

ACCEPTED
MAY 20 1981
Under the Federal Insecticide,
Fungicide, and Rodenticide Act,
as amended, for the pesticide
registered under
EPA Reg. No. 36480-14

MACCO
ATRAZINE 4L
HERBICIDE

FOR SEASON-LONG WEED CONTROL
IN CORN AND SORGHUM.

ATRAZINE 4L CONTAINS 4 LBS. ACTIVE
INGREDIENTS PER GALLON.

ACTIVE INGREDIENTS:
Atrazine (2-chloro-4-ethylamino-6 isopropyl-
amino-s-triazine) 42.75%
Related Compounds 1.35%
INERT INGREDIENTS: 55.90%
TOTAL 100.0%

KEEP OUT OF REACH OF CHILDREN

CAUTION

STATEMENT OF PRACTICAL TREATMENT

IF SWALLOWED — Drink one or two glasses of water and induce vomiting by touching back of throat with finger or blunt object. Do not induce vomiting or give anything by mouth to an unconscious person. Get medical attention immediately.

IF INHALED — Remove victim to fresh air and apply respiration if indicated.

IF ON SKIN — Wash promptly with soap and water. Rinse thoroughly.

IF IN EYES — Rinse eyes for at least 15 minutes with water and call a physician immediately.

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

2½ GALLONS

EPA Reg. No. 36480-14

EPA Est. No.

Manufactured by:

MACCO

MID-AMERICA CHEMICAL CO., INC.
402 SOUTH FIFTH STREET, LEAVENWORTH, KANSAS 66048

42

PRECA

HAZARDS TO

Harmful if swallow
mist. Avoid contact

ENV

Do not apply direct
apply where runoff
weather conditions
contaminate water
wastes.

It is a violation of
manner inconsiste

ST

PROHIBITION: D
feed by storage

PESTICIDE DISPO
Pesticide, spray
according to la
according to Fe
the Resource Co

CONTAINER DIS
offer for recycli
sanitary landfill
and local author

IMPORTANT: Read the entire
using this product.

CONDITIONS OF SALE

The Directions for Use of
tests. The directions are be
impossible to eliminate all
ineffectiveness, or other un
weather conditions, present
are beyond the control of the
Buyer.

The above company warrant
label and is reasonably fit fo
pharmaceuticals referred to abo
of Fitness or Merchandise
company or the Seller's belief
and user accept it as such
varied only by agreement
company.

GENERAL INFORMATION

This herbicide controls m
barnyardgrass, witchgrass,
chickweed, giant foxtail, ryegrass,
perennial and mustard. This
Where use directions are
low in organic matter, and the
Since this product acts m
to move it into the root zone
result in better weed control.
This product is nonflammable.
Avoid using where adjacent
NOTE: The above cond
herbicides or oils except as
above company

CCO

ZINE4L

BICIDE

ONG WEED CONTROL
ND SORGHUM.

NTAINS 4 LBS. ACTIVE
TS PER GALLON.

NGREDIENTS:
mino-6 isopropy- 42.75%
1.35%
55.90%
100.0%

EACH OF CHILDREN
TION

ACTICAL TREATMENT

ne or two glasses of water and
ng back of throat with finger or
vomiting or give anything by
person. Get medical attention

ctim to fresh air and apply

ly with soap and water. Rinse

for at least 15 minutes with
immediately.

DITIONAL PRECAUTIONARY
MENTS

EPA Est. No.

CCO

HEMICAL CO., INC.
EAVENWORTH, KANSAS 66046

42

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

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

ENVIRONMENT HAZARDS

Do not apply directly to lakes, streams, or ponds. Do not apply where runoff is likely to occur. Do not apply when weather conditions favor a drift from areas treated. Do not contaminate water by cleaning of equipment or disposal of wastes.

DIRECTIONS FOR USE

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

STORAGE AND DISPOSAL

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

PESTICIDE DISPOSAL: (all except household)
Pesticide, spray mixture or rinse 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: 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.

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

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 the above company or the Seller. All such risks shall be assumed by the Buyer.

The above company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the Directions for Use subject to the inherent risks referred to above. The above company makes no other express or implied warranty of Fitness or Merchantability or any other express or implied warranty. In no case shall the above company or the Seller be liable for consequential, special, or indirect damages resulting from the use of this product. The above company and the Seller offer this product, and the Buyer and user accept it subject to the foregoing Conditions of Sale and Warranty, which may be varied only by agreement in writing signed by a duly authorized representative of the above company.

GENERAL INFORMATION

This herbicide controls many annual broadleaf and grass weeds in corn and sorghum including: barnyardgrass, witchgrass, (Lanicum capillare), yellow foxtail, green foxtail, wild oats, large (hairy) foxtail, giant foxtail, velvetleaf, morningglory, lambsquarters, pigweed, ragweed, nightshade, purslane, and mustard. This product may be applied before or after weeds emerge.

When use directions give a range of rates, use the lower rate on coarse-textured soil and soil low in organic matter, and the higher rate on fine-textured soil and soil high in organic matter.

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

This product is nonflammable.

Avoid using where adjacent desirable trees, shrubs, or plants might be injured.

NOTE: The above company does not recommend applications in combination with other herbicides or oils except as specifically described on the label or in literature published by the above company.

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 60-mesh. Use a pump with capacity to (1) provide sufficient agitation during mixing and application to keep material in suspension, and (2) maintain 30-40 psi operating pressure. Unless otherwise specified, use a minimum of 5 gal. of water/A for preplant incorporated, preemergence, and postemergence (without oil or surfactant) applications. Use a minimum of 10 gal. of water/A for all postemergence applications combined with oil or surfactant. For band applications, calculate amount to be applied per acre as follows:

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast rate per acre} = \text{Amount needed per acre of field}$$

AERIAL APPLICATION: For preplant and preemergence broadcast treatments, apply at a 1:1 ratio to water (example: recommended rate of 1 qt. of product is mixed with 1 qt. of water) to be applied/A. For postemergence treatments, apply recommended rate in a minimum of 2 gal. of water/A. Avoid applications under conditions where uniform coverage cannot be obtained or where excessive spray drift may occur.

Do not apply directly to humans or animals. Flagmen or loaders should avoid inhalation of spray mist and contact with skin and should wash thoroughly before eating and at the end of each day's operation.

APPLICATION IN WATER OR LIQUID FERTILIZER: Nitrogen solutions or complete liquid fertilizers may replace all or part of the water as a carrier for preemergence and preplant applications. Check the compatibility of this product with liquid fertilizer and/or nitrogen solution before use. Do not apply in liquid fertilizers after corn or sorghum emerges as crop injury may occur.

APPLICATION IN WATER PLUS EMULSIFIABLE OIL OR OIL CONCENTRATE:
Adding emulsifiable oil or oil concentrate to postemergence water-based sprays may improve weed control. However, under certain conditions, use of either emulsifiable oil or oil concentrate may seriously damage corn or sorghum. To minimize this possibility, follow directions, procedures, and precautions below.

Use a crop oil concentrate designed for use with this product and containing not more than 20% emulsifier or surfactant blend. Several oils and crop oil concentrates of this type are on the market. Emulsifiable oil and oil concentrate contaminated with water or other materials can cause compatibility problems with or crop injury.

Mixing Procedures—All uses: (1) Be sure sprayer is clean and not contaminated with 2, 4-D or other materials, as crop injury or sprayer clogging may result. (2) Fill tank 1/2 to 3/4 full with clean water. (3) Start agitation. (4) Pour product directly from container into tank. (5) Add emulsifiable oil or oil concentrate. (6) Finish filling tank with water, nitrogen solution or liquid fertilizer. (7) Empty tank as completely as possible before refilling to prevent buildup of oil or residue in tank. Maintain agitation to avoid separation of other materials from water, nitrogen solution, or liquid fertilizer remaining in tank. (8) If an oil or oil concentrate film starts to build up in tank, drain it, and clean with strong detergent solution or solvent. (9) Clean sprayer thoroughly immediately after use by flushing system with water containing a detergent. (10) For liquid nitrogen or liquid fertilizer, use suction screens of 16-mesh or coarser.

DIRECTIONS FOR USE:

FAILURE TO FOLLOW ALL PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR WEED CONTROL, CROP INJURY, OR ILLEGAL RESIDUES.

CORN

Apply before planting, at planting, or after planting as indicated below.

PREPLANT (Broadleaf and grass control)
Broadcast in spring after plowing at rate in Table 1. Apply before, during, or after final seedbed preparation. If soil is tilled or worked after application, avoid deep incorporation. For best results, apply within two weeks prior to planting.

PREEMERGENCE (Broadleaf and grass control)
Apply during or shortly after planting, prior to weed emergence at rate in Table 1.

POSTEMERGENCE (Broadleaf and grass control)
Apply before weeds exceed 1 1/2 inches in height at rate in Table 1.

TABLE 1 Broadcast and Grass Weed Control on Corn*	
Soil Texture	Broadcast rate-A
COARSE Sand, loamy sand, sandy loam	4 pt.
MEDIUM Silt and clay loam low in organic matter	4.75 pt.
FINE Silt and clay loam with medium to high organic matter, clay (including the dark prairie soils of the Corn Belt)	6 pt.
Peat, muck, high organic clay (post-emergence only)	6 pt.

*Broadcast weed control (eastern CO., western KS., western NE., NM., OK, Pan Handle, west TX., and eastern WY.). On sand, loamy sand, sandy loam, mid to strongly alkaline soil, and all recently leveled soil, apply 2.4 pt. A, either preplant or preemergence. Controls many broadleaf weeds including pigweed, lambsquarters, nightshade, purslane, and cockle. On other soil types in these areas, apply at rate in Table 1 for broadcast and grass control.

43

Lay-by treatment (Broadleaf and grass control)

Broadcast 2-4 pt/A in a minimum of 5 gal of water / nitrogen solution before weeds are 1.5 inches high and corn is 20-30 inches high. When using nitrogen solutions, direct the spray to lower 3-4 inches of corn stalks to avoid corn foliage injury. Maintain agitation in spray tank during application.

Postemergence with emulsifiable oil or oil concentrate in water

Broadleaf and grass control: Broadcast 4 pt/A after weed emergence, but before weeds reach 1.5 inches in height. Add emulsifiable oil at rate of 1 qt/A for ground applications and 0.5 gal/A for aerial applications. Add oil concentrate at rate of 1 qt/A for ground applications.

Broadleaf control: Broadcast 2.4 pt/A for control of broadleaf weeds, such as annual morningglory, cocklebur, lambsquarters, mustard, pigweed, ragweed, smartweed, and wild buckwheat. Add emulsifiable oil at rate of 1 qt/A for ground applications and 0.5 gal/A for aerial applications. Add oil concentrate at rate of 1 qt/A for ground applications. Apply before pigweed and lambsquarters reach 6 inches in height and before all other weeds reach 4 inches in height. A cultivation may be necessary if all weeds are not controlled or if weeds regrow.

Precautions for applications with emulsifiable oil or oil concentrate in water: (1) Do not apply 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) Inbred lines or any breeding stock may be severely injured by applications with emulsifiable oil or oil concentrate. (3) Adding other insecticides, herbicides, liquid fertilizers, and other materials is not recommended because they may cause compatibility problems and/or crop injury. (4) Store and handle emulsifiable oil and oil concentrate carefully. Oil contaminated with even a small amount of water may not emulsify properly when added to tank. (5) Do not make more than one application per season except as recommended for control of yellow nutsedge and Canada thistle on this label.

Center pivot sprinkler application - Preemergence or postemergence (CO, KS, NE, SD, & WY)

Apply with irrigation water 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 in height, at rates in Table 1. Prepare mixture with minimum ratio of 1 part product to 1 part water. Injecting a larger volume of a more dilute slurry per 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 1/4-1 inch of water. Use the lower volume on coarser textured soils, the higher volume on finer textured soils. More than 1 inch of water may reduce weed control by moving herbicide below the effective zone in the soil. Inject dilute slurry into system through a positive displacement pump. Refer to supplemental literature published by the above company for more information on calibrating.

Precautions: (1) Apply only through irrigation systems containing anti-siphon and check valves to prevent contamination of well during shutdown and overflow of solution tank. (2) Inject ahead of any right angle turn in the main line to insure adequate mixing. (3) Chemical injection pumps and water pumps must have interlocking controls to insure simultaneous shutoff. (4) Application when drift may occur from windy conditions, when system points and connections are leaking, or when nozzles are not providing uniform distribution may cause crop injury. (5) Where sprinkler distribution patterns do not overlap sufficiently, unacceptable weed control may result. Where sprinkler distribution patterns overlap excessively, crop injury may result.

PROBLEM WEEDS:

Yellow nutsedge and Canada thistle. This product will control yellow nutsedge (*Cyperus esculentus*) and Canada thistle (*Cirsium arvense*) when applied according to use directions. For best results, apply each year until yellow nutsedge or Canada thistle is eliminated or reaches a level of infestation where neither weed is a problem. If yellow nutsedge or Canada thistle regrow following last application, cultivate once. When this product is applied postemergence to the weeds, add 1 gal. of emulsifiable crop oil or 1 qt. of oil of concentrate/A.

Six alternative methods of use for control of yellow nutsedge and Canada thistle are listed below in order of preference. If other weed species, such as annual grasses, are also expected, use alternative 2, 3, 5, or 6.

1. Broadcast 4 pt. plus 1 gal. of emulsifiable oil or 1 qt. of oil of concentrate/A, after crop and yellow nutsedge or Canada thistle emerge, but before yellow nutsedge reaches a height of 3 inches or Canada thistle reaches a height of 6 inches. Repeat application before lay-by (20-30 inches), 10-20 days after the first application has been made.
2. Broadcast 4 pt/A preplant. Follow with an application of 4 pt. plus 1 gal. of emulsifiable oil or 1 qt. of oil of concentrate/A, after corn and weeds emerge, but before yellow nutsedge reaches a height of 3 inches (yellow nutsedge control only).
3. Broadcast 4 pt/A during or shortly after planting, but prior to crop or weed emergence. Follow with an application of 4 pt. plus 1 gal. of emulsifiable oil or 1 qt. of oil of concentrate/A, after corn and weeds emerge, but before yellow nutsedge reaches a height of 3 inches or Canada thistle reaches a height of 6 inches.
4. Broadcast 8 pt. plus 1 gal. of emulsifiable oil or 1 qt. of oil of concentrate/A after crop emerges, but prior to lay-by (20-30 inches) and after yellow nutsedge and Canada thistle emerge, but before yellow nutsedge is 3 inches tall or Canada thistle is 6 inches tall.
5. Broadcast 8 pt/A preplant (yellow nutsedge control only).
6. Broadcast 8 pt/A during or shortly after planting, but prior to crop or weed emergence (yellow nutsedge control only).

NOTE: Do not use emulsifiable oil or oil concentrate when corn is wet or under stress, especially when using 8 pt. of this product/A. See "Precautions for applications with emulsifiable oil or oil concentrate in water" for additional directions.

Quackgrass control on land going into corn production

Split application: Broadcast 4 pt/A in fall or spring. Plow 1-3 weeks later. Broadcast a second application at 4 pt/A in 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 8-8 pt/A in fall or spring. Plow 1-3 weeks later.

Precautions for all applications to corn: (1) Do not apply more than 8 pt/A of this product to corn in any one year. (2) Following harvest, plow (moldboard or disk plow) and thoroughly till soil in fall or spring to minimize possible injury to rotational spring seeded crops, regardless of rate used.

Note for all applications to corn: Do not graze or feed forage from treated areas to livestock for 21 days following application.

ROTATIONAL CROPS

(1) Do not rotate to any crop except corn or sorghum until the following year, as injury may occur. (2) If applied after June 10, do not rotate with crops other than corn or sorghum the next year, as crop injury may occur. (3) If used at a rate higher than 8 pt/A or equivalent band application rate, a crop of untreated corn or sorghum should precede the next rotational crop. (4) 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 precede other rotational crops. (5) In eastern parts of the Dakotas, KS, western MN, and NE, do not rotate to soybeans if the rate applied to corn or sorghum was more than a 4 pt/A or equivalent band application rate, as soybean injury may occur. (6) Injury may occur in soybeans planted in north-central and northwest IA, south-central and southwest MN, northeast NE, southeast SD, and other areas the year following application on soils having a calcareous surface layer. (7) Do not plant sugar beets, tobacco, vegetables (including dry beans), spring-seeded small grains, or small-seeded legumes and grasses the year following application, as injury may occur.

SORGHUM AND SORGHUM-SUDAN HYBRIDS (Grain and Forage Types)

Apply before planting, at planting, or after planting. See Corn section for weeds controlled. Preplant (Broadleaf and grass control).

Broadcast in spring after plowing at rate in Table 3. Apply before, during, or after final seedbed preparation. If soil is tilled or worked after application, avoid deep incorporation. For best results, apply 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 rate in Table 3.

TABLE 3 Preplant and Preemergence for Broadleaf and Grass Weed Control in Sorghum*		
Soil Texture	Organic Matter	Broadcast rate/A
COARSE Sand, Loamy sand, sandy loam, sandy clay loam	Any level	DO NOT USE (except for preemergent use on bedded sorghum in AZ and CA as indicated below)
MEDIUM AND FINE Silt loam, clay loam, clay	Less than 1%	
	1-1.5%	3.2-4 pt.
	More than 1.5%	4-4.75 pt.

*Do not apply preplant in: AL, AR, FL, GA, LA, MS, NC, NM, SC, TN, and TX. Do not apply preemergence in NM, OK, and TX, except in northeast OK and the TX Gulf Coast.

In case of planting failure, sorghum may be replanted. Do not make a second broadcast application, as injury may occur. If originally applied in a band and sorghum is not planted in untreated row middles, this product may be applied in a band to the second planting.

Preemergence broadleaf control in furrow irrigated bedded sorghum (AZ and CA only). For preemergence control of broadleaf weeds, including groundcherry, lambsquarters, morningglory, mustard, pigweed, and purslane, broadcast 1.6-2.4 pt/A. Apply 8-10 days before planting, during or after planting, but before sorghum and weeds emerge, and before the first furrow irrigation. Follow with several irrigations to thoroughly work the soil. Use lower rate on coarse-textured soil and soil low in organic matter, use higher rate on fine-textured soil and soil high in organic matter.

Precautions for preemergence application to furrow irrigated bedded sorghum grown in AZ and CA: To avoid possible sorghum injury, do not use on sand or loamy sand soil or on sorghum planted in the furrow. Application to sorghum growing on all other soil types, fills or erosions have exposed calcareous or alkali subsoil may cause crop injury. Do not replant sorghum for 8 months following application. Corn may be planted immediately.

Postemergence (Broadleaf and grass control)

Apply at rate in Table 4 before weeds exceed 1.5 inches in height. Apply up to "close-in"

Postemergence control
Soil Texture
Sand or loamy sand
Sandy loam
Silt loam to sandy clay loam
Orton and Pullman clay soil
Silty clay loam and finer textured soil

Postemergence broadleaf control in furrow irrigated bedded sorghum (AZ and CA only). Broadcast 2.4 pt/A for control of lambsquarters, mustard, pigweed, and purslane. Apply 8-10 days before planting, during or after planting, but before sorghum and weeds emerge, and before the first furrow irrigation. Follow with several irrigations to thoroughly work the soil. Use lower rate on coarse-textured soil and soil low in organic matter, use higher rate on fine-textured soil and soil high in organic matter. Add oil concentrate if all weeds are not controlled.

Precautions for applications with emulsifiable oil or oil concentrate in water: (1) Do not apply 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) Inbred lines or any breeding stock may be severely injured by applications with emulsifiable oil or oil concentrate. (3) Adding other insecticides, herbicides, liquid fertilizers, and other materials is not recommended because they may cause compatibility problems and/or crop injury. (4) Store and handle emulsifiable oil and oil concentrate carefully. Oil contaminated with even a small amount of water may not emulsify properly when added to tank. (5) Do not make more than one application per season except as recommended for control of yellow nutsedge and Canada thistle on this label.

Postemergence broadleaf control in furrow irrigated bedded sorghum (AZ and CA only). Broadcast 2.4 pt/A plus 0.75-1.5 pt/A of oil of concentrate/A before weeds reach 1.5 inches in height.

Precautions for all applications to sorghum: (1) Do not apply more than 8 pt/A of this product to sorghum in any one year. (2) Following harvest, plow (moldboard or disk plow) and thoroughly till soil in fall or spring to minimize possible injury to rotational spring seeded crops, regardless of rate used. (3) Following harvest, plow (moldboard or disk plow) and thoroughly till soil in fall or spring to minimize possible injury to rotational spring seeded crops, regardless of rate used. (4) Injury may occur if both this herbicide and insecticide are used.

NOTE: Do not graze or feed forage from treated areas to livestock for 21 days following application.

ROTATIONAL CROPS
See "Rotational Crops" at end of Corn section.

CHEMICAL FALLOW

Wheat-Sorghum-Fallow: The treatment controls annual broadleaf and grass weeds in sorghum crop when grown in fallow. Apply 1 pt. of wheat-sorghum-fallow to wheat-sorghum-fallow with a sweep plow or other implement the following spring with a planter, leaving a shallow furrow. If a planter is used, the furrow should be closed.

Precautions: (1) Use only the rate indicated on the label. (2) Do not use on sand or loamy sand soil or on sorghum planted in the furrow. (3) Do not use on sorghum growing on all other soil types, fills or erosions have exposed calcareous or alkali subsoil may cause crop injury. Do not replant sorghum for 8 months following application. Corn may be planted immediately.

Note: Do not graze or feed forage from treated areas to livestock for 21 days following application. Do not graze or feed forage from those on this label within 18 months following application.

it apply more than 6 pt/A of this product to corn in
board or disk-plow) and thoroughly till soil in fall or
spring-seeded crops, regardless of rate used

feed forage from treated areas to livestock for 21

or sorghum until the following year, as injury may
with crops other than corn or sorghum the next
at a rate higher than 6 pt/A or equivalent band
sorghum should precede the next rotational crop. (4)
West where rainfall is sparse and erratic or where
sorghum is to follow corn or sorghum or when a crop
other rotational crops. (5) In eastern parts of the
rotate to soybeans if the rate applied to corn or
and application rate, all soybean injury may occur
north-central and northwest IA, south-central and
and other areas the year following application on
Do not plant sugar beets, tobacco, vegetables
s, or small-seeded legumes and grasses the year

HYBRIDS (Grain and Forage Types):

ing. See Corn section for weeds controlled

ole 3. Apply before, during, or after final seedbed
ation, avoid deep incorporation. For best results,

to weed or crop emergence at rate in Table 3

TABLE 3

Postemergence Broadleaf
Control in Sorghum

Soil Texture	Broadcast rate/A
DO NOT USE (except for preemergent use on bedded sorghum in AZ and CA as indicated below)	
Less than 1%	3-2.4 pt.
More than 1.5%	4-4.75 pt.

MS, NC, NM, SC, TN, and TX. Do not apply
east OK and the TX Gulf Coast

replanted. Do not make a second broadcast
in a band and sorghum is replanted.
in a band to the second planting.

bedded sorghum (AZ and CA only).

ds, including groundcherry, lambsquarters,
broadcast 1.6-2.4 pt/A. Apply 1.6-2.4 pt/A
sorghum and weeds emerge, and before the first
to thoroughly wet the soil. Use lower rate on
use higher rate on fine-textured soil and soil

row irrigated bedded sorghum grown in 2 ft
se on sand or loamy sand soil or sorghum
planting on all soil types cuts, till or erosions
cause crop injury. Do not plant sorghum for 8
immediately.

inches in height. Apply up to "close-in"

44

TABLE 4 Postemergence Broadleaf and Grass Weed Control in Sorghum		
Soil Texture	Minimum sorghum height at treatment	Broadcast rate A
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 pt
Clay and Pullman clay soil	At least 6 inches high	4-4.75 pt
Silty clay loam and finer textured soil	Completely emerged	6 pt

Postemergence broadleaf control with emulsifiable oil or oil concentrate in water:

Broadcast 2.4 pt/A for control of broadleaf weeds, including annual morningglory, cocklebur,
lambsquarters, mustard, pigweed, ragweed, smartweed, and wild buckwheat. Apply before
plowed and lambsquarters reach 6 inches in height and before all other weeds reach 4 inches in
height. In CO, western KS, NM, OK, TX, and the desert regions of AZ and CA, apply when
sorghum is 6-10 inches in height, but before boot stage. In all other areas, apply after sorghum
reaches the 3-leaf stage. Add emulsifiable oil at 1 qt/A for ground applications and 0.5 gal/A for
aerial applications. Add oil concentrate at 1 qt/A for ground applications. A cultivation may be
necessary if all weeds are not controlled or if weeds regrow.

Precautions for applications with emulsifiable oil or oil concentrate in water: See "Precautions for
applications with emulsifiable oil or oil concentrate in water" in Corn section.

Postemergence broadleaf control with surfactant (CO, western KS, NM, OK, TX, and desert
regions of AZ and CA only)

Broadcast 2.4 pt plus 0.75-1.5 pt of surfactant/A after sorghum reaches 6 inches in height, but
before weeds reach 1.5 inches in height. Apply only on sandy loam and finer textured soil.

Precautions for all applications to sorghum: (1) Heavy rain immediately following application tends
to cause excessive concentrations of herbicide in seed furrow, resulting in possible crop injury.
Do not apply to furrows planted sorghum until furrows are leveled (plowed-in). Level deep planter
marks or seed furrows before application. (2) Application to sorghum growing under stress
caused by minor element deficiency or to sorghum growing on highly calcareous soils may result
in crop injury. (3) Following harvest 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.
(4) Injury may occur if both this herbicide, preplant or preemergence, and an at-planting systemic
insecticide are used.

NOTE: Do not graze or feed forage from treated areas for 21 days following application.

ROTATIONAL CROPS

See "Rotational Crops" at end of Corn section

CHEMICAL FALLOW

Wheat-Sorghum-Fallow

The treatment controls annual broadleaf and grass weeds following wheat harvest and in the
following sorghum crop when grown under minimum tillage

Apply 1 pt. to wheat immediately following wheat harvest. If weeds are present, remove
them with a sweep plow or other suitable implement after application. Plant sorghum into wheat
stubble the following spring with minimum disturbance of the soil. Use a surface planter or a
planter leaving a shallow furrow. If weeds are present at planting, remove them with a sweep plow
or other suitable implement before planting.

Precautions: (1) Use only sand or finer textured soil. (2) Wheat-sorghum-fallow cropping
sequence must be followed. (3) Do not apply following sorghum harvest

Note: Do not graze or feed forage from treated area to livestock. Do not plant any crop other than
those on the label within 18 months following treatment

RANGELAND

To control certain weeds, including cheatgrass (downy brome, chess), common (an-
nual) bromweed, little barley, medusahead, sagewort, and tumble mustard. Use lower rate where
cheatgrass is major problem weed, use high rate for other weeds.

For ground applications, use a minimum of 10 gal. of water/A. For aerial applications, use a
minimum of 5 gal. of water/A. See "Application Procedures" for additional information

Establishment of perennial range grasses in West (CA, ID, NV, OR, UT, WA)
Apply 1.6-2 pt/A in fall after rains begin but before ground freezes. Perennial range grass 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 be grazed until the fall following seeding.

Renovation of existing stands of perennial range grasses

Central Great Plains (CO, KS, MT, NE, ND, SD, WY) Apply 1-2 pt/A in fall before ground
freezes

Southern Great Plains (OK, TX) Apply 2 pt/A in spring before April 30

West (CA, ID, NV, OR, UT, WA) Do not graze area to be treated for 6 months prior to
application. Apply 1-1.5 pt/A by ground equipment in fall before ground freezes. Bluegrass and
intermediate wheatgrass may be injured by this product at recommended rates.

NOTE: Do not cut or feed range grass hay. Do not graze treated areas within 7 months following
fall application 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 including cheatgrass, foxtails (green,
yellow, and white), lambsquarters, pigweed, ragweed, smartweed, and velvetleaf

For ground application use a minimum of 15 gal. of water/A.

Use only on loam, silt loam, silty clay loam, clay loam, and silty clay soils with at least 1 percent
organic matter.

New seeding: Apply 2 qt/A after planting but before weeds emerge. Prepare a good firm
seedbed. Plant 1/4 inch deep with a grassland drill (preferred method) or a conventional drill. If a
conventional drill is used on prepared seedbeds, remove all tension from the disk openers. For
best results, cutback or roll after planting. Clip weeds that escape in July or August. Avoid
clipping switchgrass or big bluestem seedlings.

Established stands: Apply 2 qt/A in April or early May, before weed emergence

NOTE: 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 or big bluestem. Treat only
once per year.

Rotational crops: See "Rotational crops" in Corn section.

SUGARCANE

For control of many annual broadleaf and grass weeds, including amaranths, crabgrass,
fireweed, Florida's paintbrush, foxtails, junglerice, and wiregrasses: Broadcast 2-4 qt. in 20-50 gal.
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 in late fall after emergence as directed sprays.

For control of emerged pasture weed (Florida only): Apply 0.8-1.2 pt. in a least 40 gal. of
water/A as a directed spray. Add 2 qt. of surfactant for each 50 gal. of spray. Thoroughly cover
weed foliage.

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

For control of alexandergrass, large crabgrass, peltory (sterny weed, and spiny amaranth, use
one of the following methods at planting or ratooning (Florida only)

1. Apply 4 qt. in 20-50 gal. of water/A, pre-emergence, broadcast or banded. Follow with one
or two broadcast or banded over-the-top applications as needed, postemergence to sugarcane

and weeds, at 2 qt. in 20-50 gal. of water/A. Treat before weeds exceed 1.5 inches in height

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

DOUGLAS FIR, GRAND FIR, NOBLE FIR, WHITE FIRE, LODGEPOLE PINE, PONDEROSA PINE, AND SCOTCH PINE

Annual broadleaf and grass weed control: Broadcast 2-4 qt. in 20-40 gal/A between fall and
early spring while trees are dormant or soon after transplanting. Apply before weeds are 1.5
inches tall

Quickgrass control: Broadcast 4 qt/A in fall or early spring while trees are dormant and before
quickgrass is more than 1.5 inches tall

Precautions: (1) Do not graze treated areas. (2) Do not apply to seedbeds. (3) Apply only once
per year

66 45