

BAS 510 F
Canola (Seed)
PMRA a.i. code (CCH)

Magnitude of the Residue
OPPTS 860.1500
DACO 7.4.1

PC Code: 128008
MRID: 45405116
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 T. Drew Date: 8/20/03 T. Sheremata Date: 10/1/03
William T. Drew, Chemist Tamara Sheremata, Evaluator
Reviewer Peer reviewer
RAB2/HED (7509C) FREAS, HED, PMRA

R. Loranger Date: 8/15/03 Ariff Ali Date: July 25/03
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DP Barcode: D278386

Petition: 1F06313

Citation: 45405116 Versoi, P.; Abdel-Baky, S. (2001) The Magnitude of BAS 510 F
Residues in Canola: Final Report: Lab Project Number: 58645: 2001/5000048:
2000110 (ND/5). Unpublished study prepared by BASF Agro Research. 69
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 data evaluation record (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 canola seed. A total of 16 canola seed trials were conducted in the U.S. and Canada. Four U.S. canola seed trials were conducted in Regions 5 (one trial each in MN and ND), 7 (one trial in ND) and 11 (one trial in ID). Twelve Canadian canola seed trials were conducted in Region 14 in Alberta (six trials), Saskatchewan (two trials) and Manitoba (four trials). The number and location of field trials conducted for canola seed are in accordance with the study design approved by the US-EPA and BASF Corporation on 2/23/00 for a reduction in the number of canola test sites needed for a NAFTA registration. The Food Residue Exposure Assessment Section of the Health Evaluation Division (FREAS, HED) of PMRA/Canada concurred with the revised distribution and locations of the crop field trials (noted in References).

At each test location, the 70% WG formulation of BAS 510 F was applied two times as a foliar spray at approximately 0.4 lb ai/A/application (0.5 kg ai/ha/application) with a 4- to 7-day re-treatment interval, for a total rate of 0.75-0.82 lb ai/A (0.84-0.92 kg ai/ha). Mature canola plants were cut 19-23 days following the last application and dried in the field for 0-9 days prior to collection of canola seed. In two trials, canola seed samples were collected at 0, 10, 20/21, 29/30, and 40 days following treatment to evaluate residue decline.

At the applied total rate of 0.75-0.82 lb ai/A (0.84-0.92 kg ai/ha), the range of BAS 510 F residues in/on treated mature canola seed samples was 0.136-3.42 ppm. The residue decline data for canola seed indicated that BAS 510 F generally did not increase with longer post-treatment intervals.

At four of the test trials, in ND (one trial), MN (one trial) and Manitoba (two trials), an additional test plot was treated at a higher rate. Mature canola plants were cut 20-22 days following the last of two foliar spray applications of the 70% BAS 510 F WG formulation at approximately 1.2 lb ai/A/application (1.3 kg ai/ha), with a 5- to 6-day retreatment interval, for a total rate of 2.38-2.43 lb ai/A (2.67-2.72 kg ai/ha). The range of BAS 510 F residues in/on treated canola seed samples was 0.575-5.10 ppm. Canola seed obtained from these field trials were also used in a processing study; refer to the processed canola seed DER reviewing MRID 45405124 for details of the study.

Residues of BAS 510 F in/on canola seed were quantitated using a validated LC/MS/MS method (D9908, the data collection method for plant commodities). Acceptable concurrent method validation data for canola seed were included in the submission.

Storage stability data (refer to the DER for MRID 45405109) are available to support the 147 days (4.8 months) storage interval for the samples in this study.

Residue data from the current submission are acceptable to fulfill crop field trial data requirements for canola seed.

It is noted that crop field trial residue data for sunflower seed were also submitted by BASF (see DER of MRID 45623407). A new Oilseed crop group (Crop Group 20) will likely be established by EPA to harmonize with PMRA/Canada's Crop Group 20. The representative commodities for this crop group are rapeseed (canola varieties only) and sunflower, seed. The maximum residues from the sunflower crop field trial studies were 0.539 ppm and, as stated above, 3.42 ppm for canola seed. These maximum residues vary by more than a factor of 5x, thus rendering a crop group tolerance for the Oilseed crop group inappropriate.

GLP Compliance

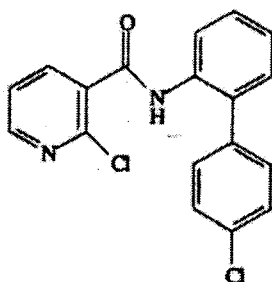
Signed and dated GLP, Quality Assurance, and Data Confidentiality statements were provided. No GLP deviations were reported which would impact the study results or their interpretation.

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 NAFTA Growing Regions	Canola (seed)			
	Submitted ³		Requested	
	Canada	U.S.	Canada ²	U.S. ¹
1				
1A				
2				1
3				
4				
5	2	2	1	2
5A				
5B				
6				
7	1	1	1	2
7A				
8				
9				
10				
11	1	1		3
12				
13				
14	12	12	14	
15				
16				
17				
18				
19				
20				
21				
Total Trials	16	16	16	8

¹ As per US EPA Residue Chemistry Test Guidelines, OPPTS 860.1500, Table 5.

² As per PMRA Dir 98-02, Residue Chemistry Guidelines, Section 9, Table 2.

³ The petitioner stated these trial numbers and geographic distribution were agreed upon for the Canola NAFTA Project in a meeting between the Agency and BASF Corporation on 2/23/00. These sites were also approved by PMRA according to correspondence with BASF dated 6/27/00.

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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 Adjuncts	Harvest Procedures
5	Otertail, MN, 2000	Canola, Golden Ready	70% WG	Plants 40" tall, flowering, beginning pod-fill	0.397-0.40 [0.444-0.449]	5	2	Foliar spray/ 19.9-20.1 [223-225]	0.798 [0.895]	R-Way Crop Oil Concentrate (1qt/A)	Canola seed harvested 22 days after last application (DALA).
				Plants 32" tall (lodging), end-bloom, pods filling	1.20 [1.34]	5	2	Foliar spray/ 20.0 [224]	2.40 [2.70]		Canola seed harvested 22 DALA.
5	Grand Forks, ND, 2000 (decline study)	Canola, Quantum	70% WG	Plants 46-48" tall, 10% full-sized pod	0.372-0.380 [0.417-0.426]	5	2	Foliar spray/ 18.6-19.0 [208-213]	0.752 [0.842]	Prime Oil (1%, v:v)	Canola seed harvested 0, 10, 21, 30, and 40 DALA, and field dried for 0-9 days.
				Plants 48-52" tall, 20-30% full-sized pod							
7	McHenry, ND, 2000	Canola, Hyola 401	70% WG	Plants 40" tall, flowering	0.399-0.400 [0.447-0.448]	6	2	Foliar spray/ 19.9-20.0 [223-224]	0.799 [0.896]	17% Crop Oil, Class (1qt/A)	Canola seed harvested 21 DALA and field dried for 5 days.
				Plants 40" tall, end of bloom	1.20-1.21 [1.34-1.36]	6	2	Foliar spray/ 19.9-20.1 [223-225]	2.41 [2.70]		
11	Jerome, ID, 2000 (decline study)	Canola, Phoenix	70% WG	Plants 44" tall, 30% of pods ripe	0.400 [0.448]	5	2	Foliar spray/ 19.6-20.5 [220-230]	0.800 [0.896]	Agri-dex (1qt/A)	Canola seed harvested 0, 10, 20, 29, and 40 DALA, and field dried for 0-6 days.
				Plants 44" tall, 30% of pods ripe							
14	Fairview, AB, Canada, 2000	Canola, LG 3235	70% WG	Plants 31-32" tall, 95% bloom	0.395-0.396 [0.442-0.444]	5	2	Foliar spray/ 10.6 [119]	0.791 [0.886]	Assist Oil Concentrate (1%, v:v)	Canola seed harvested 22 DALA and field dried for 7 days.
				Plants 31-32" tall, end of bloom							

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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
14	Fairview, AB, Canada, 2000	Canola, LG 3235	70% WG	Plants 33-34" tall, 95% bloom	0.399-0.410 [0.447-0.459]	5	2	Foliar spray/ 10.7-11.1 [120-124]	0.809 [0.906]	Assist Oil Concentrate (1%, v/v)	Canola seed harvested 22 DALA and field dried for 7 days.
				Plants 29-30" tall (lodging), end of bloom							
				Plants 49-50" tall, 70% full-sized pods	0.400-0.402 [0.448-0.450]						
14	Leduc, AB, Canada, 2000	Canola, Agassiz	70% WG	Plants 49-50" tall, 70% full-sized pods	0.400-0.402 [0.448-0.450]	4	2	Foliar spray/ 11.9 [133]	0.802 [0.898]	Merge Surfactant (865 ml/ha)	Canola seed harvested 22 DALA and field dried for 7 days.
				Plants 49-50" tall, nearly all pods full-sized							
				Plants 31-32" tall (lodging), 50% full-sized pods	0.390-0.404 [0.437-0.453]						
14	Wetaskiwin, AB, Canada, 2000	Canola, Agassiz	70% WG	Plants 19-48" tall (lodging), 50% full-sized pods	0.390-0.404 [0.437-0.453]	5	2	Foliar spray/ 11.4-12.0 [128-134]	0.794 [0.889]	Merge Surfactant (865 ml/ha) Application #2 only	Canola seed harvested 23 DALA and field dried for 6 days.
				Plants 31-32" tall (lodging), 60% full-sized pods							
				Plants 39-40" tall, 75% full-sized pods	0.400-0.413 [0.448-0.463]						
14	Lacombe, AB, Canada, 2000	Canola, LG 3235	70% WG	Plants 35-36" tall (lodging), pods beginning to ripen	0.400-0.413 [0.448-0.463]	5	2	Foliar spray/ 21.3-22.1 [239-248]	0.812 [0.909]	Ag-Surf (0.1%, v/v)	Canola seed harvested 21 DALA and field dried for 7 days.
				Plants 39-40" tall, 75% full-sized pods							
				Plants 29-30" tall, 70% full-sized pods	0.394-0.402 [0.441-0.450]						
14	Red Deer, AB, Canada, 2000	Canola, LG 3235	70% WG	Plants 17-18" tall (lodging), pods beginning to ripen	0.394-0.402 [0.441-0.450]	6	2	Foliar spray/ 21.1-21.5 [236-241]	0.796 [0.892]	Ag-Surf (0.1%, v/v)	Canola seed harvested 20 DALA and field dried for 7 days.
				Plants 29-30" tall, 70% full-sized pods							
				Plants 31-32" tall (lodging), pods beginning to ripen							

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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
14	County 401, SK, Canada, 2000	Canola, 45A71	70% WG	Plants 43-47" tall, flowering full to nearly complete	0.395-0.399 [0.442-0.447]	6	2	Foliar spray/ 11.6-11.7 [130-131]	0.794 [0.889]	Merge Surfactant (1L/ha)	Canola seed harvested 22 DALA and field dried for 6 days.
				Plants 43-47" tall, end-bloom to 30% full-sized pods							
14	County 463, SK, Canada, 2000	Canola, 46A76	70% WG	Plants 57" tall, flowering full to nearly complete	0.400-0.410 [0.448-0.459]	7	2	Foliar spray/ 11.9-12.0 [133-134]	0.810 [0.907]	Merge Surfactant (1L/ha)	Canola seed harvested 20 DALA and field dried for 6 days.
				Plants 57" tall, 50-70% full-sized pods							
14	Whitewater, MB, Canada, 2000	Canola, Canterra 1867RR	70% WG	Plants 43-44" tall, 30% full-sized pods	0.395-0.399 [0.442-0.447]	5	2	Foliar spray/ 21.1-21.3 [236-239]	0.794 [0.889]	Assist Oil Concentrate (1%, v:v)	Canola seed harvested 21 DALA and field dried for 7 days.
				Plants 43-44" tall, 50% full-sized pods				Foliar spray/ 21.0-21.4 [235-240]	2.38 [2.67]		
14	Morton, MB, Canada, 2000	Canola, LG3235	70% WG	Plants 33-34" tall, 30% full-sized pods	0.401-0.404 [0.449-0.453]	5	2	Foliar spray/ 21.4-21.6 [240-242]	0.805 [0.902]	Assist Oil Concentrate (1%, v:v)	Canola seed harvested 21 DALA and field dried for 4 days
				Plants 31-32" tall (lodging), 50% full-sized pods							

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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
14	Minto, MB, Canada, 2000	Canola, Quest	70% WG	Plants 42-44" tall, 50% full-sized pods	0.400-0.420 [0.448-0.470]	6	2	Foliar spray/ 11.8-12.3 [132-138]	0.820 [0.898]	Merge Surfactant (1L/ha)	Canola seed harvested 19-20 DALA and field dried for 5-6 days.
				Plants 40" tall (lodging), nearly all pods full-sized	1.21-1.22 [1.36-1.37]	6	2	Foliar spray/ 11.9-12.0 [133-134]	2.43 [2.72]		
				Plants 41-46" tall, 50% full-sized pods	0.400 [0.448]	7	2	Foliar spray/ 11.7 [131]	0.800 [0.896]	Merge Surfactant (1L/ha)	Canola seed harvested 19 DALA and field dried for 6 days.
14	North Cypress, MB, Canada, 2000	Canola, 45A51	70% WG	Plants 36" tall (lodging), nearly all pods full-sized							

1.3. Post-harvest Procedures

Canola plants were cut 19-23 days following the last application and dried in the field for 0-9 days prior to collection of canola seed. A single untreated and duplicate treated samples of canola seed were harvested from each field trial; each sample weighed at least 1.1 lbs (0.5 kg). Additional samples of canola seed were collected from the North Dakota (Grand Forks County) and Idaho (Jerome County) trials at various time intervals for residue decline samples. In addition, one or two bulk-sized samples of canola seed were collected at four trials treated at exaggerated rates to generate samples for processing. A single subsample was collected from each bulk-sized sample to obtain canola seed for a preliminary analysis to determine the need for a processing study. All samples of canola seed were bagged and stored frozen (temperature not specified) on the day of collection. Field samples were shipped frozen, within 2-52 days of harvest.

Table 1.3.1. Summary of Storage Conditions

Matrix	RAC	Storage Temperature (°C). (Analytical Laboratory)	Duration
Canola	Seed	< -10	32-147 days (1.1-4.8 months)

1.4. Analytical Methods

Samples of canola seed were analyzed for residues of BAS 510 F using LC/MS/MS method D9908, the data collection method for plant commodities. Briefly, canola seed 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 and cleaned up further using silica gel solid phase extraction (SPE); residues were eluted from the silica gel SPE with 4% ethyl acetate in dichloromethane. The eluate was evaporated to dryness and re-dissolved 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 canola seed. Concurrent recoveries for a broad range of spiking levels are summarized below (Table 2.1).

2. Results

Table 2.1. Summary of Concurrent Analytical Method Validation.

Crop Matrix	Fortification Level (ppm)	Recoveries (%)	Mean Recovery \pm SD (%)
Canola seed	0.050-10.0	60, 71, 74, 78, 79, 83, 84, 88, 98, 99, 100	83 \pm 12

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

Location (County, State, Year)	Crop Variety	Commodity	Formulation	Total Rate (lbs ai/A) [kg ai/ha]	PHI ¹ (days)	BAS 510 F residues (ppm)
Grand Forks, ND, 2000 (decline study)	Quantum	Seed	70% WG	0.752 [0.842]	0 (0)	1.61, 1.62
					10 (6)	0.626, 1.34
					21 (9)	0.360, 0.696
					30 (5)	1.05, 1.08
					40 (0)	0.746, 1.09
McHenry, ND, 2000	Hyola 401	Seed	70% WG	0.799 [0.895]	21 (5)	0.701, 0.882
Jerome, ID, 2000 (decline study)	Phoenix	Seed	70% WG	0.800 [0.896]	0 (6)	1.23, 1.34
					10 (0)	0.427, 0.445
					20 (0)	0.447, 0.551
					29 (0)	0.451, 0.462
					40 (0)	0.171, 0.221
Fairview, AB, Canada, 2000	LG 3235	Seed	70% WG	0.791 [0.886]	22 (7)	0.136, 0.215
Fairview, AB, Canada, 2000	LG 3235	Seed	70% WG	0.809 [0.906]	22 (7)	0.190, 0.200
Leduc, AB, Canada, 2000	Agassiz	Seed	70% WG	0.802 [0.898]	22 (7)	0.551, 0.698
Wetaskiwin, AB, Canada, 2000	Agassiz	Seed	70% WG	0.794 [0.889]	23 (6)	2.99, 3.42
Lacombe, AB, Canada, 2000	LG 3235	Seed	70% WG	0.812 [0.909]	21 (7)	0.236, 0.358
Red Deer, AB, Canada, 2000	LG 3235	Seed	70% WG	0.796 [0.892]	20 (7)	1.27, 2.58
County 401, SK, Canada, 2000	45A71	Seed	70% WG	0.794 [0.889]	22 (6)	0.775, 1.23
County 463, SK, Canada, 2000	46A76	Seed	70% WG	0.810 [0.907]	20 (6)	0.747, 0.756
Whitewater, MB, Canada, 2000	Canterra 1867RR	Seed	70% WG	0.794 [0.889]	21 (7)	0.850, 1.74
Morton, MB, Canada, 2000	LG3235	Seed	70% WG	0.805 [0.902]	21 (4)	3.12, 3.13
Minto, MB, Canada, 2000	Quest	Seed	70% WG	0.820 [0.918]	19 (6)	0.188, 0.436

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

Location (County, State, Year)	Crop Variety	Commodity	Formulation	Total Rate (lbs ai/A) [kg ai/ha]	PHI ¹ (days)	BAS 510 F residues (ppm)
North Cypress, MB, Canada, 2000	45A51	Seed	70% WG	0.800 [0.896]	19 (6)	0.302, 0.338
Ottertail, MN, 2000	Golden Ready	Seed	70% WG	0.798 [0.894]	22 (0)	0.923, 0.968
Exaggerated Rate Studies						
McHenry, ND, 2000	Hyola 401	Seed	70% WG	2.41 [2.70]	21 (5)	0.575
Whitewater, MB, Canada, 2000	Canterra 1867RR	Seed	70% WG	2.38 [2.67]	21 (7)	5.10
Minto, MB, Canada, 2000	Quest	Seed	70% WG	2.43 [2.72]	20 (5)	1.96
Ottertail, MN, 2000	Golden Ready	Seed	70% WG	2.40 [2.69]	22 (0)	2.15

¹ The first number represents the number of days after the last application when canola was cut; the number in parentheses represents the number of days plants were dried in the field prior to collection.

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

Commodity	Total Application Rate (lb ai/A)	PHI (days)	Residue Levels (ppm)				
			Minimum	Maximum	HAFT	Mean [median]	Std. Dev.
Canola seed	0.752-0.820	19-23	0.136	3.42	3.20	1.07 [0.752]	1.02
	2.38-2.43	20-22	0.575	5.10	5.10	2.45 [2.06]	1.90

3. Discussion

3.1. Methods

Mature canola plants were cut 19-23 days following the last of two foliar spray applications of the 70% WG formulation at approximately 0.4 lb ai/A/application (0.5 kg ai/ha/application), with a 4- to 7-day re-treatment interval, for a total rate of 0.75-0.82 lb ai/A (0.84-0.92 kg ai/ha). Applications were made using ground equipment in 10.6-22.10 gal/A (119-112 L/ha) of water with a spray adjuvant added. Canola plants were allowed to dry in the field 0-9 days prior to collection of canola seed. In two trials (Grand Forks, ND and Jerome, ID), canola seed samples

were collected at 0, 10, 20/21, 29/30, and 40 days following treatment to evaluate residue decline.

At four of the test trials, in North Dakota (one trial), Minnesota (one trial), and Manitoba (two trials), an additional test plot was treated at an exaggerated rate. Mature canola plants were cut 20-22 days following the last of two foliar spray applications of the 70% BAS 510 F WG formulation at approximately 1.2 lb ai/A/application (1.3 kg ai/ha), with a 5- to 6-day retreatment interval, for a total rate of 2.38-2.43 lb ai/A (2.67-2.72 kg ai/ha). Applications were made using ground equipment in 11.9-21.4 gal/A (133-240 L/ha) of water with a spray adjuvant added. It was noted that the 70% BAS 510 F WG formulation used in the exaggerated rate field trials also contained another experimental active ingredient (BAS 505 F) as part of the tank-mix; data for the BAS 505 F active ingredient were not reported in the study because these data were generated solely for the purpose of registration in Europe. Canola seed obtained from these field trials were also used in a processing study; refer to the processed canola seed DER reviewing MRID 45405124 for details of the study.

A total of 16 canola seed trials were conducted in the U.S. and Canada. Four U.S. canola seed trials were conducted in Regions 5 (one trial each in Minnesota and North Dakota), 7 (one trial in North Dakota) and 11 (one trial in Idaho). Twelve Canadian canola seed trials were all conducted in Region 14 in Alberta (six trials), Saskatchewan (two trials) and Manitoba (four trials). The petitioner proposed a reduction in the number of canola test sites needed for a NAFTA registration at a meeting between EPA and BASF Corporation on 2/23/00. According to a correspondence dated 2/29/00 regarding trial number and geographic distribution, the petitioner indicated that the US-EPA accepted the following proposal for the canola NAFTA project: a total of 16 trials conducted in Region 5 (two trials), 7 (one trial), 11 (one trial) and 14 (12 trials). The Food Residue Exposure Assessment Section of the Health Evaluation Division (FREAS, HED) of PMRA/Canada concurred with the revised distribution and locations of the crop field trials (noted in References). Geographic representation of residue data for canola seed is acceptable. The number and location of field trials conducted for canola seed are in accordance with the study design approved by the US-EPA and PMRA/Canada.

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

The maximum storage interval of canola seed samples from harvest to analysis was 147 days (4.8 months). Adequate storage stability data in five diverse matrices (refer to the DER for MRID 45405109) are available to support the storage conditions and intervals of samples from the submitted canola seed field trials.

3.2. Results

Residues of BAS 510 F were 0.136-3.42 ppm in/on canola seed samples cut 19-23 days and dried 0-9 days following the last of two foliar spray applications of the 70% WG formulation at 0.37-0.42 lb ai/A/application (0.47 kg ai/ha/application) with a 4- to 7-day retreatment interval, for a total rate of 0.75-0.82 lb ai/A (0.84-0.92 kg ai/ha). Apparent residues of BAS 510 F were less than the method LOQ (<0.050 ppm) in/on 16 samples of untreated canola seed. Residue decline data for the two sites (Grand Forks, ND and Jerome, ID) were pooled, and BAS 510F residues appeared to decline in a linear fashion. The average residue decline data were loosely fit to the linear equation $y = -0.0176x + 1.154$ with a correlation coefficient (r^2) of 0.5418. This equation predicts a half life of 33 days and complete dissipation of the residues by approximately 66 days.

Rainfall was reported as above normal at one of the North Dakota, four of the Alberta and all of the Manitoba field trial sites. Temperatures were reported as below normal at two of the Alberta trial sites. Aside from these instances, no abnormal weather, environmental conditions or agricultural practices were noted during the potato field trials. Irrigation was not used to supplement rainfall at any of the canola field trials except the Idaho trial, which utilized sprinklers.

Residues of BAS 510 F were 0.575-5.10 ppm in/on canola seed samples cut 20-22 days and dried 0-9 days following the last of two foliar spray applications of the 70% WG formulation at an exaggerated rate (1.17-1.22 lb ai/A/application, or 1.31-1.37 kg ai/ha/application), with a 5- to 6-day retreatment interval, for a total rate of 2.38-2.43 lb ai/A (2.67-2.72 ka ai/ha).

Residue data from the current submission are acceptable to fulfill crop field trial data requirements for canola seed. In addition, it was noted that crop field trial residue data for sunflower seed were submitted by BASF in support of the petition for a BAS 510 F tolerance in/on sunflower seed. A new Oilseed crop group (Crop Group 20) will likely be established by EPA to harmonize with PMRA/Canada's Crop Group 20. The representative commodities for this crop group are rapeseed (canola varieties only) and sunflower, seed. The maximum residues from these studies were 0.539 ppm for sunflower seed and 3.42 ppm for canola seed. These maximum residues vary by more than a factor of 5x, thus rendering a crop group tolerance for the Oilseed crop group inappropriate.

4. Deficiencies

None.

BAS 510 F
Canola (Seed)
PMRA a.i. code (CCH)

Magnitude of the Residue
OPPTS 860.1500
DACO 7.4.1

PC Code: 128008
MRID: 45405116
Submission #2001-1027, 1036, 1043

5. References

Meeting between BASF and EPA of 2/23/00, regarding BASF proposal for modification of canola crop field trial requirements. EPA agreed to revision in number (reduced from 22 to 16) and distribution (trial in Region 2 dropped) of required crop field trials for BAS 510 F in/on canola, seed; documented in BASF internal correspondence, dated 2/29/00. PMRA/Canada concurred with proposed revisions, as documented in PMRA/Canada correspondence to BASF, dated 6/27/00.

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.