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OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Summary of and Comments on Dow AgroSciences' Market Projections in Reduced Risk Rationale for Penoxsulam Herbicide for Weed Control in Rice Dated November 26, 2002

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TO: Stephen Schaible, Team Leader
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PEER REVIEW PANEL: December 18, 2002

Dow AgroSciences is seeking reduced-risk registration of its new systemic post-emergence herbicide penoxsulam (a triazolopyrimidine sulfonamide with ALS mode of action) on rice. The purpose of this document is to provide inputs to the Reduced Risk Committee, especially concerning the registrant's market projections, to aid in Committee decisions.

INTRODUCTION. Penoxsulam selectively controls barnyardgrass, watergrass and important broadleaf and sedge weeds in dry- and water-seeded rice in the southern US and California at a rate of 12-16 grams a.i./acre. The number of applications is limited to one per season for resistance management. A sprayable formulation will be used primarily in dry- and water-seeded rice in the southern US, while a dry granular formulation will be used primarily in water-seeded rice in California.

In the submission, which is 676 pages long, Dow compares penoxsulam with major products expected to be displaced including molinate, thiobencarb, propanil, quinclorac, bensulfuron and bispyribac. Dow claims using penoxsulam on rice will reduce risk, broaden IPM and reduce herbicide environmental load.

REGISTRANT'S MARKET PROJECTIONS. The following summarizes Dow's projections of the impact of penoxsulam on acre-treatments of alternatives at market maturity.

Acre-Treatment Impact of Penoxsulam in the Southern US
in the Fifth Year After Its Registration

	Without Penoxsulam (000)	With Penoxsulam (000)	--- Change --- (000) (%)	
Quinclorac				
Propanil				
Bensulfuron				
Cynalofop				
Bispyribac				
Molinate + propanil				
Molinate				
Acifluorfen				
Carfentrazone				
Bentazon				
Thiobencarb				
Bentazon + acifluorfen				
Other alternatives				
Penoxsulam				
TOTAL				

Note: Data are from Appendix H, pp 545-546, and Table F9, p 132.

Acre-Treatment Impact of Penoxsulam in California
in the Fifth Year After Its Registration

	Without Penoxsulam (000)	With Penoxsulam (000)	--- Change --- (000) (%)	
Molinate				
Thiobencarb				
Propanil				
Triclopyr				
Bispyribac				
Cynalofop				
Other alternatives				
Penoxsulam				
TOTAL				

Note: Data are from Appendix H, pp 547-548, and Table F11, p 134.

The largest projected impacts in terms of acre-treatments are on quinclorac and propanil in the southern US and on molinate and thiobencarb in California. Total projected load reductions in the fifth year, based on the above acre-treatments replaced by penoxsulam and corresponding given label rates for penoxsulam and alternatives, are [redacted] pounds a.i. for the southern US (Table F9 of the submission) and [redacted] pounds a.i. for California (Table F11 of the submission). See these tables for further details. Projected market shares of penoxsulam in the fifth year, calculated from the above tables and also given in Table F16 of the submission, are about [redacted] for the southern US, [redacted] for California and [redacted] overall.

According to Dow, benefits of penoxsulam that will lead to its acceptance by rice growers include --

- Flexibility of application timing
- Reduction of drift and potential water quality issues for granular formulation
- Tank mix compatibility

- Broad spectrum broadleaf and barnyardgrass/watergrass control
- Control of all barnyardgrass species
- No rice injury issues
- Efficacious on new problem weeds, such as alligatorweed
- Priced similar to competitive herbicides

CONCLUSION. Based on similar weed complexes controlled by both penoxsulam and major competitors, the tables below partially validate the above projections. For example, the Dow projections that penoxsulam will displace █████ of quinclorac and █████ of propanil in the southern US are supported by estimates below showing that at least 34% of quinclorac treatments and 30% of propanil treatments are for control of barnyardgrass, a major weed controlled by penoxsulam. A similar argument applies to penoxsulam displacing molinate and thiobencarb in California based on its control of watergrass.

Weeds Treated by Selected Alternatives in the Southern US

		<u>Acre-treatments</u>	
		(000)	(%)
PROPANIL	BARNYARDGRASS	1245	30%
PROPANIL	MORNINGGLORY	486	12%
PROPANIL	SIGNALGRASS, BROADLEAF	380	9%
PROPANIL	SPRANGLETOP	297	7%
PROPANIL	COCKLEBUR	251	6%
PROPANIL	SESBANIA, HEMP	225	5%
PROPANIL	Other weeds	1305	31%
PROPANIL	TOTAL	4190	100%
QUINCLORAC	BARNYARDGRASS	763	34%
QUINCLORAC	SIGNALGRASS, BROADLEAF	245	11%
QUINCLORAC	MORNINGGLORY	226	10%
QUINCLORAC	SESBANIA, HEMP	130	6%
QUINCLORAC	Other weeds	911	40%
QUINCLORAC	TOTAL	2275	100%

Source: EPA proprietary data for 1999-2001

Weeds Treated by Selected Alternatives in California

		<u>Acre-treatments</u>	
		(000)	(%)
MOLINATE	WATERGRASS	269	60%
MOLINATE	BARNYARDGRASS	36	8%
MOLINATE	Other weeds	142	32%
MOLINATE	TOTAL	448	100%
THIOBENCARB	WATERGRASS	155	39%
THIOBENCARB	SEDGE, SMALLFLOWER UMBRELLA	44	11%
THIOBENCARB	SEDGE	39	10%
THIOBENCARB	SPRANGLETOP	37	9%
THIOBENCARB	BARNYARDGRASS	20	5%
THIOBENCARB	CHRISTMASBERRY	19	5%
THIOBENCARB	Other weeds	87	22%
THIOBENCARB	TOTAL	401	100%

Source: EPA proprietary data for 1999-2001

Commercial/financial information may be entitled to confidential treatment



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