

9-7-88

223193
RECORD NO.

128994
SHAUGHNESSEY NO

REVIEW NO.

EEB REVIEW

DATE: IN 6-9-88 OUT 4-7-88

FILE OR REG. NO. 524-EUP-AO

PETITION OR EXP. NO. _____

DATE OF SUBMISSION 5-16-88

DATE RECEIVED BY HED 6-08-88

RD REQUESTED COMPLETION DATE 9-05-88

EEB ESTIMATED COMPLETION DATE 9-05-88

RD ACTION CODE/TYPE OF REVIEW _____

TYPE PRODUCT(S) Herbicide

DATA ACCESSION NO(S) 406386-20, -21, -22, -23, -24, -25, -26

PRODUCT MANAGER, NO. R. Mountfort (23)

PRODUCT NAME(S) MON-15151 herbicide

COMPANY NAME Monsanto Company

SUBMISSION PURPOSE Proposed EUP for use on turf grass
(new chemical).

SHAUGHNESSEY NO.

CHEMICAL

% A.I.

_____	_____	_____
_____	_____	_____
_____	_____	_____

EEB BRANCH REVIEW

PESTICIDE NAME: MON-15151 Herbicide/524-EUP-AO

100 Submission Purpose and Label Information

100.1 Submission Purpose and Pesticide Use

The registrant (Monsanto Co.) has applied for an Experimental Use Permit (EUP) to conduct field evaluation of the performance and safety of MON-15151 herbicide on fine and coarse turf grasses under commercial and residential conditions.

100.2 Formulation Information

ACTIVE INGREDIENT:

3,5-Pyridinedicarbothioic acid, 2-(difluoromethyl)-
-4-(2-methylpropyl)-6-(trifluoromethyl)-
S,S-dimethyl ester

INERT INGREDIENT:12.7%
.....87.3%
100.0%

Contains 120 grams per liter or 1 pound per U.S. gallon of the active ingredient.

100.3 Application Methods, Directions, Rates

1. States, Amounts and Acreage

The program is planned for a two-year period with acreage of no more than 4000 A. per year. The maximum number of pounds of a.i. and the maximum acreage to be treated per year for each state are listed as follows:

<u>State</u>	<u>Lbs of a.i.</u> <u>per year</u>	<u>Treated acres per year</u>		
		<u>Minimum</u>	<u>Expected</u>	<u>Maximum</u>
Arizona	10	7	13	40
California	60	40	80	240
Delaware	25	17	33	100
Florida	70	47	93	280
Georgia	70	47	93	280
Illinois	70	47	93	280
Indiana	25	17	33	100
Kentucky	25	17	33	100
Maryland	60	40	80	240
Massachusetts	25	17	33	100
Michigan	70	47	93	280
Missouri	70	47	93	280
New Jersey	70	47	93	280
New York	55	37	73	220
North Carolina	25	17	33	100
Ohio	70	47	93	280

Pennsylvania	70	47	93	280
Texas	70	47	93	280
Virginia	25	17	33	100
Washington	10	7	13	40
Wisconsin	25	17	33	100
Total	1000	670	1333	4000
	pound	acres	acres	acres
	a.i.			

2. Direction for application

The Mon-15151 will be applied in spray solutions of water or fluid fertilizer using standard professional turfgrass spray application equipment at three different timings ; i.e., preemergent (spring), postemergent (spring-summer), and post- and preemergent (fall). The application rate will range from 0.25 to 1.5 pounds a.i. per acre. Most of the experiments will be conducted in small plots of less than 2 acres. However, approximately 30% of the material will be tested in larger fields by professional lawn care companies.

100.4 Target Organisms

The target pests will be a broad range of annual grass and broadleaf weeds which commonly occur in turfgrass. Some of the specific target weeds are barnyard grass, bittercress, annual bluegrass, chickweed sp., smooth crabgrass, large crabgrass, crowfootgrass, foxtail goosegrass, henbit, kikuyugrass, parsley-piert, common purslane, smutgrass, prostrate spurge, and spotted spurge.

100.5 Precautionary Labeling

Environmental Hazards:

This pesticide is toxic to fish. Do not apply directly to water or wetland. Do not contaminate water when disposing of equipment washwaters.

101 Hazard Assessment

101.1 Discussion

A maximum proposed application rate is 6 quarts of product per acre (or 1.5 pounds a.i. per acre). The maximum number of applications per season will be three. The expected total acreage for EUP is 1333 acres with a maximum of no more than 4000 acres per year. Directly following a single application of 1.5

1b. a.i./A the maximum expected residues on vegetation and 6 feet of water body (i.e., direct application) are as follows:

<u>Surface</u>	<u>Residues</u>
Short rangegrass	359.4 ppm
Long rangegrass	164.4 ppm
Leaves, leafy crops	188.0 ppm
Forage, small insects	88.1 ppm
Seeds, large insects	19.0 ppm
Fruit	9.5 ppm
Top 6 feet of water	91.5 ppb*
Soil surface	33.3 ppm

*or 18.3 ppb as result of runoff (see attached calculation sheet).

101.2 Likelihood of Adverse Effects to Non-target Organisms

Based on the available data MON-15151 is nontoxic to birds (2250 mg/Kg). It is also practically nontoxic to mallard ducks and bobwhite quails on dietary basis (LC50 >5620 ppm in both sp.). It is highly toxic to freshwater fishes (LC50's are 0.46 ppm and 0.47 ppm for rainbow trout and bluegill sunfish, respectively), but only slightly toxic to aquatic invertebrates (Daphnia LC50 = 17 ppm). Therefore, the proposed use of MON-15151 on turf is not expected to result in increased exposure or hazard to fish or wildlife (i.e., exposure level < 1/10 LC50 for birds and < 1/20 LC50 for aquatic sp.). However, it has extremely long half-life in the environment (Half-lives for both hydrolysis and aerobic biolysis are > 1 year, per personal communication with Dr. Alan Reiter of EAB, 9/1/'88) and there are possible long-term chronic effects due to its stability in water and soil.

101.3 Endangered Species

The geographic areas that will be treated by the program is areas where a substantial amount of cool or warm season turf is professionally maintained. These areas also tend to parallel the major metropolitan areas with the highest usage of professional lawn care service. Therefore, this proposed use is not expected to increase exposure or risk to endangered species due to its use patterns and limited acreage involved.

101.4 Adequacy of Toxicity Data

Six basic studies and honeybees acute contact toxicity studies were submitted and are acceptable to support registration except the aquatic invertebrate study.

Therefore, for a full registration 48-h daphnia LC50 study must be reconducted.

101.5 Adequacy of Labeling

Precautionary labeling submitted is adequate.

102 Classification

General

103 Conclusions

The Ecological Effects Branch has completed a risk assessment for an Experimental Use Permit (Section 5) for MON-15151 on turfs. Based upon the available data, EEB concludes that the proposed EUP provides for minimal acute hazards to nontarget organisms.

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MON-15151 EEC CALCULATION SHEETI. For un-incorporated ground application

A. Runoff

$$\underline{1.5} \text{ lb(s)} \times \frac{0.02}{(2\% \text{ runoff})} \times \frac{10 \text{ (A)}}{(\text{from } 10 \text{ A. drainage basin})} = \underline{0.3} \text{ lb(s)} \quad (\text{tot. runoff})$$

EEC of 1 lb a.i. direct application to 1 A. pond 6-foot deep = 61 ppb

$$\text{Therefore, EEC} = 61 \text{ ppb} \times \underline{0.3} \text{ (lb)} = \underline{18.3} \text{ ppb}$$

II. For incorporated ground application

A. Runoff

$$\underline{\quad} \text{ lb(s)} \div \frac{\underline{\quad} \text{ (cm)}}{(\text{depth of incorporation})} \times \frac{0.0__}{(_\% \text{ runoff})} \times \frac{10 \text{ (A)}}{(10 \text{ A. d.basin})} = \underline{\quad} \text{ lb(s)} \quad (\text{tot. runoff})$$

$$\text{Therefore, EEC} = 61 \text{ ppb} \times \underline{\quad} \text{ (lbs)} = \underline{\quad} \text{ ppb}$$

III. For aerial application (or mist blower)

A. Runoff

$$\underline{1.5} \text{ lb(s)} \times \frac{0.6}{(\text{appl. efficiency})} \times \frac{0.02}{(2\% \text{ runoff})} \times \frac{10 \text{ (A)}}{(10 \text{ A. d.basin})} = \underline{0.18} \text{ lb(s)} \quad (\text{tot. runoff})$$

B. Drift

$$\underline{1.5} \text{ lb(s)} \times \frac{0.05}{(5\% \text{ drift})} = \underline{0.075} \text{ lb(s)} \quad (\text{tot. drift})$$

$$\text{Tot. loading} = \underline{0.18} \text{ lb(s)} \quad (\text{tot. runoff}) + \underline{0.075} \text{ lb(s)} \quad (\text{tot. drift}) = \underline{0.255} \text{ lb(s)}$$

$$\text{Therefore, EEC} = 61 \text{ ppb} \times \underline{0.255} \text{ (lbs)} = \underline{15.6} \text{ ppb}$$