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

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OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: EPA No. 264-379: Thiodicarb (LARVIN®) Amended Registration to Lower Number of Applications and Increase PHI on Cotton in California and Arizona. No MRID No. RCB No. 2310

FROM: Joel Garbus, Chemist *SG*
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THROUGH: A. R. Rathman, Section Head *ARR*
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TO: D. Edwards/D. Jenkins, PM-12
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The Union Carbide Agricultural Products Co. has applied for an amended registration for LARVIN® brand thiodicarb. For cotton grown in California and Arizona, Union Carbide has requested that the PHI be increased to 45 days from 28 days and that the number of permitted applications be limited to 3 per season. The usage on cotton allows applications of up to 0.9 lbs ai/A at 3-7 day intervals depending upon the severity of the pest infestation. The current label imposes a 28 day PHI and does not limit the number of applications.

Union Carbide states that the amended registration is required because it discovered that cottonseed from thiodicarb treated cotton grown in California and Arizona had residues that exceeded the established tolerance of 0.4 ppm. Cottonseed with over tolerance residues had been treated at the currently registered rates with formulations containing [redacted] to enhance wash-off resistance.

Excessive residues were observed only in cottonseed from cotton grown in California and Arizona. The use of all formulations in cotton growing areas of the Southeast did not result in excessive residues. Union Carbide postulates that the above tolerance residues were due to the late application of thiodicarb to desert cotton at a time when 50-60% of bolls are open.

Union Carbide has proposed the revision of the cotton label for thiodicarb in California and Arizona to assure that legal tolerances will not be exceeded in these states. Union Carbide intends to conduct residue trials in these states under the revised

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usage pattern to confirm that residues will be less than tolerance.

Residue Data

Residue trials with cotton were conducted between 1982 and 1985 in California and Arizona and in Cotton Belt states of the Southeast and the Gulf. We shall compare the results of trials in these two areas conducted at maximum label rates, i.e., 0.9 lbs ai/A, applications at 3 - 7 day intervals, with a 28 day PHI. In California and Arizona thiodicarb was applied 8 times, in the Southeast and Gulf states the number of applications ranged from 8 to 15.

Area	Number of Samples	Range (ppm)	Mean (ppm)	95% con. limit (ppm)	% > Tol.
CA & AZ	45	ND - 2.1	0.62	1.74	44
SE & Gulf	15	ND - 0.27	0.10	0.26	0

The data clearly indicate that the application of thiodicarb at registered usages to cotton grown in the Southwest results in excessive residues on cottonseed. Union Carbide attributes this to the use of formulations with [REDACTED] and to the early opening of bolls in desert cotton.

Union Carbide believes that lowering the number of applications to three per season and extending the PHI in the Southwest will obviate the problem of excessive residues. Although this appears probable from previous residue data, it remains to be demonstrated by actual trials at the proposed rates. However, in the absence of residue data from California and Arizona at the proposed rates, we are reluctant to recommend for the proposed amendment.

An alternative solution would be to prohibit the application of thiodicarb to desert cotton after boll opening begins. However, this would also require residue data to demonstrate the effectiveness of this restriction in lowering residues on cottonseed from desert cotton.

Another alternative solution would be to restrict the use of thiodicarb on cotton only to states in the Southeast and Gulf. This would not result in any great losses of benefits. (Union Carbide states that thiodicarb is not registered in California and there has been very little use in Arizona.) When residue data at from applications at the proposed usages in these states demonstrate residues below tolerance, California and Arizona could be restored to the label.

Conclusions

1. The use of thiodicarb at currently permitted rates on desert

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cotton grown in California and Arizona results in residues on cottonseed in excess of the established tolerance of 0.4 ppm.

2. As a solution, for California and Arizona Union Carbide has requested an amended registration to limit the number of applications to 3 and to extend the PHI to 45 days .

3. Although the changes most likely would lower residues, Union Carbide has not presented residue data to demonstrate that the proposed usage pattern would be effective in lowering residues below the established tolerance.

4. Alternative solutions would be to prohibit the use of thiodicarb on desert cotton after boll opening or to restrict its use to Southeastern and Gulf States.

Recommendation

1. In the absence of actual residue data at the proposed usage, we recommend against the proposed amended registration. When Union Carbide presents data from residue trials on desert cotton conducted under the proposed usage, and if the results demonstrate that residues are below tolerance, we will be favorably disposed to recommend for the change.

2, At present, we would recommend for the restriction of the use of thiodicarb on cotton to growing areas other than the Southwest, that is areas that do not grow desert cotton.

cc: R. F., S. F., Circ., Amend. Use F., Reviewer, PMSD/ISB
RDI:ARR:6/15/87:RDS:6/15/87
TS-769:RCB:JG:jg:CM#2:803A:557-1439:6/18/87