

Booklet

## **BONANZA 480 LIQUID HERBICIDE**

COMMERCIAL

WARNING      POISON

WARNING - EYE AND SKIN IRRITANT  
POTENTIAL SKIN SENSITIZER

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

GUARANTEE: TRIFLURALIN 480 g/L

REGISTRATION NO. 28289 PEST CONTROL PRODUCTS ACT

NET CONTENTS: 9.46 L

IN CASE OF EMERGENCY DUE TO A MAJOR SPILL, FIRE OR  
POISONING INVOLVING THIS PRODUCT CALL DAY OR NIGHT, 1-  
800-561-8273

UNITED AGRI PRODUCTS CANADA INC.  
789 Donnybrook Drive  
Dorchester, Ontario  
N0L1G5  
1-800-265-4624

## **DIRECTIONS FOR USE**

### **GENERAL DIRECTIONS**

Carefully read these instructions fully before using BONANZA 480 LIQUID HERBICIDE. Usage not in accordance with these instructions may result in inadequate weed control and may damage crop. BONANZA 480 LIQUID HERBICIDE is a pre-emergence herbicide which is sprayed on and then mechanically mixed or incorporated into the soil. It kills weeds as they germinate. It does not kill established weeds. BONANZA 480 LIQUID HERBICIDE gives long lasting control of seedlings of annual grasses and broadleaf weeds detailed below.

DO NOT apply this product in a way that will contact workers or other persons, either directly or indirectly or through drift. Only protected handlers may be in the area during application.

Discard clothing or other absorbent materials that have been heavily contaminated with this product. DO NOT reuse them.

Users should remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

DO NOT apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries or marine habitats.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

To minimize the release of trifluralin into the environment due to volatilization, trifluralin should only be applied on cool mornings and evenings when air temperatures are 15 degrees C or lower. To further reduce volatilization to the atmosphere, incorporation into the soil should occur concurrently with application.

Field sprayer application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60cm or less above the crop or ground.

DO NOT apply by air.

Use of the following methods or equipment DO NOT require a buffer zone: handheld or backpack sprayer, inter-row hooded sprayer, spot treatment and soil drench.

The buffer zones specified in the table below are required between the point of direct application and the closes downwind edge of sensitive terrestrial habitats (such as lakes,

rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of Application	Crop	Buffer Zones (metres) Required for the Protection of:				
		Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		Terrestrial Habitat
		Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer*	Fall-seeded wheat, rye and triticale grown in rotation with tobacco	35	4	3	1	0
	Rutabaga, forage legumes, Saskatoon berries, carrots, peppers, strawberries, tomatoes, summer fallow followed by spring or durum wheat, white turnips, forage kale, forage rape, white lupins and first year apple, apricot, cherry, peach, plum and pear trees.	55	5	4	2	1
	Brussels sprouts, cauliflower and crambe, sainfoin and sweet clover	70	10	5	2	1
	Alfalfa, beans (common, dry, kidney, black, Lima), fababeans, snapbeans, peas, soybeans, sunflowers, lentils, barley and wheat, canola/rapeseed, triazine tolerant canola/rapeseed, flax, mustard and safflower.	80	10	5	3	1
	Asparagus, broccoli and cabbage.	90	10	5	3	1
	Woody and perennial ornamental planting and nursery stock (field and container grown), shelterbelts (American elm, caragana, green ash, Scotch pine, Siberian elm)	120	20	15	5	1

\*For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labeled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labeled buffer zone can be reduced by 30%.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most-restrictive) buffer zones of the products involved in the tank mixture.

### **RESISTANCE MANAGEMENT RECOMMENDATIONS**

For resistance management, BONANZA 480 LIQUID HERBICIDE is a Group 3 herbicide. Any weed population may contain or develop plants naturally resistant to BONANZA 480 LIQUID HERBICIDE and other Group 3 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of BONANZA 480 LIQUID HERBICIDE or other Group 3 herbicides with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted.
- Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage, cultural, biological and other chemical control practices.
- Monitor treated weed populations for resistance development. • Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Technical Service at 1-800-265-4624 or at [www.uap.ca](http://www.uap.ca).

### **ENVIRONMENTAL HAZARDS**

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.

Avoid application of the product when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

## WARNING

### DIRECT SEEDED

Special attention must be paid to the following aspects of usage:

- Rates must be accurately applied.
- Apply only on soil type indicated (DO NOT APPLY TO peat and muck soils).
- Apply only to soils with less than 15% organic matter which are dry and in good working conditions. Application to soils that are subject to flooding (standing water for more than 3-5days) may result in reduced weed control. If these soils are flooded for a considerable period of time (3 weeks or more) the result may be no weed control at all.
- Do not apply to soils which are subject to erosion by wind, water and other factors. Application under certain conditions such as low trash cover or light textured soils may predispose the field to wind and/or water erosion and is not recommended.
- Incorporated is an essential part of application. When correctly applied to crops under normal conditions, BONANZA 480 LIQUID HERBICIDE will not harm the crop. Any stress factors such as wet soils, incorrect planting depth, seedling disease, low temperature, excessive salt in the soil, poor soil fertility or drought, could bring about damage to the crop from BONANZA 480 LIQUID HERBICIDE.
- It is recommended that the following crops not follow BONANZA 480 LIQUID HERBICIDE in the rotation cycle: Oats: Small seeded annual grasses such as Canary grass; Creeping Red Fescue; Timothy grass; Sugarbeets. Under normal conditions there will not be a carryover. However, the above recommendation is precautionary.
- Do not apply to soils that are extremely lumpy, cloddy or in poor working condition.
- Do not apply to sandy soils with less than 1% organic matter.
- Application to severely eroded knolls may result in reduced crop stand or rotational crop injury.

Populations of green foxtail tolerant to trifluralin have developed in a number of fields in Western Canada which have had a long history of repeated trifluralin use. Trifluralin or ethalfluralin containing products (ie: ADVANCE, BONANZA, HERITAGE, RIVAL, TREFLAN, TRIFLUREX, FORTRESS, and EDGE) will not control trifluralin tolerant green foxtail. To delay selection or reduce the spread of trifluralin tolerant green foxtail, avoid use of these products repeatedly in the same field, or use a separate herbicide application for control of trifluralin tolerant green foxtail.

**CAUTION:** Do not graze the treated immature crops or cut for hay; there are not sufficient data available to support such use.

### TRANSPLANTS

Reductions in crop yield may occur if BONANZA 480 LIQUID HERBICIDE is applied to weakened transplants. The precautions stated for Direct Seeded crops also apply to Transplants. As well, for maximum tolerance of all transplants ensure the following:

- only healthy transplants should be used.
- do not transplant under unfavourable growing conditions such as cool or wet weather.

- follow all label instructions.

## **BONANZA 480 LIQUID HERBICIDE APPLICATION ON DRY BULK FERTILIZER**

### **GENERAL**

Dry bulk fertilizer (EXCEPT NITRATE FERTILIZERS) may be impregnated with BONANZA 480 LIQUID HERBICIDE herbicide. Application may be made in the fall or spring to registered crops pre-plant incorporated.

Application of the fertilizer impregnated with BONANZA 480 LIQUID HERBICIDE must be made as soon as possible. For rates and times of application for various crops refer to the application and rate charts on this label.

This product label must be consulted for precautions, warnings, restrictions, rotational crops and detailed directions regarding use rates, soil texture, application instructions and incorporation techniques. Compliance with the Fertilizer's Act is the responsibility of the company selling herbicides/fertilizer combinations.

### **MIXING AND BLENDING**

A minimum of 200Kg/ha of dry fertilizer impregnated with BONANZA 480 LIQUID HERBICIDE at recommended rates must be applied. Mix and blend the dry fertilizer and BONANZA 480 LIQUID HERBICIDE in a rotary fertilizer blender. The nozzles used to spray the BONANZA 480 LIQUID HERBICIDE on the fertilizer should be situated to provide uniform spray coverage. Allow for sufficient blending time to ensure uniform coverage of the fertilizer with this product. If the fertilizer-herbicide mixture is too wet to allow for uniform application, the use of a highly absorptive material such as diatomaceous earth or finely powdered clay is recommended. Enough absorptive material should be added to ensure a free-flowing mixture.

Higher rates of fertilizer may be required to ensure that mixture is not too wet especially when higher rates of BONANZA 480 LIQUID HERBICIDE are used.

### **APPLICATION**

Spread the fertilizer impregnated with BONANZA 480 LIQUID HERBICIDE immediately after blending is completed. Ensure that the material is applied uniformly to the soil surface using a properly calibrated applicator. When using spin spreaders a 100% overlap is recommended to ensure even distribution. Spin applicators should be calibrated to apply one half of the desired rate per hectare and application overlapped by doubling back to cover one-half of the previous swath. Dribble spreaders must be calibrated with the impregnated fertilizer as flow rate will be slower than those realized with pure dry fertilizer.

### **INCORPORATION**

Follow normal BONANZA 480 LIQUID HERBICIDE incorporation recommendations. FOR BEST RESULTS DELAY THE SECOND INCORPORATION FOR AT LEAST 3 DAYS FOLLOWING THE FIRST.

**CAUTIONS:**

1. To prevent contamination, ensure that the next two blended batches of fertilizer are used on those crops for which BONANZA 480 LIQUID HERBICIDE is registered.
2. Do not impregnate BONANZA 480 LIQUID HERBICIDE or any other herbicide on nitrate fertilizers (ammonium, potassium, sodium, calcium). The combination of BONANZA 480 LIQUID HERBICIDE with these fertilizers may result in an explosion.

**BONANZA 480 LIQUID HERBICIDE APPLICATION WITH FLUID FERTILIZERS**

BONANZA 480 LIQUID HERBICIDE may be mixed with liquid nitrogen fertilizer, (eg. 28-0-0) for application either preplant soil incorporated or post-plant incorporated. BONANZA 480 LIQUID HERBICIDE may also be tank mixed with \*Avadex BW and liquid fertilizer for post plant incorporated application in wheat or barley. All BONANZA 480 LIQUID HERBICIDE label recommendations regarding rates per hectare, approved crops, incorporation, special instructions, cautions and special precautions must be followed. BONANZA 480 LIQUID HERBICIDE should be poured directly into the liquid fertilizer, mixed thoroughly and applied as soon as possible. Constant agitation is needed until application is complete. Apply the BONANZA 480 LIQUID HERBICIDE fertilizer mixture with a properly calibrated sprayer. Ensure that the material is applied uniformly to the soil surface. Follow normal BONANZA 480 LIQUID HERBICIDE incorporation procedures.

**COMPATIBILITY TEST**

Because of the wide range of fertilizer products, small amount of liquid fertilizer and BONANZA 480 LIQUID HERBICIDE should be tested for compatibility prior to tank mixing.

- (1) Place 500mL of liquid fertilizer into a 1L jar.
- (2) Pour in 10mL of BONANZA 480 LIQUID HERBICIDE.
- (3) Close jar and shake well.
- (4) Leave jar sit for 5 minutes.

BONANZA 480 LIQUID HERBICIDE and fertilizer are compatible if BONANZA 480 LIQUID HERBICIDE remains in suspension. If the BONANZA 480 LIQUID HERBICIDE settles out quickly but goes into suspension easily upon shaking, the mixture maybe used provided constant agitation is utilized. UNITE compatibility agent can be added to improve the compatibility and stability of this fertilizer-herbicide mixture.

## **PRAIRIE PROVINCES and the PEACE RIVER REGION of BRITISH COLUMBIA**

### **LAND PREPARATION**

Cultivate to destroy existing weeds before BONANZA 480 LIQUID HERBICIDE application. When applying to stubble fields, chop and thoroughly mix crop residues into soil to a depth of 10-15 cm. Disc type implements provide the best results. See table below for weeds controlled and crops registered. Do not plow (mold board) land prior to BONANZA 480 LIQUID HERBICIDE application.

**APPLICATION — DO NOT APPLY BY AIR.**

Fill the sprayer one-third full of clean water. Add the recommended amount of BONANZA 480 LIQUID HERBICIDE to the clean water in the spray tank. During the filling operation and before spraying agitate thoroughly. Apply in at least 100 litres of water per hectare (broadcast basis) using any properly calibrated low-pressure (275kPa) herbicide sprayer that will apply the spray uniformly. Check the sprayer daily to ensure proper calibration and uniform application. Apply with ground equipment only. Apply BONANZA 480 LIQUID HERBICIDE to soil surface and incorporate in the same operation if possible. Ensure that large clods are broken. Do not delay incorporation more than 24 hours after application.

When applied as directed, BONANZA 480 LIQUID HERBICIDE will not harm crops that follow in rotation; however, over application, non-uniform application or other excess applications may cause injury to crops that follow in rotation.

The rate of breakdown of BONANZA 480 LIQUID HERBICIDE in the soil is influenced by environmental factors which occur during the year of control, and those of the following spring. If precipitation during this period is below normal, the level of carryover into the fall and the next growing season will be increased. The general distribution and timing of the precipitation will also affect the residual persistence of BONANZA 480 LIQUID HERBICIDE.

Crop injury may result to rotational crops (eg. fall planted cereals or spring wheat) if these crops are sown in the season following unusually dry conditions. To reduce injury to rotational crops, seed the crops shallow into a warm and moist seedbed.

### **INCORPORATION**

To incorporate, work BONANZA 480 LIQUID HERBICIDE into soil in two different directions. Use a tandem disc, discer or field (Vibrashank type) cultivator for the first incorporation, set to work 7.5-10cm deep. Disc or cultivate in cross direction at the same depth. Operate disc implements 6.5-10km/hr, cultivators at 10-13km/hr. BONANZA 480 LIQUID HERBICIDE should not be incorporated with field cultivator when soil is crusted, lumpy or too wet for good mixing action.

Disc type implements are preferred on stubble.

Incorporation with implements set to cut less than 7.5cm deep or more than 10cm deep may result in erratic weed control or crop damage.

Rod weeders, harrows or hoe drills will not properly incorporate BONANZA 480 LIQUID HERBICIDE.

## TIME OF APPLICATION

### SPRING APPLICATION

Apply in the spring and before the crop or weed emergence. It must be incorporated thoroughly into the soil to control susceptible germinating weeds. The first incorporation must be done no later than 24 hours after application. The second incorporation may be done at the time of seedbed preparation provided it is done at the recommended depth. Follow all incorporation instructions. Spring application is not recommended for flax and lentils.

### FALL APPLICATION — PRAIRIES ONLY

Check application rates and incorporation instructions above. Ensure timely incorporation. Apply between September 1st and before soil freeze-up for weed control the following year. Two incorporations in the fall are recommended to be followed by shallow tillage (5-8cm) in the spring before planting. However, if this is not convenient, the first incorporated within 24 hours of spraying can be followed by a second in the spring when the seed bed is being prepared. Always ensure incorporation to the correct depth. (See spring tillage recommendations below).

### SUMMER APPLICATION — PRAIRIES ONLY

Check application rates and incorporation instructions above. Ensure timely incorporation. Apply BONANZA 480 LIQUID HERBICIDE to summer fallow between June 1st and September 1st. Ensure that incorporation must be within 24 hours of spraying. The timing of the subsequent incorporations can be suited to the necessity to destroy resistant weed growth later in the season. Before planting in the spring, ensure shallow tillage (5-8cm). (See Spring tillage recommendations below).

### SPRING TILLAGE FOR SEEDBED PREPARATION — PRAIRIES ONLY

In spring, once the soil is warm enough to promote germination, it must be tilled if summer or fall applications of BONANZA 480 LIQUID HERBICIDE have been made. Till to a depth of 5-8cm with a suitable implement such as a disc or Vibrashank cultivator. Follow accepted practices and prevent transplanting weed seedlings.

### CROPS REGISTERED IN THE PRAIRIE PROVINCES and the PEACE RIVER REGION OF BRITISH COLUMBIA ONLY

Asparagus	Dry beans (field or kidney)	Peas (field or canning)
Sunflower	Barley	Faba beans (horsebeans)
Rapeseed (Canola)	Sweet clover (spring only)	Black Beans
Flax	Safflower	Transplanted Shelterbelts
Crambe	Lentils (fall only)	Sainfoin
Wheat	Mustard	Strawberries

### WEEDS CONTROLLED

The following weeds are controlled with BONANZA 480 LIQUID HERBICIDE when sprayed according to these instructions:

#### ANNUAL GRASSES

Wild Oats*	Cheat
Green & Yellow Foxtail (Wild Millet)	
Stinkgrass	Barnyardgrass

#### ANNUAL BROADLEAVES

Wild Buckwheat*	Chickweed
Cowcockle	Purslane
Pigweed	Knotweed

Goosegrass                      Crabgrass                      Lamb's-quarters                      Carpetweed Annual  
 Bluegrass                      Bromegrass

Persian Darnel  
 NOTE: \*Wild Oats and Wild Buckwheat are not fully controlled but retarded by BONANZA 480 LIQUID HERBICIDE. Crop growth will not be seriously hampered by these retarded weeds.

**RECOMMENDED RATES OF BONANZA 480 LIQUID HERBICIDE PER HECTARE**

**SOIL TEXTURE**

<u>Light</u>	<u>Medium or Heavy</u>	
Sand	Loam	Silty clay loam
Sandy loam	Silt loam	Silty clay
(less than	Silt	Clay loam
6% Organic matter)	Sandy clay loam	Clay
	(all soil with 6-15% organic matter)	

**RECOMMENDED RATES OF BONANZA 480 LIQUID HERBICIDE PER HECTARE**

CROP	SOIL TEXTURE		REMARKS
	Light	Medium / Heavy	
SPRING APPLICATION	RATE L/ha		
Asparagus Black Beans Crambe Dry Beans (field & kidney) Faba Beans Mustard Peas (Field & Canning) Rapeseed (Canola) Safflower Sainfoin Soybeans Strawberries Sunflowers Sweet clover	1.7	2.3	BONANZA 480 LIQUID HERBICIDE can be applied immediately prior to, or up to 3 weeks before planting. Do not apply to mustard on sandy soils.
Shelterbelts (American Elm, Caragana, Green Ash, Scotch Pine)	4.6	9.2	Apply prior to transplanting seedlings. The higher rate of application will result in better weed control and longer

and Siberian Elm)			persistence in the soil.
Asparagus (established 3yrs)	2.1	3.1-4.2	Follow recommended soil preparation, application and incorporation procedures. Apply to established asparagus in the early spring after ferns are removed but before spear emergence, or apply after harvest in the late spring or early summer before ferning begins. Use the 4.2L rate for season long weed control. CAUTION: Set implements so asparagus crowns are not injured during soil preparation and incorporation.
Broccoli Brussel Sprouts (Transplant only)	2-6% OM* 1.7	2-6% OM* 2.3	Apply prior to transplanting. Use the 2.9L/ha rate for heavy wild oat infestations.
	6-15% OM 2.3	6-15% OM 2.3-2.9	
Cabbage Cauliflower (Direct seeded or transplanted)	2-6% OM 1.7	2-6% OM 2.3	Apply prior to seeding or transplanting. Use 2.9L/ha rate for heavy wild oat infestations.
	6-15% OM 2.3	6-15% OM 2.3-2.9	
Carrots	1.7	2.3	Apply prior to seeding.
Forage Legumes: Seedling Alsike clover, Red clover, Cicer milkvetch, Bird's-foot trefoil.(For seed production and forage).	1.7	2.3	Apply prior to seeding.
Rutabaga	1.7	2.3	Apply prior to seeding.
Saskatoon berries	1.7	2.3	Apply prior to planting transplanted Saskatoon berries.
Snap Beans	1.7	2.3	Apply prior to seeding.
Tomatoes (Transplants only)	2-6% OM 1.7	2.3	Apply prior to transplanting.
	6-15% OM 2.3	2.3	

\* OM – organic matter

CROP	SOIL TEXTURE		REMARKS
	Light	Medium / Heavy	
FALL APPLICATION	RATE L/ha		
Black Beans Dry Beans (field & kidney) Faba Beans Flax Lentils Mustard Peas Rapeseed (Canola) Safflower Soybeans Sunflower	2.3	2.9	Apply and incorporate between September 1 <sup>st</sup> and up to soil freeze-up.

CROP	SOIL TEXTURE		REMARKS
	Light	Medium / Heavy	
SUMMER APPLICATION	RATE L/ha		
Flax Rapeseed (canola) Safflower	All Soils at 3.54		Apply and incorporate between June 1st and September 1st. Second and subsequent incorporations may be done any time up to soil freeze-up.
NOTE: Do not delay incorporation more than 24 hours after application.			

#### USE ON OILSEED CROPS

Use one of the applications as described previously on this label.

The use of BONANZA 480 LIQUID HERBICIDE on oilseed crops will provide control of certain broadleaf weeds and wild oats and non-tolerant green foxtail or millet.

BONANZA 480 LIQUID HERBICIDE-tolerant green foxtail (wild millet) will not be controlled and may require the subsequent spraying of a post-emergent herbicide.

#### SPECIAL INSTRUCTIONS FOR FLAX AND LENTILS

- Application of BONANZA 480 LIQUID HERBICIDE to flax may be made in summer or fall. Apply to lentils in fall only.
- Both incorporations should be done in the fall (summer) prior to seeding flax or lentils in the spring.

- To ensure a firm seedbed and maintain a constant depth of planting, a shallow tillage and a packed seedbed in the spring is recommended.
- Seed with a drill to a depth of 2-4cm into a moist and firm seedbed.
- Seed flax or lentils when soil temperatures are warm and greater than 6°C. This is usually after mid-May.

### **CONTROL OF GREEN FOXTAIL (WILD MILLET) IN WHEAT & BARLEY**

Barley	Hard Red Spring Wheat
Durum Wheat	Soft White Spring Wheat

### **MODE OF ACTION**

Most Green Foxtail seeds germinate in the upper 5cm of the soil. BONANZA 480 LIQUID HERBICIDE sprayed and incorporated into this zone will prevent germination. Wheat and Barley seed should be sown below this layer (5-8cm deep) to prevent crop damage. Apply and incorporate BONANZA 480 LIQUID HERBICIDE after planting but before emergence of Wheat or Barley.

### **RECOMMENDED RATES:**

Light Soils	Heavy Soils
1.2L/ha	1.75L/ha

### **APPLICATION AND INCORPORATION OF BONANZA 480 LIQUID HERBICIDE**

Seed the crop to a depth of 5-8cm in a well tilled seedbed. Before crop emergence apply BONANZA 480 LIQUID HERBICIDE at the recommended rate (see above) according to the following procedure.

- Use a low pressure sprayer which delivers spray mix uniformly. Calibrate before operation. Calculate quantity of BONANZA 480 LIQUID HERBICIDE needed. Use at least 100L water in the spray tank per hectare (broadcast basis). Add BONANZA 480 LIQUID HERBICIDE to the spray tank while filling up with clean water. Agitate thoroughly.
- Check sprayer operation daily before spraying and regularly while spraying to ensure maintenance of calibration and uniform application.
- The soil surface must be clean of trash or have been fallowed the previous year. Incorporate to a shallow depth (2-4cm) in two directions (see mode of action above). Use diamond harrows, tyne harrows or other similar implements travelling at least 9km/hr. Where possible spray and incorporate in the same operation. Incorporate twice within 24 hours and at right angles to each other. The first incorporation is done in the same direction as application.

## **APPLICATION OF BONANZA 480 LIQUID HERBICIDE PLUS AVADEx BW IN TANKMIX IN WHEAT AND BARLEY**

Post plant, pre-emergence application:

### **RECOMMENDATION:**

Apply only to trash free soils or soils fallowed the previous year. Seed to a depth of 5-8cm with a conventional seeder. Apply and incorporate in the spring immediately after seeding prior to the emergence of the crop. Caution must be taken to incorporate shallow (2-4cm deep) above the crop seeds (see mode of action above). Use diamond harrows, tyne harrows or other similar implements. Incorporate in two different directions. To the above mentioned recommended rates for BONANZA 480 LIQUID HERBICIDE add AVADEx BW at a rate of 3.5L/ha in wheat and 4.25L/ha in barley (broadcast basis).

## **APPLICATION OF BONANZA 480 LIQUID HERBICIDE PRE-PLANT INCORPORATED WITH A POST EMERGENCE TREATMENT OF AVENGE**

Sequential treatment for control of Green Foxtail (Wild Millet) and Wild Oats in Wheat and Barley. Follow a pre-plant incorporated treatment of BONANZA 480 LIQUID HERBICIDE on Wheat and Barley in accordance with instructions listed elsewhere on the label. Refer to the Avenge label for rates, precautions and limitations.

## **STRAWBERRIES**

Apply BONANZA 480 LIQUID HERBICIDE prior to planting transplanted strawberries. Follow recommended soil preparation, application and incorporation procedures for BONANZA 480 LIQUID HERBICIDE. Apply only in the spring. Use 1.7L on light soils and 2.3L on medium/heavy soils. Do not exceed the maximum application rate of 2.3L/ha. Over application may delay establishment of runner plants.

## **ASPARAGUS (Established three years)**

Follow recommended soil preparation, application and incorporation procedures for BONANZA 480 LIQUID HERBICIDE. Apply to established asparagus in the early spring after ferns are removed but before spear emergence. Or apply after harvest in the late spring or early summer before ferning begins. Use 2.1L on light soils and 3.15 to 4.2 L on medium/heavy soils. Use the 4.2L rate for season long weed control.

**CAUTION:** Set implements so asparagus crowns are not injured during soil preparation and incorporation.

## **EASTERN CANADA AND BRITISH COLUMBIA**

### **TIMING**

Apply in the spring and before crop is planted and weed emergence. Apply uniformly to the soil surface and incorporate within 24 hours of application.

### **LAND PREPARATION**

Before applying BONANZA 480 LIQUID HERBICIDE, ensure that all emerged and existing weeds have been eliminated through discing or cultivation. For application to stubble fields and trashy soils, thoroughly disc the soils prior to BONANZA 480 LIQUID HERBICIDE application to ensure that all crop residues and trash material have been mixed into the soil to a depth of 10-15cm. Disc implements are preferred for eliminating trash.

### **METHOD OF APPLICATION — DO NOT APPLY BY AIR**

Application should be made in a minimum of 100 litres of water per hectare at a pressure of 275kPa. Apply BONANZA 480 LIQUID HERBICIDE uniformly to the soil surface and incorporate within 24 hours after application. Do not apply to lumpy soils.

Fill sprayer one-third full of clean water then add the recommended amount of BONANZA 480 LIQUID HERBICIDE. Continue filling operation until required volumes are achieved. Vigorous agitation is required before applying BONANZA 480 LIQUID HERBICIDE. Apply with ground equipment only. If possible, incorporate BONANZA 480 LIQUID HERBICIDE in the same operation as application.

Susceptible crops in rotation will not be damaged if BONANZA 480 LIQUID HERBICIDE is applied uniformly. Avoid over-application. Do not initiate BONANZA 480 LIQUID HERBICIDE application until the sprayer is moving.

### **INCORPORATION**

Incorporate with disc implements, rotary tillers or cultivators only. Deep tillage cultivators are not recommended. A tandem disc is recommended for the first incorporation. Do not delay the first incorporation more than 24 hours after BONANZA 480 LIQUID HERBICIDE application. The first incorporation should be in the same direction as application. Both incorporations must be to a depth of 8-10cm. For maximum weed control and crop tolerance cultivators should only be used when soils are in good working condition. The second incorporation must be at right angles to the first and can be done anytime prior to planting. Disc implements should be operated at 6-10km/h and cultivators at 10-13 km/h.

### **CROPS REGISTERED IN EASTERN CANADA AND BRITISH COLUMBIA**

Alfalfa,	Snap beans	Asparagus	Peppers,	Forage Kale
direct seeded	Dry beans, (field or	kidney)	transplanted	Perennials,
Crambe	Peas, (field or	canning)	Soybeans	(ornamentals)
Ornamentals,	Black beans	Faba	beans, (Horsebeans)	Stubble white turnip
woody nursery				(feed only)
stock				Brussel Sprouts,
				transplanted

Forage Rape	Sunflowers Cabbage,	Tomato,	Shelterbelts,
Rapeseed, (Canola)	direct	transplanted	transplanted
	seeded/transplanted	Carrots	Cauliflower, direct
	Lima beans Rutabaga	Mustard	seeded/transplanted

### WEEDS CONTROLLED

The following weeds are controlled with BONANZA 480 LIQUID HERBICIDE when sprayed according to these instructions:

#### ANNUAL GRASSES

Annual Bluegrass	Cheat	Foxtail - Green & Yellow	Stinkgrass
Barnyardgrass	Crabgrass	Goosegrass	Wild Oats*
Bromegrass	Fall Panicum	Persian Daniel	

#### ANNUAL BROADLEAVES

Carpetweed	Pigweed +	Chickweed	Purslane	Knotweed
Lamb's-quarters+				

+Triazine Tolerant varieties as well.

Loose Silky - Bentgrass will also be controlled in fall rye and winter wheat.

\*NOTE: Wild Oats is not fully controlled but retarded by BONANZA 480 LIQUID HERBICIDE. Crop growth will not be seriously hampered by this retarded weed.

### RECOMMENDED RATES FOR CROPS IN EASTERN CANADA AND B.C. SOIL TEXTURE

<u>Light</u>	<u>Medium</u>	<u>Heavy</u>
Sand	Loam	Silty clay loam
Sandy loam	Silt loam	Silty clay
	Silt	Clay loam
	Sandy Clay loam	Clay

CROP	RATE (L/Ha)			REMARKS
	SOIL TEXTURE			
	Light	Medium	Heavy	
Carrots Faba beans (Horsebeans) Forage kale Field beans (dry & kidney) Mustard rapeseed (canola) Soybeans Snapbeans Stubble white turnips (feed only)	1.25	1.7	2.3	Incorporate immediately after application. Apply from 3 weeks before planting up to the time of planting.

Direct Seeded: Alfalfa Cabbage Cauliflower	1.25	1.7	2.3	Incorporate immediately after application. Apply from 3 weeks before planting up to the time of planting. Direct-seeded cabbage and cauliflower have exhibited marginal tolerances to recommended rates of BONANZA 480 LIQUID HERBICIDE. Under some circumstances stunting or reduced stands may occur.
Strawberries	1.25	1.7	2.3	Incorporate immediately after application. Apply from 3 weeks before planting to the time of planting.
Rutabaga	N/A	1.7	2.3	Incorporate immediately after application. Apply from 3 weeks before planting to the time of planting. Do not apply to turnips on sandy soil.
Asparagus	2.1	3.15	4.2	Incorporate immediately after application. Use only on asparagus that has been established for at least 3 years.
Transplants: Broccoli Brussel sprouts Cabbage Cauliflower Peppers Tomatoes	1.25	1.7	2.3	Incorporate immediately after application. Apply from 3 weeks before planting to the time of planting.
Lima beans, peas (field & canning)	1.25	1.25	1.7	Incorporate immediately after application. Apply from 3 weeks before planting up to the time of planting.
Sweet white lupins	1.25	1.7	2.3	-
Ornamentals: Transplanted wooded nursery stock and perennials	1.25	1.7	2.3	Incorporate immediately after application. Apply from 3 weeks before planting up to the time of planting.
Ornamentals: Established woody nursery stock	1.25	1.7	2.3	Apply as directed spray to surface. Incorporate carefully as closely as possible to ornamentals. Do not cause damage to roots.

Do not apply BONANZA 480 LIQUID HERBICIDE to ornamental ground covers such as Ajuga, Myrtle and Pachysandra. Injury may result.

		SOIL TEXTURE		
		light	medium	heavy
For first year trees:	BONANZA 480 LIQUID HERBICIDE*	1.25 L/ha	1.7 L/ha	2.3 L/ha
Apple		0.85 L/ha	1.1 L/ha	1.1 L/ha
Apricot				
Cherry	Sencore 500F	550 g/ha	750 g/ha	750 g/ha
Peach				
Plum	Sencore DF 75%			
Pear				

\*BONANZA 480 LIQUID HERBICIDE applied and incorporated before transplanting fruit trees will control most annual grasses and many broadleaf weeds. For the control of additional weeds BONANZA 480 LIQUID HERBICIDE may be tank mixed with SENCOR. Do not apply more than one application per year. Refer to SENCOR label for directions on use and special precautions.

**APPLICATION OF BONANZA 480 LIQUID HERBICIDE/LEXONE OR BONANZA 480 LIQUID HERBICIDE/SENCOR AS TANK MIX IN SOYBEANS:**  
 The BONANZA 480 LIQUID HERBICIDE/LEXONE or BONANZA 480 LIQUID HERBICIDE/SENCOR tank-mix controls all of the annual grasses and broadleaf weeds listed on this label, plus additional broadleaf weeds including velvetleaf, wild mustard and common ragweed. Control of cocklebur may be erratic ranging from fair to excellent. The BONANZA 480 LIQUID HERBICIDE/LEXONE or BONANZA 480 LIQUID HERBICIDE/SENCOR tank-mix may be applied up to 10 days before planting. Incorporate properly.

**BROADCAST RATE PER HECTARE**

SOIL TEXTURE(S)	BONANZA 480 LIQUID HERBICIDE LEXONE or SENCOR	
Light [sandy loam (a), loamy sand(b)]	1.25 litres	See product label
Medium [loam, silt loam, silt, sandy clay loam]	1.7 litres	See product label
Heavy [silty clay, silty clay loam(c), clay loam, clay]	2.3 litres	See product label

- (a) On variable soils with light sandy areas, apply the proper rate to the sandy areas. Over-application may result in damage to these areas.
- (b) Do not use on light soils with less than 1% organic matter.

(c) Sandy loam and silty clay loam soils may be classified either as medium or heavy textured soils in some regions.

**BONANZA 480 LIQUID HERBICIDE PRE-PLANT INCORPORATED  
FOLLOWED BY LINURON PRE-EMERGENT ON SOYBEANS**

Apply BONANZA 480 LIQUID HERBICIDE pre-plant incorporated. Follow-up with a treatment of LINURON (LINURON, AFOLAN, LOROX) as a band or broadcast after planting but before the crop emerges. Follow directions closely on the LINURON label. Apply in 225 to 335L of water per hectare.

**RATE PER HECTARE**

<u>SOILS (Loam or Clay types)</u>	<u>BONANZA 480 LIQUID HERBICIDE</u>	
<u>LINURON 480</u>		

Light coloured low organic matter (2%)	1.25L to 1.7L	1.9 to 2.25L
Dark coloured moderate organic matter (2-5%)	1.7L to 2.3L	2.25 to 3.25L

This split application will provide for very broad spectrum weed control.

**ADDITIONAL TANK MIXES WITH BONANZA 480 LIQUID HERBICIDE FOR  
USE ON SOYBEANS**

<b>RATE OF BONANZA 480 LIQUID HERBICIDE L/ha</b>			
	<b>SOIL TYPE</b>		
	<b>Light</b>	<b>Medium</b>	<b>Heavy</b>
BONANZA 480 LIQUID HERBICIDE preplant incorporated/LINURON, LOROX or AFOLAN pre-emergently	1.25	1.75	2.3
See LINURON, LOROX or AFOLAN labels for use rates, additional weeds controlled, and precautions and limitations.			
BONANZA 480 LIQUID HERBICIDE preplant incorporated / BASAGRAN + ASSIST post-emergence	1.25	1.7	2.3
See BASAGRAN label for use rates, additional weeds controlled, and precautions and limitations.			

**BONANZA 480 LIQUID HERBICIDE USE IN TOMATOES**

BONANZA 480 LIQUID HERBICIDE incorporated before planting tomatoes, will control most annual grasses and many broadleaf weeds. To control more weeds, use BONANZA 480 LIQUID HERBICIDE in combination with SENCOR for the following:

**BONANZA 480 LIQUID HERBICIDE PLUS SENCOR IN TRANSPLANTED  
TOMATOES (GROWN FOR PROCESSING ONLY)**

**BROADCAST RATE PER HECTARE:**

SOIL TEXTURE	BONANZA 480 LIQUID HERBICIDE	SENCOR
Light [sandy loam (a), loamy sand(b)]	1.25	See product label
Medium [loam, silt loam, silt, sandy clay loam]	1.7	See product label
Heavy [silty clay, silty clay loam(c), clay loam, clay]	2.3	See product label

- A postemergence directed application of SENCOR plus LENTAGRAN is used to control any weed escapes. This should also leave a residual amount of SENCOR to maintain season long control.
- Refer to the SENCOR labels for additional instructions and precautions.
- BONANZA 480 LIQUID HERBICIDE may damage transplants weakened by any cause which may result in reduced crop yield. To prevent damage, plant only healthy transplants; do not plant when cool, wet or unfavourable growing conditions exist. Follow all application and incorporation directions exactly.

**LOOSE SILKY-BENTGRASS CONTROL IN FALL SEEDED CEREALS (Wheat and Rye only) GROWN IN ROTATION WITH FLUE-CURED TOBACCO.**

- Apply BONANZA 480 LIQUID HERBICIDE after seeding in the cereal crop but before crop emergence.
- Apply BONANZA 480 LIQUID HERBICIDE at 1-1.5L/ha. Use the higher rate for heavier soil textures. Apply in a minimum of 100L/ha of water.
- Incorporate BONANZA 480 LIQUID HERBICIDE to shallow depth (2.5-5.0cm) immediately after application (within 24 hours) by turning harrows over and harrowing twice at right angles. If field debris is a potential problem, harrow once only with harrows set for maximum penetration. ENSURE DEPTH OF INCORPORATION IS LESS THAN SEEDING DEPTH.

**CAUTION**

BONANZA 480 LIQUID HERBICIDE may affect crops adversely if not used strictly in accordance with these instructions. It can only be used on crops mentioned on this label. The only grain crops for which it is suitable for use are wheat and barley. It may not be used on other grain crops such as oats, rye, or grass crops. Conditions causing seedling stress, such as wet soils, incorrect planting depth, seedling disease, low temperatures, excessive salt in the soil or drought, could bring about damage to the crop from BONANZA 480 LIQUID HERBICIDE.

Spraying with BONANZA 480 LIQUID HERBICIDE may not provide satisfactory control of weeds other than Green Foxtail (Wild Millet) in wheat and barley.

**STORAGE**

If stored below -18 degrees C bring the contents to 15 degrees C for 24 hours and shake well before using.

**PRECAUTIONS**

Warning - skin and eye irritant. Harmful if swallowed or absorbed through the skin. Avoid contact with skin, eyes or clothing. Wear coveralls over long sleeved shirt and long pants, chemical resistant gloves, socks and chemical resistant footwear during mixing, loading, application, clean up and repair. Wear goggles or face shield during mixing/loading. Avoid inhalation of vapours. **KEEP OUT OF REACH OF CHILDREN.** Do not store near heat or flame. Avoid contamination of food stuffs, feed and fish ponds. This product contains a petroleum distillate at 56% which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning equipment.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at: [www.croplife.ca](http://www.croplife.ca).

All handlers must wear a long-sleeved shirt and long pants. In addition, wear chemical-resistant gloves during mixing/loading, repair and clean-up activities.

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

POTENTIAL SKIN SENSITIZER.

#### **FIRST AID**

**IF ON SKIN OR CLOTHING:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

**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 eye. Call a poison control centre or doctor for treatment advice.

**IF SWALLOWED:** Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

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

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

**TOXICOLOGICAL INFORMATION:** The formulation is moderately toxic when ingested and is an eye and skin irritant. This product contains petroleum distillates. Vomiting may cause aspiration pneumonia. Treat Symptomatically.

#### **DISPOSAL**

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.
5. For information on the disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

**NOTICE TO USER:** This pest control product is to be used only in accordance with the directions on the label. It is an offence under the PEST CONTROL PRODUCTS ACT to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

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