

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

MAR 29 1994

James S. Fickle
Sandoz Agro Inc.
1300 East Touhy Avenue
Des Plaines, IL 60018

Dear Dr. Fickle:

Subject: Add Use on Soybeans
Frontier Herbicide
EPA Registration No. 55947-140
Your Submission Dated November 12, 1992

The amendment referred to above, submitted in connection with registration under section 3(c)(7)(B) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), is conditionally registered provided that you:

1. Submit the studies and testing specified in Attachment I Conditions For Registration For Soybean Use within agreed upon time frames.
2. Comply with the conditions in Attachment I Conditions For Registration For Soybean Use which outlines groundwater and surface water mitigation measures that must be undertaken by your company.
3. You will submit production information (pounds or gallons produced) for this product for the fiscal year in which the use on soybeans is condition registered, in accordance with Section 29 of FIFRA. The fiscal year begins October 1 and ends September 30.

The production information will be submitted to the Agency no later than November 15, following the end of the preceding fiscal year.

		CONCURRENCES					
SYMBOL	75052	RD					
SURNAME	Slip	Johann					
DATE	3/27/94	3/29/94					

This information is to be submitted to:

Registration Support Branch
Registration Division (7505W)
Environmental Protection Agency
Washington, DC 20460

4. Submit one copy of the final printed label for the record.

If these conditions are not complied with after the registration is issued, the registration will be subject to cancellation in accordance with Section 6(e) of the Act.

Conditional registration of this use will expire 1 year from the date on this letter unless it is determined from the environmental assessment that no additional studies are required and unless you make the labeling changes for the 1995 growing season listed in Attachment I Conditions For Registration For Soybean Use. As stated in the "Reserved Issues" in the event that it is recommended that additional environmental fate data are needed up to and including prospective groundwater monitoring studies and or labeling changes are required, you must contact the Agency within 90 days from receipt of notification agreeing to further negotiations. If no agreement has been reached within six (6) months it shall be resolved by the sole determination of the Agency. Such determination will become final unless submitted within 10 working days to the Director of Office of Pesticide Programs.

A stamped copy of the label is enclosed for your records.

Sincerely,



47 Cynthia Giles-Parker
Product Manager (22)
Fungicide-Herbicide Branch
Registration Division (7505C)

Enclosure

FRONTIER® Herbicide

FOR WEED CONTROL IN FIELD CORN, SEED CORN, POPCORN AND SOYBEANS

ACTIVE INGREDIENTS:

Dimethenamid: 2-chloro-N-[(1-methyl-2-methoxy)ethyl]-N-(2,4-dimethyl-thien-3-yl)-acetamide 79.4%

INERT INGREDIENTS: 20.6%

TOTAL 100.0%

FRONTIER contains 7.5 lbs. active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN

WARNING

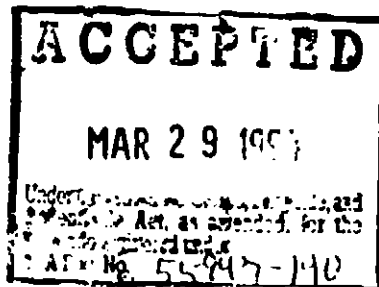
AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

See next page for additional precautionary statements and statement of practical treatment.

Net Contents:
EPA No. 55947-140
EPA Est. No. 55947-TX-1

SANDOZ AGRO, INC.
1300 E. Touhy Avenue
Des Plaines, IL 60018



check wps

FRONTIER® Herbicide

FOR WEED CONTROL IN FIELD CORN, SEED CORN, POPCORN AND SOYBEANS

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS (& DOMESTIC ANIMALS)

WARNING

AVISO

Causes eye irritation. Do not get in eyes, on skin, or on clothing. Harmful if swallowed. Avoid breathing spray mist. May cause skin sensitization reactions in certain individuals.

In case of contact, wash skin with soap and water. For eyes, flush with water for 15 minutes and get medical attention if irritation persists.

Personal Protective Equipment:

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category E on an EPA chemical resistance category section chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves, such as Barrier laminate or Nitrile Rubber or Neoprene Rubber or Viton
- Shoes plus socks
- Protective eyewear

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

BEST AVAILABLE COPY

Engineering controls statements:

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations:

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

FOR TERRESTRIAL USE, DO NOT APPLY DIRECTLY TO WATER OR TO AREAS WHERE SURFACE WATER IS PRESENT OR TO INTERTIDAL AREAS BELOW THE MEAN HIGH WATER MARK. DO NOT CONTAMINATE WATER BY DISPOSAL OF EQUIPMENT WASHWATERS OR RINSATE. DO NOT APPLY WHEN WEATHER CONDITIONS (GUSTY WINDS, HIGH TEMPERATURES, LOW HUMIDITY, AND WHEN A TEMPERATURE INVERSION EXISTS) FAVOR DRIFT FROM TREATED AREAS.

DIMETHENAMID HAS PROPERTIES THAT MAY RESULT IN GROUNDWATER CONTAMINATION. APPLICATION IN AREAS WHERE SOILS ARE PERMEABLE OR COARSE AND GROUNDWATER IS NEAR THE SURFACE COULD RESULT IN GROUNDWATER CONTAMINATION. FOLLOWING APPLICATION AND DURING RAINFALL EVENTS THAT CAUSE RUNOFF, THIS CHEMICAL MAY REACH SURFACE WATER BODIES INCLUDING STREAMS, RIVERS AND RESERVOIRS.

CARE MUST BE TAKEN WHEN USING THIS PRODUCT TO PREVENT 1) BACK SIPHONING INTO WELLS, 2) SPILLS OR 3) IMPROPER DISPOSAL OF EXCESS PESTICIDE, SPRAY MIXTURES OR RINSATES.

CHECK VALVES OR ANTISIPHONING DEVICES MUST BE USED ON ALL MIXING EQUIPMENT.

PHYSICAL OR CHEMICAL HAZARDS

DO NOT USE OR STORE NEAR HEAT OR OPEN FLAME.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE). The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

Exception: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

- Coveralls
- Chemical-resistant gloves, such as Barrier laminate or Nitrile Rubber or Neoprene Rubber or Viton
- Shoes plus socks
- Protective eyewear

Do not apply this product through any type of irrigation system.

IMPORTANT: Read the Limited Warranty and Liability and all applicable *Directions for Use* in this booklet before using this product.

Order and Contents of Label Use Directions
GENERAL INFORMATION WEED SPECIES CONTROLLED USE METHODS AND TIMINGS Preplant Surface Preplant Incorporated Preemergence Early Postemergence
CORN USE PROGRAMS Use Rates in Field Corn, Seed Corn and Popcorn Tank Mixtures and Sequential Uses in Corn
SOYBEAN USE PROGRAMS Use Rates in Soybeans Tank Mixtures and Sequential Uses in Soybeans
MIXING AND APPLICATION DIRECTIONS Mixing Spray Solutions Ground or Aerial Applications Use of Spray Adjuvants Compatibility Testing Dry Bulk Fertilizer Applications
ROTATIONAL CROPS
STORAGE AND CONTAINER DISPOSAL
LIMITED WARRANTY AND LIABILITY

GENERAL INFORMATION

Frontier is a selective preemergence herbicide for control of most annual grasses, certain annual broadleaf weeds and sedges in field corn, seed corn, popcorn, and soybeans. This product will provide most effective weed control when applied (by ground or aerial equipment), and subsequently incorporated into soil by rainfall, sprinkler irrigation, or mechanical tillage prior to weed seedling emergence from soil.

Frontier is recommended for preplant incorporated, preplant surface, preemergence or early postemergence treatment. Frontier application may be made using either water or fluid fertilizer as the spray carrier or it may be impregnated on and applied with dry bulk fertilizer. Sprayable fluid fertilizer as a carrier is not recommended for use after crop emergence.

Observe all precautionary statements and limitations on labeling of all products used in tank mixtures. Tank mix recommendations are for use only in states and on application sites where the tank mix product is registered.

Do not apply this product through any type of irrigation system.

Single or split applications of Frontier may not exceed a total of 25 fluid ounces per acre in one crop year.

Recommended use rates of this product vary by soil type. The most accurate indicator of appropriate use rate for Frontier is the Cation Exchange Capacity (CEC) of the soil to be treated. CEC values are available in standard soil testing procedures. If CEC values are not available, the recommended use rate of Frontier may be determined using the soil texture and organic matter. Soil texture groupings used in this label are coarse, medium and fine. Soil textures included in these groupings are as follows:

COARSE	MEDIUM	FINE
Sand Loamy Sand Sandy Loam	Silt Silt Loam Loam Sandy Clay Loam	Sandy Clay Silty Clay Silty Clay Loam Clay Loam Clay

Frontier use rates, by either soil CEC values or by soil texture and organic matter, are given in specific crop use sections of this label. When use rates are expressed in ranges use the lower end of the rate range for lower CEC values and use the higher end of the rate range for higher CEC values. If texture and organic matter are used to determine use rates, use the lower end of the rate range for more coarsely textured soils low in organic matter and the higher end of the rate range for more finely textured soils that are high in organic matter.

WEED SPECIES CONTROLLED BY FRONTIER HERBICIDE

Frontier herbicide applied at recommended rates and application timings will control many annual grass and broadleaf weeds.

Annual Grasses

Barnyardgrass
Broadleaf Signalgrass
Crabgrass,
 Smooth
 Large
Foxtail,
 Giant
 Green
 Yellow
Goosegrass
Johnsongrass (seedling)*
Fall Panicum
Red Rice
Southwestern Cupgrass
Texas Panicum*
Witchgrass

Sedge

Yellow Nutsedge*
Rice Flatsedge

Annual Broadleaves

Carpetweed
Common Purslane
Florida Pusley
Nightshade,*
 Black
 Eastern Black
 Hairy
Palmer Amaranth
Pigweed,
 Prostrate
 Redroot
 Smooth
 Tumble
Spurge,
 Nodding
 Spotted
Tall Waterhemp

- * For best control of these species use the highest recommended rate by soil type. If dry conditions exist near application or excessive rainfall occurs early in season, a postemergence herbicide and/or cultivation may be required to aid in control of these weeds.

ADDITIONAL WEED SPECIES PARTIALLY CONTROLLED. Frontier will provide partial control or suppression of woolly cupgrass, wild proso millet, shattercane, sandbur, Florida beggarweed, common lambsquarters, and common ragweed. Control of these species will generally not be commercially acceptable. To complement control Frontier should be used in tank mixtures or sequential applications with other herbicides that provide additional control of these weed species.

FRONTIER HERBICIDE USE METHODS AND TIMINGS

Frontier may be applied preplant surface, preplant incorporated, preemergence or early postemergence to field corn, seed corn, popcorn, and soybeans. Best weed control will result when applied (by ground or aerial equipment), and subsequently incorporated into soil by rainfall, sprinkler irrigation, or mechanical tillage prior to weed seedling emergence from soil.

PREPLANT SURFACE APPLICATIONS

For use in minimum tillage or no-tillage production systems, application of Frontier alone or in tank mixtures may be made up to 45 days before planting. When making early preplant applications (15 to 45 days prior to planting) use the highest rate recommended for the specific soil type. Early preplant applications are not recommended for use on coarse textured soils or in areas where average annual rainfall (or rainfall + irrigation) typically exceeds 40 inches. Early preplant applications may be applied as part of a split application program where the second application is made after planting (use 2/3 of Frontier rate early followed by 1/3 of rate after planting). A split application is recommended when initial application is made more than 30 days prior to planting. Tank mixtures with postemergence herbicides such as Roundup® or Gramoxone Extra® must be used when weeds are present at the time of application. ✓

PREPLANT INCORPORATED APPLICATIONS

Apply Frontier and incorporate into the upper (1-2 inch) soil surface up to two weeks before planting. Use a harrow, rolling cultivator, finishing disk, or other implement capable of giving uniform shallow incorporation. Avoid deeper incorporation or reduced weed control and/or crop injury may result.

PREEMERGENCE SURFACE APPLICATIONS

Broadcast treatment uniformly to the soil surface after planting and before crop emergence. Rainfall, sprinkler irrigation, or shallow mechanical incorporation after application is required to move this product into the upper soil surface where weed seeds germinate. If adequate rainfall or irrigation does not occur and weed seedling emergence begins, a shallow cultivation or rotary hoeing will improve performance.

EARLY POSTEMERGENCE APPLICATIONS

Frontier may be used in early postemergence (up to 8 inch tall corn or up to unifoliate stage of soybeans) applications. Application must be made prior to weed seedling emergence or in a tank mixture with products that control the emerged weeds. Note restrictions and use directions on tank mix product labels.

FRONTIER HERBICIDE FIELD CORN, SEED CORN AND POPCORN USE PROGRAMS

Frontier may be used as a preplant surface applied, preplant incorporated, preemergence or early postemergence (up to 8 inches tall corn) treatment to corn. Corn, as used in this label, refers to field corn (grown for grain, silage or seed) and popcorn. Before application to seed corn or popcorn, first verify with your local seed company (supplier) the Frontier selectivity on your inbred line or popcorn variety. This precaution will help avoid potential injury to sensitive varieties.

Do not apply this product to sweet corn.

Corn may be grazed or fed to livestock at 40 or more days after application of Frontier Herbicide.

FRONTIER USE RATES IN FIELD CORN, SEED CORN AND POPCORN

Recommended broadcast use rates for Frontier when used in tank mix combinations and/or sequential applications with other herbicides in field corn are given in the following tables*. Cation exchange capacity (CEC) of soil is the preferred method for determining use rate. If CEC is not known, select use rate based on soil texture and organic matter content. If Frontier is used alone, used in early preplant applications, and/or used on soils with heavy surface plant residue add 2-4 fluid ounces per acre to the rates given in the following tables. Do not exceed 25 fluid ounces per acre per crop year.

Use rate determined by cation exchange capacity (CEC) of soil.					
Cation Exchange Capacity (CEC) of Soil	< 5	5-9	10-14	15-20	> 20
Frontier Use Rate (Fluid ounces/acre)	13	14-18	18-22	22-24	25

Use rate determined by soil texture and organic matter content.		
Soil Texture	Frontier Use Rate (Fluid Ounces Per Acre)	
	Organic Matter	
	Less than 3%	3% or more**
Coarse	13 to 16	16 to 20
Medium	16 to 20	20 to 24
Fine	18 to 22	22 to 25

- * See tank mix descriptions below for the recommended use rate ranges of other herbicides used in combination with Frontier. Refer to tank mix section of companion product labels for actual use rate by soil type, weed species and weed or crop growth stage.
- ** On all soils with greater than 8% organic matter, use 25 fluid ounces per acre of Frontier.

FRONTIER TANK MIXTURES AND SEQUENTIAL USE PROGRAMS IN CORN

Frontier may be applied prior to, in tank mix with, or following the use of one or more of the following herbicides: Accent[®], atrazine, Banvel[®], Beacon[®], Bladex[®], Clarity[®], Extrazine[®] II, Gramoxone[®] Extra, Marksman[®], Princep[®], Prowl[®], Pursuit[®], Roundup[®], or 2,4-D. Frontier use rates for sequential or tank mix treatments are presented in the above label section, Frontier Use Rates in Field Corn, Seed Corn and Popcorn.

When using tank mix or sequential applications with Frontier, always read the companion product label(s) to determine specific use rates by soil types, weed species, and weed or crop growth stage. In addition, follow precautions and restrictions including state and local use restrictions that may apply to specific products.

When tank mixed, follow additional use directions given in this table.

<p>FRONTIER plus <u>BANVEL(0.5 TO 1.0 PTS/A)</u> or <u>CLARITY (8 TO 16 FL OZ/A)</u> or <u>MARKSMAN (2 TO 3.5 PTS/A).</u></p>	<p>Application may be made preplant surface or preemergence in minimum or no tillage corn in all soil types. Preemergence applications may be used in all tillage systems where corn is grown on soils with CEC greater than 15, or medium and fine textured soils with 2.5% or more organic matter (For best performance make application just prior to corn emergence). Early postemergence (up to 8 inch tall corn) applications may be made on all soil types. This treatment must be combined with a herbicide that provides postemergence control of grass weeds if they are greater than 1 inch tall at the time of application.</p>
<p>FRONTIER plus <u>ATRAZINE (0.75 TO 2.0 LBS A/A)</u></p>	<p>Application may be made preplant surface, preplant incorporated, preemergence or early postemergence (up to 8 inch tall corn). This treatment must be combined with a herbicide that provides postemergence control of weeds if they are greater than 1.5 inches tall at the time of application. Crop oil concentrate may be added to this mixture to aid in control of emerged weeds. Do not add crop oil concentrate if this mixture is combined with other herbicides for early postemergence applications.</p>
<p>FRONTIER plus <u>BLADEX (1.25 TO 3.0 LBS A/A)</u> or <u>EXTRAZINE II (1.25 TO 3.0 LBS A/A)</u></p>	<p>Application may be made preplant surface, preplant incorporated, or preemergence to corn. This mixture is not recommended for use on soils with CEC less than 5 or on sand or loamy sand soils with organic matter less than 1%.</p>
<p>FRONTIER plus <u>PROWL 3.3 EC(1.8 TO 3.6 PTS/A)</u></p>	<p>Application may be made preemergence to early postemergence (up to 3 inch tall corn) but before weeds are greater than 1 inch tall.</p>
<p>FRONTIER plus <u>PRINCEP (1 TO 3 LBS A/A)</u></p>	<p>Application may be made preplant surface, preplant incorporated or preemergence to corn.</p>
<p>FRONTIER plus <u>PURSUIT 2.0 SL (4 FL OZ/A)</u></p>	<p><u>Use only on Pursuit resistant (R) or tolerant (IT) varieties.</u> Application may be made preplant surface, preplant incorporated, preemergence or early postemergence (up to 3 inch weeds).</p>

<p>FRONTIER plus <u>GRAMOXONE EXTRA (1.5 TO 3.0 PTS/A)</u></p> <p>or <u>ROUNDUP</u> <u>(GLYPHOSATE - 0.5 TO 4.0 LBS AI/A)</u></p>	<p>Application may be made preplant surface or preemergence to control emerged weeds in minimum or no tillage corn. Applications must be made prior to corn emergence. To improve control of emerged broadleaf weeds, herbicides such as Banvel and/or 2,4-D should be added to this mixture.</p>
<p>FRONTIER plus <u>2,4-D Amine or Ester</u> <u>(1/4 to 1/2 lb ai/a)</u></p>	<p>Application may be made preplant surface or preemergence to control emerged broadleaf weeds in minimum or no-tillage corn.</p>
<p>FRONTIER plus <u>ACCENT 75WDG(1/4 TO 2/3 OZ/A)</u></p> <p>or <u>BEACON 75 WDG (0.76 OZ/A)</u></p>	<p>Frontier at reduced use rates: 8 to 12 fl. oz./acre - on soils with CEC less than 10 (coarse soils or medium and fine textured soils with less than 3% organic matter), or 12 to 16 fl. oz./acre - on soils with CEC of 10 or more (medium or fine textured soils with 3% or more organic matter) may be used in these mixtures. Add non-ionic surfactant at .25% v/v plus 4 % v/v liquid fertilizer (28, 30 or 32 % UAN). Herbicides other than those listed below, are not recommended for use with these mixtures.</p> <p>Tank mixes with Accent may be applied from emergence up to 8 inch tall corn when weeds are emerged and actively growing. Reduced rates (1/4 to 1/3 oz/A) of Accent may be used in this mixture for control of foxtail, barnyardgrass, fall panicum or seedling Johnsongrass when all are less than 3 inches tall. Addition of Banvel, Clarity or Marksman herbicide to this mixture will provide burndown and residual control of broadleaf weeds.</p> <p>Tank mixes with Beacon may be applied when corn is 4 to 8 inches tall and weeds are emerged and actively growing. Use this tank mix only where Beacon is labeled for control of emerged grass species that are present. Addition of Banvel or Clarity to this mixture will provide added burndown and residual control of broadleaf weeds.</p>

FRONTIER HERBICIDE SOYBEAN USE PROGRAMS

Frontier may be used as a preplant surface applied, preplant incorporated, preemergence or early postemergence (up to unifoliate stage) treatment to soybeans.

Do not graze or feed forage, hay or straw to livestock.

If extreme conditions of high rainfall and extended periods of water saturated soil occur during soybean germination or early seedling development, Frontier use may result in temporary growth suppression. This suppression has not resulted in reduced soybean yield potential. ✓

FRONTIER USE RATES IN SOYBEANS

Recommended use rates for Frontier when used in tank mix combinations and/or sequential applications with other herbicides in soybeans are given in the following tables*. Cation exchange capacity (CEC) of soil is the preferred method for determining use rate. If CEC is not known, select use rate based on soil texture and organic matter content. If Frontier is used in early preplant applications and/or used on soils with heavy surface plant residue add 2-4 fluid ounces per acre to the rates given in the following table. Do not exceed 25 fluid ounces per acre per crop year.

Use rate determined by cation exchange capacity (CEC) of soil.					
Cation Exchange Capacity (CEC) of Soil	< 5 **	5-9	10-14	15-20	> 20
Frontier Use Rate (Fluid ounces/acre)	13	14-18	18-22	22-24	25

Use rate determined by soil texture and organic matter content.		
Soil Texture	Frontier Use Rate (Fluid Ounces Per Acre)	
	Organic Matter	
	Less than 3%	3% or more***
Coarse **	13 to 16	16 to 20
Medium	16 to 20	20 to 24
Fine	18 to 22	22 to 25

- * See tank mix descriptions below for the recommended use rate ranges of the specific product used in combination with Frontier. Refer to tank mix section of companion product label for actual use rate by soil type or weed growth stage.
- ** Do not exceed a rate of 13 fl.oz/a on soil with CEC values less than 5 (or on coarse soils with less than 1.5% organic matter). Preplant incorporated treatments are not recommended on these soils.
- *** On all soils with greater than 8% organic matter, use 25 fluid ounces per acre of Frontier.

FRONTIER TANK MIXTURES AND SEQUENTIAL USE PROGRAMS IN SOYBEANS

Frontier use rates for herbicide combination programs and specific tank mixtures are presented in the above label section, Frontier Use Rates in Soybeans.

Frontier herbicide may be applied prior to, in tank mix with, or following use of one or more of the following herbicides in soybeans: Canopy[®], Command[®], Gemini[®], Gramoxone Extra[®], linuron (Lorox[®] and others), metribuzin (Lexone[®] or Sencor[®]), Lorox Plus[®], Preview[®], Prowl[®], Pursuit[®], glyphosate (Roundup[®]), Scepter[®], Sonalan[®], trifluralin (Treflan[®] and others) or 2,4-D (early preplant only). In addition, Frontier or Frontier combinations preemergence may be used prior to herbicides registered for postemergence grass or broadleaf weed control in soybeans, such as Assure[®]II, Basagran[®], Classic[®], Fusilade[®], Galaxy[®], Pinnacle[®], Poast[®], Storm[®], and others. ✓

When using tank mix or sequential applications with Frontier, always read the companion product label(s) to determine specific use rates by soil types, weed species, and weed or crop growth stage. In addition, follow precautions and restrictions including state and local use restrictions that may apply to specific products.

*Hand Tank
mixes*

<p>FRONTIER Herbicide may be tank mixed with or applied sequentially in one or more of the following herbicide combination programs.</p>	
<p>FRONTIER plus CANOPY 75 WDG (6 TO 12 OZ/A) or GEMINI 60 WDG (12 TO 24 OZ/A) or LOROX PLUS 60 WDG (12 TO 18 OZ A) or PREVIEW 75 WDG (6 TO 9 OZ/A)</p>	<p>Applications may be made preplant surface or preemergence to soybeans with any of these combinations. In addition, tank mixes with Canopy, Preview, Pursuit, Scepter or metribuzin may be applied preplant incorporated. Applications with Pursuit or Scepter may be made early postemergence, up through unifoliate stage of soybeans.</p> <p>In minimum or no-tillage systems either Gramoxone Extra or Roundup (glyphosate) may be added to preplant surface or preemergence applications for the control of emerged weeds. Applications must be made prior to soybean emergence.</p>
<p>FRONTIER plus Linuron LOROX 50 DF (1.0 to 3.0 LBS/A) or LOROX 4L (1.0 to 3.0 PTS/A)</p>	
<p>FRONTIER plus Metribuzin LEXONE OR SENCOR 75 DF (.33 TO 1 LB/A) LEXONE 4L OR SENCOR 4 (.5 TO 1.5 PTS/A)</p>	
<p>FRONTIER plus PURSUIT 2.0 SL (4 FL OZ/A) or SCEPTER 1.5 SL (0.33 TO 0.67 PTS/A) or SCEPTER 70WG (1.4 TO 2.8 OZ/A)</p>	
<p>FRONTIER PLUS PROWL 3.3 EC (1.2 TO 3 PTS/A) or Trifluralin TREFLAN 4 EC (1 TO 3 FTS/A) or SONALAN 3 EC (1 1/2 TO 3 1/2 PTS/A) and/or COMMAND 4 EC (1.0 TO 2.0 PTS/A)</p>	<p>Frontier may be used in tank mix with or applied sequentially after the use of these products. If tank mixed, applications with trifluralin or Sonalan and/or Command must be mechanically incorporated into the soil. Use thorough incorporation in upper 2 inches of soil. Tank mixes with Prowl may be applied either incorporated or used preemergence within 2 days after soybean planting. Canopy, Lexcne, Preview, Pursuit, Scepter or Sencor may be added to these combinations for improved control or control of additional weed species.</p>

MIXING AND APPLICATION DIRECTIONS

MIXING OF SPRAY SOLUTIONS

Frontier is a concentrated liquid herbicide that can be mixed for application in water, sprayable fluid fertilizer, or it may be impregnated on dry bulk fertilizer. When herbicide tank mixtures or mixtures with sprayable fluid fertilizer are to be used, a compatibility test should be conducted prior to tank mixing (SEE COMPATIBILITY TEST section in this label).

When loading a spray tank for application of Frontier (alone or in tank mixtures with other products) use the following order for mixing:

1. Thoroughly clean spray tank prior to use.
2. Fill sprayer tank one-half full of either water or sprayable fluid fertilizer.
3. Start sprayer agitation system and continue agitating throughout mixing and application.
4. If compatibility test indicated the need for addition of a compatibility agent, add the amount recommended on the label of the selected compatibility agent.
5. If tank mixing with wettable powder or dry flowable products, make a slurry of these products with water and add slowly to spray tank.
6. If tank mixing with a flowable formulation, add this product slowly to spray tank.
7. Add Frontier herbicide to spray tank.
8. If tank mixing with emulsifiable concentrates or soluble liquid products add these products to spray tank.
9. If tank mixing with Gramoxone Extra or Roundup add these products as remainder of spray tank is filled with carrier.
10. If adding spray adjuvants, add them after all other products have been mixed.

GROUND or AERIAL APPLICATIONS

Apply the recommended rates of Frontier in 2 or more gallons of spray solution per acre. Actual minimum spray volume per acre is determined by spray equipment used for application. Application must be made in adequate volume to provide accurate and uniform distribution of spray particles over treated area and to avoid drift of spray particles to non-target areas. In addition, when Frontier is used in tank mixtures, spray volume used must be no less than the minimum volume required by the tank mix product. Use nozzle screens no finer than 50 mesh when spraying tank mixtures with wettable powder or flowable formulations.

Frontier may be applied as a band treatment. Use rates within the treated area of the band must not exceed the use rates given for broadcast application. Use the formula below to determine the appropriate amount of product and volume of carrier needed per acre of field.

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast Rate per acre} = \text{Band Rate per acre}$$

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast Volume per acre} = \text{Band Volume per acre}$$

USE OF SPRAY ADJUVANTS

Frontier is a preemergence herbicide for which spray adjuvants have little or no influence on performance. However, several herbicides used in tank mixtures with Frontier require use of adjuvants to aid in the burndown of emerged weeds. Use only those adjuvants cleared for agricultural crop use. Surfactants and/or low rate fertilizer (28%, 30% or 32% UAN or ammonium sulfate) adjuvants may be used with tank mixes applied preplant, preemergence or early postemergence to the crop. Crop oil concentrates may be used prior to crop emergence but are not recommended after crop emergence unless specified for a particular tank mixture.

COMPATIBILITY TESTING

A compatibility test is recommended for applications with liquid fertilizer. Before mixing products in the spray tank, small amounts of all products can be mixed in proportionate quantities to determine compatibilities. The amounts of carrier and products in this compatibility test are based on a spray volume of 25 gallons per acre. Make appropriate changes in amounts for your specific spray volume.

To conduct this test begin by adding one pint of the liquid fertilizer solution to a one quart container. Then add, in sequence as given above, 1/2 level teaspoons per lb. use rate for dry formulated products and 1/2 teaspoon per pint (16 fluid ounces) use rate of liquid formulated products. Agitate materials by covering and gently shaking container for 5 to 10 seconds between each product addition.

If herbicide(s) do not ball-up or form flakes, gels, sludge, oily film or layers, or other precipitates, then the tested spray mix is compatible. Incompatibility in any of the above described forms will normally occur within 5 minutes after mixing. If components are incompatible, the use of a compatibility agent is recommended.

Rerun the above compatibility test with a suitable compatibility agent (1/4 teaspoon in test is equivalent to a use rate of 2 pints per 100 gallons of spray volume). If the mixture is then compatible, use the compatibility agent as directed on its label. If the mixture is still incompatible, the liquid fertilizer and herbicide(s) should not be mixed for use in the same spray tank.

DRY BULK FERTILIZER APPLICATIONS

Frontier may be impregnated or coated onto dry bulk granular fertilizer carriers for preplant surface, preplant incorporated or preemergence applications. Impregnation or coating may be conducted by either the in-plant bulk system or the on-board system. Frontier may also be applied in herbicide tank mixtures where the tank mix companion product is also registered for these application systems. Individuals or agents selling Frontier in these application systems are responsible for following all state and local regulations regarding fertilizer/herbicide blending.

Addition of a drying agent may be necessary if the fertilizer/herbicide blend is too wet for uniform application due to high humidity, high urea concentration, and/or low fertilizer use rate. Slowly add the drying agent to the blend until a flowable mixture is obtained. Drying agents are not recommended for use with on-board impregnation systems.

Under some conditions fertilizer impregnated with Frontier may clog air tubes or deflector plates on pneumatic application systems. Mineral oil may be added to Frontier before blending with fertilizer to reduce plugging. Do not use drying agents when mineral oil is used. To avoid separation of Frontier and mineral oil mixes in cold temperatures either keep mixture heated or agitated prior to blending with fertilizer. Mineral oil may be used at in-plant blending stations or on-board injection systems.

Apply 200 to 750 pounds of fertilizer/herbicide blend per acre. Application must be made uniformly to the soil to prevent possible crop injury and offer satisfactory weed control. Impregnated fertilizer spread at half rate and overlapped to obtain a full rate will offer a more uniform distribution. A shallow (1-2 inch) incorporation is desirable for improved weed control. Deeper incorporation may result in unsatisfactory weed control.

Formula to determine herbicide rate(s):

$$\frac{\text{Fluid Ounces or Pounds Herbicide/Acre}}{\text{Pounds of Fertilizer/Acre}} \times 2000 = \frac{\text{Fluid Ounces or Pounds of Herbicide Per Ton of Fertilizer}}$$

INCOMPATIBLE MIXTURES - DO NOT impregnate Frontier or Frontier mixes on ammonium nitrate, potassium nitrate, or sodium nitrate fertilizers or fertilizer blends. Single superphosphate (0-20-0) and triple superphosphate (0-46-0) may be impregnated only with Frontier alone.

ROTATIONAL CROPS

If the corn or soybean crop treated with Frontier is lost to adverse weather or for other reasons, the area treated may be replanted to corn or soybeans immediately. If the original Frontier treatment was broadcast do not make a second application of Frontier. If the original application was banded and the second crop is planted in the row middles a second band application may be applied. Fall seeded cereal crops may be planted at 4 or more months after a spring application of Frontier. There are no rotational crop restrictions in the Spring following the previous year's application of Frontier.

Frontier used in tank mixtures: Refer to the labels of tank mix products for additional rotation crop information and restrictions.

STORAGE AND CONTAINER DISPOSAL

Prohibitions

Do not contaminate water, food, or feed by storage or disposal.

Storage

Store in original container away from fertilizer, feed, or foodstuffs and separated from other pesticides.

Pesticide Disposal

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Plastic Containers

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If containers are burned, do not inhale smoke.

LIMITED WARRANTY AND LIABILITY

NOTICE: Read this Limitation of Warranty and Limitation of Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

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