PM 25
33660-25

1/24

A T R A Z I N E 90 DF

DRY FLOWABLE

HERBICIDE

FOR SEASON LONG WEED CONTROL IN CORN AND SORGHUM

FOR WEED CONTROL IN CERTAIN OTHER CROPS, IN NONCROP AREAS AND INDUSTRIAL SITES

ACTIVE INGREDIENT

Atrazine: 2-chloro-4-ethylamino-6-isopropylamino -s-triazine	85.5%
Related Triazines	4.5%
Inert Ingredients	10.0%
TOTAL	100.00%

ATRAZINE 90 DF CONTAINS 4.25 LBS ACTIVE INGREDIENT PER GAL.

KEEP OUT OF REACH OF CHILDREN

C A U T I O N

SEE BACK OF CONTAINER FOR ADDITIONAL PRECAUTIONARY STATEMENTS

EPA EST. No.: 33660-IT-1 EPA REG. No: 33660-25

NET CONTENTS

I.PI.CI. - INDUSTRIA PRODOTTI CHIMICI, S.p.A. - NOVATE MILANESE

ITALY

ACCEPTED

12 Jan. 1988

Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 33660-25

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Harmful if swallowed, inhaled or absorbed through the skin. Avo d breathing spray mist. Avoid contact with eyes, skin or clothing. Wash thoroughly after handling and before eating or smoking. Remove and wash contaminated clothing before reuse.

Statement of Practical Treatment

If swallowed - Call a physician or Poison Control Center immediately. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Never induce vomiting or give anything by mouth to an unconcious person.
If inhaled - Remove victim to fresh air. Apply artificial respiration if indicated.
If on skin - Wash with plenty of soap and water. Get medical attention if irritation persists.
If on eyes - Flush eyes with plenty of water. Get medical attention if irritation persists.

Environmental Hazards

This pesticide is toxic to aquatic invertebrates. Do not apply directly to water or wetlands. Runoff and drift from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water by cleaning of equipment or disposal of wastes. Atrazine can travel: (seep or leach) through the soil and can enter groundwater which may be used as drinking water. Atrazine has been found in groundwater. Users are advised not to apply atrazine to sand and loamy soils where the water table (groundwater) is close to the surface and where these soils are very permeable, i.e., well drained. Your local agricultural agencies can provide further information on the type of soil in your area and the location of groundwater.

Refer to product labeling for use restrictions to protect ENDANGERED SPECIES.

Directions for Use

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

See accompanying Technical Bulletin for Use of Atrazine 90 DF for complete directions. READ ALL DIRECTIONS CAREFULLY BEFORE APPLYING.

Storage and Disposal

Storage: Store in original container in well ventilated and dry storage area. Keep in shaded area and away from excessive heat.

Pesticide disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Do not contaminate water, food or feed by storage or disposal.

Container disposal: Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

I.PI.CI. Industria Prodotti Chimici, SpA - Novate Milanese - Italy

TECHNICAL BULLETIN FOR

USE OF ATRAZINE 90 DF

GENERAL INFORMATION

Atrazine 90 DF controls many annual broadleaf and grass weeds in corn, sorghum, sugarcane, pineapple and other crops listed in the label.
It is also effective for long-term control of many annual and many perennial broadleaf and grass weeds in noncrop areas and industrial sites.

The product may be applied before or after weeds emerge. Rates are given according to soil texture: lower rates should be used on coarse soils and soils poor in organic matter, higher rates should be used on fine soils and soils rich in organic matter.

The herbicide acts mainly through root absorption, therefore rainfall or irrigation is necessary to move it into the root zone after application.
Should weeds develop, a shallow cultivation or rotary hoeing will generally result in better weed control.

Atrazine 90 DF is non-corrosive to equipment and metal surfaces, non-flammable and has low electrical conductivity.

Avoid the use of this product where adjacent desirable trees, shrubs or plants may be injured.

ENDANGERED SPECIES RESTRICTIONS

The following restrictions apply to use of this product after February 1, 1988.

Before using this pesticide on rangeland, corn, wheat and/or sorghum in the counties listed below, you must obtain the PESTICIDE USE BULLETIN FOR PROTECTION OF ENDANGERED SPECIES for the county in which the product is to be used. The bulletin is available from your County Extension Agent, State Fish and Game Office, or your pesticide dealer. Use of this product in a manner inconsistent with the PESTICIDE USE BULLETIN FOR PROTECTION OF ENDANGERED SPECIES is a violation of Federal laws.

FOR RANGELAND USE:

ALABAMA
Cherokee, De Kalb, Etowah, Jackson and Marshall

ARIZONA
Cochise, Coconino, Gila, Graham, Maricopa, Mohave, Navajo, Pima, Pinal, and Yavapai

CALIFORNIA
Alameda, Butte, Colusa, Contra Costa, Fresno, Glenn, Inyo, Lake, Los Angeles, Mendocino, Merced, Nevada, Orange, Sacramento, San Benito, San Bernardino, San Clemente Island, San Diego, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Barbara Island, Solano, Sutter, Tehema, Ventura and Yolo

COLORADO
Delta, Jackson, La Plata, Mesa, Montezuma and Montrose

FLORIDA
Charlotte, Franklin, Jefferson, Lee, Liberty and Orange

GEORGIA
Brantley, Towns and Wayne

HAWAII
Islands of Hawaii and Maui and the District of Lahaina

IDAHO
Idaho

ILLINOIS
DuPage, Lee, McHenry, Ogle and Winnebago

IOWA
Butler, Clarke, Dickinson, Emmet, Howard, Kossuth, Lucas, Oscocola, Story and Winneshiek

KENTUCKY
Fleming, Nicholas and Robertson

MINNESOTA
Cottonwood, Goodhue, Jackson and Renville

MISSOURI
Christian, Dade and Greene

NEBRASKA
Cherry, Garden and Hooker

NEVADA
Nye

NEW MEXICO
Catron, Chaves, Dona Ana, Eddy, Lincoln, McKinley, Otero, San Juan and Sierra

NORTH CAROLINA
Henderson

OREGON
Harney and Wallowa

SOUTH CAROLINA
Greenville and McCormick

TENNESSEE
Davidson, Rutherford and Wilson

TEXAS
Bandera, Brazos, Brewster, Burleson, Culberson, Edwards, El Paso, Grimes, Harris, Hays, Hudspeth, Jim Wells, Kerr, Kimble, Kleburg, Nueces, Pecos, Presidio, Real, Refugio, Robertson, Runnels, San Augustine, Starr, Terrell, Uvalde, Val Verde and Zapata

UTAH
Beaver, Cache, Carbon, Duchesne, Emery, Garfield, Grand, Iron, Kane, Plute, San Juan, Sanpete, Sevier, Uintah, Utah, Washington and Wayne

WISCONSIN
Dane, Pierce, Rock and Sauk

FOR CROP USE (Corn, Wheat and Sorghum):

ALABAMA
Colbert, Greene, Jackson, Lamar, Lauderdale, Limestone, Madison, Marshall, Morgan, Pickens and Sumter

ARIZONA
Graham, Maricopa, Mohave, Pima, Pinal and Santa Cruz

ARKANSAS
Benton, Clay, Clark, Cross, Lawrence, Lee, Poinsette, Polk, Randolph, Sharp and St. Francis

CALIFORNIA
Butte, Colusa, Glenn, Imperial, Merced, Modoc, Riverside, Sacramento, Solano, Sutter, Tehema and Yolo

FLORIDA
Broward, Dade, Glades and Palm Beach

KENTUCKY
Ballard, Butler, Edmundson, Green, Hart, Jackson, Laurel, Livingston, Marshall, McCracken, McCreary, Pulaski, Rockcastle, Taylor, Warren and Wayne

MISSISSIPPI
Claiborne, Copiah, Hinds, Itawamba, Lowndes, Monroe and Noxubee

MISSOURI
Barry, Benton, Camden, Christian, Dallas, Greene, Hickory, Jasper, Lawrence, Miller, Newton, Osage, Polk, St. Clair, Stone and Webster

NEVADA
CLARK

NEW MEXICO
Chaves, Debaca and Eddy

NORTH CAROLINA
Edgecombe, Nash and Pitt

OHIO
Pickaway

OKLAHOMA
Delaware, McCurtain and Pushmataha

OREGON
Lake

TENNESSEE
Bedford, Blount, Claiborne, Decatur, Franklin, Hancock, Hardin, Hickman, Knox, Lawrence, Lincoln, Loudon, Marshall, Maury, Meigs, Monroe, Rhea, Roane, Scott, Sequatchie, Smith, Sullivan and Wayne

TEXAS
Bastrop, Burleson, Comal, Harris, Hays, Jeff Davis, Pecos and Reeves

UTAH
Utah and Washington

Virginia
Lee, Russell, Scott, Smyth, Tazewell, Washington and Wise

APPLICATION PROCEDURES

GROUND APPLICATION

Uniform distribution is essential for best results. To assure thorough coverage, use 10-40 gallons of water per acre, unless otherwise specified. Use 80 flat fan-type nozzles: screens in nozzle, in suction and inline, should be no finer than 50 mesh. Suitable pumps should have the capacity to maintain 35-40 psi operating pressure.

Calculate amount of product per acre for band application as follows:

$$\frac{\text{Band width (inches)}}{\text{Row width (inches)}} \times \text{broadcast rate/A} = \text{band rate/A of field}$$

AERIAL APPLICATION

Use only where specified, in a minimum of 1 gallon of water for each 1-1.5 lbs/A. For postemergence treatments on corn and sorghum apply in a minimum of 2 gallons of water/A.

Avoid application when uniform coverage is not obtainable or when excessive drift may occur.

Avoid application that would result in direct contact with humans or animals.

Though strictly unnecessary, flagmen or loaders should wear protective clothing. They should avoid inhaling spray mist and should wash thoroughly at the end of operations.

APPLICATION THROUGH IRRIGATION SYSTEMS (CHEMIGATION)

Apply this product only through sprinkler irrigation systems including sprinkler center pivot. Do not apply this product through any other type of irrigation system.

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

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

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

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

APPLICATION IN LIQUID FERTILIZER
Nitrogen solutions or complete liquid fertilizers may be used as carriers for Atrazine 90 DF for preplant or preemergence applications in corn or sorghum.
Prior to mixing in the spray tank, check the compatibility of the mixture. Do not apply postemergent or injury may occur to the crop.

APPLICATION IN WATER PLUS EMULSIFIABLE OIL OR OIL CONCENTRATE
Emulsifiable oils or oil concentrates may be added to Atrazine 90 DF in water sprays: the mixture may speed activity of the herbicide and provide quicker kill of weeds.
Under certain conditions, however, the use of oils may injure corn: follow directions and precautions given.

Use a crop oil containing at least 1% suitable emulsifier or a crop oil concentrate containing not more than 20% emulsifier or surfactant designated for use with atrazine.

Products contaminated with water or other materials can cause damage to the crop.

Mixing procedures
- Use a thoroughly clean sprayer: contamination with 2,4 D or other materials may injure crop.
- Fill spray tank 1/2-2/3 full of clean water.
- Start agitation be sure that agitation system is working properly
- Pour Atrazine 90 DF directly from bag into the tank.
- Add, if applicable, emulsifiable oil, oil concentrate or tank mixed herbicides.
- Completely fill the tank with water.
- Empty the tank as completely as possible before refilling and keep the agitation system in operation to avoid separation from oil/water in the tank.
- Drain the tank and clean out with strong detergent solution or solvent.
- Clean the sprayer immediately after use, flushing with water containing a detergent.

DIRECTIONS FOR USE

CORN

For the control of annual broadleaf and grass weeds such as: barnyardgrass, witchgrass (Panicum capillare), yellow foxtail,

green foxtail, wild oats, large crabgrass, giant foxtail, velvetleaf, morningglory, lambsquarters, pigweed, ragweed, nightshade, purslane, mustard.

Apply either before planting, at planting or after planting.

Preplant: broadcast in the spring after plowing; apply before, during or after seedbed preparation. If soil is tilled avoid deep incorporation. For best results apply within two weeks prior to planting.

Preemergence: apply during or shortly after planting prior to weed emergence.

Postemergence: apply before weeds exceed 1.5 inches high.

Broadcast rate/Acre	
Coarse soils (sand, loamy sand, sandy loam)	2.2 lbs.
Medium soils (silt and clay loams with low organic matter)	2.6 lbs.
Fine soils (silt and clay loams with medium and high organic matter)	3.3 lbs.
Peats, mucks and high organic clays (In post emergence only)	3.3 lbs.

For broadleaf control in Western KS, Eastern CO, NM, OK, Panhandle, West TX, Eastern WY on sandy loam, mild to strongly alkaline soils and all recently leveled soils, apply no more than 1.3 lbs/A preplant or preemergence.

Lay-by treatment: apply 1.1-2.2 lbs./A in a minimum of 10 gallons of water or nitrogen solution before weeds are 1.5 inches high and corn is 20-30 inches high. When using nitrogen solution, direct the spray to lower 3-4 inches of cornstalks to avoid foliage injury. Maintain agitation in spray tank during application.

Postemergence with emulsifiable oil or oil concentrate

- For broadleaf and grass control: apply 2.2 lbs/A, after weed emergence but before weeds reach 1.5 inches high.
  Add 1 gallon of emulsifiable oil/A for ground application and 0.5 gallons/A for aerial application.
  Add 1 qt. of oil concentrate/A for ground application.

- For broadleaf control: apply 1.5 lbs/A. Add 1 gallon of emulsifible oil/A for ground application and 0.5 gallons/A for aerial application. Add 1 qt. of oil concentrate for ground application. Apply before pigweed and lambsquarters reach 6 inches high.
  If weeds are not controlled or if weeds regrow, a cultivation may be necessary.

Precautions

- Do not apply when crop is under stress from prolonged cold, wet weather, poor fertility or other factors, or when crop is wet from recent rainfall.
- Do not use when treating inbred lines or any breeding stock.
- Do not use with other insecticides, herbicides, liquid fertilizers or other materials.
- Store and handle emulsifiable oil or oil concentrate carefully.
- Do not make more than one application per season except as recommended for the control of yellow nutsedge and Canada thistle.

Center Pivot Sprinkler Application (preemergence or postemergence, CO, KS, NE, SD, WY)
Apply with irrigation water at the rates given either after planting, before corn and weeds emerge, or after corn emergence, but before lay-by (20-30 inches) and before weeds exceed 1.5 inches high.

Sprinkler Chemigation Precautions

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

7. Do not apply when wind speed favors drift beyond the area intended for treatment.

Prepare mixture with minimum ratio of 1 part of product to 1 part of water. Injecting a larger volume of a more dilute slurry/hour will assure more accurate calibration of metering equipment.
Maintain sufficient agitation to keep herbicide in suspension. Meter slurry into irrigation water during entire period.

Apply in 1/2-1 inch of water: use the lower volume on coarse soils, the higher on fine soils.

More than 1 inch of water may reduce weed control by moving the herbicide below the effective zone.
Inject dilute slurry into system through a positive displacement pump.

Additional Precautions

- Inject ahead of any right angle turn in the main line to insure adequate mixing.
- Application when system joints and connections are leaking or when nozzles are not providing uniform distribution may cause crop injury.
- When sprinkler distribution patterns do not overlap sufficiently, unacceptable weed control may result; when sprinkler distribution patterns overlap excessively, crop injury may result.

PROBLEM WEEDS (Yellow nutsedge and Canada thistle)
Atrazine 90 DF controls yellow nutsedge and Canada thistle when used according to directions. For best results apply each year until weeds are eliminated or reach a level of infestation where neither weed is a problem.
If weeds regrow after last application, cultivate once.

Some methods for the control of above weeds are listed, in order of preference.

1. Broadcast 1.1 lbs plus 1 gallon of emulsifiable oil or 1 qt. of oil concentrate/A., after crop and yellow nutsedge or Canada thistle emerge, but before yellow nutsedge is 3 inches tall or Canada thistle is 6 inches tall.
   Repeat application before lay-by (20-30 inches), 10-20 days after the first application.

2. Broadcast 2.2 lbs/A. preplant. Follow with an application of 2.2 lbs plus 1 gallon of emulsifiable oil or 1 qt. of oil concentrate/A, after corn and weeds emerge but before yellow nutsedge is 3 inches tall.

3. Broadcast 2.2 lbs/A., during or shortly after planting, but before crop or weed emergence. Follow with an application of 2.2 lbs plus 1 gallon emulsifiable oil or 1 qt. oil concentrate/A, after corn and weeds emerge, but before yellow nutsedge is 3 inches tall or Canada thistle is 6 inches tall.

4. Broadcast 4.4 lbs plus 1 gallon emulsifiable oil or 1 qt. oil concentrate/A, after crop emerges, but before lay-by (20-30 inches), and after yellow nutsedge and Canada thistle emerge, but before yellow nutsedge is 3 inches tall and Canada thistle is 6 inches tall.

5. Broadcast 4.4 lbs/A, preplant (yellow nutsedge control only).

6. Broadcast 4.4 lbs/A, during or shortly after planting, but before crop or weeds emerge (yellow nutsedge control only).

   Note: Use 2,3,5 or 6 when other weed species are expected. Do not use 1,2,3 or 4 when corn is wet or under stress.

QUACKGRASS CONTROL ON LAND GOING INTO CORN PRODUCTION

- Split application: broadcast 2.2 lbs/A in fall or spring. Plow 1-3 weeks later. Follow with another application at 2.2 lbs/A in spring, before, during or after planting, but before weeds are 1.5 inches tall. This application will also control most annual broadleaf and grass weeds.

- Single application: broadcast 3.3-4.4 lbs/A in fall or spring. Plow 1-3 weeks later.

TANK MIXTURES ON CORN

Atrazine 90 DF may be tank mixed with other herbicides to broaden its spectrum of activity on corn.

Mixtures can be done with:

METOLACHLOR
For control of certain broadleaf and grass weeds. Follow Metolachlor label directions for application.

ALACHLOR
For control of many annual broadleaf and grass weeds such as: barnyardgrass, carpetweed, crabgrass, fall panicum, Florida pusley, foxtails (giant, green, yellow), goosegrass, jimsonweed, kochia, lambsquarters, mustard, nightshade, pigweed, purslane, ragweed, signalgrass, smartweed, witchgrass.
This tank mixture will reduce competition from the hard to control annual weeds such as: annual morningglory, cocklebur and velvetleaf.

Apply at any time from immediately after planting until weeds reach 2-leaf stage and corn is no more than 5 inches tall.
On sweet corn apply before crop and weeds emerge: application after the 2-leaf stage will not give satisfactory control.
With postemergence application occasional corn leaf burn may occur, but this should not affect growth or yield.
If applied with liquid fertilizers spray before crop emerges.
Follow mixing procedures in "Application Procedures".

Broadcast rate/acre

Soil texture	Less than 3% organic matter: Atrazine DF - Alachlor(EC)		3% or more organic matter: Atrazine 90 DF - Alachlor	
Coarse	1.1 lb.	1.5 qt.	1.1 lb.	1.5 qt.
Medium	1.1-1.3 lbs.	1.75 qt.	1.3-1.5 lbs.	2.0 qt.
Fine	1.3-1.75 lbs.	2.25 qt.	1.3-1.75 lbs.	2.5 qt.

Use in a minimum of 20 gallons of water/A.

When applied via center pivot irrigation on coarse soils, apply 1.1 lbs of Atrazine 90 DF + 1 qt Alachlor (EC), observing all Sprinkler Chemigation Precautions.

PROPACHLOR
For the control of many annual broadleaf and grass weeds such as: annual morningglory, annual ryegrass, barnyardgrass (watergrass), velvetleaf, carpetweed, cocklebur, crabgrass, fall

panicum, Florida pusley, giant foxtail, green foxtail, yellow foxtail, goosegrass, groundsel, jimsonweed, lambsquarters, mustard, nightshade, pigweed, purslane, ragweed, smartweed, sunflower.

Broadcast at 1.1-1.7 lbs/A Atrazine 90 DF + 3.6-6 lbs/A Propachlor (65WP) on soil surface any time from immediately after planting until broadleaf and grass weeds reach the 2 leaf-stage, in a minimum of 20 gallons of water/A. Use lower rate on coarse soils low in organic matter and higher rate on fine soils high in organic matter.

SIMAZINE

For the control of many annual weeds such as: carpetweed, crabgrass, fall panicum, foxtail, lambsquarters, morningglory, pigweed, ragweed, velvetleaf.

Apply before planting, at planting or after planting but before crop and weeds emerge. Use 1:1 ratio for control of above weeds and 1:2 ratio for heavy infestations of crabgrass and fall panicum.

Broadcast rate/acre

	1:1 ratio		1:2 ratio	
Soil texture	Atrazine 90 DF	Simazine 80 WP	Atrazine 90 DF	Simazine 80 WP
Coarse	1.1 lbs	1.25 lbs	0.73 lbs	1.6 lbs
Medium	1.3 lbs	1.5 lbs	0.88 lbs	2.0 lbs
Fine	1.6 lbs	1.8 lbs	1.07 lbs	2.4 lbs

Use a minimum of 20 gallons of water/A.

Preplant: apply in spring during or after final seedbed preparation; for best results apply within two weeks before planting.

Preemergence: apply during or shortly after planting, but before crop and weeds emerge.

SIMAZINE AND PARAQUAT

For the control of existing vegetation and residual weed control where corn will be planted directly into a cover crop, established sod or in previous crop residue.

Apply within 3 weeks before, during or after planting, but before crop emerges at 1.1-2.2 lbs/A of Atrazine 90 DF plus 1.25-2.5 lbs/A of Simazine 80 WP plus 1-2 pt/A of Paraquat CL in 20-60 gallons of water/A. Add 8 fl. oz of nonionic surfactant/100 gallons of diluted spray. Use lower rate on coarse soil and higher rate on fine soil.

Precautions for all applications to corn

- Do not apply more than 4.4 lbs/A per year.
- Land treated with Atrazine 90 DF should not be planted with any crop except corn or sorghum until the following year, or injury may occur.
- Following harvest of treated crop, plow and thoroughly till the soil in the fall or spring to minimize possible injury to rotational spring-seeded crops.
- If applied after June 10, do not rotate with crops other than corn or sorghum the next year.
- If used at a rate higher than 3.3 lbs/A, or equivalent band application, a crop of untreated corn or sorghum should preceed the next rotational crop.
- In the High Plains and Intermountain areas of the West where rainfall is sparse and erratic or where irrigation is required, use only when corn or sorghum is to follow corn or sorghum or when a crop of untreated corn or sorghum is to preceed other rotational crops.
- In eastern parts of the Dakotas, KS, Western MN, NE, do not rotate to soybeans if the rate applied to corn or sorghum was higher than 2.2 lbs/A, or equivalent for band application.
- Do not graze treated area of feed treated forage to livestock for 21 days following application.

SORGHUM AND SORGHUM HYBRIDS (GRAIN AND FORAGE TYPES)

For the control of broadleaf and grass weeds.

Apply before planting, at planting or after planting.

Preplant: broadcast in spring after plowing. Apply before, during or after seedbed prepration; if soil is tilled or worked after application, avoid deep incorporation; for best results apply within two weeks before planting.

Preemergence: apply during or shortly after planting before weed or crop emergence.

	Broadcast rate/acre % Organic matter		
	<1%	1-1.5%	>1.5%
Soil Texture			
Coarse	Do not use (except for preemergent use on bedded sorghum in AZ and CA)		
Medium	-	1.7-2.2 lbs.	2.2-2.6 lbs

Do not apply preplant in AL,ARK,FL,GA,LA,MS,ND,OK,SC,TN,TX
Do not apply preemergence in NM,OK,TX except in northeast OK and the TX Gulf.

Preemergence broadleaf weed control in furrow irrigated bedded sorghum in AZ and CA: for the control of ground cherry, lambsquarters, morningglory, mustard, pigweed, purslane, apply 0.9-1.3 lbs/A after bed preparation, during or after planting, but before sorghum and weeds emerge and before the first furrow irrigation. Follow with several regular furrow irrigations to thoroughly wet all soil. To avoid possible sorghum injury do not use on sand or loamy sand soils or on sorghum planted in furrow. Applications to sorghum growing in alkaline soils or where cuts, fills or erosions have exposed calcareous or alkali subsoils may cause injury to the crop.

Postemergence: apply before weeds exceed 1.5 inches in heighth, up to "close in".

	Broadcast rate/acre	
Silt loam to sandy clay loam soils	2.2 - 2.6 lbs	when sorghum is completely emerged
Olton and Pulman clay soil	2.2 - 2.6 lbs	when sorghum is 6 inches tall
Silty clay loam and finer soils	3.3 lbs	when sorghum is completely emerged

For postemergence broadleaf weed control with emulsifiable oil or oil concentrate in water, broadcast 1.3 lbs/A for the control of annual morningglory, cocklebur, lambsquarters, mustard, pigweed, ragweed, smartweed, wild buckwheat.
Apply before pigweed and lambsquarters reach 6 inches and before all other weeds reach 4 inches.
In CO, Western KS,NM,OK,TX and desert region of AZ and CA, apply when sorghum is 6-10 inches high, but before it reaches boot stage. In all other areas apply after sorghum reaches the 3-leaf stage.
Add 1 gallon/A of emulsifiable oil for ground application and 0.5 gallons/A for aerial application.
Add 1 qt. of oil concentrate/A for ground application.
A cultivation may be necessary if all weeds are not controlled or if weeds regrow. Follow precautions for applications with emulsifiable oil or oil concentrate in corn section.

For postemergence weed control with surfactants in Co, Western KS,NM,OK,TX and desert regions of AZ and CA, broadcast 1.3 lbs plus 0.75-1 pt of surfactant/A after sorghum reaches 6 inches high, but before weeds exceed 1.5 inches high and apply only to sandy loam and finer textured soils.

Precautions for all applications to sorghum

- If heavy rain following application causes excessive concentration of herbicide in seed furrow, crop injury may result.
- Do not apply to furrow planted sorghum until furrows are leveled: level deep planter marks or seed furrows before application.
- Application to sorghum growing under stress or to sorghum growing on highly calcareous soil may result in crop injury.
- Injury may occur in any crop other than corn or sorghum planted the year after treatment.
- After harvesting, plow in fall or spring to minimize possible injury to rotational spring seeded crops.
- Injury may occur if both this herbicide, preplant or preemergence, and an at-planting systemic insecticide are used.
- Do not graze or feed forage from treated areas for 21 days following application.

CHEMICAL FALLOW

WHEAT-SORGHUM-FALLOW

To control annual broadleaf and grass weeds following wheat harvest and into following sorghum crop when grown under minimum

tillage, broadcast 3.3 lbs/A to wheat stubble immediately following wheat harvest. If weeds are present, remove with a sweep plow. Plant sorghum into wheat stubble the following spring with minimum soil disturbance. Use a surface planter or a planter leaving a shallow furrow. If weeds are present at planting remove with a sweep plow.

Precautions
- Use only on silt loam or finer textured soils.
- Wheat sorghum-fallow cropping sequence must be followed.
- Do not apply following sorghum harvest.
- Do not graze or feed forage from treated area to livestock.
- Do not plant any crop other than those on this label with-in 18 months.

WHEAT-CORN-FALLOW
To control cheatgrass, kochia, mustard, pigweed, Russian thistle, wild lettuce, wild sunflower, volunteer wheat during period after wheat harvest.
Apply with ground equipment only, following directions given for wheat-sorghum-fallow.
Weed control may extend into following corn crop grown under minimum tillage.

WHEAT-FALLOW-WHEAT (CO,KS,MT,NE,ND,SD,WY)
To control, In preemergence: cheatgrass, common lambsquarters, field pennycress, kochia, mustard, Russian thistle, wild lettuce, and to suppress volunteer wheat during fallow period of a wheat-fallow-wheat rotation, apply at 0.5 lbs/A in 10-40 gallons of water for a ground application or a minimum of 5 gallons of water for aerial application. For the control of pigweed and wild sunflower use the higher rate. Treat only once during same fallow period.

If weeds are present at application, use either a contact herbicide before or after treatment, or tillage after treatment or use a tank mix with Paraquat plus a nonionic surfactant at 0.5-1.1 lbs Atrazine 90 DF plus 1-2 pt of Paraquat (C.I.) in 20-60 gallons of water plus 0.5-1 pt of a nonionic surfactant per 100 gallons of water.
Use tillage to control weeds which escape during fallow period.

Precautions
- Do not use on sandy soil.
- Do not treat eroded hillsides or exposed calcareous subsoil.
- Do not treat soils of the Rosebud and Canyon Series in Western NE and adjacent counties in CO and WY.
- Avoid spraying overlap.
- Do not graze treated areas within 6 months after application.

RANGELAND

For the control of certain weeds such as : cheatgrass (downy brome,chess), tumble mustard, sagewort, annual and common broomweed, little barley, medusahead, apply in a minimum of 10 gallons of water for ground applications and 5 gallons of water for aerial applications. Use lower rate where cheatgrass is a major problem, higher rate for other weeds.

-Establishment of perennial range grasses in CA,ID,NV,OR,UT,WA:
apply at 0.9-1.1 lbs/A in fall after rain begins, but before ground freezes. Perennial range grasses may be seeded when rain begins the next fall following treatment. Plant in deep furrows such as those made by a deep furrow rangeland drill. Treated areas may be grazed 7 months after seeding. However to provide sufficient time for establishment of desirable range grasses, treated areas should not be grazed until the following seeding.

-Renovation of existing stands of perennial range grasses:
Central Great Plains (CO,KS,MT,NE,ND,SD,WY), apply at 0.6-1.1 lbs/A in fall before freeze
Southern Great Plains (OK,TX), apply at 1.1 lb/A in spring before April 30
West (CA,ID,NV,OR,UT,WA), apply at 0.6-0.8 lbs/A by ground equipment in fall before ground freezes.

Precautions
- Bluegrass and intermediate wheatgrass may be injured by this product
- Do not cut or feed range grass as hay
- Do not graze area to be treated for 6 months prior to application
- Do not graze treated area within 7 months following fall application at seeding or 3 months following spring application.
- Apply only once per year.

WARM SEASON PERENNIAL RANGE GRASSES (MIDWEST)
Switchgrass and Big Bluestem
For control of many annual broadleaf and grass weeds such as: cheatgrass, foxtails, lambsquarters, pigweed, rangeweed, smartweed and velvetleaf.
Use a minimum of 15 gallons of water/A for ground application.

New Seeding: apply at 2.2 lbs/A after planting, but before weeds emerge; prepare a good seedbed. Plant 1/2 inch deep with a grassland drill or a conventional drill. If a conventional drill is used on prepared seedbed, remove all tension from the disk

openers. For best results, cultipack or roll after planting. Clip weeds that escape in July-August. Avoid clipping switchgrass seedlings.

Established stands: apply at 2.2 lbs/A in April or early May before weeds emerge.

Precautions
- Do not cut for hay
- Do not graze treated areas within 4 months following application at seeding or 3 months following application to established switchgrass.
- Apply once per year.

SUGARCANE

For the control of many annual broadleaf and grass weeds such as crabgrass, junglerice, wiregrass, foxtails, amaranths, Flora's paintbrush, fireweed and similar plants.

Apply at time of planting or ratooning, but before cane emerges, providing adequate coverage of the soil surface.

Broadcast rate/acre

2.2 - 4.4 lbs in 20-50 gallons of water

One additional application may be made over the cane as it emerges, and two additional applications may be made interline after emergence, as directed spray.

For the control of emerged pellitory weed (artillery weed) (FL only), apply 0.4-0.6 lbs/A in at least 40 gallons of water as directed spray. Add 2 qts of surfactants and provide adequate coverage of foliage.

Precautions
- Do not apply after close-in
- Do not apply more than 11 lbs/A

For the control of alexandergrass, large crabgrass, pellitory (artillery) weed, and spiny amaranth, use one of the following methods at planting or ratooning (FL only):

1. Apply 4.4 lbs/A in 20-50 gallons of water, preemergence, broadcast or banded, followed by one or two broadcast or banded over-the-top applications postemergence at 2.2 lbs/A in 20-50 gallons of water. Treat before weeds exceed 1.5 inches in heighth.

2. Apply 1-3 times, as needed, at 2.2 lbs/A in 20-50 gallons of water, broadcast or banded over-the-top postemergence to sugarcane and weeds. Treat before weeds exceed 1.5 inches in heighth.

TURF GRASSES FOR SOD PRODUCTION
(St. Augustine, Centipede, Zoysia Grass)

Apply in 20-40 gallons of water/A for thorough coverage at the following rates:

	Broadcast rate/acre	
Muck or peat soils	4.4 lbs	In old beds: within 2 days of after lifting sod In new beds: 3-4 days after sprigging or plugging
Sandy soils	2.2 lbs	In old beds: within 2 days after lifting sod In new beds: 7-10 days after sprigging or plugging

If weeds regrow apply an additional 2.2 lbs/A on muck or peat or 1.1 lbs/A on sandy soils.

MACADAMIA NUTS

For preemergence control of many broadleaf and grass weeds such as: crabgrass, foxtail, wiregrass, Flora's paintbrush, spanishneedles, fireweed.

Apply before harvest and just before weeds emerge at 2.2-4.4 lbs/A in 50 gallons of water. Repeat as necessary.

Precautions
- Do not spray when nuts are on ground during harvest period
- Do not apply by air

PINEAPPLE

For the control of purslane, spanishneedles, annual grasses, annual bindweed, ageratum, amaranths, rattlepod, Flora's paintbrush, fireweed, spurge, indigo, papalo, and other similar weed species.

Apply as a blanket spray immediately after planting or following harvest at 7 lbs/A in 20-40 gallons of water to provide adequate coverage. Repeat applications as necessary up to 1.7 lbs/A at 1-2 month intervals prior to differentiation.

Precautions
- Do not apply more than 33.3 lbs/A per cycle
- Repeated monthly applications to plant foliage may slow plant growth and delay fruiting
- Do not apply within 45 days of fruit harvest or forage harvest if forage is to be fed to livestock

FOREST AND CHRISTMAS TREE PLANTATION

Douglas Fir, Grand Fir, Noble Fir, White Fir, Lodgepole Pine, Ponderosa Pine, Scotch Pine

For the control of annual broadleaf and grass weeds, apply 2.2-4.4 lbs/A in 20-40 gallons of water, between fall and early spring, while trees are dormant, or apply soon after transplanting before weeds are 1.5 inches tall.

For the control of quackgrass, apply 4.4 lbs/A in fall and early spring, while trees are dormant and before quackgrass is more than 1.5 inches tall.

Precautions
- Do not graze treated areas
- Do not apply to seedbeds
- Apply only once a year

NONSELECTIVE WEED CONTROL ON NONCROP AREAS

For long-term weed control on industrial sites, highway medians and shoulders, railroad rights-of-way, lumberyards, petroleum

tank farms, noncrop areas of farms, equipment and fuel storage areas, along fences and lanes.
Apply before or soon after weeds begin growth.
Postemergence applications should be made when weeds are young and actively growing.

Apply at	5.3 - 11.1 lbs/A	for the control of barnyardgrass, cheatgrass, crabgrass, lambsquarters, foxtails, ragweed, puncturevine, turkey mullein
at	11.1 - 22.2 lbs/A	for the control of hard-to-kill annual and perennial broadleaf and grass weeds: bluegrass, burdock, Canada thistle, dogfennel, orchardgrass, plantain, quackgrass, purpletop, red-top, smooth brome
at	22.2 - 44.4 lbs/A	for the control of bull thistle and sowthistle.

Use higher rate on fine clay and muck soils. Use sufficient water to provide adequate coverage: at least 1 gallon of water for each pound of product and more

For small areas 4 oz. per 1,000 sq. ft. is equivalent to 11.1 lbs/A.

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 associated with the 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 which are beyond I.PI.CI.'s control. All such risks shall be assumed by the Buyer.

The product conforms to the chemical description on the label and is reasonably fit for the purposes referred to. I.PI.CI. makes no other express or implied warranty of Fitness or Merchantability or any other express or implied Warranty.
In no case shall I.PI.CI. or the Seller be liable for consequential, special or indirect damages resulting from the use or handling of this product.