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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEP 16 1991

OFFICE OF
PESTICIDES AND TOXIC
SUBSTANCES

MEMORANDUM

SUBJECT: Review of Public Interest Documentation for Prodiamine (Barricade® 65 WG Herbicide) for Control of Grassy and Broadleaf Weeds in Turf and Ornamentals.

FROM: Edward Brandt, Economist
Biological Analysis Branch
Biological and Economic Analysis Division (H7503W)

James G. Saulmon, Botanist
Biological Analysis Branch
Biological and Economic Analysis Division (H7503W)

TO: Joanne I. Miller, Product Manager 23
Registration Division (H7505C)

THRU: Allen L. Jennings, Director
Biological and Economic Analysis Division (H7503W)

We have reviewed Public Interest Document No. 55947 submitted by Sandoz Crop Protection Corporation in support of the Section 3 Conditional Registration of Barricade® 65 WG Herbicide. We offer the following comments and discussion for your consideration.

Prodiamine is a selective preemergence herbicide which provides control of grasses and broadleaves throughout the growing season. It is classified as a dinitroaniline which includes currently registered herbicides such as trifluralin (Treflan®), pendimethalin (Prowl®), benefin (Balan®), and oryzalin (Surflan®). The applicant's major claim for the conditional registration of prodiamine is that it is 3 to 4 times as active as these other dinitroanilines, and for similar weed control, 1/3 to 1/4 of the prodiamine product would be needed. Names of alternative chemicals and the rates of these alternatives are listed in Tables 1 and 2, respectively.

The applicant claims that prodiamine can replace DCPA. However, our findings indicate that DCPA has for the most part already been replaced by competitors such as pendimethalin (which appears to be the main competitor for prodiamine, not DCPA). Also, the applicant claims that prodiamine can replace metolachlor which has a weed spectrum similar to that of

prodiamine. In addition, the applicant claims that use of prodiamine can reduce the need for a second application of 2,4-D to control spurge, chickweed, and henbit and reduce the number of atrazine treatments needed to control these three weeds (and grasses). However, the applicant did not provide comparative efficacy data to support claims of reduced need for applications of 2,4-D, atrazine, or metolachlor.

The applicant, which has provided summaries of efficacy data, has not, however, provided copies of the actual data for comparative efficacy of alternatives listed in Table 1. Also, there are no data on potential market penetration by the product.

In summary, this review is limited to an assessment of the application rate of prodiamine as compared to major alternative herbicides. The applicant has not submitted sufficient data to determine if there are economic benefits as compared to alternatives. No data on price of prodiamine were submitted. Compared to pendimethalin, atrazine and benefin (the three major preemergent herbicides) the lower rates of prodiamine should lead to a 25 to 50 percent reduction in active ingredient for the acres treated with prodiamine. This is less than the 75 percent reduction estimated by the registrant.

Table 1. Major Preemergent Herbicides (in descending order of acres treated)

Pendimethalin	
Atrazine	
Benefin	
Team	(benefin + trifluralin)
Oryzalin	
DCPA	
XL	(benefin + oryzalin)
Oxadiazon	

Table 2. Comparison of Rates of Prodiamine with Alternatives.

Chemical	Rate (lb A.I./A)
Prodiamine	0.5 to 1.5 lb a.i./A
Pendimethalin	2 to 4 lb a.i./A
Atrazine	1 to 2 lb a.i./A
Benefin	1.5 to 3 lb a.i./A
Team	2 to 3 lb a.i./A (1.33% benefin + 0.67% trifluralin)
Oryzalin	2 to 4 lb a.i./A
DCPA	10.5 to 12 lb a.i./A
XL	4 to 6 lb a.i./A (1% benefin + 1% oryzalin)
Oxadiazon	2 to 4 lb a.i./A