cc: McIntosh

115601
SHAUGHNESSY NO.

REVIEW NO.

EEB REVIEW

DATE: IN 9-9-85 OUT 9-25-85

FILE OR REG. NO. 352-EUP-RGN

PETITION OR EXP. PERMIT NO.

DATE OF SUBMISSION 8-22-85

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RD REQUESTED COMPLETION DATE 11-22-85

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RD ACTION CODE/TYPE OF REVIEW 710

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

DATA ACCESSION NO(S).

PRODUCT MANAGER NO. R. Mountfort (23)

PRODUCT NAME(S) DPX-L5300

COMPANY NAME E.I. du Pont de Nemours & Co., Inc.

SUBMISSION PURPOSE Proposed IUP for use on wheat and barley

SHAUGHNESSY NO.	CHEMICAL, & FORMULATION	% A.I.
115601	Methyl 2-[[[[N-(4-methoxy-6-methyl-	
	1,3,5-triazin 2-yl)methylamino]	
	carbonyl]amino]-sulfonyl]benzoate	75
	Inerts	25

100 Submission Purpose and Label Information:

100.1 Submission Purpose and Pesticide Use:

The registrant, E.I. du Pont de Nemours & Co., seeks an Experimental Use Permit to apply the herbicide DPX-L5300 on wheat and barley.

100.1.1 Proposed EUP Program:

(excerpted from submission)

DU PONT DPX L5300 HERBICIDE EXPERIMENTAL PROGRAM

1. Objectives:

- Evaluate performance at various rates on diverse weed spectrums and population densities occurring in cereal crops.
- Compare performance to that of existing standards.
- Evaluate tank mix application with suitable companion products.
- Compare methods of application; ground versus aerial.
- Evaluate performance at various times of applications.
- Evaluate performance at various spray gallonage.
- Evaluate performance under varied climatological and geographical conditions.
- Collect crop samples for residue analysis from commercial applications.

This program is designed to begin on a controlled basis for the first year. As information is obtained, the program will be expanded to include more diversity in location and conditions. The number of treatments at any location can then be reduced to only those most effective.

2. Program Details:

(i) Crop to be treated is:

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Wheat - spring and winter	Triticum aestivum
Wheat - durum	Triticum turgidum var. durum
Barley - spring and winter	Hordeum vulgare

(ii) Weed control and crop selectivity evaluations will be made 1 to 3 times per season at each location. Weed control evaluation will be by species on a visual percentage estimate compared to a counted untreated area. A 0 to 100 percent scale will be used where 0 = untreated area (no weed control) and 100 = weed free (total weed control) for weed species being tested. Crop selectivity evaluation will be made on a visual percentage of expressed symptom compared to the untreated check where 0 = no visible crop injury and 100 = complete loss of crop. Yields will be taken from representative sites to correlate visual ratings.

(iii) Trial size will average approximately 5 acres per location. The actual acreage at each site could be more or less, depending upon the program objectives at that particular test site. The number of replications of each site will also vary depending upon the program objectives at that site.

3. The United States cereal growing area is highly diversified in many ways. Weed spectrum and winter wheat varieties vary widely among the various geographic areas in which cereals are grown. Climatic variables, such as temperature, precipitation, and humidity, can influence the performance of herbicides. Edaphic factors, such as soil texture, organic matter content, and pH can have profound effects on herbicidal performance. Cultural practices, such as time of seeding, row width, fertility, and irrigation programs, will impact the response of the crop and associated weed problem to a herbicide.

In order to evaluate this potential product, tests which cover the range of these variables under such parameters need to be conducted in all relevant areas. Indications of how a compound will respond under the above variables can be obtained in laboratory, greenhouse, and small plot testing. It is, however, critical that prior to full commercialization these variables be investigated with the product being applied through commercial type equipment.

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Aerial applications, a necessary method of application in certain areas, essentially cannot be tested in small plots.

100.1.1.2 Date, Duration

Product will be applied in 1986, 1987, and 1988.

100.1.1.3 Amount Shipped, Geographical Distribution

The following amounts of product are necessary to generate the quality and quantity of data needed to support future label claims.

1985 100 pounds product - 75 pounds active ingredient
1986 200 pounds product - 150 pounds active ingredient
1987 200 pounds product - 150 pounds active ingredient

DPX L5300 EUP ACREAGE

	1986	1987	1988
Idaho	300	600	600
Kansas	300	600	600
Michigan	100	200	200
Minnesota	200	400	400
Montana	200	400	400
North Dakota	300	600	600
Oklahoma	100	200	200
Oregon	200	400	400
South Dakota	200	400	400
Texas	100	200	200
Utah	100	200	200
Washington	300	600	600
Wyoming	100	200	200
TOTAL	2500	5000	5000
Pounds Product	100	200	200
Pounds Active Ingredient	75	150	150

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100.2 Formulation Information

Active Ingredient
Methyl 2-[[[[N-(4-methoxy-6-methyl-1,3,5-triazin 2-yl)methylamino]carbonyl]amino]-sulfonyl]benzoate..... 75%

Inert Ingredients 25%

100.3 Application Methods, Directions, Rates

Applications at twice the maximum rate being tested for efficacy (maximum 2X rate = 1 1/3 oz/Acre = 1 oz AI/A) will be made to monitor phytotoxicity and for residue sampling. The area treated will be extremely small relative to test size. It will usually be 50 to 100 ft long and one swath of the sprayer wide. Disposition of the crop treated with 2X rate will be identical to that of the other treatments covered under the experimental label.

PRECAUTIONS

Do not graze or feed forage or hay from treated areas to livestock.

Do not plant to any crop other than wheat or barley for 60 days after application of DPX L5300.

Do not apply to wheat or barley that is stressed by a severe winter, drought, water saturated soil, disease, or insect damage as crop injury may result. Allow fall seeded cereals to begin active growth in spring before treating.

Do not apply to flood or furrow irrigated land where tail water will be used to irrigate crop land within 21 days after application.

Do not apply to cereal crops underseeded to legumes as injury to legume forage may result.

Cold temperatures immediately following an application of DPX L5300 may result in temporary yellowing and stunting of crop.

EQUIPMENT - SPRAY VOLUMES

Apply uniformly using properly calibrated air or ground equipment. Use at least 1 gallon spray volume per acre by air or 5 gallons per acre by ground. Use 50-mesh screens or larger.

Continuous agitation is required to keep DPX L5300 in suspension. Avoid overlapping, and shut off spray booms while starting, turning, slowing or stopping, or injury to the crop may result.

NOTE: Do not allow spray to drift onto adjacent crops as injury to the adjacent crop may occur.

SPRAY PREPARATION/TANK MIXTURES

DPX L5300 may be tank mixed with suitable registered herbicides or with Du Pont Harmony™ Herbicide* to control weeds other than those listed. Follow the manufacturer's label or the Experimental Use Permit for the companion herbicide. If application timing of the companion herbicide differs from that of DPX L5300, do not tank mix.

Mix the proper amount of DPX L5300 into the necessary volume of water in the spray tank with the agitator running. Agitation is required for uniform suspension and application. For tank mixtures, add the companion herbicide to the spray tank after the DPX L5300 is thoroughly mixed.

To improve wetting and/or foliar activity of DPX L5300, a surfactant of at least 80% active ingredient should then be added as the last ingredient at the rate of 1 to 2 quarts per 100 gallons of spray. Additional surfactant is not needed if it is already included in the companion herbicide formulation.

NOTE: Use DPX L5300 spray mixture within 24 hours of preparation, or product degradation may occur.

*EPA Experimental Use Permit No. 352-EUP-121.

RATES FOR TRIAL USE

Apply 1/6 to 2/3 ounce of DPX L5300 per acre post-emergence to wheat (including durum) or barley to evaluate control or suppression of emerged.

Black mustard	Lambsquarters (common, slimleaf)
Bushy wallflower (treacle mustard)	London rocket

Canada thistle*	Miners lettuce
Coast fiddleneck	Prickly lettuce
Common chickweed	Purple mustard
Conical catchfly	Russian thistle*
Corn gromwell	Shepherdspurse
Dog fennel	Smallseed falseflax
Field pennycress	Stinking mayweed
Flixweed	Tansy mustard
Henbit	Tarweed fiddleneck
Kochia*	Tumble mustard (Jim Hill) Wild mustard

*See "SPECIFIC WEED PROBLEMS" for further instructions. Note: If rain occurs soon after application, control may be reduced.

TIMING OF APPLICATION

Spring Cereals: Apply any time after the crop is in the 2-leaf stage but before the boot stage.

Winter Cereals: Apply any time the crop is actively growing between the 2-leaf and boot stages; spring applications are preferred.

For best results apply to small emerged weeds with at least two true leaves (not cotyledons), but before weeds are 6" tall or across. Thorough coverage is required; therefore, make applications before the crop canopy covers the weeds. Weeds that emerge after treatment may not be controlled.

SPECIFIC WEED PROBLEMS:

Canada thistle: Apply DPX L5300 plus surfactant in the spring after the majority of thistles have emerged and are small (rosette stage to 6" elongated stems), but actively growing. Application will inhibit the ability ot emerged Canada thistle to compete with the crop. Use a minimum of 3/5 (0.6) ounce per acre.

Russian thistle, kochia: Apply DPX L5300 plus surfactant in the spring after the majority ot weeds have emerged, but before they reach 5" in height. For Russian thistle, use surfactant at a rate of 2 quarts per 100 gallons of spray. Thorough coverage and warm temperatures will enhance control results.

101.2 Likelihood of Adverse Effects to Nontarget Organisms

The following maximum estimated environmental concentrations of DPX L5300 in water, soil, and on grass were derived using the methods of Hoerger and Kenaga (1972) and Kenaga (1973). These estimates assume the use of the maximum application rate of 1 oz/acre = .63 lbs/acre (active ingredient).

Estimates of residues in water assume the direct application on product to a 6-inch acre layer pond.

Environment	Maximum Expected Residues
soil (.1 in)	138.6 ppm
short grass	150 ppm
water* (.5 ft acre-layer)	.462 ppm

*Based upon estimates of DeWitt (Patuxent National Wildlife Center).

Based upon the data submitted with this EUP application, DPX L5300 is considered to be practically nontoxic to bobwhite quail on an acute oral basis (LD_{50} > 2250 mg/kg). This chemical is also practically nontoxic to birds on a subacute dietary basis (Bobwhite quail LC_{50} > 5620 ppm, mallard duck LC_{50} > 5620 ppm). It is therefore not expected that the use of this herbicide in the proposed EUP program would affect exposed avian species.

100.4 Target Organisms:

Target weeds include:

Black mustard	Brassica nigra
bushy wallflower (treacle mustard)	Erysimum repandum
Canada thistle	Cirsium arvense
coast fiddleneck	Amsinckia intermedia
common chickweed	Stellaria media
conical catchfly	Silene conica
corn gromwell	Lithospermum
dog fennell	Eupatorium capifolium
field pennycress	Thlaspi arvense
flixweed	Descurainia sophia
henbit	Lamium amplexicaule
kochia	Kochia scoparia

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lambsquarter (common, slimleaf)	Chenopodium album
	C. leptophyllum
London rocket	Sisymbrium irio
miner's lettuce	Claytonia perfoliata
prickly lettuce	Lactuca serriola
purple mustard	Chorispora tenella
Russian thistle	Salsola kali var. tenuifolia
shepherd's purse	Capsella bursa-pastoris
smallseed falseflax	Camelina microcarpa
stinking mayweed	Anthemus cotula
tansy mustard	Descurainia pinnata
tarweed fiddleneck	Amsinckia Tycopsoides
tumble mustard (Jim Hill)	Sisymbrium altissimum
wild mustard	Sinapis arvense

100.5 Precautionary Labeling:

Do not apply directly to any body of water. Do not contaminate water by cleaning of equipment or disposal of wastes.

101 Hazard Assessment:

101.1 Discussion:

DPX-L5300 will be used on 2500 acres of wheat and barley in 1986, and 5000 acres in 1987 and 1988.

The fish toxicity studies submitted in support of this EUP were classified as supplemental. They can be used in a risk assessment, but do not meet guideline requirements. Preliminary data indicate that the maximum expected residues in water under the proposed EUP program would not approach the LC_{50} values of fish (> 100 ppm for both bluegill sunfish and rainbow trout).

Submitted data indicate that DPX L5300 is practically nontoxic to freshwater invertebrates (EC_{50} = 720 mg/l for Daphnia magna). Maximum expected residues in water under the approved EUP program do not approach the EC_{50} for daphnids.

101.3 Endangered Species Considerations:

It is not expected that the proposed use of DPX L5300 in this experimental program will significantly affect endangered/threatened animals. This is because of the low toxicity of the product. There are no listed endangered/threatened plants in barley-wheat growing areas in the States within which the experimental program is to be conducted.

101.4 Adequacy of Toxicity Data:

The following studies were scientifically sound and may be used to fulfill the guideline requirements for registration:

avian acute oral:

Species	LD_{50}
bobwhite quail	> 2250 mg/kg

avian dietary:

Species	LC_{50}
mallard duck	> 5620 ppm
bobwhite quail	> 5620 ppm

Freshwater invertebrate LC_{50}:

Species	LC_{50}
Daphnia magna	720 ppm

nontarget insects:

Species	48-hr LD_{50} (acute contact)
honeybee	> 100 µg/bee

Validated by EEB entomologist Allen Vaughan.

The following studies may not be used to fulfill the guideline requirements for full registration.

Tests	Species	Classification
1) freshwater fish LC_{50}	bluegill sunfish	supplemental

This study is supplemental because an insufficient number of fish (n < 30) were tested at dose levels > 100 ppm.

Tests	Species	Classification
2) freshwater fish LC_{50}	rainbow trout	supplemental

This study is supplemental because an insufficient number of fish (n < 30) were tested at dose levels > 100 ppm.

101.5 Adequacy of Labeling:

The statement "Do not apply directly to any body of water" should be replaced with the statement "Do not apply directly to water or wetlands."

102 Classification:

The maximum proposed dosage of .63 lb ai per acre of DPX-L5300 makes it unlikely that the use of this product will provide hazards to nontarget fish and wildlife. Triggers are not exceeded for restricted use for avian and aquatic organisms or mammals tested.

103 Conclusions:

EEB has completed a risk assessment (section 5 finding) of the proposed Experimental Use Permit for DPX L5300 for use on wheat and barley. Based upon the available data and use information, EEB concludes that the proposed use provides for minimal hazards to nontarget organisms. Although acceptable to support this EUP, the acute toxicity determinations for a coldwater fish species and a warmwater fish species are not acceptable to support full registration. Prior to full registration these studies must be repeated and submitted to EEB.

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