

Microfiche copy

CIBA-GEIGY Princep® Caliber 90

Herbicide

For weed control in certain crops, ornamental plantings, on industrial sites, and around-the-farm

Active Ingredient: Simazine: 2-chloro-4,6-bis (ethylamino)-s-triazine 90%

Inert Ingredients: 10%

Total: 100%

Princep Caliber 90 is a water dispersible granule.

EPA Reg. No. 100-603 / EPA Est. 100-LA-1

Keep Out of Reach of Children.
Caution

See additional precautionary statements and directions for use inside booklet.

CGA 6L48G 090

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. If terms are not acceptable, return the unopened product container at once.

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 CIBA-GEIGY or the Seller. All such risks shall be assumed by the Buyer.

CIBA-GEIGY 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. **CIBA-GEIGY makes no other express or implied warranty of Fitness or Merchantability or any other express or implied warranty. In no case shall CIBA-GEIGY or the Seller be liable for consequential, special, or indirect damages resulting from the use or handling of this product.** CIBA-GEIGY 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 CIBA-GEIGY.

DIRECTIONS FOR USE

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

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN CROP INJURY, POOR WEED CONTROL, AND/OR ILLEGAL RESIDUES.

Do not apply this product through any type of irrigation system.

Do not apply this product in such a manner as to directly or through drift expose workers or other persons except those knowingly involved in the application. The area being treated must be vacated by unprotected persons.

Reentry Statement

Do not enter treated areas without protective clothing until sprays have dried.

Because certain states may require more restrictive reentry intervals for various crops treated with this product, consult your State Department of Agriculture for further information.

Written or oral warnings must be given to workers who are expected to be in a treated area or in an area about to be treated with this product. Oral warnings must inform workers of areas or fields that may not be entered without specific protective clothing until sprays have dried, and appropriate actions to take in case of accidental exposure, as described under Precautionary Statements on this label. When oral warnings are given, warnings shall be given in a language customarily understood by workers. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers. Written warnings must

include the following information: **CAUTION:** Area treated with Princep Caliber 90 (on date of application). Do not enter without appropriate protective clothing until sprays have dried. In case of accidental exposure, flush eyes or skin with plenty of water. Call physician if irritation persists, and wash contaminated clothing before reuse.

General Information

Apply this herbicide before weeds emerge or after removal of weeds. Princep controls a wide variety of annual broadleaf and grass weeds when used at selective rates in agricultural crops and ornamental plantings. When used at higher, nonselective rates in noncrop areas, it also controls many perennial broadleaf and grass weeds.

Where a range of application rates is given, use the low rate on coarser textured soil and soil lower in organic matter; use the high rate on finer textured soil and soil higher in organic matter.

To avoid spray drift, do not apply under windy conditions. Avoid spray overlap, as crop injury may result.

Since this product enters weeds mainly through their roots, moisture is needed to move it into the root zone. Very dry soil conditions and lack of rainfall following application may necessitate shallow cultivation.

This product is noncorrosive to equipment, nonflammable, and has low electrical conductivity.

Annual Weeds Controlled

allyssum	livehook bassia	ragweed
annual bluegrass	Florida paintbrush	rat tail rescue
annual morningglory	Florida pusley	redmaids
annual ryegrass	foxtails	Russian thistle
barleygrass	grasses	shepherdspurse
(watergrass)	grasses	signalgrass
burdock	herbicide	(Bracharia spp.)
carlessweed	herbicide	silver hairgrass
carpetweed	herbicide	smartweed
common chickweed	(German moss)	spanish needles
crabgrass	common	speedwell
(Digitaria spp.)	lambquarters	tanysmum
downy brome	nightshade	wild mustard
(cheatgrass)	pepperweed	wild oats
fall panicum	pigweed	wildgrass
fiddle-neck	pineappleweed	yellow flower
flame	prickly lettuce	pepperweed
freweed	common purslane	

Following many years of continuous use of this herbicide and chemical related products, biotypes of some of the weeds listed on this label have been reported which cannot be effectively controlled by this and related herbicides. Where this is known or suspected, and weeds controlled by this product are expected to be present along with resistant biotypes, we recommend the use of this product in registered combinations or in sequence with other registered herbicides which are not related to this triazine herbicide. Consult with your State Agricultural Extension Service for specific recommendations.

Application Procedures

Ground application: Use conventional ground sprayers equipped with nozzles that provide accurate and uniform application. Be certain that nozzles are uniformly spaced and the same size. Calibrate sprayer for use and recalibrate at the start of each season and when changing carriers. Unless otherwise specified, use a minimum of 20 gals. of spray mixture per acre.

CGA 117-4-4

Princep® Caliber 90™

Use a pump with capacity to (1) maintain 35-40 psi at nozzles, (2) provide sufficient agitation in tank to keep mixture in suspension, and (3) to provide a minimum of 20% bypass at all times. Use centrifugal pumps which provide propeller shear action for dispersing and mixing this product. The pump should provide a minimum of 10 gals./minute/100 gal. tank size circulated through a correctly positioned sparger tube or jets.

Use screens to protect the pump and to prevent nozzles from clogging. Screens placed on suction side of pump should be 16-mesh or coarser. Do not place a screen in the recirculation line. Use 50-mesh or coarser screens between the pump and boom, and where required, at the nozzles. Check nozzle manufacturer's recommendations.

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

band width in inches	x	broadcast rate per acre	=	amount needed per acre of field
row width in inches				

Aerial application: Use aerial application only where specified in the use directions. Apply in a minimum of 1 gal. of water for each 1-1.5 lbs. of herbicide applied per acre. Avoid application under conditions where uniform coverage cannot be obtained or where excessive spray drift may occur.

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

Mixing procedures - all uses: (1) Be sure sprayer is clean and not contaminated with any other materials, as crop injury or sprayer clogging may result. (2) Fill tank with clean water, nitrogen solution or complete fluid fertilizer. (3) Start agitation. (4) Be certain that the agitation system is working properly and creates a rippling or rolling action on the liquid surface. (5) Pour product directly from bag into tank. (6) Continue filling tank until 90% full. Increase agitation if necessary to maintain surface action. (7) Add tank mix herbicide(s) after this product is thoroughly suspended. (8) Finish filling tank. Maintain agitation to avoid separation of materials. (9) Empty tank as completely as possible before refilling to prevent buildup of emulsifiable concentrate residue from possible tank mix herbicides. (10) If an emulsifiable concentrate film starts to build up in tank, drain it and clean with strong detergent solution or solvent. (11) Clean sprayer thoroughly immediately after use by flushing system with water containing a detergent.

Compatibility test: To determine the tank mix compatibility of Princep Caliber 90 with liquid fertilizer, crop oil, spreaders, or recommended pesticides, use this test method. Nitrogen solutions or complete fluid fertilizers may replace all or part of the water in the spray in alfalfa and corn. Since liquid fertilizers can vary, even within the same analysis, check compatibility each time before use. Be especially careful when using complete suspension or fluid fertilizer as serious compatibility problems are more apt to occur. Commercial application equipment may improve compatibility in some instances. Check compatibility using this procedure:

1. Add 1 pint of fertilizer to each of 2 one-quart glass jars with tight lids.
2. To one of the jars add 1/4 tsp. of a compatibility agent approved for this use (1/4 tsp. is equivalent to 2 pts. per 100 gals. spray). Cap and shake until mixed. Examples of compatibility agents include Complex® and Unite®.
3. To both jars add the appropriate amount of herbicide(s). If more than one herbicide is used, add them separately with dry herbicides first, flowables next, and emulsifiable concentrates last. After each addition cap and shake until thoroughly mixed. The appropriate amount of herbicides for this test follows (assuming a spray volume of 25 gals. per acre):

Dry herbicides: For each pound per acre add 1.5 teaspoons to each jar. Fluff up wettable powder products before measuring.

Liquid herbicides: For each pint per acre add 0.5 teaspoon to each jar.

For a spray volume other than 25 gals. per acre, change the teaspoons added to each jar as follows:

25 gals. x no. teaspoons given above	=	teaspoons to add to each jar
desired gals. spray volume per acre		

4. After adding all ingredients, put lids on and tighten. Shake jars vigorously one minute. Let the mixtures stand 15 minutes and then look for separation, large flakes, precipitates, grease, gels, medium to heavy oily film on the jar, or other signs of incompatibility. Determine if the compatibility agent is needed in the spray mixture by comparing the two jars. If either mixture separates, but can be re-mixed readily, the mixture probably can be sprayed as long as good agitation is used. If the mixtures are incompatible, test the following methods of improving compatibility: (A) slurry the dry herbicide(s) in water before addition, or (B) add 1/2 of the compatibility agent to the fertilizer and the other 1/2 to the emulsifiable concentrate or flowable herbicide before addition to the mixture. If still incompatible, do not use the materials mixed in the same spray tank.

Rotational Crops and Perennial Crop Replanting

To avoid crop injury, observe the following precautions: (1) If rotating treated (and the year following application), plant only corn, unless otherwise stated in this label. (2) If replanting perennial crops or if rotating land to crops other than corn, do not apply this product in the year preceding planting these crops.

Fruit and Nut Crops

Apply the spray to the orchard or vineyard floor avoiding contact with fruit foliage, or stems. Recommended rates are based on broadcast treatment. For band applications or spot applications around fruit or nut trees, reduce the broadcast rate of this product and water per acre in proportion to the area actually sprayed.

Precautions (All fruit and nut crops): To avoid crop injury, (1) Apply only to orchards or groves where trees have been established 12 months or more unless specified differently. (2) Make only one application per year except as noted otherwise. (3) Do not use on gravelly, sand, or loamy sand soil. (4) Immediately following application, limit overhead sprinkler irrigation to 1/2 inch.

Almonds, Peaches and Nectarines (CA only)

Apply 1-2.2 lbs. per treated acre in a 2-4 ft. band on each side of the tree row. Apply before weeds emerge in late fall or early winter. Weeds controlled by 1.1 lbs. include burclover, common chickweed, wild mustard, and shepherds-purse. Apply only once per year.

Precautions: To avoid crop injury, (1) Do not treat trees established in the grove less than 3 years. (2) Do not treat the Mission (Texas) variety of almonds. (3) Do not apply to almond trees propagated on plum rootstocks. (4) Do not re-plant almonds, peaches or nectarines in treated soil for 12 months after treatment. (5) Do not apply to soil with less than 1% organic matter. (6) Do not treat areas where water will accumulate.

Apples, Pears, Sour Cherries

Apply 2-2.4 lbs. per acre.

Avocados

CA and FL only. Apply 2-2.4 lbs. per acre after final preparation of grove.

Blueberries and Caneberries (blackberries, boysenberries, loganberries, raspberries)

Apply 2-2.4 lbs. per acre in the spring or apply a split application of 2.2 lbs. per acre in the spring plus 2.2 lbs. per acre in the fall. Apply in a minimum of 40 gals. of water per acre.

On plantings less than 6 months old, use 1/2 the above rate.

To control quackgrass, apply 4.4 lbs. per acre in the fall or split the application applying 2.2 lbs. per acre in the fall plus 2.2 lbs. per acre in the spring, when quackgrass is actively growing.

Note: Do not apply when fruit is present, or illegal residues may result.

Cranberries

MA. Apply up to 4.4 lbs. per acre either before spring growth begins or in the fall after harvest.

Other areas. Apply 2.2 lbs. per acre before spring growth begins.

Filberts

Apply 2-2.4 lbs. per acre in the fall or apply a split application of 2.2 lbs. per acre in the fall plus 2.2 lbs. per acre in the spring.

Precaution: If trees are planted on a hillside, excessive soil erosion may result from the elimination of weeds.

Note: Do not apply when nuts are on the ground during the harvest period or illegal residues may result.

Grapes

Apply 2-2.5 lbs. per acre any time between harvest and early spring.

Precaution: Do not use in vineyards established less than three years, or crop injury may occur.

Grapefruit, Lemons, Oranges

AZ (Lemons and Oranges only). Apply a split application of 1.75 lbs. per acre in the spring plus 1.75 lbs. per acre in the fall.

CA (Grapefruit, Lemons, and Oranges) apply 2-2.4 lbs. per acre in a single application, or apply 2.2 lbs. per acre in the fall and 2.2 lbs. per acre in the spring.

Precaution: Do not use in the Imperial, Coachella, or Palo Verde valleys, or crop injury may occur.

FL (Grapefruit and Oranges only). Apply 4.4 lbs. of Princep Caliber 90 to weed-free soil during the Spring and/or Fall to control weeds expected to emerge during these periods. Apply prior to emergence of weeds or after emerged weeds have been controlled with a contact herbicide. Use caution to keep the treatment off the foliage, fruit, or trunk of citrus trees.

TX (Grapefruit and Oranges only). Apply 4-5.3 lbs. per acre.

Precautions (All areas): To avoid crop injury, (1) Do not use in nurseries. (2) Do not apply to banded grapefruit, lemons, or oranges except for FL grapefruit and oranges. (3) Do not apply to trees under stress from freeze damage for one year after the freeze. (4) In FL do not exceed 8.8 lbs. of Princep Caliber 90 during any one growing season.

Macadamia Nuts

Apply 2-2.4 lbs. in 50 gals. of water per acre before harvest and prior to weed emergence. Repeat application as necessary.

Note: Do not apply when nuts are on the ground during harvest period or illegal residues may result.

Olives

Apply 2-2.4 lbs. per acre following grove preparation in the fall. Repeat application in midwinter.

Princep® Caliber 90®

Peaches, Plums, Sweet Cherries

Apply 1.75-4.4 lbs. per acre. Apply in late fall to early spring prior to weed emergence.

Precautions: To avoid crop injury, (1) Peaches: use only in AR, LA, MO, OK, TX, and states east of the Miss. River. For CA, see specific directions in the section "Almonds, Peaches and Nectarines (CA only)." (2) Plums and sweet cherries: use only in MO and states east of the Miss. River except TN.

Pecans

Apply 2.2-4.4 lbs. per acre before weeds emerge in the spring.

Precautions: To avoid crop injury, (1) Do not use west of the Pecos River in TX or in NM, AZ, or CA. (2) Do not make applications to transplanted trees that have been established less than two years in the grove.

Note: Do not apply when nuts are on the ground, or illegal residues may result. Do not allow animals to graze treated areas.

Strawberries

Oregon and Washington: For control of chickweed, groundsel, mustard, and shepherds-purse, apply broadcast 1.1 lb. per acre. In fields where overhead irrigation is used, activate this product, apply after harvest at time of bed renovation. In fields where overhead irrigation is not available, apply during early October through November.

Precautions: To avoid crop injury, (1) Make only one application per growing season. (2) Do not apply within 4 months after transplanting.

Walnuts

Apply 2.2-4.4 lbs. per acre. Leveling and furrowing operations after application will lessen effectiveness of weed control.

Note: Do not apply when nuts are on the ground, or illegal residues may result.

Tank Mixture with Bromacil 80W for Grapefruit and Oranges (Florida Only)

Use in grapefruit and oranges in FL for control of balsam apple, black nightshade, carpetweed, crabgrass, cudweed, dayweed, Florida pusley, horseweed, pepperweed, pigweed, poor-oil, ragweed, rattlebox, spanish needles and sandbur, and for partial control of bermudagrass, bahiagrass, pangolagrass, paragrass, and torpedograss. Apply 4.4 lbs. of Princep Caliber 90 plus 3.4 lbs. of Bromacil 80W per acre beneath trees in a minimum of 40 gals. of water per acre before or soon after weed growth begins. Use caution to keep the spray off the foliage, fruit, or trunk of citrus trees. Temporary yellowing of citrus leaves may occur following treatment.

Follow use and precautionary directions on the Bromacil label.

Precautions: To avoid crop injury, (1) Do not use in nurseries or where trees are under stress from freeze damage for one year after the freeze. (2) Do not use on soil with less than 1% organic matter or on poorly drained soil. (3) Do not treat trees planted in irrigation furrows. (4) Do not treat diseased trees such as those with foot rot. (5) Do not use in groves interplanted with other trees or desirable plants, nor in home grapefruit or orange plantings, or in areas where roots of other valuable plants or trees may extend. (6) Treated areas may be planted to citrus trees one year after application. (7) Do not rotate to other crops within two years after application.

Note: Apply only once per year and avoid contact with foliage and fruit with spray or mist or illegal residues may result.

Tank Mixture with Gramoxone® Extra

This tank mix is effective in the following fruit and nut crops for kill of existing vegetation and for residual control of the annual broadleaf and grass weeds claimed for this product applied alone. This combination is also effective for top kill and suppression of perennial weeds. In FL, this mixture may be applied in Spring or Fall to emerged weeds.

Use this tank mix on these crops:

almonds (CA only)	grapefruit	oranges ²
apples	(CA & TX only)	peaches ³
avocados (CA & FL ¹ only)	grapes	pears
cherries (sour and sweet ⁴)	lemons (AZ & CA only)	pecans
hibernals	macadamia nuts	plums ²
	olives	walnuts

Apply the rate given under the appropriate crop on this label plus 1.5-2.5 qts. Gramoxone Extra® in 50-200 gals. (30-50 gals. for pecans) of water per acre to the orchard floor avoiding contact with fruit, foliage, or stems. Add a nonionic surfactant, such as X-77®, at 0.5 pt. per 100 gals. of spray. Apply when weeds are succulent and new growth is 1-6 inches tall. For mature woody weeds or difficult to control perennial weeds, re-treat or spot treat with Gramoxone Extra if regrowth occurs.

Add this product to the spray tank first (refer to Mixing procedures section of this label), then add Gramoxone Extra, and add the surfactant last. Provide constant agitation during mixing and application to keep the mixture in suspension.

Precautions: To avoid crop injury, (1) Apply the tank mix only once per year. (2) Use a shield for young trees or vines.

Refer to the labels of both products for further directions, specific weeds controlled, and precautions and limitations on each crop.

¹In avocados in Florida, this tank mix also controls balsam apple vine, rattail amaranth, and at the higher rate of each herbicide, it suppresses coral vine.

²In oranges in Florida, apply 4.4 lbs. of this product per acre per application during Spring or Fall. Do not exceed 8.8 lbs. of Princep Caliber 90 during any one growing season.

³Limited to CA, AR, LA, MO, OK, TX, and states east of the Miss. River. As appropriate, refer to the sections "Almonds, Peaches and Nectarines (CA only)" or "Peaches, Plums, Sweet Cherries" for rate of this product and other information.

⁴Limited to MO and states east of the Miss. River except TN.

*Based on a product containing 1.5 lbs. Gramoxone Extra cation per gal.

Tank Mixture with Roundup®

This tank mixture is effective in grape vineyards and in the following bearing or nonbearing tree crops for control of existing vegetation and for residual control of the annual broadleaf and grass weeds claimed for this product applied alone. This combination is also effective for partial control of perennial weeds contacted by the spray mixture during application. Use this tank mixture on these crops:

almonds ^{**} (CA only)	grapefruits [*]	peaches [*] 1
apples [*]	(CA, FL and TX)	pears ^{**}
avocados [*]	grapes [*]	pecans ^{**}
(CA and FL only)	lemons [*] (AZ and CA)	plums [*] 2
cherries	macadamia nuts ^{**}	walnuts ^{**}
(sour and sweet ²)	oranges [*]	
hibernals ^{**}	(AZ, CA, FL and TX)	

Use the appropriate rate given elsewhere on this label for Princep applied alone to the crop being treated. Add to the spray tank 1.5 qts. of Roundup per acre depending on weeds present and their growth stage. Also add an agriculturally approved nonionic surfactant at 0.5% by volume of spray solution. Apply the mixture in 10-40 gals. of water per acre as a post-emergence spray to the weeds at the appropriate weed growth stage given on the Roundup label.

Add Princep to the spray tank first, then add Roundup. Provide constant agitation during mixing and application to keep the mixture in suspension. Refer to Application Procedures section of this label for further directions.

Precaution: To avoid crop injury, take extreme care to avoid contact of herbicide solution, spray drift, or mist with foliage or green bark of trunk, branches, suckers, fruit, or other parts of trees or vines. Observe precautions on both the Princep and Roundup labels for each crop involved.

Refer to the labels of both herbicides for further directions, specific weeds controlled, precautions and limitations on each crop.

* Allow a minimum of 14 days between last application and harvest.

** Allow a minimum of 21 days between last application and harvest of these crops.

¹Limited to CA, AR, LA, MO, OK, TX, and states east of the Mississippi River. For CA, see specific directions in the section "Almonds and Peaches (CA only)." ²Plums and sweet cherries: limited to MO and states east of the Mississippi River except TN.

Tank Mixture with Solicam®

For improved control of such weeds as clover, cutleaf evening primrose, dandelion, henbit, horseweed or marestail, lambsquarters, and puncture vine, apply Princep Caliber 90 in tank mixture with Solicam DF.

Apply 4.4 pounds per acre of Princep Caliber 90 plus 4.5 lbs. of Solicam DF (80% active ingredient) in 20-100 gallons of water per acre. Use the same rates in all coarse textured soils. Do not apply this combination more than 2 times per year. Princep Caliber 90 + Solicam may be applied in tank mixture with Gramoxone Extra or Roundup.

Refer to the labels of the respective herbicides in the mixtures when applying tank mixtures.

Precautions: (1) Keep Princep + Solicam mixtures from contacting foliage, fruit, and stems of citrus trees during spraying. (2) Do not apply within 12 weeks of citrus harvest.

Tank Mixture with Surflan®

Use this tank mix in the following crops for preemergence control of all weeds claimed on both labels:

almonds	cherries	lemons	pecans
apples	hibernals	oranges	plums
avocados	grapes	pearlies	English
caneberries	grapefruit	pears	walnuts

Apply the Princep Caliber 90 rate given under the appropriate crop on this label plus 2.67-5.33 lbs. of Surflan 75W or 2.4 qts. of Surflan A-5 in 20-40 qts. of water per acre. Refer to the Surflan 75W or Surflan A-5 label for complete tank mix directions. Observe all precautions and limitations on the Princep and Surflan labels.

Field and Forage Crops

Corn

Nitrogen solutions or complete fluid fertilizers may replace a portion of the water as a carrier in the spray. Determine the physical and chemical compatibility of the product with fertilizer before use. Refer to the General Information section of this label for a compatibility test. Do not apply after corn has emerged as there is danger of liquid fertilizers causing crop injury.

Preemergence: Apply before weeds and corn emerge. Use the appropriate rate in the table below.

Preplant: Apply in the spring after plowing at the appropriate rate in the table below. Apply before, during, or after the preemergence application if corn is drilled or worked after application. Good deep incorporation. Best results

Princep® Caliber 90®

will be obtained when this product is applied within 2 weeks before planting. Under dry weather conditions, preplant applications may give better weed control. If weeds develop particularly under relatively dry conditions, a shallow cultivation will generally result in better weed control.

Soil texture	Broadcast* rate per acre
Coarse-textured soil: Sand, silt, and loam that is low in organic matter	2.2 lbs
Medium-textured soil: Soil containing a moderate amount of clay and organic matter	2.6 lbs
Fine-textured soil: Loam that is high in organic matter and clay (including dark prairie soils of Corn Belt)	3.3 lbs
Organic soil: Peat, muck, and high organic clay	4.4 lbs

* For calculation of band treatment rate, see the General Information section.

To control quackgrass, Apply 3.3-4.4 lbs. per acre in the fall. Follow two to three weeks later, or if erosion is a problem, during plowing until spring.

Precautions: (1) Do not apply more than 4.4 lbs. per acre to corn per year. (2) Do not rotate to any crop except corn until the following year or injury may occur. (3) After harvest, plow and thoroughly till the soil in fall or spring to minimize possible injury to spring-seeded rotational crops, regardless of the rate used. (4) If more than 3.3 lbs. is used per acre (or equivalent rate in a band), a crop of untreated corn should precede the next rotational crop. (5) Do not apply preplant incorporated in corn in the High Plains and Intermountain areas of the West (including central and western KS, western NE, western OK, and the Panhandle of TX) where rainfall is sparse and erratic or where irrigation is required. (6) In the High Plains and Intermountain areas of the West where rainfall is sparse and erratic or where irrigation is required, use this product to control weeds in corn only when corn is to follow corn or when a crop of untreated corn is to precede another rotational crop. (7) In western MN and eastern parts of the Dakotas, NE, and KS, do not plant soybeans following corn treated with this product if more than 2.2 lbs. per acre (or equivalent rate in a band) was applied or injury may occur. (8) Injury may occur to 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. (9) Do not plant sugar beets, tobacco, vegetables (including dry beans), spring-seeded small grains, or small-seeded legumes and grasses the year after an application, or injury may occur.

Note: Do not graze treated areas, or illegal residues may result.

Tank Mixtures on Corn

AA-trex®: Use this product in a preplant or preemergence tank mixture with AA-trex Nine-O®, AA-trex 80W, or AA-trex 4L for control of many annual weeds including carpetweed, crabgrass, fall panicum, foxtail, lambs quarters, morningglory, pigweed, ragweed, and velvetleaf.

Apply at the rates given below. Use the 1:1 ratio for most weeds and the 2:1 ratio for expected heavy infestations of crabgrass and fall panicum.

Soil texture	Broadcast rate per acre			
	1:1 Ratio		2:1 Ratio	
	Princep Caliber 90	AA-trex 80W*	Princep Caliber 90	AA-trex 80W*
Sand loamy sand sandy loam	1.1 lbs	1.25 lbs	1.5 lbs	0.83 lbs
Loam, silt loam silt clay loam sandy clay loam silty clay loam sandy clay or silty clay with low organic matter	1.33 lbs	1.5 lbs	1.8 lbs	1 lb
Loam, silt loam silt clay loam sandy clay loam silty clay loam sandy clay or silty clay with medium to high organic matter and clay (including dark prairie soils of the Corn Belt)	1.6 lbs	1.5 lbs	2.1 lbs	1.2 lbs

* When using AA-trex 4L or AA-trex Nine-O, use equivalent rates. One lb. of AA-trex 80W equals 0.8 lb. of AA-trex 4L or 0.9 lb. of AA-trex Nine-O.

Refer to the AA-trex label for complete directions, and use 0.9 lb. of this product for each pound of Princep 80W. Also refer to the AA-trex label and the Caliber 90 label for precautions and limitations.

Eradicane®: Use in a preplant incorporated tank mixture for control of weeds. A label on both the Princep and Eradicane labels, including partial control (suppression) of shattercane, wild cane, and foxtail, is for use only

replace all or part of the water in the spray. Check the physical compatibility of mixture with fertilizer before use. Refer to the General Information section of this label for a compatibility test procedure. Use a minimum of 20 gals. of spray volume per acre. Refer to the Eradicane label for incorporation directions. Use the higher rate of Princep on fine-textured soil and where heavy broadleaf infestation are expected. Use the higher rate of Eradicane for heavy nutsedge and bermudagrass infestations. For partial control (suppression) of shattercane, broadcast and incorporate immediately before planting 1.1-2.2 lbs. of this product plus 7.33 pts. of Eradicane 6.7E (or 8 pts. Eradicane Extra) per acre. For control of the other weeds claimed on both labels, broadcast and incorporate 1.1-3.3 lbs. of this product plus 4.75-7.33 pts. of Eradicane 6.7E (or 5.33-8 pts. of Eradicane Extra) per acre. Observe all precautions and limitations on the Princep and Eradicane labels.

Gramoxone Extra: Use in a tank mixture where corn will be planted directly in a cover crop, established sod, or previous crop residues. This combination controls existing vegetation and provides residual control of the annual broadleaf and grass weeds listed under General Information.

Add this product to the spray tank, mix thoroughly with water, and then add Gramoxone Extra and a nonionic surfactant. Provide constant agitation during mixing and application to keep the mixture in suspension.

Apply 2.2-3.3 lbs. of this product plus 1.5-2.5 pts. of Gramoxone Extra* in 20-60 gals. of water per acre as a broadcast spray either before or after planting but before corn emerges. Add a nonionic surfactant at the rate of 0.5 pt. per 100 gals. of spray volume.

For further information, see general information, caution and warning statements, precautions, and notes on the Princep and the Gramoxone Extra labels.

* Based on a product containing 1.5 lbs. Gramoxone Extra cation per gal.

Sutan +: Use in a preplant incorporated tank mixture for control of all weeds claimed on both the Princep and Sutan + labels including partial control (suppression) of shattercane (wild cane). Fluid fertilizer may replace all or part of the water in the spray. Check the physical compatibility of mixture with fertilizer before use. Refer to the General Information section of this label for a compatibility test procedure. Use a minimum of 20 gals. of spray volume per acre. Refer to the Sutan + label for incorporation directions. Use the higher rate of Princep on fine-textured soil and where heavy broadleaf infestations are expected. For partial control (suppression) of shattercane, broadcast and incorporate immediately before planting 1.1-2.2 lbs. of this product plus 7.33 pts. of Sutan + 6.7E per acre. For control of the other weeds claimed on both labels, broadcast and incorporate 1.1-3.3 lbs. of this product plus 4.75 pts. of Sutan + 6.7E per acre. Observe all precautions and limitations on the Princep and Sutan + labels.

Sugarcane

Apply 2.2-4.4 lbs. per acre at planting or after harvest if rotation crops to be grown, but before weeds in sugar cane emerge. This product may also be applied interline directed or over the sugarcane to provide continuing control of germinating weeds.

Precautions: To avoid crop injury or illegal residues: (1) Do not apply more than one 2.2-4.4 lbs. application over the plants or more than two interline-directed applications. (2) Do not apply after harvest in. (3) Total application should not exceed 11 lbs. per acre crop cycle.

Note: Do not feed or graze treated forage to livestock.

Nurseries, Christmas Tree Plantings, Shelterbelts

Nurseries (see list below)

Apply 2.2-3.4 lbs. in at least 25 gals. of water per acre in fall or spring.

Precaution: To avoid plant injury, do not apply for at least one year after transplanting.

Christmas Tree Plantings and Shelterbelts (see list below)

Remove weed growth before application. Apply 2.2-4.4 lbs. in at least 25 gals. of water per acre after transplanting. Use the same rate for annual maintenance applications.

For quackgrass control, apply 4.4 lbs. per acre in the fall or apply a split application of 2.2 lbs. per acre in the fall plus 2.2 lbs. per acre in early spring, after quackgrass begins growth.

Precautions: To avoid tree injury: (1) Do not use on seedbeds or cutting beds. (2) In CA, OR, and WA do not apply to Christmas trees or shelterbelts sooner than one year after transplanting. In other areas, do not apply to Christmas trees or shelterbelts transplants less than two years of age. (3) Do not apply until soil is firmly settled around roots. (4) Do not apply more than once a year, except as directed for quackgrass control.

Apply to these species of trees and shrubs, as recommended above:

Conifers

- Arbutus tree - Aspen tree - Bishop pine - Knobcone pine - Lodgepole pine - Shore pine - Monterey pine - Mugho pine - Red pine (lodgepole pine)	- Scotch pine - White pine - Blue spruce - Norway spruce - Red spruce - White spruce - Tamar tree - Douglas fir - Fraser fir	- Juniper tree - Incense cedar - White cedar - Yew - Yucca spp.
--	--	---

* For CA only.

Princep® Caliber 90®

Deciduous Trees and Woody Ornamentals

American elm	eucalyptus	red oak
Siberian elm	holly (Ilex spp.)	Russian olive
barberry	(max. 35 lbs./A)	*oleander
boxelder	honey locust	*palm (2-2 lbs./A)
bush honeysuckle	Oregon grape	*bottlebrush
caragana	(Mahonia spp.)	*ca. ob.
cotoneaster	Pieris spp.	
dogwood	(max. 35 lbs./A)	For CA only

Pennant Tank Mix: Princep Caliber 90 may be tank mixed with Pennant® Liquid Herbicide to control weeds in containerized, field and liner grown ornamentals and commercial landscapes. See the Pennant label for ornamental species, weeds controlled with this tank mixture and for other information.

Surflan Tank Mix: On Christmas tree plantings, use this tank mix for preemergence control of weeds listed on this label and the Surflan 75W (or Surflan A S) label. Use on field grown conifer species listed on the labels for each herbicide plus grand fir, alpine fir, Engelmann spruce, black spruce, Colorado blue spruce, Coulter pine, giant redwood, and Veitch fir. Broadcast the mixture as a directed spray to the soil surface or as an overtop spray using 2-4.4 lbs. of Princep Caliber 90 and 2-67.5-33 lbs. of Surflan 75W (or 2-4 qts. of Surflan A S). Apply in sufficient water per acre to uniformly treat the area. Follow overtop sprays with sprinkler irrigation to move the herbicide from leaf surfaces to the soil. Remove weed growth before application. Mix weed residues, prunings or trash into the soil, or remove them before treatment. Soil should be in good till and free of clods at time of application. Shallow cultivation (1-2 inches) after treatment will not reduce weed control. Observe all precautions and limitations on the Princep and Surflan labels.

Note: Length of weed control may be reduced when continuous wet soil conditions follow herbicide application.

Precautions: To avoid plant injury, (1) Do not use on seedbeds or on unrooted cuttings. (2) Do not use in greenhouses or other enclosed areas.

* Plants transplanted normally in rows in a nursery or similar area for further growth prior to transplanting to final growing place.

Turfgrasses for Sod (Florida Only)

St. Augustinegrass, Centipedegrass, and Zoysia Grass

Apply 2-4.4 lbs. per acre according to soil texture as indicated below.

Muck or peat	4.4 lbs.	Old beds	within 2 days after lifting of sod
		New beds	3-4 days after sprigging or plugging
Sandy soil	2.2 lbs.	Old beds	within 2 days after lifting of sod
		New beds	7-10 days after sprigging or plugging

If weeds regrow, apply an additional 2.2 lbs. on muck or peat or 1.1 lbs. on sandy soil.

Precautions: To avoid crop injury, (1) Do not apply within 30 days prior to cutting or lifting. (2) Do not apply in combination with surfactants or other spray additives. (3) Use only on turfgrass reasonably free of infestations of insects, nematodes and diseases. (4) On newly sprigged turfgrass, temporary slowing of growth may follow application.

Turfgrass for Fairways, Lawns, Sod Production* and Similar Areas

* In states other than Florida. For use on turfgrass for sod in Florida, see Turfgrasses for Sod (Florida only) section above.

Bermudagrass, Centipedegrass, St. Augustinegrass, and Zoysia Grass

Apply Princep Caliber 90 after September 1 (after October 1 for annual bluegrass) before emergence of winter annual weeds. Princep will control annual bluegrass, burclover, lawn burweed, common and mouseear chickweed, corn speedwell, henbit, hop clover, spurge, and purslane. Princep will also control these weeds soon after emergence. For control of summer annual weeds listed in the General Information section of this label, apply Princep in late winter before the weeds emerge. Apply in a minimum of 15 gals. of water per acre.

Irrigate with 1/2 inch of water if rainfall does not occur within 10 days after preemergence treatment.

Where annual bluegrass is the major weed, use 1.1 lbs. of Princep Caliber 90 per acre (0.4 oz. per 1,000 sq. ft.). Use 1.1-2.2 lbs. per acre (0.4-0.8 oz. per 1,000 sq. ft.) for control of other weeds. However, do not exceed 1.1 lbs. per acre per treatment on newly sprigged turfgrass or on hybrid bermudagrass such as Tiflawn, Tifway, and Ormond.

For control of summer annuals which emerge after the initial application, apply an additional 1.1 lbs. per acre at least 30 days after the initial application, but not after June 1. However, do not make more than two applications per year.

Precautions: On newly sprigged turfgrass, hybrid bermudagrass, non-dormant bermudagrass or nondormant zoysia grass, temporary slowing of growth and yellowing may occur following application. To avoid turf injury, (1) Use only on turfgrass reasonably free of infestations of insects, nematodes and diseases. (2) Do not use on golf greens. (3) Do not use north of NC (except may be used in the Virginia Coastal Plains) or west of Highway 281 in Texas and Oklahoma. (4) Do not use on muck or alkaline soils. (5) Do not apply over the rooting area of trees or ornamentals not listed on this label. (6) Do not seed or overseed with desirable turfgrass within 4 months before or 6 months after treatment. (7) Do not apply this product to newly seeded grasses until they have overwintered and have a well developed rhizome system. (8) Do not exceed 2.2 lbs. per acre within 12 months of seeding grasses.

Note: Do not graze or feed turf clippings to animals; or illegal residues may result.

Vegetable Crops

Asparagus (Established)

Apply 2-4.4 lbs. per acre to beds established one year or more. Apply once per year either after disking in the spring before weeds emerge, or following harvest after removal of existing weed growth. Spring application must be made at least 3 days before first cutting.

Precautions: (WA and OR only). To avoid crop injury, (1) Do not apply to gravelly sand or loamy sand soil. (2) Do not allow irrigation water to stand or to form pools in the furrows.

Artichokes

Apply 2-4.4 lbs. per acre as a directed spray after the last fall tillage.

Precautions: To avoid crop injury, (1) Do not apply on gravelly sand or loamy sand soil. (2) Apply only once per year.

Nonselective Weed Control on Noncrop Land

Best results are obtained when this product is applied before weeds emerge. If weed growth has begun and removal is not feasible, include a contact or translocated herbicide in the spray.

This product provides long-term weed control on industrial sites, highway medians and shoulders, railroad rights-of-way, lumberyards, petroleum tank farms, and in noncrop areas on farms, such as around buildings, equipment and fuel storage areas, along fences, roadsides, and lanes.

Aerial applications may be made where it is feasible. Use at least 1 gal. of water for each 0.9 lb. of this product for both ground and aerial applications. Use more water if practical.

Precautions: (1) Do not use this product for nonselective weed control on land to be cropped near adjacent desirable trees, shrubs, or plants, or in greenhouses, as injury may occur. (2) Do not use in areas accessible to livestock or allow livestock to graze treated weed foliage.

To control annual broadleaf and grass weeds including barnyardgrass, cereal crabgrass, common lambsquarters, foxtail, ragweed, puncturevine, and turkey mullein, apply 5.3-11.1 lbs. per acre.

To control most annual and many perennial broadleaf and grass weeds including quackgrass, bluegrass, redtop, burdock, Canada thistle, orchardgrass, purpletop, smooth brome, dogfennel, and plantain, apply 11.1-20 lbs. per acre.

Tank Mixture with Roundup

This tank mixture will provide control of emerged annual weeds and residual control of weeds listed on the Princep label. The combination also will partially control emerged perennial weeds listed on the Roundup label. Add to the spray tank the appropriate rate of Princep noted in the above section for Princep alone. Then add 1.5 qts. of Roundup per acre depending on weeds present and their growth stage. Also add an agriculturally approved nonionic surfactant at 0.5% by volume of spray solution. Apply the mixture in a 10-40 gals. of water per acre as a postemergence spray at the appropriate weed growth stage given on the Roundup label. Provide constant agitation during mixing and application to keep the mixture in suspension. Refer to the Application Procedures section of this label for further directions. Refer to the labels of both herbicides for specific noncrop sites, weeds controlled, and further directions, precautions, and limitations.

Tank Mixture with Oust®

Use this tank mixture to control the weeds listed below with either pre-emergence, early post-emergence, or post-emergence applications. Use the higher rates within the ranges given under conditions of heavy weed growth, on soil with over 2% organic matter, on areas with heavy decaying plant residues, or on high moisture areas such as along the edges of railroad shoulders. To improve wetting and/or contact activity of emerged weeds, add a nonionic surfactant such as DuPont Surfactant V or X-22 at 1 qt. per 100 gals. of spray. Do not apply by aircraft. Provide constant agitation during mixing and application to keep the mixture in suspension. Refer to the labels of both herbicides for specific noncrop sites and further directions, precautions, and limitations.

Preemergence to Early Postemergence: To control the weeds listed below, apply 4.4-8.9 lbs. of Princep Caliber 90 plus 3.5 oz. of Oust in a minimum of 25 gals. of water per acre.

Princep[®] Caliber 90[®]

Broadleaf Weeds (Up to 3-4" in Height or Diameter)

bouncingbet	horsetail	sowthistle
buckhorn plantain	kochia	St. Johnswort
burclover	lambsquarters	sunflower
Carolina geranium	little mallow	sweet clover
common chickweed	mustard	tansymustard
common dandelion	ox-eye daisy	tansy ragwort
common speedwell	pigweed	tumble mustard
common yarrow	prickly lettuce	turkey mullen
crimson clover	puncturevine	velch
dogfenel	purple starthistle	wild carrot
filaree	ragweed	yellow rocket
hoary cress	Russian thistle	

Grasses (Up to 6-12" in Height)

Alta fescue	fall panicum	red brome
annual bluegrass	fescue	red fescue
annual ryegrass	foxtails	reed canarygrass
bahiagrass	Indiangrass	riggut brome
barnyardgrass	Italian ryegrass	ryegrass
cheatgrass	johnsongrass	smooth brome
crabgrass	(short-term control)	sprangletop
downy brome	little barley	wichgrass

Postemergence: To control actively growing weeds listed below apply 8.9-17.8 lbs. of Princep Caliber 90 plus 6-12 ounces of Oust in a minimum of 25 gals. of water per acre.

Actively Growing Weeds

bedstraw	Jerusalem artichoke	johnsongrass
Canada thistle	kudzu	(season-long control)
curly dock	mayweed	yellow nutsedge
dewberry	musk thistle	
fiddleneck	poison ivy	
flabane	spanishneedles	
goldenrod	turkey mullen	
hemlock	Virginia pepperweed	
honeysuckle	wild blackberry	

AAtrex[®] trademark of CIBA-GEIGY for atrazine

Caliber 90[®] trademark of CIBA-GEIGY

Complex[®] trademark of KALO Agricultural Chemicals, Inc.

Dual[®] trademark of CIBA-GEIGY for metolachlor

Eradicane[®] trademark of Stauffer Chemical Company

Gramoxone[®] trademark of ICI Americas for paraquat

Nine-O[®] trademark of CIBA-GEIGY

Oust[®] trademark of E. I. duPont de Nemours & Co., Inc.

Princep[®] trademark of CIBA-GEIGY for simazine

Roundup[®] trademark of Monsanto Company for glyphosate

Solcam[®] trademark of Sandoz Crop Protection

Surflan[®] trademark of Elanco Products Company for oryzalin

Sutan +[®] trademark of Stauffer Chemical Company

Unite[®] trademark of Hopkins Agricultural Chemicals Company

X-77[®] trademark of KALO Agricultural Chemicals, Inc.

© 1990 CIBA-GEIGY Corporation

Agricultural Division

CIBA-GEIGY Corporation

Greensboro, North Carolina 27419

CGA 6L48G 090

Storage and Disposal

Store in a dry place. Do not contaminate water, food, or feed by storage or disposal. Pesticide wastes may be toxic. Improper disposal of unused pesticide, spray mixture, or rinse water is a violation of federal law. If these wastes cannot be used according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance in proper disposal methods.

Completely empty bag into application equipment. Dispose of empty bag in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. Stay out of smoke from burning bags.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire or other emergency, call 1-800-888-8372 day or night.

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION

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

First Aid: In case of contact, immediately flush eyes or skin with plenty of water. Get medical attention if irritation persists.

Environmental Hazards

Do not apply directly to water or wetlands. Do not contaminate water by cleaning of equipment or disposal of wastes. Simazine is a chemical which can travel (seep or leach) through soil and enter ground water which may be used as drinking water. Simazine has been found in ground water as a result of its use as a herbicide. Users of this product are advised not to apply simazine where the water table (ground water) is close to the surface and where the soils are very permeable, i.e., well drained soils such as loamy sands. Users are advised to consult with their local agricultural agencies to obtain information on the location of ground water and the type of soil in their area.

