

62719-181

2/14/2008

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

FEB 14 2008

Dow AgroSciences  
9330 Zionsville Rd.  
Indianapolis, IN 46268

Dear Mr. Jachetta:

Subject: Label Amendment  
Grazon PC  
EPA Registration No. 62719-181  
Label Submission Dated: November 13, 2007

The labeling, referred to above, submitted in connection with the application under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable, provided that you make the following changes:

A. For all labels:

1. Under "Personal Protective Equipment";

- Change "Waterproof gloves" to "Chemical-resistant gloves made of any waterproof materials."
- Change "If no such instructions for washables" to "If no such instructions for washables exist."

2. Under "User Safety Recommendations";

Change "Remove clothing immediately if pesticide gets inside" to "Remove clothing/PPE immediately if pesticide gets inside"

3. Under "Environmental Hazards";

Modify the following groundwater statement as the following:

"Picloram is a chemical which can travel (seep or leach) through soil and has the potential to contaminate groundwater which may be used for irrigation and drinking purposes. Users should especially avoid application of Picloram where soils have a rapid to very rapid permeability throughout the profile (such as loamy sand to sand) and the water table of an underlying aquifer is shallow or to soils containing sinkholes over limestone bedrock severely fractured surfaces, and

substrates which would allow direct introduction into an aquifer. Your local agricultural agencies can provide further information on the type of soil in your area and the location of groundwater."

B. For "Base Labels for non refillable rigid containers":

Under "Storage and Disposal";

- Change "Container Reuse" to Container Disposal."

C. For the booklet:

1. Under "Storage and Disposal";

- Change "Container Reuse" to Container Disposal" for base labels on "rigid containers 5 gallons or less" and "nonrefillable rigid containers larger than 5 gallons."
- Add the following refilling instructions for refillable containers:

"Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transporting. If the container cannot be refilled, follow cleaning instructions for nonrefillable containers."

2. Under "Precautions for Avoiding Spray Drift";

Add the following statements:

- Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-and-weather-related factors
- Determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.
- Apply only as a medium or coarser spray (ASAE standard 572) or a volume mean diameter of 300 microns or greater for spinning atomizer nozzles.
- Apply only when the wind speed is 2-10 mph at the application site."

*Additional requirements for aerial applications:*

- The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter."
- Release spray at the lowest height consistent with efficacy and flight safety.
- Do not release spray at a height greater than 10 feet above the crop canopy."
- Do not make applications into temperature inversions.

*Additional requirements for ground boom application:*

Do not apply with a nozzle height greater than 4 feet above the crop canopy."

- 3. Under "Warranty Disclaimer";

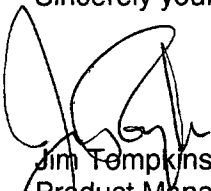
Add "To the extent permitted by law" before "Dow AgroSciences Makes . . . Any Other Express or Implied Warranty."

- 4. Under "Inherent Risks of Use";

Add "To the extent permitted by law" before "All such risks shall be assumed by the buyer."

The amended label supersedes all previously accepted labels. A stamped copy of the revised label is enclosed for your records. Please submit one copy of your final printed label before you release the product for shipment.

Sincerely yours,



Jim Tompkins  
Product Manager (25)  
Herbicide Branch  
Registration Division (7505P)

Enclosure

CONCURRENCES

YMBOL <	7505P							
SURNAME <	Bien	Tompkins						
DATE <	02-05-08							

4/30

(Base label for rigid containers 5 gal or less):

**RESTRICTED USE PESTICIDE**

May injure (phytotoxic) susceptible, non-target plants. For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification. Commercial certified applicators must also ensure that all persons involved in these activities are informed of the precautionary statements.

**Grazon<sup>®</sup> PC  
Specialty Herbicide**

**For distribution and use only within New Mexico, Oklahoma, and Texas**

**For the control of broadleaf annual and perennial weeds, pricklypear, mesquite and various other species on rangeland and permanent grass pastures**

**Active Ingredient(s):**

picloram: 4-amino-3,5,6-trichloropicolinic acid, potassium salt .....	24.4%
Other Ingredients .....	75.6%
Total .....	100.0%

ACCEPTED  
with COMMENTS  
in EPA Letter Dated

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

62719-181

**Acid Equivalent**

picloram: 4-amino-3,5,6-trichloropicolinic acid - 21.1% - 2 lb/gal

**Keep Out of Reach of Children**

**CAUTION**

FEB 14 2008

**Precautionary Statements**

**Hazards to Humans and Domestic Animals**

**Causes Moderate Eye Irritation • Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Reaction In Some Individuals**

**Avoid contact with eyes or clothing.**

**Personal Protective Equipment (PPE)**

**Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

**Engineering Controls:** When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the WPS (40 CFR 170.240(d)(4-6), the handler PPE requirements may be reduced or modified as specified in the WPS.

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**User Safety Recommendations:**

- Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Users should remove PPE after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**First Aid**

**If in eyes:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

**Environmental Hazards**

This pesticide is toxic to some plants at very low concentrations. Non-target plants may be adversely affected if pesticide is allowed to drift from areas of application. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Do not contaminate water used for irrigation or domestic purposes by cleaning of equipment or disposal of wastes. Do not allow run-off or spray to contaminate wells, irrigation ditches or any body of water used for irrigation or domestic purposes. Do not make application when circumstances favor movement from treatment site.

Picloram is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

This chemical can contaminate surface water through spray drift. Under some conditions, picloram may also have a high potential for runoff into surface water (primarily via dissolution in runoff water). These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas over-laying extremely shallow ground water, areas with in-field canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas over-laying tile drainage systems that drain to surface water.

**Storage and Disposal**

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

**Pesticide Storage:** If this product is exposed to subfreezing temperatures, the active ingredient may crystallize and settle out of solution. Under these conditions the product should be warmed to at least 40°F and agitated well to dissolve any crystallized material prior to use.

**Pesticide Disposal:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**Container Reuse:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

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**Refer to label booklet for Directions for Use.**

**Notice:** Read the entire label. Use only according to label directions. **Before using this product, read Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies at end of label booklet. If terms are unacceptable, return at once unopened.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994. If you wish to obtain additional product information, visit our web site at [www.dowagro.com](http://www.dowagro.com).

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

EPA Reg. No. 62719-181

EPA Est. \_\_\_\_\_

**Produced for  
Dow AgroSciences LLC  
9330 Zionsville Road  
Indianapolis, IN 46268**

7/30

(Base label for refillable rigid containers larger than 5 gal):

**RESTRICTED USE PESTICIDE**

May injure (phytotoxic) susceptible, non-target plants. For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification. Commercial certified applicators must also ensure that all persons involved in these activities are informed of the precautionary statements.

**Grazon<sup>®</sup> PC  
Specialty Herbicide**

**For distribution and use only within New Mexico, Oklahoma, and Texas**

**For the control of broadleaf annual and perennial weeds, pricklypear, mesquite and various other species on rangeland and permanent grass pastures**

**Active Ingredient(s):**

picloram: 4-amino-3,5,6-trichloropicolinic acid, potassium salt .....	24.4%
Other Ingredients .....	75.6%
Total .....	100.0%

**Acid Equivalent**

picloram: 4-amino-3,5,6-trichloropicolinic acid - 21.1% - 2 lb/gal

**Keep Out of Reach of Children**

**CAUTION**

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**Precautionary Statements**

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**Hazards to Humans and Domestic Animals**

**Causes Moderate Eye Irritation • Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Reaction In Some Individuals**

**Avoid contact with eyes or clothing.**

**Personal Protective Equipment (PPE)**

**Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

**Engineering Controls:** When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the WPS (40 CFR 170.240(d)(4-6), the handler PPE requirements may be reduced or modified as specified in the WPS.

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**User Safety Recommendations:**

- Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Users should remove PPE after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**First Aid**

**If in eyes:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

**Environmental Hazards**

This pesticide is toxic to some plants at very low concentrations. Non-target plants may be adversely affected if pesticide is allowed to drift from areas of application. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Do not contaminate water used for irrigation or domestic purposes by cleaning of equipment or disposal of wastes. Do not allow run-off or spray to contaminate wells, irrigation ditches or any body of water used for irrigation or domestic purposes. Do not make application when circumstances favor movement from treatment site.

Picloram is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

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**Storage and Disposal**

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

**Pesticide Storage:** If this product is exposed to subfreezing temperatures, the active ingredient may crystallize and settle out of solution. Under these conditions the product should be warmed to at least 40°F and agitated well to dissolve any crystallized material prior to use.

**Pesticide Disposal:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**Container Reuse:** Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose.

Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical, agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

Refer to label booklet for Directions for Use.

**Notice:** Read the entire label. Use only according to label directions. Before using this product, read Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies at end of label booklet. If terms are unacceptable, return at once unopened.



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Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

EPA Reg. No. 62719-181

EPA Est. \_\_\_\_\_

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9330 Zionsville Road  
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10/30

(Base label for nonrefillable rigid containers larger than 5 gal):

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Total .....	100.0%

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picloram: 4-amino-3,5,6-trichloropicolinic acid - 21.1% - 2 lb/gal

**Keep Out of Reach of Children**

**CAUTION**

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**Precautionary Statements**

**Hazards to Humans and Domestic Animals**

**Causes Moderate Eye Irritation • Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Reaction In Some Individuals**

**Avoid contact with eyes or clothing.**

**Personal Protective Equipment (PPE)**

**Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

**Engineering Controls:** When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the WPS (40 CFR 170.240(d)(4-6), the handler PPE requirements may be reduced or modified as specified in the WPS.

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**User Safety Recommendations:**

- Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Users should remove PPE after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**First Aid**

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Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

**Environmental Hazards**

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**Storage and Disposal**

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

**Pesticide Storage:** If this product is exposed to subfreezing temperatures, the active ingredient may crystallize and settle out of solution. Under these conditions the product should be warmed to at least 40°F and agitated well to dissolve any crystallized material prior to use.

**Pesticide Disposal:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**Container Reuse:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

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**Refer to label booklet for Directions for Use.**

**Notice:** Read the entire label. Use only according to label directions. **Before using this product, read Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies at end of label booklet. If terms are unacceptable, return at once unopened.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994. If you wish to obtain additional product information, visit our web site at [www.dowagro.com](http://www.dowagro.com).

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

EPA Reg. No. 62719-181

EPA Est. \_\_\_\_\_

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13/30

(cover):

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Other Ingredients .....	75.6%
Total .....	100.0%

Acid Equivalent

    picloram: 4-amino-3,5,6-trichloropicolinic acid - 21.1% - 2 lb/gal

**Keep Out of Reach of Children**

**CAUTION**

Refer to inside of label booklet for Directions for Use.

**Notice:** Read the entire label. Use only according to label directions. **Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" inside label booklet.**

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EPA Est. \_\_\_\_\_

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Produced for  
Dow AgroSciences LLC  
9330 Zionsville Road  
Indianapolis, IN 46268

14/30

(Page 1 through end):

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**Precautionary Statements**

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**Hazards to Humans and Domestic Animals****CAUTION**

**Causes Moderate Eye Irritation • Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Reaction In Some Individuals**

**Avoid contact with eyes or clothing.**

**Personal Protective Equipment (PPE)**

**Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

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15/30

include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas over-laying extremely shallow ground water, areas with in-field canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas over-laying tile drainage systems that drain to surface water.

### Directions for Use

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

Read all Directions for Use carefully before applying.

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

### Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for Agricultural Pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

**Entry Restrictions for Non-WPS Uses:** For applications on rangeland and permanent grass pastures, do not enter or allow worker entry into treated areas until sprays have dried, unless applicator and other handler PPE is worn.

### Storage and Disposal

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

**Pesticide Storage:** If this product is exposed to subfreezing temperatures, the active ingredient may crystallize and settle out of solution. Under these conditions the product should be warmed to at least 40°F and agitated well to dissolve any crystallized material prior to use.

**Pesticide Disposal:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

#### Nonrefillable containers 5 gallons or less:

**Container Reuse:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

#### Refillable containers larger than 5 gallons:

**Container Reuse:** Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose.

Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical,

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agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

**Nonrefillable containers larger than 5 gallons:**

**Container Reuse:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

### General Information

Grazon® PC herbicide is a water soluble liquid product containing picloram.

Use Grazon PC in rangeland and permanent grass pastures to selectively control annual, biennial, and perennial herbaceous weeds such as bitterweed, bursage (bur ragweed, woollyleaf povertyweed), broomweed (annual), horsenettle, locoweed, pricklypear, ragweed (common, lanceleaf, western), snakeweed (broom snakeweed), tasajillo, and thistles. For equal or improved control of such weeds along with many species affected by 2,4-D, use Grazon PC in tank mixtures with 2,4-D low volatile esters or amines or with Remedy\* herbicide.

Applications made according to label directions usually give excellent control of most annual and perennial herbaceous broadleaf weed species. Certain more resistant herbaceous and woody species may require repeat treatment in subsequent years.

### **General Use Precautions and Restrictions**

Use this product only as specified on this label. Observe any special use and application restrictions and limitations, including method of application and permissible areas of use as promulgated by state or local authorities. Observe labels of other products used in tank mixtures and follow precautions and recommendations thoroughly.

Every 2 years starting January 1, 2008, the registrant will offer training to applicators which will cover application techniques and product stewardship particular to their use(s) of this product (Grazon PC, EPA Registration No. 62719-181). Applicators of this product must be able to provide certification of such training on demand to the State, Tribal or Federal enforcement agent.

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

**Maximum Use Rates:** Total use of Grazon PC must not exceed 1 quart per acre per annual growing season. Repeat treatments may be applied as necessary, but total use must not exceed 1 quart per acre per annual growing season.

Very small amounts can kill or injure many broadleaf plants. To prevent damage to crops and other desirable plants, **follow all directions and precautions.**



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**Note:** Many forbs are susceptible to Grazon PC. Do not spray pastures containing desirable forbs, especially legumes, unless injury to such plants can be tolerated. However, the growth of established grasses is improved after spraying, especially when rainfall is adequate and grazing is deferred.

**Do not make application when circumstances favor movement from treatment site.**

**Do not contaminate water intended for irrigation or domestic purposes.** To avoid injury to crops or other desirable plants, do not treat or allow spray drift or run-off to fall onto banks or bottoms of irrigation ditches, either dry or containing water, or other channels that carry water that may be used for irrigation or domestic purposes. Do not apply to snow or frozen ground.

Do not use on sub-irrigated land.

**Grazon PC should not be applied in residential areas or near ornamental trees and shrubs.**

Untreated trees can occasionally be affected by root uptake of the herbicide through movement into the top soil or by excretion of the product from the roots of nearby treated trees. Do not apply Grazon PC within the root zone of desirable trees, unless such injury can be tolerated.

**Do not apply or otherwise permit Grazon PC or sprays containing Grazon PC to contact crops or other desirable broadleaf plants,** including but not limited to alfalfa, beans, cotton, grapes, melons, peas, potatoes, safflower, soybeans, sugar beets, sunflower, tobacco, tomatoes, and other vegetable crops, flowers, fruit plants, ornamentals and shade trees. Do not apply this product in the rooting zone of nearby desirable plants, as injury may occur through root uptake.

Do not use grass or hay from treated areas for composting or mulching of susceptible broadleaf crops.

**Do not spray pastures if injury to existing forage legume component cannot be tolerated.** Grazon PC may injure or kill legume plants. Forage legumes may be less sensitive to the herbicide after the seed has been set and has hardened off. New legume seedlings may not be successful if made within one year of application.

**Do not move treated soil** to other areas or use it to grow plants if they are not registered for use with picloram until an adequate sensitive bioassay or chemical test shows that no detectable picloram is present in the soil.

**Do not transfer livestock** from treated grazing areas onto broadleaf crop areas without first allowing 7 days of grazing on untreated grass pasture. Otherwise, urine may contain enough picloram to cause injury to sensitive broadleaf plants.

**Do not use manure** from animals grazing treated areas on land used for growing broadleaf crops, ornamentals, orchards or other susceptible, desirable plants. Manure may contain enough picloram to cause injury to susceptible plants.

**Do not mix with dry fertilizer.**

**Do not rotate food or feed crops** on treated land if they are not registered for use with picloram until an adequately sensitive bioassay or chemical test shows that no detectable picloram is present in the soil.

#### **Avoid Injurious Spray Drift**

Applications should be made to avoid spray drift since very small quantities of the spray, which may not be visible, may injure susceptible crops during both growing and dormant periods. To minimize spray drift:

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1. Use nozzle pressures no greater than are required to obtain a proper spray pattern for adequate coverage of target plants.
2. Apply as a coarse spray.
3. Use nozzles designed for herbicide application that do not produce a fine droplet spray.
4. Spray when wind velocity is low. Follow local state regulations. Avoid conditions which are conducive to air inversions.

When making applications near susceptible crops, spray drift may be further lessened by using a drift control system such as the Microfoil, Thru-Valve boom (or equivalent). If a drift control additive is used, follow all use recommendations and precautions on the product label.

**Ground Equipment:** With ground equipment, spray drift can be lessened by keeping the spray boom as low as possible; by keeping the operating spray pressures at the manufacturers recommended minimum pressures for the specific nozzle types used (low pressure nozzles are available from spray equipment manufacturers). **Do not apply this product with a mistblower.** In hand-gun applications, spray drift may be minimized by selecting the minimum pressure that will provide adequate coverage (without forming a mist); by spraying no higher than brush tops.

**Aerial Application:** Avoid spray drift at the application site. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. Users are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops.

1. The distance of the outer most operating nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they should be observed.

The applicator should be familiar with and take into account the information covered in the Aerial Drift Reduction Advisory, below.

With aircraft, drift can be lessened by using straight stream nozzles directed straight back; ; by using low pressure sprays; by using a drift control system or drift control additive. Do not use a thickening agent with the Microfoil or the Thru-Valve boom, or other drift control systems that cannot accommodate thick sprays.

**Determine Air Movement And Directions Before Making Follar Applications:** Do not spray when wind is blowing toward susceptible crops or ornamental plants near enough to be injured. It is suggested that a continuous smoke column at or near the spray site or a smoke generator on the spray equipment be used to detect air movements, lapse conditions, or temperature inversions (stable air). If the smoke layers or otherwise indicates a potential for hazardous spray drift, do not spray.

### **Aerial Drift Reduction Advisory**

#### **Information On Droplet Size**

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

#### **Controlling Droplet Size**

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the air stream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

**Boom Length:** For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

**Application Height:** Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**Swath Adjustment:** When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.)

**Wind:** Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

**Temperature And Humidity:** When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

**Temperature Inversions:** Applications should not occur during a local, low level temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of the smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

**Sensitive Areas:** The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

## Mixing Instructions

### Ground and Aerial Applications - Mixing With Water Alone

Start with about half the required amount of water in the spray tank. With agitation operating, add the required amount of Grazon PC and Reclaim\* or 2,4-D Amine herbicides. Then add the required amount

of Remedy, or a 2,4-D ester product. If a surfactant is needed, it should be added as the remainder of the required water is added to complete the spray mix. When using a drift control additive such as Nalco-Trol or equivalent, follow the manufacturer's directions carefully. Complete dispersion of the additive, such as obtained by passage through a pump with moderate to high shearing action, is essential for proper performance of the product.

#### **Ground and Aerial Applications - Mixing Oil-Water Emulsions**

For aerial application, add oil to the total spray mix at the ratio of 1 part oil to 5 parts water (1:5 ratio). Do not use more than 1 gallon of oil per acre for aerial or ground application. Use agricultural spray emulsifiers such as Sponto 712 or Triton X-100 according to mixing instructions given below and tables of materials (Tables 1 - 4).

#### **Batch Mixing Instructions**

With continuous, vigorous agitation:

1. Add half the amount of water to be used to the spray tank.
2. Add the required amount of water soluble herbicide such as Grazon PC, Reclaim or 2,4-D Amine products required.
3. With continued, vigorous agitation slowly add a premix of oil, emulsifier and oil soluble herbicides such as Remedy or a 2,4-D ester product as required. Note: Do not allow water or mixtures containing water to get into the premix or Remedy herbicide since a thick "invert" (water in oil) emulsion may be formed that will be difficult to break. Such an emulsion may also be formed if the premix or Remedy is put into the mixing tank before the addition of water.
4. Add the remaining water. Also, during the final filling of the tank, add Nalco-Trol or equivalent drift control agent, plus an agricultural surfactant (if a water dilution rather than an oil-water emulsion spray is used).

#### **Aerial Application - Mixing Oil-Water Emulsions (Meter Mixing)**

Oil-water emulsion sprays containing tank mixes of Grazon PC plus Remedy, or other herbicides may also be prepared using the spray tank "loading" pump to mix the ingredients while filling the tank. This procedure involves simultaneous metering of the required amounts of water and Grazon PC with an oil-emulsifier and 2,4-D or Remedy into the intake line of the pump during operation. Since emulsification is accomplished in the pump, it is important that a pump with moderate to high shearing action be used. For proper results always introduce the water and Grazon PC and Reclaim herbicide into the intake line before introducing the oil-emulsifier premix, or a thick, invert emulsion may result. Maintain vigorous agitation in the spray tank during application.

#### **Use of Grazon PC And 2,4-D Herbicide With Liquid Fertilizer For Broadleaf Weed Control In Rangeland And Permanent Grass Pasture.**

Grazon PC mixed with 2,4-D ester or amine (at recommended label rates) may be tank mixed with liquid fertilizers and used in foliar application for weed control and fertilization of rangelands and permanent grass pastures. Use liquid fertilizers at rates recommended by supplier or local Extension Service Specialist.

Begin with a **compatibility test** by pouring the spray component in the desired order and proportions into a clear glass jar before mixing in the spray tank. Use of a compatibility aid such as Unite or Complex is recommended to help obtain and maintain a uniform spray solution during mixing application.

**Compatibility is best with straight liquid nitrogen fertilizer solutions. Mixing with N-P-K fertilizer solutions or suspensions is more difficult and should not be attempted without first conducting a successful jar test. Agitation in the spray tank must be vigorous to compare with jar test agitation.**

#### **Suggested Mixing and Application Procedure: With continuous vigorous agitation:**

1. Add half the amount of liquid fertilizer to the spray tank.
2. Add compatibility aid such as Unite or Complex at 1 quart per 100 gal of total spray mix.
3. First add the amount of Grazon PC needed for the total spray mixture. Then add the amount of 2,4-D needed for the total spray mixture. Mixing with N-P-K fertilizer solutions may be improved following

the above procedure by premixing the herbicides with water before adding them to the spray tank. For Grazon PC, premix 1 part herbicide with 25 to 30 parts water. For 2,4-D, premix 1 part herbicide with 4 parts water.

4. Add the remaining liquid fertilizer to produce the needed total spray volume.
5. Apply as soon as the spray is totally mixed, maintaining continuous, vigorous agitation from start of mixing through application without interruptions.

Application during very cold (near freezing) weather is not advisable.

**Do not store the spray mixture.**

**Note:** Do not use spray equipment for other applications to land planted, or to be planted, to susceptible crops or desirable sensitive plants, unless it has been determined that all phytotoxic herbicide residue has been removed by thorough cleaning of equipment.

**Table 1:  
Amounts Of Grazon PC To Make 100 Gallons Of Spray Solution (Oil-Water Emulsion)**

Label Recommendations		Amount To Make 100 Gallons of Spray Solution				
Total Spray Volume Gal/Acre	Rate Pint/Acre Grazon PC	Gallons Grazon PC	Gallons Oil <sup>†</sup>	Gallons Water	Ounces Emulsifier <sup>†</sup>	Ounces N.T. <sup>†</sup>
2	1	6.2	15.6	78.2	45.3	4.5
2	2	12.5	14.6	72.9	40.5	4.1
4	1	3.1	16.2	80.7	46.8	4.8
4	2	6.2	15.6	78.2	43.8	4.5
10	1	1.3	10.0	88.8	30.0	5.3
10	2	2.6	10.0	87.4	30.0	5.2
20	1	0.7	5.0	94.4	15.0	5.7
20	2	1.3	5.0	93.8	15.0	5.6

<sup>†</sup>Emulsifiers such as Sponto 712 or Triton X-100 should be added at the rate of 3 ounces per gallon of oil in the total spray mix when using a water-soluble formulation such as Grazon PC or Reclaim.

<sup>†</sup>Amounts of Nalco-Trol (N.T.) are calculated on the basis of 6 oz of N.T. per 100 gal of water. Equivalent additives should be added at equivalent rate of active ingredient.

<sup>†</sup>Do not use more than 1 gal of oil per acre.

**Table 2:  
Amounts Of Grazon PC Plus Remedy To Make 100 Gallons Of Spray Solution (Oil-Water Emulsion)**

Label Recommendations			Amount To Make 100 Gallons of Spray Solution					
Total Spray Volume Gal/Acre	Rate Pint/Acre Grazon PC	Rate Pint/Acre Grazon ET	Gallons Grazon PC	Gallons Remedy	Gallons Oil <sup>†</sup>	Gallons Water	Ounces Emulsifier <sup>†</sup>	Ounces N.T. <sup>†</sup>
2	1	0.5	6.2	3.1	15.1	75.6	15.1	4.5
2	2	0.5	12.5	3.1	14.0	70.4	14.0	4.2
2	1	1	6.2	6.2	14.6	73.0	14.6	4.4
2	2	1	12.5	6.2	13.6	67.7	13.6	4.1
2	1	2	6.2	12.5	13.6	67.7	13.6	4.1
2	2	2	12.5	12.5	12.5	62.5	12.5	3.8
4	1	0.5	3.1	1.6	15.9	79.4	15.9	4.8
4	2	0.5	6.2	1.6	15.4	76.8	15.4	4.6
4	1	1	3.1	3.1	15.6	78.1	15.6	4.7

4	2	1	6.2	3.1	15.1	75.6	15.1	4.5
4	1	2	3.1	6.2	15.1	75.6	15.1	4.5
4	2	2	6.2	6.2	14.6	73.0	14.6	4.4
10	1	0.5	1.2	0.6	10.0	88.2	30.0	5.3
10	2	0.5	2.6	0.6	10.0	86.8	30.0	5.2
10	1	1	1.2	1.2	10.0	87.6	30.0	5.3
10	2	1	2.6	1.2	10.0	86.2	30.0	5.2
10	1	2	1.2	2.6	10.0	86.2	30.0	5.2
10	2	2	2.6	2.6	10.0	84.8	30.0	5.1
20	1	0.5	0.6	0.3	5.0	94.1	15.0	5.7
20	2	0.5	1.2	0.3	5.0	93.5	15.0	5.6
20	1	1	0.6	0.6	5.0	93.8	15.0	5.6
20	2	1	1.2	0.6	5.0	93.2	15.0	5.6
20	1	2	0.6	1.2	5.0	93.2	15.0	5.6
20	2	2	1.2	1.2	5.0	92.6	15.0	5.6

†Emulsifiers such as Sponto 712 or Triton X-100 should be added at the rate of 2 oz/gal of oil when Remedy is a part of the spray mixture. (Remedy is an emulsifiable concentrate with some emulsifier in the formulation.)

†Amounts of Nalco-Trol (N.T.) are calculated on the basis of 6 oz of N.T. per 100 gal of water. Equivalent additives should be added at equivalent rate of active ingredient.

†Do not use more than 1 gal of oil per acre.

**Table 3:  
Amount Of Grazon PC Plus 2,4-D To Make 100 Gallons Of Spray Solution (Oil-Water Emulsion)**

Label Recommendations			Amount To Make 100 Gallons of Spray Solution						
Total Spray Volume Gal/Acre	Rate Pint/Acre Grazon PC	Rate Pint/Acre Formula 40 or Esteron 99 Conc.	Gallons Grazon PC	Gallons Formula 40 or Esteron 99 Conc.	Gallons Oil <sup>†</sup>	Gallons Water	Ounces Emulsifier <sup>†</sup>	Ounces Emulsifier <sup>†</sup>	Ounces N.T. <sup>†</sup>
2	0.25	0.5	1.6	3.1	15.9	79.4	15.9	47.7	4.8
2	0.5	1	3.1	6.2	15.1	75.5	15.1	45.3	4.5
2	1	2	6.2	12.5	13.5	67.7	13.5	40.5	4.1
2	2	4	12.5	25.0	10.4	52.1	10.4	31.2	3.1
4	0.25	0.5	0.8	1.6	16.2	81.4	16.2	48.6	4.9
4	0.5	1	1.6	3.1	15.9	79.4	15.9	47.7	4.8
4	1	2	3.1	6.2	15.1	75.5	15.1	46.8	4.5
4	2	4	6.2	12.5	13.5	67.7	13.5	40.5	4.1
10	0.25	0.5	0.3	0.6	10.0	89.1	10.0	30.0	5.4
10	0.5	1	0.6	1.2	10.0	88.2	10.0	30.0	5.3
10	1	2	1.2	2.4	10.0	86.4	10.0	30.0	5.2
10	2	4	2.4	4.8	10.0	82.8	10.0	30.0	5.0
20	0.25	0.5	0.15	0.3	5.0	94.6	5.0	15.0	5.7
20	0.5	1	0.3	0.6	5.0	94.1	5.0	15.0	5.7
20	1	2	0.6	1.2	5.0	94.2	5.0	15.0	5.7
20	2	4	1.2	2.4	5.0	91.4	5.0	15.0	5.5

†Emulsifiers such as Sponto 712 or Triton X-100 should be added at the rate of 3 ounces per gallon of oil when used with a water-soluble product such as 2,4-D Amine or at 2 oz/gal of oil when used with an oil-soluble product, such as 2,4-D Ester, in the total spray mix.

†Amounts of Nalco-Trol (N.T.) are calculated on the basis of 6 oz of N.T. per 100 gal of water. Equivalent additives should be added at equivalent rates of active ingredient.

†Do not use more than 1 gal of oil per acre.

**Table 4:  
Amounts of Grazon PC And Reclaim To Make 100 Gallons Of Spray Solution (Oil-Water Emulsion)**

Label Recommendations	Amount To Make 100 Gallons of Spray Solution
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Total Spray Volume Gal/Acre	Rate Pint/Acre Grazon PC	Rate Pint/Acre Reclaim	Gallons Grazon PC	Gallons Reclaim	Gallons Oil†	Gallons Water	Ounces Emulsifier†	Ounces N.T.†
2	1	2/3	6.2	4.2	14.9	74.7	44.7	4.5
2	1	1 1/3	6.2	8.3	14.3	71.2	42.9	4.3
2	2	2/3	12.5	4.2	13.9	69.4	41.7	4.2
2	2	1 1/3	12.5	8.3	13.2	66.0	39.6	4.0
4	1	2/3	3.1	2.1	15.8	79.0	47.4	4.7
4	1	1 1/3	3.1	4.2	15.5	77.2	46.5	4.6
4	2	2/3	6.2	2.1	15.3	76.4	45.9	4.6
4	2	1 1/3	6.2	4.2	14.9	74.7	44.7	4.5
10	1	2/3	1.2	0.8	10.0	87.8	30.0	5.3
10	1	1 1/3	1.2	1.7	10.0	86.9	30.0	5.2
10	2	2/3	2.6	0.8	10.0	86.4	30.0	5.2
10	2	1 1/3	2.6	1.7	10.0	85.5	30.0	5.0
20	1	2/3	0.6	0.4	5.0	94.0	15.0	5.6
20	1	1 1/3	0.6	0.8	5.0	93.6	15.0	5.6
20	2	2/3	1.2	0.4	5.0	93.4	15.0	5.6
20	2	1 1/3	1.2	0.8	5.0	93.0	15.0	5.6

†Emulsifiers such as Sponto 712 or Triton X-100 should be added at the rate of 3 ounces per gallon of oil in the spray solution.

†Amounts of Nalco-Trol (N.T.) are calculated on the basis of 6 oz. Nalco-Trol per 100 gal of water. Equivalent additives should be added at equivalent rates of active ingredient.

†Do not use more than a gallon of oil per acre.

**Table 5:  
Mixing Chart For High Volume Foliar Applications  
(Label rate range is 1 to 4 qts/100 gallons)**

Total Volume of Spray Mixture	Amount of Grazon PC Required at Specified Rate			
	1 qt/100 gal	2 qt/100 gal	3 qt/100 gal	4 qt/100 gal
400 gal	1 gal	2 gal	3 gal	4 gal
100 gal	1 qt	2 qt	3 qt	4 qt
50 gal	1 pt	2 pt	3 pt	4 pt
10 gal	3.2 fl oz	6.4 fl oz	9.6 fl oz	12.8 fl oz
5 gal	1.6 fl oz	3.2 fl oz	4.8 fl oz	6.4 fl oz
3 gal	1 fl oz	2 fl oz	3 fl oz	4 fl oz

**Rangeland and Permanent Grass Pastures**

Mix the required amount of Grazon PC in sufficient water for uniform coverage and apply as a coarse, low-pressure spray with ground or aerial application equipment. The use of a drift control additive such as Nalco-Trol, or equivalent, is strongly recommended, especially when water alone is used as the carrier.

**Broadcast Foliar Applications (Ground or Aerial)**

Apply in 10 to 20 gal of total spray mixture per acre by ground and in a minimum of 2 gal/acre or more for aerial application (unless otherwise specified). See Mixing Directions and Tables 1 to 4 for instructions

on oil-water emulsion details. Good coverage is essential. Swath width should not exceed 1 1/4 times the wingspan of the aircraft.

**Woody Plants - Broadcast Use Recommendations**

Pest	Amount of Grazon PC (Picloram) Per Acre	Specific Directions
Pricklypear (Unburned rangeland)	1 qt (0.5 lb ae)	Best application time is generally from late August to early November. Applications at other times of the year may be less than optimum. Herbicidal activity on unburned prickly pear is very slow and may continue for two years or longer. Good coverage is essential.
Pricklypear (Burned rangeland)	1 pt (0.25 lb ae)	Install intense controlled burns during December through March. Then apply the product during mid-April through May. Rainfall following burning can also stimulate prolific resprouting of the burned plants. Good coverage is also essential.
Macartney rose, Multiflora rose (Mowed and other disturbed stands, within 3 years of disturbance)	1 qt (0.5 lb ae)	Add an approved agricultural surfactant (or use an oil-water emulsion) and use higher spray volumes (20 to 25 gal/acre by ground or a minimum of 5 gal/acre by air). Avoid spraying earlier than 9 to 12 months following mowing or when plants have a high percentage of new growth. Repeat treatment when necessary. Swath width should be such as to provide adequate overlap between swaths to facilitate good coverage. Product can be applied in the spring or fall if conditions are favorable for good plant growth.
Mesquite	1 to 2 pt (0.25 to 0.5 lb ae) with 1/2 to 1 pt (0.25 to 0.5 lb ae) of Remedy or 2/3 to 1 1/3 pt (0.25 to 0.5 lb ae) of Reclaim	Higher application rates should be used east of Interstate 35 (I-35). Environmental conditions may influence results considerably.  <b>For best results on mesquite</b> , apply in the spring or early summer during the period approximately 40 to 90 days after the first green growth appears and when the soil moisture is adequate for good growth. A soil temperature of 78° F to 83° F at a depth of 12 to 18 inches has been reported as optimal for good plant control. <b>Spraying should be postponed if the soil temperature is not at least 75° F at the 12 inch depth.</b> Soil temperatures will vary with soil types. Clay soils (bottomland soils) or wet soils are colder and/or slower to warm up than coarser (upland soils) or dry soils. Degree of control can vary accordingly. Frost, hail, or insect damage can reduce plant root kill and may, if severe, prohibit treatment for that year. Do not treat when plants have new (light green) terminal growth in response to heavy rainfall during the growing season. Mesquite regrowth should be at least 4 feet in height for best results with broadcast foliar applications. Do not treat more than once a year. Retreatment may not be effective unless the trees have



		developed sufficient leaf surface to intercept the spray. Apply as a 1:5 oil:water emulsion in a total spray volume of 2 to 4 gallons per acre by air or 10 to 20 gallons per acre by ground. <b>As brush density increases, use higher recommended spray volumes.</b> Fall treatments are not recommended.
South Texas mixed brush (including mesquite, prickly pear, blackbrush, twisted acacia, granjeno and guajillo)	1 qt (0.5 lb ae) with 1 to 2 pt (0.5 to 1.0 lb ae) of Remedy or 2/3 to 1 1/3 pt of Reclaim	Apply in a minimum of 4 gal of oil-water emulsion per acre by air or 20 to 25 gal/acre by ground. See comments listed in the Mesquite Control section.
Huisache (Suppression)	1 qt (0.5 lb ae)	Fall applications are recommended. Performance can be erratic. Fall applications for Grazon PC alone are not suitable for mesquite control, or for control of certain other species found in the South Texas mixed brush complex.
Chinese tallowtree	1 qt (0.5 lb ae) with 2 qt (1.9 lb ae) of 2,4-D ester or 1 pt (0.5 lb ae) of Remedy	Add an approved agricultural surfactant (0.5% vol/vol) (or use an oil-water emulsion) and use higher spray volumes (20 to 25 gal/acre by ground, or a minimum of 5 gal/acre or more by air). The product may be applied in the spring or fall, if conditions are favorable for good plant growth.

**Annual and Perennial Weeds - Broadcast Use Recommendations**

Broom snakeweed		In years of less-than-normal rainfall prior to flowering, apply only after flowering is completed. In years with normal to above-normal rainfall prior to or during flowering, apply the herbicide during full flower and/or active pollination, stopping with the initiation of new top growth.
Fall/Early Winter (Sept. - Nov.)	1 pt (0.25 lb ae)	
Late Winter/Early Spring (Feb. - April)	1 qt (0.5 lb ae)	Applications should be made following sufficient moisture (snow or rainfall) to provide active plant growth (both basal and terminal leaves are green and actively growing).
Annual broomweed, bitterweed, bursage (bur ragweed), common ragweed, tasajillo, musk thistle, bull thistle	1 to 2 pt (0.25 to 0.5 lb ae)	Use the lower rate in very early season (March-April), when weeds are no more than 2 inches tall and conditions are favorable for good plant growth. Use the higher rate when weeds range from 3 inches tall to early flowering.
Bitter sneezeweed, buffalo bur, camphorweed, cocklebur, croton,		For marshelder (sumpweed, sulfaweed), use a minimum of 0.5 pt of Grazon PC and 0.5 pt of 2,4-D plus surfactant. Apply when weeds are 3" to 6" tall using only the highest recommended

<p>marshelder (sumpweed, sulfaweed), smartweed, sunflower, wild carrot, prickly lettuce, annual broomweed, bitterweed, bursage (bur ragweed), common ragweed, tasajillo, musk thistle, bull thistle</p> <p>Early season (March-April)</p> <p>Mid to late season (May-June)</p>	<p>1/4 to 1/2 pt (0.0625 to 0.125 lb ae) with 0.5 to 1 pt of the desired 2,4-D formulation</p> <p>1/2 to 1 pt (0.125 to 0.25 lb ae) with 1 to 2 pt of the desired 2,4-D formulation</p>	<p>total volume (aerial or ground).</p> <p>Lower tank mixes are effective only in very early season while weeds are no more than 2 inches tall and conditions are favorable for good plant growth.</p> <p>Apply when weeds range from 3 inches tall to early flowering, when conditions are favorable for good plant growth.</p>
<p>Lanceleaf ragweed</p>	<p>1/2 to 1 pt (0.125 to 0.25 lb ae) with 1 to 2 pt of 2,4-D</p>	<p>Use the lower rate in early season when weeds are no more than 2 inches tall and conditions are favorable for plant growth. Use the higher rate when weeds range from 3 inches tall to early flowering</p>
<p>Bullnettle, silverleaf nightshade, upright prairie cone flower, western horsenettle, western ragweed, yankeeweed</p>	<p>1/2 to 1 pt (0.125 to 0.25 lb ae) with 1 to 2 pt of 2,4-D</p>	<p>Nettles and silverleaf nightshade should be treated when the plants begin to flower in the spring. Yankeeweed should be sprayed when plants are 8 to 10 inches tall; upright prairie cone flower should be sprayed when plants are 2 to 6 inches tall, before flowering.</p>
<p>Common goldenweed, Drummond's goldenweed (<i>Isocoma</i> spp.)</p>	<p>1 to 2 pt (0.25 to 0.5 lb ae) with 1 to 2 pt of 2,4-D</p>	<p>Add 0.25 to 0.5% (vol/vol) of an approved agricultural surfactant or oil-water emulsion with appropriate emulsifier. Higher spray volumes are recommended (15 to 20 gal/acre by ground and 4 to 5 gal/acre by air).</p> <p>Apply in the spring (April-June), when good growing conditions produce substantial canopy development. Good coverage is essential.</p>
<p>Poisonous plants (Such as: woolly loco, garbancillo (Wooton loco) and groundsel (<i>Senecio</i> spp.))</p>	<p>3/4 to 1 pt (0.1875 to 0.25 lb ae) with 1 to 2 pt of 2,4-D or 1 to 2 pt (0.25 to 0.5 lb ae)</p>	<p>Apply in fall or winter under good moisture conditions. Since locoweeds are difficult to wet, add an approved agricultural surfactant at 0.25 to 0.5% (vol/vol) (or apply as an oil-water emulsion). Herbicide application may increase palatability of these poisonous plants. Therefore treated areas should not be grazed until the toxic plants dry up and lose their palatability.</p>

Gray goldaster, Narrowleaf goldaster	1 to 2 pt (0.25 to 0.5 lb ae) with 1 to 2 pt 2,4-D	Apply in the spring during the bud stage (pre-bloom). Apply in oil-water emulsion. Thorough coverage is essential.
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**Note (Ground Application Special Equipment):** To control annual and perennial weed species using special low-volume, minimum drift equipment, such as the hooded Forage Chemical Mower, apply 1 to 2 pt (0.25 to 0.5 lb picloram) of Grazon PC in total volumes ranging from 1 gal to 5 gal per acre in water alone or as an oil-water emulsion at a 1:5 and 1:4 oil-to-water ration for a 1 gal and 5 gal per acre solutions, respectively.

Repeat applications may be made in successive years if more complete control is desired. Consult your Extension Weed Specialist for local recommendations.

**High-Volume Foliar Applications**

Spray to thoroughly wet foliage and stems. Use an approved agricultural surfactant at the rate of 0.25 to 0.5% v/v. Do not use more than 1 qt of Grazon PC (0.5 lb of picloram) per acre. To minimize spray drift, use lowest possible pressure and a coarse spray to achieve good coverage. Keep sprays no higher than brush tops. Nalco-Trol drift control agent or equivalent is recommended. (See Table 5).

**Woody Plants - High-Volume Foliar Use Recommendations**

Pest	Amount of Grazon PC per 100 Gallons	Specific Directions
Pricklypear (burned/unburned rangeland) Broom snakeweed	2 to 4 qt (1 to 2 lb ae)	See "Broadcast Application" section for timing and specific directions.
Macartney rose, Multiflora rose	1 to 2 qt (0.5 to 1 lb ae) with 2 to 4 qt of 2,4-D	This technique can also be used for the control of large undisturbed clumps or for the control of small regrowth. Product can be applied in the spring or fall, if conditions are favorable for good plant growth.
Chinese tallow tree	2 qt (1 lb ae) or 1 to 2 qt (0.5 to 1 lb ae) with 2 to 4 qt of 2,4-D or with 1 qt Remedy	May be treated in spring or fall if conditions are favorable for good plant growth
Mesquite	1 to 2 qt (0.5 to 1 lb ae) with 1 1/2 to 3 pt of Remedy or 1 to 2 qt of Reclaim	See "Broadcast Application" section for specific application information.
South Texas mixed brush (including mesquite, pricklypear, blackbrush, twisted acacia, granjeno and guajillo)	2 qt (1 lb ae) with 2 to 3 pt Remedy or 1 to 2 qt of Reclaim	See "Broadcast Application" section on mesquite for specific application information.

Huisache (Suppression)	2 qt (1 lb ae)	Apply in the fall. See details in "Broadcast Application" section.
Junipers (Cedars) (Including alligator, redberry, Utah, one-seeded, pinion pine, eastern redcedar)	2 qt (1 lb ae)	Apply in May through July. Results for ashe juniper can be variable using this technique. Complete coverage is essential.

**Broadleaf Weed Control - High-Volume Foliar Use Recommendations**

Pest	Amount of Grazon PC per 100 Gallons	Specific Directions
Common goldenweed, Drummond's goldenweed, Poisonous plants (such as: woolly loco, garbancillo (Wooton loco) and groundsel ( <i>Senecio</i> spp.))	2 qt (1 lb ae) with 1 gal of 2,4-D	See "Broadcast Application" section for best application timing. Herbicide application may increase palatability of these poisonous plants. Treated areas should not be grazed until toxic plants dry up and lose their palatability.
Annual broomweed, bitterweed, bursage (bur ragweed), common ragweed, tasajillo, must thistle, bull thistle, bitter sneezeweed, buffalo bur, camphorweed, cocklebur, croton, marshelder (sumpweed), smartweed, sunflower, wild carrot, prickly lettuce, lanceleaf, ragweed, bullnettle, silverleaf, nightshade, upright prairie cone flower, western horsenettle, western ragweed, yankeeweed, gray goldaster, narrowleaf goldaster	1 qt (0.5 lb ae) with 2 qt of 2,4-D	See "Broadcast Application" section for best application timing.

**Special Ground Applications**

**Note:** When making Spot Concentrate or Carpet Roller applications, the maximum application rate is 1 qt/acre (0.5 lb ae picloram) if applied on a broadcast basis. If spot applications or applications for control of noxious weeds are made, the maximum rate is 2 qt/acre (1.0 lb ae picloram), but no more than 50% of an acre may be treated.

**Soil Spot Concentrate (Texas and Oklahoma):** Use Grazon PC undiluted. Applications should precede periods of expected rainfall. Apply directly to the soil within the dripline and on the upslope side of the tree. Applications to trees taller than 12 feet is not recommended.

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Pest	Amount of Grazon PC to Use	Specific Directions
Ashe juniper	4 to 6 ml per 3 foot of plant height	Apply in the spring (April-May)
Eastern redcedar	3 to 4 ml per 3 foot of plant height	Apply in either spring (April-May) or fall (September-October)
Eastern persimmon	2 to 4 ml per inch of stem diameter	Apply in spring (March through May)

**Carpet Roller:** Grazon PC can be applied with carpeted rollers where drift presents a hazard to susceptible crops, surface waters and other sensitive areas. Apply to previously untreated plants less than 6 feet tall, and short enough to pass beneath the tractor without breaking off at the ground. Applications made during periods of extended drought conditions will not provide acceptable control. Do not mow, burn or otherwise disturb the treated plants during the remainder of the growing season. Operate carpeted rollers as close to the ground as possible without breaking the stems, but above the tallest grasses. Grasses growing adjacent to treated plants may exhibit temporary injury. Maximize herbicide deposition on foliage and stems and minimize drippage losses by rotating the carpeted roller at 30 to 40 rpm with the lower edge moving in the same direction as the direction of travel. Maintain the carpet sufficiently wetted to apply up to 1 gal/acre of herbicide-water mixture to stands of average density (100 to 200 plants/acre), and up to 2 gal/acre in dense stands (300 to 400 plants/acre). Rewet rollers at regular intervals.

#### Carpet Roller - Use Recommendations

Pest	Amount of Grazon PC (Picloram) to Use	Specific Directions
Mesquite regrowth	1 gal (2 lb ae) alone or with 2 qt Reclaim to make 8 gal spray mixture	Include 1 ounce of a recommended agricultural surfactant per gallon of herbicide-water mixture (0.75% vol/vol). Apply from May through August, but preferably in May and June, when moisture availability is sufficient to allow normal plant growth. See "Broadcast Application" section for more details regarding optimum conditions for mesquite control.
Huisache/Blackbrush	1 gal (2 lb ae) alone or with 2 to 3 qt of Reclaim to make 8 gal of spray mixture	Include 1 ounce of a recommended agricultural surfactant per gallon of herbicide-water mixture (0.75% vol/vol). Apply in the fall.

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