

BAS 510 F
Pistachio
PMRA a.i. code (CCH)

Magnitude of the Residue
OPPTS 860.1500
DACO 7.4.1

PC Code: 128008
MRID: 45405115
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)

T. Sheremata Date: 10/7/03
Tamara Sheremata, Evaluator
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R. Loranger Date: 8/5/03
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RAB2/HED (7509C)

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

DP Barcode: D278386

Petition No.: 1F06313

Citation: 45405115 Haughey, D.; Abdel-Baky, S. (2001) The Magnitude of BAS 510 F Residues in Pistachios: Final Report: Lab Project Number: 63898: 2000/5229: 99337 (CA/10). Unpublished study prepared by BASF Corporation. 42 p.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 has also been peer-reviewed by PMRA/Canada.

Executive Summary

BASF Corporation has submitted field trial data from three trials on pistachios conducted in Region 10 (CA) in 1999. The number and location of field trials satisfy EPA data requirements for pistachios.

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At each test location, the 70% WG formulation of BAS 510 F was applied four times as a foliar spray at 0.23-0.24 lb ai/A/application (0.26-0.27 kg ai/ha/application) with a 6- to 8-day retreatment interval, for a total rate of 0.92-0.93 lb ai/A (1.03-1.04 kg ai/ha) using either concentrate (61-102 gal/A, or 683-1142 L/ha) or dilute (144-200 gal/A, or 1613-2240 L/ha) spray volumes. Mature samples were collected at either 14- or 15-day posttreatment intervals.

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

Storage stability data (refer to the DER for MRID 45405109) are available to support the 104 days (3.4 months) storage interval for the samples in this study.

At the total rate of 0.92-0.93 lb ai/A (1.03-1.04 kg ai/ha), residues of BAS 510 F were <0.05-0.446 ppm (concentrate spray) and <0.05-0.636 ppm (dilute spray) in/on samples of pistachio nutmeat. No significant differences in the residues were observed between the concentrate and dilute spray applications.

Although the petitioner did not include any information pertaining to weather conditions over the course of the field trials except to describe the conditions which occurred during application of the test substance, the weather in the geographic area in which the trials were conducted, the Sacramento and San Joaquin valleys, rarely vary from year to year. RAB2 will make the assumption that the rainfall, temperature, and length of growing season were at or near historical averages.

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

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.

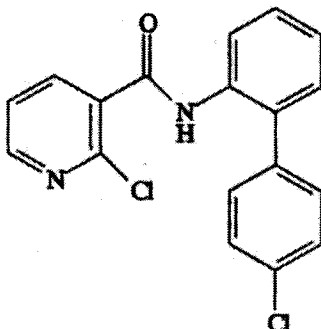
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1. Materials and Methods

1.1. Test Substance



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				
Crop	Pistachio			
	Submitted		Requested	
	Canada	U.S.	Canada	U.S. ¹
1				-
1A				-
2				-
3				-
4				-
5				-
5A				-
5B				-
6				-

TABLE B.1.2. Trial Numbers and Geographical Locations				
Crop NAFTA Growing Regions	Pistachio			
	Submitted		Requested	
	Canada	U.S.	Canada	U.S. ¹
7				-
7A				-
8				-
9				-
10	na ²	3	na ²	-
11				-
12				-
13				-
14				-
15				-
16				-
17				-
18				-
19				-
20				-
21				-
Total Trials	na ²	3	na ²	3

¹ OPPTS 860.1500 Table 5 does not identify specific regions for pistachio field trials, however, trials were conducted for pistachio in Region 10, which accounts for 100% pistachio production (OPPTS 860.1500, Table 6).

²There are no specific Canadian requirements for crop field trial studies for pistachios (Dir 98-02).

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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)	Tank Mix Adjuvants	Harvest Procedures
10	Glenn, CA, 1999	Pistachio, Kerman	70% WG	Pistachio development	0.229-0.231 [0.257-0.259]	7	4	Concentrate foliar spray/ 66.7-69.2 [747-775]	0.921 [1.03]	CS 7 (1pt/100gal)	Pistachios harvested 14 days after last application (DALA).
					0.229-0.231 [0.257-0.259]	7	4	Dilute foliar spray/ 159.7-162 [1789-1814]	0.921 [1.03]		
10	Butte, CA, 1999	Pistachio, Calagucci	70% WG	Appl. 1-3: pistachio development Appl. 4: ripening	0.228-0.233 [0.255-0.261]	6-8	4	Concentrate foliar spray/ 61.3-62.9 [687-705]	0.921 [1.03]	CS 7 (1pt/100gal)	Pistachios harvested 14 DALA.
					0.228-0.233 [0.255-0.261]	6-8	4	Dilute foliar spray/ 144-148 [1613-1658]	0.920 [1.03]		
10	Fresno, CA, 1999	Pistachio, Kerman	70% WG	Appl. 1: fruit maturing Appl. 2 and 3: maturing Appl. 4: fruit not fully split	0.23-0.24 [0.26-0.27]	7-8	4	Concentrate foliar spray/ 99.71-102.4 [1117-1147]	0.93 [1.04]	Agrindex (1%, v:v)	Pistachios harvested 15 DALA.
					0.23 [0.26]	7-8	4	Dilute foliar spray/ 197.88-199.87 [2216-2239]	0.92 [1.03]		

1.3. Post-harvest Procedures

A single untreated and duplicate treated (one sample from each treatment plot) samples of commercially mature pistachio nutmeat were harvested from each field trial. Specific harvesting procedures were not described; however, each pistachio sample weighed ≥ 2.2 lbs (≥ 1.0 kg). Samples were bagged and stored frozen (temperature not specified) on the day of harvest. Samples were shipped frozen within 25-39 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
Pistachio	nutmeat	<-10	97-104 days (3.2-3.4 months)

1.4. Analytical Methods

Samples of pistachio nutmeat were analyzed for residues of BAS 510 F using LC/MS/MS method D9908, the data collection method for plant commodities. Briefly, samples of pistachio nutmeat were extracted with methanol:water (70:30, v:v) and filtered. An aliquot of the filtrate was cleaned up using C18 solid phase extraction (SPE). Residues were eluted with dichloromethane (DCM) and cleaned up further using silica gel SPE. Residues were eluted with 4% ethyl acetate in DCM. 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 pistachio nutmeat. Concurrent recoveries for a 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
Pistachio nutmeat	0.05, 1.0	71, 79	75

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

Location (County, State, Year)	Crop Variety	Commodity	Formulation	Total Rate (lbs ai/A) [kg ai/ha]	Spray volume	PHI (days)	BAS 510 F residues (ppm)
Glenn, CA, 1999	Kerman	nutmeat	70% WG	0.921 [1.03]	concentrate	14	0.187
				0.921 [1.03]	dilute	14	0.347
Butte, CA, 1999	Calagucci	nutmeat	70% WG	0.921 [1.03]	concentrate	14	0.446
				0.920 [1.03]	dilute	14	0.636
Fresno, CA, 1999	Kerman	nutmeat	70% WG	0.93 [1.04]	concentrate	15	<0.05
				0.92 [1.03]	dilute	15	<0.05

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

Commodity	Total Applic. Rate (lb ai/A)	Spray volume	PHI (days)	Residue Levels (ppm)				
				Minimum	Maximum	HAFT	Mean [Median]	Std. Dev.
Pistachio nutmeat	0.921-0.93	concentrate	14-15	<0.05	0.446	0.541	0.228 [0.187]	0.201
	0.920-0.921	dilute	14-15	<0.05	0.636		0.344 [0.347]	0.293

3. Discussion

3.1. Methods

Two plots were treated at each field site. Mature pistachios were harvested 14-15 days following the last of four 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 0.92-0.93 lb ai/A (1.03-1.04 kg ai/ha). Applications were made using ground equipment in either a concentrated spray volume (61.3-102.4 gal/A, or 687-1147 L/ha, of water) or a dilute spray volume (144-199.87 gal/A, 1613-2239 L/ha, of water) with a spray adjuvant added. 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 pistachio trials were conducted in Region 10. For the EPA, the number and location of field trials conducted for pistachio are in accordance with the guidance requirements (OPPTS 860.1500, Tables 1 and 6).

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

The maximum storage interval from harvest to analysis was 104 days (3.4 months) for pistachios. 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 pistachio field trials.

3.2. Results

Residues of BAS 510 F were <0.05-0.446 ppm (concentrate spray) and <0.05-0.636 ppm (dilute spray) in/on samples of pistachio nutmeat harvested 14-15 days following the last of four foliar spray applications of the 70% WG formulation at 0.228-0.24 lb ai/A/application (0.45-0.43 kg ai/ha), for a total rate of 0.92-0.93 lb ai/A (1.03-1.04 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 three samples of untreated pistachio nutmeat.

4. Deficiencies

None

5. References

None