DATA EVALUATION RECORD

I. Study Type: Field Dissipation Study

II. Citation:

Tummons, O.J., S.L. Hargreaves, L. Reed. I.P. Allen, E.M. Roper, and M. Earl. 1995. ICIA5504: Field Dissipation Trial Carried Out in California, USA during 1993/1994. Performed by Zeneca Agrochemicals (Zeneca Limited), Berkshire, U.K. Submitted by Zeneca Agricultural Products (Zeneca Inc.), Wilmington, Delaware. MRID 43678185.

III. Reviewer:

Name: James A. Hetrick, Ph.D. James A. Hetrick
Title: Soil Chemist
Organization: EFGWB/EFED/OPP 30 JUL 1996

IV. Approved by:

Name: Paul J. Mastradone, Ph.D. Paul J. Mastradone
Title: Section Chief
Organization: EFGWB/EFED/OPP 30 JUL 1996

V. Conclusions:

The study provides upgradable supplemental data on the field dissipation of methyl(E)-2-{2-[6-(6-2-cyanophenoxy)pyrimidin-4-yloxy]pheny}-3-methoxyacrylate (ICIA5504) and its transformation products on bare ground in California. The data are deemed supplemental because storage stability data were inadequate to support a 22 month sample storage period and the hydrology of the study site was not clearly explained. The data can be upgraded with submission of storage stability data to support a 22 month sample storage period and a complete explanation on the hydrology of the site. (Please see Section VIII for more details.)

Azoxystrobin, applied as five applications of 0.4 lbs a.i./A at 14 day intervals, had 50% field dissipation times (DT_{50}) of 12 to 13 days. The overall first-order degradation half-life of ICIA5504 was 85 days. Major transformation products of ICIA5504 were 2-[6-(2-cyanophenoxy)pyrimidin-4-yloxy]phenyl}acetate (R402173) and 4-(2-cyanophenoxy)-6-hydroxypyrimidine (R401553). These compounds were detected immediately after the last ICIA5504 treatment to 182 days after the last application. Azoxystrobin and its transformation products were not detected in deep soil samples (> 6 inches).

(1)

VI. Materials and Methods:

The study site was conducted in Visalia, CA. The study site is descibed as a flat (slope=0%) turf site with a water table depth of 10 to 30 feet deep. The soil was described as a Foster fine sandy loam (coarse-loamy Thermic Aquic Hapoxeroll[2]). Physicochemical properties of the soil are shown in Table 12. The site received 32.17 inches of rainfall and irrigation from May 21 to September 30, 1994. The registrant stated that "Irrigation was applied to make up for a rain deficit". The cumulative precipitation (rainfall and irrigation) on the test site was 75% of the 30 year average annual precipitation. The test site was amended with 400 lbs a.i/A of methyl bromide in 1991 and 1990; 0.5 lbs/A of R-251328, R-251296, R-250236 and ICIAO170; 0.5 lbs a.i./A ofR-214381 and R218296; 1.0 lb a.i/A of R-218465; 2 lbs a.i/A of R-104555; and 0.94 lbs a.i./A of Gramoxone Extra, 1.50 lbs a.i/A of Roundup 45L, and 400 lbs a.i./A of methyl bromide.

Three field plots (30 feet X 200 feet) were established on the test site. Each test site was subdivided into three sampling plots. Tomatoes seedlings were planted on two of the test plots. The remaining plot was not planted to establish a bare soil control plot. On May 20, 1993, the bare ground and a planted field plots were sprayed with five 0.4 lbs a.i./A applications of ICIA5504 (formulated as 50 WG) at 10 day application intervals. The total application rate of ICIA5504 was 2.0 lbs a.i/A. Weed control in the test plots was maintained by hand weeding, rototilling, and application of Gramoxone Extra, Triton X-77, Vapam, and Treflan Pro 5.

Five soil cores for treated subplots and two soil cores for untreated subplots were taken with a zero contamination soil probe. Surface soil samples (0-6") were taken immediately after each ICIA5504 application and deep soil samples (0-42 inches) were taken at each sampling interval after the last application (or fifth application). Soil samples were immediately frozen at -15°C at Zeneca Ag Products Western Research Center and then shipped frozen to the Jealott's Hill Research Station in Berks, U.K. Soil samples were taken immediately post application, 14, 29, 60, 96, 182, and 371 days after the last ICIA5504 application.

Each deep soil core was further divided into 0-6, 6-12, 12-18, 18-24, 24-30, 36-42 inch depth increments. Five soil samples from each subplot, representative of the sampling time and sampling interval, were combined for chemical analysis.

---

[2] The U.S.D.A soil taxonomic classification indicates the soil has an aquic mositure regime. An aquic moisture regime indicates the soil has low chroma mottles within 1 meter of the soil surface. Low chroma mottles indicates an anaerobic soil environment (Soil Taxonomy: A Basic System of Soil Classification for Making and Interpreting Soil Surveys. USDA/SCS. Agricultural Handbook No. 436).

Analytical

Soil samples were analyzed for ICIA5504, R230310, R234886, R401553, and R402173. Soil samples were sequentially extracted with methanol:water or methanol: 1M HCL (75:25 v/v). Soluble residues in methanol: 1M HCl soil extracts were liquid-liquid further partitioned with acidified NaCl and dichloromethane prior to chemical analysis.

Souble residues in methanol water extracts were separated using a HPLC with a UV detector. Souble residues in the methanol: 1M HCl extracts were separated using HPLC-MS-MS. Separated residues were identified by co-chromatography with know standards. The limit of detection of the HPLC and HPLC MS-MS was 0.2 and 0.1 mg/kg, respectively.

Storage Stability

Soil samples were stored frozen (-15°C) for 22 months. The registrant did not provide a storage stability study in the data submission. (Reviewer Note: The registrant stated an on-going storage stability will be submitted at a later date.)

VII. Study Author's Conclusions

A. Residues of ICIA5504 were not detected in the non-treated control plot and pre-application samples (Tables 2 and 15).

B. The field recovery of ICIA5504 at immediately posttreatment ranged from 22 to 124 % of applied or an average of 93 % of applied (Table 3).

C. Azoxystrobin, at 0.4 lbs a.i./A/applications for five 10 day application interval, on a bare ground plot had 50% field dissipation times of 12 to 13 days (Table 4; Figures 7, 8, 9). [Reviewer Note: The first-order degradation half-life of ICIA5504 was 85 days].

D. The pattern of formation and decline for ICIA5504 transformation products is described below.

R230310 and R234886 - These transformation products were not detected (< 0.02 mg/kg) during the experiment (Table 2).

R402173- The surface soil concentration of R402173 reached a maximum concentration of 0.08 mg/kg at immediately after the fourth ICIA5504 application and then declined to 0.01 mg/kg at 182 days after the last ICIA5504 treatment and non-detectable (< 0.01 mg/kg) at 371 days after the last treatment (Table 2; Figures 7,8, and 9).

R401553- The surface soil concentration of R401553 reached a maximum concentration of 0.05 mg/kg at after the last ICIA5504 treatment (70 days after the first application or Day 0) and then declined to 0.01 mg/kg at 182 days after the last ICIA5504 treatment and non-detectable (< 0.01 mg/kg) at 371 days posttreatment (Table 2; Figures 7,8,and 9).

E. ICIA5504, R230310, R401553 and R402173 were not detected in deep soil samples (> 6 inches) (Table 2).

VIII. Reviewer's Comments

A. Pan evaporation data were not provided for the study site. EFGWB notes the absence of pan evaporation or evapotranspiration (ET) data prevent an assessment of the water balance on the test site. EFGWB recognizes the cumulative total precipitation (rainfall and irrigation) was 75% of the 30 year average. It is reasonable to assume a 75% exceedance of precipitation would provide ample water to promote leaching. However, the absence of pan evaportation data prevent a complete assessment of the study site hydrology.

C. The soil on the test site was described as a Foster sandy loam (coarse-loamy Thermic ***Aquic*** Hapoxeroll). This classification indicates the soil has an Aquic moisture regime. An Aquic moisture regime indicates the soil is anaerobic, as representated by low chroma mottles in the soil profile, at some time during the year because of saturation with non-oxygenated water. EFGWB is requesting the registrant explain the soil hydrology of the study site. (Please refer to comment A.)

D. The registrant did not provide a complete description of the analytical methods. EFGWB notes the registrant submitted method validation studies for detection of ICIA5504 in soil and water. The analytical methods described in the study are presented in the MRID 43678188 and 43678192. These methods will be reviewed by BEAD/OPP/EPA.

E. The registrant did not provide a storage stability study to support a 22 month frozen storage period. EFGWB notes the registrant provide a 12 month storage stability study (MRID 43678183). The registrant stated an on-going storage stability will be submitted at a later date. As per Subdivision N guidelines, a 24 month storage stability is needed to support the field dissipation study.

F. The registrant described the dissipation rate as a DT_{50}. EFGWB notes field dissipation is commonly described using a first-order degradation kinetic model. The over dissipation half-life of ICIA5504 was 85 days. EFGWB notes the first order half-life and DT50 of ICIA5504 are not equal. These data suggest the dissipation rate of ICIA5504 may be slower than indicated by the DT_{50}.

AZOXYSTROBIN

Page _____ is not included in this copy.

Pages 6 through 18 are not included in this copy.

The material not included contains the following type of information:

_____ Identity of product inert ingredients.

_____ Identity of product impurities.

_____ Description of the product manufacturing process.

_____ Description of quality control procedures.

_____ Identity of the source of product ingredients.

_____ Sales or other commercial/financial information.

_____ A draft product label.

_____ The product confidential statement of formula.

_____ Information about a pending registration action.

X FIFRA registration data.

_____ The document is a duplicate of page(s) _____.

_____ The document is not responsive to the request.

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.