028201

10-10-78

(6)

EEE BRANCH REVIEW

DATE: IN 9/29/78 OUT 10/10/78 IN ____ OUT ____ IN ____ OUT ____

FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR REG. NO. 707-75

PETITION OR EXP. PERMIT NO. _____

DATE DIV. RECEIVED _____

DATE OF SUBMISSION _____

DATE SUBMISSION ACCEPTED _____

TYPE PRODUCT(S): I, D, (H), F, N, R, S Herbicide

DATA ACCESSION NO(S). _____

PRODUCT MGR. NO. 25 (Taylor)

PRODUCT NAME(S) STAMPEDE

COMPANY NAME Rohm and HAAS

SUBMISSION PURPOSE Amend Registration (winter wheat)

CHEMICAL & FORMULATION 3,4 - dichloropropionanilide 35% a.i.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: October 4, 1978

SUBJECT: Expeditious Review of Pesticide Petition No. 8F2106

FROM: Product Manager (25)
Fungicide-Herbicide Branch
Registration Division (TS-767)

TO: James Akerman, Section Chief
Ecological Evaluation Branch
Hazard Evaluation Division (TS-769)

I have received a telephone call from Mr. Edwin Johnson (DAA) requesting that Pesticide Petition No. 8F2106 be expedited, and completed by December 15, 1978.

Robert J. Taylor

Robert J. Taylor

EPA FORM 1320-6 (REV. 3-76)

2

100.0 Pesticidal Use

Selective postemergence herbicide for control of green and yellow foxtail grass (wild millet or pigeongrass) and specific broadleaf weeds in spring wheat in North Dakota, South Dakota, Minnesota and Montana only.

100.1 Application Methods/Directions

(1) TIMING OF APPLICATION

For maximum weed control, it is important that wheat fields be inspected frequently prior to the STAMPEDE application to ensure that emerging foxtail grass and susceptible broadleaf weeds are treated with STAMPEDE at the proper stage of growth.

FOXTAIL GRASS AND BROADLEAF WEED CONTROL

When foxtail grass and broadleaf weeds are present in the same field, time the application to the foxtail leaf stage. A single application of STAMPEDE should be timed to occur when the majority of the foxtail grass seedlings are in the 2-4 leaf stage and the wheat is in the 2 leaf to early tillering stage. Application of STAMPEDE at this time will provide effective control of foxtail grass as well as susceptible broadleaf weeds in the to 1 to 4 leaf stage. Since the height of foxtail grass plants bears no relationship to leaf stage, it is judge the susceptibility of foxtail grass to STAMPEDE only by leaf stage. The effectiveness of STAMPEDE in controlling foxtail grass declines rapidly as the fifth leaf emerges and tillering begins. Applications of STAMPEDE made after the fifth leaf stage of wheat may be less effective on foxtail grass and broadleaf weeds because crop cover will interfere with spray coverage of the weeds.

BROADLEAF WEED CONTROL ONLY

In fields where foxtail grass is not present and the primary problem is broadleaf weed control, a single application of STAMPEDE should be timed to occur when susceptible broadleaf weeds are in the seedling state (2.4 leaf stage). At this

growthstage of the broadleaf weeds, the wheat should be in the 2 leaf to early tillering stage. Time the application to the leaf stage of the broadleaf weeds.

(2) COMPATIBILITY WITH OTHER CHEMICALS

STAMPEDE must not be tank-mixed with other pesticides or fertilizers. Crop tolerance and emulsion performance is reduced when STAMPEDE is tank-mixed with certain pesticides and fertilizers.

For the present it is recommended that no insecticide be used in the same season in which STAMPEDE is applied as crop injury may result. Grain crops protected with dual-purpose seed treatments may be treated with STAMPEDE.

100.2 Application Rates

FOXTAIL AND BROADLEAF WEED CONTROL - USE STAMPEDE AT 1/3 to 1/2 GALLON (1 to 1 1/2 POUND ACTIVE INGREDIENT) PER ACRE

STAMPEDE should be applied in a single application at the rate of 1/3 to 1/2 gallon (1 to 1 1/2 pounds active ingredient per acre) when the majority of the foxtail seedlings are in the 2-4 leaf stage and when wheat is in the 2 leaf to early tillering stage. At this growth stage of foxtail grass, susceptible broadleaf weeds, in the 1-4 leaf stage, will be effectively controlled. Time the application to the foxtail leaf stage. Under ideal conditions (good soil moisture prior to application time and actively growing foxtail grass in the 2-4 leaf stage) STAMPEDE at the dosage rate of 1/3 gallon (1 pound active ingredient) per acre will provide control of foxtail grasses. In situations where less than ideal growing conditions or heavy weed pressure exists, STAMPEDE is recommended at the rate of 1/2 gallon (1 1/2 pounds active ingredient) per acre.

BROADLEAF WEED CONTROL ONLY - USE STAMPEDE AT 1/3 GALLON (1 POUND ACTIVE INGREDIENT) PER ACRE.

For control of wild buckwheat, redroot pigweed, prostrate pigweed, lambsquarters, and wild mustard in the early seedling stage (1-4 leaf stage), STAMPEDE should be applied in a single application at the rate of 1/3 gallon (1 pound active ingredient) per acre.

At this growth stage of the broadleaf weeds, the wheat should be in the 2 leaf to early tillering stage. Time the application to the leaf stage of the broadleaf weeds.

100.3 Precautionary Labeling (as proposed)

TOXIC TO FISH

Keep product out of lakes, streams and ponds. Do not contaminate water sources by cleaning of equipment or disposal of waste or rinseate.

101.0 Chemical and Physical Properties

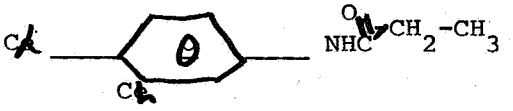
101.1 Chemical Name

34-dichloropropionanilide

101.2 Common Name

STAM F-34, PROPANIL, STAMPEDE

101.3 Structural Formula



$(C_9H_9\ ONCl_2)$

101.4 Molecular Weight

218.08

101.5 Solubility

water	-	0.02 gm/100ml (500 ppm w)
Benzene	-	7 gm/100ml
Acetone	-	170 gm/100ml
Methanol and Hydrocarbons	-	very soluble
Mexane	-	soluble

102.0 Behavior in the Environment

See review by H. Craven (5/10/78)

103.0 Toxicologal Properties

A summary of toxicological data is presented below (validation sheets are appended to this review):

ORGANISM	TEST	RESULT	MATL	VALIDATION CATEGORY
Rat	Acute Oral LD_{50}	1384 mg/kg	Technical	DEFERRED
Rat	Acute Oral LD_{50}	1.87 ml/kg	STAM F-34 36.5%)	"
Dog	Acute Oral LD_{50}	1217 mg/kg	Technical	"
Rat	" " " "	560 mg/kg	STAM EC	"
Rabbit	" " " "	520 mg/kg	STAM ED	"
Rat	Subacute toxicity	no effect level <.1% in diet		"
Rat	Chronic feeding study	no effect level =400ppm	STAM	"
Dog	" " " "	" " " " =600ppm	STAM	"
Rat	Redpro-duction study	no effect level <1000ppm	STAM F-34	"
Mallard[a]	Multiple Dose Acute Oral LD_{50}	375 mg/kg/day	36.5% ai	SUPPLEMENTAL
Coturnix Quail[a]	" " " "	160 mg/kg/day		
European[a] Starling	" " " "	3000 mg/kg/ day	"	"
English[a] Sparrows	" " " "	187.5 to 375 mg/ kg/day	"	"
Rainbow Trout	48 hr. LC_{50}	4.0ppm	"	"
Lake Emerald Shiner	96 hr. TLM	7.5ppm(ai)	STAM F 1-34	"
Goldfish	48hr. LC_{50}	22.4ppm	STAM F-34 (36.5%)	"
Brown Bullhead	48hr. LC_{50}	22.2ppm	"	"
Rainbow Trout	48hr. LC_{50}	7.4ppm	"	"
Daphnia pulex	48hr. LC_{50}	11.8ppm	"	"
Daphnia magna	26hr. LC_{50}	4.8(38-6.6)ppm	TECHNICAL	"

Not entered in database

a. birds received 10 successive daily oral doses.

104.0 Hazard Assessment

104.1 Discussion (residue profile)

STAMPEDE is proposed for a single ground application at 1 to 1.5 lbs ai/are for foxtail and broadleaf weed control in spring wheat. Calculated residues (ppm) immediately after application would be as follows:

Application Rate	Short Grass	Longs Grass	Leaves& Leafy Crops	Seeds	Six Inches Water
1.0 lb ai/a	240	110	125	12	0.73
1.5 lb ai/a	360	215	187	18	1.10

STAMPEDE would applied when foxtail is in the 2-4 leaf stage and when wheat is in the 2 leaf to early tillering stage (May 10 - June 25 in Minn., from Craven 5/10/78). STAMPEDE kills susceptible plants by direct contact action and for this reason, thorough spray coverage of weeds is necessary.

Spring wheat harvested in North Dakota, South Dakota, Minnesota and Montana in 1969 amounted to about 10 million acres, over half of which came from North Dakota (USDI, 1972).

104.2 Likelihood of Exposure

According to Martin et al. (1961) "wheat is one of the most valuable wildlife plants in the whole country". They list several species of waterbird, upland game-birds, songbirds and small mammals (See appendix I) which feed, nest and/or roost in and around wheat fields. Waterbirds and small mammals feed on both seeds and young plants, while the other forms utilize only the seed. Exposure to highest propanil residues would occur in those species feeding on young wheat shoots, but feeding on seeds could occur throughout the year, even in the spring at the time of application.

No avian dietary data are available, however an extrapolation from acute oral studies (supplemental) suggests LC_{50} values of 1650 ppm and 352 ppm respectively for the mallard and coturnix quail. Based upon these extrapolations and the food habits of these species, no acute hazards are expected. Mammalian laboratory studies indicate there should be no acute hazard to small mammals (rat acute oral=560 mg/kg).

The possibility of chronic exposure is minimal because STAMPEDE is to be applied only once per season and the parent compound is absorbed into plant tissue where it is metabolized and "diluted" due to plant growth. Cumulative toxicity appears unlikely since rats and cows excrete greater than 90% of ingested material in their urine and feces. The lowest mammalian no effect level is 400 ppm formulated product, a level not likely to be encountered for a prolonged period.

Based upon supplemental data, propanil is not highly toxic to either fish or aquatic invertebrates. Because the material is to be applied only once per year by ground equipment and because propanil binds to soil and is not highly leachable, exposure of aquatic habitat, and thus potential hazards, should be minimal.

In conclusion, the available supplemental data indicate that the proposed use of STAMPEDE should not pose unreasonable adverse affects on the environment. Note, however, that this is only a preliminary assessment based entirely upon supplemental data. Any final conclusion must await the receipt of at least the data listed below (Section 107.5).

104.1.2 Endangered Species Considerations

Of several endangered species found in North Dakota, South Dakota, Montana and Minnesota only the whooping crane would be expected to be exposed. Whoopers have been sited in at least five locations in Montana, North Dakota and South Dakota during stopovers enroute to either their summer nesting grounds or overwintering area. Because these sites are inhabited by whoopers for only a few days, at most, any exposure would be minimal and would occur only in the spring. Furthermore, it is possible that whoopers would have passed through this area before pesticide treatment since the birds leave Texas during late March to mid-April and STAMPEDE would be applied in May and June.

In summary, the proposed pesticide application appears to present a low probability of hazard to the whooping crane, although the final evaluation must await receipt of complete avian toxicity data.

104.1.3 Adequacy of Toxicity Data

All of the submitted studies are classified supplemental. None of the studies fulfill basic data requirements to support the registration of STAMPEDE.

104.1.4 Additional Data Required

All six basic fish and wildlife studies (see section 107.5).

105.0 Classification

This product and use cannot be classified at this time due to the lack of adequate data.

RPAR Criteria

None of the supplemental data review thus far trigger any of the RPAR criteria.

107.0 Conclusions

107.1 Environmental Fate and Toxicology Acknowledgement

E.F.B. and Toxicology Branch data were considered in this review.

107.2 Classification

No classification is possible at this time due to the lack of acceptable fish and wildlife data.

107.3 Labeling

No labeling will be recommended until acceptable fish and wildlife data are submitted.

107.4 Data Adequacy

None of the submitted studies are acceptable to the extent that they may be used to support the proposed registration. None of the submitted studies meet the standards for an acceptable study and most studies have several other deficiencies. The specific standards not met are listed below along with each study:

1) Mallard LD_{50}: test material was not technical grade.

2) Coturnix quail LD_{50}: test material was not technical grade and Coturnix quail is an unacceptable test species.

3) European Starling LD_{50}: same as No. 2

4) English House Sparrow LD_{50}: same as No. 2.

5) Rainbow Trout LC_{50}: test duration was only 48 hours.

6) Lake Emerald Shiner LC_{50}: The lake emerald shiner is not an acceptable test species.

7) Goldfish LC_{50}: same as No. 2

8) Brown Bullhead LC_{50}: same as No. 1

9) Rainbow Trout LC_{50}: same as No. 1

10) Daphnia pulex LC_{50}: same as No. 1

11) Daphnia magna LC_{50}: test duration was only 26 hours rather than 48 hours.

107.5 Data Requests

The following six basic fish and wildlife studies are required. These studies must be conducted using technical grade material as the test substance.

(a) the avian acute oral LD_{50} for one species of waterfowl (mallard duck, preferably) or one species of upland game bird (ring-necked pheasant or bobwhite quail),

(b) the dietary LC_{50} for one species of waterfowl (mallard duck) and one species of upland game bird (bobwhite quail or ring-necked pheasant),

(c) the 96-hour acute LC_{50}'s for a coldwater species (rainbow trout) and a warmwater species (bluegill sunfish) of fish,

(d) the acute 48-hour LC_{50} for an aquatic invertebrate (Daphnia sp., preferably).

Acceptable protocol for the above studies are cited in the Proposed Guidelines for Registration of Pesticides in the U.S.
(Federal Register, July 10, 1978, pages 29724-29737).

107.7 Recommendations

The Environmental Effects Branch does not concur with the proposed registration of STAMPEDE for use on winter wheat in four states.

Fred Betz

Fred Betz, EEB, Section I, HED October 10, 1978

James W. Akerman

J. Akerman, Section Head, Section I, EEB, HED

C. Bushong

C. Bushong, Acting Branch Chief, EEB, HED

APPENDIX I

List of Wildlife Species Likely to be exposed*

Waterbirds

Ducks
Geese

Upland Gamebirds

Greater Prairie Chicken
Ring-necked Pheasant

Songbirds

Rose-breasted Grosbeak
Western Meadowlark
Yellow-headed Blackbird
Redwing Blackbird
Brewer Blackbird
Lapland longspur

Small Mammals

Richardson Ground Squirrel
Grasshopper mouse
Cottontail Rabbit
Jackrabbit

From: Martin et al (1961) and Gusey and Maturgo (1972).

APPENDIX II

References:

Gusey, W.F. and Z.D. Maturgo. 1972. Wildlife Utilization of Croplands. Env. Cons. Dept. Shell Oil Co. 277p.

Martin, A.C., M.S. Zim and A.L. Nelson 1961. American Wildlife and Plants, A Guide to Wildlife Food Habits. Dover Publications, New York, 500p.

Usual Planting and Harvesting Dates, 1972. USDA Agricultural Handbook No. 283. 84p.