

US EPA ARCHIVE DOCUMENT

DATA EVALUATION RECORD

STUDY IDENTIFICATION:

Bade, T. R. 1992. Dissipation and Mobility of SAN 582 H in Soil after one Pre-emergence Application to Soybeans in Minnesota. Field test contracted to Agri-Growth Research, Inc., Hollandale, MN; laboratory analyses performed by the Analytical Sciences Section of Sandoz Crop Protection Corporation, Des Plaines, Illinois. MRID No. 422662-05, vol 1 and 2.

TYPE OF STUDY: Terrestrial Field Dissipation

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CONCLUSIONS:

1. This study is satisfactory and partially satisfies the data requirements for a terrestrial field dissipation study.
2. SAN 582 H dissipated with a reported half-life of 43 days from a field planted to soybeans in Minnesota that was treated with SAN 582 H pre-emergence at a rate of 1.5 lbs ai/A. Detections of SAN 582 H were primarily in the 0-10 cm soil segments, but some detections were made in the 10-20 cm soil segments (ranging from 0.01 to 0.08 ppm) and in the 20-30 cm soil segment (ranging from 0.01 to 0.07 ppm).
3. The oxalamide metabolite was found only in the 0-10 cm soil segment (ranging from 0.01-0.02 ppm) at days 28 to 117 posttreatment.
4. The information provided in this report indicates that SAN 582 H did not readily leach in this field dissipation study and that at this location the dissipation of SAN 582 H was longer than in the three previous studies conducted in areas with warmer climatic conditions (MRID # 422662-02 with a 1/2 life of 14.1 days, 422662-03 with a 1/2 life of 8 days, and 422662-04 with a 1/2 life of 8 days).

MATERIALS AND METHODS:

Prequalifying soil cores from the proposed site near Hollandale, Minnesota were analyzed by SCPC residue chemistry for SAN 582 H and the site was shown to be free of SAN 582 H. The top one foot of soil was determined to be a medium loam consisting of 38% sand, 38% silt and 24% clay, with a pH of 7.7, a CEC of 17.3 meq/100 g soil, with an organic content of 3.8% (See Table II for complete soil characteristics). A subsoiler and field cultivator were used for seed bed preparation. On 3 July 1989 soybeans were planted at a rate of 165,000 seeds/A with a row spacing of 30 inches. The spray equipment was calibrated on 3 July 1989 to deliver 20 gal/A and SAN 582 H was applied pre-emergence to the treatment plots on 5 July 1989 at the maximum label use rate of 1.5 lbs ai/A.

The study consisted of an untreated control plot and three non-randomized replication treatment plots with plot sizes of 35 x 30 ft. Each plot was subdivided into 5 ft x 10 ft subplots. Buffer zones of 20 ft were maintained between the treatment plots and a buffer zone of 295 ft was maintained between the treatment plots and the check plot.

Soil samples were taken from randomly selected subplots from each plot. Eight one-inch diameter cores were collected from the selected subplots at each sampling interval. Samples were collected between rows of soybeans near the center of each subplot. Soil samples were collected just prior to and immediately after application and on days 1, 3, 7, 14, 28, and 56 after application and also 3, 4, 5, 12, and 18 months after application. Early samples were taken to a depth of 30 cm; samples taken on day 56 were taken to 60 cm, and samples taken on day 150 and later were taken to a depth of 90 cm. A hand probe was used for the 30 cm samples and a hydraulic probe was used for samples requiring 60 or 90 cm depths. Samples were frozen as soon as possible after collection and remained frozen at or below 20°F until shipment. The samples were shipped frozen and stored frozen until taken for analysis.

Four of the eight cores collected from each plot at each interval were selected and cut into 10 cm segments. The segments from each plot for each depth were thoroughly mixed in a plastic bag, an aliquot of each mixed sample was taken for analysis, and the remaining sample was refrozen. The samples were analyzed according to the Sandoz Crop Protection Residue Method AM-0830-0290-2 (Appendix IV) for SAN 582 H and its oxalamide metabolite. A check sample and a fortified check sample were analyzed with each batch of treated samples. Samples were analyzed by GC using a nitrogen phosphorous detector (NPD) or a mass selective detector (MSD). In most cases the MSD was necessary to obtain an adequate signal in relation to background.

REPORTED RESULTS:

1. The reported half-life in this study for SAN 582 H was 43 days from a field planted to soybeans in Minnesota that was treated with SAN 582 H pre-emergence at the maximum label use rate of 1.5 lbs ai/A (Fig. 3).

2. The range of SAN 582 H detections in the 0-10 cm soil depth on the day of treatment was from 0.23-0.38 ppm, and at 1 day posttreatment the range was from 0.15-0.50 ppm, and by day 134 posttreatment the detection level was 0.08 ppm (Table XII). SAN 582 H was reportedly detected in the 10-20 cm soil segment on day 0, 1, and 3 posttreatment at levels ranging 0.01-0.06 ppm. In the 20-30 cm soil segment SAN 582 H was reported at day 0 posttreatment (0.02-0.05 ppm) and on days 1 and 3 (0.01 ppm) and also on day 117 posttreatment(0.07 ppm).

3. Oxalamide metabolite was reportedly found only in the 0-10 cm soil segment and was detected on days 28, 56, and 117 posttreatment (0.01-0.02 ppm, Table XIII).

DISCUSSION:

The residues of SAN 582 H detected in the 10-20 cm and 20-30 cm soil segments on days 0, 1, and 3 at levels of 0.02 to 0.08 ppm were considered contamination caused by the sampling probe pushing residues down as it was inserted into the soil.

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