Data Evaluation Record

CHEMICAL: Clothianidin PC Code No.: 044309

Two studies submitted to show acute effects of maize and summerrape seeds treated with TI 435 FS600 (formulated product) on carabid beetles (*Poecilus cupreus*) under extended laboratory test conditions

Data Requirement
No requirement for submission under EPA Guidelines

Citations
MRID 454225-20 (R. Schmuck, 2000)
MRID 454225-21 (R. Schmuck, 2000)

Primary Reviewer: Jerry L. Ellis, MS, Biologist
U.S. EPA
Signature: Jerry L. Ellis, M.S.
Date: 2-27-03

Secondary Reviewer: Allen Vaughan, Entomologist
U.S. EPA
Signature: Allen W. Vaughan
Date: 03/03/03

Secondary Reviewer: Valerie Hodge, MSc
Senior Evaluation Officer, EAD, PMRA
Signature: Valerie Hodge
Date: 3/20/03

Secondary Reviewer: Hemendra Mulye, PhD
Senior Evaluation Officer, PMRA
Signature:
Date: March 18/03

Summary review: Acute Effects of Maize Seed Treated with TI 435 FS 600 on Carabid Beetles (*Poecilus cupreus*) Under Extended Laboratory Test Conditions (MRID 454225-20)

Test Substance: TI 435 FS 600 seed dressing
AI Content According to Analysis: 617.2 g/l
Seed treatment rate: 42.8 g a.i./Unit (1 Unit = 50,000 seed)
Test Duration: 14 days
Tested Seed Drilling Rate: 1 maize seed per 185 cm^2 test box (10.8 U/ha)
Endpoints: Mortality and feeding activity

The goal of this study was to evaluate whether or not exposing carabid beetles to treated maize seeds increased mortality or decreased feeding rate compared to the controls. Test beetles were 5-8 weeks old, and were fed fly pupae (*Musca domestica*). The beetles were placed in 5 polystyrene boxes per treatment group (5 replicates each). 6 beetles (3 males + 3 females) were assigned to each test box. Methyl

parathion was used as a reference chemical in a separate treatment group. Mortality and behavior impairments were monitored 2,4, and 6 hours after treatment as well as on study days

1,2,4,7,8,9,10, 11 and 14. The study results indicated that control group beetles had no mortality or behavioral abnormalities. About one third of the adult carabid beetles exposed to the treated maize seeds showed abnormalities. There was no significant difference in mortality or reduced feeding activity of treatment groups compared to the controls.

The significant differences in mortality rates were tested with the chi square test (Sachs, 1992). The feeding rate (number of pupae, consumed per living beetle) was statistically evaluated by a distribution free rank test for independent samples according to a procedure from Mann & Whitney, published in 1947 (Sachs 1992) (Manugistics Inc., Statgraphics Plus for Windows 1.0, Serial No.: 3800806).

This study is scientifically sound and classified as **Supplemental**.

Summary of Acute Effects of Summerrape Seed Treated with TI 435 FS 600 on the Carabid Beetle (*Poecilus cupreus*) Under Extended Laboratory Conditions (MRID 454225-21)

Test Substance: TI 435 FS 600 seed dressing
AI Content According to Analysis: 620 g/l
Seed dressed with 10 g a.i./kg Ti 435 FS 600
Test Duration: 14 days
Endpoints: Survival and feed consumption

The goal of this study was to evaluate whether or not exposure of carabid beetles to summerrape seed dressed with 10 g a.i./kg TI 435 FS 600 under more natural exposure conditions will result in an increased mortality or decreased feeding rate relative to beetles in the control group. Test beetles were 5-8 weeks old, and were fed fly pupae (musca domestica). The beetles were placed in 5 polystyrene boxes per treatment group (5 replicates each). 6 beetles (3 males + 3 females) were assigned to each test box. Methyl parathion was used as a reference chemical in a separate treatment group. Mortality and behavior impairments were monitored 2,4, and 6 hours after treatment as well as on study days 1,2,4,7,8,9,10, 11 and 14. Summerrape seed dressed with TI 435 FS 600 caused behavioral impacts (intoxication) to 63 % of adult carabid beetles in the treatment group. The feeding rate of beetles in the treatment group was significantly reduced. There was also a significant difference in mortality (13.3 %) of the treatment group compared to the control.

The significant differences in mortality rates were tested with the chi square test (Sachs, 1992). The feeding rate (number of pupae, consumed per living beetle) was statistically evaluated by a distribution free rank test for independent samples according to a procedure from Mann & Whitney, published in 1947 (Sachs 1992) (Manugistics Inc., Statgraphics Plus for Windows 1.0, Serial No.: 3800806).

This study is scientifically sound and is classified as **Supplemental**