 0.02	< 0.02	< 0.04	
Italy 2000 (I00W023R)	3	0.100	0.025	0	0.06	< 0.02	0.08	#2001/ 1009086
				3	0.04	< 0.02	0.06	
				7	< 0.02	< 0.02	< 0.04	
				14	< 0.02	< 0.02	< 0.04	
Italy 2000 (I00W024R)	3	0.100	0.025	0	0.04	< 0.02	0.06	#2001/ 1009086
				3	< 0.02	< 0.02	< 0.04	
				7	< 0.02	< 0.02	< 0.04	
				14	< 0.02	< 0.02	< 0.04	
Italy 2000 (I00W025R)	3	0.100	0.025	0	0.19	< 0.02	0.21	#2001/ 1009086
				3	0.13	< 0.02	0.15	
				7	0.09	< 0.02	0.11	
				14	0.09	< 0.02	0.11	
Spain 2001 (ALO/07/01)	3	0.100	0.025	0	0.07	< 0.02	0.09	#2001/ 1015035
				4	0.04	< 0.02	0.06	
				7	0.03	< 0.02	0.05	
				14	0.02	< 0.02	0.04	
Spain 2001 (ALO/08/01)	3	0.100	0.025	0	0.12	< 0.02	0.14	#2001/ 1015035
				4	0.09	< 0.02	0.11	
				7	0.07	< 0.02	0.09	
				14	0.04	< 0.02	0.06	

Country/ year trial code	Application[1]			Residues[2] (mg/kg)				Ref. Report No
	No.	kg ai/ha	kg ai/hL	Day	BAS 500 F	500M07	Total residue	
Spain 2001 (AYE/08/01)	3	0.100	0.025	0 4 7 14	0.02 < 0.02 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02	0.04 < 0.04 < 0.04 < 0.04	#2001/ 1015035
Spain 2001 (AYE/09/01)	3	0.100	0.025	0 3 7 14	0.04 0.02 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02	0.06 0.04 < 0.04 < 0.04	#2001/ 1015035
Greece 2002 (02RF030/1)	3	0.100	0.025	0 2 7 14	0.11 0.04 0.04 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02	0.13 0.06 0.06 < 0.04	#2004/ 1024744
France 2003 (FTL/06/03)	3	0.100	0.025	0 3 9 14	0.11 0.10 0.06 0.05	0.05 0.08 0.04 0.05	0.16 0.18 0.10 0.10	#2004/ 1015936
France 2003 (FBD/06/03)	3	0.100	0.025	0 3 7 14	0.10 0.07 0.04 0.07	< 0.02 0.04 < 0.02 < 0.02	0.12 0.11 0.06 0.09	#2004/ 1015936
Italy[1] 2003 (ITA/06/02)	3	0.100	0.01	0 2 7 13	0.07 0.03 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02	0.09 0.05 < 0.04 < 0.04	#2003/ 1001360
Italy[1] 2003 (ITA/07/02)	3	0.100	0.01	0 3 7 14	0.11 0.06 0.04 0.05	< 0.02 < 0.02 < 0.02 < 0.02	0.13 0.08 0.06 0.07	#2003/ 1001360
Italy[1] 2003 (ITA/08/02)	3	0.100	0.01	0 3 7 14	0.07 0.03 < 0.02 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02	0.09 0.05 < 0.04 < 0.04	#2003/ 1001360
Italy[1] 2003 (ITA/09/02)	3	0.100	0.01	0 3 7 13	0.14 0.11 0.08 0.05	< 0.02 < 0.02 < 0.02 < 0.02	0.16 0.13 0.10 0.07	#2003/ 1001360

1. BAS 516 GA F formulation is not indicated, BAS 518 01 F is marked with superscript 1.
2. Residues were measured in tomato fruits

Table 17. Results of supervised trials conducted with BAS 516 GA F on greenhouse peppers in Europe.

Country/ year trial code	Application			Residues (mg/kg)				Ref. Report No
	No.	kg ai/ha	kg ai/hL	Day	BAS 500 F	500M07	Total residue	
GAP: 3 × 0.067-0.1 kg ai/ha with a PHI of 3 days								
Spain 1999 (S99018R)	3	0.100	0.025	0 3 7 14	0.16 0.13 0.07 0.08	< 0.02 < 0.02 < 0.02 < 0.02	0.18 0.15 0.09 0.10	#2001/ 1009060

Country/ year trial code	Application			Residues (mg/kg)				Ref. Report No
	No.	kg ai/ha	kg ai/hL	Day	BAS 500 F	500M07	Total residue	
Spain 1999 (S99019R)	3	0.100	0.025	0	0.28	< 0.02	0.30	#2001/ 1009060
				2	0.16	< 0.02	0.18	
				7	0.17	< 0.02	0.19	
				14	0.14	< 0.02	0.16	
Spain 1999 (S99020R)	3	0.100	0.025	0	0.11	< 0.02	0.13	#2001/ 1009060
				3	0.07	< 0.02	0.09	
				8	0.03	< 0.02	0.05	
				14	< 0.02	< 0.02	< 0.04	
Spain 1999 (S99021R)	3	0.100	0.025	0	0.52	< 0.02	0.54	#2001/ 1009060
				3	0.24	< 0.02	0.26	
				7	0.30	< 0.02	0.32	
				14	0.26	< 0.02	0.28	
Spain 2000 (AC/03/00)	3	0.100	0.025	0	0.11	< 0.02	0.13	#2001/ 1006129
				3	0.08	< 0.02	0.10	
				7	0.04	< 0.02	0.06	
				14	< 0.02	< 0.02	< 0.04	
Spain 2000 (AC/04/00)	3	0.100	0.025	0	0.06	< 0.02	0.08	#2001/ 1006129
				4	0.08	< 0.02	0.10	
				7	0.07	< 0.02	0.09	
				14	0.03	< 0.02	0.05	
Spain 2000 (AC/05/00)	3	0.100	0.025	0	0.14	< 0.02	0.16	#2001/ 1006129
				4	0.17	< 0.02	0.19	
				7	0.09	< 0.02	0.11	
				14	0.07	< 0.02	0.09	
Spain 2000 (AC/06/00)	3	0.100	0.025	0	0.15	< 0.02	0.17	#2001/ 1006129
				3	0.13	< 0.02	0.15	
				7	0.12	< 0.02	0.14	
				14	0.08	< 0.02	0.10	
Greece 2002 (02RF030/3)	3	0.100	0.025	0	0.17	< 0.02	0.19	#2004/ 1024744
				3	0.06	< 0.02	0.08	
				7	0.04	< 0.02	0.06	
				14	0.02	< 0.02	0.04	

Table 18. Results of supervised trials conducted with BAS 516 GA F on greenhouse tomato in Europe.

Country/ year trial code	Application			Residues (mg/kg)				Ref. Report No
	No.	kg ai/ha	kg ai/hL	Day	BAS 500 F	500M07	Total residue	
Spain 1999 (S99014R)	3	0.100	0.025	0	0.04	< 0.02	0.06	#2001/ 1009067
				3	0.06	< 0.02	0.08	
				7	0.03	< 0.02	0.05	
				14	< 0.02	< 0.02	< 0.04	
Spain 1999 (S99015R)	3	0.100	0.025	0	0.09	< 0.02	0.11	#2001/ 1009067
				2	0.06	< 0.02	0.08	
				7	0.03	< 0.02	0.05	
				15	0.04	< 0.02	0.06	
Spain 1999 (S99016R)	3	0.100	0.025	0	0.11	< 0.02	0.13	#2001/ 1009067
				3	0.09	< 0.02	0.11	
				7	0.04	< 0.02	0.06	
				14	< 0.02	< 0.02	< 0.04	

Country/ year trial code	Application			Residues (mg/kg)				Ref. Report No
	No.	kg ai/ha	kg ai/hL	Day	BAS 500 F	500M07	Total residue	
Spain	3	0.100	0.025	0	0.11	< 0.02	0.13	#2001/
1999				3	0.12	< 0.02	0.14	1009067
(S99017R)				8	0.05	< 0.02	0.07	
				14	0.09	< 0.02	0.11	
Spain	3	0.100	0.025	0	0.05	< 0.02	0.07	#2001/
2000				3	0.04	< 0.02	0.06	1006129
(AC/07/00)				7	0.04	< 0.02	0.06	
				14	0.06	< 0.02	0.08	
Spain	3	0.100	0.025	0	0.04	< 0.02	0.06	#2001/
2000				4	0.03	< 0.02	0.05	1006129
(AC/08/00)				7	0.04	< 0.02	0.06	
				13	0.03	< 0.02	0.05	
Spain	3	0.100	0.025	0	0.05	< 0.02	0.07	#2001/
2000				4	0.07	< 0.02	0.09	1006129
(AC/09/00)				7	0.04	< 0.02	0.06	
				14	0.03	< 0.02	0.05	
Spain	3	0.100	0.025	0	0.05	< 0.02	0.07	#2001/
2000				4	0.06	< 0.02	0.08	1006129
(AC/10/00)				7	0.04	< 0.02	0.06	
				14	0.05	< 0.02	0.07	
Greece	3	0.100	0.025	0	0.14	< 0.02	0.16	#2004/
2002				3	0.03	< 0.02	0.05	1024744
(02RF030/2)				7	0.06	< 0.02	0.08	
				14	0.04	< 0.02	0.06	
France	3	0.100	0.025	0	0.05	< 0.02	0.07	#2004/
2003				3	0.07	< 0.02	0.09	1015938
(FAN/13/03)				7	0.09	< 0.02	0.11	
				13	0.07	< 0.02	0.09	
France	3	0.100	0.025	0	0.11	< 0.02	0.13	#2004/
2003				3	0.11	< 0.02	0.13	1015938
(FTL/07/03)				7	0.04	< 0.02	0.06	
				14	0.06	< 0.02	0.08	

Kale

During the 1999 and 2000 growing seasons, two studies (Beck J., BASF 2001/1001000 and 2001/1001001) with a total of six field trials were conducted in curly kale in Denmark, Great Britain, the Netherlands and Sweden. The BAS 516 GA F was applied four times at 1.5 kg/ha each, in a spray volume of 300 L/ha. The applications were done about 5, 4, 3 and 2 weeks before anticipated commercial harvest of the crop. Samples were taken from 0 to 20–21 days after last application. The product is registered in UK with a GAP of 3 applications at 0.067 kg ai/ha with a PHI of 14 days.

The results are summarized in Table 19.

Table 19. Summary of residues of pyraclostrobin in kale leaves derived from treatments carried out with BAS 516 GA F.

CROP	Application				Residues [mg/kg]			Ref. Report No
Country/ year trial code	No.	kg ai/ha	kg ai/hL	Day	Parent	500M07	Total	
GAP: 3 × 0.067-0.1 kg ai/ha with a PHI of 14 days								
Denmark	4	0.100	0.033	0	1.25	0.05	1.30	#2001/
2000				7	1.10	0.07	1.17	1001000
(ALB/08/00)				14	0.07	< 0.02	0.09	
				20	0.09	< 0.02	0.11	
Great Britain	4	0.100	0.033	0	0.07	< 0.02	0.09	#2001/
1999				6	< 0.02	< 0.02	< 0.04	1001001
(OAT/19/99)				13	< 0.02	< 0.02	< 0.04	
				21	< 0.02	< 0.02	< 0.04	
Great Britain	4	0.100	0.033	0	0.67	0.14	0.81	#2001/
1999				7	0.07	< 0.02	0.09	1001001
(OAT/21/99)				13	0.06	< 0.02	0.08	
				21	0.02	< 0.02	0.04	
Great Britain	4	0.100	0.033	0	1.83	< 0.02	1.85	#2001/
2000				8	0.38	< 0.02	0.40	1001000
(OAT/08/00)				14	0.18	< 0.02	0.20	
				21	0.26	< 0.02	0.28	
The Netherlands	4	0.100	0.033	0	1.87	0.06	1.93	#2001/
1999				7	< 0.02	< 0.02	< 0.04	1001001
(AGR/11/99)				15	0.31	< 0.02	0.33	
				22	0.11	< 0.02	0.13	
Sweden	4	0.100	0.033	0	0.87	0.03	0.90	#2001/
1999				8	0.40	< 0.02	0.42	1001001
(HUS/06/99)				14	0.49	0.03	0.52	
				21	0.61	0.04	0.65	

Lettuce, head

A pesticide product containing 20% pyraclostrobin has been registered for Brassica vegetables (head and stem), Brassica leafy vegetables and leafy vegetables (except Brassica) in the USA. For lettuce, 4 applications at 0.117–0.23 kg ai/ ha are authorised with PHI of 0 day.

The results of trials reported by the 2004 JMPR are shown in Table 20.

Table 20. Pyraclostrobin residues at Day 0 in lettuce resulting from supervised trials in USA.

	Application				Residues, [mg/kg]			Trials number
Location	kg ai/ha	Water L/ha	kg ai/hL	No.	Parent	500M07	total	Method
GAP: 4 × 0.23 kg ai/ha with a PHI of 0 day								
USA California Salinas	0.224	625	0.036	4	3.69	0.14	3.83	# 2002/5003764 D9908
USA Florida Gainesville	0.224	375	0.060	4	13.70	0.34	14.0	# 2002/5003764 D9908
USA California El Centro	0.224	510	0.044	4	1.95	0.09	2.04	# 2002/5003764 D9908
USA Columbia Cloverdale	0.224	719	0.031	4	4.96	0.21	5.17	# 2002/5003764 D9908
USA California Parlier	0.224	346	0.065	4	19.70	0.35	20.1	# 2002/5003764 D9908
USA California Parlier	0.224	341	0.066	4	14.90	0.36	15.3	# 2002/5003764 D9908

Further 18 trials were carried out in typical growing regions of Europe (Beck J., BASF Doc ID 2001/1000998 and2001/1000999, Schulz H., BASF 2001/1000933) during 1999 and 200 according to the GAP (2 × 0.1 kg ai/ha at 10–14 day interval and PHI of 14 days).

The two applications with 0.1 kg ai/ha were made about 4 and 2 weeks before commercial harvest of the crop. For the analysis, lettuce heads were sampled immediately after the last application as well as about 7, 14 and 21 days thereafter.

During the 2002 growing season, one study (Young H. and Atkinson S., BASF 2003/1001259) with eight greenhouse trials was conducted in Germany, Spain, France and the Netherlands. The BAS 516 00 F was tested performing two applications with 1.5 kg/ha each in a spray volume of 500 L/ha resulting in application rates of 0.1 kg ai/ha of pyraclostrobin. The applications were done about 4 and 2 weeks before commercial harvest of the crop. The intended PHI was 14 days. For the analysis, lettuce heads were sampled immediately after the last application as well as about 7, 14 and 21 days thereafter.

The results are summarized in Tables 21 and 22.

Table 21. Results of supervised field trials conducted with BAS 516 GA F on head lettuce.

Country/ year trial code	Application			Residues [mg/kg]				Ref. Report No
	No.	kg ai/ha	kg ai/hL	Day	Parent	500M07	Total	
GAP: 2 × 0.1 kg ai/ha with a PHI of 14 days								
Germany 1999 (ACK/06/99)	2	0.100	0.025	0 7 14 21	2.39 0.15 < 0.02 < 0.02	0.06 < 0.02 < 0.02 < 0.02	2.44 0.17 < 0.04 < 0.04	#2001/ 1000998
Germany 1999 (DU2/11/99)	2	0.100	0.025	0 7 14 21	2.73 0.13 0.06 < 0.02	0.024 < 0.02 < 0.02 < 0.02	2.76 0.15 0.08 < 0.04	#2001/ 1000998
Germany 1999 (DU4/08/99)	2	0.100	0.025	0 5 13 20	4.65 0.39 0.08 0.03	0.044 0.045 < 0.02 < 0.02	4.69 0.44 0.10 0.05	#2001/ 1000998
Germany 2000 (ACK/03/00)	2	0.100	0.025	0 6 14 22	1.76 < 0.02 0.28 < 0.02	< 0.02 < 0.02 0.03 < 0.02	1.78 < 0.04 0.32 < 0.04	#2001/ 1000999
Germany 2000 (DU2/05/00)	2	0.100	0.025	0 7 14 21	2.39 0.06 < 0.02 < 0.02	0.03 < 0.02 < 0.02 < 0.02	2.42 0.08 < 0.04 < 0.04	#2001/ 1000999
Spain 1999 (AC/14/99)	2	0.100	0.025	0 7 13 20	1.78 0.43 0.04 0.04	< 0.02 0.03 < 0.02 < 0.02	1.80 0.46 0.06 0.06	#2001/ 1000998
Spain 1999 (AC/15/99)	2	0.100	0.025	0 7 13 20	1.81 0.41 0.04 < 0.02	0.02 0.03 < 0.02 < 0.02	1.83 0.44 0.06 < 0.04	#2001/ 1000998
Spain 1999 (AC/16/99)	2	0.100	0.025	0 7 13 20	2.45 0.29 0.08 < 0.02	0.05 0.05 < 0.02 < 0.02	2.50 0.34 0.10 < 0.04	#2001/ 1000998

Country/ year trial code	Application			Residues [mg/kg]				Ref. Report No
	No.	kg ai/ha	kg ai/hL	Day	Parent	500M07	Total	
Spain 2000 (AC/15/00)	2	0.100	0.025	0 6 14 20	4.05 0.14 < 0.02 < 0.02	0.03 0.02 < 0.02 < 0.02	4.09 0.16 < 0.04 < 0.04	#2001/ 1000999
Spain 2000 (AC/16/00)	2	0.100	0.025	0 6 14 21	1.77 0.19 0.03 < 0.02	< 0.02 0.03 < 0.02 < 0.02	1.79 0.22 0.05 < 0.04	#2001/ 1000999
France 1999 (X 99 62 11)	2	0.100	0.025	0 7 14 21	2.53 0.08 < 0.02 < 0.02	0.05 0.02 < 0.02 < 0.02	2.58 0.10 < 0.04 < 0.04	#2001/ 1000933
France 1999 (X 99 62 12)	2	0.100	0.025	0 7 14 21	3.09 0.07 < 0.02 < 0.02	0.11 0.03 < 0.02 < 0.02	3.20 0.10 < 0.04 < 0.04	#2001/ 1000933
France 1999 (FR4/01/99)	2	0.100	0.025	0 7 14 21	2.76 0.24 0.04 < 0.02	< 0.02 0.03 < 0.02 < 0.02	2.78 0.27 0.06 < 0.04	#2001/ 1000998
France 2000 (FR3/06/00)	2	0.100	0.025	0 7 14 21	2.21 0.36 0.38 0.25	0.06 0.05 0.04 0.03	2.27 0.40 0.42 0.29	#2001/ 1000999
France 2000 (FR4/06/00)	2	0.100	0.025	0 7 13 20	2.03 0.11 0.04 < 0.02	< 0.02 < 0.02 < 0.02 < 0.02	2.05 0.13 0.06 < 0.04	#2001/ 1000999
France 2000 (FR8/05/00)	2	0.100	0.025	0 7 14 21	1.62 0.28 0.08 0.13	0.03 0.03 < 0.02 < 0.02	1.65 0.31 0.10 0.15	#2001/ 1000999
The Netherlands 1999 (AGR/13/99)	2	0.100	0.025	0 6 14 22	1.75 0.11 < 0.02 < 0.02	0.04 < 0.02 < 0.02 < 0.02	1.78 0.13 < 0.04 < 0.04	#2001/ 1000998
The Netherlands 2000 (AGR/03/00)	2	0.100	0.025	0 7 13 20	1.74 0.11 0.04 < 0.02	0.02 < 0.02 < 0.02 < 0.02	1.77 0.13 0.06 < 0.04	#2001/ 1000999

Table 22. Results of supervised trials conducted with BAS 516 00 F on head lettuce in greenhouse.

CROP	Application				Residues [mg/kg]			Ref. Report No
Country/ year trial code	No.	kg ai/ha	kg ai/hL	Day	Parent	500M07	Total	
GAP: 2 × 0.1 kg ai/ha with a PHI of 14 days								
Germany 2002 (ACK/03/02)	2	0.100	0.025	0 7 13 20	6.71 0.18 0.03 < 0.02	0.03 < 0.02 < 0.02 < 0.02	6.74 0.20 0.05 < 0.04	#2003/ 1001259

CROP	Application				Residues [mg/kg]			Ref. Report No
Country/ year trial code	No.	kg ai/ha	kg ai/hL	Day	Parent	500M07	Total	
The Netherlands 2002 (AGR/08/02)	2	0.100	0.025	0 6 14 20	5.87 1.98 0.81 0.19	< 0.02 0.05 0.03 < 0.02	5.89 2.03 0.84 0.21	#2003/ 1001259
Spain 2002 (ALO/04/02)	2	0.100	0.025	0 7 14 21	3.86 0.61 0.75 0.32	0.04 0.04 0.07 0.04	3.90 0.65 0.82 0.36	#2003/ 1001259
Spain 2002 (AYE/03/02)	2	0.100	0.025	0 7 14 21	6.31 0.50 0.04 < 0.02	0.11 0.04 < 0.02 < 0.02	6.42 0.54 0.06 < 0.04	#2003/ 1001259
France 2002 (FAN/04/02)	2	0.100	0.025	0 7 14 21	3.30 0.53 0.23 0.09	0.02 < 0.02 < 0.02 < 0.02	3.32 0.55 0.25 0.11	#2003/ 1001259
France 2002 (FBD/04/02)	2	0.100	0.025	0 7 13 21	4.88 1.09 0.29 0.07	0.04 0.02 < 0.02 < 0.02	4.92 1.11 0.31 0.09	#2003/ 1001259
France 2002 (FBM/02/02)	2	0.100	0.025	0 7 14 21	1.89 0.99 0.33 0.19	0.03 0.03 < 0.02 < 0.02	1.92 1.02 0.35 0.21	#2003/ 1001259
France 2002 (FTL/21/02)	2	0.100	0.025	0 7 14 21	3.79 0.26 0.13 < 0.02	0.04 0.03 < 0.02 < 0.02	3.83 0.29 0.15 < 0.04	#2003/ 1001259

Snap beans

Nine trials were carried out at various locations of the USA during the 2000 growing season. Two foliar applications were made to each treated plot at a target rate of 0.224 kg ai/ha. The intervals between the two applications were not reported.

Samples of snap beans of normal maturity were collected 7 days after the last application. The results of the trials, reported by the 2004 JMPR, are shown in Table 23.

Table 23. Pyraclostrobin residues in snap beans resulting from supervised trials in USA

	Application per treatment				Residues [mg/kg]				trials number
Location USA	kg ai/ha	Water L/ha	kg ai/hL	No of tr.	Parent	500M07	Total	PHI days	Method
GAP: 4 × 0.13 kg ai/ha with a PHI of 7 days									
Germansville, PA	0.230	287	0.08	2	0.10	0.04	0.14	7	# y2001/5000906 D9808
Athens CA	0.225	259	0.08	2	0.10	0.04	0.14	7	# 2001/5000906 D9608
Geneva MN	0.224	170	0.13	2	0.13	0.03	0.15	7	# 2001/5000906 D9808
Arkansaw W	0.227	189	0.12	2	< 0.02	< 0.02	0.04	14	# 2001/5000906
Madera CA	0.224	280	0.08	2	0.08	0.06	0.13	7	# 2001/5000906 D9808
Jerome ID	0.222	308	0.07	2	0.04	0.03	0.07	7	# 2001/5000906
Kings county	0.225	248	0.091	2	0.11	0.02	0.13	7	# 2001/5000906

	Application per treatment				Residues [mg/kg]				trials number
Location USA	kg ai/ha	Water L/ha	kg ai/hL	No of tr.	Parent	500M07	Total	PHI days	Method
GAP: 4 × 0.13 kg ai/ha with a PHI of 7 days									
NS									D9808
St. Cesaire .QC	0.222	274	0.08	2	0.12	0.03	0.15	7	# 2001/5000906 D9808
St. Cesaire. QC	0.226	283	0.08	2	0.16	0.03	0.19	7	# 2001/5000906 D9808

Vining peas

Four studies (Jones S., BASF 2003/1012652, Smalley R., BASF 2003/1004355, Schulz H., BASF 2004/1010544 and 2004/1006472) with a total of 21 field trials were conducted in vining peas in France (N/S), the United Kingdom, Germany, Denmark and Sweden in 2002 and 2003. The BAS 512 00 F and BAS 516 00 F were applied twice with a target rate of 100 to 67 g ai/ha. The samples were taken at earliest commercial harvest (corresponding to approximately 8–14 days after the last application). The results are summarized in Table 24. In green peas the residues were below the limit of quantitation of 0.02 mg/kg.

Table 24. Residue ranges of pyraclostrobin derived from supervised field trials conducted on vining peas.

Crop	No. of trials	Application		DALA	Residues (mg/kg)		
		Rate (kg ai/ha)	No.		Parent	500M07	Total
GAP: 2 × 0.1 kg ai/ha with a PHI of 35 days							
BAS 512 00 F (2002, BASF Doc ID 2003/1012652)							
Vining peas	6	0.100	2	0 8 -18* 8 - 18**	0.15 - 6.54 < 0.02 0.14 - 1.18	0.06 - 0.77 < 0.02 0.15 - 0.73	0.22 - 7.31 < 0.04 0.29 - 1.78
BAS 512 00 F (2003, BASF Doc ID 2004/1010544)							
Vining peas	6	0.100	2	0 3 - 21* 3 - 21**	1.17 - 3.67 < 0.02 0.12 - 3.81	0.11 - 0.27 < 0.02 0.10 - 1.26	1.31 - 3.94 < 0.04 0.22 - 5.06
BAS 516 00 F (2002, BASF Doc ID 2003/1004355)							
Vining peas	5	0.067	1	0 11 - 15* 11 - 15** 14 - 22* 14 - 22**	0.37 - 1.50 < 0.02 0.12 - 0.63 < 0.02 0.08 - 0.48	< 0.02 - 0.02 < 0.02 0.04 - 0.16 < 0.02 0.02 - 0.13	0.39 - 1.52 < 0.04 0.16 - 0.79 < 0.04 0.10 - 0.61
BAS 516 00 F (2003, BASF Doc ID 2004/1006472)							
Vining peas	4	0.067	1	0 14* 14** 21* 21**	0.60 - 1.23 < 0.02 0.08 - 0.88 < 0.02 0.07 - 0.95	< 0.02 < 0.02 < 0.02 - 0.19 < 0.02 < 0.02 - 0.31	0.62 - 1.25 < 0.04 0.10 - 1.07 < 0.04 0.09 - 1.26

* green peas ** rest of plant

Soybean

In 2002, 17 field trials were conducted in the major growing regions in the US (Leonard R.C., BASF 2002/5004272). Two sequential applications were performed 7 ± 1 day apart with BAS 500 02 F at a rate of 0.224 kg as/ha. There was a 7 day target interval between the two applications. Duplicate

samples were taken 5 days after last application (immature seed) and at day 28 after the last application (dry seed). In immature seeds, the pyraclostrobin residue levels ranged from < 0.02 to 0.30 mg/kg. In ripe soybean seed, no residues above the limit of quantitation were found in any of the samples.

Soybean forage samples were collected 14 day after last application. The results are summarised in Table 25.

The supervised trials were conducted in Brazil (Abdel-Baky S., BASF 2001/5002354). The residues detected in soybean seeds are summarized in Table 26 together with those which were reported by the 2004 JMPR.

Table 25. Residues in immature soybean seeds, soybean forage and hay following two applications of pyraclostrobin at a total rate of 0.448 kg (0.437–0.459) ai/ha with spray volume ranging from 187 to 364 L/ha (Leonard R.C., BASF 2002/5004272).

RCN (State or province)	Residues [mg/kg]			PHI
	Parent	500M07	Total	
GAP: 2 × 0.42 kg ai/ha with a PHI of 21 days				
Immature seed				
2002191 (GA)	< 0.02, < 0.02	< 0.02, < 0.02	< 0.04,< 0.04	5
2002192 (VA)	< 0.02, < 0.02	< 0.02, < 0.02	< 0.04,< 0.04	5
2002193 (AR)	0.24, 0.3	0.03, 0.03	0.27, 0.33	5
2002194 (AR)	< 0.02, 0.02	< 0.02, < 0.02	< 0.04, 0.04	5
2002195 (VW)	< 0.02, < 0.02	< 0.02, < 0.02	< 0.04,< 0.04	5
2002196 (MN)	0.05, 0.08	< 0.02, < 0.02	0.07, 0.1	5
2002197 (IA)	< 0.02, < 0.02	< 0.02, < 0.02	< 0.04,< 0.04	5
2002198 (IA)	< 0.02, < 0.02	< 0.02, < 0.02	< 0.04,< 0.04	5
2002199 (NE)	< 0.02, < 0.02	< 0.02, < 0.02	< 0.04,< 0.04	5
2002200 (NE)	< 0.02, < 0.02	< 0.02, < 0.02	< 0.04,< 0.04	5
2002201 (ND)	< 0.02, < 0.02	< 0.02, < 0.02	< 0.04,< 0.04	5
2002202 (ND)	< 0.02, < 0.02	< 0.02, < 0.02	< 0.04,< 0.04	5
2002203 (ND)	< 0.02, < 0.02	< 0.02, < 0.02	< 0.04,< 0.04	5
2002204 (SD)	< 0.02, < 0.02	< 0.02, < 0.02	< 0.04,< 0.04	5
2002205 (IL)	< 0.02, < 0.02	< 0.02, < 0.02	< 0.04,< 0.04	5
2002206(IL)	< 0.02, < 0.02	< 0.02, < 0.02	< 0.04,< 0.04	5
2002216(Qb)	< 0.02, < 0.02	< 0.02, < 0.02	< 0.04,< 0.04	5
Forage				
2002191 (GA)	2.48, 2.91	0.30, 0.34	2.78, 3.25	14
2002192 (VA)	2.70, 2.04	0.36, 0.24	3.06, 2.24	14
2002193 (AR)	3.19, 3.24	0.62, 0.63	3.81, 387	14
2002194 (AR)	1.39, 1.09	0.40, 0.31	1.79, 1.39	14
2002195 (VW)	0.75, 0.88	0.09, 0.08	0.84, 0.96	14
2002196 (MN)	2.42, 3.06	0.29, 0.31	2.71, 3.37	14
2002197 (IA)	1.08, 1.59	0.3, 0.3	0.38, 0.89	14
2002198 (IA)	0.65, 0.84	0.13, 0.18	0.78, 1.02	14
2002199 (NE)	1.11, 1.09	0.53, 0.45	1.64, 1.54	14
2002200 (NE)	2.16, 1.33	0.39, 0.23	2.55, 1.56	14
2002201 (ND)	1.58, 1.62	0.16, 0.17	1.74, 1.79	14
2002202 (ND)	2.40, 3.22	0.29, 0.28	2.69, 3.5	14
2002203 (ND)	1.34, 0.67	0.13, 0.07	1.47, 0.74	14
2002204 (SD)	1.96, 1.41	0.25, 0.18	2.21, 1.59	14
2002205 (IL)	1.35, 1.24	0.17, 0.16	1.52, 1.4	14
2002206(IL)	0.89, 0.90	0.2, 0.18	1.09, 1.08	14
2002216(Qb)	2.0, 1.7	0.22, 0.21	2.22, 1.91	14
2002191 (GA)	0.76, 0.99	0.11, 0.12	0.87, 1.11	28
2002192 (VA)	0.92, 072	0.25, 0.19	1.17, 1.91	28
2002193 (AR)	1.37, 1.38	0.76, 0.77	2.13, 2.15	28
2002194 (AR)	0.64, 0.66	0.37, 0.38	1.01, 1.04	28
2002195 (VW)	1.47, 0.03	0.29, < 0.02	1.76, 0.05	28

RCN (State or province)	Residues [mg/kg]			PHI
	Parent	500M07	Total	
2002196 (MN)	0.96, 1.01	0.27, 0.27	1.23, 1.28	28
2002197 (IA)	1.47, 1.47	0.63, 0.68	2.10, 2.15	28
2002198 (IA)	0.79, 0.65	0.25, 0.21	1.04, 0.86	28
2002199 (NE)	4.25, 4.10	1.88, 1.85	6.13, 5.95	28
2002200 (NE)	1.7, 2.64	0.64, 1.14	2.34,378	28
2002201 (ND)	2.18,2.0	0.6, 0.36	2.78, 2.36	28
2002202 (ND)	2.82, 2.3	0.65, 0.54	3.47, 2.48	28
2002203 (ND)	1.79, 1.8	0.6, 0.59	2.39, 2.39	28
2002204 (SD)	1.81, 1.92	0.69, 0.71	2.5, 2.63	28
2002205 (IL)	1.83, 2.0	0.45, 0.39	2.28, 2.39	28
2002206(IL)	2.16, 2.14	0.51, 0.49	2.67, 2.63	28
2002216(Qb)	1.96, 1.74	0.46, 0.45	2.42, 2.19	28

Table 26. Pyraclostrobin residues in soybeans resulting from supervised trials in Brazil and Argentina.

	Appl. per treatment					Residues [mg/kg]				Trials number
location	kg as/ha	Water L/ha	kg as/hL	No of tr.	Portion analysed (a)	Parent	500M07	Total	PHI days	Method
GAP: 2 × 0.075 kg ai/ha with a PHI of 14 days										
BR/ BR2[1] Nova Ramadas-RS 2000/365/	0.100	200	0.050	2	Grain	< 0.02	< 0.02	< 0.04	0	#2001/5002355 D9908
						< 0.02	< 0.02	< 0.04	7	
						≤ 0.02	< 0.02	< 0.04	14	
						< 0.02	< 0.02	< 0.04	21	
						< 0.02	< 0.02	< 0.04	28	
BR/ BRT[1] Londrina-PR 2000/366/	0.100	200	0.050	2	Grain	≤ 0.02	< 0.02	< 0.04	14	#2001/5002355 D9908
	0.200	200	0.100	2		< 0.02	< 0.02	< 0.04	14	
BR /BRT[1] Lapa-PR 2000/367/	0.100	200	0.050	2	Grain	≤ 0.02	< 0.02	< 0.04	14	#2001/5002355 D9908
	0.200	200	0.100	2		< 0.02	< 0.02	< 0.04	14	
BR/ BRV[1] Überlandia-2000/368/	0.100	200	0.050	2	Grain	≤ 0.02	< 0.02	< 0.04	14	#2001/5002355 D9908
	0.200	200	0.100	2		< 0.02	< 0.02	< 0.04	14	
CDR/F/2000/362/BRT	0.0997				Grain	≤ 0.02	0.02	< 0.04	14	#2001/5002354 D9908
	0.1995					< 0.02	0.02	< 0.04	14	
CDR/F/2000/361/BRV	0.0997				Grain	≤ 0.02	0.03	< 0.04	14	
	0.1995					< 0.02	0.02	< 0.04	14	
CDR/F/2000/364/BR2	0.0997				Grain	0.02	0.02	< 0.04	0	
						< 0.02	0.02	< 0.04	7	
						≤ 0.02	0.02	< 0.04	14	
						0.02	0.02	< 0.04	21	
						< 0.02	0.02	< 0.04	28	
AR Chaco[1]	0.075	200	0.038	2	pod with grain	0.29	< 0.02	0.31	1	#2001/1017043 445/0
					grain	0.03	< 0.02	0.05	20	
					grain	< 0.02	< 0.02	< 0.04	48	
	0.150	200	0.075	2	pod with grain	0.55	< 0.02	0.57	1	
					Grain	0.04	< 0.02	0.06	20	
					Grain	< 0.02	< 0.02	< 0.04	48	

1. Reported by the 2004 JMPR

Sunflower

In 2001, seven field trials were conducted in the US and Canada (Versoi P. L., Abdel-Baky S., BASF 2001/5002552) to investigate the residue behaviour of BAS 500 F in sunflowers. The test formulation, BAS 500 02 F, was applied twice at a rate of 0.224 kg ai/ha. There was a seven day target interval

between the two applications. Locally available adjuvants were added to each spray mixture. Seed samples were taken 21 days after the last application, which is the registered pre-harvest interval. In seeds, pyraclostrobin residue levels ranged from < 0.02 to 0.22 mg/kg.

At the Texas site one separate plot received 5× recommended rate, in order to produce material containing sufficient residues for processing[1]. Sunflowers were treated with two sequential foliar applications of BAS 510 F at 1.08 and 1.12 kg ai/ha, with a 6 day retreatment interval, totalling 2.2 kg ai/ha/season (5× of the proposed label rate for pyraclostrobin). Mature sunflower seeds were harvested 21 days after the last application. A locally available spray adjuvant was included with each application. All applications were made as foliar sprays using ground equipment.

In 2004, one further residue trial was performed in US (Leonard R.C., BASF 2005/5000022). Application rate and sampling was carried out as described above. The residue levels detected were below the limit of quantitation.

The results are summarized in Table 27.

Table 27. Residues of pyraclostrobin in sunflower seed derived from supervised field trials in USA and Canada (P. L. Versoi, S. Abdel-Baky, BASF 2001/5002552).

	Application				Residues [mg/kg]		
RCN (State or Province)	Single [kgai/ha]	Vol. L/ha	Total kgai/ha	PHI (days)	Parent	500M07	Total
GAP: 2 × 0.21-0.42 kg ai/ha with a PHI of 21 days							
2001284 (ND)	0.224	234	0.4448	21	< 0.02, 0.05	< 0.02, < 0.02	< 0.04, 0.07
2001285 (ND)	0.235,0.224	187	0.459	21	0.02; 0.04	< 0.02, < 0.02	0.04; 0.06
2001286 (ND)	0.235,0.224	187	0.459	21	0.02, < 0.02	< 0.02, < 0.02	0.04, < 0.04
2001287 (SD)	0.224	187	0.448	20	0.10,0.10	< 0.02, < 0.02	0.12,0.12
2001288 (SD)	0.213,0.224	178, 187	0.437	20	0.06, 0.05	< 0.02, < 0.02	0.08, 0.07
2001289 (TX)	0.213,0.224	458, 468	0.437	21	0.06, < 0.02	< 0.02, < 0.02	0.08, < 0.04
	1.08, 1.12		2.2	21	1.40, 0.63	0.35, 0.17	1.75, 0.80
2001 290 (MB)	0.224	112	0.448	21	0.11.0.22	< 0.02, 0.03	0.13,0.25
2004 152 (IL)[1]	0.224			21	< 0.02	< 0.02	< 0.04

1. Leonard R.C., BASF 2005/5000022

Coffee

Field trials were carried out in Brazil (Abdel-Baky S., BASF 2001/5002354 and 2000/5276, Regenstein H., BASF 2003/1013063) to complement the data submitted to the 2004 JMPR.

Coffee was treated with BAS 512 00F at target rates of 0.1 kg ai/ ha and 0.2 kg ai/ha.

The samples of coffee beans at full ripening stage (red coffee berry) were taken. The results of the trials are given in Table 28.

Table 28. Pyraclostrobin residues in coffee beans resulting from supervised trials in Brazil.

	Application per treatment				Residues [mg/kg]				Trials number
Location	kg ai/ha	Water L/ha	kg ai/hL	No of tr.	Parent	500M07	Total	PHI days	method
GAP: 2 × 0.2 kg ai/ha with a PHI of 45 days									
BR Santo Antonio	0.175	500	0.035	2	0.03	< 0.02	0.05	45	2001/5002355
De Posse-SP	0.350	500	0.070		< 0.02	< 0.02	< 0.04	45	D 9908
BRAraguariMG129	0.175	500	0.035	2	< 0.02	< 0.02	< 0.04	45	# 2001/5002355
BR	0.350	500	0.070		0.08	< 0.02	0.10	45	D 9908
BR Romaria-MG	0.175	500	0.035	2	0.12	< 0.02	0.14	0	# 2001/5002355
CDR/F/2000					< 0.02	< 0.02	< 0.04	15	D 9908
130 BRV					< 0.02	< 0.02	< 0.04	30	
					< 0.02	< 0.02	< 0.04	45	
					0.11	< 0.02	0.13	60	
BR	0.175	500	0.035	2	0.15	< 0.02	0.17	45	# 2001/5002355
Miraselva-P	0.350	500	0.070		0.12	0.02	0.14	45	D 9908

	Application per treatment				Residues [mg/kg]				Trials number
Location	kg ai/ha	Water L/ha	kg ai/hL	No of tr.	Parent	500M07	Total	PHI days	method
127 BRT									
CDR/F/2000/125BRV	0.183			1	< 0.02	< 0.02	< 0.04	0	2001/5002354/D 9908
					< 0.02	< 0.02	< 0.04	15	
					< 0.02	< 0.02	< 0.04	30	
					≤ 0.02	< 0.02	< 0.04	45	
CDR/F/2000/126BRV	0.183				< 0.02	< 0.02	< 0.04	45	2001/5002354/D 9908
	0.366				0.12	0.03	0.15		
CDR/F/2000/126BRV	0.183				≤ 0.02	< 0.02	< 0.04	45	2001/5002354/D 9908
	0.366				0.05	< 0.02	0.07	45	
CDR/F/2000/126BRV	0.183				≤ 0.02	< 0.02	< 0.04	45	2001/5002354/D 9908
	0.366				< 0.02	< 0.02	< 0.04	45	
CDR/F/2000/127BRT	0.15				0.15	0.02	0.17	45	2000/5276 /D9908
	0.30				0.12	0.02	0.14	45	
CDR/F/2000/128BRU	0.15				0.03	< 0.02	0.05	45	2000/5276/ D9908
	0.30				< 0.02	< 0.02	< 0.04	45	
CDR/F/2000/129BRV	0.15				≤ 0.02	< 0.02	< 0.04	45	2000/5276 D9908
	0.30				0.08	< 0.02	0.1	45	

Hops

During the 2000 and 2001 growing seasons, two studies (Schneider K.H., BASF 2001/1015050 and BASF 2001/1015052) with a total of eight field trials were conducted in the representative areas for hop cultivation in Germany. The BAS 516 01 F was tested in hops with three applications with 2.1 L/ha to 3.0 L/ha in a spray volume of 2300 to 3000 L/ha resulting in application rates of 0.21 to 0.30 kg ai/ha for pyraclostrobin. The applications were done about 6–7, 5 and 3 weeks before commercial harvest of the crop; the intended PHI is 21 days. For the analysis green hop cones were sampled immediately after the last application as well as about 14, 21 and 28 days later. During the last two samplings the collected green cones were divided into two portions. One was deep-frozen and the other part was dried for 6 hours at 60°C and deep-frozen on the following day.

During the 2003 growing season, one study (Schulz H., BASF 2003/1001292) with another four field trials was conducted in the representative areas for hop cultivation in Germany applying two formulated products. The BAS 516 01 F (100 g/L pyraclostrobin, 200 g/L boscalid, SE) and BAS 516 04 F (12.8% pyraclostrobin, 25.2% boscalid, WG) were compared, both with three applications at growth stages BBCH 61–63, 75 and 81. In both variants, the application rate at the first treatment was about 210 g/ha of pyraclostrobin. In the second and third treatments, about 250 g/ha of pyraclostrobin was used. The spray volumes per hectare were 2300 and 2700 L respectively. For the analysis, green hop cones were sampled immediately after the last application as well as 14, 21 and 28 days later.

In 2001, three field trials were conducted in the US (Jordan J.M., BASF 2001/5002574) to investigate the residue behaviour of BAS 500 F in dried hop cones. The test formulation, BAS 500 02 F, was applied three times at a use rate of approximately 0.25 kg ai/ha. There was a ten-day target interval between the applications. At each trial site one plot was treated with concentrated spray solution (187–935 L/ha) and another one was treated with diluted spray (935–3740 L/ha)

Hop cone samples were taken 0, 7 and 14 days after last application. They were dried on the field prior to shipment to the analytical laboratory.

The results are summarized in Table 29.

Table 29. Summary of residues in green and dry hops derived from supervised trials.

CROP	Application				Residues [mg/kg]					Ref. Report No
Country/ year trial code	Formulation	No.	kg ai/ha	kg ai/hL	Matrix	Day	Parent	500M07	Total residue	
GAP: 3 × 0.25 kg ai/ha with a PHI of 21 days										
Germany[1] 2000 (RF 0100)	BAS51601 F	3	0.250 to 0.300	0.009	cone, green	0	2.0	0.03	2.0	#2001/ 1015050
					cone, green	13	1.2	0.11	1.3	
					cone, green	20	1.3	0.09	1.4	
					cone, green	26	1.1	0.08	1.2	
					cone, dried	20	7.4	0.93	8.4	
					cone, dried	26	2.4	0.49	2.9	
Germany[1] 2000 (RF 0200)	BAS51601 F	3	0.250 to 0.300	0.009	cone, green	0	2.3	< 0.02	2.3	#2001/ 1015050
					cone, green	13	1.7	0.08	1.8	
					cone, green	20	0.95	0.07	1.0	
					cone, green	26	0.5	0.04	0.55	
					cone, dried	20	5.1	0.76	5.9	
					cone, dried	26	3.8	0.59	4.4	
Germany[1] 2000 (RF 0300)	BAS51601 F	3	0.250 to 0.300	0.009	cone, green	0	2.6	0.07	2.7	#2001/ 1015050
					cone, green	13	1.5	0.17	1.7	
					cone, green	20	0.97	0.13	1.1	
					cone, green	26	1.4	0.13	1.5	
					cone, dried	20	3.5	0.96	4.5	
					cone, dried	26	2.3	0.67	2.9	
Germany[1] 2000 (RF 0400)	BAS51601 F	3	0.250 to 0.300	0.009	cone, green	0	7.2	0.12	7.3	#2001/ 1015050
					cone, green	13	1.5	0.23	1.7	
					cone, green	20	1.6	0.50	2.1	
					cone, green	26	0.35	0.07	0.41	
					cone, dried	20	3.4	0.49	3.9	
					cone, dried	26	4.5	1.16	5.7	
Germany[1] 2001 (RF 0201)	BAS51601 F	3	0.210 to 0.250	0.009	cone, green	0	4.0	0.04	4.0	#2001/ 1015052
					cone, green	14	0.58	0.08	0.67	
					cone, green	21	0.91	0.10	1.0	
					cone, green	28	0.37	0.05	0.42	
					cone, dried	21	1.4	0.12	1.5	
					cone, dried	28	1.7	0.11	1.8	
Germany[1] 2001 (RF 0301)	BAS51601 F	3	0.210 to 0.250	0.009	cone, green	0	1.3	0.03	1.3	#2001/ 1015052
					cone, green	14	0.45	0.06	0.51	
					cone, green	21	0.41	0.10	0.52	
					cone, green	28	0.05	0.04	0.09	
					cone, dried	21	1.0	0.09	1.1	
					cone, dried	28	1.1	0.09	1.2	
Germany[1] 2001 (RF 0401)	BAS51601 F	3	0.210 to 0.250	0.009	cone, green	0	4.0	0.11	4.1	#2001/ 1015052
					cone, green	14	2.0	0.30	2.3	
					cone, green	21	1.0	0.21	1.2	
					cone, green	28	0.76	0.12	0.88	
					cone, dried	21	7.2	0.47	7.6	
					cone, dried	28	2.9	0.27	3.2	
Germany[1] 2001 (RF 0501)	BAS51601 F	3	0.210 to 0.250	0.009	cone, green	0	1.7	< 0.02	1.7	#2001/ 1015052
					cone, green	14	0.24	0.04	0.28	
					cone, green	21	0.44	0.04	0.48	
					cone, green	28	0.15	< 0.02	0.17	
					cone, dried	21	2.1	0.10	2.2	
					cone, dried	28	1.3	0.05	1.3	

CROP	Application				Residues [mg/kg]					Ref. Report No
Country/ year trial code	Formulation	No.	kg ai/ha	kg ai/hL	Matrix	Day	Parent	500M07	Total residue	
Germany[1]	BAS51601 F	3	1)	0.0091	cone, green	0	4.6	0.100	4.7	#2003/
2003			0.210	0.0093	cone, green	14	0.78	0.069	0.84	1001292
(AGR/16/03)			2+3)		cone, green	21	0.98	0.101	1.1	
			0.250		cone, green	28	1.5	0.152	1.7	
BAS 516 04 F		3	1)	0.0095	cone, green	0	2.1	0.036	2.1	
			0.218	0.0095	cone, green	14	1.5	0.048	1.6	
			2+3)		cone, green	21	1.8	0.050	1.9	
			0.250		cone, green	28	1.9	0.085	2.0	
Germany[1]	BAS51601 F	3	1)	0.0091	cone, green	0	5.81	0.13	5.9	#2003/
2003			0.210	0.0093	cone, green	14	2.17	0.32	2.5	1001292
(AGR/17/03)			2+3)		cone, green	21	2.2	0.25	2.4	
			0.250		cone, green	28	0.56	0.11	0.67	
BAS 516 04 F		3	1)	0.0095	cone, green	0	11	0.09	11	
			0.218	0.0095	cone, green	14	7.2	0.28	7.5	
			2+3)		cone, green	21	2.5	0.15	2.6	
			0.250		cone, green	28	3.5	0.16	3.7	
Germany[1]	BAS51601 F	3	1)	0.0091	cone, green	0	4.2	0.15	4.3	#2003/
2003			0.210	0.0093	cone, green	14	4.2	0.52	4.8	1001292
(AGR/18/03)			2+3)		cone, green	21	1.9	0.33	2.2	
			0.250		cone, green	28	0.98	0.17	1.2	
BAS 516 04 F		3	1)	0.0095	cone, green	0	6.5	0.13	6.6	
			0.218	0.0095	cone, green	14	4.2	0.21	4.4	
			2+3)		cone, green	21	6.8	0.33	7.1	
			0.250		cone, green	28	2.0	0.12	2.1	
Germany[1]	BAS51601 F	3	1)	0.0091	cone, green	0	5.6	0.25	5.8	#2003/
2003			0.210	0.0093	cone, green	14	2.0	0.29	2.2	1001292
(AGR/19/03)			2+3)		cone, green	21	4.7	0.67	5.4	
			0.250		cone, green	28	0.77	0.15	0.92	
BAS 516 04 F		3	1)	0.0095	cone, green	0	6.9	0.17	7.1	
			0.218	0.0095	cone, green	14	2.0	0.13	2.1	
			2+3)		cone, green	21	5.0	0.29	5.2	
			0.250		cone, green	28	3.7	0.21	4.0	
USA, WA	BAS50002 F	3	0.25	0.036	cone, dried	0	22	0.33	22	#001/
2001					cone, dried	7	9.1	0.38	9.4	5002574
					cone, dried	14	9.3	0.56	9.9	
USA, ID	BAS50002 F	3	0.25	0.053	cone, dried	0	19	0.32	19	
2001					cone, dried	7	16	0.44	16	
					cone, dried	14	11	0.46	12	
USA OR	BAS50002 F	3	0.25	0.033	cone, dried	0	16	0.29	16	
2001					cone, dried	7	4.9	0.30	5.2	
USA, WA	BAS50002 F	3	0.25	0.0133	cone, dried	0	19.	0.24	20	
2001					cone, dried	7	13	0.54	14	
					cone, dried	14	7.4	0.47	7.9	
USA, ID	BAS50002 F	3	0.25	0.018	cone, dried	0	18	0.42	18	
2001					cone, dried	7	12	0.48	12	
					cone, dried	14	7.8	0.42	8.2	
USA OR	BAS50002 F	3	0.25	0.018	cone, dried	0	5.6	0.18	5.7	
					cone, dried	7	7.6	0.45	8.0	

1. BAS 516 01 F was used for the treatments

PROCESSING

Hops

Reports of two processing studies were made available for the meeting (Schulz H., 2002, BASF 2001/1015048, BASF 2001/1015049). Hops were treated in the Netherlands and in Germany three times with 0.097-0.113 kg ai/ha. Samples were taken 20–22 days after last application (GAP 3 × 0.057–0.25 kg ai/ha and PHI of 21 days).

The green cone samples were dried and processed according to general industrial practice in a pilot plant in Germany.

The residues in dried cones and beer were:

Sample	Residue mg/kg	Processing factor
Dried cone	1.57	
Beer	< 0.04	< 0.023
Dried cone	4.75	
Beer	< 0.04	< 0.008

The estimated processing factor for beer is < 0.0156.

Soybean

A single field trial was conducted with 5 × maximum recommended rate in order to obtain detectable residues in soybean seed (Versoi P.L, Scott Malinsky D., BASF 5002529). The two treatments were performed with 1.12 kg ai/ha 7 days apart, and samples were taken 13 days after the second application.

The harvested seeds were processed at laboratory scale simulating the commercial practice. Analytical method D 9908 was used to determine the residues in RAC and processed fractions.

There were no detectable 500M07 residues in processed fractions. The detected residues in RAC and processed fractions are shown in Table 30.

Table 30. Residues of pyraclostrobin in soybean and processed fraction.

Sample	Pyraclostrobin [mg/kg]	Processing factor[1]	Average processing factor
Soybean seed	0.04, 0.03		
Hull	0.05, 0.05	1.25, 1.67	1.46
Meal	< 0.02, < 0.02	< 0.4, < 0.67	0.53
Refined oil	< 0.02, < 0.02	< 0.4, < 0.67	0.53

1. Calculated from the residues of parent pyraclostrobin

Sunflower

Sunflower seeds derived from crops treated with 5X recommended rate, were processed to meal and refined oil (Versoi P. L., Abdel-Baky S., BASF 2001/5002552). The scheme of processing is shown in Figure 1. The results are summarised in Table 31.

Table 31. Residues in sunflower seed, meal and refined oil.

Sunflower Matrix[1]	Residues (mg/kg)			Concentration Factor
	Parent	500M07	Total	
Seed, RAC	1.4 0,0.63	0.35,0.17	1.75,0.80(1.38)	-
Meal	< 0.02, < 0.02	< 0.02, < 0.02	< 0.04, < 0.04 (< 0.04)	< 0.00985
Refined oil	< 0.02, < 0.02	< 0.02, < 0.02	< 0.04, < 0.04 (< 0.04)	< 0.00985

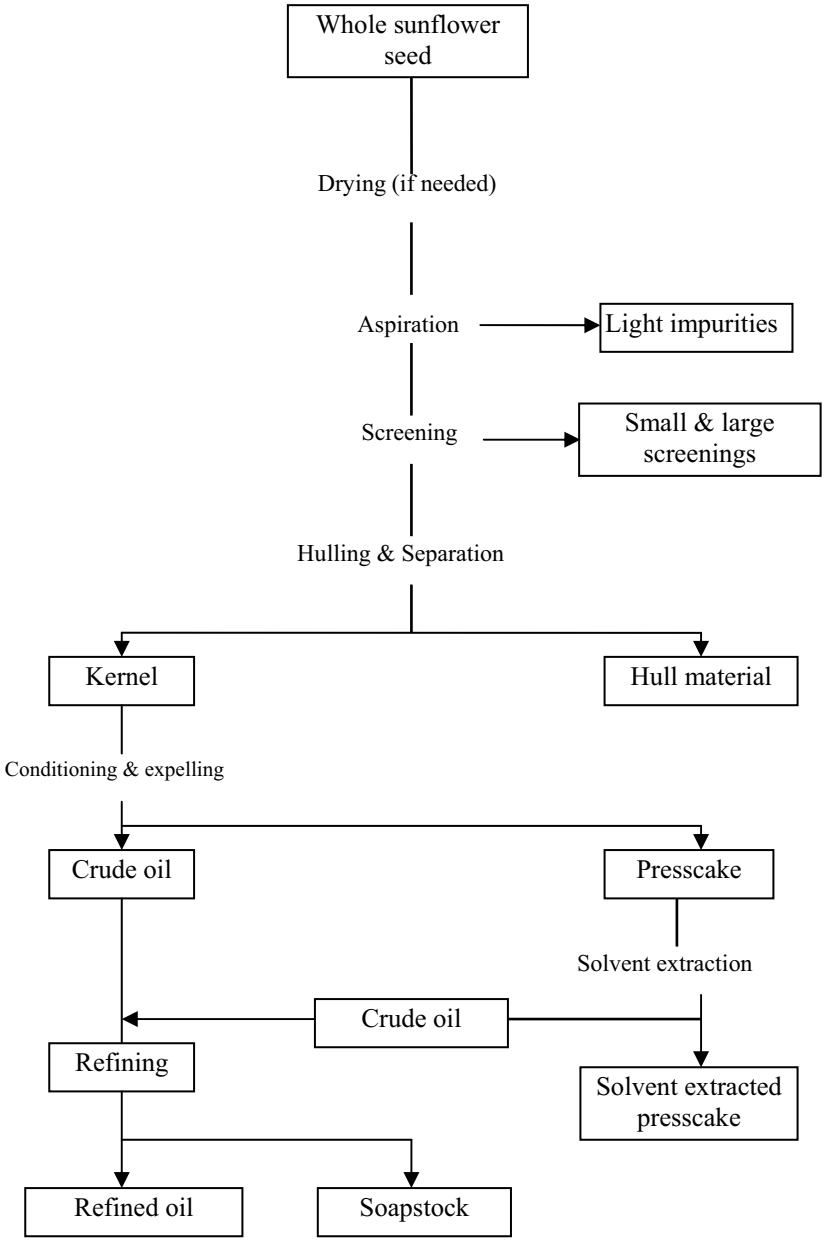

Figure 1. Flow diagram for processing sunflower seed.

RESIDUE AND ANALYTICAL ASPECTS

Pyraclostrobin was evaluated by the JMPR in 2003 and an ADI of 0-0.03 mg/kg bw per day and an ARfD of 0.05 mg/kg bw per day were established. The 2004 JMPR defined the residues as parent compound for compliance with MRLs and for dietary intake calculations, and estimated a number of maximum residue levels in various commodities.

Additional information on registered uses and results of supervised trials were submitted for evaluation. The Meeting evaluated the new data together with those included in the 2004 evaluation for those commodities only for which recommendations were not made by the 2004 JMPR.

The samples were analysed with analytical methods based on LC/MS/MS detection providing an LOQ of 0.02 mg/kg for pyraclostrobin and its major metabolite 500M07 (BF500-3, methyl-N-[[[1-(4-chlorophenyl)-pyrazol-3-yl]oxy]-o-tolyl]carbamate). The methods are described in detail in the

2004 Evaluations. The applicability of the methods was confirmed with concurrent recovery tests in each study. The average recoveries were typically between 80 and 99% for pyraclostrobin and 500M07. No interference of plant matrices was observed in most of the studies.

The storage intervals of samples from sampling to analysis were within the period covered by the storage stability tests reported by the 2004 JMPR.

Results of supervised trials on crops

Apple

A total of 25 field trials were conducted in different representative apple growing areas in Belgium, Germany, France, Italy and the Netherlands according to corresponding GAP, i.e., 3–4 applications at 0.067–0.1 kg ai/ha with a PHI of 6–8 days.

The residues determined were: 0.03, 0.034, 0.041, 0.051, 0.057, 0.058, 0.064, 0.07, 0.07, 0.081, 0.095, 0.101, 0.104, 0.118, 0.12, 0.131, 0.139, 0.142, 0.143, 0.163, 0.167, 0.184, 0.276, 0.289, 0.29 mg/kg.

The 2004 JMPR reported Brazilian trials conducted with 0.15 and 0.3 kg ai/ha which are 1.5× and 3× above the Brazilian GAP rate. The residues in apples ranged from < 0.02 to 0.38 mg/kg 14 days after the last of four treatments with 0.15 kg ai/ha.

Taking into account that early applications do not affect the residues and based on the residue data derived from trials performed in accordance with the European GAP, the Meeting estimated a maximum residue level of 0.5 mg/kg, HR of 0.29 mg/kg and STMR level of 0.104 mg/kg.

Raspberry

Nine trials were carried out in accordance with US GAP (four applications at 0.196 kg ai/ha with a 0 day PHI). The residues in mature fruit were: 0.5, 0.51, 0.63, 0.78, 0.78, 0.89, 0.94, 1.03, 1.28 mg/kg.

The Meeting estimated a maximum residue level of 2 mg/kg, HR of 1.28 mg/kg and STMR value of 0.78 mg/kg for raspberry.

Stone fruits

The 2004 JMPR evaluated numerous trials carried out in USA and estimated maximum residue levels for peaches (0.5 mg/kg), cherries (1 mg/kg) and plums (0.3 mg/kg). The pyraclostrobin residues from European trials performed according to Hungarian and Italian GAP were also reported. They ranged between < 0.02–0.21 mg/kg for cherry (n = 16), < 0.02–0.1 mg/kg for plum (n = 13) and < 0.02–0.13 for peach (n = 14). These residues are covered by the maximum residue levels estimated by the JMPR based on US residue trial data.

No residue trials on apricot was reported but as apricot is now included on the label in Canada and USA (5 applications at 0.134 kg ai/ha, with 10 and 0 day PHI respectively) and Hungary (2–3 applications at 0.067 kg ai/ha, with a 7 day PHI), the Meeting concluded that maximum residue levels for stone fruit can be estimated taking into account the cherry residues reported by the 2004 JMPR. Pyraclostrobin residues in cherries from 12 US trials were 0.25 (2), 0.27, 0.34, 0.38, 0.42, 0.43, 0.48, 0.50 (2), 0.51, 0.63 mg/kg.

The Meeting estimated a maximum residue level of 1 mg/kg, HR of 0.63 mg/kg and a STMR of 0.43 mg/kg for stone fruits, and withdraws its previous recommendations made for cherry, peach and plum (including prunes).

Leek

Eleven supervised field trials were performed on leeks according to GAP in Belgium and The Netherlands (maximum of 3 applications at 0.1 kg ai/ha with a PHI of 14 days). The corresponding residues were 0.05, 0.12, 0.15, 0.16, 0.19, 0.22(2), 0.24, 0.25, 0.29, 0.42 mg/kg.

The meeting estimated a maximum residue of 0.7 mg/kg, HR of 0.42 and an STMR of 0.22 mg/kg.

Brassica vegetables

Broccoli and cauliflower

Thirteen field trials were conducted in different representative cauliflower and broccoli growing areas in Europe consisting of three applications at a rate of 0.067 kg ai/ha of pyraclostrobin. The applications took place at about 28, 21 and 14 days prior to harvest.

The residues in cauliflower at about 14 days after the last application (corresponding to GAP in several EU countries) were: < 0.02 (6), 0.04 mg/kg.

The residues in broccoli at about 14 days after last application were: < 0.02 (5), 0.03 mg/kg.

The medians of residue populations in broccoli and cauliflower are not significantly different and the residue data can be combined.

The combined residues are: < 0.02 (11), 0.03, 0.04 mg/kg.

Trials were also performed with 0.1 kg ai/ha (1.5× recommended rate) and resulted in somewhat higher residues: < 0.02 (8), 0.04, 0.04, and 0.18 mg/kg.

Based on the GAP of 0.067 kg ai/ha dose, the Meeting estimated a maximum residue level of 0.1 mg/kg, HR of 0.04 mg/kg and STMR of 0.02 mg/kg for flowerhead brassicas.

Brussels sprouts

Nine field trials were conducted in Brussels sprouts in the United Kingdom, The Netherlands, Denmark, Germany, Sweden and France. Three applications were made according to GAP at rates of 0.067 kg ai/ha for pyraclostrobin. The samples taken at around 14 days contained residues of: < 0.02 (3), 0.03 (2), 0.06, 0.08, 0.1, and 0.14 mg/kg.

Trials were also carried out at a rate of 0.1 kg/ha (1.5× GAP). Samples taken at around 14 days after last application contained residues of: 0.04, 0.06, 0.06, 0.07, 0.11, 0.12, 0.13, and 0.21 mg/kg.

The Meeting took into account the residues derived from applications performed according to GAP and estimated a maximum residue level of 0.3 mg/kg, HR of 0.14 mg/kg and an STMR of 0.03 mg/kg.

Cabbage

Fifteen field trials were conducted in different representative head cabbage growing areas in the EU. The cabbages were treated with pyraclostrobin in accordance with GAP, i.e., three applications at a rate of 0.067 kg ai/ha.

A further 12 field trials were conducted with about four applications at a rate of 0.1 kg ai/ha, 1.5× the GAP rate. The residues ranged between non-detected (LOQ = 0.02 mg/kg) and 0.08 mg/kg.

The samples taken at around the PHI of 14 days from fields treated according to GAP contained residues of: < 0.02 (11), 0.04, 0.05, 0.09, and 0.09 mg/kg.

The Meeting estimated a maximum residue level of 0.2 mg/kg, HR of 0.09 mg/kg and STMR of 0.02 mg/kg.

Fruiting vegetables

Cucumber

Supervised field trials were conducted at eight sites in the USA applying six sequential applications (7 ± 1 day apart) at a rate of 0.224 kg ai/ha and a total seasonal rate of 1.34 kg ai/ha. The US GAP allows four applications at a rate of 0.224 kg ai/ha.

The samples collected at 0 day PHI contained residues of: 0.03, 0.05, 0.06, 0.07, 0.09, 0.12, 0.14, and 0.41 mg/kg.

The Brazilian GAP specifies 4 sequential applications at rate of 0.1 kg ai/ha and a PHI of 7 days. Four trials carried out according to GAP resulted in residues below the LOQ (0.02 mg/kg) in all samples.

The medians of the two residue populations are different and were not combined.

The Meeting noted that cucumber is a rapidly growing crop and the early applications are made when the fruits are not present on the plants, therefore the residue pattern is not affected by the early treatments. Consequently, the Meeting considered that residue values derived from six sequential applications could be used, and estimated a maximum residue level of 0.5 mg/kg, HR of 0.41 mg/kg and an STMR of 0.08 mg/kg for cucumber.

Cantaloupe

In eight US trials pyraclostrobin was applied six times at a rate of 0.224 kg ai/ha, corresponding to US GAP. The residues in found directly after last application (day 0) were: 0.05, 0.08, 0.09, 0.1, 0.11, 0.12, 0.12, and 0.13 mg/kg.

The Meeting estimated for cantaloupe a maximum residue level of 0.2 mg/kg, HR of 0.13 mg/kg and STMR of 0.105 mg/kg.

Peppers

Seven field and six greenhouse trials were conducted on peppers with three applications at a rate of 0.1 kg ai/ha in Europe according to Italian GAP. The residues of pyraclostrobin in fruit samples collected 2–3 days after the final application ranged between < 0.02 and 0.25 mg/kg. There was no significant difference between the residue populations of field grown or greenhouse grown peppers.

The combined residues were: 0.03(4), 0.06, 0.07, 0.08, 0.09, 0.13(4) and 0.30 mg/kg.

The residues of pyraclostrobin from European trials were lower than the residues reported from trials conducted according to US GAP (six applications at 0.224 kg ai/ha with a 0 day PHI): 0.14, 0.22, 0.82 mg/kg. The two residue populations have different median values and cannot be combined.

The Meeting concluded that the residue data base reflecting the higher residue population derived from US GAP was not sufficient for estimating maximum residue level for bell peppers or chilli peppers, and used the results of trials performed according to maximum GAP in Europe. The Meeting estimated a maximum residue of 0.5 mg/kg, HR of 0.30 mg/kg and STMR of 0.08 mg/kg.

Eggplant

The 2004 JMPR estimated a maximum residue level for tomatoes of 0.3 mg/kg, an HR of 0.21 mg/kg and an STMR of 0.12 mg/kg for outdoor application based on the US GAP.

Twenty six field and greenhouse trials performed according to the GAP in Poland (three applications at a rate of 0.067–0.1 kg ai/ha with a PHI of 3 days) resulted in residues 2–3 days after the final application in the ranges of < 0.02 to 0.13 mg/kg. There was no significant difference between the residue populations of field and greenhouse tomatoes.

The residue levels estimated, based on the critical US GAP, covers the residues obtained in European trials.

Since the evaluation in 2004, US and Canadian labels authorising the use of the compound on eggplant became available (six applications at 0.224 kg ai/ha with a 0 day PHI) which is the same as that for tomato. Furthermore, the Meeting noted that there was no difference between residues derived from outdoor and protected growing conditions of tomato.

The Meeting concluded that the residue levels estimated for tomato can be applied for eggplant as well, and estimated a maximum residue level of 0.3 mg/kg, an HR of 0.21 mg/kg and a STMR of 0.12 mg/kg.

Kale

In the United Kingdom pyraclostrobin is registered for use as three applications at a rate of 0.067 kg ai/ha and a PHI of 14 days. Six field trials were conducted in curly kale in Denmark, the UK, the Netherlands and Sweden with four applications at 0.1 kg ai/ha. The applications were done about 5, 4, 3 and 2 weeks prior to commercial harvest. Samples were taken from 0 to 20–21 days after final application.

The residues in samples taken at 14 days were: 0.02, 0.06, 0.09, 0.26, 0.31, and 0.61 mg/kg.

The meeting considered that the early application does not affect the residues at harvest, and estimated a maximum residue level of 1 mg/kg, HR of 0.61 mg/kg and STMR of 0.175 mg/kg for kale.

Lettuce, head

In USA, pyraclostrobin has approval in lettuce for four applications at 0.117–0.23 kg ai/ha with a 0 day PHI. Supervised field trials performed on head lettuce with four applications at 0.224 kg ai/ha rate resulted in residues of: 1.95, 3.69, 4.96, 13.7, 14.9, and 19.7 mg/kg.

Seventeen field trials were carried out in typical growing regions of Europe according to GAP (two applications at 0.1 kg ai/ha and PHI of 14 days). Samples collected at around 14 days contained residues of: < 0.02 (6), 0.03, 0.04(4), 0.06, 0.08(3), 0.28, and 0.38 mg/kg.

Eight trials on lettuce were performed in greenhouse according to European GAP. The residues detected in lettuce head 14 days after the last application were: 0.03, 0.04, 0.13, 0.23, 0.29, 0.33, 0.75, and 0.81 mg/kg.

The US GAP would lead to an estimated maximum residue level of 40 mg/kg, an HR value of 19.7 mg/kg and a median residue of 9.33 mg/kg for lettuce head. This residue level would result in an estimated intake of 390% of the ARfD.

Consequently, in accordance with the principles of alternative GAP as described in Section 2.2, the Meeting considered the next lowest GAP and used the residues in greenhouse lettuce treated according to the European GAP for the estimation of maximum residue level of 2 mg/kg, HR of 0.81 mg/kg and an STMR of 0.26 mg/kg for lettuce head.

Snap beans

The 2004 JMPR was not able to recommend a maximum residue level for snap beans as there was no GAP at that time. The present meeting was provided with the US Label (GAP: two applications at 0.087–0.13 kg ai/ha dose with a 7 day PHI).

The nine field trials reported to the 2004 JMPR were performed with a rate of 0.224 kg ai/ha for individual treatments and total seasonal applied amount of 0.448 kg ai/ha.

The residues of pyraclostrobin in ranked order were: < 0.02, 0.04, 0.08, 0.1, 0.1, 0.11, 0.12, 0.13, 0.16 mg/kg.

As all trials were performed with a dosage corresponding to 1.7 × maximum rate, the Meeting agreed that maximum residue level for snap beans could not be estimated.

Peas

A total of 21 field trials were conducted in vining peas in France, the United Kingdom, Germany, Denmark and Sweden applying pyraclostrobin twice with a target rate of 0.067 and 0.1 kg ai/ha. The samples were taken at earliest commercial harvest (corresponding to approximately 8–14 days after the last application). In all green pea samples the residues were below the LOQ of 0.02 mg/kg. As the PHI in France is 35 days, no residues can be expected in green peas.

The Meeting estimated for green peas a maximum residue level, HR and STMR values of 0.02* and 0.02, 0.02 mg/kg, respectively.

Soybean

The US GAP consists of two applications at a rate of 0.1–0.2 kg ai/ha with a PHI of 21 days and a seasonal maximum of 0.41 kg ai/ha. In 17 field trials the rate of pyraclostrobin applied was double that of the GAP with a total application rate of 0.448 kg ai/ha/season. The immature seeds were harvested at five days contained residues in the range of < 0.02 and 0.3 mg/kg.

The mature seeds collected from the 17 trials, sampled 28 days after the second application, were found to not contain any detectable residues (LOQ of 0.02 mg/kg).

In eight trials performed approximating Brazilian GAP (two applications at 0.075 kg ai/ha with a 14 day PHI) the residues were: < 0.02 (7) and 0.03 mg/kg.

As the majority of samples (84%) contained non-detectable residues at day 5 post-application, and no residue was detectable in mature seeds, using this supportive information the Meeting concluded that the Brazilian data and GAP enable the estimation of maximum residue limits of 0.05 mg/kg, and STMR values 0.02 mg/kg for soybeans.

Spelt

No special residue trials were performed for spelt. However, as spelt is a registered crop in Belgium and Luxembourg with the same GAP as wheat, the Meeting concluded that the residue levels estimated by the 2004 JMPR for wheat grains are applicable to spelt as well.

Sunflower seed

The US GAP allows two applications with 0.1–0.2 kg ai/ha applied at 7–14 days intervals with a 21 day PHI. Field trials were performed by applying 0.224 kg ai/ha twice and collecting samples 21 days after the final application. The residues in ranked order were: < 0.02, 0.02, 0.04, 0.05, 0.06, 0.06, 0.1, and 0.22 mg/kg.

The Meeting estimated a maximum residue level of 0.3 mg/kg and an STMR of 0.055 mg/kg for sunflower seed.

Coffee

To complement the data submitted to the 2004 JMPR, additional field trials were carried out in Brazil with target rates of 0.1 kg ai/ha and 0.2 kg ai/ha (GAP is 0.2 kg ai/ha). The coffee bean samples, collected at full ripening stage (red coffee berry), were taken 45 days after the last application and contained residues of: < 0.02 (4), < 0.02, 0.03, 0.03, 0.11, 0.15, and 0.15 mg/kg.

The Meeting estimated a maximum residue level of 0.3 mg/kg, and an STMR of 0.025 mg/kg for coffee beans.

Hops

A total of 12 field trials were conducted in the representative areas for hop cultivation in Germany with application rates of 0.21 to 0.30 kg ai/ha. Green hop cones were sampled immediately after the last application and at about 14, 21 and 28 days later.

During the last two samplings the collected green cones were divided into two parts. One part was deep-frozen and the other part was dried for 6 hours at 60°C and was then deep-frozen on the following day.

The residues in dried cones were: 1.1, 1.7, 2.1, 3.5, 4.5, 5.1, 7.2, and 7.4 mg/kg

The formulations and the spray volumes used did not have any observable effect on the magnitude of residues.

Six field trials were conducted in the US, where there is no GAP, with three applications at approximately 0.25 kg ai/ha applied in concentrate (low-volume) and dilute (high-volume) spray solutions. Hop cone samples were taken 0, 7 and 14 days after the last application. These were dried on the field prior to shipment for analysis. The residues in dried cones taken at day 14 were: 7.4, 7.6, 7.8, 9.3, 11 and 12 mg/kg.

The Meeting considered the residues determined in dried cones in German trials, and estimated a maximum residue of 15 mg/kg, and an STMR of 4.0 mg/kg for dried hop cone.

Animal feed commodities

Soybean forage

Seventeen field trials were performed in USA according to GAP. The label specifies a minimum of 14 day interval between last application and feeding forage to animals. The residues in soybean forage at day 14 after the last application were: 0.75, 0.82, 0.90, 1.01, 1.10, 1.24, 1.30, 1.34, 1.60, 1.69, 1.75, 1.85, 2.37, 2.70, 2.74, 2.81, and 3.22 mg/kg.

The Meeting estimated highest residue of 3.22 mg/kg and an STMR of 1.6 mg/kg for soybean forage.

Fate of residue during processing

Hops

Hops were treated three times at a rate of 0.097–0.113 kg ai/ha in the Netherlands and Germany. Samples were taken 20–22 days after the final application (GAP 3 applications at 0.057–0.25 kg ai/ha with a PHI of 21 days). The green cone samples were dried and processed in a pilot plant in Germany.

The beer obtained from dried hops containing 1.57–4.75 mg/kg pyraclostrobin did not contain any detectable residues (< 0.04 mg/kg). The Meeting estimated an average processing factor of < 0.0156. Based on the STMR for hops (3.5 mg/kg), the estimated STMR-P for beer is 0.055 mg/kg.

Soybean seed

A single field trial was conducted applying pyraclostrobin at five times the maximum recommended rate (two applications of 1.12 kg ai/ha, 7 days apart) in order to obtain detectable residues in soybean seed. The harvested seeds underwent laboratory scale processing that simulated commercial practice. The average processing factors for hull was 1.46. The meal and refined oil did not contain any detectable residues. The calculated processing factor was 0.58 for both commodities. Based on the STMR for soybean (0.02 mg/kg), the estimated STMR-P for refined soybean oil is 0.012 mg/kg.

Sunflower seed

Sunflower seeds derived from crops treated twice with pyraclostrobin at five times the maximum recommended rate, were processed to meal and refined oil. The meal and refined oil did not contain any detectable residues resulting in a processing factor of < 0.014. Based on the STMR for sunflower (0.055 mg/kg), the estimated STMR-P for refined oil is 0.00077 mg/kg.

Farm animal dietary burden

The animal dietary burden estimated by the 2004 JMPR is based on peanut hay (7.28–14.4 mg/kg) and the cereal fodder (5.4–10.8 mg/kg) and is substantially larger than what would be expected from peanut forage (0.97 mg/kg) or feeding leafy vegetables. The farm animal dietary burden estimated by the 2004 JMPR is therefore not affected by the potential use of treated soybean, kale and other vegetables as animal feed.

RECOMMENDATION

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 dietary intake assessment.

The definition of the residue for compliance with MRL and for dietary intake estimation is; *pyraclostrobin.*

Summary of recommendations for MRLs, STMRs and HRs for

CCN	Commodity	MRL, mg/kg		STMR or STMR-P, mg/kg	HR or HR/P mg/kg
		New	Previous		
FP0226	Apple	0.5		0.104	0.29
	Beer			0.055	
VB0402	Brussels sprouts	0.3		0.03	0.14
VB0041	Cabbage, head	0.2		0.02	0.09
VC 4199	Cantaloupe	0.2		0.105	0.13
FS0013	Cherry	W	1		
SB0716	Coffee beans	0.3		0.025	
VC0424	Cucumber	0.5		0.08	0.41
VO 0440	Eggplant	0.3		0.12	0.21
VB 0042	Flowerhead brassica	0.1		0.02	0.04
DH1100	Hops, dry	15		4	
VL0480	Kale	1		0.175	0.61
VA0384	Leek	0.7		0.22	0.42
VL0482	Lettuce, head	2 [a]		0.26	0.81
FS0247	Peach	W	0.5		
VP0064	Peas (immature succulent seeds)	0.02*		0.02	0.02
VO0051	Peppers	0.5		0.08	0.25
FS0014	Plum	W	0.3		
FB0272	Raspberry	2		0.78	1.28
VD0541	Soya bean (dry)	0.05		0.02	
	Soya bean oil, refined			0.012	
GC4673	Spelt	0.2		0.02	0.09
FS0012	Stone fruits	1		0.43	0.63
SO0702	Sunflower seed	0.3		0.055	

CCN	Commodity	MRL, mg/kg		STMR or STMR-P, mg/kg	HR or HR/P mg/kg
		New	Previous		
OR0702	Sunflower seed oil, (refined)			0.00077	

a Estimated figures are based on a lower alternative GAP.

DIETARY RISK ASSESSMENT

Long-term intake

The International Estimated Daily Intakes of pyraclostrobin, based on the STMRs estimated for 59 commodities included those which were evaluated by the 2004 JMPR for the 13 GEMS/Food regional diets were in the range of 0 to 7% of the maximum ADI (0.03 mg/kg bw per day). The Meeting concluded that the long-term intake of residues of pyraclostrobin resulting from its uses that have been considered by JMPR is unlikely to present a public health concern.

Short-term intake

The IESTI of pyraclostrobin calculated on the basis of the recommendations made by the JMPR represented 0–80% of the ARfD (0.05 mg/kg bw) for children and 0–30% for the general population.

The Meeting concluded that the short-term intake of residues of pyraclostrobin resulting from uses that have been considered by the JMPR is unlikely to present a public health concern.

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