

43740-1

PM 23 10F1

GENERAL INFORMATION

Reforest Aid<sup>®</sup> is an effective soil applied general herbicide which at the recommended dosage levels will not harm Douglas fir seedlings of the type usually planted in the Pacific Northwest. Although Reforest Aid<sup>®</sup> does not act through the foliage it can control by root action many annual and biennial weeds as well as deciduous hardwoods such as western red alder and vine maple. Reforest Aid<sup>®</sup> can therefore be used to create an essentially vegetation free zone around a Douglas fir seedling. This removal of competitive vegetation allows the center seedling to get a better share of soil nutrients, water and sunlight. These effects generally lead to improved center height and diameter growth as well as survival. As a result foresters should consider planting fewer stems per acre. However, the vigorously growing Douglas fir may be especially attractive to deer and elk. In areas where animal damage is a serious problem the use of protective devices may be worthwhile.

DIRECTIONS FOR USE

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

Using the measuring cup supplied or an equivalent, apply 50 grams of Reforest Aid<sup>®</sup> so that an area of about 2.4 square feet around each Douglas fir seedling receives the treatment. Because Reforest Aid<sup>®</sup> contains a marker component it is easy to see from a distance if a seedling has been treated. If the planting site is subject to heavy competitive vegetation pressure it may be desirable to increase the area treated. The amount of Reforest Aid<sup>®</sup> should be increased proportionally. Although a simple sprinkling action gives the best distribution of material around the center seedling other application techniques will soon become obvious to the applicator. For example, a flick of the wrist from waist height can project the contents of the cup over the desired area in one movement. Always stand to the windward side of the seedling so that small particles do not blow onto clothing. Since the centers are relatively insensitive to Reforest Aid<sup>®</sup> it should not matter if the foliage is contacted by the treatment. Considerable over application of Reforest Aid<sup>®</sup> is also permissible.

Reforest Aid<sup>®</sup> works best as a pre-emergent treatment and it can be applied at the time of planting or at any time thereafter before competitive vegetation becomes excessive. If large and established plants are present, higher rates (100 to 200 grams per seedling) should then be applied. Users are cautioned that eradication under these circumstances may be slow.



To Assist the Establishment and Growth of Douglas Fir Seedlings

PRECAUTIONARY STATEMENTS

HAZARDOUS TO HUMANS AND DOMESTIC ANIMALS

- Avoid contact with skin, eyes or clothing
Avoid breathing dust
Wash thoroughly after handling
Harmful if swallowed
Environmental hazards
Do not apply directly to water. Do not contaminate water by cleaning of equipment or disposal of wastes.

STORAGE AND DISPOSAL

- 1. Pesticide Disposal
Pesticide sprays, mixtures or rinsate that cannot be used according to label instructions must be disposed of according to Federal, State or local procedures under the Resource Conservation and Recovery Act.
2. Container Disposal
Fiber drums with liners.
Dispose of liners according to approved Federal, State or local procedures under the Resource Conservation and Recovery Act. Container can be reused by return to manufacturer or can be disposed of in a sanitary landfill or by incineration if permitted by state and local authorities.
Paper and plastic bags.
Dispose of bags according to approved Federal, State or local procedures under the Resource Conservation and Recovery Act.

WARRANTY

- 1. The manufacturer guarantees and warrants (a) that the active ingredient and the total net weight are as stated within lawful limits and (b) that the directions, warnings and other statements on this label are based upon responsible experts evaluations of reasonable tests of effectiveness, of toxicity to laboratory animals and to plants, and upon reports of field experience.
2. The manufacturer further warrants that the material herein is reasonably fit for use under normal conditions as directed hereon. The manufacturer neither makes nor authorizes any agent or representative to make any other warranties of FITNESS OR OF MERCHANTABILITY guarantee or representation, express or implied, concerning this material. This product is sold only on the basis that buyer assumes all risk of use or handling which result in loss or damage and which are beyond the manufacturer's control. No claim of any kind, and whether or not based on negligence, shall be greater in amount than the purchase price of the material in respect of which such claim is made. In no event shall manufacturer or seller be liable for special, indirect or consequential damages resulting from the use or handling of this material.

ACCEPTED NOV 10 1981 Under the Federal Insecticide, Fungicide, and Rodenticide Act registered under EPA Reg. No. 43740-1

5% GRANULAR

Active ingredient: 2,4-Dichlorophenoxyacetic Acid 5%
Inert ingredients 95%
Total 100%

KEEP OUT OF REACH OF CHILDREN CAUTION STATEMENT OF PRACTICAL TREATMENT In case of contact wash skin with soap and water. For eyes, flush with water for 15 minutes and seek medical attention. (See side panel for additional precautions.)



MANUFACTURED BY GREENSHIELD OF WASHINGTON POST OFFICE BOX 27146 BATTLE, WASHINGTON 98125

EPA EST. NO. 45083-WA-1 EPA REG. NO. 43740-1

Silt loam to sandy clay loam	Completely emerged	4 4 75 pts
Olton and Pullman clay soils	At least 6 inches high	4 4 75 pts
Silty clay loams and heavier soils	Completely emerged	6 pts

**POSTEMERGENCE BROADLEAF WEED CONTROL WITH LIQUID ATRAZINE PLUS EMULSIFIABLE OIL IN WATER**

Broadcast 2.4 pts. per acre for control of broadleaf weeds including annual morningglory, cocklebur, lambsquarters, mustard, pigweed, ragweed, smartweed and wild buckwheat. Application should be made before pigweed and lambsquarters reach 6 inches in height and before all other weeds reach 4 inches in height. Texas, New Mexico, Oklahoma, western Kansas, Colorado and the desert regions of California and Arizona, apply when sorghum is 6-10 inches in height, but before it reaches the boot stage. In all other areas, apply after sorghum reaches the three leaf stage. Add emulsifiable oil at the rate of 1 gal. per acre for ground applications and one-half gal. per acre for aerial applications. A cultivation may be necessary if all weeds are not controlled or if regrowth of weeds occurs.

**PRECAUTIONS FOR APPLICATIONS OF LIQUID ATRAZINE PLUS EMULSIFIABLE OIL IN WATER TO SORGHUM:** See precautions under Atrazine plus Emulsifiable Oil in Water Applications to Corn.

**POSTEMERGENCE BROADLEAF WEED CONTROL WITH LIQUID ATRAZINE PLUS SURFACTANT (OKLAHOMA, NEW MEXICO, TEXAS, WESTERN KANSAS, COLORADO AND DESERT REGIONS OF ARIZONA AND CALIFORNIA ONLY):**

Broadcast 2.4 pts. of Liquid Atrazine plus .75-1.5 pts. of surfactant per acre after sorghum reaches 6 inches in height, but before weeds reach 1.5 inches in height. Apply only on sandy loam and finer-textured soils.

**PRECAUTIONS FOR ALL APPLICATIONS TO SORGHUM:** (1) Heavy rains immediately following application tend to result in excessive concentrations of herbicide in seed furrow, resulting in possible crop injury. Applications to furrow-planted sorghum should not be made until furrows are leveled (plowed in). Deep planter marks or seed furrows should also be leveled before application. (2) Application made to sorghum growing under stress caused by minor element deficiency or to sorghum growing on highly calcareous soils may result in crop injury. (3) Do not graze or feed forage from treated areas for 21 days following application. (4) Following harvest of a treated crop, plow (moldboard or disk-plow) and thoroughly till the soil in the fall or spring to minimize possible injury to rotational spring-seeded crops, regardless of rate used.

For applications to furrow-irrigated bedded sorghum in Arizona and California and for postemergence applications plus emulsifiable oil, see additional precautions under those sections of this label.

**ROTATIONAL CROP SUGGESTIONS:**

**SEE ROTATIONAL CROP RECOMMENDATIONS UNDER CORN.**

**weed control in corn and sorghum**

**ACTIVE INGREDIENTS:** .....43%  
**Atrazine: 2-chloro-4-ethylamino-6-isopropylamino-s-triazine** .....40.8%  
**Related compounds** .....2.2%  
**INERT INGREDIENTS:** .....57%  
**Total:** .....100%

Liquid Atrazine contains 4 lbs. active ingredients per gal.

Shake well before using.

Keep out of reach of children.

**CAUTION**

See side panel for additional precautionary statements and directions for use.

**NET CONTENTS: 2½ GALLONS**

MANUFACTURED BY  
**MARZONE INCORPORATED**  
 TIFTON, GEORGIA 31704  
**SUGARCANE**

For control of many annual broadleaf and grass weeds, including amaranths, crabgrass, fireweed, Flora's paintbrush, foxtails, junglerice and wiregrass: Broadcast 2-4 quarts in 20-50 gallons of water/A for adequate coverage of the soil surface at time of planting or ratooning, but before cane emerges. One additional application may be made over cane as it emerges, and two additional applications may be made interline after emergence as directed sprays. For control of emerged perillory weed (Florida only): Apply 0.8-1.2 pints in at least 40 gallons of water/A as a directed spray. Add 2 quarts of surfactant for each 50 gallons of spray. Thoroughly cover weed foliage. Precautions: (1) Do not apply after "close-in". (2) Do not apply more than 10 quarts/A to any one crop of cane.

For control of alexandergrass, large crabgrass, perillory (artillery) weed and spiny amaranth, use only of the following methods at planting or ratooning (Florida only).

1. Apply 4 quarts in 20-50 gallons of water/A, preemergence, broadcast or banded. Follow with one or two broadcast or banded over-the-top applications as needed, postemergence to sugarcane and weeds, at 2 quarts in 20-50 gallons of water/A. Treat before weeds exceed 1.5 inches in height.
2. Apply 1-3 times as needed, at 2 quarts in 20-50 gallons of water/A, either broadcast or banded over-the-top post-emergence to sugarcane and weeds. Treat before weeds exceed 2.5 inches in height.

**NOTICE:** Seller warrants that the product conforms to the chemical description and is reasonably fit for the purpose 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.

## HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Harmful or fatal if swallowed. Avoid inhalation of vapors or spray mist. Avoid contact with skin, eyes or clothing.

## ENVIRONMENT HAZARDS

Do not apply directly to water. Do not contaminate water by cleaning of equipment or disposal of wastes."

## STORAGE AND DISPOSAL

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

**PESTICIDE DISPOSAL:**(all except household)

Pesticide, spray mixture or rinsate that cannot be used according to label instructions must be disposed of according to Federal, State or local procedures under the Resource Conservation and Recovery Act.

**CONTAINER DISPOSAL:**(plastic)  
Triple rinse (or equivalent) and offer for recycling or reconditioning, or dispose of in a sanitary landfill or by incineration if permitted by State and local authorities.

## DIRECTIONS FOR USE

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

### DIRECTIONS FOR USE AND CONDITIONS OF SALE AND WARRANTY

**IMPORTANT:** Read the entire Directions for Use and the Conditions of Sale and Warranty before using this product.

**NOTE: DO NOT DETACH FOLDOUT PORTION OF THIS LABEL FROM CONTAINER.**

#### Conditions of Sale and Warranty

The Directions for Use of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials or the manner of use or application, all of which are beyond the control of MARZONE INC. or the Seller.

**Notice:** Buyer assumes all risks of use, storage and handling of this material not in strict accordance with directions given herewith.

#### General Information

Liquid Atrazine herbicide will control many annual broadleaf and grass weeds in corn and sorghum including barnyardgrass, witchgrass (*Panicum capillare*), yellow foxtail, green foxtail, wild oats, large (hairy) crabgrass, giant foxtail, velvetleaf, morningglory, lambsquarters, pigweed, ragweed, nightshade, purslane and mustard. Atrazine may be applied before or after weeds emerge.

In each case where a range of rates is given, the lower rate should be used on coarse-textured soils and soils low in organic matter, and the higher rate should be used on fine-textured soils and soils high in organic matter.

Since Atrazine acts mainly through root absorption, its effectiveness depends on rainfall or irrigation to move it into the root zone. Should weeds develop, a shallow cultivation or rotary hoeing will generally result in better weed control.

Liquid Atrazine is nonflammable.

Care should be taken to avoid using Atrazine where adjacent desirable trees, shrubs or plants might be injured.

**NOTE:** MARZONE INC. does not recommend the use of Liquid Atrazine in combination with other herbicides or oils except as specifically described on the label.

#### Application Procedures

##### GROUND APPLICATION

For the most uniform distribution of broadcast applications use 80° flat fan-type nozzles. For band applications, use flat fan even-spray nozzles. Screens and strainers should be no finer than 50 mesh. Use a pump with capacity to (1) provide sufficient hydraulic agitation during mixing and application to keep the material in suspension and (2) maintain 30-40 psi operating pressure. Unless otherwise specified, use a minimum of 5 gallons of water per acre for preplant incorporated, preemergence and post (without oil or surfactant) applications. Use a minimum of 10 gals. of water per acre for all postemergence applications combined with oil or surfactant.

For band applications, calculate the amount to be applied per acre as follows:

$$\frac{\text{Band width in inches}}{\text{Flow width in inches}} \times \text{Rate/A for broadcast treatment} = \text{Amount needed for band treatment}$$

**AERIAL APPLICATION**

For preplant and preemergence broadcast treatments, apply at a 1:1 ratio of Liquid Atrazine to water (example: recommendation calls for 1 qt. of product and is mixed with 1 qt. of water) to be applied per acre. For postemergence treatments, apply the recommended rate of Liquid Atrazine plus oil in a minimum of 2 gals of water per acre. Avoid applications under conditions where uniform coverage cannot be obtained or where excessive spray drift may occur. The above water volumes are the minimum to be applied per acre.

**LIQUID ATRAZINE IN WATER APPLICATIONS**

Liquid Atrazine, a liquefied formulation, should be mixed with water and applied as a spray. Pour Liquid Atrazine into the tank during or after filling. Hydraulic (jet) or mechanical agitation is recommended during mixing and application to keep the material in suspension. All return lines to the tank must discharge below liquid level and agitation should not be so violent as to cause air bubbles to form in the liquid. Wash sprayer thoroughly after use.

**LIQUID ATRAZINE IN LIQUID FERTILIZER APPLICATIONS**

Nitrogen solutions or complete liquid fertilizers may replace all or part of the water as a carrier for preemergence and preplant applications of Liquid Atrazine. Mixing should be accomplished as described under water applications. Do not apply after corn or sorghum has emerged as there is danger of liquid fertilizers causing crop injury.

**LIQUID ATRAZINE PLUS EMULSIFIABLE OIL IN WATER APPLICATIONS**

The addition of oil to postemergence Atrazine in water sprays may speed the activity of Atrazine and provide quicker kill of weeds. However, under certain conditions the use of oil may seriously damage corn or sorghum. To minimize the possibility of damage, follow the directions, procedures and precautions given below.

For combining with Atrazine, use a crop oil designated for use with Atrazine containing 1-2% suitable emulsifier. Several oils of this type are on the market. Oils contaminated with water or other materials can cause compatibility problems and/or crop injury.

**MIXING PROCEDURES:** (1) Thoroughly clean sprayer prior to use. Do not use sprayer contaminated with 2,4-D or other materials as crop damage or sprayer clogging may result. (2) Fill spray tank half to two-thirds full of clean water. (3) With the agitation system in operation, add the Atrazine. (4) Add the emulsifiable oil last. (5) Empty the tank as completely as possible before refilling to prevent a buildup of oil in the tank. Keep the agitation system in operation to avoid a separation of the oil from the water in the spray mixture still remaining in the tank. (6) If an oil film starts to build up in the tank, drain the tank and clean out with a strong detergent solution or solvent. (7) Clean the sprayer thoroughly immediately after use by flushing the system with water containing a detergent.

**INSTRUCTIONS FOR SAFE HANDLING**

Avoid application directly to humans or animals. Flagmen or loaders should avoid inhalation of spray mist or contact with skin and should wash thoroughly before eating and at the end of each day's operation.

**Directions for Use**

**CORN**

Liquid Atrazine may be applied either before planting, at planting or after planting as indicated below.

**PREPLANT (BROADLEAF AND GRASS CONTROL)**

Broadcast in the spring after plowing at the rate indicated in Table 1. Application may be made before, during or after final seedbed preparation. If soil is tilled or worked after application, avoid deep incorporation of Liquid Atrazine. Best results have been obtained when Liquid Atrazine is applied within two weeks prior to planting.

**PREEMERGENCE (BROADLEAF AND GRASS CONTROL)**

Apply during or shortly after planting prior to weed emergence at the rate indicated in Table 1.

**POSTEMERGENCE (BROADLEAF AND GRASS CONTROL)**

Apply before weeds exceed 1.5 inches in height, at the rate indicated in Table 1.

**TABLE 1**

**For Control of Broadleaves and Grasses<sup>1</sup>**

Soil Texture	Liquid Atrazine Broadcast Rate/A
Coarse-textured soils sands, loamy sands and sandy loams	4 pts.
Medium-textured soils silt and clay loams that are low in organic matter	4.75 pts.
Fine-textured soils silt and clay loams with medium to high organic matter and clays (including the dark prairie soils of the Corn Belt)	6 pts.
Peats, muck and high organic clays (apply postemergence only)	6 pts.

<sup>1</sup>For Preplant or Preemergence Applications (western Kansas, western Nebraska, eastern Colorado, eastern Wyoming, New Mexico, western Texas and the Panhandle of Oklahoma): On sands, loamy sands, sandy loams, mild to strongly alkaline soils and all recently leveled soils, apply 2.4 pts. per acre for broadleaf weed control. Many broadleaf weeds including pigweed, lambsquarters, nightshade, purslane and kochia will be controlled. On other soil types in the areas above make applications at the rate shown in Table 1 for broadleaf and grass control.

**LAY-BY TREATMENT (BROADLEAF AND GRASS CONTROL)**

Broadcast 2-4 pts. per acre in a minimum of 5 gals. of water or nitrogen solution before weeds are 1.5 inches high and the corn is 20-30 inches high. When nitrogen solutions are used, direct the spray to the lower 3-4 inches of corn stalks to avoid corn foliage injury. Agitation in the spray tank during application is essential.

**POSTEMERGENCE BROADLEAF AND GRASS WEED CONTROL WITH LIQUID ATRAZINE PLUS EMULSIFIABLE OIL IN WATER**

Broadcast 4 pts. per acre after weed emergence, but before weeds reach 1.5 inches in height. Add emulsifiable oil at the rate of 1 gal. per acre for ground applications and one-half gal. per acre for aerial applications.

**POSTEMERGENCE BROADLEAF WEED CONTROL WITH LIQUID ATRAZINE PLUS EMULSIFIABLE OIL IN WATER**

Broadcast 2.4 pts. per acre for control of many broadleaf weeds including annual morningglory, cocklebur, lambsquarters, mustard, pigweed, ragweed, smartweed and wild buckwheat. Application should be made before pigweed and lambsquarters reach 6 inches in height and before all other weeds reach 4 inches in height. Add emulsifiable oil at the rate of 1 gal. per acre for ground applications and one-half gal. per acre for aerial applications. A cultivation may be necessary if all weeds are not controlled or if regrowth of weeds occurs.

**PRECAUTIONS FOR APPLICATIONS OF LIQUID ATRAZINE PLUS EMULSIFIABLE OIL IN WATER TO CORN:**

(1) Do not use oil in Atrazine sprays when crop is under stress from prolonged cold, wet weather, poor fertility, or other factors, or when crop is wet and succulent from recent rainfall as crop injury may occur. (2) Do not use oils in sprays when treating inbred lines or any breeding stock as injury may occur. (3) Adding other insecticides, herbicides, liquid fertilizers or other materials is not recommended with Atrazine and emulsifiable oil in water because they may cause compatibility problems or crop injury. (4) Store and handle emulsifiable oil carefully. Oil contaminated with even a small amount of water may not emulsify properly when added to the tank. (5) Do not make more than one application of Atrazine and emulsifiable oil in water per season (except as recommended for control of yellow nutsedge and Canada thistle on this label).

**PRECAUTIONS FOR ALL APPLICATIONS TO CORN:** (1) Do not apply more than 8 pts. of Liquid Atrazine to corn in any one year. (2) Following harvest of a treated crop, plow (moldboard or disk-plow) and thoroughly till the soil in the fall or spring to minimize possible injury to rotational spring-seeded crops, regardless of the rate used. (3) Do not graze treated area or feed treated forage to livestock for 21 days following application.

For postemergence applications plus emulsifiable oil, see additional precautions under that section of this label.

**ROTATIONAL CROP SUGGESTIONS**

(1) Land treated with Atrazine should not be planted to any crop except corn or sorghum until the following year or injury may occur. (2) If Atrazine is applied after June 10, do not rotate with crops other than corn or sorghum the next year or injury may occur. (3) If Atrazine is used at a broadcast rate higher than 6 pts per acre (or comparable rates in a band application), a crop of untreated corn or sorghum should precede the next rotational crop. (4) In the High Plains or Intermountain areas of the West where rainfall is sparse and erratic or where irrigation is required, use Atrazine only when corn or sorghum is to follow corn or sorghum, or a crop of untreated corn or sorghum is to precede other rotational crops. (5) In western Minnesota and eastern parts of the Dakotas, Nebraska and Kansas, corn or sorghum treated with Atrazine should not be followed with soybeans if the broadcast rate applied was more than 4 pts per acre (or comparable rate in a band) or injury may occur. (6) Injury may occur to soybeans planted in north-central Iowa and south-central Minnesota the year following an Atrazine application on Harps, Canisteo, Storden or other soils having a calcareous surface layer. (7) Do not plant sugar beets, tobacco, vegetables (including dry beans), spring-seeded legumes and grasses the year following Atrazine application or injury may occur.

**SORGHUM AND SORGHUM-SUDAN HYBRIDS (GRAIN AND FORAGE TYPES)**

Liquid Atrazine may be applied either before planting or after planting as indicated below.

**PREPLANT (BROADLEAF AND GRASS CONTROL)**

Broadcast in the spring after plowing at the rate indicated in Table 3. Application may be made before during or after final seedbed preparation. If soil is tilled or worked after application, avoid deep incorporation of Liquid Atrazine.

Best results have been obtained when Atrazine is applied within two weeks prior to planting.

**PREEMERGENCE (BROADLEAF AND GRASS CONTROL)**

Apply during or shortly after planting, but prior to weed or crop emergence at the rate indicated in Table 3.

**TABLE 3**

**Preplant and Preemergence Applications\* For Broadleaf and Grass Weed Control in Sorghum**

Soil Texture	Organic Matter	Broadcast Rate of Liquid Atrazine Per Acre
Coarse-textured soils: sands, loamy sands, sandy loams and sandy clay loams	any level	DO NOT USE (except for pre-emergence use on bedded sorghum in Arizona and California as indicated below)
	less than 1%	
	1%-1.5%	
Medium and fine-textured soils: silt loams, clay loams and clays	more than 1.5%	32-4.75 pts

Liquid Atrazine should not be applied preplant to sorghum grown in New Mexico, Oklahoma, Texas, Arkansas, Louisiana, Tennessee, Mississippi, Alabama, Georgia, Florida, South Carolina, and North Carolina or preemergence to sorghum grown in New Mexico, Texas and Oklahoma except in northeast Oklahoma and the Texas Gulf Coast.

In case of planting failures, sorghum can be replanted into soil previously treated with Liquid Atrazine. Do not make a second broadcast application or injury may occur. If Liquid Atrazine is applied in a band and sorghum is replanted in the untreated row middles, Liquid Atrazine can be applied in a band to the second planting.



**POSTEMERGENCE BROADLEAF AND GRASS WEED CONTROL**

Apply before weeds exceed 1.5 inches in height at the rate indicated in Table 4. Applications may be made up to 10 days after planting.

**TABLE 4**

**Postemergence Broadleaf and Grass Weed Control in Sorghum**

Soil Feature	Minimum Height of Sorghum at Treatment	Broadleaf Rate of Liquid Atrazine Per Acre
Sand or loamy sand	DO NOT USE	
Sandy loam	See directions for broadleaf weed control below	
Silt loam to sandy clay loam	Completely emerged	4-4.75 pts
Clay and Pullman clay soils	At least 2 inches high	4-4.75 pts
Silty clay loam and heavier soils	Completely emerged	6 pts

**POSTEMERGENCE BROADLEAF WEED CONTROL WITH LIQUID ATRAZINE PLUS EMULSIFIABLE OIL IN WATER**

Broadcast 2-4 pts. per acre for control of broadleaf weeds, including annual morningglory, cocklebur, lambsquarters, mustard, pigweed, ragweed, smartweed and wild buckwheat. Application should be made before pigweed and lambsquarters reach 6 inches in height and before all other weeds reach 4 inches in height. In Texas, New Mexico, Oklahoma, western Kansas, Colorado and the desert regions of California and Arizona, apply when sorghum is 6-10 inches in height, but before it reaches the boot stage. In all other areas, apply after sorghum reaches the three leaf stage. Add emulsifiable oil at the rate of 1 gal. per acre for ground applications and one-half gal. per acre for aerial applications. A cultivation may be necessary if all weeds are not controlled or if regrowth of weeds occurs.

**PRECAUTIONS FOR APPLICATIONS OF LIQUID ATRAZINE PLUS EMULSIFIABLE OIL IN WATER TO SORGHUM** - See precautions under Atrazine plus Emulsifiable Oil in Water Applications to Corn.

**POSTEMERGENCE BROADLEAF WEED CONTROL WITH LIQUID ATRAZINE PLUS SURFACTANT (OKLAHOMA, NEW MEXICO, TEXAS, WESTERN KANSAS, COLORADO AND DESERT REGIONS OF ARIZONA AND CALIFORNIA ONLY)**

Broadcast 2-4 pts. of liquid Atrazine plus 7.5-15 pts. of surfactant per acre after sorghum reaches 6 inches in height, but before weeds reach 1.5 inches in height. Apply only on sandy, loam and finer-textured soils.

- PRECAUTIONS FOR ALL APPLICATIONS TO SORGHUM** (1) Heavy rains immediately following application tend to result in excessive concentrations of herbicide in seed furrow, resulting in possible crop injury. Applications to furrow planted sorghum should not be made until furrows are leveled/plowed in. Deep planter marks or seed furrows should also be leveled before application. (2) Application made to sorghum growing under stress caused by mineral deficiency or to sorghum growing on highly calcareous soils may result in crop injury. (3) Do not graze or feed forage from treated areas for 21 days following application. (4) Follow up harvest of a treated crop, plow (moldboard or disk plow) and thoroughly till the soil in the fall or spring to minimize possible injury to rotational spring seeded crops, regardless of rate used.

For applications to furrow irrigated bedded sorghum in Arizona and California and for postemergence applications plus emulsifiable oil, see additional precautions under those sections of this label.

**ROTATIONAL CROP SUGGESTIONS:**

**SEE ROTATIONAL CROP RECOMMENDATIONS UNDER CORN**

EPA Est. No. 44317-GA-1

ACCEPTED  
OCT 19 1981

**MARZONE  
ATRAZINE 4L  
HERBICIDE**

**Herbicide — for season-long weed control in corn and sorghum**

**ACTIVE INGREDIENTS:** ..... 43%  
Atrazine: 2-chloro-4-ethylamino-6-isopropylamino-s-triazine ..... 40.8%  
Related compounds ..... 2.2%  
**INERT INGREDIENTS:** ..... 57%  
Total: ..... 100%

Liquid Atrazine contains 4 lbs. active ingredients per gal.  
**Shake well before using.**

**Keep out of reach of children.**

**CAUTION**

See side panel for additional precautionary statements and directions for use.

**NET CONTENTS: 2½ GALLONS**

MANUFACTURED BY  
**MARZONE INCORPORATED**  
TIFTON, GEORGIA 31704  
**SUGARCANE**

For control of many annual broadleaf and grass weeds, including amaranth, crabgrass, fireweed, Florida paintbrush, foxtail, junglerice and wiregrass. Broadcast 2-4 quarts in 20-50 gallons of water/A for adequate coverage of the soil surface at time of planting or ratooning, but before cane emerges. One additional application may be made over cane as it emerges, and two additional applications may be made interline after emergence as directed above. For control of emerged perillory weed (Florida only) Apply 0.8-1.2 pints in at least 40 gallons of water/A as a directed spray. Add 2 quarts of surfactant for each 50 gallons of spray. Thoroughly cover weed foliage.

**Precautions:** (1) Do not apply after "close in". (2) Do not apply more than 10 quarts/A to any one crop of cane.

For control of alexandergrass, large crabgrass, perillory (arillary) weed and spiny amaranth, use only of the following methods at planting or ratooning (Florida only):

1. Apply 4 quarts in 20-50 gallons of water/A, pre-emergence, broadcast or banded. Follow with one or two broadcast or banded over the top applications as needed, post-emergence to sugarcane and weeds, at 2 quarts in 20-50 gallons of water/A. Treat before weeds exceed 1.5 inches in height.
2. Apply 1-3 times as needed, at 2 quarts in 20-50 gallons of water/A, either broadcast or banded over-the-top post-emergence to sugarcane and weeds. Treat before weeds exceed 2.5 inches in height.

**NOTICE:** Seller warrants that the product conforms to its chemical description and is reasonably fit for the purpose 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.

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Harmful or fatal if swallowed. Avoid inhalation of vapors or spray mist. Avoid contact with skin, eyes or clothing.

### ENVIRONMENT HAZARDS

Do not apply directly to water. Do not contaminate water by cleaning of equipment or disposal of wastes."

### STORAGE AND DISPOSAL

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

### PESTICIDE DISPOSAL:(all except household)

Pesticide, spray mixture or rinsate that cannot be used according to label instructions must be disposed of according to Federal, State or local procedures under the Resource Conservation and Recovery Act.

**CONTAINER DISPOSAL:(plastic)**  
Triple rinse (or equivalent) and offer for recycling or reconditioning, or dispose of in a sanitary landfill or by incineration if permitted by State and local authorities.

### DIRECTIONS FOR USE

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

#### DIRECTIONS FOR USE AND CONDITIONS OF SALE AND WARRANTY

**IMPORTANT:** Read the entire Directions for Use and the Conditions of Sale and Warranty before using this product.

**NOTE: DO NOT DETACH FOLDOUT PORTION OF THIS LABEL FROM CONTAINER.**

#### Conditions of Sale and Warranty

The Directions for Use of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials or the manner of use or application, all of which are beyond the control of MARZONE INC or the Seller.

**Notice:** Buyer assumes all risks of use, storage and handling of this material not in strict accordance with directions given herewith.

#### General Information

Liquid Atrazine herbicide will control many annual broadleaf and grass weeds in corn and sorghum including barnyardgrass, witchgrass (*Panicum capillare*), yellow foxtail, green foxtail, wild oats, large (hairy) crabgrass, giant foxtail, velvetleaf, morningglory, lambsquarters, pigweed, ragweed, nightshade, purslane and mustard. Atrazine may be applied before or after weeds emerge.

In each case where a range of rates is given, the lower rate should be used on coarse-textured soils and soils low in organic matter, and the higher rate should be used on fine-textured soils and soils high in organic matter.

Since Atrazine acts mainly through root absorption, its effectiveness depends on rainfall or irrigation to move it into the root zone. Should weeds develop, a shallow cultivation or rotary hoeing will generally result in better weed control.

Liquid Atrazine is nonflammable.

Care should be taken to avoid using Atrazine where adjacent desirable trees, shrubs or plants might be injured.

**NOTE:** MARZONE INC. does not recommend the use of Liquid Atrazine in combination with other herbicides or oils except as specifically described on the label.

#### Application Procedures

##### GROUND APPLICATION

For the most uniform distribution of broadcast applications use 80° flat fan-type nozzles. For band applications, use flat fan even-spray nozzles. Screens and strainers should be no finer than 50 mesh. Use a pump with capacity to (1) provide sufficient hydraulic agitation during mixing and application to keep the material in suspension and (2) maintain 30-40 psi operating pressure. Unless otherwise specified, use a minimum of 5 gallons of water per acre for preplant incorporated, preemergence and post (without oil or surfactant) applications. Use a minimum of 10 gals of water per acre for all postemergence applications combined with oil or surfactant.

For band applications, calculate the amount to be applied per acre as follows.

Band width in inches	X	Rate/A for broadcast treatment	=	Amount needed for band treatment
Flow width in inches				



#### AERIAL APPLICATION

For preplant and preemergence broadcast treatments, apply at a 1:1 ratio of Liquid Atrazine to water (example: recommendation calls for 1 qt. of product and is mixed with 1 qt. of water) to be applied per acre. For postemergence treatments, apply the recommended rate of Liquid Atrazine plus oil in a minimum of 2 gals. of water per acre. Avoid applications under conditions where uniform coverage cannot be obtained or where excessive spray drift may occur. The above water volumes are the minimum to be applied per acre.

#### LIQUID ATRAZINE IN WATER APPLICATIONS

Liquid Atrazine, a liquefied formulation, should be mixed with water and applied as a spray. Pour Liquid Atrazine into the tank during or after filling. Hydraulic (jet) or mechanical agitation is recommended during mixing and application to keep the material in suspension. All return lines to the tank must discharge below liquid level and agitation should not be so violent as to cause air bubbles to form in the liquid. Wash sprayer thoroughly after use.

#### LIQUID ATRAZINE IN LIQUID FERTILIZER APPLICATIONS

Nitrogen solutions or complete liquid fertilizers may replace all or part of the water as a carrier for preemergence and preplant applications of Liquid Atrazine. Mixing should be accomplished as described under water applications. Do not apply after corn or sorghum has emerged as there is danger of liquid fertilizers causing crop injury.

#### LIQUID ATRAZINE PLUS EMULSIFIABLE OIL IN WATER APPLICATIONS

The addition of oil to postemergence Atrazine in water sprays may speed the activity of Atrazine and provide quicker kill of weeds. However, under certain conditions the use of oil may seriously damage corn or sorghum. To minimize the possibility of damage, follow the directions, procedures and precautions given below.

For combining with Atrazine, use a crop oil designated for use with Atrazine containing 1-2% suitable emulsifier. Several oils of this type are on the market. Oils contaminated with water or other materials can cause compatibility problems and/or crop injury.

**MIXING PROCEDURES:** (1) Thoroughly clean sprayer prior to use. Do not use sprayer contaminated with 2,4-D or other materials as crop damage or sprayer clogging may result. (2) Fill spray tank half to two-thirds full of clean water. (3) With the agitation system in operation, add the Atrazine. (4) Add the emulsifiable oil last. (5) Empty the tank as completely as possible before refilling to prevent a buildup of oil in the tank. Keep the agitation system in operation to avoid a separation of the oil from the water in the spray mixture still remaining in the tank. (6) If an oil film starts to build up in the tank, drain the tank and clean out with a strong detergent solution or solvent. (7) Clean the sprayer thoroughly immediately after use by flushing the system with water containing a detergent.

#### INSTRUCTIONS FOR SAFE HANDLING

Avoid application directly to humans or animals. Flagmen or loaders should avoid inhalation of spray mist or contact with skin and should wash thoroughly before eating and at the end of each day's operation.

#### Directions for Use

##### CORN

Liquid Atrazine may be applied either before planting, at planting or after planting as indicated below.

##### PREPLANT (BROADLEAF AND GRASS CONTROL)

Broadcast in the spring after plowing at the rate indicated in Table 1. Application may be made before during or after final seedbed preparation. If soil is tilled or worked after application, avoid deep incorporation of Liquid Atrazine. Best results have been obtained when Liquid Atrazine is applied within two weeks prior to planting.

##### PRE-EMERGENCE (BROADLEAF AND GRASS CONTROL)

Apply during or shortly after planting prior to weed emergence at the rate indicated in Table 1.

##### POSTEMERGENCE (BROADLEAF AND GRASS CONTROL)

Apply before weeds exceed 1.5 inches in height at the rate indicated in Table 1.

TABLE 1  
For Control of Broadleaves and Grasses<sup>1</sup>

Soil Texture	Liquid Atrazine Broadcast Rate A
Coarse textured soils sands, loamy sands and sandy loams	4 pts
Medium textured soils silt and clay loams that are low in organic matter	4.75 pts
Fine textured soils silt and clay loams with medium to high organic matter and clays (including the dark prairie soils of the Corn Belt)	6 pts
Peats, muck and high organic clays (apply postemergence only)	6 pts

<sup>1</sup>For Preplant or Preemergence Applications (western Kansas, western Nebraska, eastern Colorado, eastern Wyoming, New Mexico, western Texas and the Panhandle of Oklahoma) On sands, loamy sands, sandy loams, mild to strongly alkaline soils and all recently leveled soils, apply 2.4 pts per acre for broadleaf weed control. Many broadleaf weeds including pigweed, lambsquarters, nightshade, purslane and kochia will be controlled. On other soil types in the areas above, make applications at the rate shown in Table 1 for broadleaf and grass control.

#### LAY-BY TREATMENT (BROADLEAF AND GRASS CONTROL)

Broadcast 2-4 pts per acre in a minimum of 5 gals. of water or nitrogen solution before weeds are 1.5 inches high and the corn is 20-30 inches high. When nitrogen solutions are used, direct the spray to the lower 3-4 inches of cornstalks to avoid corn foliage injury. Agitation in the spray tank during application is essential.

#### POSTEMERGENCE BROADLEAF AND GRASS WEED CONTROL WITH LIQUID ATRAZINE PLUS EMULSIFIABLE OIL IN WATER

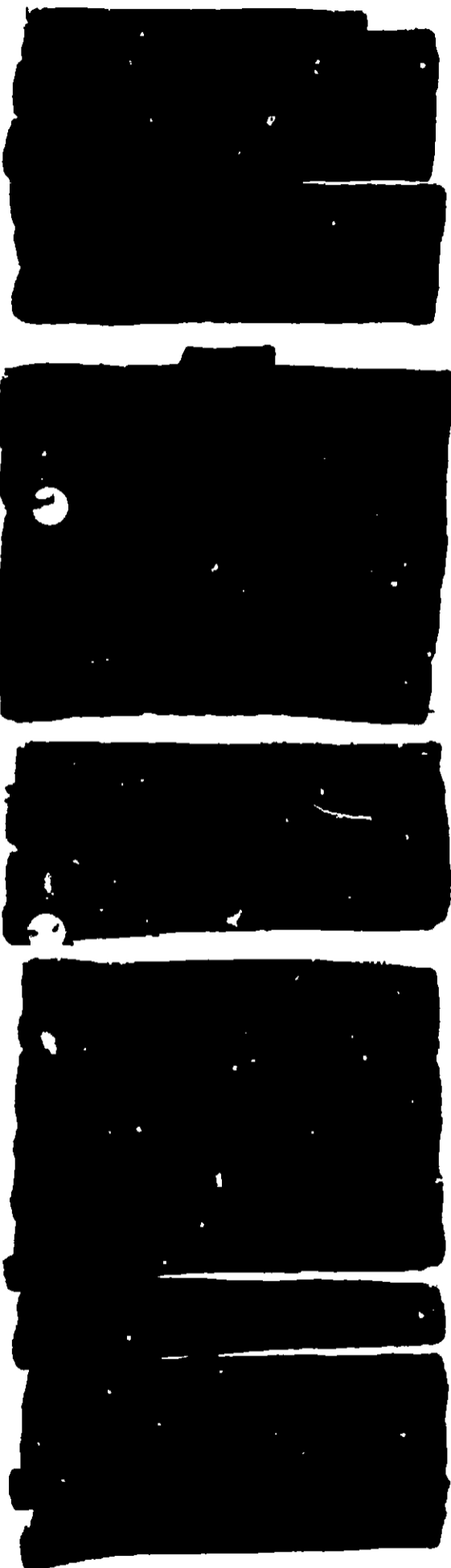
Broadcast 4 pts per acre after weed emergence but before weeds reach 1.5 inches in height. Add emulsifiable oil at the rate of 1 gal. per acre for ground applications and one-half gal. per acre for aerial applications.

#### POSTEMERGENCE BROADLEAF WEED CONTROL WITH LIQUID ATRAZINE PLUS EMULSIFIABLE OIL IN WATER

Broadcast 2.4 pts per acre for control of many broadleaf weeds including annual morningglory, cocklebur, lambsquarters, mustard, pigweed, ragweed, smartweed and wild buckwheat. Application should be made before pigweed and lambsquarters reach 6 inches in height and before all other weeds reach 4 inches in height. Add emulsifiable oil at the rate of 1 gal. per acre for ground applications and one-half gal. per acre for aerial applications. A cultivation may be necessary if all weeds are not controlled or if regrowth of weeds occurs.

#### PRECAUTIONS FOR APPLICATIONS OF LIQUID ATRAZINE PLUS EMULSIFIABLE OIL IN WATER TO CORN

(1) Do not use oil in Atrazine sprays when crop is under stress from prolonged cold, wet weather, poor fertility, or other factors, or when crop is wet and succulent from recent rainfall as crop injury may occur. (2) Do not use oils in sprays when treating inbred lines or any breeding stock as injury may occur. (3) Adding other insecticides, herbicides, liquid fertilizers or other materials is not recommended with Atrazine and emulsifiable oil in water because they may cause compatibility problems or crop injury. (4) Store and handle emulsifiable oil carefully. Oil contaminated with even a small amount of water may not emulsify properly when added to the tank. (5) Do not make more than one application of Atrazine and emulsifiable oil in water per season (except as recommended for control of yellow nutsedge and Canada thistle on this label).



**PRECAUTIONS FOR ALL APPLICATIONS TO CORN** (1) Do not apply more than 8 pts. of liquid Atrazine to corn in any one year. (2) Following harvest of a treated crop, plow (moldboard or disk plow) and thoroughly till the soil in the fall or spring to minimize possible injury to rotational spring seeded crops, regardless of the rate used. (3) Do not graze treated area or feed treated forage to livestock for 21 days following application.

For postemergence applications, plus emulsifiable oil, see additional precautions under that section of this label.

**ROTATIONAL CROP SUGGESTIONS**

(1) Land treated with Atrazine should not be planted to any crop except corn or sorghum until the following year or injury may occur. (2) If Atrazine is applied after June 10, do not rotate with crops other than corn or sorghum the next year or injury may occur. (3) If Atrazine is used at a broadcast rate higher than 6 pts. per acre (or comparative rates of a band application), a crop of untreated corn or sorghum should precede the next rotational crop. (4) In the High Plains or Intermountain areas of the West where rainfall is sparse and erratic, or where irrigation is required, use Atrazine only when corn or sorghum is to follow corn or sorghum or a crop of untreated corn or sorghum is to precede other rotational crops. (5) In western Minnesota and eastern parts of the Dakotas, Nebraska and Kansas, corn or sorghum treated with Atrazine should not be followed with soybeans if the broadcast rate applied was more than 4 pts. per acre (or comparative rate in a band) or injury may occur. (6) Injury may occur to soybeans planted in north central Iowa and south central Minnesota the year following an Atrazine application on Harps, Cansted, Sturgeon or other soils having a calcareous surface layer. Do not plant sugar beets, tobacco, vegetables (including dry beans), spring seeded legumes and grasses the year following Atrazine application or injury may occur.

**SORGHUM AND SORGHUM-SUDAN HYBRIDS (GRAIN AND FORAGE TYPES)**

Liquid Atrazine may be applied either before planting or after planting as indicated below.

**PREPLANT (BROADLEAF AND GRASS CONTROL)**

Broadcast in the spring after plowing at the rate indicated in Table 3. Application may be made before, during or after final seedbed preparation. If soil is tilled or worked after application, avoid deep incorporation of Liquid Atrazine.

Best results have been obtained when Atrazine is applied within two weeks prior to planting.

**PREEMERGENCE (BROADLEAF AND GRASS CONTROL)**

Apply during or shortly after planting, but prior to weed or crop emergence at the rate indicated in Table 3.

**TABLE 3**

**Preplant and Preemergence Applications For Broadleaf and Grass Weed Control in Sorghum**

Soil Texture	Organic Matter	Broadcast Rate of Liquid Atrazine Per Acre
Coarse textured soils: sands, loamy sands, sandy loams and sandy clay loams	any level	(DO NOT USE) (except for pre-emergence on testbed sorghum, Arizona and California, as indicated below)
Medium and fine-textured soils: silt loams, clay loams and clays	less than 1%	
	1% - 1.5%	3.2 - 4 pt.
	more than 1.5%	3.2 - 4.75 pt.

Liquid Atrazine should not be applied preplant to sorghum grown in New Mexico, Oklahoma, Texas, Arkansas, Louisiana, Tennessee, Mississippi, Alabama, Georgia, Florida, South Carolina, and North Carolina or preemergence to sorghum grown in New Mexico, Texas and Oklahoma, except in northeast Oklahoma and the Texas Gulf Coast.

In case of planting failures, sorghum can be replanted into soil previously treated with Liquid Atrazine. Do not make a second broadcast application or injury may occur. If Liquid Atrazine is applied in a band and sorghum is replanted in the untreated row, the second Liquid Atrazine can be applied in a band to the second planting.

**PROBLEM WEEDS  
FOR CONTROL OF YELLOW NUTSEGE AND  
CANADA THISTLE**

Liquid Atrazine will control yellow nutsedge (*Cyperus esculentus*) and Canada thistle (*Cirsium arvense*) when applied according to directions. For best results, Liquid Atrazine should be used each year until yellow nutsedge or Canada thistle is eliminated or reaches a level of infestation where neither weed species is a problem. If regrowth of yellow nutsedge or Canada thistle occurs following the last application of Atrazine during the season, cultivate once. When Liquid Atrazine is applied postemergence to the weeds, 1 gal. of emulsifiable crop oil should be added per acre.

For control of yellow nutsedge and Canada thistle with Liquid Atrazine, several alternative methods of use are available. These methods are listed in order of preference below. If other weed species, such as annual grasses, are also expected, use an alternative method that includes a preplant or preemergence treatment plus a postemergence combination with emulsifiable oil or apply all the Liquid Atrazine preplant or preemergence.

(1) Broadcast 4 pts. of Liquid Atrazine plus 1 gal. of emulsifiable oil per acre after the crop has emerged and after yellow nutsedge or Canada thistle plants emerge, but before yellow nutsedge plants reach a height of 3 inches or Canada thistle plants reach a height of 6 inches. Follow with a second application of 4 pts. of Liquid Atrazine plus 1 gal. of oil per acre 10-20 days (but prior to lay-by, 20-30 inches) after the initial application has been made. (2) Broadcast 4 pts. of Liquid Atrazine per acre preplant. Follow with an application of 4 pts. of Liquid Atrazine plus 1 gal. of oil per acre after the corn and weeds emerge, but before nutsedge plants reach a height of 3 inches (for nutsedge control only). (3) Broadcast 4 pts. of Liquid Atrazine per acre during or shortly after planting, but prior to crop or weed emergence. Follow with an application of 4 pts. of Liquid Atrazine plus 1 gal. of oil per acre after the corn and weeds emerge, but before yellow nutsedge plants reach a height of 3 inches or Canada thistle plants reach a height of 6 inches. (4) Broadcast 8 pts. of Liquid Atrazine plus 1 gal. of oil per acre after the crop has emerged but prior to lay-by (20-30 inches) and after yellow nutsedge and Canada thistle plants emerge, but before nutsedge reaches a height of 3 inches or Canada thistle is more than 6 inches tall. (5) Broadcast 8 pts. of Liquid Atrazine per acre preplant (for yellow nutsedge control only). (6) Broadcast 8 pts. of Liquid Atrazine per acre during or shortly after planting but prior to crop or weed emergence (for yellow nutsedge control only).

**NOTE:** Oil should not be used in Atrazine sprays when corn is wet or under stress, especially when using 8 pts. of Liquid Atrazine per acre. See precaution section under Postemergence Applications of Liquid Atrazine plus Emulsifiable Oil in Water on Corn for additional directions.

**FOR QUACKGRASS CONTROL ON LAND GOING  
INTO CORN PRODUCTION**

**SPLIT APPLICATION:**

Broadcast 4 pts. per acre in the fall or spring and plow 1-3 weeks later. Broadcast a second application at the rate of 4 pts. per acre in the spring before during or after planting but before weeds are 1.5 inches high. This split application will control both quackgrass and most annual broadleaf and grass weeds.

**SINGLE APPLICATION:**

Broadcast 6-8 pts. per acre in the fall or spring. Plow 1-3 weeks after application.

