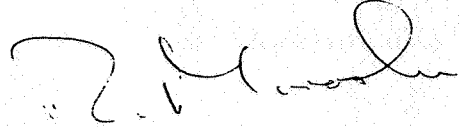


Shaughnessy No.: 111601

Date Out of EAB: 29 JUN 1983

To: Dick Mountfort
Product Manager 23
Registration Division (TS-767)

From: Richard V. Moraski, Head (acting)
Review Section 1
Exposure Assessment Branch
Hazard Evaluation Division (TS-769c)



Attached please find the EFB review of...

Reg./File No.: 707-145

Chemical: Oxyfluorfen

Type Product: Herbicide

Product Name: Goal

Company Name: Rohm and Haas

Submission Purpose: Response to review: 2nd year's runoff monitoring

ZBB Code: other

ACTION CODE: 576

Date In: 5/3/83

EFB # 3353

Date Completed: 6/29/83

TAIS (level II) Days

63

3.0

①

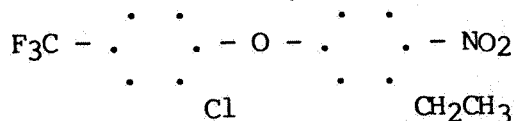
1.0 INTRODUCTION

On 4/13/82, EAB (nee EFB) completed its review of the first year of a proposed 2 year field/aquatic impact monitoring study of Oxy-fluorfen (Accession #246782). At that time, EAB believed the study had been submitted in support of the field monitoring data requirement, and severely criticized that study on that basis. Subsequently (5/26/83) EAB met with the registrant (Rohm and Haas). At that meeting, the purpose of the submission was clarified. Apparently, the study had been initiated as a result of an agreement reached with the Agency as a pursuant to the RPAR review which was ongoing at that time.

A rereview of that submission (7/1/82) led the EAB to conclude that the submitted study did not fully comply with the previously agreed-upon criteria. The registrants request for a waiver of the second year's monitoring was denied, and specific protocol criteria, consistent with the earlier agreements, were delineated.

The current submission, Accession #250056, contains the results of the second year's monitoring, and is here reviewed.

2.0 STRUCTURE



PRODUCT NAME : GOAL 2E

CHEMICAL NAME: 2-chloro-1-(3-ethoxy-4-nitrophenoxy)-
4-(trifluoromethyl)benzene

3.0 DIRECTIONS FOR USE

See review of 7/1/83.

4.0 REVIEW OF MONITORING STUDY

Zogorski, W.J. and R. Mimm. 1983 A Goal Runoff Monitoring Study
Technical Report No. 31L-83-05. Spring House Research Laboratories
Rohm and Haas Company, Spring House, PA 19477 April 15, 1983
13 pp/ 6 appendices.

Introduction

The purpose of the study was to determine the distribution of residues of oxyfluorfen in runoff paths and/or ponds following commercial applications to field crops. This is the second year of the monitoring program.

Two test sites were used in the second year's monitoring. One was in Centralia, MO, and the other in Magnolia, NC. The farms were treated with Goal 2E at rates of 0.50 and 1.25 lb ai/A, respectively, during year 2 of the study. Soil characteristics were as follows.

Site	Soil Type	Percentage				pH
		Sand	Silt	Clay	O.M.	
MO	Silty Clay Loam	19.7	52.9	27.4	2.2	7.3
NC	Sandy Loam	62.0	24.0	13.0	1.6	6.2

Detailed climatic data were included in the submission (appendix IV).

Samples were collected from treated fields, runoff paths (where applicable), hydrosol (both edge and middle of the pond), and pond water. Adequate refrigeration was assured during transport and storage.

The analytical methodology used to measure oxyfluorfen residues was the same one evaluated earlier, and found acceptable. The limit of detection for the soil and water samples was reported to be 10 ppb and 2.5 ppb for parent oxyfluorfen, respectively.

Results and Discussion.

No oxyfluorfen was detected in any sample prior to application, nor in any of the hydrosol or water samples taken at either site. Decline of soil residues for field samples are summarized in Tables I and II, which are appended to this review. Statistical evaluation of the decline data confirmed the reported soil half-lives for the MO and NC sites of 13 days and 27 days, respectively.

Conclusions

EAB believes that the results of this study confirm that oxyfluorfen will not translocate to nearby aquatic compartments when applied at the rates, and under the conditions described in this study. We agree that the study is acceptable as submitted, and is adequate to satisfy the terms of the earlier agreements.

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RIN 0637-00

EFED Review - Oxycodone

Page 4 is not included in this copy.

Pages _____ through _____ are not included.

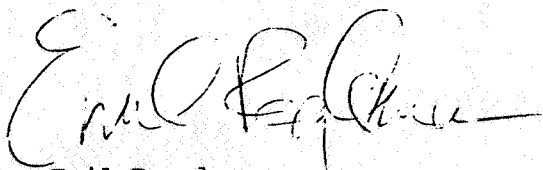
The material not included contains the following type of information:

- ☐ Identity of product inert ingredients.
- ☐ Identity of product impurities.
- ☐ Description of the product manufacturing process.
- ☐ Description of quality control procedures.
- ☐ Identity of the source of product ingredients.
- ☐ Sales or other commercial/financial information.
- ☐ A draft product label.
- ☐ The product confidential statement of formula.
- ☐ Information about a pending registration action.
- ☒ FIFRA registration data.
- ☐ The document is a duplicate of page(s) _____.
- ☐ The document is not responsive to the request.

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.

5.0 RECOMMENDATION

The registrant should be notified of EAB's conclusions.

A handwritten signature in dark ink, appearing to read "Emil Regelman", with a long horizontal stroke extending to the right.

Emil Regelman
Chemist
EAB/HED (TS-769c)
June 29, 1983

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ROHM AND HAAS COMPANY

INDEPENDENCE MALL WEST

PHILADELPHIA, PENNSYLVANIA 19105

EPA Reg. No. 707-174-AA

EPA Est. No. 707-PA-1



DIRECTIONS FOR USE

SOYBEAN

(NOT FOR USE IN CALIFORNIA)

GENERAL INFORMATION

GOAL 1.6E is effective as a preemergence and postemergence (postdirect) herbicide for the control of broadleaf weeds in soybeans. Applications can be made early preplant in conservation tillage soybeans, preemergence in no-till (double crop) and conventional soybeans, or postdirect in conventional till soybeans. Seedling weeds are controlled as they come in contact with the herbicide either during emergence or through a postdirect application. Follow specific use directions and restrictions for recommended use and timing of applications.

Soybeans are tolerant to preemergence applications of recommended dosages of GOAL 1.6E herbicide, however, under certain conditions, GOAL 1.6E herbicide can cause temporary injury. Heavy splashing rain shortly after crop emergence or cold, wet soil conditions during early growth stages can produce leaf cupping and crinkling. When injury occurs, it is generally limited to the first few leaves that develop shortly after crop plants emerge from the soil. Soybeans recover from this injury and yields are not adversely affected. Soybean leaves that are accidentally sprayed during a postdirect application will exhibit necrotic spotting and injury to the soybean plant. Therefore, care must be exercised to avoid spray contact with the soybean leaves.

WEEDS CONTROLLED PREEMERGENCE

GOAL 1.6E herbicide used alone, at recommended dosages, provides preemergence control of the following broadleaf weeds:

GROUNDCHERRY, CUTLEAF
JIMSONWEED
LAMBSQUARTERS, COMMON
NIGHTSHADE, AMERICAN BLACK
NIGHTSHADE, BLACK
PIGWEEED, REDROOT
POINSETTIA, WILD
SHEPHERDSPURSE
SOWTHISTLE, COMMON
SIDA, PRICKLY (TEAWEEED)
SMARTWEED, PENNSYLVANIA
VELVETLEAF

Physalis angulata
Datura stramonium
Chenopodium album
Solanum nodiflorum
Solanum nigrum
Amaranthus retroflexus
Euphorbia heterophylla
Capsella bursa-pastoris
Sonchus oleraceus
Sida spinosa
Polygonum pensylvanicum
Abutilon theophrasti

WEEDS CONTROLLED POSTEMERGENCE (POSTDIRECTED APPLICATION)

GOAL 1.6E herbicide, when applied as a postdirect application at recommended dosages to seedling weeds (not exceeding the 4 leaf stage), will provide postemergence control of the following broadleaf weeds:

COCKLEBUR, COMMON	Xanthium pensylvanicum
GROUNDCHERRY, CUTLEAF	Physalis angulata
GROUNDCHERRY, WRIGHT	Physalis wrightii
JIMSONWEED	Datura stramonium
LAMBSQUARTERS, COMMON	Chenopodium album
MORNINGGLORY, ANNUAL	Ipomoea species
NIGHTSHADE, AMERICAN BLACK	Solanum nodiflorum
NIGHTSHADE, BLACK	Solanum nigrum
PIGWEEED, REDROOT	Amaranthus retroflexus
*POINSETTIA, WILD	Euphorbia heterophylla
PURSLANE, COMMON	Portulaca oleracea
SESBANIA, HEMP	Sesbania exaltata
SHEDPHERDSPURSE	Capsella bursa-pastoris
SIDA, PRICKLY (TEAWEEED)	Sida spinosa
SMARTWEED, PENNSYLVANIA	Polygonum pensylvanicum
VELVETLEAF	Abutilon theophrasti

*Multiple applications may be required for acceptable control.

Two pints of TRITON^R AG-98 or comparable 80% active nonionic surfactant cleared for application to growing crops, per each 100 gallons of spray solution are suggested in all tank mixtures containing GOAL 1.6E herbicide where postemergence weed control is desired.

DOSAGE AND TIMING

CONSERVATION TILLAGE SOYBEANS - EARLY PREPLANT

GOAL 1.6E herbicide is effective for preemergence and postemergence control of susceptible broadleaf weeds when surface applied at 1.9 to 3.75 pints (0.38 to 0.75 lb. active) per broadleaf acre to the stale seedbed prior to the planting of conservation tillage soybeans. It is suggested that applications be made approximately 14 days prior to planting. The higher rate of 2.5 to 3.75 pints (0.5 to 0.75 lb. active) will assist in early season annual grass control. However, GOAL 1.6E herbicide must not be a basic portion of the grass herbicide program. A planned herbicide program for early preplant, preemergence or postemergence grass control is recommended.

The use of ridge or slot planters or other planting equipment that results in minimal soil disturbance is recommended. Soil surfaces should not be disturbed as the herbicidal effectiveness of GOAL 1.6E may be decreased. Seedling weeds are controlled as they come in contact with the soil applied herbicide during emergence.

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NO-TILL (DOUBLE CROP) SOYBEANS - PREEMERGENCE

GOAL 1.6E herbicide is effective for preemergence and postemergence control of susceptible broadleaf weeds when applied at 1.9 to 2.5 pints (0.38 to 0.5 lb. active) per broadcast acre.

For postemergence control of certain grassy and broadleaf weeds a tank mix of either paraquat (Gramoxone^R or Ortho^R paraquat) or Roundup^R with GOAL 1.6E herbicide can be used.

For residual grass control in no-till soybeans, a tank mixture of either BroncoTM, Dual^R, Lasso^R, or Surflan^R with GOAL 1.6E herbicide or combinations of GOAL 1.6E herbicide plus paraquat or Roundup can be used. Follow specific use directions and restrictions for these combination tank mixes.

Application should be made within one day after planting. Later applications may result in severe crop injury and are not recommended.

CONVENTIONAL TILLED SOYBEANS - PREEMERGENCE

GOAL 1.6E herbicide is effective for preemergence control of susceptible broadleaf weeds when applied at 1.25 to 1.9 pints (0.25 to 0.38 lb. active) per broadcast acre. Application should be made within one day of planting. Later applications may result in severe crop injury and are not recommended. The higher rate (0.38 lb. active) will assist in early season annual grass control. However, GOAL 1.6E herbicide must not be a basic portion of the grass herbicide program. GOAL 1.6E herbicide may be applied alone as a preemergence application following a preplant incorporated grass herbicide treatment or as a tank mix in a preemergence application with Dual, Lasso or Surflan.

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TANK MIXES WITH GOAL 1.6E HERBICIDE

IMPORTANT: Read and observe all label directions before using. When tank mixing, always read all individual manufacturers' labels. In interpreting all labels for the tank mixture, the most restrictive situations must apply.

DOSAGE

Refer to the following tables for labeled use rates

NO-TILL (DOUBLE CROP) SOYBEANS - PREEMERGENCE

RATE OF PRODUCT PER BROADCAST ACRE (PINTS PER ACRE)

SOIL TEXTURE	GOAL 1.6E	Dual 8E*	Lasso 4E*	Surflan A.S.**	paraquat	Roundup	Bronco*
Coarse	1.9	1.5	4.0 to 5.0	1.5	1.0 to 2.0	2.0 to 3.0	6.5 to 10.0
Medium	2.5	2.0	5.0 to 6.0	2.0	1.0 to 2.0	2.0 to 3.0	8.0 to 10.0
Fine	2.5	2.0 to 2.5	5.0 to 6.0	3.0	1.0 to 2.0	2.0 to 3.0	8.0 to 10.0
Muck or Peat	***	***	***	***	1.0 to 2.0	2.0 to 3.0	***

CONVENTIONAL TILLED SOYBEANS - PREEMERGENCE

RATE OF PRODUCT PER BROADCAST ACRE (PINTS PER ACRE)

SOIL TEXTURE	GOAL 1.6E	Dual 8E*	Lasso 4E*	Surflan A.S.**
Coarse	1.25 to 1.9	1.25 to 1.5	3.0 to 4.0	1.0 to 1.5
Medium	1.25 to 1.9	1.5 to 2.0	4.0 to 6.0	1.5 to 2.0
Fine	1.25 to 1.9	2.0 to 2.5	4.0 to 6.0	2.0 to 2.5
Muck or Peat	***	***	***	***

*Use the higher rate of Bronco, Dual or Lasso on soils containing more than 3 percent organic matter.

**When using Surflan 75WP, multiply pints by 0.67 to obtain the amount of Surflan 75WP product required. Do not use Surflan on soils containing more than 5% organic matter.

*** Not labeled.

(7751E)/1/5/84

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WEEDS CONTROLLED PREEMERGENCE

When GOAL 1.6E herbicide is tank mixed with Bronco, Dual, Lasso or Surflan and applied preemergence, in addition to the weeds controlled preemergence by GOAL 1.6E herbicide alone, control of the following weeds is also obtained:

BARNYARDGRASS	Echinochloa crus-galli
CRABGRASS, LARGE	Digitaria sanguinalis
FOXTAIL, GIANT	Setaria faberi
FOXTAIL, YELLOW	Setaria lutescens
JOHNSONGRASS, SEEDLING	Sorghum halepense
PANICUM, FALL	Panicum dichotomiflorum
RAGWEED, COMMON	Ambrosia artemisiifolia
SIGNALGRASS, BROADLEAF	Brachiaria platyphylla

WEEDS CONTROLLED POSTEMERGENCE

When GOAL 1.6E herbicide is tank mixed with Bronco, paraquat or Roundup and applied postemergence, in addition to the weeds controlled postemergence by GOAL 1.6E alone, control of the following weeds is also obtained:

BLUEGRASS, ANNUAL	Echinochloa crus-galli
CRABGRASS, LARGE	Digitaria sanguinalis
FOXTAIL, GIANT	Setaria faberi
FOXTAIL, GREEN	Setaria viridis
FOXTAIL, YELLOW	Setaria lutescens
LAMBSQUARTERS, COMMON	Chenopodium album
RAGWEED, COMMON	Ambrosia artemisiifolia
SANDBUR, FIELD	Cenchrus incertus

TIMING AND METHOD OF APPLICATION (ALL APPLICATIONS)

APPLICATION: As a preemergence treatment, apply in 20 to 60 gallons of water per acre. If Bronco or Roundup are included in the tank mix, apply in 20 to 40 gallons of water per acre. To insure complete coverage, spray volume should be increased as the density of emerged weeds, crop residue or stubble increases. Use conventional spray equipment with flat fan or flood jet nozzles. Spray equipment should be calibrated carefully before each use.

MIXING DIRECTIONS: Fill the spray tank at least one-third full of clean water. With the pump and agitator running, add the recommended amounts of herbicide to be used. When tank mixing with Surflan, add the flowable or a slurry of the wettable powder, to the spray tank first. The emulsifiable concentrates (EC) formulation should be added next. No particular order need be followed when adding the EC formulations. Complete filling of the spray tank with water. When postemergence weed control is desired, add two pints of TRITON AG-98 or comparable 80% active nonionic surfactant cleared for application to growing crops, per each 100 gallons of spray solution. Maintain agitation until spraying is completed.

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POSTDIRECT SPRAY

GOAL 1.6E HERBICIDE USED ALONE

DOSAGE

GOAL 1.6E herbicide is recommended as a postdirect application at 1.25 pints (0.25 lb. active) per acre*. When applied to seedling weeds not exceeding 4 true leaves that are young and actively growing, do not count cotyledon leaves.

*Dosages listed are for broadcast application. For banded application, the amount of GOAL 1.6E herbicide used per acre should be reduced according to the following formula:

$$\frac{\text{Band Width (in.)}}{\text{Row Width (in.)}} \times \text{Rate per Acre Broadcast} = \text{Amount Needed per Acre for Banded Application}$$

GOAL 1.6E HERBICIDE TANK MIX

For improved broadleaf weed control, a tank mixture of GOAL 1.6E herbicide plus Butoxone^R or Butyrac^R 200 is suggested. Use 1.25 pints of GOAL 1.6E herbicide (0.25 lb. active) with 1 pint of Butoxone (0.22 lb. active) or 0.7 to 0.9 pint of Butyrac 200 (0.175 to 0.22 lb. active) per broadcast acre. When tank mixing, always read all individual manufacturers' labels. In interpreting all labels for the tank mixture, the most restrictive situations must apply.

Two pints of TRITON AG-98 or comparable 80% active nonionic surfactant, cleared for use on growing crops, per 100 gallons of spray solution are suggested in all tank mixtures containing GOAL 1.6E herbicide where postemergence weed control is desired.

TIMING

Soybean plant height must be a minimum 8 inches or greater. Use branch lifters or shields if excessive spray contact to the soybean plant cannot be avoided. Irrigation or rainfall should occur within two weeks of application to receive greatest benefit of preemergence activity from GOAL 1.6E herbicide on nightshade, groundcherry and wild poinsettia species.

METHOD OF APPLICATION

Accurate, uniform placement of GOAL 1.6E herbicide spray is essential for effective weed control and to minimize soybean injury. As a directed postemergence application, GOAL 1.6E herbicide should be applied at 20 to 25 psi using 20 to 40 gallons of spray on a broadcast acre basis. Spray should be directed towards the base of the soybean plant. Soybean foliage receiving accidental spray or drift may be injured. Weeds should be in the seedling stage, young and actively growing.

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Fill the spray tank at least one-third full of clean water and add the recommended amount of GOAL 1.6E herbicide while the pump and agitator are running. If tank mix is desired, add recommended amount of Butoxone or Butyrac 200. Complete filling of the spray tank with water and then add 2 pints of TRITON AG-98, or comparable 80% active nonionic surfactant cleared for use on growing crops, per each 100 gallons of spray to assist in contact activity on dusty weeds. Maintain agitation until spraying is complete.

For best coverage, it is suggested to use 4 flat fan nozzles per row, 2 nozzles on each side of the row. Do not use cone nozzles. The two forward nozzles should point forward and downward while the rear nozzles should point to the rear and downward. Nozzles so adjusted should cover the weed foliage with minimum contact to the soybean plant.

SOYBEANS - SPECIFIC USE RESTRICTIONS

- . Read and observe all label directions before using. When tank mixing, always read all individual manufacturers' labels. In interpreting all labels for the tank mixture, the most restrictive situations must apply.
- . Follow General Use Restrictions listed at the end of this label.
- . Do not make more than two applications of GOAL 1.6E herbicide per growing season.
- . Do not apply more than 2.5 pints (0.5 lb. active) of GOAL 1.6E herbicide per acre during one growing season as a result of preemergence application in no-till (double crop) or conventional till soybeans, or post-directed in conventional till soybeans. If early preplant application is made, do not apply more than 3.75 pints (0.75 lb. active) of GOAL 1.6E herbicide per acre during one growing season.
- . Do not rotate with crops other than soybeans, cotton, spearmint, or peppermint for 10 months following a GOAL 1.6E herbicide application. In the event of crop failure, do not plow field under. Field may be replanted to soybeans without tillage.
- . Do not apply a postdirected application of GOAL 1.6E herbicide to soybeans within 90 days of harvest.

GOAL^R 1.6E and TRITON^R AG-98 are registered trademarks of Rohm and Haas Company.

BRONCOTM is a trademark of Monsanto Company.

BUTOXONER^R is a registered trademark of Vertac Chemical Corporation.

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BUTYRAC^R 200 is a registered trademark of Union Carbide Corporation.

DUAL^R is a registered trademark of Ciba-Geigy Corporation.

GRAMOXONE^R is a registered trademark of ICI Americas Inc.

LASSO^R and ROUNDUP^R are registered trademarks of Monsanto Company.

ORTHO^R is a registered trademark of the Chevron Chemical Company.

SURFLAN^R is a registered trademark of Elanco Products Company.

(7751E-15Z)
11/22/83

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ROHM AND HAAS COMPANY

INDEPENDENCE MALL WEST

PHILADELPHIA, PENNSYLVANIA 19105

EPA Reg. No. 707-145-AA
EPA Est. No. 707-PA-1



DIRECTIONS FOR USE

SOYBEAN

(NOT FOR USE IN CALIFORNIA)

GENERAL INFORMATION

GOAL 2E is effective as a preemergence and postemergence (postdirect) herbicide for the control of broadleaf weeds in soybeans. Applications can be made early preplant in conservation tillage soybeans, preemergence in no-till (double crop) and conventional soybeans, or postdirect in conventional till soybeans. Seedling weeds are controlled as they come in contact with the herbicide either during emergence or through a postdirect application. Follow specific use directions and restrictions for recommended use and timing of applications.

Soybeans are tolerant to preemergence applications of recommended dosages of GOAL 2E herbicide, however, under certain conditions, GOAL 2E herbicide can cause temporary injury. Heavy splashing rain shortly after crop emergence or cold, wet soil conditions during early growth stages can produce leaf cupping and crinkling. When injury occurs, it is generally limited to the first few leaves that develop shortly after crop plants emerge from the soil. Soybeans recover from this injury and yields are not adversely affected. Soybean leaves that are accidentally sprayed during a postdirect application will exhibit necrotic spotting and injury to the soybean plant. Therefore, care must be exercised to avoid spray contact with the soybean leaves.

WEEDS CONTROLLED PREEMERGENCE

GOAL 2E herbicide used alone, at recommended dosages, provides preemergence control of the following broadleaf weeds:

GROUNDCHERRY, CUTLEAF
JIMSONWEED
LAMBSQUARTERS, COMMON
NIGHTSHADE, AMERICAN BLACK
NIGHTSHADE, BLACK
PIGWEEED, REDROOT
POINSETTIA, WILD
SHEPHERDSPURSE
SOWTHISTLE, COMMON
SIDA, PRICKLY (TEAWEEED)
SMARTWEEED, PENNSYLVANIA
VELVETLEAF

Physalis angulata
Datura stramonium
Chenopodium album
Solanum nodiflorum
Solanum nigrum
Amaranthus retroflexus
Euphorbia heterophylla
Capsella bursa-pastoris
Sonchus oleraceus
Sida spinosa
Polygonum pensylvanicum
Abutilon theophrasti

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WEEDS CONTROLLED POSTEMERGENCE (POSTDIRECTED APPLICATION)

GOAL 2E herbicide, when applied as a postdirect application at recommended dosages to seedling weeds (not exceeding the 4 leaf stage), will provide postemergence control of the following broadleaf weeds:

COCKLEBUR, COMMON	<i>Xanthium pensylvanicum</i>
GROUNDCHERRY, CUTLEAF	<i>Physalis angulata</i>
GROUNDCHERRY, WRIGHT	<i>Physalis wrightii</i>
JIMSONWEED	<i>Datura stramonium</i>
LAMBSQUARTERS, COMMON	<i>Chenopodium album</i>
MORNINGGLORY, ANNUAL	<i>Ipomoea species</i>
NIGHTSHADE, AMERICAN BLACK	<i>Solanum nodiflorum</i>
NIGHTSHADE, BLACK	<i>Solanum nigrum</i>
PIGWEEED, REDROOT	<i>Amaranthus retroflexus</i>
*POINSETTIA, WILD	<i>Euphorbia heterophylla</i>
PURSLANE, COMMON	<i>Portulaca oleracea</i>
SESBANIA, HEMP	<i>Sesbania exaltata</i>
SHEDPHERDSPURSE	<i>Capsella bursa-pastoris</i>
SIDA, PRICKLY (TEAWEEED)	<i>Sida spinosa</i>
SMARTWEED, PENNSYLVANIA	<i>Polygonum pensylvanicum</i>
VELVETLEAF	<i>Abutilon theophrasti</i>

*Multiple applications may be required for acceptable control.

Two pints of TRITON^R AG-98 or comparable 80% active nonionic surfactant cleared for application to growing crops, per each 100 gallons of spray solution are suggested in all tank mixtures containing GOAL 2E herbicide where postemergence weed control is desired.

DOSAGE AND TIMING

CONSERVATION TILLAGE SOYBEANS - EARLY PREPLANT

GOAL 2E herbicide is effective for preemergence and postemergence control of susceptible broadleaf weeds when surface applied at 1.5 to 3.0 pints (0.38 to 0.75 lb. active) per broadleaf acre to the stale seedbed prior to the planting of conservation tillage soybeans. It is suggested that applications be made approximately 14 days prior to planting. The higher rate of 2.0 to 3.0 pints (0.5 to 0.75 lb. active) will assist in early season annual grass control. However, GOAL 2E herbicide must not be a basic portion of the grass herbicide program. A planned herbicide program for early preplant, preemergence or postemergence grass control is recommended.

The use of ridge or slot planters or other planting equipment that results in minimal soil disturbance is recommended. Soil surfaces should not be disturbed as the herbicidal effectiveness of GOAL 2E may be decreased. Seedling weeds are controlled as they come in contact with the soil applied herbicide during emergence.

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NO-TILL (DOUBLE CROP) SOYBEANS - PREEMERGENCE

GOAL 2E herbicide is effective for preemergence and postemergence control of susceptible broadleaf weeds when applied at 1.5 to 2.0 pints (0.38 to 0.5 lb. active) per broadcast acre.

For postemergence control of certain grassy and broadleaf weeds a tank mix of either paraquat (Gramoxone^R or Ortho^R paraquat) or Roundup^R with GOAL 2E herbicide can be used.

For residual grass control in no-till soybeans, a tank mixture of either BroncoTM, Dual^R, Lasso^R, or Surflan^R with GOAL 2E herbicide or combinations of GOAL 2E herbicide plus paraquat or Roundup can be used. Follow specific use directions and restrictions for these combination tank mixes.

Application should be made within one day after planting. Later applications may result in severe crop injury and are not recommended.

CONVENTIONAL TILLED SOYBEANS - PREEMERGENCE

GOAL 2E herbicide is effective for preemergence control of susceptible broadleaf weeds when applied at 1.0 to 1.5 pints (0.25 to 0.38 lb. active) per broadcast acre. Application should be made within one day of planting. Later applications may result in severe crop injury and are not recommended. The higher rate (0.38 lb. active) will assist in early season annual grass control. However, GOAL 2E herbicide must not be a basic portion of the grass herbicide program. GOAL 2E herbicide may be applied alone as a preemergence application following a preplant incorporated grass herbicide treatment or as a tank mix in a preemergence application with Dual, Lasso or Surflan.

TANK MIXES WITH GOAL 2E HERBICIDE

IMPORTANT: Read and observe all label directions before using. When tank mixing, always read all individual manufacturers' labels. In interpreting all labels for the tank mixture, the most restrictive situations must apply.

DOSAGE

Refer to the following tables for labeled use rates

NO-TILL (DOUBLE CROP) SOYBEANS - PREEMERGENCE

RATE OF PRODUCT PER BROADCAST ACRE (PINTS PER ACRE)

SOIL TEXTURE	GOAL 2E	Dual 8E*	Lasso 4E*	Surflan A.S.**	paraquat	Roundup	Bronco*
Coarse	1.5	1.5	4.0 to 5.0	1.5	1.0 to 2.0	2.0 to 3.0	6.5 to 10.0
Medium	2.0	2.0	5.0 to 6.0	2.0	1.0 to 2.0	2.0 to 3.0	8.0 to 10.0
Fine	2.0	2.0 to 2.5	5.0 to 6.0	3.0	1.0 to 2.0	2.0 to 3.0	8.0 to 10.0
Muck or Peat	***	***	***	***	1.0 to 2.0	2.0 to 3.0	***

CONVENTIONAL TILLED SOYBEANS - PREEMERGENCE

RATE OF PRODUCT PER BROADCAST ACRE (PINTS PER ACRE)

SOIL TEXTURE	GOAL 2E	Dual 8E*	Lasso 4E*	Surflan A.S.**
Coarse	1.0 to 1.5	1.25 to 1.5	3.0 to 4.0	1.0 to 1.5
Medium	1.0 to 1.5	1.5 to 2.0	4.0 to 6.0	1.5 to 2.0
Fine	1.0 to 1.5	2.0 to 2.5	4.0 to 6.0	2.0 to 2.5
Muck or Peat	***	***	***	***

*Use the higher rate of Bronco, Dual or Lasso on soils containing more than 3 percent organic matter.

**When using Surflan 75WP, multiply pints by 0.67 to obtain the amount of Surflan 75WP product required. Do not use Surflan on soils containing more than 5% organic matter.

*** Not labeled.

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WEEDS CONTROLLED PREEMERGENCE

When GOAL 2E herbicide is tank mixed with Bronco, Dual, Lasso or Surflan and applied preemergence, in addition to the weeds controlled preemergence by GOAL 2E herbicide alone, control of the following weeds is also obtained:

BARNYARDGRASS
CRABGRASS, LARGE
FOXTAIL, GIANT
FOXTAIL, YELLOW
JOHNSONGRASS, SEEDLING
PANICUM, FALL
RAGWEED, COMMON
SIGNALGRASS, BROADLEAF

Echinochloa crus-galli
Digitaria sanguinalis
Setaria faberi
Setaria lutescens
Sorghum halepense
Panicum dichotomiflorum
Ambrosia artemisiifolia
Brachiaria platyphylla

WEEDS CONTROLLED POSTEMERGENCE

When GOAL 2E herbicide is tank mixed with Bronco, paraquat or Roundup and applied postemergence, in addition to the weeds controlled postemergence by GOAL 2E alone, control of the following weeds is also obtained:

BLUE GRASS, ANNUAL
CRABGRASS, LARGE
FOXTAIL, GIANT
FOXTAIL, GREEN
FOXTAIL, YELLOW
LAMBSQUARTERS, COMMON
RAGWEED, COMMON
SANDBUR, FIELD

Echinochloa crus-galli
Digitaria sanguinalis
Setaria faberi
Setaria viridis
Setaria lutescens
Chenopodium album
Ambrosia artemisiifolia
Cenchrus incertus

TIMING AND METHOD OF APPLICATION (ALL APPLICATIONS)

APPLICATION: As a preemergence treatment, apply in 20 to 60 gallons of water per acre. If Bronco or Roundup are included in the tank mix, apply in 20 to 40 gallons of water per acre. To insure complete coverage, spray volume should be increased as the density of emerged weeds, crop residue or stubble increases. Use conventional spray equipment with flat fan or flood jet nozzles. Spray equipment should be calibrated carefully before each use.

MIXING DIRECTIONS: Fill the spray tank at least one-third full of clean water. With the pump and agitator running, add the recommended amounts of herbicide to be used. When tank mixing with Surflan, add the flowable or a slurry of the wettable powder, to the spray tank first. The emulsifiable concentrates (EC) formulation should be added next. No particular order need be followed when adding the EC formulations. Complete filling of the spray tank with water. When postemergence weed control is desired, add two pints of TRITON AG-98 or comparable 80% active nonionic surfactant cleared for application to growing crops, per each 100 gallons of spray solution. Maintain agitation until spraying is completed.



POSTDIRECT SPRAY

GOAL 2E HERBICIDE USED ALONE

DOSAGE

GOAL 2E herbicide is recommended as a postdirect application at 1.0 pints (0.25 lb. active) per acre*. When applied to seedling weeds not exceeding 4 true leaves that are young and actively growing, do not count cotyledon leaves.

*Dosages listed are for broadcast application. For banded application, the amount of GOAL 2E herbicide used per acre should be reduced according to the following formula:

$$\frac{\text{Band Width (in.)}}{\text{Row Width (in.)}} \times \text{Rate per Acre Broadcast} = \text{Amount Needed per Acre for Banded Application}$$

GOAL 2E HERBICIDE TANK MIX

For improved broadleaf weed control, a tank mixture of GOAL 2E herbicide plus Butoxone^R or Butyrac^R 200 is suggested. Use 1.0 pints of GOAL 2E herbicide (0.25 lb. active) with 1 pint of Butoxone (0.22 lb. active) or 0.7 to 0.9 pint of Butyrac 200 (0.175 to 0.22 lb. active) per broadcast acre. When tank mixing, always read all individual manufacturers' labels. In interpreting all labels for the tank mixture, the most restrictive situations must apply.

Two pints of TRITON AG-98 or comparable 80% active nonionic surfactant, cleared for use on growing crops, per 100 gallons of spray solution are suggested in all tank mixtures containing GOAL 2E herbicide where postemergence weed control is desired.

TIMING

Soybean plant height must be a minimum 8 inches or greater. Use branch lifters or shields if excessive spray contact to the soybean plant cannot be avoided. Irrigation or rainfall should occur within two weeks of application to receive greatest benefit of preemergence activity from GOAL 2E herbicide on nightshade, groundcherry and wild poinsettia species.

METHOD OF APPLICATION

Accurate, uniform placement of GOAL 2E herbicide spray is essential for effective weed control and to minimize soybean injury. As a directed postemergence application, GOAL 2E herbicide should be applied at 20 to 25 psi using 20 to 40 gallons of spray on a broadcast acre basis. Spray should be directed towards the base of the soybean plant. Soybean foliage receiving accidental spray or drift may be injured. Weeds should be in the seedling stage, young and actively growing.

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Fill the spray tank at least one-third full of clean water and add the recommended amount of GOAL 2E herbicide while the pump and agitator are running. If tank mix is desired, add recommended amount of Butoxone or Butyrac 200. Complete filling of the spray tank with water and then add 2 pints of TRITON AG-98, or comparable 80% active nonionic surfactant cleared for use on growing crops, per each 100 gallons of spray to assist in contact activity on dusty weeds. Maintain agitation until spraying is complete.

For best coverage, it is suggested to use 4 flat fan nozzles per row, 2 nozzles on each side of the row. Do not use cone nozzles. The two forward nozzles should point forward and downward while the rear nozzles should point to the rear and downward. Nozzles so adjusted should cover the weed foliage with minimum contact to the soybean plant.

SOYBEANS - USE RESTRICTIONS

- . Read and observe all label directions before using. When tank mixing, always read all individual manufacturers' labels. In interpreting all labels for the tank mixture, the most restrictive situations must apply.
- . Do not make more than two applications of GOAL 2E herbicide per growing season.
- . Do not apply more than 2.0 pints (0.5 lb. active) of GOAL 2E herbicide per acre during one growing season as a result of preemergence application in no-till (double crop) or conventional till soybeans, or post-directed in conventional till soybeans. If early preplant application is made, do not apply more than 3.0 pints (0.75 lb. active) of GOAL 2E herbicide per acre during one growing season.
- . Do not rotate with crops other than soybeans, cotton, spearmint, or peppermint for 10 months following a GOAL 2E herbicide application. In the event of crop failure, do not plow field under. Field may be replanted to soybeans without tillage.
- . Do not apply a postdirected application of GOAL 2E herbicide to soybeans after the initial appearance of blooms.
- . Do not contaminate irrigation water or water used for domestic purposes.
- . Do not use any plants treated with GOAL 2E herbicide for feed or forage.
- . Do not feed or graze animals on any areas treated with GOAL 2E herbicide.
- . GOAL 2E herbicide should be applied only by ground application equipment.
- . Do not apply when weather conditions favor drift. Avoid drift to all non-target areas. GOAL 2E herbicide is phytotoxic to plant foliage.

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- . Thoroughly flush spray equipment (tank, pump, hoses and boom) with clean water before and after each use. Residual GOAL 2E herbicide remaining in spray equipment may damage other crops. To assist removal of GOAL herbicide residues in spray equipment, TRITON AG-98 or TRITON CS-7 may be added at the rate of 1 quart per 100 gallons of water during flushing.
- . Use GOAL 2E herbicide only for recommended purposes and at recommended rates.
- . Do not treat ditch banks or waterways with GOAL 2E herbicide.

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