11-T-51

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Capture 2 EC

Hazard Assessment - Honey Bees

Data from residual toxicity tests and field tests indicate that, although Capture 2 EC residues are toxic to honey bees, residual hazard is minimal under actual field conditions. This is apparently due to avoidance of the treated crop by foraging bees. On the basis of this information, bee precaution labeling on the current label is appropriate. Also, no further testing on honey bees is required.

DATA EVALUATION RECORD

1. Chemical : Capture 2EC (Bifenthrin)

2. Test Material : 2 lb/gal EC 5 a.i.

3. Study Type : Honey bee: toxicity of residues on foliage

   A. Test Species : Apis mellifera

4. Study ID: Atkins, E.L., and D. Kellum. 1986. Effect of pesticides on apiculture; maximizing the effectiveness of honey bees as pollinators. (Report of 1986 FMC 54800 field tests on honey bees). Project No. 1499. Submitted by FMC Corp., Philadelphia, PA. Reg. No. 279-GNAO. Acc. No. 264649.

5. Reviewed By :

   Allen W. Vaughan
   Entomologist
   EEB/HED

   Signature: Allen W. Vaughan
   Date: 11.4.87

6. Approved by :

   for Norman Cook
   Head, Section 2
   EEB/HED

   Signature: Allen W. Vaughan
   Date: 11.4.87

7. Conclusions : This study is scientifically sound, and shows that residues of Capture 2 EC remain moderate to high in toxicity to honey bees for 1 to 2 days after application (1 lb ai/A rate). Field studies, however, indicate avoidance by honey bees such that overall residual hazard is nil.

   This study fulfills the guideline requirement for a residual toxicity test with honey bees.

8. Recommendations : N/A

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

10. Discussion of Individual Test : N/A

Those data are difficult to interpret!! Sue

11. Materials and Methods :

A. Test Animals were worker honey bees maintained in research colonies.

Test System - Studies were conducted in seed alfalfa using a number of methods: hive entrance traps; infield caged bees; foraging visitation levels; foliage residue bioassays.

B. Dose - Capture 2 EC at 0.05, 0.1, and 0.2 lb ai/A; Brigade 10 WP at 0.1 and 0.2 lb ai/A; aerial application to seed alfalfa.

C. Design - For foliage bioassay, each plot had 3 cages with approx. 35 bees per cage added after foliage samples were placed in cages. Bees were in continuous contact with foliage for 24 hr. Samples of foliage cut from 10 locations near centerline of plot, chopped into 0.5 to 1-in. lengths, mixed, placed in each of 3 replicate 1 pint cardboard cartons.

D. Statistics - No analysis was reported.

12. Reported Results : Capture 2 EC killed 57 to 79% of caged bees at flyover; suppressed foraging 26-28% for 1-2 days; killed 5-19 bees per colony per day for 3 days. Foliar residue (bees confined on treated foliage) mod. to high in toxicity for 1-2 days.

13. Study Authors' Conclusions/Q.A. Measures :

Capture 2 EC: overall hazard to honey bees was nil.
Q.A. measures not reported.

14. Reviewer's Discussion and Interpretation of the Study :

A. Test Procedures :

Procedures were in accordance with those recommended in Agency guidelines and Standard Evaluation Procedures. There were no problems in this regard.

B. Statistical Analysis :

None reported.

C. Discussion/Results :

This study is scientifically sound, and shows that actual hazards to honey bees were minimal under the conditions of this field test.

D. Adequacy of Study :

1. Classification = Core

2. Rationale : guidelines protocol; residual toxicity test.

3. Reparability = NA

15. Completion of One-Liner for Study : N/A

16. CBI Appendix : N/A