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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

Subject: Review of submissions to satisfy Conditional Registration requirements for products containing Imidacloprid (PC Code no. 129099) to be used on turf. DP#'s D209978, D209979, D209983 and D210053.

To: Dennis Edwards, PM 19
Registration Division, 7505C

From: for Anthony F. Maciorowski, Chief
Ecological Effects Branch
Environmental Fate and Effects Division, 7507C

2/16/95

To address the ecological effects concerns for the use of Imidacloprid products (MERIT, ADMIRE and PROVADO) on turf, Miles Inc. submitted an eggshell quality study on Mallard ducks (MRID No. 434665-01, DP# D209978), a baseline study to determine golf course use by Canada geese and Mallard ducks (MRID No. 434665-02, DP# D209979) and a turf and insect residue study (MRID No. 434723-01, DP# D210053). The eggshell and baseline studies were conditions of a Conditional Registration for Imidacloprid on turf.

Based on the results of these submissions, the concern for eggshell thinning in waterfowl exposed to dietary residues of Imidacloprid on turf has been alleviated. The data requirement for an Avian Reproduction Study on the Mallard duck is satisfied (#71-4) and the Ecological Effects Branch no longer requires a full waterfowl monitoring study as a condition to the Conditional Registration.

In the interest of time, a full data evaluation review (DER) of the eggshell quality study will be sent to the Registration Division at a later date. The two remaining studies are not guideline requirement studies and will be addressed only in this memo. The following is a brief summary of the studies.

The effect of technical NTN 33893 on eggshell quality in mallards was evaluated in a one-generation reproduction study using a 19 week dietary exposure. Mean measured concentrations of 0, 22, 35 and 47 ppm were used to evaluate effects to eggshell strength and thickness. There were no statistically significant differences in any treatment level when compared to controls for either parameter. Body weight, feed consumption, clinical appearance and survival findings of the parental generation were monitored; no treatment related observations were noted. (MRID No. 434665-01, DP# D209978).

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The baseline study was performed as a precursor for a full waterfowl monitoring study requested by the Ecological Effects Branch to address reproductive concerns associated with dietary exposure. The baseline study was used to determine if waterfowl would be at risk due to applications of MERIT during their breeding season. Species of reference used were the Canada goose and the Mallard duck.

Observations were made at golf courses in Ohio and Connecticut over the months of April, May and June. Observations included numbers of each species on each golf course, numbers of nests found and number of offspring. The study also utilized information provided verbally by waterfowl biologists and golf course superintendents.

The following are the overall findings of the baseline study: Canada geese and Mallard ducks would not be exposed to Imidacloprid during the pre-egg-laying or early egg-laying phase of reproduction, Canada geese are considered a nuisance on many golf courses and methods are used to reduce their numbers, most geese found on golf courses are non-breeders, due to unsuitable habitat Mallard ducks do not typically nest on golf courses. (MRID No. 434665-02, DP# D209979).

The turf and insect residue study was conducted on three golf courses each in Ohio, Connecticut and Kansas. The courses were treated with a rate of 0.3 or 0.4 lb a.i./acre with MERIT 75WSP (all numbers were adjusted to 0.4 lb a.i./a). Day 0 turf verdure residues ranged from 8.03 ppm to 74.05 ppm, with a mean of 41.96 ppm. Approximately 24 and 72 hours after application the mean residue on the turf was 15.73 ppm (range of 4.96 to 25.77 ppm) and 6.73 ppm (range of 2.87 and 16.89) respectively. Based on the analysis of all the samples collected, the calculated half-life for Imidacloprid on turf was 4.5 days. Day 0 insect residues ranged from 5.24 ppm to 8.34 ppm, with a mean of 6.38 ppm. Approximately 24 and 72 hours after application the mean residues were 4.61 ppm (range of 0.17 to 14.13 ppm) and 1.0 ppm (range of 0.24 to 1.25) respectively. (MRID No. 434723-01, DP# D210053).

In summary, the baseline monitoring study indicates that waterfowl would not be exposed to Imidacloprid during egg- development phases of reproduction. In the event that they were exposed, the two and three day turf residue levels are well below the NOEL of 47 ppm. The three studies alleviate the concern of the Ecological Effects Branch for reproductive effects in exposed waterfowl.

Questions regarding this memo should be directed to Dana Lateulere, 308-2856.