

US EPA ARCHIVE DOCUMENT

8-27-80

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: 27 AUG 1980

SUBJECT: EPA Reg. No. 241-243 Pendimethalin on soybeans and cotton. Application for amended registration

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American Cyanamid Company requests to amend the registration of pendimethalin (PROWL) to add suppression of rhizome Johnsongrass by using application rates higher than those on the currently registered label.

The table below summarizes the presently approved and proposed rates of application.

Crop	Soil	Present use (lb ai./A)	Proposed (lb ai./A)
cotton	coarse	0.5-0.75	1.0
	medium	0.75-1.0	1.5
	fine	0.75-1.5	2.0
soybean	coarse	0.5-1.0	1.0
	medium	0.75-1.5	1.5
	fine	0.75-1.5	2.0

The supplemental label calls for only preplant incorporation, immediately before or up to 60 days before planting. Feeding forage or grazing livestock is prohibited in treated cotton fields but allowed in treated soybean fields. The use is not recommended for Arizona, New Mexico, California and in areas with soils having more than 3% organic matter.

Tolerances for combined residues of Prowl and its benzyl alcohol metabolite at 0.1 ppm are established in/on soybeans, soybean forage and hay (PP#6F1704) and in/on cottonseed (PP#5F1556).

The petitioner has resubmitted some of the data from the residue studies in PP#6F1704 for soybeans and in PP#5F1556 for cottonseed.

No residues of Prowl or its metabolite were found at the validated sensitivity of the method (0.05 ppm) in soybeans obtained in 7 states from crops grown in soil treated (preplant) with 1.0-2.0 lbs ai/A. Soybean meal and oil from crops in soil treated with 1.5-2.0 lbs ai/A also had no residues. No residue data was reported for soybean hay. However, in view of the fact that residues in the foliage from pre-plant treatments at 1.0-2.0 lb act/A were less than 0.009 ppm (by comparison to controls) and the drydown factor is 3.6x, residues in the hay will be < 0.05 ppm. Due to the oil soluble nature of Prowl and its metabolite, we also expect no residues in soybean flour.

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Cottonseed and foliage samples were analyzed from 6 states in which the soil had received preplant applications of 1.0-2.5 lb a.i./A. No detectable residues (<0.05 ppm) of Prowl or its metabolite were found in the seeds or foliage. (One 28 day immature foliage sample had apparent Prowl residues of 0.06 ppm, but no detectable metabolite residues). Samples of cottonseed oil (3 states) and meal (1 state) also had no detectable residues. No data was reported on hulls but, since a plant metabolism study (PP#5G1567) indicates that residues, if present, would be internalized rather than on the surface, we would expect no accumulation in hulls. Since Prowl residues are oil soluble, it is unlikely that residues would result in soapstock.

Other Considerations

Pendimethalin is formulated as Prowl, a 4 lb a.i./gal emulsifiable concentrate that contains a maximum of 0.05% [REDACTED] USDA researchers have performed an uptake study using [REDACTED] (see review of N. K. Whetzel, 5/21/80, PP#OG2275). A silt loam soil was treated with the labeled [REDACTED] to give concentrations of 0.1, 1.0, 10, and 100 ppb (w/w). This corresponds to approximately 0.07, 0.67, 6.7, and 67 times the expected concentration of the nitroso compound in soil receiving the maximum proposed rate of application of Prowl (2.0 lb a.i./A). Soybeans were then planted and harvested after 110 days. Even at the 67x rate no radioactive residues (< 1 ppb) were detected in the pods and seeds. Radioactivity in the foliage ranged from 3.0-14.4 ppb. Of this activity only 25-33% was extractable into organic solvents and by TLC none of this activity was [REDACTED]. At the 6.7x rate no radioactivity was detected in any plant part.

Based on this study, we conclude that there will be no detectable residues of [REDACTED] in soybeans and foliage resulting from the proposed amended use. In addition it is unlikely that there will be a problem with residues of [REDACTED] in cottonseed and its by-products.

Conclusions and Recommendations

1. Combined residues of Prowl and its metabolite from the proposed use will not exceed the established tolerance of 0.1 ppm in/on soybeans, soybean forage and hay, cottonseed and by-products of these r.a.c.'s.
2. There will be no residue problem of nitroso Prowl from the proposed use.

We recommend for the amended registration.