Glyphosate / Tox

(5)

releasable

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

DEC 2 1981

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

DATE: December 1, 1981

SUBJECT: 80-FL-07: Glyphosate in/on Aquatic Weeds in Florida
CASWELL #661A

FROM: William Dykstra, Toxicologist WSD
Toxicology Branch/HED (TS-769)

12/1/81

TO: Don Stubbs (41)
Registration Division (TS-767)

Residue Chemistry Branch
Hazard Evaluation Division (TS-769)

The Florida Department of Agriculture and Consumer Services requests a Section 18 for the use of Roundup on emerged aquatic weeds. The complex of these emersed weeds infests an estimated 75,782 acres of water throughout the state of which an estimated 50,000 acres is at a risk threshold and in need of immediate control and management.

The Florida Aquatic Plant Management Society, Inc., requested consideration for the approved use of Roundup herbicide formulation of (N-phosphonomethyl glycine isopropylamine salt) for the control of the listed emergent aquatic weeds in water. Roundup is manufactured by Monsanto Company and is currently labeled for use in Florida per EPA Registration Number 524-308-AA and EPA Experimental Permit No. 524-EUP-29. Inerts are cleared under 180.1001. Roundup has been successfully tested on the species listed in this request in aquatic sites. Roundup has also proven to be an excellent herbicide in control of these species in ditchbank and dry drainage ditches under its current registration and its being used extensively in these areas for selective weed control.

It is recommended that this proposal be approved for the use of Roundup at a rate of three (3) pounds active ingredients per surface acre which is equal to one (1) gallon of formulation per surface acre. It is estimated that 50,000 acres of these weed species are in need of control.

Based on two (2) applications per year this will require 100,000 gallons of Roundup or 300,000 pounds active ingredients per year to be applied in aquatic sites per the proposed label.

This product may be applied with a boom or handgun from a boat or from the ditchbank with terrestrial positioned spray equipment. Caution must be exercised to avoid drift and passover of treated area with boats.

This product may be aerially applied to all approved aquatic sites at the proper rates with a boom at 10 to 20 gallons of clean water per acre. Do not apply when winds are gusty or in excess of 10 mph or under any conditions which would allow for drift. Do not apply within 200 feet of annual crops and within 200 feet of residential areas. Avoid drift by applying from a low height to ensure minimum exposure to air currents and prop wash.

When applying this product along shorelines or banks of moving water, always spray one bank at a time while traveling upstream to prevent product concentration in the water. Do not spray open bodies of water not infested with weeds or spray across streaqms or ditches to opposite ditchbank. Avoid applying this product when environmental conditions exist which are conducive to oxygen depletion from decaying vegetation. Oxygen depletion may result in fish kill. When emerged weeds cover a majority of the water surface, treat the area in strips 30 days apart to avoid oxygen depletion from decaying vegetation.

Allow 7 or more days after treatment to weeds in the hydro-soil after a drawdown prior to introduction of water. Apply this product within 1 day after drawdown to ensure application to viable plant tissue.

There is not restriction on water use after application providing applications are made one mile or more from domestic water intake points.

Consult local State Agencies for permits which may be required prior to application of this product to aquatic sites.

Toxicology Data available on Glyphosate:

Oral LD_{50} (rabbit): 3.8 gm/kg (IBT Valid)

Rat Teratology: Negative at 3500 mg/kg/day; fetotoxic
NOEL = 1000 mg/kg/day

Rabbit Teratology: Negative at 350 mg/kg/day; fetotoxic
NOEL = 100 mg/kg/day

2-Year Dog Feeding: NOEL = 300 ppm (IBT Valid)

3-Generation Rat Reproduction: NOEL = 100 ppm (IBT Valid)

2-Year Rat Feeding: NOEL = 100 ppm (IBT Valid)

Glyphosate was not mutagenic in the following test systems:

a) Rec-assay in two strains of B. subtilis up to 2000 ug test material/disk.

b) Reverse mutation in five histidine - requiring strains of S. typhimurium and one tryptophan - requiring strain of E. coli with or without metabolic activation.

c) Ames test in four strains of Salmonella, with or without metabolic activation.

Mouse Dominant Lethal: Negative up to 2000 mg/kg

No RPAR criteria have been exceeded and no regulating actions are pending against the pesticide.

Tolerances have been established under 40 CFR 180.364.

The ADI is based on the NOEL of 100 ppm (5 mg/kg/day) in the 2-year rat feeding study. A 100 fold safety factor was used to calculate the ADI.

$$\text{ADI} = 5 \text{ mg/kg/day} \times \frac{1}{100}$$

$$\text{ADI} = 0.05 \text{ mg/kg/day}$$

The MPI for a 60 kg person is 3 mg/day

Residue Chemistry Branch estimates the following action levels for Glyphosate for this Section 18:

potable water	0.5 ppm
fish	0.2 ppm
the crop grouping citrus, cucurbits, forage grasses, forage legumes, fruiting vegetables, grain crops, leafy vegetables, nut crops, pome fruits, root crop vegetables, seed and pod vegetables, small fruits, stone fruits, and the individual crops cottonseed, hops and avocadoes,	0.1 ppm

All of the required action levels are either published tolerances or Tox approved, unpublished tolerances.

Conclusions and Recommendations:

The Section 18 can be toxicologically supported.

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