

US EPA ARCHIVE DOCUMENT

BAS 510 F
Potato (Tuber)
PMRA a.i. code (CCH)

Magnitude of the Residue
OPPTS 860.1500
DACO 7.4.1

PC Code: 128008
MRID: 45405123
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:

W.T. Drew Date: 8/20/03
William T. Drew, Chemist
Reviewer
RAB2/HED (7509C)

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

T. Sheremata Date: 10/17/03
Tamara Sheremata, Evaluator
Peer reviewer
FREAS, HED, PMRA

Ariff Ahy Date: July 25/03
Ariff Ahy
Section Head
FREAS, HED, PMRA

DP Barcode: D278386

Petition: 1F06313

Citation: 45405123 Wofford, J.; Abdel-Baky, S. (2001) The Magnitude of BAS 510 F Residues in Potato: Final Report: Lab Project Number: 64126: 2001/5000879: 2000161. Unpublished study prepared by BASF Agro Research. 63 pages.

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 has also been peer-reviewed by PMRA/Canada.

Executive Summary

BASF Corporation has submitted field trial data on potatoes. Sixteen potato trials were conducted in Regions 1 (one trial each in New Jersey and Pennsylvania), 2 (one trial in North Carolina), 3 (one trial in Florida), 5 (two trials in North Dakota and one each in Minnesota and Wisconsin), 9 (one trial in Colorado), 10 (one trial in California), and 11 (two trials each in Idaho, Oregon and Washington). The number and location of field trials satisfy the US EPA data requirement with respect to the geographic representation of residue data for potatoes.

For the PMRA, the number and location of the trials submitted does not match the guideline requirements (Dir 98-02, Table B.1.2). Six of the sixteen trials were conducted in zones which are common between the US and Canada. As the residues were consistently below the LOQ, no additional residue trials are required.

At each test location, the 70% WG formulation of BAS 510 F was applied two times as a foliar spray at approximately 0.45 lb ai/A/application (0.50 kg ai/ha/application), with a 13- to 15-day re-treatment interval, for a total rate of 0.87-0.92 lb ai/A (0.97-1.03 kg ai/ha). Mature potato tubers were harvested 29-30 days following the last application. In two trials, potato tuber samples were collected at 10, 20/21, 30, 40/41, and 49/51 days following treatment to evaluate residue decline.

An additional test plot was treated at an exaggerated rate at one test trial conducted in WA to generate RAC samples with quantifiable residues for processing. Mature potato tubers were harvested 30 days following the last of two foliar spray applications of the 70% WG formulation at approximately 2.25 lb ai/A/application (2.52 kg ai/ha), with a 14-day re-treatment interval, for a total rate of 4.50 lb ai/A (5.04 kg ai/ha) (5x the rate used in the corresponding field trials).

Residues of BAS 510 F in/on potato tubers were quantitated using a validated LC/MS/MS method (D9908, the data collection method for plant commodities). Acceptable concurrent method validation data for potatoes were included in the submission. Storage stability data (refer to the DER for MRID 45405109) are available to support the 136 day (4.5 months) storage interval for the samples in this study.

At the applied total rates of 0.87-0.92 lb ai/A (0.97-1.03 kg ai/ha) and 2.23-2.27 lb ai/A (2.50-2.54 kg ai/ha), BAS 510 F residues were below the LOQ (<0.050 ppm) in/on all treated potato tuber samples. The residue decline data for potato tubers did not demonstrate any trends in BAS 510 F residues at longer post-treatment intervals because residues were below the LOQ (<0.050 ppm) at all sampling intervals.

Residue data from the current submission are acceptable to fulfill US EPA crop field trial data requirements for potatoes. In addition, residue data from the current submission for potatoes are acceptable to fulfill crop field trial data requirements for the tuberous and corm vegetable crop subgroup (Crop Subgroup 1C). No additional residue trials are required by the PMRA.

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GLP Compliance

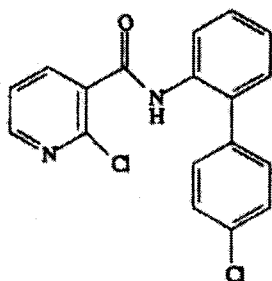
Signed and dated GLP, Quality Assurance, and Data Confidentiality statements were provided. No GLP deviations were reported which would impact the study results or their interpretation.

1. Materials and Methods

1.1. Test Substance

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
Chemical Structure:



BAS 510 F

1.2. Trial Locations

TABLE B.1.2. Trial Numbers and Geographical Locations				
Crop	Potatoes			
	Submitted		Requested	
	Canada	U.S.	Canada	U.S.
1	2	2	3	2
1A	0		4	
2		1		1
3		1		1
4				
5	4	4	3	4
5A	0		1	
5B	0		1	
6				
7				
7A	0		1	
8				
9		1		1
10		1		1
11		6		6
12	0		1	
13				
14	0		2	
15				
16				
17				
18				
19				
20				
21				
Total Trials	6	16	16	16

Table 1.2.2. Crop and Field Trial Information.

EPA Region	Location (County, State, Year)	Crop; Variety	Formulation	Application Timing	Application Rate (lb ai/A) [kg ai/ha]	Re-treatment Intervals (days)	Number of Applications	Application Method/ Application Volume (GPA) [L/ha]	Total Application Rate (lb ai/A) [kg ai/ha]	Tank Mix Adjuvants	Harvest Procedures
1	Lehigh, PA, 2000	Potato, Andover	70% WG	Growth stage 15, 4-12" height	0.457-0.464 [0.512-0.520]	15	2	Foliar spray/ 35.6-36.1 [398.7-404.3]	0.921 [1.03]	X-77 (8oz/100 gal) [(0.59 g/L)]	Potatoes harvested 30 days after last application (DALA).
				Early bloom, 18-24" height							
1	Hunterdon, NJ, 2000 (decline study)	Potato, Reba	70% WG	Early tuber bulk, 24-30" height	0.448-0.464 [0.502-0.520]	13	2	Foliar spray/ 31.5-32.5 [352.8-364.0]	0.912 [1.02]	Agridex (0.125%, v:v)	Potatoes harvested 10, 21, 30, 41, and 49 days DALA.
				Tuber bulk, 1.5-18" height							
2	Wake, NC, 2000	Potato, Atlantic	70% WG	Plants 18" tall, flowering	0.452-0.453 [0.506-0.507]	14	2	Foliar spray/ 30.2 [338.2]	0.905 [1.01]	Induce (0.25%, v:v)	Potatoes harvested 30 days DALA.
				Plants 13" tall, post bloom							
3	Seminole, FL, 2000	Potato, Red Pontiac	70% WG	Plants 14" tall	0.450-0.454 [0.504-0.509]	15	2	Foliar spray/ 30.0-30.3 [336.0-339.4]	0.904 [1.01]	Diamond R Activator (1pt/100gal) [1.48 mL/L]	Potatoes harvested 29 days DALA.
				Plants 16" tall							
5	Grand Forks, ND, 2000	Potato, Atlantic	70% WG	Plants 18-20" tall, BBCH 34	0.447-0.457 [0.501-0.512]	14	2	Foliar spray/ 19.9-20.3 [222.9-227.4]	0.903 [1.01]	Bond (0.25%, v:v)	Potatoes harvested 30 days DALA.
				Plants 18-20" tall, tuber bulk, BBCH 45							

51

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Table 1.2.2. Crop and Field Trial Information.

EPA Region	Location (County, State, Year)	Crop; Variety	Formulation	Application Timing	Application Rate (lb ai/A) [kg ai/ha]	Re-treatment Intervals (days)	Number of Applications	Application Method/ Application Volume (GPA) [L/ha]	Total Application Rate (lb ai/A) [kg ai/ha]	Tank Mix Adjuvants	Harvest Procedures																																									
5	Steele, ND, 2000	Potato, Atlantic	70% WG	Plants 18-20" tall, tuber bulk, BBCH 34	0.439-0.447 [0.492-0.501]	14	2	Foliar spray/ 19.5-19.8 [218.4-221.8]	0.886 [0.992]	Bond (0.25%, v:v)	Potatoes harvested 30 days DALA.																																									
				Plants 22-24" tall, tuber bulk, BBCH 45								5	Fepin, WI, 2000	Potato, Russet Burbank	70% WG	Plants 20" tall, late bloom	0.455-0.459 [0.510-0.514]	13	2	Foliar spray/ 20.2-20.4 [226.2-228.5]	0.914 [1.02]	Latron CS-7 (24oz/100gal) [1.78 g/L]	Potatoes harvested 29 days DALA.	Plants 20" tall, post bloom	5	Wabasha, MN, 2000	Potato, Atlantic Newleaf	70% WG	Plants 22", late bloom	0.450-0.459 [0.504-0.514]	13	2	Foliar spray/ 20.0-20.4 [224.0-228.5]	0.909 [1.02]	Latron CS-7 (24oz/100gal) 1.78 g/L]	Potatoes harvested 30 days DALA.	Plants 12" tall, vine recumbence	9	Custer, CO, 2000	Potato, Norkotah	70% WG	Plants 20" tall, 3-4 ounce tubers	0.448-0.456 [0.502-0.511]	14	2	Foliar spray/ 24.8-25.2 [277.8-282.4]	0.904 [1.01]	Activate Plus (0.25%, v:v)	Potatoes harvested 30 days DALA.	Plants 20" tall, tuber bulking	10	Tulare, CA, 2000 (decline study)
5	Fepin, WI, 2000	Potato, Russet Burbank	70% WG	Plants 20" tall, late bloom	0.455-0.459 [0.510-0.514]	13	2	Foliar spray/ 20.2-20.4 [226.2-228.5]	0.914 [1.02]	Latron CS-7 (24oz/100gal) [1.78 g/L]	Potatoes harvested 29 days DALA.																																									
				Plants 20" tall, post bloom								5	Wabasha, MN, 2000	Potato, Atlantic Newleaf	70% WG	Plants 22", late bloom	0.450-0.459 [0.504-0.514]	13	2	Foliar spray/ 20.0-20.4 [224.0-228.5]	0.909 [1.02]	Latron CS-7 (24oz/100gal) 1.78 g/L]	Potatoes harvested 30 days DALA.	Plants 12" tall, vine recumbence	9	Custer, CO, 2000	Potato, Norkotah	70% WG	Plants 20" tall, 3-4 ounce tubers	0.448-0.456 [0.502-0.511]	14	2	Foliar spray/ 24.8-25.2 [277.8-282.4]	0.904 [1.01]	Activate Plus (0.25%, v:v)	Potatoes harvested 30 days DALA.	Plants 20" tall, tuber bulking	10	Tulare, CA, 2000 (decline study)	Potato, Russet	70% WG	Plants 12-14" tall, bloom	0.449-0.450 [0.503-0.504]	15	2	Foliar spray/ 30.4 [340.5]	0.898 [1.01]	Non-ionic surfactant (4oz/100gal) [0.30 g/L]	Potatoes harvested 10, 20, 30, 40, and 51 days DALA.	Plants 12-14" tall, post bloom		
5	Wabasha, MN, 2000	Potato, Atlantic Newleaf	70% WG	Plants 22", late bloom	0.450-0.459 [0.504-0.514]	13	2	Foliar spray/ 20.0-20.4 [224.0-228.5]	0.909 [1.02]	Latron CS-7 (24oz/100gal) 1.78 g/L]	Potatoes harvested 30 days DALA.																																									
				Plants 12" tall, vine recumbence								9	Custer, CO, 2000	Potato, Norkotah	70% WG	Plants 20" tall, 3-4 ounce tubers	0.448-0.456 [0.502-0.511]	14	2	Foliar spray/ 24.8-25.2 [277.8-282.4]	0.904 [1.01]	Activate Plus (0.25%, v:v)	Potatoes harvested 30 days DALA.	Plants 20" tall, tuber bulking	10	Tulare, CA, 2000 (decline study)	Potato, Russet	70% WG	Plants 12-14" tall, bloom	0.449-0.450 [0.503-0.504]	15	2	Foliar spray/ 30.4 [340.5]	0.898 [1.01]	Non-ionic surfactant (4oz/100gal) [0.30 g/L]	Potatoes harvested 10, 20, 30, 40, and 51 days DALA.	Plants 12-14" tall, post bloom															
9	Custer, CO, 2000	Potato, Norkotah	70% WG	Plants 20" tall, 3-4 ounce tubers	0.448-0.456 [0.502-0.511]	14	2	Foliar spray/ 24.8-25.2 [277.8-282.4]	0.904 [1.01]	Activate Plus (0.25%, v:v)	Potatoes harvested 30 days DALA.																																									
				Plants 20" tall, tuber bulking								10	Tulare, CA, 2000 (decline study)	Potato, Russet	70% WG	Plants 12-14" tall, bloom	0.449-0.450 [0.503-0.504]	15	2	Foliar spray/ 30.4 [340.5]	0.898 [1.01]	Non-ionic surfactant (4oz/100gal) [0.30 g/L]	Potatoes harvested 10, 20, 30, 40, and 51 days DALA.	Plants 12-14" tall, post bloom																												
10	Tulare, CA, 2000 (decline study)	Potato, Russet	70% WG	Plants 12-14" tall, bloom	0.449-0.450 [0.503-0.504]	15	2	Foliar spray/ 30.4 [340.5]	0.898 [1.01]	Non-ionic surfactant (4oz/100gal) [0.30 g/L]	Potatoes harvested 10, 20, 30, 40, and 51 days DALA.																																									
				Plants 12-14" tall, post bloom																																																

Table 1.2.2. Crop and Field Trial Information.

EPA Region	Location (County, State, Year)	Crop; Variety	Formulation	Application Timing	Application Rate (lb ai/A) [kg ai/ha]	Re-treatment Intervals (days)	Number of Applications	Application Method/ Application Volume (GPA) [L/ha]	Total Application Rate (lb ai/A) [kg ai/ha]	Tank Mix Adjuvants	Harvest Procedures
11	Jefferson, OR, 2000	Potato, Russet Norkotah	70% WG	Growth stage 77, crop height 24"	0.456-0.458 [0.511-0.513]	14	2	Foliar spray/ 18.1-18.2 [202.7-203.8]	0.913 [1.02]	Non-ionic surfactant (4oz/100gal) [0.30 g/L]	Potatoes harvested 30 days DALA.
				Growth stage 85, crop height 24"							
11	Payette, ID, 2000	Potato, Russet Burbank	70% WG	Plants 22" tall, tuber bulking	0.424-0.444 [0.475-0.497]	14	2	Foliar spray/ 28.2-29.6 [315.8-331.5]	0.868 [0.972]	Wilbur-Ellis R-11 (1pt/100gal) [1.48 mL/L]	Potatoes harvested 30 days DALA.
				Plants 22" tall, tuber bulking							
11	Washington, ID, 2000	Potato, Russet Burbank	70% WG	Plants 22" tall, tuber bulking	0.440-0.450 [0.493-0.504]	14	2	Foliar spray/ 29.7-30.0 [332.6-336.0]	0.890 [0.997]	Wilbur-Ellis R-11 (1pt/100gal) [1.48 mL/L]	Potatoes harvested 30 days DALA.
				Plants 18" tall, maturation							
11	Grant, WA, 2000	Potato, Newleaf Plus	70% WG	Plants 33" height, BBCH 75	0.450 [0.504]	14	2	Foliar spray/ 20.0-20.2 [224.0-226.2]	0.900 [1.01]	Latron B1956 (16oz/100gal) [1.19 g/L]	Potatoes harvested 30 days DALA.
				Plants 32" height, BBCH 75							
11	Jefferson, OR, 2000	Potato, Norchip	70% WG	24" tall, bloom, 2" diameter tubers	0.447-0.458 [0.501-0.513]	13	2	Foliar spray/ 19.4-22.2 [217.3-248.6]	0.906 [1.02]	Wilbur-Ellis R-11 (0.25%, v:v)	Potatoes harvested 29 DALA.
				24" tall, post bloom, 2.5" diameter tubers							

7

8

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Table I.2.2. Crop and Field Trial Information.

EPA Region	Location (County, State, Year)	Crop; Variety	Formulation	Application Timing	Application Rate (lb ai/A) [kg ai/ha]	Re-treatment Intervals (days)	Number of Applications	Application Method/ Application Volume (GPA) [L/ha]	Total Application Rate (lb ai/A) [kg ai/ha]	Tank Mix Adjuvants	Harvest Procedures
11	Grant, WA, 2000	Potato, Newleaf Plus	70% WG	Plants 33" tall, bulking 60% tuber mass	0.450-0.452 [0.504-0.506]	14	2	Foliar spray/ 20.2-20.7 [226.2-231.8]	0.902 [1.01]	Latron B1956 (16oz/100gal) [1.19 g/L]	Potatoes harvested 30 days DALA.

1.3. Post-harvest Procedures

A single untreated and duplicate treated samples of mature potato tubers were harvested 29-30 days following the last application from each field trial; each sample consisted of at least 24 tubers or 12 large tubers. Additional samples of potato tubers were collected from the California and New Jersey trials at various time intervals for residue decline samples. In addition, a bulk-sized sample (weighing at least 170 lbs, or 76.9 kg) of potato tubers was collected from the Washington (Grant County) trial treated at an exaggerated rate to generate samples for processing. All samples of potato tubers (except the bulk samples) were bagged and stored frozen (temperature not specified) on the day of collection. Field samples were shipped frozen within 0-44 days of harvest to BASF Agro Research (Research Triangle Park, NC) for analysis. RAC and bulk-sized samples of potato tubers treated at an exaggerated rate were shipped on the day of harvest under ambient conditions to BASF Agro Research and Englar Food Laboratories, Inc. (Moses Lake, WA), respectively, and placed in frozen storage until a determination was made that processing was not needed.

Matrix	RAC	Storage Temperature (°C) (Analytical Laboratory)	Duration
Potato	Tuber	< -10	11-136 days (0.4-4.5 months)

1.4. Analytical Methods

Samples of potato tubers were analyzed for residues of BAS 510 F using LC/MS/MS method D9908, the data collection method for plants. Briefly, samples of potato tubers 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 buffer 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 0.050 ppm for the residues of BAS 510 F in/on potato tubers. Concurrent recoveries for a range of spiking levels are summarized below (Table 2.1).

2. Results

Crop Matrix	Fortification Level (ppm)	Recoveries (%)	Mean Recovery ± SD (%)
Potato, tuber	0.050, 1.00	74, 82, 83, 85, 88, 88, 89, 91, 93, 94, 95, 99, 102, 107	91 ± 9

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

Location (County, State, Year)	Crop Variety	Commodity	Formulation	Total Rate (lbs ai/A) [kg ai/ha]	PHI (days)	BAS 510 F residues (ppm)
Lehigh, PA, 2000	Andover	Tuber	70% WG	0.921 [1.03]	30	<0.050, <0.050
Hunterdon, NJ, 2000 (Decline study)	Reba	Tuber	70% WG	0.912 [1.02]	10	<0.050, <0.050
					21	<0.050, <0.050
					30	<0.050, <0.050
					41	<0.050, <0.050
					49	<0.050, <0.050
Wake, NC, 2000	Atlantic	Tuber	70% WG	0.905 [1.01]	30	<0.050, <0.050
Seminole, FL, 2000	Red Pontiac	Tuber	70% WG	0.904 [1.01]	29	<0.050, <0.050
Grand Forks, ND, 2000	Atlantic	Tuber	70% WG	0.903 [1.01]	30	<0.050, <0.050
Steele, ND, 2000	Atlantic	Tuber	70% WG	0.886 [0.992]	30	<0.050, <0.050
Pepin, WI, 2000	Russet Burbank	Tuber	70% WG	0.914 [1.02]	29	<0.050, <0.050
Wabasha, MN, 2000	Atlantic Newleaf	Tuber	70% WG	0.909 [1.02]	30	<0.050, <0.050
Custer, CO, 2000	Norkotah	Tuber	70% WG	0.904 [1.01]	30	<0.050, <0.050
Tulare, CA, 2000 (Decline study)	Russet	Tuber	70% WG	0.898 [1.01]	10	<0.050, <0.050
					20	<0.050, <0.050
					30	<0.050, <0.050
					40	<0.050, <0.050
					51	<0.050, <0.050
Jefferson, OR, 2000	Russet Norkotah	Tuber	70% WG	0.913 [1.01]	30	<0.050, <0.050
Payette, ID, 2000	Russet Burbank	Tuber	70% WG	0.868 [0.972]	30	<0.050, <0.050
Washington, ID, 2000	Russet Burbank	Tuber	70% WG	0.890 [0.997]	30	<0.050, <0.050
Grant, WA, 2000	Newleaf Plus	Tuber	70% WG	0.900 [1.01]	30	<0.050, <0.050
				4.50 [5.04]	30	<0.050, <0.050

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

Location (County, State, Year)	Crop Variety	Commodity	Formulation	Total Rate (lbs ai/A) [kg ai/ha]	PHI (days)	BAS 510 F residues (ppm)
Jefferson, OR, 2000	Norchip	Tuber	70% WG	0.906 [1.02]	29	<0.050, <0.050
Grant, WA, 2000	Newleaf Plus	Tuber	70% WG	0.902 [1.01]	30	<0.050, <0.050

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

Commodity	Total Application Rate (lb ai/A)	PHI (days)	Residue Levels (ppm)				
			Minimum	Maximum	HAFT	Mean [Median]	Std. Dev.
Potato tuber	0.868-0.921	29-30	<0.050	<0.050	<0.050	<0.050 [<0.050]	0.0
	4.50	30	<0.050	<0.050	<0.050	<0.050 [<0.050]	0.0

3. Discussion

3.1. Methods

Mature potato tubers were harvested 29-30 days following the last of two foliar spray applications of the 70% WG formulation at approximately 0.45 lb ai/A/application (0.50 kg ai/ha/application), with a 13- to 15-day retreatment interval, for a total rate of 0.87-0.92 lb ai/A (0.97-1.03 kg ai/ha). Applications were made using ground equipment in 18.1-36.1 gal/A (202.7-404.3 L/ha) of water with a spray adjuvant added. In two trials (California and New Jersey), potato tuber samples were collected at 10, 20/21, 30, 40/41, and 49/51 days following treatment to evaluate residue decline.

An additional plot in the Washington field trial (Grant County) was treated at an exaggerated rate to generate RAC samples with quantifiable residues for processing. Mature potato tubers were harvested 30 days following the last of two foliar spray applications of the 70% WG formulation at approximately 2.25 lb ai/A/application (2.82 kg ai/ha), with a 14-day retreatment interval, for a total rate of 4.50 lb ai/A (5.04 kg ai/ha) (5x the rate used in the corresponding field trials). Applications were made using ground equipment in 19.9-20.2 gal/A (222.9-226.2 L/ha) of water with a spray adjuvant added.

Sixteen potato trials were conducted in Regions 1 (one trial each in New Jersey and Pennsylvania), 2 (one trial in North Carolina), 3 (one trial in Florida), 5 (two trials in North Dakota and one each in Minnesota and Wisconsin), 9 (one trial in Colorado), 10 (one trial in California), and 11 (two trials each in Idaho, Oregon and Washington). For the EPA, the

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number and location of field trials conducted for potatoes are in accordance with the guidance requirements (US EPA Residue Test Chemistry Guidelines, OPPTS 860.1500, Tables 1 and 5).

For the PMRA, the number and location of the trials submitted does not match the guideline requirements (Dir 98-02, Table B.1.2). Six of the sixteen trials were conducted in zones which are common between the US and Canada. Four additional trials will be required by the PMRA as a condition of registration. These additional trials must be carried out in zones 1 (one trial), 1A (two trials) and 14 (one trial).

Residues of BAS 510 F in/on potato tubers were quantitated using LC/MS/MS method D9908, the data collection method for plant commodities.

The maximum storage interval from harvest to analysis was 136 days (4.5 months) for potato tubers. Adequate storage stability data in five matrices (refer to the DER for MRID 45405109) are available to support the storage conditions and intervals of samples from the submitted potato field trials.

3.2. Results

Residues of BAS 510 F were below the LOQ (<0.050 ppm) in/on all potato tuber samples harvested 29-30 days following the last of two foliar spray applications of the 70% WG formulation at 0.42-0.46 lb ai/A/application (0.47-0.52 kg ai/ha/application), with a 13- to 15-day retreatment interval, for a total rate of 0.87-0.92 lb ai/A (0.97-1.03 kg ai/ha). Apparent residues of BAS 510 F were less than the method LOQ (<0.050 ppm) in/on 17 samples of untreated potato tubers. The residue decline data for potato tubers did not demonstrate any trends in BAS 510 F residues at longer posttreatment intervals because residues were below the LOQ (<0.050 ppm) at all sampling intervals.

In addition, residues of BAS 510 F were below the LOQ (<0.050 ppm) in/on all potato tuber samples harvested 30 days following the last of two foliar spray applications of the 70% WG formulation at an exaggerated rate (2.23-2.27 lb ai/A/application, or 2.50-2.54 kg ai/ha/application) with a 14-day retreatment interval, for a total rate of 4.50 lb ai/A (5.05 kg ai/ha) (5x the rate used in the corresponding field trials).

There was above-normal rainfall at the North Dakota, Wisconsin, Minnesota and one of the Oregon trial sites. There was below-normal rainfall at the North Carolina and Washington trial sites. Above-normal temperatures occurred at the Wisconsin and Minnesota trial sites. Aside from these cases, no abnormal weather, environmental conditions or agricultural practices were noted during the potato field trials. Irrigation was used to supplement rainfall at all of the potato field trials except the trials in Minnesota, North Dakota and one of the Idaho trials.

Residue data from the current submission are acceptable to fulfill crop field trial data requirements for potatoes for US EPA. In addition, residue data from the current submission for

BAS 510 F
Potato (Tuber)
PMRA a.i. code (CCH)

Magnitude of the Residue
OPPTS 860.1500
DACO 7.4.1

PC Code: 128008
MRID: 45405123
Submission #2001-1027, 1036, 1043

potatoes are acceptable to fulfill crop field trial data requirements for the tuberous and corm vegetable crop subgroup (Crop Subgroup 1C).

Six of the sixteen trials were conducted in zones which are common between the US and Canada. Four additional trials will be required by the PMRA as a condition of registration. These additional trials must be carried out in zones 1 (one trial), 1A (two trials) and 14 (one trial).

4. Deficiencies

None for a US registration.

Four additional Canadian field trials are required by PMRA as a condition of registration in Canada.

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 pages.