

BAS 510 F
Fruiting Vegetable Crop Group
PMRA a.i. code (CCH)

Magnitude of the Residue
OPPTS 860.1500
DACO 7.4.1

PC Code: 128008
MRIDs: 45405119 and 45405127
Submission # 2001-1027, 1036, 1043



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

MEMORANDUM

Date: July 2, 2003

Reviewers:

William Cutchin Date: *8/25/03*
William Cutchin, Chemist
Reviewer
SIMB/HED (7509C)

[Signature] Date: *8/16/03*
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FREAS, HED, PMRA

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[Signature] Date: *July 25/03*
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Section Head
FREAS, HED, PMRA

DP Barcode: D278386

Petition No.: 1F06313

Citations: 45405119 Haughey, W.; Abdel-Baky, S. (2001) The Magnitude of BAS 510 F Residues in Tomatoes: Final Report: Lab Project Number: 46786: 2001/5000832: 2000204. Unpublished study prepared by BASF Agro Research. 54 p.

45405127 Versoi, P.; Abdel-Baky, S. (2000) The Magnitude of BAS 510 F Residues in Bell and Chili Peppers: Final Report: Lab Project Number: 63918: 2000/5209: 99345 (GA/2). Unpublished study prepared by BASF Corporation. 57 p.

Sponsor: BASF Corporation

Background

The information contained herein was compiled by Dynamac Corporation (20440 Century Boulevard, Suite 100, Germantown MD 20874), contractor, under the supervision of RAB2/HED. This DER has undergone secondary review by RAB2, and reflects current HED and Office of Pesticide Programs (OPP) policies. This DER was also peer-reviewed by PMRA.

Executive Summary

BASF Corporation has submitted field trial data on the representative crops, tomato, bell pepper, and one cultivar of non-bell pepper, of the fruiting vegetable crop group (crop group 8). Twelve tomato trials were conducted in Regions 1 (1 trial; PA), 2 (1 trial; NC), 3 (2 trials; FL), 5 (1 trial; MI), and 10 (7 trials; CA), six bell pepper trials were conducted in Regions 2 (1 trial; GA), 3 (1 trial; FL), 5 (1 trial; IA), 6 (1 trial; OK), and 10 (2 trials; CA), and three chili pepper trials were conducted in Regions 8 (2 trials; OK and TX) and 9 (1 trial; NM). The number and location of field trials meet EPA guideline requirements for the fruiting vegetable crop group.

For the tomato field trials, the 70% WG formulation of BAS 510 F was applied two times as a foliar spray at ~0.55 lb/application (0.616 kg ai/ha/application), with a 7-day retreatment interval, for a total rate of 1.09-1.12 lb ai/A (1.22-1.25 kg ai/ha). Mature samples of tomatoes were collected at a 0-day posttreatment interval. In one tomato field trial, additional samples were collected at 5, 11, 15, and 20 days following treatment to evaluate residue decline.

Residues of BAS 510 F in/on tomatoes and peppers (bell and chili) were quantitated using a validated LC/MS/MS method (D9908), the data collection method for plant commodities. Storage stability data (refer to the DER for MRID 45405109) are available to support the 161 days (5.3 months) for tomatoes, 140 days (4.6 months) for bell peppers, and 116 days (3.8 months) storage interval from this study.

For the pepper field trials, the 70% WG formulation of BAS 510 F was applied six times as a foliar spray at ~0.15 lb ai/A/application (0.168 kg ai/ha/application) with a 6- to 9-day retreatment interval, for a total rate of 0.89-0.93 lb ai/A (0.997-1.04 kg ai/ha). Mature samples of peppers (bell and chili) were collected at a 0-day posttreatment interval.

At the applied total rate of 1.09-1.12 lb ai/A (1.22-1.25 kg ai/ha), BAS 510 F residues in/on treated mature samples of tomato were <0.05-0.99 ppm. At the applied total rate of 0.89-0.93 lb ai/A (0.997-1.04 kg ai/ha), BAS 510 F residues in/on treated mature samples were <0.05-0.337 ppm for bell peppers and 0.134-0.958 ppm for chili peppers. The residue decline data generated in California indicate that residues of BAS 510 F in tomato generally did not decrease significantly in the first 15 days after treatment. Although the individual application rate for tomatoes was about 3.5 times higher than that for peppers, the total seasonal rates and maximum residues were comparable. Therefore, these results can be used in support of a crop group tolerance.

Data from a tomato processing study were submitted separately (see DER of MRID 45405126).

Residue data from the current submission are **acceptable** to fulfill the US EPA crop field trial data requirements for the fruiting vegetable crop group (crop group 8).

For the PMRA, an additional seven trials in tomatoes (6 trials carried out in zone 5 and one in zone 5B) and three trials in peppers (two carried out in zone 5 and one trial in zone 5B) are

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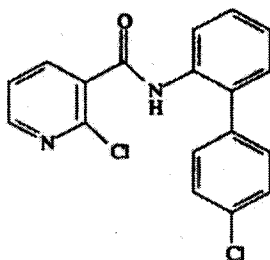
required to support domestic registration in Canada. All these trials must be carried out at the accepted label rate. It should be noted that these trials are needed to support both the use of this chemical on this crop group but also to support the residue levels resulting in rotated crops from the use of this chemical in any crop.

GLP Compliance

Signed and dated GLP, Quality Assurance, and Data Confidentiality statements were provided. No GLP deviations were reported which would impact the study results or their interpretation.

1. Materials and Methods

1.1. Test Substance



BAS 510 F

Active Ingredient

Common Name: Nicobifen, ISO proposed

IUPAC Name: 2-Chloro-N-(4'-chlorobiphenyl-2-yl)nicotinamide

CAS Name: 3-Pyridinecarboxamide, 2-chloro-N-(4'chloro[1,1'-biphenyl]-2-yl)-

CAS Number: 188425-85-6

Company Name: BAS 510 F

Other Synonyms: BASF Registry No. 300355

1.2. Trial Locations

TABLE B.1.2. Trial Numbers and Geographical Locations for the fruiting vegetable group ¹												
NAFTA Growing Region	Tomato				Pepper, Bell				Pepper, Non-bell ²			
	Canada		US		Canada		US		Canada		US	
	SUB	REQ	SUB	REQ	SUB	REQ	SUB	REQ	SUB	REQ	SUB	REQ
1			1	1								
0.0416667												
2			1	1			1	1				
3			2	2			1	1				
4												
5	1	11	1	1	1	4	1	1				
0.2083333												
5B	0	1				1						
6							1	1				
7												
0.2916667												
8											2	
9											1	
10			7	7			2	2				
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
Total	1	12	12	12	1	5	6	6	N/A	N/A	3	N/A

¹ The representative commodities for the fruiting vegetable crop group are tomato, bell pepper, and one cultivar of non-bell pepper.

² OPPTS 860.1500 Table 5 and Dir 98-03 Section 9 Table 2 do not identify specific regions for non-bell pepper field trials, however, trials were conducted for chili peppers in Regions 8 and 9, which together account for 65% of non-bell pepper production in the US (OPPTS 860.1500, Table 6).

Table 1.2.2. Crop and Field Trial Information.

EPA Region	Location (County, State, Year)	Crop, Variety	Formul.	Applic. Timing	Applic. Rate (lb ai/A) [kg ai/ha]	Retreat. Intervals (days)	No. of Applics.	Applic. Method/ Applic. Volume (GPA) [l/ha]	Total Applic. Rate (lb ai/A) [kg ai/ha]	Tank Mix Adjuvants	Harvest Procedures
1	Lehigh, PA, 2000	Tomato, Mountain Spring	70% WG	plants 15-18" tall, 20% ripe fruit plants 18-28" tall, 30-40% fruit ripe	0.554-0.56 [0.62-0.63]	7	2	Foliar spray/ 30.2-30.6 [338-343]	1.114 [1.25]	Induce (0.125%, v:v)	Tomatoes harvested 0 days after last application (DALA).
2	Wake, NC, 2000	Tomato, Homestead	70% WG	plants 48-60" tall, fruiting plants 44-50" tall, fruiting	0.555-0.56 [0.62-0.63]	7	2	Foliar spray/ 30.3-30.6 [339-343]	1.115 [1.25]	Surf AC-820 (1pt/100gal)	Tomatoes harvested 0 DALA.
3	Hillsboro, FL, 2000	Tomato, Sunny	70% WG	plants 36-48" tall, mature fruits	0.55 [0.62]	7	2	Foliar spray/ 61.1 [684]	1.10 [1.23]	X-77 (0.125%, v:v)	Tomatoes harvested 0 DALA.
3	Alachua, FL, 2000	Tomato, Asgrow FL-47	70% WG	plants 32-38" tall, mature fruits	0.55-0.56 [0.62-0.63]	7	2	Foliar spray/ 61.9-62.4 [693-699]	1.11 [1.24]	X-77 (0.125%, v:v)	Tomatoes harvested 0 DALA.
5	Ingham, MI, 2000	Tomato, Celebrity	70% WG	plants 28" tall, green-red fruits	0.544-0.557 [0.61-0.63]	7	2	Foliar spray/ 29.7-30.1 [332-337]	1.10 [1.23]	X-77 (0.25%, v:v)	Tomatoes harvested 0 DALA.
10	Tulare, CA, 2000 (decline study)	Tomato, 9557	70% WG	plants 3-6" tall, breaker plants 8-10" tall, breaker	0.550-0.551 [0.62-0.62]	7	2	Foliar spray/ 30.4-30.5 [340-342]	1.10 [1.23]	Latron B-1956 (2pt/100gal)	Tomatoes harvested 0, 5, 11, 15, and 20 DALA.

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Table 1.2.2. Crop and Field Trial Information.

EPA Region	Location (County, State, Year)	Crop, Variety	Formul.	Applic. Timing	Applic. Rate (lb ai/A) [kg ai/ha]	Retreat. Intervals (days)	No. of Applics.	Applic. Method/ Applic. Volume (GPA) [l/ha]	Total Applic. Rate (lb ai/A) [kg ai/ha]	Tank Mix Adjuvants	Harvest Procedures
10	Tulare, CA, 2000	Tomato, UP6203	70% WG	plants 10-14" tall, breaker/maturity	0.548-0.551 [0.61-0.62]	7	2	Foliar spray/ 30.2-30.3 [338-339]	1.10 [1.23]	Latron B-1956 (2pt/100gal)	Tomatoes harvested 0 DALA.
10	Merced, CA, 2000	Tomato, U 370	70% WG	plants 12-18" tall, flowering to maturity	0.551-0.56 [0.62-0.63]	7	2	Foliar spray/ 40.0-40.7 [449-456]	1.11 [1.25]	Latron B-1956 (3oz/100gal)	Tomatoes harvested 0 DALA.
10	San Joaquin, CA, 2000	Tomato, La Roma Red	70% WG	plants 14-21" tall, bloom to ripe fruit plants 15-20" tall, green to mature fruit	0.556-0.557 [0.62]	7	2	Foliar spray/ 50.6-50.7 [566-567]	1.11 [1.25]	Latron B-1956 (4oz/100gal)	Tomatoes harvested 0 DALA.
10	San Joaquin, CA, 2000	Tomato, 3155	70% WG	plants 22-24" tall, fruiting	0.548-0.552 [0.61-0.62]	7	2	Foliar spray/ 49.8-50.2 [558-562]	1.10 [1.23]	Silwet L-77 (6oz/100gal)	Tomatoes harvested 0 DALA.
10	Glenn, CA, 2000	Tomato, Hypeel 108	70% WG	plants 18-20" tall, 95% red fruit plants 18-20" tall, mature	0.544-0.545 [0.61-0.61]	7	2	Foliar spray/ 23.5 [263]	1.09 [1.22]	RNA Activator 85 or Kinetic (1pt/100gal)	Tomatoes harvested 0 DALA.
10	Madera, CA, 2000	Tomato, La Roma	70% WG	plants 18-32" tall, flowering to maturity mature	0.553-0.56 [0.62-0.63]	7	2	Foliar spray/ 40.3-40.7 [451-456]	1.11 [1.25]	Latron B-1956 (3oz/100gal)	Tomatoes harvested 0 DALA.

Table 1.2.2. Crop and Field Trial Information.

EPA Region	Location (County, State, Year)	Crop, Variety	Formul.	Applic. Timing	Applic. Rate (lb ai/A) [kg ai/ha]	Retreat. Intervals (days)	No. of Applics.	Applic. Method/ Applic. Volume (GPA) [l/ha]	Total Applic. Rate (lb ai/A) [kg ai/ha]	Tank Mix Adjuvants	Harvest Procedures
2	Tift, GA, 1999	Pepper, bell, Camelot	70% WG	fruiting	0.148-0.167 [0.17-0.19]	7	6	Foliar spray/ 21.8-30.5 [244-342]	0.923 [1.03]	Latron B-1956 (8oz/100gal)	Peppers harvested 0 DALA.
3	Seminole, FL, 1999	Pepper, bell, California Wonder	70% WG	plants 10-12" tall plants 12-14" tall plants 13-15" tall plants 13-15" tall plants 15-18" tall plants 15-18" tall	0.151-0.154 [0.17]	37444	6	Foliar spray/ 30.2-30.8 [338-346]	0.910 [1.02]	Diamond R NIS (6oz/100gal)	Peppers harvested 0 DALA.
5	Jefferson, IA, 1999	Pepper, bell, California Wonder	70% WG	blooming 1" fruit 1-2.5" fruit 1-3" fruit 3" fruit 3-4" fruit	0.152-0.159 [0.17-0.18]	7	6	Foliar spray/ 16.6-25.2 [186-282]	0.933 [1.04]	Premium COC (1qt/A)	Peppers harvested 0 DALA.
6	Caddo, OK, 1999	Pepper, bell, California Wonder	70% WG	early fruit set early fruit set fruit set heavy fruit set heavy fruit set	0.144-0.15 [0.16-0.17]	7	6	Foliar spray/ 16.4-27.8 [184-311]	0.893 [1.00]	Hi Yield 90/10 (8oz/100gal)	Peppers harvested 0 DALA.

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Table 1.2.2. Crop and Field Trial Information.

EPA Region	Location (County, State, Year)	Crop, Variety	Formul.	Applic. Timing	Applic. Rate (lb ai/A) [kg ai/ha]	Retreat. Intervals (days)	No. of Applics.	Applic. Method/ Applic. Volume (GPA) [l/ha]	Total Applic. Rate (lb ai/A) [kg ai/ha]	Tank Mix Adjuvants	Harvest Procedures
				fruit set							
10	Madera, CA, 1999	Pepper, bell, Torres	70% WG	small-medium peppers nearly mature mature peppers mature peppers mature peppers mature peppers	0.149-0.153 [0.17]	7	6	Foliar spray/ 39.6-40.8 [444-457]	0.9047 [1.01]	Latron B-1956 (6oz/100gal)	Peppers harvested 0 DALA.
10	Madera, CA, 1999	Pepper, bell, Torres	70% WG	small peppers small peppers mature peppers mature peppers mature peppers mature peppers	0.147-0.152 [0.17]	7	6	Foliar spray/ 39.3-40.5 [440-455]	0.897 [1.01]	Latron B-1956 (6oz/100gal)	Peppers harvested 0 DALA.
8	Washita, OK, 1999	Pepper, Chili, Big Chili	70% WG	early fruit set bearing fruit fruit set heavy fruit set heavy fruit set heavy fruit set	0.149-0.15 [0.17]	37414	6	Foliar spray/ 14.2-28.3 [159-317]	0.899 [1.01]	Hi Yield 90/10 (8oz/100gal)	Peppers harvested 0 DALA.

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Table 1.2.2. Crop and Field Trial Information.

EPA Region	Location (County, State, Year)	Crop, Variety	Formul.	Applic. Timing	Applic. Rate (lb ai/A) [kg ai/ha]	Retreat. Intervals (days)	No. of Applics.	Applic. Method/ Applic. Volume (GPA) [l/ha]	Total Applic. Rate (lb ai/A) [kg ai/ha]	Tank Mix Adjuvants	Harvest Procedures
8	Armstrong, TX, 1999	Pepper, Chili, Anaheim TMR 23	70% WG	1-4" fruit	0.15-0.16 [0.17-0.18]	37445	6	Foliar spray/ 23.7-26.2 [265-293]	0.910 [1.02]	Activate Plus (1pt/100gal)	Peppers harvested 0 DALA.
				3-6" fruit							
				4-6" fruit							
				4-8" fruit							
				early harvest							
				harvest							
9	Luna, NM, 1999	Pepper, Chili, Sonora	70% WG	early bloom	0.15 [0.17]	37413	6	Foliar spray/ 21.3-24.9 [239-279]	0.90 [1.01]	Activate Plus (1pt/100gal)	Peppers harvested 0 DALA.
				mid-bloom							
				1-3" fruit							
				4-6" fruit							
				6-10" fruit							
				6-10" fruit							

2. Results

Table 2.1. Summary of Concurrent Analytical Method Validation.

Crop Matrix	Fortification Level (ppm)	Recoveries (%)	Mean Recovery \pm SD
Tomato	0.05, 1.0	75, 87, 88, 97, 98, 100, 107	93 \pm 11
Pepper, bell	0.05, 1.0	86, 89, 92	89 \pm 3
Pepper, chili	0.05, 1.0	87, 93	90

Table 2.2. Residue Data from Crop Field Trials in Fruiting Vegetables with BAS 510 F.

Location (County, State, Year)	Crop Variety	Commodity	Formul.	Total Rate (lbs ai/A) [kg ai/ha]	PHI (days)	BAS 510 F residues (ppm)
Tomato						
Lehigh, PA, 2000	Mountain Spring	Fruit	70% WG	1.11 [1.25]	0	0.25, 0.28
Wake, NC, 2000	Homestead	Fruit	70% WG	1.12 [1.25]	0	0.21, 0.23
Hillsboro, FL, 2000	Sunny	Fruit	70% WG	1.10 [1.23]	0	0.24, 0.24
Alachwa, FL, 2000	Asgrow FL-47	Fruit	70% WG	1.11 [1.24]	0	<0.05, 0.37
Ingham, MI, 2000	Celebrity	Fruit	70% WG	1.10 [1.23]	0	0.28, 0.31
Tulare, CA, 2000 (decline study)	9557	Fruit	70% WG	1.10 [1.23]	0	0.57, 0.65
					5	0.50, 0.55
					11	0.51, 0.60
					15	0.51, 0.67
					20	0.19, 0.27
Tulare, CA, 2000	UF6203	Fruit	70% WG	1.10 [1.23]	0	0.67, 0.90
Merced, CA, 2000	U 370	Fruit	70% WG	1.11 [1.24]	0	0.19, 0.30
San Joaquin, CA, 2000	La Roma Red	Fruit	70% WG	1.11 [1.27]	0	0.54, 0.63
San Joaquin, CA, 2000	3155	Fruit	70% WG	1.10 [1.23]	0	0.15, 0.19
Glenn, CA, 2000	Hypeel 108	Fruit	70% WG	1.09 [1.22]	0	0.84, 0.99
Madera, CA, 2000	La Roma	Fruit	70% WG	1.11 [1.25]	0	0.25, 0.31
Pepper, bell						
Tift, GA, 1999	Camelot	Fruit	70% WG	0.923 [1.03]	0	0.072, 0.103
Seminole, FL, 1999	California Wonder	Fruit	70% WG	0.910 [1.02]	0	0.146, 0.171
Jefferson, IA, 1999	California Wonder	Fruit	70% WG	0.933 [1.04]	0	<0.05, <0.05
Caddo, OK, 1999	California Wonder	Fruit	70% WG	0.893 [1.00]	0	0.132, 0.149

1.3. Post-harvest Procedures

A single untreated and duplicate treated samples of tomatoes and peppers (bell and chili) were harvested from each field trial. Specific harvesting procedures were not described; however, each tomato and pepper sample consisted of either 24 or 12 (large) fruits and weighed ≥ 4.4 lbs (≥ 2 kg). Additional samples of tomatoes were collected from the CA trial (Tulare County) at various time intervals for residue decline samples. Samples were bagged and stored frozen (temperature not specified) on the day of harvest. Samples were shipped frozen within 0-27 days of harvest to BASF Agricultural Products Center (Research Triangle Park, NC) for analysis.

Table 1.3.1. Summary of Storage Conditions

Matrix	RAC or Extract	Storage Temperature (°C) (Analytical Laboratory)	Duration
Tomato	fruit	<-10	37-161 days (1.2-5.3 months)
Pepper, bell	fruit	<-10	84-140 days (2.8-4.6 months)
Pepper, chili	fruit	<-10	70-116 days (2.3-3.8 months)

1.4. Analytical Methods

Samples of tomato and pepper (bell and chili) were analyzed for residues of BAS 510 F using LC/MS/MS method D9908, the data collection method for plants. Briefly, pepper samples were extracted with methanol:water (70:30, v:v) and filtered. An aliquot of the filtrate was cleaned up using C18 solid phase extraction. Residues were eluted with dichloromethane. The eluate was evaporated and residues were redissolved in ammonium formate:formic acid for analysis by LC/MS/MS. Concurrent recoveries for a range of spiking levels were good (Table 2.1 below).

Tomato samples were extracted with methanol:water:2N HCl (70:25:5, v:v:v) using Polytron homogenization. An aliquot of the extract was subjected to liquid/liquid partitioning with saturated sodium chloride and cyclohexane. An aliquot of the cyclohexane phase was collected and evaporated to dryness. Residues were redissolved in ammonium formate:formic acid for analysis by LC/MS/MS; refer to the DER for MRID 45405027 for a complete description of the quantitation procedures. The limit of detection (LOD) was 0.025 ppm, and the validated limit of quantitation (LOQ) was 0.05 ppm for the residues of BAS 510 F in/on tomatoes and peppers.

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Table 2.2. Residue Data from Crop Field Trials in Fruiting Vegetables with BAS 510 F.

Location (County, State, Year)	Crop Variety	Commodity	Formul.	Total Rate (lbs ai/A) [kg ai/ha]	PHI (days)	BAS 510 F residues (ppm)
Madera, CA, 1999	Torres	Fruit	70% WG	0.905 [1.01]	0	0.248, 0.337
Madera, CA, 1999	Torres	Fruit	70% WG	0.897 [1.01]	0	0.068, 0.091
Pepper, chili						
Washita, OK, 1999	Big Chili	Fruit	70% WG	0.899 [1.01]	0	0.693, 0.958
Armstrong, TX, 1999	Anaheim TMR 23	Fruit	70% WG	0.910 [1.02]	0	0.229, 0.359
Luna, NM, 1999	Sonora	Fruit	70% WG	0.90 [1.01]	0	0.134, 0.153

Table 2.3. Summary of Residue Data from Crop Field Trials in Fruiting Vegetables with BAS 510 F.

Commodity	Total Applic. Rate (lb ai/A)	PHI (days)	Residue Levels (ppm)				
			Minimum	Maximum	HAFT	Mean [median]	Std. Dev.
Tomato	1.09-1.12	0	<0.05	0.99	0.92	0.402 [0.29]	0.257
Pepper, bell	0.893-0.933	0	<0.05	0.337	0.293	0.135 [0.117]	0.086
Pepper, chili	0.899-0.910	0	0.134	0.958	0.826	0.421 [0.294]	0.334

3. Discussion

3.1. Methods

Weather information indicates that for tomatoes and bell and chili peppers, temperatures were normal with somewhat below normal rainfall.

In a study conducted in 2000, tomatoes were harvested on the day (0-day PHI) of the last of two foliar spray applications of the 70% WG formulation at ~0.55 lb ai/A/application (0.62 kg ai/ha/application), with a 7-day retreatment interval, for a total rate of 1.09-1.12 lb ai/A (1.22-1.25 kg ai/ha). Applications were made using ground equipment in a spray volume of 23.5-62.5 gal/A (263-700 l/ha) of water with a spray adjuvant added. In one trial (Tulare County, CA), additional tomato samples were collected at 5, 11, 15, and 20 days following treatment to evaluate residue decline.

In another study conducted in 1999, peppers (bell and chili) were harvested on the day (0-day PHI) of the last of six foliar spray applications of the 70% WG formulation at ~0.15 lb ai/A/application (0.168 kg ai/ha/application), with a 6- to 9-day retreatment interval, for a total rate of 0.89-0.93 lb ai/A (0.99-1.04 kg ai/ha). Applications were made using ground equipment in a spray volume of 14.2-40.81 gal/A (159-457 l/ha) of water with a spray adjuvant added. The 70% BAS 510 F WG formulation used in the field trials also contained another experimental active ingredient (BAS 500 F; pyraclostrobin) as part of the tank-mix; data for the BAS 500 F active ingredient were submitted separately.

Twelve tomato trials were conducted in Regions 1 (1 trial), 2 (1 trial), 3 (2 trials), 5 (1 trial), and 10 (7 trials), six bell pepper trials were conducted in Regions 2 (1 trial), 3 (1 trial), 5 (1 trial), 6 (1 trial), and 10 (2 trials), and three chili pepper trials were conducted in Regions 8 (2 trials) and 9 (1 trial). Residue data from the current submission are acceptable to fulfill the US EPA crop field trial data requirements for the fruiting vegetable crop group (crop group 8). For the PMRA, an additional seven trials in tomato (6 trials carried out in zone 5 and one in zone 5B) and three trials in peppers (two carried out in zone 5 and one trial in zone 5B) are required to support Canadian registration. All of these trials must be carried out at the accepted label rate.

Residues of BAS 510 F in/on tomatoes and peppers were quantitated using a validated LC/MS/MS method (D9908), the data collection method for plant commodities.

Maximum storage intervals of crop samples from harvest-to-analysis were 161 days (5.3 months) for tomatoes, 140 days (4.6 months) for bell peppers, and 116 days (3.8 months) for chili peppers. Adequate storage stability data (refer to the DER for MRID 45405109) are available to support the storage conditions and intervals of samples from the submitted tomato and pepper field trials.

3.2. Results

In tomatoes, residues of BAS 510 F were <0.05-0.99 ppm in/on samples harvested on the day of the last of two foliar spray applications of the 70% WG formulation at 0.544-0.56 lb ai/A/application (0.609-0.627 kg ai/ha/application), for a total rate of 1.09-1.12 lb ai/A (1.22-1.25 kg ai/ha). Apparent residues of BAS 510 F were less than the method LOQ (<0.05 ppm) in/on 12 samples of untreated tomatoes. The residue decline data for tomato indicated that residues of BAS 510 F remained level for fifteen days then declined sharply.

In bell peppers, residues of BAS 510 F were <0.05-0.337 ppm in/on samples harvested on the day of the last of six foliar spray applications of the 70% WG formulation at 0.144-0.167 lb ai/A/application (1.61-0.87 kg ai/ha/application), for a total rate of 0.89-0.93 lb ai/A (0.99-1.04 kg ai/ha).

In chili peppers, residues of BAS 510 F were 0.134-0.958 ppm in/on samples harvested on the day of the last of six foliar spray applications of the 70% WG formulation at 0.149-0.16 lb ai/A/application (0.17-0.18 kg ai/ha/application), for a total rate of 0.90-0.91 lb ai/A (1.01-1.02 kg ai/ha). Apparent residues of BAS 510 F were less than the method LOQ (<0.05 ppm) in/on six samples of untreated bell peppers and three samples of untreated chili peppers.

4. Deficiencies

None for US registration.

Additional field trials are required by PMRA for Canadian registration.

5. References

45672101 Wofford, J.; et al (2002) A Summary of Weather Conditions for BAS 510 F Field Residue Studies Conducted from 1999-2001 Data: BASF Registration Document Number: 2002/5002878. Unpublished study prepared by BASF Agro Research. 24 p.