file

121001
SHAUGHNESSEY NO.

13
REVIEW NO.

EEB REVIEW

DATE: IN 4-3-86 OUT 4-15-86

FILE OR REG. NO 86-NO-03

PETITION OR EXP. NO.

DATE OF SUBMISSION 3-5-86

DATE RECEIVED BY HED 3-31-86

RD REQUESTED COMPLETION DATE 4-16-86

EEB ESTIMATED COMPLETION DATE 4-16-86

RD ACTION CODE/TYPE OF REVIEW 510

—

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

DATA ACCESSION NO(S).

PRODUCT MANAGER NO. J. Housenger (41)

PRODUCT NAME(S) Poast

COMPANY NAME North Dakota Department of Agriculture

SUBMISSION PURPOSE Proposed Section 18 for use on flax

SHAUGHNESSEY NO.	CHEMICAL, & FORMULATION	% A.I.
121001	Sethoxydim	18

101.2 Likelihood of Adverse Effects to Non-target Organisms

Sethoxydim is practically non-toxic to mammals (LD_{50} > 2000 mg/kg) and birds (LD_{50} > 2000 mg/kg; LC_{50} > 5000 ppm). The low use rates will result in exposure concentrations less than 100 ppm on most dietary foodstuffs. Aquatic organisms are also insensitive to sethoxydin (finfish 96-hr LC_{50} > 100 ppm; aquatic invertebrate 48-hr EC_{50} = 75.7 ppm). Direct application of sethoxydin to water at the maximum rate would result in a concentration of less than 0.1 ppm, substantially less than that necessary to adversely effect aquatic fauna. Given an environmental half-life of less than 4 days in both soil and water (less than 1 day in direct sunlight), sethoxydin is not expected to result in any adverse impacts to non-target fauna.

101.3 Endangered Species Considerations

No significant impact is expected to any listed species, because of the low application rates, low toxicity, and short half-life in the environment exhibited by sethoyxdin. Sethoxydin is extremely toxic to members of the grass family, but none of the listed species of grasses has been found in North Dakota.

103 Conclusions

Based on available data, use of sethoxydin (Poast) under this Emergency Exemption program should not provide for significant risks to populations of non-target organisms, including species the federal government lists as endangered or threatened.

Thomas B. Johnston 4/15/86
Thomas B. Johnston
Biologist
EEB/HED

H. T. Craven 4/15/86
Harry Craven
Head, Section 4
EEB/HED

Michael Slimak 4/16/86
Michael Slimak
Chief
EEB/HED

86-ND-05

NORTH DAKOTA
DEPARTMENT OF AGRICULTURE

Kent Jones
COMMISSIONER

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rec'd 3/17/86

March 5, 1986

Mr. Donald Stubbs
TS 767C
Registration Division, Room 716
Crystal Mall Building, #2
1921 Jefferson Davis Way
Arlington, VA 22202

Dear Mr. Stubbs:

As the state agency designated by the Governor to coordinate and implement FIFRA, as amended, the North Dakota Department of Agriculture is hereby submitting an appliation for a specific exemption to use sethoxydim (POAST®) in flax to provide effective grass weed control. Poast® provides excellent control of both foxtail and wild oats.

Enclosed is a report prepared by John D. Nalewaja, Professor at North Dakota State University, Box 5051, Fargo, ND 58105-5051 (phone: [701] 237-7971). The report documents the foxtail and wild oats situation in flax in North Dakota and their research with Poast and other pesticides for foxtail and wildoats control in flax.

The department has contacted the North Dakota Game and Fish Department and they have no objections. The Game and Fish Department did, however, urge strict adherence to the warning not to apply directly to lakes, ponds or streams. In the event that deer, antelope and other wildlife may feed on residual flax foliage, the department is concerned that all applications be made consistent with the labeling.

The Department of Agriculture will monitor this exemption if granted by the EPA. The need for this use will be from May 1, 1986 to June 30, 1986.

If you need further information from this office, please contact Kevin Pifer.

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STATE CAPITOL BISMARCK, NORTH DAKOTA 58505 (701) 224-2231

SPECIAL PESTICIDE US REQUEST

1. KIND OF REQUEST (check one): ( ) EXPERIMENTAL USE PERMIT (Sec.
   (✓) EXEMPTION (Sec. 18) ( ) SPECIAL LOCAL NEED (Sec. 24c)

2. PEST OR PESTS TO BE CONTROLLED:

Common Name	Scientific Name
wild oats	avena fatua
green foxtail	setaria viridis
Yellow foxtail	setaria glauca

3. CROP AFFECTED: 1. flax
   2. _____

4. PESTICIDE TO BE USED: 1. sethoxydim (Poast)
   2. _____

5. IS PESTICIDE REGISTERED FOR THIS SPECIFIC USE? No

6. ECOMONIC IMPACT: Acres Affected: 300,000
   Percent of Crop Affected: 50%
   Value: $20 million

7. AREA OF STATE AFFECTED: (List Counties) entire state of North Dakota

8. PERIOD PESTICIDE MUST BE APPLIED TO BE EFFECTIVE:
   Wild oats less than 4 leaves and foxtail less than 6 leaves.

9. METHOD OF APPLICATION: Ground X
   Air X
   If by air, will application be: Regular Rate X
   ULV _____

10. WHO WILL APPLY: Private X
    Commercial X

(Actual Material Per Acre)

2. NUMBER OF APPLICATIONS THAT WILL BE REQUIRED: one

3. DATA AVAILABLE: May 1 to July 31

4. MONITORING AGENCY (residue):

5. ALTERNATIVE PESTICIDE MATERIALS AVAILABLE: see attached statement

(Attach a statement of support from the University)

Feb. 10, 1986
Date

N.D. State University
Name of Agency Making Request

[signature]
Signature of Person Making Request

701-237-[illegible]
Telephone Number

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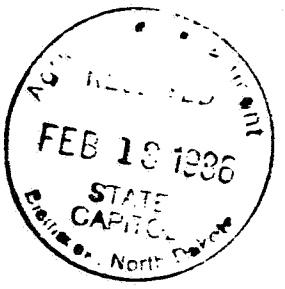
NORTH DAKOTA STATE UNIVERSITY
P.O. BOX 5051
FARGO, NORTH DAKOTA 58105-5051

AGRONOMY

TELEPHONE: 701-237-7971

February 10, 1986



Kevin Pifer
ND Ag. Dept.
Bismarck, ND 58501

Dear Kevin:

Enclosed is an 18c Emergence registration request for sethoxydim (Poast) in flax. I am enclosing a copy of the positive answer from BASF to my previous letter requesting their support for such a registration. Also enclosed is a formal request document and the request form.

In summary, Poast registration is needed to provide effective grass weed control for profitable flax production. Poast provides excellent control of both foxtail and wild oats, important weeds in North Dakota. Further, Poast is compatible with MCPA and bromoxynil so that both grass and broadleaf weeds can be controlled in one application. The early fall snows prevented the application of EPTC or trifluralin which have been used for grass control. Other alternatives are not adequate for profitable flax production. Poast would more than compensate for the fall treatments of EPTC and trifluralin which were not applied. Thus, with a Poast registration, flax could become a more important crop to North Dakota. This is especially important when considering the farmers economic difficulties and the fact that the U.S. imports about as much flax as is produced in the U.S. Further, flax straw free of weeds is purchased for paper; while weedy straw is often burned by farmers to reduce problems in tillage.

I believe this is an important registration. If you have any questions, please contact me. I am sorry to be late. Please process rapidly and encourage rapid consideration by EPA. The request for usage is for May 1, but the approval should be by March so that farmers can make planting decisions accordingly. The second emergency not mentioned in my request is to provide an economical production system for a potential diversion acreage crop.

Sincerely,

J. D. Nalewaja
Professor

JDN:drp

Enclosure

6

BASF Wyandotte Corporation

100 Cherry Hill Road
P.O. Box 181
Parsippany, N.J. 07054
201/263-3400

December 16, 1985

DEC[illegible]
AGRON. DEPT.

Dr. John D. Nalawaja
North Dakota State University
Agronomy
P.O. Box 5051
Fargo, North Dakota 58105-5051

Subject: Request for Cooperation in the Pursuit of a Section 18 Registration for Poast® Herbicide on Flax

Dear Dr. Nalawaja:

Thank you for your letter of December 6, 1985 regarding subject. BASF would certainly cooperate in supporting your application for a specific exemption under the provisions of Section 18 of FIFRA for use of Poast® on Flax. We would be glad to supply you with any information you might need to support this use pattern.

If you need additional information or have any further questions, please do not hesitate to contact me.

Sincerely yours,

BASF WYANDOTTE CORPORATION
Agricultural Chemicals Group

Karen R. Blundell

Karen R. Blundell
Registration Specialist
Registration and Toxicology

KRB/ll

cc: R. Evans
L. Hendrick
J. Campbell
G. Schwab

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To The Environmental Protection Agency

Application by the State of North Dakota for Emergency Exemption from the Pesticide Registration Provision of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended.

Title: 18c Emergency Clearance Request for Usage of Sethoxydim for Grass Weed Control in Flax

Requestor: North Dakota State University
Agronomy Department
John D. Nalewaja

NORTH DAKOTA STATE UNIVERSITY
P.O. BOX 5051
FARGO, NORTH DAKOTA 58105-5051

AGRONOMY

TELEPHONE: 701-237-7971

December 6, 1985

Karen Blundell
100 Cherry Hill Rd
P. O. Box 181
Persippany, NJ 07054

Dear Ms. Blundell:

This letter is relative to a possible 18c registration of sethoxydim in flax for North Dakota. A sethoxydim registration in flax is needed immediately to provide effective grass weed control for profitable flax production. Foxtail and wild oats are major problem weeds in North Dakota. Foxtail infests more than 90% and wild oats 60% of crop fields in North Dakota. Sethoxydim provides excellent control of these weeds and gives high increases in flax yield. Further, sethoxydim is compatible with MCPA or bromoxynil for postemergence control of most grass and broadleaf weeds with one application.

Dalapon is a registered postemergence alternative, however dalapon has not provided adequate weed control and has not greatly increased yield even when weed control appeared satisfactory indicating possible injury to the flax. EPTC and trifluralin are also registered as preplant soil incorporated treatments applied in the fall. Rains in the fall of 1985 prevented application of these treatments. Propachlor is registered as a surface applied spring treatment but is costly and effectiveness is dependent upon a rain shortly after application. North Dakota is a semi-arid region so weed control with propachlor has been variable.

We, with your cooperation, wish to pursue an 18c registration for sethoxydim in flax.

Sincerely,

John D. Nalawaja

John D. Nalawaja
Professor

JDN:drp

cc: Kevin Pifer, ND Ag. Dept.
Richard Evans

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Thank you for consideration of this request. We look forward to hearing from you soon.

Sincerely,

Kent Jones

Kent Jones
Commissioner

KJ/cl
cc: Ed Stearns
John Nalewaja
Duane Berglund
Mark Andrews

Request for an Emergency Registration to use Poast herbicide as a postemergence treatment on flax to control wild oat and foxtails.

I. A. Nature of the Emergency

A major snowfall throughout the flax growing areas of North Dakota on October 8, 1985 prevented the application of EPTC (Eptam) and/or Trifluralin (Treflan) herbicides. Eptam and Treflan are fall applied soil incorporated materials commonly used for primary grass control in flax. Since it was not possible for many flax growers to make fall herbicide applications, wild oat, green foxtail, and yellow foxtail are anticipated to be a major weed problem for North Dakota flax growers in 1986. There is no spring herbicide treatment currently registered for use in flax which will control both wild oat and foxtails.

A weed survey conducted throughout North Dakota across grower weed control practices indicates that wild oat (arena fatva) and foxtails commonly occur together in flax to form a weed complex. Green foxtail (Setoria viridis) was reported to infest 92% of the flax acreage in 1978 and 93% of the agreage in 1979, while yellow foxtail (Setoria Glanca) infested 13% in 1978 and 33% of the flax acreage in 1979. Wild oat was reported to infest 38% of the acreage in 1978 and 67% in 1979. Green foxtail, yellow foxtail and wild oat densities were reported to average 26, 25, and 7 plants/m^2, respectively in 1978 and 57, 18, and 4 plants/m^2, respectively in 1979. The above survey includes acreage upon which standard weed control practices were applied, so the infestation would be much greater without the normal fall treatment.

Research conducted at North Dakota State University has indicated that wild oat and foxtail competition can severely reduce flax yield. Bell and Nalewaja reported that wild oat densities as low as five plants/yd^2 reduced flax yields 26% and that weed competition reduced oil content and quality. Stoa et al reported that in six experiments conducted at four locations from 1949 and 1952, a mixed population of yellow and green foxtail reduced yields from 14% to 91% with an average loss of 38% over the six experiments. Thus wild oat and foxtail control is essential to economically successful flax production.

Research has not been conducted to clearly establish the economic injury from various levels of wild oat, green foxtail, and yellow foxtail or a complex of these grass weeds in flax. However, experienced flax researchers and flax producers recognize that flax is a relatively slow growing crop which competes poorly with weeds. Consequently even relatively low grass populations have the potential to cause large yield reductions. Thus, a herbicide which can effectively control grass weeds is necessary for successful flax production. An early winter prevented fall applications of Treflan and Eptam which are only registered for fall application and are the only herbicides registered for use to control all grass weeds common to flax. Thus, a potential emergency situation exists.

Research conducted at North Dakota State University from 1979 through 1984 indicated that sethoxydim (Poast) applied postemergence for broad spectrum grass control can be safely and efficaciously used in flax (Table 1). Poast generally provides excellent control (>95%) of wild oat, yellow foxtail, and green foxtail. Poast can also be mixed with MCPA or bromoxinil without any antagonism to provide broad spectrum postemergence weed control.

Table 1. Poast performance on wild oat and foxtail in flax from 1979 to 1984. Number in (X) indicate experiments per mean.

Poast rate[1]	(Injury)		% Weed control	
lb/A	%1R	%5R	Wild oat	Foxtail
0.125	0 (1)	0 (1)	99 (1)	98 (1)
0.1875	0.5 (12)	0 (12)	97 (7)	96 (11)
0.25	2.5 (4)	0 (4)	97 (3)	100 (2)
0.375	2 (2)	0 (3)	100 (2)	100 (2)
0.50	3 (2)	0 (2)	100 (1)	100 (1)
0.75	5 (1)	0 (1)	100 (1)	100 (1)

1 Poast always applied with 1 qt/A oil additive.

The economic loss to North Dakota flax growers is not limited to direct yield, percent oil, or oil quality reductions. Grass infestations reduce the desirability of flax straw to cigerette paper manufacturers who require weed free flax straw. This market will be lost to Canada where Poast and fluazifop (Fusilade) are presently registered. Wild oat and foxtails, if allowed to grow uncontrolled in flax will produce seed which will increase seed reserves in the soil. Increased wild oat and foxtail populations in small grains in 1987 will present farmers with further economic losses. Wild oat and foxtail seed at high levels in the soil will require several years of intensive input for normal production.

Presently the U.S. imports 30% to 50% of its raw flaxseed from Canada. The lack of a suitable herbicide being available in flax will probably cause some farmers to divert land from flax to small grains. This shift from a crop with a domestic production deficit to one with a huge domestic surplus would have undesirable effects on an already depressed farm economy.

B. Scope of the Emergency

Flax was planted on 500,000 acres in 1985 and early projections indicate that this could increase to as much as 600,000 acres in 1986. Essentially all flax acreage is infested with wild oat and/or foxtail to some extent. However depending on environment, approximately 50% to 75% of the flax acreage will be infested with wild oat and/or foxtail to an economic level [with the delayed seeding used for weed control]. Thus, a maximum of 450,000 acres would be treated under this Poast emergency exemption.

II. Description of Pest, Place, and Timing of Emergency

A. Description of Pest

Wild oats is a herbaceous monocot of the grass family. Wild oats is an annual that grows to a maximum of 4 feet tall. Wild oats may produce up to 2,000 seeds under ideal growing conditions. Research has indicated that wild oat seed may persist in the soil for more than 10 years. Wild oat is commonly found in fields which are continuously cropped to small grains and flax. Wild oat is generally considered the most important annual weed in North Dakota.

Green foxtail is a herbaceous monocot of the grass family. Green foxtail grows to a maximum of 3 feet tall. Green foxtail may produce up to 34,000 seeds per plant under ideal conditions. Research has indicated that green foxtail seed may persist in the soil up to 5 years. Surveys indicate that green foxtail is present on more than 90% of the cropland throughout North Dakota. Research has indicated that if not controlled, green foxtail competition can cause severe yield losses in flax, dry beans, sugarbeet, small grains, corn, and soybean.

Yellow foxtail is a herbaceous weed in the grass family. Yellow foxtail grows to a maximum of 2 feet tall. Yellow foxtail may produce up to 7,000 seeds per plant under ideal conditions. Research has indicated that yellow foxtail seed may persist in the soil up to 5 years. Surveys indicate that yellow foxtail is the third most prevalent weed in North Dakota. Research has indicated that yellow foxtail can cause severe yield losses in flax, dry beans, sugarbeet, and small grains.

III. Available Methods of Control

A. Delayed Planting

Delayed planting as a control method is partially effective at controlling wild oat and foxtails. However the optimum time to plant flax is typically from the end of April to mid-May. Results of 10 years of research indicate that from late April thru early June, a flax grower loses 0.28 bu/A for each day planting is delayed. Since wild oat usually begins emerging in mid-April and stops germinating when the soil is warm, delaying planting can provide partial control of wild oat at the expense of yield potential. Foxtails typically begin to emerge in mid-May and will continue to emerge throughout the season until the flax canopy shades the soil. Thus, delayed planting may control the initial flush of foxtail but subsequent flushes will compete effectively with flax. Delayed seeding only provides marginal control of annual grasses while reducing yield potential. Each day delays in seeding costs flax growers $1.68 per acre, assuming flax is at $6.00/bu. Thus, a 4 week delay in planting from late April to late May will cost the average grower $47.04 per acre or 7.84 bu/A. These losses are unacceptable with todays farm economy.

B. Cultivation

Flax is commonly seeded in 6 to 12 inched spaced rows. Thus, cultivation is not an alternative.

C. Preplant/Preemergence Herbicides

Eptam, Treflan, diallate (Avadex), and propachlor (Ramrod) are currently registered for use in flax. Eptam and Treflan are labeled for fall applications. Eptam will provide good control of foxtail and fair to good control of wild oat depending on environment, soil type, and quality of incorporation. Eptam costs $9.00 to $12.00 per acre and in 1984 was applied to 7.2% of the acreage. Treflan will provide good control of foxtails and fair to poor control of wild oat, depending on soil type, environment, and quality of incorporation. Treflan costs $3.13 to $6.26 per acre and in 1984 was applied to 17.6% of the acreage. Eptam and Treflan were applied in the fall to approximately 25% of the flax acreage for primary grass control. More acreage would be treated if there was sufficient time in the fall for these applications. Virtually no fall applications were applied in the fall of 1985 because of the adverse weather. Avadex is registered for use in fall or spring, but when used is generally tank mixed with Eptam or Treflan to enhance wild oat control. Avadex, a restricted use herbicide will provide fair to good control of wild oat depending on environment, soil type, and quality of incorporation. Avadex costs $12.56 to $16.75 per acre, provides no foxtail control, and was only used on 0.2% of the flax acreage. Avadex has been registered for flax for more than 10 years. The $16.75 treatment cost to only control wild oat has not been accepted by the North Dakota flax grower. Further, the spring incorporation required for Avadex loosens the seedbed and results in inadequate stands. Ramrod will provide good control of foxtails if rain occurs following application and before foxtail emergence. However, in North Dakota, such a timely rain usually does not occur. However, Ramrod will not control wild oat. Ramrod costs $15.25 to $19.05 per acre and was not used in North Dakota flax in 1984. Ramrod is not a viable alternative for most flax growers because it does not control wild oats, provides inconsistent control of foxtails, and is expensive. Even if Ramrod were used for the primary treatment, Poast would still be required for wild oats and for foxtail in fields where rains were not timely.

D. Postemergence Herbicides

Barban (Carbyne) and dalapon (Dowpon) are currently registered for grass control in flax. Carbyne will provide fair control of wild oat, and no control of foxtail. Carbyne must be used at lower rates than needed to consistently provide good control of wild oat due to potential injury to flax (Table 2). Carbyne costs $4.00 to $6.00 per acre at rates used in flax, and was applied to 0.9% of the flax acreage in 1984. Carbyne has been registered for more than 15 years and as indicated by the low usage has been determined to be inadequate by flax producers.

Dowpon will provide fair control of foxtail and poor to no control of wild oat at the low rates used in flax (Table 3). Dowpon has the potential to injure flax and reduce yields (Table 3). Even at low rates where no stand reduction or injury is observed, Dowpon frequently fails to increase yields. Dowpon costs $1.90 per acre at rates that are used in flax and was applied to 6.3% of the flax acreage. Dowpon was only applied to 6.3% of the acreage because of its low cost and because it is tank mixed with MCPA which was applied to 36% of the flax acreage.

Conclusion

Flax growers 20 to 80% of the time are faced (depending on the growing season) with a mixed population of wild oat and foxtail. No herbicide or mixture is currently registered which will control wild oat and foxtail in the spring with one application. No economically acceptable herbicides are available to flax growers for spring preplant incorporated, preemergence, or postemergence control of grass weeds. The lack of an adequate grass control treatment for flax is severely restricting the United States flax industry.

Table 3. Influence of Dowpon + MCPA on flax yield, injury, foxtail and wild oat control.[1]

Treatment	% inj.	Yield bu/A	% Wild Oat control	% Foxtail control	% >[2] check
Dalapon 0.75 lb/A + MCPA 0.25 lb/A	4	8.3 (19)	20 (9)	65 (17)	11%
Weedy check	0	6.7 (19)	0	0	--

[1] Number in (X) indicate number of experiment per mean.

[2] Percent of experiments where yield was greater with herbicide treatment than in untreated flax.

Table 2. Influence of barban[2] on wild oat control, foxtail control, flax injury, and flax yield.[1]

Treatment	Rate lb/A	Yield bu/A	% flax inj.	% wild oat control	% foxtail control	% >[3] check
Barban	0.25	7.3 (3)	1 (3)	42 (3)	0 (2)	33%
Barban	0.38	7.8 (2)	1 (2)	55 (1)	0 (1)	50%
Weedy check	--	6.5 (4)	--	--	--	--

[1] Numbers in parenthesis (X) indicate experiments per mean.

[2] Yield data was not usually obtained because the narrow spectrum of weeds controlled with Barban allowed other weeds to grow excessively making harvest impossible. Barban would only be applied as seperate treatment when part of a production system.

[3] Percent of experiments where yield was greater with herbicide treatment than in untreated flax.

IV. Pesticide Proposed for Emergency Use

Trade Name	Common Name
Poast	sethoxydim

Manufacturer:

BASF Chemicals Corporation
Agricultural Chemicals Group
100 Cherry Hill Road
Parsippany, NJ 07054

The pesticide proposed for this Emergency Exemption is sethoxydim (Poast) which is chemically 2-[1-Ethoxyimino)butyl]-5-[2-(ethylthio) propyl]-3-hydroxy-2-cyclohexen-1-one. This compound is formulated as 1.5 lb/gallon emulsifiable concentrate. This request is for emergency exemption use of Poast for postemergence control of wild oat and foxtails in flax.

Description of Control Program

Poast would be used anywhere in the state of North Dakota on flax where wild oat and foxtails are present at densities which would cause economic loss.

Poast would be applied postemergence at 1.0 pint/A (0.1875 lb ai/A), with 1 quart of oil concentrate per acre. Thorough spray coverage of grass is essential. For ground application, standard hollow cane or flat fan nozzles will be used with a minimum of 5 gallons and a maximum of 20 gallons of spray solution per acre. Spray pressures with hollow cane or flat fan nozzles will be at a minimum of 40 psi and a maximum of 60 psi at the nozzle.

Spray pressure, spray volume, and height of spray boom should be adjusted to ensure penetration of plant canopy and thorough coverage of grasses.

Poast would be applied once per season at a time when the majority of grassy weeds had emerged but no later than 4 weeks after flax emergence. Poast would be applied at a rate of 1 pint/A plus 1 quart/A oil concentrate to wild oat at the 2 to 4 leaf stage (0-6 inches tall) and foxtail 0 to 4 inches tall (see table below).

Flax is expected to be planted on 600,000 acres in North Dakota in 1986. Approximately 300,000 acres are projected to be treated with Poast under the conditions of this emergency exemption. This would require 37,500 gallons of Poast.

Table 1. Poast Recommendations for grass control in flax.

	Height (inches)	Growth stage (leaf)	Poast rate (pints/A)	Oil Concentrate rate (pints/A)
Wild Oat	0 to 6	2 to 4	1	1
Green Foxtail	0 to 6	2 to 6	1	1
Yellow Foxtail	0 to 6	2 to 6	1	1

Adverse Effects and Restrictions

All restrictions and warnings which are specified on the currently registered soybean and sugarbeet labels shall apply.

V. Economic Benefits and Losses

Research data is limited on the economics of flax production, so predictions of losses and benefits from weed control systems are difficult. Thus, predictions must be made from assumptions based on experience rather than on precise research data.

The average flax yield in North Dakota was about 7 bu/A before the registration of Eptam and Treflan for use in flax. The development of the two herbicides approximately doubled the state average yield to 12 bu/A.

Flax seeded early and with excellent weed control has the potential to yield 35 bu/A. Thus, 20 bu/A is a reasonable yield goal for a North Dakota flax grower. Some flax growers each year do not have the opportunity to apply Eptam and/or Treflan in the fall.

The lack of an acceptable herbicide registered for use in the spring has caused growers to use delayed seeding and preplant tillage in an effort to reduce the weed problem. The use of delayed seeding as a weed control practice is an inefficient use of soil moisture and also reduces the absolute flax yield potential. Delayed seeding of flax is an important limiting factor in flax production. The discontinuation of delayed seeding and the use of an effective spring applied herbicide would increase flax yield 5 to 10 bu/A beyond the present average yield.

The following information is relative to the economics flax production in North Dakota:

-State average flax yield without the use of Eptam or Treflan 1960 — 7 bu/A

-State average flax yield with the use of Eptam and Treflan 1985 — 12 bu/A

-Estimates average flax yield for 25% of growers that use Eptam and Treflan	20 bu/A
-Price of flax seed	$5 to $7/bu
-Price of flax straw	$10 to $50/ton

The projected economic situation for North Dakota flax growers is provided below:

	Per Acre	Total (600,000A)
-Projected flax yield for 1986 (without Poast)	7 bu	4,200,000 bu
-Projected yield had Treflan and Eptam been applied	12 bu	7,200,000 bu
-Projected yield reduction below average had EPTC and Treflan been applied	5 bu	3,000,000 bu
-Value of yield reduction for flax at $6.00/bu, 1986	$30	$18,000,000

Thus with almost the complete non-usage of Eptam and/or Treflan because of adverse weather in the fall of 1985, the potential economic loss to North Dakota is up to 18 million dollars in reduced flax seed production. North Dakota flax growers will also lose the opportunity to sell flax straw to the paper industry because of the contamination from weeds. The paper industry will obtain their needed straw from Canada where Poast and other postemergence herbicides are registered. The loss in straw sales is difficult to assess but probably will equal $2,000,000 assuming $10/A on 200,000 A.

The availability of Poast for weed control in flax in 1986 would offset the losses which could occur because Treflan and Eptam were not applied in the fall of 1985.

Poast is compatible with MCPA or bromoxynil which would allow flax growers to control grass and broadleaf weeds in one application. Further, the postemergence aspect would allow treatment to only those fields or area of fields with weeds. This flexibility would probably increase the total number of acres where grass was effectively controlled to more than 50% of all flax acreage. The use of Poast in combination with available postemergence broadleaf herbicides would increase the net return to North Dakota flax growers approximately $19.6 million in flax seed production and approximately $2.0 million in marketable flax straw.

Table 4. Projected economic benefit of Poast registration in North Dakota flax for 1986.

	Per/A	Total (600,000 A)
[1] Projected flax yield (without Poast for 1986)	7 bu	4,200,000 bu
[2] Projected flax yield (with Poast registered, based on 50% of acreage treated)	13.5 bu	8,100,000 bu
Projected yield increase from Poast use in 1986	6.5 bu	8,100,000 bu
[3] Increase in revenue	$39	$23,400,000
[4] Cost of Poast (Assuming 300,000 A treated)	$12.50	$ 3,750,000
Net Return	$26.50	$19,650,000

[1] Projected yield assumes no herbicide use and a high percentage of growers using delayed seeding to control weeds. Thus substantial yield reductions will occur from weed competition and delayed seeding.

[2] Projected flax yield assumes an average yield of 20 bu/A on the 50% of flax acreage where Poast is applied and a 7 bu/A yield where Poast is not used. The 20 bu/A yield from Poast use is based on NDSU research data.

[3] Based on $6.00/bu flax price.

[4] Assumes Poast costs $88 per gallon and oil concentrate costs $6.00 per gallon. Cost for application was not included because majority of Poast will be applied in combination with MCPA or bromoxynil which would be applied regardless of the Poast.

Many growers are in economic difficulty and the added income from flax with good weed control may be essential to their survival in farming. Thus, an emergence registration of Poast is essential.

VI. Control and Supervision of Program

BASF Chemicals Corporation will provide a list of names and addresses of Poast distributors to the North Dakota Department of Agriculture. BASF will monitor the control program and report the results of the program to the North Dakota Department of Agriculture. Parameters monitored will include acres treated, foxtail and wild oat control, flax tolerance, and any adverse affects that may occur. The North Dakota Department of Agriculture will monitor the application of Poast as needed to determine that the conditions of the emergency exemption are correctly followed.

VII. Duration of Exemption

This emergency exemption is requested to be approved for use from May 1, 1986 through July 31, 1986.

VIII. Resource Personnel

Dr. John Nalewaja
Professor
Department of Agronomy
North Dakota State University
Fargo, ND 58105

IX. Requested Residue Clearance Level

BASF Corporation has indicated that they would provide residue data and suggested tolerance levels for Poast or Poast derived residues in flax seed and straw.