Primary Evaluator	William Cutchin, Chemist SIMB/HED	Date: 7/19/04
Reviewer	Richard Loranger, BSS RAB2/HE	
Contractor	Dynamac Corporation 20440 Century Blvd., Suite 100 Germantown, MD 20874	

STUDY REPORT

45830719 McCormick, R.; Rutherford, L.; Schelle, L. (2002) Magnitude of Residue of XDE-638 in Rice and Rice Processed Products: Lab Project Number: 010063. Unpublished study prepared by Dow AgroSciences LLC. 135 p.

EXECUTIVE SUMMARY

Dow AgroSciences LLC has submitted crop field trial data depicting the magnitude of the residue of penoxsulam in/on rice forage, straw, and grain following treatment with either a suspension concentrate (SC) or granular (G) formulation. A total of 16 rice field trials were conducted in Regions 4 (AR, LA, MS; 11 trials), 5 (MO; 1 trial), 6 (TX; 2 trials), and 10 (CA; 2 trials) during the 2001 growing season.

In separate plots at each field trial, a single application of the 2 lbs ai/gal suspension concentrate or 0.11% G formulation was made to rice plants at 0.090 lb ai/A. Application of the suspension concentrate formulation was made to rice at the 30-32 BBCH (Biologische Bundesanstalt, Bundessortenamt and Chemical) growth stage to target a 60-day PHI; the suspension concentrate formulation was applied as a foliar broadcast spray in water with crop oil concentrate (2.5%). Application of the G formulation was made to rice ~40 days after seeding, when the permanent flood was established (21-23 BBCH); the G formulation was applied directly (broadcast) to flooded rice. Samples of mature rice grain and straw were collected from both plots at each trial site. To evaluate residue decline, samples of immature rice forage were collected 0, 1, 3, 7, 14, and 21 days following treatment at two field trial sites.

Residues of penoxsulam in/on rice forage, straw, and grain were quantitated using the proposed LC/MS/MS enforcement method (GRM 01.25). The reported limit of detection (LOD) and limit of quantitation (LOQ) were 0.002 ppm and 0.01 ppm, respectively, for all rice matrices. This method is adequate for data collection based on acceptable concurrent method recovery and method validation data (refer to the DER for MRID 45830714).

The maximum storage intervals of crop samples from harvest-to-analysis were 68-101 days (2.2-3.3 months) for rice grain, straw, and immature forage. The available storage stability data (refer to the DER for MRID 45830717) demonstrate that residues of penoxsulam are stable for up to

210 days (6.9 months) of freezer storage in rice forage, straw, and grain. These data are adequate to support the storage conditions and intervals of samples from the submitted rice field trials.

Residues of penoxsulam were less than the method LOQ (<0.01 ppm) to 0.013 ppm in/on rice grain samples and <0.01-0.484 ppm in/on rice straw samples harvested 47-97 days following a single application of the suspension concentrate formulation at 0.088-0.093 lb ai/A. Residues of penoxsulam were less than the method LOQ (<0.01 ppm) in/on rice grain and straw samples harvested 64-101 days following a single application of the G formulation at 0.09 lb ai/A.

The petitioner collected samples of immature rice forage at multiple posttreatment intervals in two field trials (one suspension concentrate treatment and one G treatment) to evaluate residue decline. The residue decline data indicate that residues of penoxsulam in/on immature rice forage decrease with increasing sampling intervals. The petitioner stated that the half-life of penoxsulam residues in rice forage was less than 1 day for both formulations. We note that residue levels were much higher in samples treated with the suspension concentrate formulation than in samples treated with the G formulation.

STUDY/WAIVER ACCEPTABILITY/DEFICIENCIES/CLARIFICATIONS

Under the conditions and parameters used in the study, the rice field trial residue data are classified as scientifically acceptable.

The acceptability of this study for regulatory purposes is addressed in the forthcoming U.S. EPA Residue Chemistry Summary Document, DP Barcode D288152.

COMPLIANCE

Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided. No deviations from regulatory requirements were reported which would impact the validity of the study.

A. BACKGROUND INFORMATION

Penoxsulam (company code XDE-638; PC Code 119031) is an herbicide intended for the control of *Echinochloa* grasses, broadleaf weeds, and sedge weeds in both water-injected (transplanted paddy) and postemergence (direct-seeded) rice. A single postemergence application of penoxsulam is to be made to rice from the one-leaf growth stage (7-12 days after seeding) to 60 days prior to rice harvest. The application is to be made by aerial or ground equipment once per growing season at a maximum rate of 0.045 lb ai/A (50 g ai/ha). Penoxsulam is to be formulated as a granular (for water-seeded rice) or suspension concentrate (for direct-seeded rice) formulation.

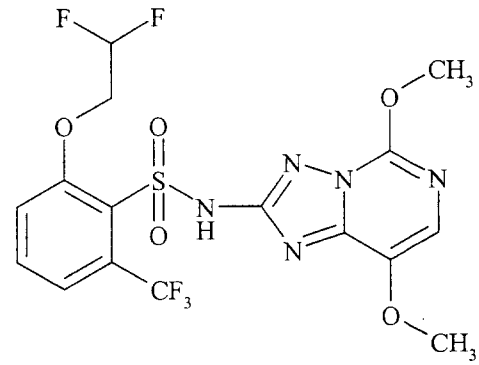
TABLE A.1. Penoxsulam Nomenclature.	
Compound	
Common name (proposed)	Penoxsulam
Company experimental name	XDE-638
IUPAC name	6-(2,2-Difluoroethoxy)-N-(5,8-dimethoxy-s-triazolo[1,5-c]pyrimidin-2-yl)-α,α,α-trifluoro-o-toluenesulfonamide
CAS name	2-(2,2-difluoroethoxy)-N-(5,8-dimethoxy[1,2,4]triazolo[1,5-c] pyrimidin-2-yl)-6-(trifluoromethyl)benzenesulfonamide
CAS #	219714-96-2
End-use product/EP	GF-443 SC SF (File Symbol 62719-LNN); GF-947 Granule SF (File Symbol 62719-LNG); GF-947 Granule CA (File Symbol 62719-LNR).

TABLE A.2. Physicochemical Properties of Technical Grade Penoxsulam.			
Parameter	Value		Reference
Melting point/range	Not available		
pH	Not available		
Density	Not available		
Water solubility	pH	Solubility (mg/L)	MRID 45830720
	(unbuffered)	4.91	
	5	5.66	
	7	408	
	9	1460	
Solvent solubility	Solvent	Solubility (g/L)	MRID 45830720
	DMSO	78.4	
	NMP	40.3	
	DMF	39.8	
	acetone	20.3	
	acetonitrile	15.3	
	ethyl acetate	3.23	
	methanol	1.48	
	octanol	0.035	
	xylene	0.017	
	heptane	<1 µg/mL	
Vapor pressure	7.16×10^{-16} mm Hg at 25 °C		MRID 45830720
Dissociation constant, pK_a	5.1		MRID 45830720

TABLE A.2. Physicochemical Properties of Technical Grade Penoxsulam.			
Parameter	Value		Reference
Octanol/water partition coefficient, Log(K_{OW})	pH	Log(K_{OW})	MRID 45830720
	(unbuffered)	-0.354	
	5	1.137	
	7	-0.602	
	9	-1.418	

B. EXPERIMENTAL DESIGN

B.1. Study Site Information

TABLE B.1.1 Soil Characterization.				
Trial Identifier: City, State; Year	Soil characteristics			
	Type	%OM	pH	CEC
Shoffner, AR; 2001	Silt loam	Not Applicable		
Newark, AR; 2001	Silt loam			
Proctor, AR; 2001	Silty clay loam			
Heth, AR; 2001	Clay			
Stuttgart, AR; 2001	Silt loam			
Tillar, AR; 2001	Silt loam			
Fresno, CA; 2001	Loam			
Live Oak, CA; 2001	Clay loam			
Washington, LA; 2001	Sandy loam			
Bunkie, LA; 2001	Clay			
Ville Platte, LA; 2001	Silt loam			
Bernie, MO; 2001	Silt loam			
Greenville, MS; 2001	Clay			
Walls, MS; 2001	Silty clay loam			
Brookshire, TX; 2001	Sandy loam			
East Bernard, TX; 2001	Clay loam			

Average monthly maximum and minimum temperatures and monthly rainfall, along with historical averages, were provided for the study period (not available electronically). All plots were flooded using typical production practices for rice production. The actual temperatures and rainfall were within typical environmental conditions for rice production. The petitioner noted that at the two CA sites, there was no rainfall between application and harvest; all other sites received at least some rainfall between application and harvest.

TABLE B.1.2. Study Use Pattern.

Trial ID: City, State; Year	EP[1]	Application					Tank Mix Adjuvants[3]
		Treat. No. and Crop Stage at Application	Rate (lb ai/A)	RTI[2] (days)	Method (GPA)	Total Rate (lb ai/A)	
Shoffner, AR; 2001	2 lbs ai/gal suspension concentrate	30-32 BBCH; 27-29 inches tall	0.090	N/A	Foliar broadcast (14.9 gal/A)	0.090	COC (2.5%)
	0.11% G	21-22 BBCH; 8-9 inches tall	0.09		Broadcast	0.09	None
Newark, AR; 2001	2 lbs ai/gal suspension concentrate	30-32 BBCH; 20-22 inches tall	0.093	N/A	Foliar broadcast (15.4 gal/A)	0.093	COC (2.5%)
	0.11% G	22 BBCH; 12 inches tall	0.09		Broadcast	0.09	None
Proctor, AR; 2001	2 lbs ai/gal suspension concentrate	32 BBCH; 26 inches tall	0.091	N/A	Foliar broadcast (18.3 gal/A)	0.091	COC (2.5%)
	0.11% G	23 BBCH; 10 inches tall	0.09		Broadcast	0.09	None
Heth, AR; 2001	2 lbs ai/gal suspension concentrate	32 BBCH; 25 inches tall	0.090	N/A	Foliar broadcast (18.1 gal/A)	0.090	COC (2.5%)
	0.11% G	23 BBCH; 12 inches tall	0.09		Broadcast	0.09	None
Stuttgart, AR; 2001	2 lbs ai/gal suspension concentrate	30-32 BBCH; 12-14 inches tall	0.090	N/A	Foliar broadcast (11.7 gal/A)	0.090	COC (2.5%)
	0.11% G	27-29 BBCH; 10-14 inches tall	0.09		Broadcast	0.09	None
Tillar, AR; 2001	2 lbs ai/gal suspension concentrate	32 BBCH; 22 inches tall	0.090	N/A	Foliar broadcast (10.9 gal/A)	0.090	COC (2.5%)
	0.11% G	32 BBCH; 22 inches tall	0.09		Broadcast	0.09	None
Fresno, CA; 2001	2 lbs ai/gal suspension concentrate	32 BBCH; 24 inches tall	0.090	N/A	Foliar broadcast (18.1 gal/A)	0.090	COC (2.5%)
	0.11% G	22 BBCH; 16 inches tall	0.09		Broadcast	0.09	None
Live Oak, CA; 2001	2 lbs ai/gal suspension concentrate	32 BBCH; 24 inches tall	0.091	N/A	Foliar broadcast (20.2 gal/A)	0.091	COC (2.5%)
	0.11% G	23 BBCH; 17 inches tall	0.09		Broadcast	0.09	None
Washington, LA; 2001	2 lbs ai/gal suspension concentrate	32 BBCH; 29 inches tall	0.090	N/A	Foliar broadcast (16.4 gal/A)	0.090	COC (2.5%)
	0.11% G	22 BBCH; 6 inches tall	0.09		Broadcast	0.09	None
Bunkie, LA; 2001	2 lbs ai/gal suspension concentrate	32 BBCH; 30 inches tall	0.093	N/A	Foliar broadcast (15.8 gal/A)	0.093	COC (2.5%)
	0.11% G	22 BBCH; 6 inches tall	0.09		Broadcast	0.09	None
Ville Platte, LA; 2001	2 lbs ai/gal suspension concentrate	30-34 BBCH; 30 inches tall	0.091	N/A	Foliar broadcast (14.4 gal/A)	0.091	COC (2.5%)
	0.11% G	21 BBCH; 10 inches tall	0.09		Broadcast	0.09	None

TABLE B.1.2. Study Use Pattern.

Trial ID: City, State; Year	EP[1]	Application					Tank Mix Adjuvants[3]
		Treat. No. and Crop Stage at Application	Rate (lb ai/A)	RTI[2] (days)	Method (GPA)	Total Rate (lb ai/A)	
Bernie, MO; 2001	2 lbs ai/gal suspension concentrate	32 BBCH; 24 inches tall	0.091	N/A	Foliar broadcast (18.3 gal/A)	0.091	COC (2.5%)
	0.11% G	23 BBCH; 10 inches tall	0.09		Broadcast	0.09	None
Greenville, MS; 2001	2 lbs ai/gal suspension concentrate	32 BBCH; 31 inches tall	0.088	N/A	Foliar broadcast (11.2 gal/A)	0.088	COC (2.5%)
	0.11% G	21 BBCH; 12 inches tall	0.09		Broadcast	0.09	None
Walls, MS; 2001	2 lbs ai/gal suspension concentrate	32 BBCH; 23 inches tall	0.091	N/A	Foliar broadcast (18.4 gal/A)	0.091	COC (2.5%)
	0.11% G	23 BBCH; 10 inches tall	0.09		Broadcast	0.09	None
Brookshire, TX; 2001	2 lbs ai/gal suspension concentrate	32 BBCH; 23-26 inches tall	0.090	N/A	Foliar broadcast (19.0 gal/A)	0.090	COC (2.5%)
	0.11% G	30 BBCH; 22-24 inches tall	0.09		Broadcast	0.09	None
East Bernard, TX; 2001	2 lbs ai/gal suspension concentrate	32 BBCH; 28-32 inches tall	0.089	N/A	Foliar broadcast (14.4 gal/A)	0.089	COC (2.5%)
	0.11% G	25 BBCH; 13-15 inches tall	0.09		Broadcast	0.09	None

[1] EP = End-use Product
[2] RTI = Retreatment Interval; N/A = not applicable; only one application was made.
[3] COC = Crop oil concentrate.

TABLE B.1.3. Trial Numbers and Geographical Locations.			
NAFTA Growing Region	Rice		
	Submitted	Requested	
		Canada	US
1			
1A			
2			
3			
4	11		11
5	1		1
5A			
5B			
6	2		2
7			
7A			
8			
9			
10	2		2
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
Total	16	0	16

B.2. Analytical Methodology

Duplicate samples of mature rice grain and straw were collected from each site, and duplicate samples of immature rice forage were collected at multiple sampling intervals from two trial plots. Samples of rice grain, straw, and immature forage were analyzed for residues of penoxsulam using Dow AgroSciences Method GRM 01.25, the proposed enforcement method. A complete description of the method is provided in the DER for MRID 45830714.

Briefly, samples of rice matrices were extracted with ACN:water (8:2; v:v) and centrifuged. An aliquot of the supernatant was diluted with water and purified by solid-phase extraction. Residues were eluted with ACN:formic acid (99.9:0.1, v:v), evaporated to dryness, and redissolved in

ACN:methanol:water (15:15:70, v:v:v, each phase containing 0.1% acetic acid) for analysis by LC/MS/MS. The reported LOD was 0.002 ppm, and the LOQ was 0.01 ppm for all rice matrices.

C. RESULTS AND DISCUSSION

The petitioner conducted a total of 16 rice field trials in Regions 4 (AR, LA, MS; 11 trials), 5 (MO; 1 trial), 6 (TX; 2 trials), and 10 (CA; 2 trials) during the 2001 growing season. The number and location of field trials are adequate with respect to geographic representation of residue data for rice.

The 16 rice field trials consisted of two plots treated with two different formulations of penoxsulam. A single application of the 2 lbs ai/gal suspension concentrate or 0.11% G formulation was made to rice plants at ~0.090 lb ai/A. Application of the suspension concentrate formulation was made to rice at the 30-32 BBCH growth stage to target a 60-day PHI; the suspension concentrate formulation was applied in 10.9-20.2 gal/A water with crop oil concentrate (2.5%) as a foliar broadcast spray using ground equipment (backpack or tractor mounted sprayer). Application of the G formulation was made to rice ~40 days after seeding, when the permanent flood was established; the G formulation was applied directly (broadcast) to flooded rice by hand or using a spreader.

Samples of mature rice grain and straw were collected from both treated plots (and the control plot) at each trial site. Samples of immature rice forage were collected 0, 1, 3, 7, 14, and 21 days following treatment from the plot treated with the suspension concentrate formulation at one field trial site (Greenville, MS) and from the plot treated with the G formulation at a different field trial site (Fresno, CA) to evaluate residue decline.

Residues of penoxsulam in/on rice forage, straw, and grain were quantitated using the proposed LC/MS/MS enforcement method (GRM 01.25). Concurrent method validation data are presented in Table C.1. The reported LOD and LOQ were 0.002 ppm and 0.01 ppm, respectively, for all rice matrices; however, the lowest level of validation in the concurrent method recovery analyses was 0.015 ppm for each commodity. Adequate method validation data on rice at the LOQ level were provided for the enforcement method (see the DER for MRID 45830714). This method is adequate for data collection based on acceptable concurrent and method validation recovery data.

Residues of penoxsulam in/on rice commodities are presented in Table C.3; a summary of residue data in rice RACs (grain and straw) is presented in Table C.4. Residues of penoxsulam were less than the method LOQ (<0.01 ppm) to 0.013 ppm in/on rice grain samples and <0.01-0.484 ppm in/on rice straw samples harvested 47-97 days following a single application of the suspension concentrate formulation at 0.088-0.093 lb ai/A. Residues of penoxsulam were less than the method LOQ (<0.01 ppm) in/on rice grain and straw samples harvested 64-101 days following a single application of the G formulation at 0.09 lb ai/A.

The petitioner collected samples of immature rice forage at multiple posttreatment intervals in two field trials (one suspension concentrate treatment and one G treatment) to evaluate residue decline. Average penoxsulam residues from the suspension concentrate trial decreased from 2.11 ppm on Day 0 to 0.012 ppm on Day 21 in rice forage, and average penoxsulam residues from the G trial decreased from 0.114 ppm on Day 0 to <0.01 ppm (LOQ) on Day 21 in rice forage. The petitioner stated that the half-life of penoxsulam residues in rice forage was less than 1 day for both

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formulations. We note that residue levels were much higher in samples treated with the suspension concentrate formulation than in samples treated with the G formulation.

Apparent residues of penoxsulam were nondetectable (<0.002 ppm) in/on 16 samples of untreated rice grain, 15 samples of untreated rice straw, and 11 samples of untreated rice forage; detectable residues were observed in/on one sample of rice straw and one sample of rice forage, each at 0.003 ppm.

Sample storage conditions and intervals are summarized in Table C.2. Duplicate samples of mature rice grain and straw were collected from each site, and duplicate samples of immature rice forage were collected at multiple sampling intervals from two trial plots. Samples were frozen at the field sites within four hours of collection and were shipped frozen to Dow AgroSciences (Indianapolis, IN), where samples were stored frozen until analysis. The maximum storage intervals of crop samples from harvest to analysis were 68-101 days (2.2-3.3 months) for rice grain, straw, and immature forage. The available storage stability data (refer to the DER for MRID 45830717) demonstrate that residues of penoxsulam are stable for up to 210 days (6.9 months) of freezer storage in rice forage, straw, and grain. These data are adequate to support the storage conditions and intervals of samples from the submitted rice field trials.

TABLE C.1. Summary of Concurrent Recoveries of Penoxsulam from Rice Matrices.

Matrix	Analyte	Spike level (ppm)	Sample size (n)	Recoveries (%)	Mean ± std dev
Rice, grain	Penoxsulam	0.015	7	93, 96, 97, 100, 102, 110, 117	102 ± 8
		0.15	4	97, 98, 99, 117	
Rice, straw	Penoxsulam	0.015	9	91, 91, 92, 92, 96, 97, 98, 99, 100	96 ± 3
		0.15	4	95, 97, 98, 102	
		0.3	2	94, 96	
Rice, immature forage	Penoxsulam	0.015	6	99, 101, 103, 109, 111, 121	100 ± 9
		0.03	2	93, 99	
		1.5	2	88, 91	
		4.5	2	94, 95	

TABLE C.2. Summary of Storage Conditions.

Matrix (RAC)	Storage Temp. (°C)	Actual Storage Duration from Harvest to Analysis	Limit of Demonstrated Storage Stability
Rice, grain	-20	9-77 days (0.3-2.5 months)	210 days (6.9 months) in rice grain, straw, and forage [1]
Rice, straw		10-68 days (0.3-2.2 months)	
Rice, immature forage		79-101 days (2.6-3.3 months)	

[1] Refer to the DER for MRID 45830717.

TABLE C.3. Residue Data from Crop Field Trials with Penoxsulam.

Trial ID: City, State; Year	Region	Crop; Variety	Total Rate (lb ai/A)	Commodity or Matrix	PHI (days)	Penoxsulam Residues (ppm) [1]
Rice Treated with the 2 lb/gal Suspension Concentrate Formulation						
Shoffner, AR; 2001	4	Rice; Wells	0.090	Grain	58	ND, ND
				Straw	58	0.044, 0.096
Newark, AR; 2001	4	Rice; Cocodrie	0.093	Grain	60	ND, ND
				Straw	60	ND, *0.002*
Proctor, AR; 2001	4	Rice; Cocodrie	0.091	Grain	47	ND, ND
				Straw	47	0.061, 0.122
Heth, AR; 2001	4	Rice; Wells	0.090	Grain	58	ND, ND
				Straw	58	0.016, 0.016
Stuttgart, AR; 2001	4	Rice; Cocodrie	0.090	Grain	73	ND, ND
				Straw	73	*0.002*, *0.004*
Tillar, AR; 2001	4	Rice; Cocodrie	0.090	Grain	64	ND, ND
				Straw	64	ND, *0.003*
Fresno, CA; 2001	10	Rice; M-202	0.090	Grain	69	0.012, 0.012
				Straw	69	0.441, 0.484
Live Oak, CA; 2001	10	Rice; M-202	0.091	Grain	57	0.012, 0.013
				Straw	57	0.188, 0.201
Washington, LA; 2001	4	Rice; Cypress	0.090	Grain	60	ND, ND
				Straw	60	*0.003*, *0.004*
Bunkie, LA; 2001	4	Rice; Cocodrie	0.093	Grain	59	ND, ND
				Straw	59	0.017, 0.024
Ville Platte, LA; 2001	4	Rice; Wells	0.091	Grain	97	ND, ND
				Straw	97	0.029, 0.046
Bernie, MO; 2001	5	Rice; Cocodrie	0.091	Grain	66	ND, ND
				Straw	66	0.055, 0.108
Greenville, MS; 2001	4	Rice; Lemont	0.088	Forage	0	2.01, 2.22
					1	0.739, 0.837
					3	0.191, 0.228
					7	0.083, 0.126
					14	0.015, 0.011
					21	*0.008*, 0.014
				Grain	62	ND, ND
				Straw	62	ND, ND
Walls, MS; 2001	4	Rice; Wells	0.091	Grain	58	ND, ND
				Straw	58	ND, *0.006*
Brookshire, TX; 2001	6	Rice; Cocodrie	0.090	Grain	57	ND, ND
				Straw	57	0.029, 0.055
East Bernard, TX; 2001	6	Rice; Cocodrie	0.089	Grain	61	ND, ND
				Straw	61	*0.006*, *0.008*

TABLE C.3. Residue Data from Crop Field Trials with Penoxsulam.

Trial ID: City, State; Year	Region	Crop; Variety	Total Rate (lb ai/A)	Commodity or Matrix	PHI (days)	Penoxsulam Residues (ppm) [1]
Rice Treated with the 0.11% G Formulation						
Shoffner, AR; 2001	4	Rice; Wells	0.09	Grain	85	ND, ND
				Straw	85	ND, *0.002*
Newark, AR; 2001	4	Rice; Cocodrie	0.09	Grain	85	ND, ND
				Straw	85	ND, ND
Proctor, AR; 2001	4	Rice; Cocodrie	0.09	Grain	75	ND, ND
				Straw	75	ND, ND
Heth, AR; 2001	4	Rice; Wells	0.09	Grain	86	ND, ND
				Straw	86	ND, ND
Stuttgart, AR; 2001	4	Rice; Cocodrie	0.09	Grain	83	ND, ND
				Straw	83	ND, ND
Tillar, AR; 2001	4	Rice; Cocodrie	0.09	Grain	64	ND, ND
				Straw	64	ND, ND
Fresno, CA; 2001	10	Rice; M-202	0.09	Forage	0	0.094, 0.134
					1	0.030, 0.058
					3	0.016, 0.019
					7	*0.007*, 0.012
					14	*0.003*, *0.004*
					21	*0.002*, *0.002*
				Grain	92	ND, *0.002*
				Straw	92	*0.002*, *0.005*
Live Oak, CA; 2001	10	Rice; M-202	0.09	Grain	86	ND, ND
				Straw	86	ND, *0.004*
Washington, LA; 2001	4	Rice; Cypress	0.09	Grain	80	ND, ND
				Straw	80	ND, ND
Bunkie, LA; 2001	4	Rice; Cocodrie	0.09	Grain	78	ND, ND
				Straw	78	ND, ND
Ville Platte, LA; 2001	4	Rice; Wells	0.09	Grain	101	ND, ND
				Straw	101	ND, ND
Bernie, MO; 2001	5	Rice; Cocodrie	0.09	Grain	90	ND, ND
				Straw	90	ND, ND
Greenville, MS; 2001	4	Rice; Lemont	0.09	Grain	84	ND, ND
				Straw	84	ND, ND
Walls, MS; 2001	4	Rice; Wells	0.09	Grain	70	ND, ND
				Straw	70	ND, *0.008*
Brookshire, TX; 2001	6	Rice; Cocodrie	0.09	Grain	65	ND, ND
				Straw	65	ND, *0.002*

TABLE C.3. Residue Data from Crop Field Trials with Penoxsulam.

Trial ID: City, State; Year	Region	Crop; Variety	Total Rate (lb ai/A)	Commodity or Matrix	PHI (days)	Penoxsulam Residues (ppm) [1]
East Bernard, TX; 2001	6	Rice; Cocodrie	0.09	Grain	81	ND, ND
				Straw	81	ND, ND

[1] Nondetectable residues are reported as ND, and residues quantitated between the LOD and LOQ are italicized; the reported LOD and LOQ are 0.002 ppm and 0.01 ppm, respectively.

TABLE C.4. Summary of Residue Data from Crop Field Trials with Penoxsulam.

Commodity	Total Applic. Rate (lb ai/A); Formulation	PHI (days)	Analyte	Residue Levels (ppm) [1]					
				n	Min.	Max.	HAFT [2]	Mean	Std. Dev.
Rice, grain	0.088-0.093; suspension concentrate	47-97	Penoxsulam	32	ND	0.013	0.013	0.006	0.002
	0.09; G	64-101		32	ND	ND	<0.01	0.005	0
Rice, straw	0.088-0.093; suspension concentrate	47-97	Penoxsulam	32	ND	0.484	0.463	0.066	0.116
	0.09; G	64-101		32	ND	*0.008*	<0.01	0.005	0.001

[1] Nondetectable residues are reported as ND and residues quantitated between the LOQ and LOD are italicized. The study reviewer calculated the means and standard deviations using ½ the LOQ for nondetectable residues and the actual residue value reported if >½ the LOQ.
[2] HAFT = Highest Average Field Trial. Calculated by the study reviewer using the LOQ value for all nondetectable (ND) residues and for residues reported between the LOQ and LOD.

D. CONCLUSIONS

The submitted rice field trial data reflect the use of penoxsulam as a single application of the suspension concentrate or G formulation to rice at 0.090 lb ai/A. Application of the suspension concentrate formulation was made to rice at the 30-32 BBCH growth stage, and application of the G formulation was made 40 days after seeding (21-23 BBCH), when the permanent flood was established. The residue decline data demonstrate that residues of penoxsulam decreased in immature rice forage with increasing sampling intervals. An acceptable method was used for quantitation of residues in/on rice commodities.

E. REFERENCES

None.

F. DOCUMENT TRACKING

RDI: R. Loranger (7/9/04)
Petition Number(s): 3F06542
DP Barcode(s): D288152
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