DATA EVALUATION RECORD

1. Chemical: PP321 (Karate)

2. Test Material: 1.0 E, 1 lb ai per gal.

3. Study Type: Honey bee field repellency and toxicity

   Species Tested: Apis mellifera

4. Study ID: Hearn, L.C. 1985. KARATE 1E and AMBUSH 25WP: Honey bee field repellency and toxicity study (California). Study performed by E.L. Atkins, Univ. of California, Riverside. Submitted by ICI Americas Inc., Wilmington, DE. Reg. No. 10182-OA.

5. Reviewed By:

   Allen W. Vaughan
   Entomologist
   EEB/HED

   Signature: Allen W. Vaughan

   Date: 9-13-88

6. Approved By:

   Norman J. Cook
   Supervisory Biologist
   EEB/HED

   Signature: Norman J. Cook

   Date: 9-13-88

7. Conclusions:

   When PP321 was applied to seed alfalfa at 0.0075 and 0.015 lb ai/A, overall hazard to honeybees was determined to be nil. High mortality resulted only when bees were exposed to direct application. Also, PP321 was rated moderate with regard to bee repellency.

   This study is scientifically sound, but does not address any guideline requirement.

8. Recommendations: N/A

9. Background: This study was submitted by ICI Americas in support of registration.

10. Discussion of Individual Tests: N/A

11. Materials and Methods

Karate 1E was applied by fixed-wing aircraft to determine the toxic and repellent effects on honey bees in seed alfalfa. Application was made at 0.0075 and 0.015 lb ai per acre in 10 gal water. Effects were determined by a variety of methods, including: foliar residue bioassay; monitoring bee mortality at colonies and in field cages; assessing colony strength and behavior; monitoring blossom visitation.

12. Reported Results:

When bees were exposed to aerial application, significant mortality resulted (89.52% mortality at 0.015 lb ai/A, 50.47% mortality at 0.0075 lb ai/A). Otherwise, no significant hazard was indicated, as PP321 suppressed bee visitation 41 to 54% for 2 days. Overall honey bee hazard was determined to be nil.

13. Study Author's Conclusions/Q.A. Measures:

Reported results are listed above. The data obtained indicate that PP321 is highly hazardous to bees when bees are exposed to direct application, and that residues of PP321 may be repellent to honey bees under certain conditions.

Quality Assurance measures were not reported.

14. Reviewer's Discussion and Interpretation of the Study

A. Test Procedures:

Procedures were scientifically sound. However, protocol does not correspond to any test type in the guidelines, and test does not address any specific data requirement.

B. Statistical Analysis:

No analyses were reported.

C. Discussion/Results:

Residues of PP321 may remain repellent to honey bees for as long as 2 days posttreatment. Also, although hazard to bee exposed to direct application is high, there is little or no bee hazard from dried residues on foliage.

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D. Adequacy of Study:

1. Classification: Supplemental

2. Rationale: Does not address any data requirement.

3. Reparability: N/A

15. Completion of One-Liner: N/A

16. CBI Appendix: N/A