

PM 25

9779-347

11/04/99

1/13



U.S. ENVIRONMENTAL PROTECTION AGENCY  
Office of Pesticide Programs  
Registration Division (H7505C)  
401 "M" St., S.W.  
Washington, D.C. 20460

EPA Reg. Number:

9779-347

Date of Issuance:

NOV 4 1999

Term of Issuance:

Conditional

Name of Pesticide Product:

Bison

NOTICE OF PESTICIDE:  
 Registration  
 Reregistration

under FIFRA, as amended:

Name and Address of Registrant (include ZIP Code):

Terra International, Inc.  
600 Fourth St.  
Sioux City, IA 51102-6000

**Note:** Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use on the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

In the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Herbicide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The appearance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA sec. 3(c)(7)(A) provided that you:

1. Submit and/or cite all data required for registration/reregistration of your product under FIFRA sec. 3(c)(5), 3(g), or 4 when the Agency requires all registrants of similar products to submit such data.
2. Make the following label changes:
  - a. Revise the EPA Registration Number to read, "EPA Reg. No. 9779-347".
  - b. In the list of uses at the top of the first page, delete "SMALL GRAINS", the "AND" in "OATS, AND RYE", and the parenthesis surrounding "WHEAT, BARLEY, OATS, AND RYE" so that the statement reads "FOR CONTROL OF CERTAIN BROADLEAF WEEDS IN WHEAT, BARLEY, OATS, RYE, AND FLAX."
  - c. On page 3, in the second sentence of the first paragraph of the GENERAL INFORMATION section, delete "small grains" and the parenthesis surrounding "wheat, barley, oats, rye".

Signature of Approving Official:

Date:

11-4-99

- d. On page 8, in the "BISON + Sterling" row, add the following statement in **bold type**:

**Do not treat rye with BISON + Sterling; only for use on wheat, barley, and oats.**

3. The Agency has recently revised its recommended First Aid statements for pesticide products and intends to issue a PR Notice announcing the changes in the near future. In the interim we are encouraging registrants to begin using the new statements. The new statements were developed as part of the Consumer Labeling Initiative in close cooperation with poison control center personnel and other medical experts. While it is not mandatory that you revise your label at this time, you are strongly encouraged to substitute the revised statements (below) for those statements currently on the label at your next label printing:

#### FIRST AID

##### If swallowed:

- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to by a poison control center or doctor.

##### If in eyes:

- Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.
- Call a poison control center or doctor for treatment advice.

##### If on skin:

- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.

##### If inhaled:

- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
- Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor or going for treatment.


4. Submit two copies of the revised final printed label for the record.

page 2  
EPA Reg. No. 9779-347

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

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

If you have any questions about this letter, please contact Tobi Colvin-Snyder at 703-305-7801.



Jim Tompkins  
Product Manager (25)  
Herbicide Branch  
Registration Division (7505C)

4/13

# Bison™

## FOR CONTROL OF CERTAIN BROADLEAF WEEDS IN SMALL GRAINS (WHEAT, BARLEY, OATS, AND RYE) AND FLAX

**ACTIVE INGREDIENT:**

Octanoic acid ester of bromoxynil*(3,5-dibromo-4-hydroxybenzotrile).....	31.7%
Isooctyl ester of 2-methyl-chlorophenoxyacetic acid** .....	34.0%
INERT INGREDIENTS: .....	<u>34.3%</u>
TOTAL.....	100.0%

\* Bromoxynil octanoate equivalent to 21.8% of bromoxynil or not less than 2.0 pounds of bromoxynil per gallon.

\*\*Equivalent to 21.8% 2-methyl-chlorophenoxyacetic acid or not less than 2.0 pounds MCPA acid per gallon.

Contains Petroleum Distillate

**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.)

**STATEMENT OF PRACTICAL TREATMENT**

**IF SWALLOWED:** Get medical attention. Do not induce vomiting, contains petroleum distillates. Do not give anything by mouth to an unconscious person.

**IF ON SKIN:** Wash with plenty of soap and water. Get medical attention if irritation persists.

**IF IN EYES:** Flush with water for 15 minutes. Get medical attention.

**PRECAUTIONARY STATEMENTS**

**WARNING**

**HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

Harmful if swallowed, or absorbed through skin or inhaled. Avoid contact with skin, eyes or clothing. Avoid breathing spray mist.

**Personal Protective Equipment (PPE):**

Some materials that are chemical resistant to this product are listed below. If you want more options, follow the instructions for category F on an EPA chemical resistant category selection chart. Applicators and other handlers must wear coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile rubber, or viton gloves, chemical-resistant apron when cleaning equipment, protective eyewear, chemical-resistant headgear for overhead exposure, and chemical-resistant footwear plus socks.

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.

EPA Reg. No. 9779-

**ACCEPTED  
with COMMENTS  
in EPA Letter Dated  
NOV 4 1999**

EPA Est. No. 37507-MT-01

Manufactured For:  
Terra International, Inc.  
P.O. Box 6000, Sioux City, Iowa 51102-6000  
Riverside Serves Agriculture. Agriculture Serves Everyone.

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.  
9779-347

NET CONTENTS

9/3/9/8

If you will handle a total of 60 gallons or more of this product per day, you must use a mechanical transfer system for all mixing and loading operations. If this product is packaged in a 30 gallon drum, you must use a mechanical transfer system which terminates in a drip-free hard coupling which may be used only with a spray or mix tank which has been fitted with a compatible coupling. If you do not presently own or have access to a mechanical transfer system with this type of coupling, contact your dealer for information on how to obtain such a system or to modify your present system. When using a mechanical transfer system, do not remove or disconnect the pump or probe from the container until the container has been emptied and rinsed. The pump or probe system must be used to rinse the empty container and to transfer the rinsate directly to the mixing or spray tank. Application from a tractor with a completely enclosed cab or aerial application is required whenever this product is applied to 360 or more acres in a day. The closed systems and enclosed cabs must be used 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. To reduce exposure to residues, wash the spray rig, tractor, and all other equipment used to handle or apply this product with water daily or before using the equipment for any other purpose.

**APPLICATION BY CHEMIGATION** must be done by fixed pipe, overhead sprinkler systems or hand moved pipe. If hand moved pipe is used for chemigation, the pipe must not be handled in any way until 24 hours after chemigation has been completed and residues have been flushed from the system. When applying by chemigation, no person may enter the application site unless in an enclosed vehicle.

**DURING AERIAL APPLICATION**, human flaggers are prohibited unless in enclosed vehicles. Aerial application is prohibited within 300 feet of residential areas (e.g., homes, schools, hospitals, shopping areas, etc.)

**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. 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**

This pesticide is toxic to wildlife and fish. Use with care when applying to areas frequented by wildlife or adjacent to any body of water. For terrestrial uses, 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 apply when weather conditions favor drift from target areas. Do not contaminate water when disposing of equipment washwaters.

**PHYSICAL AND CHEMICAL HAZARDS**

Do not use or store near heat or open flame.

**NOTICE**

BISON Herbicide contains low volatile isooctyl ester of MCPA. At high air or ground surface temperatures, vapors from this product may cause injury to susceptible plants. This fact should be considered when applying BISON.

**DIRECTIONS FOR USE**

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Read entire label before using this product. 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) and restricted-entry intervals. 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 24 hours.

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 over long-sleeved shirt and long pants, chemical-resistant gloves such as nitrile, viton or barrier laminate, chemical-resistant footwear plus socks, chemical-resistant headgear for overhead exposure, and protective eyewear.

**STORAGE AND DISPOSAL**

**Storage:** Do not contaminate water, food or feed by storage or disposal. Store at temperatures above 3°F. If allowed to freeze, remix before using.

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

**Container Disposal:** 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 burned, stay out of smoke.

**Returnable--Refillable Containers :** After use, return the container to the point of purchase or designated locations. This container must only be refilled with BISON Herbicide. **DO NOT REUSE THE CONTAINER FOR ANY OTHER PURPOSE.** Prior to refilling, inspect thoroughly for damage such as cracks, punctures, abrasions and damaged or worn out threads on closure devices. Do not refill or transport damaged or leaking containers. Check for leaks after refilling and before transportation. If the container is not being refilled, return it to the point of purchase.

### GENERAL INFORMATION

BISON is formulated as an emulsifiable concentrate containing the equivalent of 2 lbs. per gallon of octanoic acid ester of bromoxynil and 2 pounds per gallon of isooctyl ester of MCPA. BISON is a selective postemergence herbicide for control of important broadleaf weeds infesting small grains (wheat, barley, oats, rye) and flax. Optimum weed control is obtained when BISON is applied to actively growing weed seedlings. BISON is primarily a contact herbicide; therefore, thorough coverage of the weed seedlings is essential for optimum control.

BISON has little residual activity. Therefore, subsequent flushes of weeds will not be controlled by the initial treatment. Generally crops that form a good canopy will help shade subsequent weed flushes. However, certain crops or short-straw varieties, for example, Yaccora Rojo wheat, may not develop the crop canopy fast enough to shade the subsequent flushes of weeds.

Occasional transitory leaf burn may occur. The temporary leaf burn is similar to that seen with liquid fertilizer. Because the activity of BISON is mainly contact, recovery of the crop is generally rapid with no lasting effect. Frequency and amount of leaf burn may be greater when crops are stressed by abrasive winds, cool to cold evening temperatures or mechanical injury, such as that caused by hail, sleet, or insect feeding. To reduce the potential for temporary leaf burn, applications should be made to dry foliage in the recommended spray volumes per acre when weather conditions are not extreme.

### MIXING, LOADING AND HANDLING INSTRUCTIONS

#### 2.5 Gallon Containers

It is strongly recommended that special care be taken in mixing and loading this product. Hands should be placed on the container in such a way as to avoid possible drip or splash.

#### 30 Gallon and Bulk Containers

If you will handle a total of 60 gallons or more of this product per day, you must use a mechanical transfer system for all mixing and loading operations. If this product is packaged in a 30 gallon drum, you must use a mechanical transfer system which terminates in a drip-free hard coupling which may be used only with a spray or mix tank which has been fitted with a compatible coupling. If you do not presently own or have access to a mechanical transfer system with this type of coupling, contact your dealer for information on how to obtain such a system or to modify your present system. When using a mechanical transfer system, do not remove or disconnect the pump or probe from the container until the container has been emptied and rinsed. The pump or probe system must be used to rinse the empty container and to transfer the rinsate directly to the mixing or spray tank.

**BISON ALONE:** Fill the spray tank 1/2 to 3/4 full with clean water. Begin agitation and add the recommended amount of BISON. Add water to the spray tank to the desired level. Maintain sufficient agitation to ensure a uniform spray mixture during application.

**TANK MIXTURES:** BISON can be applied in tank mixture with many other herbicides and insecticides registered for use on approved crops. Refer to the specific crop section for rate recommendations and other restrictions. To apply BISON in mixture with another product, fill the spray tank 1/2 to 3/4 full with clean water and begin agitation. If tank mixing with wettable powder, soluble powder, flowable or dry flowable products, add the powder or flowable product first. After the other herbicide is thoroughly mixed with water, add the recommended amount of BISON and add water to the spray tank to the desired level. If tank mixing with other product types, add the BISON first before adding the other product. Always mix one product in water thoroughly before adding another product or compatibility problems may occur. Never mix two products together without first mixing in water.

Maintain sufficient agitation while mixing and during application to ensure a uniform spray mixture. If spray mixture is allowed to remain without agitation for short periods of time, be sure to agitate until uniformly mixed before application.

If tank mixing with products other than those listed within each crop section, a compatibility test is recommended to ensure satisfactory spray preparation. To test for compatibility, use a small container and mix a small amount (0.5 to 1 quart) of spray, combining all ingredients in the same ratio as the anticipated use. If any indications of physical incompatibility develop, do not use this mixture for spraying. Indications of incompatibility usually will appear within 5 to 15 minutes after mixing. To ensure maximum crop safety and weed control, follow all cautions and limitations on this label and the labels of products used in the tank mixture with BISON.

#### SPRAYABLE LIQUID FERTILIZERS AND SPRAY ADDITIVES

BISON can be applied in combination with sprayable liquid fertilizer or spray additives such as surfactants or crop oil concentrate. When tank mixing with liquid fertilizer, always add the fertilizer to the spray tank first and agitate thoroughly before adding BISON. Always predetermine the compatibility with liquid fertilizer by mixing small proportional quantities in advance. Agitation must be maintained during filling and application operations to ensure that BISON is evenly mixed with the fertilizer. Leaf burn may occur when BISON is applied with liquid fertilizer, but new leaves are not adversely affected.

**NOTICE:** Fertilizers and spray additives can increase foliage leaf burn when applied with BISON. Do not apply fertilizers or spray additives with BISON if leaf burn is a major concern due to environmental conditions, crop or variety sensitivity to BISON.

#### APPLICATION PROCEDURES

BISON can be applied to registered use areas by ground, aerial and sprinkler irrigation equipment.

#### GROUND APPLICATION

Use a standard herbicide boom sprayer that provides uniform and accurate application. Sprayer should be equipped with screens no finer than 50 mesh in the nozzle tips and in-line strainers.

Select a spray volume and delivery system that will ensure thorough and uniform spray coverage. For optimum spray distribution and thorough coverage use of flat fan nozzles (maximum tip size 8008) with a minimum spray pressure of 40-60 psi are recommended. Other nozzle types and lower spray pressures that produce coarse spray droplets may not provide adequate coverage of the weeds to ensure optimum control. Raindrop® nozzles and flood nozzles are not recommended as weed control with BISON may be reduced. In general a spray volume of 10 to 20 gallons per acre (GPA) is recommended for optimum spray coverage. A minimum of 5 GPA with a minimum spray pressure of 50 psi and a maximum ground speed of 10 mph may be used with higher speed, low volume ground application if ground terrain, crop and weed density allow effective spray distribution. When using higher speed equipment, a maximum ground speed of 10 mph is suggested if field conditions cause excessive boom movement during application which results in poor spray coverage.

Ground applications made when dry, dusty field conditions exist may provide reduced weed control in wheel track areas. Applications using less than 10 gallons per acre may result in reduced weed control.

When weed infestations are heavy, use of higher spray volumes and spray pressure will be helpful in obtaining uniform weed coverage.

Do not apply when winds are gusty or when other conditions favor poor spray coverage and/or off target spray movement.

#### AERIAL APPLICATION

Use orifice discs, cores and nozzle types and arrangements that will provide for optimum spray distribution and maximum coverage. In general, a minimum spray volume of 5 GPA and a maximum pressure of 40 psi are recommended. A minimum spray volume of 3 GPA may be used if crop canopy and weed density allow adequate spray coverage at that gallonge.

Do not apply during inversion conditions, when winds are gusty or when other conditions favor poor spray coverage and/or off target spray movement. Off target spray movement can be minimized by increasing the spray volume per acre and not applying when winds exceed 10 mph.

#### SPRINKLER IRRIGATION APPLICATION

BISON Herbicide can be applied through sprinkler irrigation systems to small grains and grasses grown for seed.

Apply BISON Herbicide through sprinkler systems including center pivot, lateral move, side (wheel) roll, solid set or hand move irrigation systems only. If hand moved pipe is used for chemigation, the pipe must not be handled in any way until 24 hours after chemigation has been completed and residues have been flushed from the system. When applying by chemigation, no person may enter the application site unless in an enclosed vehicle. Do not apply this product through any other type of irrigation system.

#### SPECIFIC REQUIREMENTS FOR APPLICATION THROUGH AUTOMATED SPRINKLER IRRIGATION SYSTEM

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Do not apply when wind speed favors drift beyond the area intended for treatment.
8. Agitation is recommended in the pesticide supply tank when applying the BISON Herbicide.
9. BISON Herbicide should be applied continuously for the duration of the water application with center pivot and continuous lateral move systems. Application of BISON Herbicide should be made during the last 30-45 minutes of the irrigation set with other overhead sprinkler systems.
10. For best performance, set the sprinkler system to deliver approximately 0.5 inch or less of water per acre.
11. Remove scale, pesticide residues and other foreign matter from the supply tank and entire injector system. Flush with clean water.
12. If BISON Herbicide is diluted in the supply tank, fill the tank with half of the water amount desired, add the BISON and then add remaining water amount with agitation. Always dilute with at least 4 parts water to 1 part BISON.

13. Start the sprinklers and then inject BISON Herbicide into the irrigation line. BISON should be injected with a positive displacement pump into the main line at least 8 feet ahead of a right angle turn to insure adequate mixing. Refer to the individual crop sections on this label for detailed information on application rates and timings.

#### CHEMIGATION USER PRECAUTIONS

Application of more than 0.5 inch/acre of irrigation water may result in decreased product performance on certain soils.

Do not apply when conditions favor drift, when system connections or fittings leak, or when nozzles do not provide uniform distribution.

Allow sufficient time for pesticide to be flushed through all the lines and nozzles before turning off irrigation water.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.

Do not connect an irrigation system used for pesticide application to a public water system.

If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

A person knowledgeable of the chemigation system and responsible for its operations, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

#### GENERAL WEED LIST

Postemergence application of BISON Herbicide will control the following weeds when sprayed in the seedling stage. Maximum weed stage of growth is listed under BISON RECOMMENDATIONS.

#### MOST SUSCEPTIBLE BROADLEAF WEED SPECIES

Annual sowthistle	( <i>Sonchus oleraceus</i> )
Black mustard	( <i>Brassica nigra</i> )
Black nightshade	( <i>Solanum nigrum</i> )
Common cocklebur	( <i>Xanthium strumarium</i> )
Common lambsquarters	( <i>Chenopodium album</i> )
Common tarweed	( <i>Hemizonia congesta</i> )
Cow cockle	( <i>Saponaria vaccaria</i> )
Cutleaf nightshade	( <i>Solanum triflorum</i> )
Eastern black nightshade	( <i>Solanum ptycanthum</i> )
Coast fiddleneck	( <i>Amsinckia intermedia</i> )
Field pennycress	( <i>Thlaspi arvense</i> )
Green smartweed	( <i>Polygonum scabrum</i> )
Hairy nightshade	( <i>Solanum sarachoides</i> )
Horned Poppy	( <i>Glaucium corniculatum</i> )
Jimsonweed	( <i>Datura stramonium</i> )
Ladysthumb	( <i>Polygonum persicaria</i> )
Lanceleaf sage	( <i>Salvia reflexa</i> )
London rocket	( <i>Sisymbrium irio</i> )
Marshelder	( <i>Iva xanthifolia</i> )
Pennsylvania smartweed	( <i>Polygonum strumarium</i> )
Pepperweed spp.	( <i>Lepidium app.</i> )
Redroot pigweed	( <i>Amaranthus retroflexus</i> )
Russian thistle	( <i>Salsola kali</i> )
Shepherdspurse	( <i>Capsella bursa-pastoris</i> )
Silverleaf nightshade	( <i>Solanum elaeagnifolium</i> )
Smooth pigweed	( <i>Amaranthus hybridus</i> )
Spiny pigweed	( <i>Amaranthus spinosus</i> )
<sup>1</sup> Sunflower	( <i>Helianthus annuus</i> )
Tall Waterhemp	( <i>Amaranthus tuberculatus</i> )
Tartary buckwheat	( <i>Fagopyrum tataricum</i> )
Tumble mustard	( <i>Sisymbrium altissimum</i> )
Wild buckwheat	( <i>Polygonum convolvulus</i> )
Wild mustard	( <i>Brassica kaber</i> )
Yellow rocket	( <i>Barbarea vulgaris</i> )

<sup>1</sup>For control of sunflower, delay application until first sunflower seedlings emerging are 4 inches in height.



**SUSCEPTIBLE BROADLEAF WEED SPECIES**

Blue (purple) mustard	( <i>Chlorispora tenella</i> )
Common groundsel	( <i>Senecio vulgaris</i> )
Common ragweed	( <i>Ambrosia artemisiifolia</i> )
Corn chamomile	( <i>Anthemis arvensis</i> )
Corn groomwell	( <i>Lithospermum arvense</i> )
Fumitory	( <i>Fumaria officinalis</i> )
Giant ragweed	( <i>Ambrosia trifida</i> )
Hemp sesbania	( <i>Sesbania exaltata</i> )
Henbit	( <i>Lamium emplexicaule</i> )
Ivyleaf morningglory	( <i>Ipomoea hederacea</i> )
Knawel	( <i>Scleranthus annuus</i> )
Kochia	( <i>Kochia scoparia</i> )
Mayweed	( <i>Anthemis cotula</i> )
Prostrate knotweed	( <i>Polygonum aviculare</i> )
Puncture vine	( <i>Tribulus terrestris</i> )
Tall morningglory	( <i>Ipomoea purpurea</i> )
Tansy mustard	( <i>Descurainia pinnata</i> )
Tarweed	( <i>Hemizonia spp.</i> )
Velvetleaf	( <i>Abutilon theophrasti</i> )
Wild radish	( <i>Raphanus raphanistrum</i> )
Weeds germinating after spraying will not be controlled.	

**WEED SUPPRESSION**

Canada thistle	( <i>Cirsium arvense</i> )
BISON Herbicide applied at 1 1/2 pints per acre provides burn down of top growth. Regrowth may occur. Make applications when Canada thistle is 8 inches tall to the bud stage.	

**WHEAT, BARLEY, OATS AND RYE  
BISON RECOMMENDATIONS**

PRODUCT	APPLICATION TIMING AND SPECIFIC COMMENTS		
	RATE	CROP	WEEDS
BISON	1 pint/A	Fall seeded wheat, barley, oats and rye throughout the United States and spring seeded wheat, barley, oats and rye in Idaho, Oregon, Washington, Colorado, Wyoming and Montana. Apply to wheat, barley, oats and rye from the 3 leaf stage but before the crop reaches the boot stage.	<b>MOST SUSCEPTIBLE BROADLEAF WEEDS</b> Apply to weeds up to the 8 leaf stage or 4 inches in height, whichever comes first. If weed forms rosette, apply before weeds exceed 2 inches in diameter.
	1 1/2 - 2 pints/A	Fall seeded wheat, barley, oats and rye throughout the United States and spring seeded wheat, barley, oats and rye in Idaho, Oregon, Washington, Colorado, Wyoming and Montana. Apply to wheat, barley, oats and rye from the 3 leaf stage but before the crop reaches the boot stage.	<b>SUSCEPTIBLE BROADLEAF WEEDS</b> Apply to weeds up to the 4 leaf stage or 2 inches in height, whichever comes first. If weed forms rosette, apply before weeds exceed 1 inch in diameter.
	2 pints/A	Fall seeded wheat, barley, oats and rye throughout the United States and spring seeded wheat, barley, oats and rye in Idaho, Oregon, Washington, Colorado, Wyoming and Montana. Apply to wheat, barley, oats and rye from the 3 leaf stage but before the crop reaches the boot stage.	Apply to henbit, knawel and mayweed up to the 4 leaf stage or 2 inches in height, whichever comes first. Apply to kochia and tansy mustard for improved control when these weeds exceed the recommended stage of growth or are growing under cool, dry conditions.
	1 - 1 1/2 pints/A	Spring seeded wheat and barley except Idaho, Oregon, Washington, Colorado, Montana, and Wyoming. Apply to wheat, barley, oats and rye from the 3 leaf stage but before the crop reaches the boot stage.	<b>MOST SUSCEPTIBLE AND SUSCEPTIBLE BROADLEAF WEEDS</b> Apply to weeds that do not exceed the 8 leaf stage or 4 inches in height, whichever comes first. If weed forms rosette, apply before weeds exceed 2 inches in diameter. Apply to kochia up to 2 inches in height

**WHEAT, BARLEY, OATS AND RYE  
BISON RECOMMENDATIONS**

APPLICATION TIMING AND SPECIFIC COMMENTS			
PRODUCT	RATE	CROP	WEEDS
Bison (Cont'd)	1 1/2 - 2 pints/A	Spring seeded wheat and barley except Idaho, Oregon, Washington, Colorado, Montana, and Wyoming. Apply to wheat, barley, oats and rye from the 3 leaf stage but before the crop reaches the boot stage.	Apply to kochia that is 2-4 inches in height.
	Chemigation only 2 pints/A	Apply to wheat, barley, oats and rye from the 3 leaf stage but before the boot stage. Apply through automated sprinkler irrigation systems with mechanical transfer loading system only. See MIXING, LOADING AND HANDLING INSTRUCTIONS section for complete details.	Apply to MOST SUSCEPTIBLE and SUSCEPTIBLE broadleaf weeds up to the 4-leaf stage, 2 inches in height or 1 inch in diameter, whichever comes first.
	Post-harvest 3/4 - 2 pints/A	Make applications following harvest of wheat, barley, oats and rye in the states of North Dakota, South Dakota, Minnesota, and Montana. Do not plant any rotational crop until the following use season.	Apply 3/4 to 1 pint/A to MOST SUSCEPTIBLE BROADLEAF WEEDS up to the 8 leaf stage or 4 inches in height, whichever comes first. Apply 1 1/2 to 2 pints/A to SUSCEPTIBLE BROADLEAF WEEDS up to the 4 leaf stage or 2 inches in height, whichever comes first. For control of both grasses and broadleaf weeds, tank mix Bison with Roundup® or Roundup + 2,4-D such as Weedone® or Weedar® brand herbicides.

**BISON TANK MIXTURE RECOMMENDATIONS**

APPLICATION TIMING AND SPECIFIC COMMENTS			
PRODUCT	RATE	CROP	WEEDS
BISON + Riverside MCPA LV Ester	3/4 - 2 pints/A + 1/4 - 1/2 pint/A	Apply to spring seeded wheat, barley, oats and rye from tillering stage, but before boot stage.	For control of MOST SUSCEPTIBLE and SUSCEPTIBLE weeds and improved control of redroot pigweed and kochia. Apply to weeds up to the 8 leaf stage, 3 inches in height or 2 inches in diameter, whichever comes first. Apply to kochia and redroot pigweed up to 2 inches in height or diameter.
BISON + Glean® + nonionic surfactant	3/4 - 1 1/2 pints/A + 1/6 - 1/3 oz/A + 1 qt/100 gal of water	Apply to wheat and barley from the 3-leaf stage but before the crop reaches the boot stage. Refer to Glean label for crop rotation and other restrictions.	This tank mix improves control of broadleaf weeds such as henbit, tansy mustard and chickweed. Apply to weeds up to the 8 leaf stage, 4 inches in height or 2 inches in diameter, whichever comes first.
BISON + Finesse® + nonionic surfactant	3/4 - 1 1/2 pints/A + 1/6 - 1/3 oz/A + 1 qt/100 gal of water	Apply to wheat and barley from the 3-leaf stage but before the crop reaches the boot stage. Refer to Finesse label for crop rotation and other restrictions.	This tank mix improves control of broadleaf weeds such as henbit, tansy mustard and chickweed. Apply to weeds up to the 8 leaf stage, 4 inches in height or 2 inches in diameter, whichever comes first.

		APPLICATION TIMING AND SPECIFIC COMMENTS	
PRODUCT	RATE	CROP	WEEDS
BISON + Ally® + nonionic surfactant	3/4 - 1 1/2 pints/A  +  1/10 oz/A  +  1 qt/100 gal of water	Apply to wheat and barley from the 3-leaf stage but before the crop reaches the boot stage. Refer to Ally label for crop rotation and other restrictions.	This tank mix improves control of broadleaf weeds such as henbit, tansy mustard and chickweed. Apply to weeds up to the 8 leaf stage, 4 inches in height or 2 inches in diameter, whichever comes first.
BISON + Sterling™	3/4 - 1 1/2 pints/A  +  1/8 - 1/4 pint/A	Fall seeded wheat from the 3 leaf stage but before jointing. Spring seeded wheat from the 3 to 5 leaf stage of growth.	This tank mix improves control of broadleaves such as prostrate knotweed and kochia. Apply to weeds up to the 8 leaf stage, 3 inches in height or 2 inches in diameter, whichever comes first. Apply to kochia up to 2 inches in height or diameter.
BISON + Harmony® Extra + nonionic surfactant	3/4 - 1 1/2 pints/A  +  3/10 oz/A  +  1 qt/100 gal of water	Winter wheat. Apply from the 3 leaf stage but before the 3 <sup>rd</sup> node is detectable. Refer to the Harmony Extra label for crop rotation and other restrictions.  Spring wheat and barley. Apply after the 3 leaf stage but before the 1st node is detectable. Refer to the Harmony Extra label for crop rotation and other restrictions.	This tank mix improves control of broadleaf weeds such as henbit, chickweed and redroot pigweed. Apply to weeds up to the 8 leaf stage, 4 inches in height or across, whichever comes first.
BISON + Amber® + nonionic surfactant	3/4 - 1 1/2 pints/A  +  0.28 - 0.56 oz/A  +  0.25% v/v	Apply to wheat and barley from the 3 leaf stage, but before the flag leaf is visible. Refer to the Amber label for crop rotation and other restrictions.	This tank mix improves control of broadleaves such as henbit, tansy mustard, and pigweed. Apply to weeds up to the 4 leaf stage, 4 inches in height or 2 inches in diameter, whichever comes first.
BISON + Express® + nonionic surfactant	3/4 - 1 1/2 pints/A  +  1/6 - 1/3 oz/A  +  1 qt/100 gal of water	Wheat and barley. Apply from the 3 leaf stage but before the flag is visible. Refer to the Express label for crop rotation and other restrictions.	This tank mix improves control of broadleaf weeds such as henbit, chickweed, redroot pigweed and suppression of Canada thistle. Apply to annual weeds up to the 8 leaf stage, 4 inches in height or across, whichever comes first, and to Canada thistle 4 to 8 inches tall with 2 to 6 inches of new growth.
BISON + Curtail® or Curtail M	3/4 - 1 1/2 pints/A  +  2 pints/A	Apply to wheat and barley after the crop begins to tiller up to the 1st node detectable.	This tank mix improves control of kochia, wild buckwheat and suppression of Canada thistle. Apply to annual broadleaf weeds up to the 8 leaf stage, 4 inches in height or 2 inches in diameter and to Canada thistle in the rosette to prebud stage.

		APPLICATION TIMING AND SPECIFIC COMMENTS	
PRODUCT	RATE	CROP	WEEDS
BISON + metribuzin (Sencor® or Lexone®)	1 pint/A  + 1/8 - 3/16 pints/A	Winter wheat in Idaho, Oregon and Washington. Apply in spring after growth has started and secondary roots with a minimum of 3 to 4 tillers have been established, but before the forming of joints in the stem. Avoid application when crop has experienced winter kill, frost damage, disease or drought.	This tank mix improves control of broadleaf weeds such as chickweed, filaree, henbit. Apply to weeds up to the 4 leaf stage, 2 inches in height or diameter, whichever comes first. A recognized authority should be consulted concerning the use of this mixture in your area.
BISON + Avenge®	1 - 2 pints/A  + 2 1/2 - 4 pints/A	Winter wheat. Four leaf to tillering stage. Refer to Avenge label for varietal and other restrictions.  Spring Wheat. Five to 6 leaf stage. Refer to Avenge label for varietal and other restrictions.  Barley. Three to 7 leaf stage.	This tank mix will provide wild oat control in addition to broadleaves. Apply to wild oats in the 3-5 leaf stage and broadleaves that do not exceed the 4 leaf stage or rosettes of 1.5 inches in diameter. Average use rates per acre are 2 1/2 pints (1-10 oats per sq. ft.), 3 pints (11-25 oats per sq. ft.) or 4 pints (more than 25 oats per sq. ft.).
BISON + Assert®	1 - 1 1/2 pints/A  + 1 - 1 1/2 pints/A	Apply to wheat and barley from the 3 leaf stage but before boot stage. Refer to Assert label for crop rotation and other restrictions.	This tank mix will provide wild oat control in addition to broadleaf weeds. Apply to wild oats at the 1-4 leaf stage and broadleaf weeds up to the 8 leaf stage, 4 inches in height or 2 inches in diameter, whichever comes first. Use Assert at 1 1/2 pints/A west of the Rocky Mountains or if wild oats have initiated tillering. For spray volumes in excess of 10 GPA, add 0.3 fluid oz of nonionic surfactant for each gallon in excess of 10 GPA.

**RESTRICTIONS AND PRECAUTIONS: WHEAT, BARLEY, OATS AND RYE**

- Do not graze treated fields within 45 days after application.
- Do not apply when crops are under moisture stress.
- Do not apply when crop canopy covers the weeds as poor control will result.
- Reduced weed control may occur when weeds are stressed from lack of moisture or cold temperatures.
- Refer to labels of products used in tank mixture for additional restrictions and precautions.

FLAX (Linum usitatissimum only)  
BISON RECOMMENDATIONS

		APPLICATION TIMING AND SPECIFIC COMMENTS	
PRODUCT	RATE	CROP	WEEDS
BISON	0.9 pint/A	Apply to flax that is 2 to 8 inches in height. Do not apply Bison to flax during or after the bud stage.	Apply to MOST SUSCEPTIBLE weeds that do not exceed the 4 leaf stage, 2 inches in height or 1 inch in diameter, whichever comes first.

**RESTRICTIONS AND PRECAUTIONS: FLAX (Linum usitatissimum only)**

- Do not apply if temperatures are expected to exceed 85°F at or 3 days following application or crop injury may occur.
- Unacceptable crop injury may occur following Bison application to flax grown on high organic, peat type soils.
- Application under high humidity conditions can injure flax.
- Unless otherwise instructed, do not apply Bison with crop oil concentrate, surfactants or nitrogen solutions.
- Do not use on ornamental flax.

NOTICE: Seller warrants that the product conforms to its chemical description and is reasonably fit for the purposes stated on the label when used in accordance with *directions under normal conditions of use*, but neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use of this product contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to Seller, and Buyer assumes the risk of any such use. Seller shall not be responsible for incidental or consequential damages, if any, resulting from a breach of warranty.

Avenge® and Assert® are registered trademarks of American Cyanamid Company.

Sencor® is a registered trademark of Bayer AG, Germany.

Raindrop® is a registered trademark of Delavan Corporation.

Curtail® is a registered trademark of DowElanco.

Glean®, Finesse®, Ally®, Harmony® Extra, Express®, Lexone® are registered trademarks of E.I. DuPont DeNemours and Co.

Banvel® is a registered trademark of Sandoz Crop Protection Corporation.

Amber® is a registered trademark of Novartis Crop Protection, Inc.

Roundup® is a registered trademark of Monsanto Company.

Weedone® and Weedar® are registered trademarks of Rhone-Poulenc Ag Company.

Riverside® MCPA LV Ester is a registered trademark of Terra International, Inc.