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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

MAR 12 1996

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

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

Dear Dr. Fickle:

Subject: Add Use on Dry Beans, Peanuts, Sweet Corn and Sorghum  
Frontier Herbicide  
EPA Registration No. 55947-140 ✓  
Guardman Herbicide  
EPA Registration No. 55947-150  
Frontier 6.0 Herbicide  
EPA Registration No. 55947-159  
Your Submission Dated June 16, 1995 and Jonathan E.  
Bryant's Submission Dated January 30, 1996

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 by March 15, 1998 a Heritable Translocation Study conducted in accordance with the Good Laboratory Practice Standards, 40 CFR Part 160 and appropriate test guidelines as referenced in EPA's Data Requirements for Registration Regulations, 40 CFR Part 158.
2. Submit by March 15, 1997 either a new Acute LC<sub>50</sub> Mysid Shrimp Study (GLN 72-3) conducted in accordance with the Good Laboratory Practice Standards, 40 CFR Part 160 and appropriate test guidelines as referenced in EPA's Data Requirements for Registration Regulations, 40 CFR Part 158, or explain the discrepancy in the submitted study, MRID # 42336604, that reported increases in oxygen level under static conditions although aeration methods were reported as not being employed.
3. Submit the studies and testing specified in Attachment I Conditions For Registration For Soybean Use within agreed upon time frames.

4. 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.

5. 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.

This information is to be submitted to:

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

6. Make the following label changes listed below before you release the product for shipment:

According to PR Notice 82-2, the Tank Mix Directions for Sweet Corn with Basagran and Laddok S12, for Sorghum with Basagran, Buctril, Weedmaster and 2,4-D, for Dry Beans with Far-Go and Poast, and for Peanuts must include statements similar to the following:

This product can be mixed with \_\_\_\_\_  
(chemical name, including percentage of active ingredient and type of formulation, or specific product name, or both) for use on \_\_\_\_\_ (Crops/sites) in accordance with the more (most) restrictive of label limitations and precautions. No label dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing.

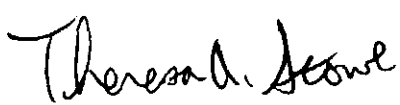
7. Submit one copy of the final printed label for the record.

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. 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 yours,



Theresa A. Stowe  
Acting Team Leader  
Product Manager (22)  
Fungicide-Herbicide Branch  
Registration Division (7505C)

Enclosure

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ACCEPTED  
with COMMENTS  
In EPA Letter Dated

MAR 12 1996

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.  
55947-140

FRONTIER Herbicide 55947-140  
January 1996 pfrontis.95c

**SUPPLEMENTAL LABELING**

**FRONTIER® HERBICIDE  
FOR WEED CONTROL IN SWEET CORN, GRAIN SORGHUM, DRY BEAN AND PEANUT**

E.P.A. Reg. No. 55947-140

**DIRECTIONS FOR USE**

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

**IMPORTANT**

Before using this product, read and carefully observe all applicable directions, restrictions, and precautionary statements on the EPA-registered container label. In addition read and follow General Information, Weeds Controlled, Use Methods and Timing, Mixing and Application sections of the Directions For Use Booklet attached to the FRONTIER Herbicide (FRONTIER) container. Eclipta is now added to the list of weeds that are partially controlled by FRONTIER in all crop uses. Follow all directions given below for crop specific uses in sweet corn, grain sorghum, dry bean and peanut.

**FRONTIER SWEET CORN USE PROGRAMS**

FRONTIER may be used as a preplant surface, preplant incorporated, preemergence or postemergence (up to 8 inch tall sweet corn) application in sweet corn. A single or split application may be used.

Before application to sweet corn, verify with your local seed company (supplier) the selectivity of FRONTIER on your specific variety(s). This precaution will help avoid potential injury to sensitive varieties.

Delayed emergence or leaf wrapping of sweet corn may occur if extreme conditions of high rainfall with extended periods of water saturated soil and/or cool weather occur during sweet corn germination and emergence.

Sweet corn may be grazed or fed to livestock at 40 or more days after application of FRONTIER. Sweet corn ears may be harvested at 50 or more days after application of FRONTIER.

Do not use adjuvants with Frontier® Herbicide in sweet corn.

**FRONTIER USE RATES IN SWEET CORN**

For FRONTIER rates in sweetcorn, use rates given for field corn, seed corn and popcorn in Directions for Use Booklet attached to the FRONTIER container.

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**FRONTIER TANK MIXTURES AND SEQUENTIAL USE PROGRAMS IN SWEET CORN**

Tank mixtures and sequential use programs for field corn, seed corn, and popcorn in Directions for Use Booklet attached to the FRONTIER container label apply for use in sweet corn when the companion product is registered for sweet corn use. Always read the companion product label(s) to verify allowed uses in sweet corn including: specific use rates by soil types, weed species, and weed or crop growth stage. Follow all precautions and restrictions including state and local use restrictions that may apply to specific companion products. In addition FRONTIER may be tank mixed with or applied sequentially to Basagran® or Laddok® S-12 herbicides.

**FRONTIER GRAIN SORGHUM USE PROGRAMS**

FRONTIER may be used as a preplant surface, preplant incorporated, preemergence or postemergence (up to 5 leaf or 8 inch tall) sorghum. A single or split application program may be used. All FRONTIER applications made prior to 2 leaf growth stage must only be made to sorghum seed that has been properly treated by the seed company with an approved chloroacetamide herbicide safener or severe injury may occur.

Under high soil moisture and/or cool conditions, FRONTIER application may cause temporary stunting or leaf wrapping of sorghum. Sorghum will normally outgrow these symptoms in 10-14 days.

For best performance make preemergence surface applications within 5 days of the last preplant tillage. If weeds are emerged apply FRONTIER with contact herbicides to control emerged vegetation.

Sorghum forage may be grazed or fed to livestock at 60 or more days after application. Grain and fodder may be harvested and fed at 80 or more days after application of FRONTIER.

FRONTIER is not registered for use on sweet or forage sorghum.

Do not use adjuvants with Frontier® Herbicide in grain sorghum.

**FRONTIER USE RATES IN SORGHUM**

For FRONTIER rates in sorghum use rates given for field corn, seed corn and popcorn in the Directions for Use Booklet attached to the FRONTIER container. Additional rate recommendations specific for sorghum: for best weed control in coarse textured soil use 16 fl oz/A and for sorghum produced under irrigation, use a minimum of 18 fl oz/A.

**FRONTIER TANK MIXTURES AND SEQUENTIAL USE PROGRAMS IN SORGHUM**

FRONTIER may be applied prior to, in tank mix with, or following use of one or more of the following herbicides in sorghum: atrazine, BANVEL®, Basagran, Buctril®, Cyclone® CF, Fallow Master™, Gramoxone® Extra, glyphosate (Roundup®), Laddok S-12, Landmaster® BW, MARKSMAN®, Milo-Pro®, WEEDMASTER® or 2,4-D.

FRONTIER Herbicide 55947-140  
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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.

<p><b>FRONTIER plus</b> <b>atrazine 0.75 to 2.0 lb ai</b></p>	<p>Applications may be made preplant, preplant incorporated, preemergence, or early postemergence. Do not apply before sorghum emergence on coarse textured soils or medium textured soils with less than 1.5% organic matter. Do not apply postemergence in OK, TX, NM, CO and western KS before sorghum is 6" tall.</p>
<p><b>FRONTIER plus</b> <b>Milo-Pro 0.60 to 2.3 lb ai</b></p>	<p>Applications may be made preplant or preemergence in states where Milo-Pro is approved for use. Do not apply this combination on sand or sandy loam soils.</p>
<p><b>FRONTIER plus</b> <b>BANVEL 0.5 pt/A</b> or <b>MARKSMAN 2.0 pt/A</b></p>	<p>Make applications after sorghum is in the 2nd leaf stage but no later than the 5th leaf stage of sorghum. This treatment must be combined with a herbicide that controls grass weeds if they are emerged at the time of application. Tank mix may cause temporary sorghum stunting or leaning that is generally outgrown within 10-14 days.</p>
<p><b>FRONTIER plus</b> <b>Buctril (0.25 to 0.38 lb ai/A)</b> or <b>Buctril + atrazine (1.5 to 3.0 pt/A)</b></p>	<p>Make application preplant or postemergence on 3-5 leaf sorghum. This mix may cause temporary stunting and/or leaf burn to sorghum.</p>
<p><b>FRONTIER plus</b> <b>Basagran (1.5 to 3.0 pt/A)</b> or <b>Laddok S-12 (1.33 to 2.33 pt/A)</b></p>	<p>Make application preplant or postemergence on 3-5 leaf sorghum. This mix may cause temporary stunting and/or leaf burn to sorghum.</p>
<p><b>FRONTIER plus</b> <b>Cyclone CF</b> or <b>Gramoxone Extra (1.5 to 3.0 pt/A)</b> or <b>Roundup (glyphosate 0.5 to 4.0 lb ai/A)</b> or <b>Landmaster BW</b></p>	<p>Apply for burn down of emerged weeds in minimum or no-tillage production system. Application with Cyclone, Gramoxone or Roundup must be made before crop emergence. Landmaster or Fallow Master applications must be made 14 or more days before sorghum seeding.</p>

or Fallow Master	
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### **FRONTIER DRY BEAN USE PROGRAMS**

FRONTIER may be used as a preplant surface applied, preplant incorporated, preemergence or early postemergence (first to third trifoliolate stage) treatment to all dry bean classes (such as small whites, navy, black turtle soup, pink, pinto, great northern, red Mexican, red kidney and cranberry) and lentils. A single or split application program may be used.

This product is not registered for use in succulent beans or cowpeas.

Dry beans may be harvested 70 or more days after FRONTIER application.

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

FRONTIER use postemergence may occasionally result in some temporary spotting or browning of dry bean leaves.

Uniform shallow-surfacing scratching for preplant or preemergence incorporation is recommended. Avoid deep incorporation or reduced weed control and/or crop injury may result.

Do not use adjuvants with Frontier® Herbicide in dry beans.

### **FRONTIER USE RATES IN DRY BEAN**

For Frontier rates in dry bean use rates given for soybeans in the Directions for Use Booklet attached to the FRONTIER container. Additional recommendations specific to dry beans are to use FRONTIER at a maximum of 13 fl oz/A on coarse soils with CEC < 5 or organic matter less than 1.5% for soil applications made prior to crop emergence.

FRONTIER may be tank mixed with or applied sequentially in one or more of the following herbicide combination programs.

### **FRONTIER TANK MIXTURES AND SEQUENTIAL USE PROGRAMS IN DRY BEAN**

FRONTIER may be applied prior to, in tank mix with, or following use of one or more of the following herbicides in dry bean: Basagran, Eptam®, Far-Go®, glyphosate (Roundup), paraquat (Gramoxone Extra), Poast®, Prowl® 3.3 EC, Pursuit®, Sonalan™, and trifluralin (Treflan™). In addition, FRONTIER may be applied postemergence following preplant or preemergence use of alachlor (Lasso®) or Dual®.

When using tank mix or sequential applications with FRONTIER, always read the companion product label(s) to determine specific dry bean classes registered, 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.

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<b>FRONTIER plus</b> <b>Basagran 4 (1.0 to 2.0 pt/A)</b>	Make application after the first trifoliolate leaf has fully expanded and before the 4th trifoliolate leaves have formed.
<b>FRONTIER plus</b> <b>Pursuit® 2.0 SL (2.0 to 3.0 fl oz/A)</b> or <b>Pursuit® 70DG (0.72 to 1.1 oz/A)</b>	Application may be made preplant, preemergence or postemergence. Make postemergence application after first trifoliolate leaf has expanded and before 4th trifoliolate leaves have formed.
<b>FRONTIER plus</b> <b>Prowl 3.3 EC (1.2 to 3.6 pt/A)</b> or <b>trifluralin (0.5 to 1.0 lb ai/A)</b> <b>Treflan™ 4 EC (1.0 to 2.0 pt/A)</b> or <b>Sonalan™ 3 EC (1.5 to 4.5 pt/A)</b> or <b>Eptam® 7-E (2.0 to 4.5 pt/A)</b>	FRONTIER may be used in tank mix with or applied sequentially after the use of these products. If tank mixed, applications must be mechanically incorporated into the soil. Use uniform thorough incorporation in upper 1 to 2 inches of soil.
<b>FRONTIER plus</b> <b>Roundup (glyphosate 0.5 to 4.0 lb ai/A)</b> or <b>Gramoxone Extra (1.5 to 3.0 pt/A)</b>	Apply for burndown of emerged weeds in minimum or no-till production systems. Application must be made before crop emergence.

For best performance, use FRONTIER preemergence following preplant incorporation of these products.

**FRONTIER PEANUT USE PROGRAMS**

FRONTIER may be used preplant surface, preplant incorporated, preemergence or postemergence (up to 80 days prior to harvest) in peanut. A single or split application may be used.

Peanut hay or straw may be grazed or fed to livestock at 80 or more days after last application of FRONTIER.

Do not use adjuvants with Frontier® Herbicide in peanuts.

**FRONTIER USE RATES IN PEANUT**

Use FRONTIER at 13-25 fl oz/A when applied alone or in tank mix combinations. Use 16 to 25 fl oz/A for soil applications and use the higher rates (20-25 fl oz/A) for improved control or suppression of difficult weeds like yellow nutsedge, Florida beggarweed, eclipta, common ragweed and other broadleaf species.

FRONTIER may also be used in a split application using 1/2 to 2/3 the maximum rate initially and the remaining 1/2 to 1/3 in sequential application. Do not exceed a maximum of 25 fl oz/A per crop year.



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### **FRONTIER TANK MIXTURES AND SEQUENTIAL USE PROGRAMS IN PEANUT**

FRONTIER may be applied prior to, in tank mix with, or after use of one or more of the following herbicides in peanut: Balan™, Basagran, Blazer®, Bugle®, Classic®, 2,4-DB (Butyrac®), Dual, Lasso, Prowl 3.3 EC, Poast, Poast Plus®, Pursuit, Sonalan, Starfire®, Storm®, Tough®, trifluralin (Treflan), Vernam® or Zorial®.

When using tank mix or sequential applications with FRONTIER, always read the companion product label(s) to determine specific use rates by soil type, 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.

**This labeling must be in the possession of the user at the time of the pesticide application.**

### **REGISTERED TRADEMARKS**

FRONTIER®, BANVEL®, MARKSMAN®, TOUGH®, WEEDMASTER® and ZORIAL® Herbicide are registered trademarks of Sandoz Ltd.

Bugle® is a registered trademark of AgroEvo USA Company.

Prowl® 3.3 EC, Pursuit®, Pursuit® 2.0 SL and Pursuit® 70DG are registered trademarks of American Cyanamid Company.

Basagran®, Basagran® 4, Blazer®, Laddok® S-12, Storm®, Poast® and Poast Plus® are registered trademarks of BASF Corporation.

Dual® is a registered trademark of Ciba Geigy Corporation.

Balan™, Sonalan™, Sonalan™ 3 EC, Treflan™ and Treflan® 4 EC are trademarks of DowElanco.

Classic® is a registered trademark of E.I. Du Pont de Nemours and Co., Inc.

Milo-Pro® is a registered trademark of Griffin Corporation.

Fallow Master™, Landmaster® BW, Roundup®, Lasso® and Far-Go® are trademarks of Monsanto Agricultural Company.

Buctril® and Butyrac® are registered trademarks of Rhone-Poulenc Ag Company.

Gramoxone® Extra, Cyclone® CF, Eptam®, Eptam® 7-E, Starfire® and Vernam® are registered trademarks of Zeneca, Inc.