

US EPA ARCHIVE DOCUMENT

BAS 510 F
Stone Fruit Crop Group
PMRA a.i. code (CCH)

Magnitude of the Residue
OPPTS 860.1500
DACO 7.4.1

PC Code: 128008
MRID: 45405121
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 8/25/03
Date: _____
William Cutchin, Chemist
Reviewer
SIMB/HED (7509C)

[Signature]
Date: *July 14/03*
Henri P. Bietlot, Chemist
Peer reviewer
FREAS, HED, PMRA

R. Loranger Date: *8/15/03*
Richard A. Loranger
Branch Senior Scientist
RAB2/HED (7509C)

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

DP Barcode: D278386

Petition No.: 1F06313

Citation: 45405121 Wofford, T.; Abdel-Baky, S. (2001) The Magnitude of BAS 510 F Residues in Stone Fruit: Amended Final Report: Lab Project Number: 63904: 2001/5000831: 99101. Unpublished study prepared by BASF Corporation. 80 p.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, cherry, peach, and plum, of the stone fruit crop group (crop group 12). Three tart cherry trials were conducted in Regions 1 (1 trial; NY) and 5 (2 trials; MI) and three sweet cherry trials were conducted in Regions 5 (1 trial; MI), 10 (1 trial; CA), and 11 (1 trial; WA) for a total of six cherry field trials. Nine peach field trials were conducted in Regions 1 (1 trial; PA), 2 (3 trials; GA and SC), 5 (1 trial; MI), 6 (1 trial; TX), and 10 (3 trials; CA). Six plum field trials were conducted in Regions

①

5 (1 trial; MI), 10 (4 trials; CA), and 12 (1 trial; OR). The number and location of field trials satisfies the US-EPA guideline requirements with respect to geographic representation of residue data for the stone fruits crop group. Additional trials will be needed to meet the requirements outlined by the PMRA. Four additional trials (3 trials carried out in zone 5 and one trial from zone 11) carried out in peaches are needed as well as three additional trials carried out in plums (one trial in each of zones 1A, 5 and 11) are needed. No additional cherry trials are needed.

At each test location, the 70% WG formulation of BAS 510 F was applied five times as a foliar spray at ≈ 0.23 lb ai/A/application (≈ 0.258 kg ai/ha/application) with usually a 6- to 8-day retreatment interval, for a total rate of 1.14-1.17 lb ai/A (1.28-1.31 kg ai/ha) using either concentrate (49-101 GPA, 549-1131 l/ha) or dilute (107-282 GPA, 1198-3158 l/ha) spray volumes. Mature samples of cherries (tart and sweet), peaches, and plums were collected on the day of the last application (0-day PHI). In two field trials (peach and plum), additional samples were collected at 7, 14/15, 21, and 27/28 days following treatment to evaluate residue decline.

Residues of BAS 510 F in/on cherries, peaches, and plums 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 storage conditions and intervals of samples from the submitted cherry, peach, and plum field trials.

At the applied total rate of 1.14-1.17 lb ai/A (1.28-1.31 kg ai/ha), residues of BAS 510 F ranged 0.64-1.64 ppm (concentrate spray) and 0.74-1.51 ppm (dilute spray) in/on cherries (tart and sweet); 0.16-0.67 ppm (concentrate spray) and 0.19-0.75 ppm (dilute spray) in/on peaches; and 0.08-0.57 ppm (concentrate spray) and 0.10-0.34 ppm (dilute spray) in/on plums. No significant differences in the residues were observed between the concentrate and dilute spray applications. The residue decline data for peaches and plums indicated that BAS 510 F residues generally decreased at longer posttreatment intervals.

A processing study on plums was submitted in a separate submission (see DER of MRID 45405202).

Residue data from the current submission are acceptable to fulfill the EPA's crop field trial data requirements for the stone fruits crop group (crop group 12). Four additional trials (3 trials carried out in zone 5 and one trial from zone 11) carried out in peaches are needed as well as three additional trials carried out in plums (one trial in each of zones 1A, 5 and 11) are needed to fulfill the PMRA's data requirements for Canadian registration..

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.

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1. Materials and Methods

1.1. Test Substance

Active Ingredient

Common Name: Nicobifen (ISO, proposed)

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

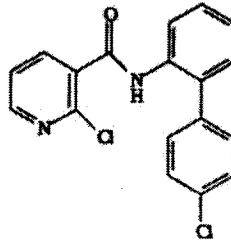
CAS Name: 3-Pyridinecarboxamide, 2-chloro-N-(4'chloro[1,1'-biphenyl]-2-yl)-

CAS Number: 188425-85-6

Company Name: BAS 510 F

Other Synonyms: BASF Registry No. 300355

Structure:



1.2. Trial Locations

NAFTA Growing Region	Cherries (sweet (s) or tart (t)) ²				Peaches				Plum			
	Canada		US		Canada		US		Canada		US	
	SUB	REQ	SUB	REQ	SUB	REQ	SUB	REQ	SUB	REQ	SUB	REQ
1			1 (t)	1			1	1				
1A										1		
2							3	3				
3												
4												
5	3	3	2 (t) 1(s)	2 or 4	1	4	1	1	1	3	1	1
5A												
5B												
6							1	1				
7												
7A												
8												
9				1								
10	1	2	1	2			3	3			4	4
11			1	2		1				1		
12											1	1
13												
14												
15												
16												
17												
18												
19												
20												
21												
Total	4	5	6	6	1	5	9	9	1	5	6	6

¹ The representative crops for the stone fruit crop group are cherry (sweet or tart), peach, and plum (or fresh prune).

² The guidance (OPPTS 860.1500, Table 2) requires a total of six cherry field trials (sweet or tart) as a representative crop of stone fruits.

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	Wayne, NY, 1999	Cherry, tart Montmorency	70% WG	Appl. 1-5, respective: 0.6-1 cm diameter; 1.2-1.8 cm diameter; 1.5-2.3 cm diameter; fully colored; and at harvest	0.23 [0.26]	6-8	5	Concentrate foliar spray/ 80.1-80.6 [897-903]	1.15 [1.29]	LI 700 (0.1%, v:v)	Cherries harvested 0 days after last application (DALA).
					0.23 [0.26]	6-8	5	Dilute foliar spray/ 149.6-150.6 [1675-1687]	1.15 [1.29]		
5	Ottawa, MI, 1999	Cherry, tart, Montmorency	70% WG	Appl. 1-5, respective: 0.5" diameter; immature fruit; red; 100% red; and mature	0.23 [0.26]	7	5	Concentrate foliar spray/ 64.8-68.3 [726-765]	1.15 [1.29]	Latron B-1956 (16oz/100gal)	Cherries harvested 0 DALA.
					0.23 [0.26]	7	5	Dilute foliar spray/ 192.4-201.3 [2155-2255]	1.15 [1.29]		
5	Kent, MI, 1999	Cherry, tart, Montmorency	70% WG	Appl. 1-5, respective: green with 1/2" diameter; 5/8" diameter; 3/4" diameter; immature with 98% red; and mature	0.23 [0.26]	7	5	Concentrate foliar spray/ 65.2-68.5 [730-767]	1.15 [1.29]	Latron B-1956 (16oz/100gal)	Cherries harvested 0 DALA.
					0.23 [0.26]	7	5	Dilute foliar spray/ 194.0-202.0 [2173-2264]	1.15 [1.29]		

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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
5	Ottawa, MI, 1999	Cherry, sweet, Sommerset	70% WG	Appl. 1-5, respective: 30% red color; 95% red color; 100% red color; 100% dark red; and mature fruit	0.23 [0.26]	7	5	Concentrate foliar spray/ 73.0-75.6 [818-847]	1.15 [1.29]	Latron B-1956 (16oz/100gal)	Cherries harvested 0 DALA.
					0.23 [0.26]	7	5	Dilute foliar spray/ 212.9-224.3 [2384-2512]	1.15 [1.29]		
10	Tulare, CA, 1999	Cherry, sweet, Brooks	70% WG	Appl. 1-4: fruit maturation Appl. 5: mature	0.23 [0.26]	7-8	5	Concentrate foliar spray/ 60.87-63.10 [682-707]	1.1587 [1.23]	Latron B-1956 (2pt/100gal)	Cherries harvested 0 DALA.
					0.2274-0.2306 [0.25-0.26]	7-8	5	Dilute foliar spray/ 241.64-263.90 [2706-2956]	1.1486 [1.22]		
11	Grant, WA, 1999	Cherry, sweet, Bing	70% WG	Appl. 1-5, respective: 10 mm diameter; 15 mm diameter; 20 mm diameter; 50% red color; and mature	0.23 [0.26]	7	5	Concentrate foliar spray/ 49.5-50.0 [554-560]	1.15 [1.29]	Latron B-1956 (1qt/100gal)	Cherries harvested 0 DALA.
					0.23 [0.26]	7	5	Dilute foliar spray/ 199.6-202.5 [2236-2268]	1.15 [1.29]		

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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
1	Berr, PA, 1999	Peach, Red Haven	70% WG	Appl. 1-5, respectively: 1.75-2.25" diameter; 2-2.5" diameter; 1.5-2" diameter; 1.75-3" diameter; and ripe	0.23-0.234 [0.26]	7	5	Concentrate foliar spray/ 54.37-55.6 [609-623]	1.1606 [1.30]	Induce (0.125%, v:v) or Latron B-1956 (10oz/100gal)	Peaches harvested 0 DALA.
					0.228-0.232 [0.26]				1.1478 [1.28]		
2	Aiken, SC, 1999	Peach, Contender	70% WG	Appl. 1-5, respectively: 1.5" fruit; 1.5-2" fruit; 2-2.5" fruit; 2.5" fruit; and mature fruit	0.2258-0.2283 [0.25-0.26]	7-8	5	Concentrate foliar spray/ 51.4685-53.38 [576-598]	1.1358 [1.27]	Nufilm-17 (8oz/100gal)	Peaches harvested 0 DALA.
					0.2248-0.229149 [0.25-0.26]				1.1376 [1.27]		
2	Oglethorpe, GA, 1999	Peach, Harmony	70% WG	Appl. 1-5, respectively: 1.5-2.0" fruit; 2-3" fruit; 2.5-3.5" fruit; 2.75-3.75" fruit; and mature fruit	0.227-0.23262 [0.25-0.26]	6-7	5	Concentrate foliar spray/ 58.31-73.6 [653-824]	1.1533 [1.29]	Surf Ac (0.25%, v:v)	Peaches harvested 0 DALA.
					0.228-0.2308 [0.26]				1.1454 [1.28]		

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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 Adjuncts	Harvest Procedures
2	Tift, GA, 1999 (decline study)	Peach, June Gold	70% WG	Appl. 1 and 2: 1-1.25" fruit Appl. 3 and 4: 1-1.5" fruit Appl. 5: 1.75-2.5" fruit diameter	0.228-0.231 [0.26]	6-7	5	Concentrate foliar spray/ 52.02-55.45 [582-621]	1.148 [1.29]	Latron CS-7 (0.13-0.18%) or Latron B-1956 (0.012-0.12%, v:v)	Peaches harvested 0, 7, 15, 21, and 27 DALA.
					0.231-0.233 [0.26]			Dilute foliar spray/ 263-269 [2946-3013]			
5	Ottawa, MI, 1999	Peach, Red Haven	70% WG	Appl. 1-5, respective: 1.75" diameter; 2" diameter; 2.25" diameter; 2.5" diameter; and mature fruit	0.23 [0.26]	7	5	Concentrate foliar spray/ 65.7-68.5 [735-767]	1.15 [1.29]	Latron B-1956 (16oz/100gal)	Peaches harvested 0 DALA.
					0.23 [0.26]			Dilute foliar spray/ 194.0-200.6 [2173-2247]			
6	Willabarger, TX, 1999	Peach, Lauring	70% WG	Appl. 1-5, respective: 2" fruit; 2.5" fruit; 3.5" fruit; early harvest; and mature fruit	0.23-0.24 [0.26-0.27]	7	5	Concentrate foliar spray/ 49.4-62.3 [553-698]	1.16 [1.30]	Activate Plus (1pt/100gal)	Peaches harvested 0 DALA.
					0.23-0.25 [0.26-0.28]			Dilute foliar spray/ 107.2-131.8 [1200-1476]			

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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 Applies.	Applic. Method/ Applic. Volume (GPA) [l/ha]	Total Applic. Rate (lb ai/A) [kg ai/ha]	Tank Mix Adjuvants	Harvest Procedures
10	Tulare, CA, 1999	Peach, Red Sun	70% WG	Appl. 1-3: 2-3" diameter Appl. 4: 4" diameter Appl. 5: immature fruit	0.224-0.236 [0.25-0.26]	2-12	5	Concentrate foliar spray/ 71.088-77.121 [796-864]	1.1418 [1.28]	Latron B-1956 (10oz/100gal)	Peaches harvested 0 DALA.
					0.227-0.2331 [0.25-0.26]			Dilute foliar spray/ 264.3-282.303 [2957-3162]	1.1541 [1.29]		
10	Fresno, CA, 1999	Peach, September Sun	70% WG	Appl. 1: full size Appl. 2 and 3: green fruit Appl. 4: fruit coloring Appl. 5: mature	0.23 [0.26]	6-8	5	Concentrate foliar spray/ 97.70-100.4 [1094-1124]	1.15 [1.29]	Agridex (1%, v:v)	Peaches harvested 0 DALA.
					0.23 [0.26]			Dilute foliar spray/ 196.64-201.96 [2202-2262]	1.15 [1.29]		
10	Butte, CA, 1999	Peach, Loadel	70% WG	Appl. 1-4: fruit development Appl. 5: mature	0.227-0.233 [0.25-0.26]	7	5	Concentrate foliar spray/ 55.5-58 [622-650]	1.151 [1.19]	RNA Act 85 (1pt/100gal)	Peaches harvested 0 DALA.
					0.224-0.233 [0.25-0.26]			Dilute foliar spray/ 132-135 [1478-1512]	1.148 [1.28]		

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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
5	Ottawa, MI, 1999 (decline study)	Plum, Stanley	70% WG	Appl. 1 and 2: 1.5" diameter Appl. 3: immature fruit Appl. 4 and 5: early maturity	0.23 [0.26]	6-8	5	Concentrate foliar spray/ 73.2-76.8 [820-860]	1.15 [1.29]	Latron B-1956 (16oz/100gal)	Plums harvested 0, 7, 14, 21, and 28 DALA.
					0.23 [0.26]	6-8	5	Dilute foliar spray/ 216.0-227.7]	1.15 [1.29]		
10	Tulare, CA, 1999	Plum, July Rosu's	70% WG	Appl. 1-5, respective: fruit maturation; 2.5" diameter; color break; color change; maturity	0.2298-0.2303 [0.26]	7	5	Concentrate foliar spray/ 54.37-56.34	1.1504 [1.29]	Latron B-1956 (2pt/100gal)	Plums harvested 0 DALA.
					0.2293-0.2303 [0.26]	7	5	Dilute foliar spray/ 215.06-227.69	1.1495 [1.29]		
10	Tulare, CA, 1999	Plum, Angelino	70% WG	Appl. 1: 2.5" diameter Appl. 2 and 3: fruit coloring Appl. 4: fruit color Appl. 5: fruit maturation	0.2297-0.2309 [0.26]	7	5	Concentrate foliar spray/ 58.75-62.89	1.1509 [1.29]	Latron B-1956 (2pt/100gal)	Plums harvested 0 DALA.
					0.2298-0.2303 [0.26]	7	5	Dilute foliar spray/ 239.02-246.71	1.15 [1.29]		

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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	Butte, CA, 1999	Plums, French Prunes	70% WG	Appl. 1-5, respective: 1.25-1.5" wide; 2" wide; development; fruit maturing; and mature	0.227-0.233 [0.25-0.26]	6-8	5	Concentrate foliar spray/ 90.3-92.5	1.15 [1.29]	Latron CS-7 (1p/100gal)	Plums harvested 0 DALA.
					0.224-0.230 [0.25-0.26]			Dilute foliar spray/ 169-181			
10	Fresno, CA, 1999	Plums, Howard Sun	70% WG	Appl. 1: full size Appl. 2 and 3: coloring Appl. 4 and 5: mature	0.22-0.23 [0.25-0.26]	6-8	5	Concentrate foliar spray/ 96.45-101.48	1.14 [1.28]	Agridex (1%, v:v)	Plums harvested 0 DALA.
					0.23 [0.26]			Dilute foliar spray/ 199.96-205.56			
12	Polk, OR, 1999	Plums, Parsons	70% WG	Appl. 1-5, respective: color turn; fruit color deepening; majority of fruit purple; 1 week prior to maturity; and mature	0.226-0.231 [0.25-0.26]	6-7	5	Concentrate foliar spray/ 63.72-65.87	1.1431 [1.28]	Latron B-1956 (3-8oz/100gal)	Plums harvested 0 DALA.
					0.230-0.233 [0.26]			Dilute foliar spray/ 188.93-200.25			

1.3. Post-harvest Procedures

A single untreated and duplicate treated (one sample from each treatment plot) samples of mature cherries (tart and sweet), peaches, and plums were harvested from each field trial. Specific harvesting procedures were not described; however, each cherry sample weighed ≥ 2.2 lbs (≥ 1 kg), and each peach and plum sample consisted of at least 24 fruits and weighed ≥ 4.4 lbs (≥ 2 kg). Additional samples of peaches and plums were collected from the GA trial (Tift County) and MI trial (Ottawa County), respectively, 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 0-41 days of harvest to BASF Agricultural Products Center (Research Triangle Park, NC) for analysis.

Matrix	RAC or Extract	Storage Temperature (°C) (Analytical Laboratory)	Duration
Cherry	Fruit	<-10	81-132 days (2.7-4.3 months)
Peach	Fruit	<-10	51-132 days (1.7-4.3 months)
Plum	Fruit	<-10	56-97 days (1.8-3.2 months)

1.4. Analytical Methods

Samples of cherries, peaches, and plums were analyzed for residues of BAS 510 F using LC/MS/MS method D9908, the data collection method for plants. Briefly, samples of cherries, peaches, and plums 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 (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 cherries, peaches, and plums. The results from concurrent recovery analyses are presented in Table 2.1 below.

2. Results

Crop Matrix	Fortification Level (ppm)	Recoveries (%)	Mean Recovery \pm SD
Cherry	0.05, 2.5	83, 87, 88, 93	88 \pm 4
Peach	0.05-5.0	60, 75, 78, 80, 82, 85, 86, 91, 91, 93, 94	83 \pm 10
Plum	0.05-5.0	79, 83, 84, 88, 116	90 \pm 15

Table 2.2. Residue Data from Crop Field Trials in Stone Fruits (Cherry, Peach, and Plum) with BAS 510 F.

Location (County, State, Year)	Crop Variety	Commodity	Formul.	Total Rate (lbs ai/A) [kg ai/ha]	Spray volume	PHI (days)	BAS 510 F residues (ppm)
Cherry							
Wayne, NY, 1999	Tart Montmorency	Fruit	70% WG	1.15 [1.29]	concentrate	0	1.635
				1.15 [1.29]	dilute	0	1.415
Ottawa, MI, 1999	Tart, Montmorency	Fruit	70% WG	1.15 [1.29]	concentrate	0	1.307
				1.15 [1.29]	dilute	0	1.505
Kent, MI, 1999	Tart, Montmorency	Fruit	70% WG	1.15 [1.29]	concentrate	0	1.092
				1.15 [1.29]	dilute	0	1.211
Ottawa, MI, 1999	Sweet, Sommerset	Fruit	70% WG	1.15 [1.29]	concentrate	0	0.756
				1.15 [1.29]	dilute	0	0.736
Tulare, CA, 1999	Sweet, Brooks	Fruit	70% WG	1.1587 [1.29]	concentrate	0	0.641
				1.1486 [1.29]	dilute	0	1.004
Grant, WA, 1999	Sweet, Bing	Fruit	70% WG	1.15 [1.29]	concentrate	0	0.906
				1.15 [1.29]	dilute	0	1.500
Peach							
Berris, PA, 1999	Red Haven	Fruit	70% WG	1.1606 [1.80]	concentrate	0	0.663
				1.1478 [1.29]	dilute	0	0.746
Aiken, SC, 1999	Contender	Fruit	70% WG	1.1358 [1.27]	concentrate	0	0.157
				1.1376 [1.27]	dilute	0	0.193
Oglethorpe, GA, 1999	Harmony	Fruit	70% WG	1.1533 [1.29]	concentrate	0	0.395
				1.1454 [1.28]	dilute	0	0.422

Table 2.2. Residue Data from Crop Field Trials in Stone Fruits (Cherry, Peach, and Plum) with BAS 510 F.

Location (County, State, Year)	Crop Variety	Commodity	Formul.	Total Rate (lbs ai/A) [kg ai/ha]	Spray volume	PHI (days)	BAS 510 F residues (ppm)
Tift, GA, 1999 (decline study)	June Gold	Fruit	70% WG	1.148 [1.28]	concentrate	0	0.486
						7	0.317
						15	0.213
						21	0.134
						27	0.145
				1.159 [1.30]	dilute	0	0.476
						7	0.214
						15	0.210
						21	0.137
						27	0.245
Ottawa, MI, 1999	Red Haven	Fruit	70% WG	1.15 [1.29]	concentrate	0	0.400
				1.15 [1.29]	dilute	0	0.334
Wilaberger, TX, 1999	Lauring	Fruit	70% WG	1.16 [1.30]	concentrate	0	0.636
				1.17 [1.31]	dilute	0	0.730
Tulare, CA, 1999	Red Sun	Fruit	70% WG	1.1418 [1.28]	concentrate	0	0.518
				1.1541 [1.29]	dilute	0	0.492
Fresno, CA, 1999	September Sun	Fruit	70% WG	1.15 [1.29]	concentrate	0	0.479
				1.15 [1.29]	dilute	0	0.194
Butte, CA, 1999	Loadel	Fruit	70% WG	1.151 [1.29]	concentrate	0	0.315
				1.148 [1.29]	dilute	0	0.315

Table 2.2. Residue Data from Crop Field Trials in Stone Fruits (Cherry, Peach, and Plum) with BAS 510 F.							
Location (County, State, Year)	Crop Variety	Commodity	Formul.	Total Rate (lbs ai/A) [kg ai/ha]	Spray volume	PHI (days)	BAS 510 F residues (ppm)
Plum							
Ottawa, MI, 1999 (decline study)	Stanley	Fruit	70% WG	1.15 [1.29]	concentrate	0	0.566
						7	0.546
						14	0.396
						21	0.287
						28	0.227
				1.15 [1.29]	dilute	0	0.344
						7	0.208
						14	0.268
						21	0.230
						28	0.248
Tulare, CA, 1999	July Rosu's	Fruit	70% WG	1.1504 [1.29]	concentrate	0	0.135
				1.1495 [1.29]	dilute	0	0.149
Tulare, CA, 1999	Angelino	Fruit	70% WG	1.1509 [1.29]	concentrate	0	0.172
				1.15 [1.29]	dilute	0	0.315
Butte, CA, 1999	French Prunes	Fruit	70% WG	1.15 [1.29]	concentrate	0	0.090
				1.138[1.27]	dilute	0	0.103
Fresno, CA, 1999	Howard Sun	Fruit	70% WG	1.14 [1.28]	concentrate	0	0.240
				1.15 [1.29]	dilute	0	0.246
Polk, OR, 1999	Parsons	Fruit	70% WG	1.1431 [1.28]	concentrate	0	0.081
				1.153 [1.29]	dilute	0	0.109

Commodity	Total Applic. Rate (lb ai/A)	Spray volume	PHI (days)	Residue Levels (ppm)				
				Minimum	Maximum	HAFT	Mean [median]	Std. Dev.
Cherry	1.15-1.16	concentrate	0	0.641	1.64	1.53	1.06 [0.999]	0.370
	1.15	dilute	0	0.736	1.51		1.23 [1.312]	0.309
Peach	1.14-1.16	concentrate	0	0.157	0.663	0.705	0.450 [0.479]	0.157
	1.14-1.17	dilute	0	0.193	0.746		0.434 [0.420]	0.203
Plum	1.14-1.15	concentrate	0	0.081	0.566	0.455	0.214 [0.154]	0.182
	1.14-1.15	dilute	0	0.103	0.344		0.211 [0.198]	0.105

3. Discussion

3.1. Methods

Two plots were treated at each field site. Mature cherries, peaches, and plums were harvested on the day (0-day PHI) of the last of five foliar spray applications of the 70% WG formulation at ~0.23 lb ai/A/application (=0.26 kg ai/ha/application), with a 6- to 8-day retreatment interval, for a total rate of 1.14-1.17 lb ai/A (1.28-1.31 kg ai/ha). We note that in one peach field trial (Tulare County, CA) the retreatment interval ranged 2-12 days. Applications were made using ground equipment in either a concentrated spray volume (49-101 gal/A of water, 549-1131 l/ha of water) or a dilute spray volume (107-282 gal/A of water) with a spray adjuvant added. In one trial (Tift County, GA), additional peach samples were collected at 7, 15, 21, and 27 days following treatment to evaluate residue decline. In one trial (Ottawa County, MI), additional plum samples were collected at 7, 14, 21, and 28 days following treatment to evaluate residue decline. We note that 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.

Three tart cherry trials were conducted in Regions 1 (1 trial) and 5 (2 trials) and three sweet cherry trials were conducted in Regions 5 (1 trial), 10 (1 trial), and 11 (1 trial) for a total of six cherry field trials. Nine peach field trials were conducted in Regions 1 (1 trial), 2 (3 trials), 5 (1 trial), 6 (1 trial), and 10 (3 trials). Six plum field trials were conducted in Regions 5 (1 trial), 10 (4 trials), and 12 (1 trial). Weather information indicates that for stone fruit, temperatures were slightly above normal with below normal rainfall.

The number and location of field trials conducted for cherries, peaches, and plums are in accordance with EPA's guidance requirements for registration (OPPTS 860.1500, Tables 2 and 5).

Additional trials will be needed to meet the requirements outlined by the PMRA for Canadian registration. Four additional trials (3 trials carried out in zone 5 and one trial from zone 11) carried out in peaches are needed as well as three additional trials carried out in plums (one trial in each of zones 1A, 5 and 11) are needed. No additional cherry trials are needed.

Residues of BAS 510 F in/on cherries, peaches, and plums 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 storage conditions and intervals of samples from the submitted cherry, peach, and plum field trials, 132 days (4.3 months) for cherries and peaches and 97 days (3.2 months) for plums.

3.2. Results

In cherries (tart and sweet), residues of BAS 510 F were 0.641-1.635 ppm (concentrate spray) and 0.736-1.505 ppm (dilute spray) in/on samples harvested on the day of the last of five foliar spray applications of the 70% WG formulation at 0.2274-0.2362 lb ai/A/application (0.254-0.265 kg ai/ha/application), for a total rate of 1.15-1.16 lb ai/A (1.28-1.30 kg ai/ha). No significant differences in the residues were observed between the concentrate and dilute spray applications. Apparent residues of BAS 510 F were less than the method LOQ (<0.05 ppm) in/on six samples of untreated cherries.

In peaches, residues of BAS 510 F were 0.157-0.663 ppm (concentrate spray) and 0.193-0.746 ppm (dilute spray) in/on samples harvested on the day of the last of five foliar spray applications of the 70% WG formulation at 0.224-0.25 lb ai/A/application (0.251-0.28 kg ai/ha/application), for a total rate of 1.14-1.17 lb ai/A (1.28-1.31 kg ai/ha). No significant differences in the residues were observed between the concentrate and dilute spray applications. Apparent residues of BAS 510 F were less than the method LOQ (<0.05 ppm) in/on nine samples of untreated peaches.

In plums, residues of BAS 510 F were 0.081-0.566 ppm (concentrate spray) and 0.103-0.344 ppm (dilute spray) in/on samples harvested on the day of the last of five foliar spray applications of the 70% WG formulation at 0.22-0.233 lb ai/A/application (0.246-0.261 kg ai/ha/application), for a total rate of 1.14-1.15 lb ai/A (1.28-1.29 kg ai/ha). No significant differences in the residues were observed between the concentrate and dilute spray applications. Apparent residues of BAS 510 F were less than the method LOQ (<0.05 ppm) in/on six samples of untreated plums.

The residue decline data for peaches and plums indicated that BAS 510 F residues generally decreased at longer posttreatment intervals.

BAS 510 F
Stone Fruit Crop Group
PMRA a.i. code (CCH)

Magnitude of the Residue
OPPTS 860.1500
DACO 7.4.1

PC Code: 128008
MRID: 45405121
Submission # 2001-1027, 1036, 1043

4. Deficiencies

None for US registration.

For Canadian registration, additional field trials will be needed to meet the requirements outlined by the PMRA. Four additional trials (3 trials carried out in zone 5 and one trial from zone 11) carried out in peaches are needed as well as three additional trials carried out in plums (one trial in each of zones 1A, 5 and 11) are needed. No additional cherry trials are needed.

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.