

62719-330

04/30/2003

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

Mr. Steve A. McMaster  
Regulatory Manager  
Dow AgroSciences LLC  
9330 Zionsville Road  
Indianapolis, IN 46268

APR 30 2003

Dear Mr. McMaster:

Subject: Esteron® 638

EPA Registration No. 62719-330

Application and Your Letter Dated August 5, 2002,  
Request To Amend the Registration of Estron 638, as  
Described in the Attachment to the Application and  
Listed Below:

1. First aid statements revised in accordance with PR Notice 2001-1.
2. Referral statements to Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies were revised per EPA correspondence from Joanne I. Miller dated August 31, 2000 and Dow AgroSciences response to Donald R. Stubbs dated November 20, 2000.
3. Added Terms and Conditions of Use section.
4. Adjustment of Use Rates: this product contains 2.8 lb ae/gallon of product. Use rates for a product containing 3.8 lb ae/gal were inadvertently used in the final version of the label originally approved by the Agency. Note: To date, this label has not been commercialized.
5. Clarification of Use Directions: Cereals: (1) Deleted use on cereals underseeded with legumes, and (2) Added incrop use on wild onions and garlic. Corn: Clarification of postemergence use directions and rates. Soybeans: Clarification of language for tank mixing. Range and Pasture and Non-cropland: Added reference back to Forestry Uses" section for directions for cut surface and tree injection application methods.
6. Grazing and Haying Restrictions: Revised to match most recent EPA-accepted labels for other DAD 2,4-D products.
7. Certain Crop Uses Deleted: Deleted use on orchard floors and sugarcane. The 2,-D Task Force II is supporting only acid and amine formulations for use on these crop/sites.

- 8. Minor editing for clarity throughout (edits as shown).
- 9. Revised warranty statements to reflect the supplemental distributor status of this Dow AgroSciences product.

The labeling reflecting the subject amendments has been reviewed and found to be acceptable under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, provided that you:

- 1. Delete the sentence on page 17, under "Precautions" that reads: "Some are easily injured".
- 2. On page 20, Soybeans (Preplant Burndown Application Only)" You state that: "This product may be applied in tank mix combination with other herbicides registered for preplant use in soybeans." As this allows for a number of tank mix partners that are unnamed, you must add to this section directions of determining compatibility with each of the potential partners that may be used in a tank mixture. Alternatively, name each tank mix partner which may be used.
- 3. Submit one (1) copy of the final printed label prior to your shipment of this product under the enclosed revised stamped label.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA, section 6(e). Your release for shipment under this labeling constitutes acceptance of this condition. A stamped copy of the label is enclosed for your records.

Sincerely yours,

*Joanne I. Miller*  
 Joanne I. Miller  
 Product Manager (23)  
 Herbicide Branch

Registration Division (7505C)

Enclosure

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ACCEPTED  
with COMMENTS  
In EPA Letter Dated

(Base Label):

(Logo) Dow AgroSciences

# Esteron\* 638

APR 30 2003

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

62719-330

For selective control of many broadleaf weeds in certain crops, fallow cropland, forests, grass pastures, rangeland, Conservation Reserve Program (CRP) acres, ornamentals, turf, and non-cropland areas.

Active Ingredients:

2,4-Dichlorophenoxyacetic acid .....	13.8%
2,4-Dichlorophenoxyacetic acid, 2-butoxyethyl ester .....	24.5%
Inert Ingredients .....	61.7%
Total .....	100.0%

Contains petroleum distillates.

Acid Equivalents:

2,4-dichlorophenoxyacetic acid† -- 30.8% -- 2.8 lb/gal  
†Isomer Specific by AOAC Method No. 978.05 (15th Ed.)

### Keep Out of Reach of Children

## DANGER PELIGRO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.  
(If you do not understand the label, find someone to explain it to you in detail.)

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### Precautionary Statements

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#### Hazards to Humans and Domestic Animals

Corrosive • Causes Irreversible Eye Damage • Harmful If Swallowed

Do not get in eyes or on clothing.

#### Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category F on an EPA chemical resistance category selections chart.

#### Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves such as Barrier Laminate or Butyl Rubber
- Shoes plus socks
- Protective eyewear
- **Note: For containers of over 1 gallon, but less than 5 gallons:** Mixers and loaders who do not use a mechanical system (such as probe and pump or spigot) to transfer the contents of this container must wear coveralls or chemical-resistant apron in addition to other required PPE.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. 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. After each day of use, clothing or PPE must not be reused until it has been cleaned.

### Engineering Controls

**For containers of 5 gallons or more:** Do not open pour product from this container. A mechanical system (such as probe and pump or spigot) must be used for transferring the contents of this container. If the contents of a non-refillable pesticide container are emptied, the probe must be rinsed before removal. If the mechanical system is used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4)], the handler PPE requirements may be reduced or modified as specified in the WPS.

When handlers use enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protections Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

### User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately 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.

**If swallowed:** Call a poison control center or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

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.

**Note to Physician:** Probable mucosal damage may contraindicate the use of gastric lavage. This product may pose an aspiration pneumonia hazard. Contains petroleum distillates.

### Environmental Hazards

This product is toxic to aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and non-target plants. 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.

**Mixing and Loading:** Most cases of groundwater contamination involving phenoxy herbicides such as 2,4-D have been associated with mixing/loading and disposal sites. Caution should be exercised when handling 2,4-D pesticides at such sites to prevent contamination of groundwater supplies. Use of closed systems for mixing or transferring this pesticide will reduce the probability of spills. Placement of the mixing/loading equipment on an impervious pad to contain spills will help prevent groundwater contamination.

### Physical or Chemical Hazards

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**Do not use or store near heat or open flame.**

**Agricultural Use Requirements**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

**Refer to label booklet for Directions for Use including Storage and Disposal.**

**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. 62719-330

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

**Dow AgroSciences LLC • Indianapolis, IN 46268 U.S.A.**

# Herbicide

**Net Contents \_\_ gal**

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(Datapack cover):

(Logo) Dow AgroSciences

# Esteron\* 638

For selective control of many broadleaf weeds in certain crops, fallow cropland, forests, grass pastures, rangeland, Conservation Reserve Program (CRP) acres, ornamentals, turf, and non-cropland areas.

Active Ingredients:

2,4-Dichlorophenoxyacetic acid .....	13.8%
2,4-Dichlorophenoxyacetic acid, 2-butoxyethyl ester .....	24.5%
Inert Ingredients .....	61.7%
Total .....	100.0%

Contains petroleum distillates.

Acid Equivalents:

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†Isomer Specific by AOAC Method No. 978.05 (15th Ed.)

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Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Refer to inside of label booklet for additional precautionary information including Personal Protective Equipment (PPE), Engineering Controls Statements and User Safety Recommendations, and Directions for Use including Storage and Disposal.

**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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EPA Reg. No. 62719-330

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

Dow AgroSciences LLC • Indianapolis, IN 46268 U.S.A.

## Herbicide

Net Contents \_\_ gal

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(Page 1 through end):

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**Precautionary Statements**

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**Hazards to Humans and Domestic Animals****DANGER**

**Corrosive • Causes Irreversible Eye Damage • Harmful If Swallowed**

**Do not get in eyes or on clothing.**

**Personal Protective Equipment (PPE)**

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category F on an EPA chemical resistance category selections chart.

**Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants
- Chemical-resistant gloves such as Barrier Laminate or Butyl Rubber
- Shoes plus socks
- Protective eyewear
- **Note: For containers of over 1 gallon, but less than 5 gallons:** Mixers and loaders who do not use a mechanical system (such as probe and pump or spigot) to transfer the contents of this container must wear coveralls or chemical-resistant apron in addition to other required PPE.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. 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. After each day of use, clothing or PPE must not be reused until it has been cleaned.

**Engineering Controls**

**For containers of 5 gallons or more:** Do not open pour product from this container. A mechanical system (such as probe and pump or spigot) must be used for transferring the contents of this container. If the contents of a non-refillable pesticide container are emptied, the probe must be rinsed before removal. If the mechanical system is used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4)], the handler PPE requirements may be reduced or modified as specified in the WPS.

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Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
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**First Aid**

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**Mixing and Loading:** Most cases of groundwater contamination involving phenoxy herbicides such as 2,4-D have been associated with mixing/loading and disposal sites. Caution should be exercised when handling 2,4-D pesticides at such sites to prevent contamination of groundwater supplies. Use of closed systems for mixing or transferring this pesticide will reduce the probability of spills. Placement of the mixing/loading equipment on an impervious pad to contain spills will help prevent groundwater contamination.

**Physical or Chemical Hazards**

**Do not use or store near heat or open flame.**

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**Directions for Use**

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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. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

**Agricultural Use Requirements**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 48 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

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- Coveralls
- Chemical-resistant gloves such as Barrier Laminate or Butyl Rubber
- Shoes plus socks
- Protective eyewear

### 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:** When this product is applied to rangeland and established pastures not harvested for hay or seed; non-cropland areas, and when applied by tree injection method only in forest sites, do not allow people (other than applicator) or pets on treatment area during application. Do not enter into treated areas until sprays have dried.

### Storage and Disposal

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

**Storage:** Keep container tightly closed when not in use. If exposed to subfreezing temperatures, the product should be warmed to at least 40°F and mixed thoroughly before using.

**Pesticide Disposal:** Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law and may contaminate groundwater. If these wastes cannot be disposed of by use 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.

**Container Disposal (Metal):** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

**Container Disposal (Plastic containers 5-gals or less):** Triple rinse (or equivalent). Then dispose of in a sanitary landfill, or by incineration, or, if allowed by local authorities, by burning. If burned stay out of smoke.

**General:** Consult federal, state, or local disposal authorities for approved alternative procedures.

### General Information

Esteron\* 638 herbicide is intended for selective control of many broadleaf weeds in certain crops (including cereal grains, corn, grain sorghum, and soybeans), fallow cropland, forests, grass pastures, rangeland, Conservation Reserve Program acres, ornamental turf (including turf grown for sod or seed), and non-cropland.

Esteron 638 is a special formulation, containing acid and butoxyethylester forms of 2,4-D. This product is more effective than amine forms of 2,4-D in the control or suppression of hard-to-kill weeds that normally require higher rates or repeat applications of 2,4-D for satisfactory results.

Esteron 638 should be applied when daytime temperatures are less than 80 to 85 degrees. Excessively rapid foliar burn and decreased effectiveness may occur if applied at higher temperatures. Application at higher temperatures also increases the possibility of crop injury.

Apply Esteron 638 as a water or oil-water spray during warm weather when weeds or woody plants are actively growing. Application under drought conditions will often give poor results. Use low spray pressure to minimize drift. Generally, the lower dosages recommended on this label will be satisfactory for young, succulent growth of susceptible weed species. For less susceptible species and under conditions where control is more difficult, use higher recommended rates. Deep-rooted perennial weeds such as Canada thistle and field bindweed and many woody plants usually require repeated applications

for satisfactory control. Consult your State Agricultural Experiment stations or Extension Service Weed Specialists for recommendations from this label that best fit local conditions.

### General Use Precautions and Restrictions

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

**Do not** use in or near greenhouses.

Excessive amounts of 2,4-D in the soil may temporarily inhibit seed germination and plant growth.

### Avoiding Injury to Non-target Plants

Spray drift produced during application is the responsibility of the applicator and care should be taken to minimize off-target movement of spray during application. A drift control agent suitable for agricultural use may be used with this product to aid in reducing spray drift. If used, follow all use recommendations and precautions on the product label.

**Do not apply where drift may be a problem due to proximity to susceptible crops or other desirable broadleaf plants.** Do not apply Esteron 638 Herbicide directly to, or otherwise permit contact with cotton, flowers, fruit trees, grapes, ornamentals, vegetables, or other desirable plants which are susceptible to 2,4-D herbicides. Do not permit spray mist containing 2,4-D to contact susceptible plants since even very small quantities of the spray, which may not be visible, can cause severe injury during either active growth or dormant periods.

**Avoid Movement of Treated Soil:** Avoid conditions under which soil from treated areas may be moved or blown to areas containing susceptible plants. Wind-blown dust containing 2,4-D may produce visible symptoms when deposited on susceptible plants, however, serious plant injury is unlikely. To minimize potential movement of 2,4-D on wind-blown dust, avoid treatment of powdery dry or light sandy soils until soil is settled by rainfall or irrigation or irrigate soon after application.

Do not store or handle other agricultural chemicals with the same containers used for Esteron 638. Do not apply other agricultural chemicals or pesticides with equipment used to apply Esteron 638 unless equipment has been thoroughly cleaned to remove all traces of 2,4-D.

### Spray Drift Management (Aerial Application)

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. The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulations.

1. The distance of the outer most nozzles on the boom must not exceed  $\frac{3}{4}$  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 following Aerial Drift Reduction Advisory Information section.

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## Aerial Spray Drift Advisory Information

**Importance of 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 Inversion section of this label).

### 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-**Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. 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 backwards, parallel to the airstream will produce larger droplets than other orientations. Significant deflection from the 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 larger droplets than other nozzle types.

**Boom Length-**For some use patterns, reducing the effective boom length to less than  $\frac{3}{4}$  of the wingspan or rotor length may further reduce drift without reducing swath width.

**Application-**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 cross-wind, the swath will be displaced downwind. 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 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 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 smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a connected cloud (under low wind conditions) indicates an inversion, while smoke that moves upwards 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

1. Fill the spray tank about half full with water, then add the required amount of Esteron 638 with agitation, and finally the rest of the water.  
**Note:** Esteron 638 in water forms an emulsion that will tend to separate unless the mixture is kept agitated.
2. If oil is added, first mix the Esteron 638 and the oil and then add this mixture to the water. However, with adequate agitation, the oil can be added after Esteron 638 is mixed with water.
3. If straight oil is used, a solution is formed and separation does not occur. Do not allow any water to get into the oil-herbicide mixture to avoid formation of an invert emulsion.

**Note:** Adding oil, wetting agent, or other surfactant to the spray mixture may increase effectiveness on weeds, but also may reduce selectivity in crops resulting in crop damage.

**Tank Mixing:** When tank mixing, read and follow the label of each tank mix product used for precautionary statements, directions for use, weeds controlled, and geographic and other restrictions. Use in accordance with the most restrictive of label limitations and precautions. No label dosages should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing.

### Mixing with Liquid Nitrogen Fertilizer

This product may be combined with liquid nitrogen fertilizer suitable for foliar application to accomplish broadleaf weed control and fertilization of corn, small grains or pastures in a single operation. Use Esteron 638 in accordance with recommendations for these crops provided in this label. Use liquid fertilizer at rates recommended by the supplier or Extension Service Specialist. Test for mixing compatibility by mixing spray ingredients in correct proportions in a clear glass jar before mixing in spray tank. A compatibility aid such as Unite or Compex may be needed in some situations. Compatibility is best with liquid fertilizer solutions containing only nitrogen. Mixing with N-P-K solutions may not be satisfactory, even with the addition of a compatibility aid. Pre-mixing Esteron 638 with 1 to 4 parts water may help in situations when mixing difficulty occurs.

Fill the tank about half full with the liquid fertilizer, then add the required amount of Esteron 638 with agitation. Maintain agitation and complete filling the tank with liquid fertilizer. Apply immediately and continue agitation in spray tank during application. **Do not store the spray mixture.** Application during very cold weather (near freezing) is not advisable.

### Sprayer Clean-Out

To avoid injury to desirable plants, equipment used to apply this product should be thoroughly cleaned before re-use or applying other chemicals.

1. Rinse and flush application equipment thoroughly after use at least three times with water. Dispose of all rinse water by application to treatment area or apply to non-cropland area away from water supplies.
2. During the second rinse, add 1 qt of household ammonia for every 25 gallons of water. Circulate the solution through the entire system so that all internal surfaces are contacted (15-20 min). Let the solution stand for several hours, preferably overnight.
3. Flush the solution out of the spray tank through the boom.
4. Rinse the system twice with clean water, recirculating and draining each time.
5. Remove nozzles and screens and clean separately.

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- 6. If equipment is to be used to apply another pesticide or agricultural chemical to a 2,4-D susceptible crop, additional steps may be required to remove all traces of 2,4-D, including cleaning of disassembled parts and replacement of hoses or other fittings that may contain absorbed 2,4-D.

**Application Instructions**

Apply with calibrated air or ground equipment using sufficient spray volume to provide adequate coverage of target weeds or as otherwise directed in specific use directions. For broadcast application, use a spray volume of 2 or more gallons per acre by air and 10 or more gallons per acre for ground equipment. Where states have regulations that specify minimum spray volumes, they should be observed. In general, spray volume should be increased as crop canopy, height and weed density increase in order to obtain adequate spray coverage. **Do not apply less than 2 gallons total spray volume per acre.**

**Spot Treatments**

To prevent misapplication, spot treatments should be applied with a calibrated boom or with hand sprayers using a fixed spray volume per 1,000 sq ft as indicated below.

**Hand-Held Sprayers:** Hand-held sprayers may be used for spot applications of Esteron 638 in labeled crops. Care should be taken to apply the spray uniformly and at a rate equivalent to a broadcast application. Application rates in the table are based on a treatment area of 1,000 sq ft. Mix the amount of Esteron 638 (fl oz or ml) corresponding to the desired broadcast rate in one (1) or more gallons of spray. To calculate the amount of Esteron 638 required for larger areas, multiply the table value (fl oz or ml) by the number of "thousands" of sq ft of area to be treated (For example, 6500 sq ft equals 6.5 "thousands"). An area of 1000 sq ft is approximately 10.5 X 10.5 yards (strides) in size. To calculate the amount of Esteron 638 required for a broadcast rate different than those listed, add the appropriate rates from the table, for example, if a spot treatment requires 1 1/3 pt per acre, add the table values for 1/3 and 1 pt/acre, respectively.

**Rate Conversion Table for Spot Treatment:**

Label Broadcast Rate (pt/acre)							
1/3	2/3	3/4	1	2	3	4	8
Equivalent Amount of Esteron 638 per 1000 sq ft							
1/8 fl oz † (3.6 ml)	1/4 fl oz (7.3 ml)	1/3 fl oz (8.3 ml)	3/8 fl oz (11 ml)	3/4 fl oz (22 ml)	1 fl oz (33 ml)	1 1/2 fl oz (44 ml)	3 fl oz (88 ml)

† Conversion factors: 1 pt - 16 fl oz.; 1 fl oz = 29.6 (30) ml

**Band Application:** Esteron 638 may be applied as a band treatment. Use the formulas below to determine the appropriate rate and volume per treated acre.

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast rate per acre} = \text{Band rate per treated acre}$$

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast volume per acre} = \text{Band volume per treated acre}$$

## Weeds Controlled

### Annual or Biennial Weeds

Beggarticks †	mousetail
Bittercress, smallflowered	mustards (except blue mustard)
bitterweed	parsnip, wild
broomweed, common †	Pennycress, field
burdock, common	Pepperweed †
buttercup, smallflowered †	pigweeds (Amaranthus spp.) †
carpetweed	poorjoe
cinquefoil, common	primrose, common
cinquefoil, rough	purslane, common
cocklebur, common	pusley, Florida
coffeeweed	radish, wild
copperleaf, Virginia	ragweed, common
croton, Texas	ragweed, giant
croton, woolly	rape, wild
flixweed	rocket, yellow
galinsoga	salsify, common †
geranium, Carolina	salsify, western †
hemp, wild	shepherdspurse
horseweed (marestail)	sicklepod
jewelweed	smartweed (annual species) †
jimsonweed	sneezeweed, bitter
knotweed †	sowthistle, annual
kochia	sowthistle, spiny
lambsquarters, common	spanishneedles
lettuce, prickly †	sunflower
lettuce, wild	sweetclover
lupines	tansymustard
mallow, little †	thistle, bull
mallow, Venice †	thistle, musk †
marshelder	thistle, Russian (tumbleweed) †
morningglory, annual	velvetleaf
morningglory, ivy	vetches
morningglory, woolly	

### Perennial Weeds

Alfalfa †	fieldcress, Austrian †
artichoke, Jerusalem †	garlic, wild †
aster, many-flower †	hawkweed, orange †
bindweed (hedge, field and European) †	healal
blueweed, Texas	ironweed, western
broomweed	ivy, ground †
bullnettle †	lettuce, blue
carrot, wild †	loco, bigbend
catnip	nettles (including stinging) †
chicory	onion, wild †
clover, red †	pennywort
coffeeweed	plantains
cress, hoary †	ragwort, tansy †
	sowthistle, perennial

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- |                          |                   |
|--------------------------|-------------------|
| dandelion †              | thistle, Canada † |
| docks †                  | vervains †        |
| dogbanes †               | waterplantain     |
| goldenrod                | wormwood          |
| eveningprimrose, cutleaf |                   |

† These weeds are only partially controlled and may require repeat applications and/or use of higher recommended rates of this product even under ideal conditions of application.

**Crop Uses**

**Agricultural Use Requirements for Crops and Forestry:** For the following crop uses, follow PPE and Reentry instructions in the "Agricultural Use Requirements" section under the "Directions for Use" heading of this label.

**Cereal Grains (Wheat, Barley, Oats, Rye)**  
(Not Underseeded with Legumes)

Crop/Application Timing	Esteron 638 (pt/acre)	Specific Use Directions
<b>Wheat, Barley, Millet, Rye</b> Annual and biennial broadleaf weeds Perennial broadleaf weeds	2/3 to 2 2/3 † 1 1/3 to 2 2/3 †	Apply after crop is fully tillered, but before boot stage of growth (usually 4 to 8 inches tall) and weeds are small. Perennial weeds are most susceptible at bud stage. <b>Do not apply before tillering or from early boot through the milk stage of growth.</b>
<b>Oats</b> (Spring Seeded) (Fall Seeded Southern)	2/3 1 to 1 2/3 †	Apply after crop is fully tillered, but before boot stage of growth (usually 4 to 8 inches tall) and weeds are small. Perennial weeds are most susceptible at bud stage. <b>Do not apply before tillering or from early boot through the milk stage of growth. Do not apply during or immediately following cold weather.</b>
<b>Control of wild onion or garlic</b>	1 1/2 - 2	Apply when cereals are fully tillered and wild onion or garlic plants are small. If applied after harvest, use 2 pt/acre and apply in crop stubble. For control of new fall growth, refer to use directions for Fallow Land and Crop Stubble. <b>Do not apply from early boot through the milk stage of growth.</b>
<b>Preharvest application (all cereals)</b>	1 - 2	Apply using air or ground equipment to control weeds that could interfere with harvest, or to suppress perennial weeds. Apply when grain is in dough stage. <b>Do not apply from early boot through the milk stage of growth.</b>

† Use the lower rate in the rate range if small annual or biennial weeds are the major problem. Use the higher rate if perennial weeds or annual or biennial weeds are present which are considered to be hard-to-kill as determined by local experience. Higher rates increase the risk of crop injury and should be used only where weed control justifies such risk. Do not apply Esteron 638 at the crop seedling stage of growth. Consult state agricultural experiment station or extension service weed specialists for recommendations or suggestions to fit local conditions.



**Restrictions:**

- **Grazing and Haying Restrictions:** Do not permit dairy animals or meat animals being finished for slaughter to forage or graze treated grain fields within 14 days after treatment. Do not harvest for hay or harvest grain within 14 days after application.
- Do not apply more than 5.0 pt/acre of Esteron 638 per use season.

**Corn (Field Corn, Popcorn and Sweet Corn)**

Application Timing/ Stage of Growth	Esteron 638 (pt/acre)	Specific Use Directions
Field corn, popcorn, and sweet corn  <b>Preplant (Burndown)</b>  <b>Preemergence</b>	1 1/2 to 2 1/2  2 - 3	<b>General:</b> For best results, growth conditions should be favorable for active weed growth. Use high rate in rate range for less susceptible weeds, cover crops such as alfalfa, weeds in advanced stages of development, or under less favorable growth conditions. <b>Preplant:</b> Apply 7 to 14 days before planting corn to control emerged broadleaf weed seedlings or existing cover crops. <b>Preemergence:</b> Apply any time after planting, but before corn emerges to control broadleaf weed seedlings or existing cover crops. Do not use on light sandy soils or where soil moisture is inadequate for normal weed growth.
Field corn, popcorn, and sweet corn  <b>Postemergence</b> Annual broadleaf weeds  Perennial broadleaf weeds	2/3  1	<b>Avoid application just after corn emergence</b> when the first leaves are starting to unfold as injury may occur. Broadcast sprays may be applied when weeds are small and corn is less than 8 inches tall (to top of canopy). If corn is more than 8 inches tall, use drop nozzles to minimize spray contact with crop foliage. Treat perennial weeds when they are in bud to bloom stage. Do not tank mix with atrazine, oil or other adjuvants. <b>Do not apply from tasseling to hard dough stage.</b> <b>Note:</b> Corn treated with 2,4-D may become temporarily brittle. Wind or cultivation may cause stem breakage during the period of time that corn is brittle. <b>Sweet Corn:</b> To minimize potential for crop injury, use only the 2/3 pt/acre rate.
Field corn and popcorn only <b>Preharvest</b>	1 1/2 - 4	Apply with air or ground equipment after corn is in hard dough (or denting) stage to control or suppress weeds that interfere with harvest such as bindweed, cocklebur, dogbane, jimsonweed, ragweed, sunflower, and velvetleaf, or to decrease the production of weed seeds. <b>Do not apply to sweet corn.</b>

**Precautions:**

- Corn hybrids vary in tolerance to 2,4-D. Some are easily injured. Apply only to varieties known to be tolerant to 2,4-D. Consult the seed company or your Agricultural Experiment Station or Extension Service Weed Specialist for this information.
- After application, delay cultivation for 8 to 10 days to allow corn to overcome any temporary brittleness.

**Restrictions (Field Corn and Popcorn):**

- Preharvest interval: Do not harvest for grain or fodder within 7 days after application.
- Do not apply more than 8.5 pt of Esteron 638 per use season.

**Restrictions (Sweet Corn):**

- Preharvest interval: Do not harvest within 45 days after application or permit meat or dairy animals to forage or graze treated area within 7 days after application.
- Do not make a postemergence application any less than 21 days after a prior application.
- Do not apply more than 4.25 pt/acre of Esteron 638 per use season.

**Fallow Land and Crop Stubble**

Fallowland is idle land, postharvest to crops or between crops.

Type of Weeds	Esteron 638 (pt/acre)	Specific Use Directions
Annual broadleaf weeds	1 1/3 to 2 2/3	Use lower rate in rate range when weeds are small (2 to 3 inches tall) and conditions are favorable for active growth and a higher rate when weeds are larger and/or growing conditions are less favorable.
Biennial broadleaf weeds	2 2/3 to 5 1/3	Apply when musk thistles or other biennial species are in the seedling to rosette stage and before development of flower stalks. Use lower rates in the spring during the rosette stage and the highest rate in the fall or when flower stalks have developed.
Perennial broadleaf weeds	2 2/3 to 5 2/3	Apply when perennial weeds are in bud or bloom stage and actively growing. Do not disturb treated areas for at least 2 weeks after application or until top growth is dead.
Wild onion or garlic in crop stubble	5 2/3	Apply to new regrowth of wild onion or garlic that occurs in the fall after harvest of other crops.

**Precautions and Restrictions:**

- **Grazing and Haying Restrictions:** In grazed areas, do not apply more than 5 1/3 pt/acre of Esteron 638 per application. Do not harvest forage or hay from treated areas for 7 days after application. If treated area is grazed within 30 days of application, withdraw meat animals at least 3 days before slaughter.
- Do not apply within 30 days of a previous application.
- Do not apply more than 5.7 pt/acre of Esteron 638 per use season.

**Planting in Treated Areas**

**Crops on this Label and Labels of other 2,4-D Products:** Within 29 days after an application of this product, plant only those crops listed on this or other registered 2,4-D labels. Follow more specific limitations, if any, provided in directions for specific crops. Labeled crops may be at risk of crop injury or

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loss if planted soon after application, especially during the first 14 days. Degradation factors described below should be considered in weighing this risk.

**All Other Crops:** All other crops may be planted 30 or more days after application without concern for illegal residues in the planted crop. However, under certain conditions, there may be a risk of injury to susceptible crops. Degradation factors described below should be considered in weighing this risk. Under normal conditions, any crop may be planted without risk of injury if at least 90 days of soil temperatures above freezing have elapsed since application.

**Degradation Factors:** When planting into treated areas, the risk of crop injury is less if lower rates of product were applied and conditions following application have included warm, moist soil conditions that favor rapid breakdown of 2,4-D. Risk is greater if higher rates of product were applied and soil temperatures have been cold and/or soils have been excessively wet or dry in the days following application. Consult your local agricultural extension service or information about susceptible crops and risk of crop injury prior to planting into treated fields in your area.

**Sorghum (Grain Sorghum (Milo) and Forage Sorghum)**

Application Timing/ Stage of Growth	Esteron 638 (pt/acre)	Specific Use Directions
<b>Postemergence †</b> Crop 6 - 8 inches tall Crop 8 - 15 inches tall (directed spray only)	2/3 to 1 1/3 † 1 to 1 1/3	Apply when sorghum is 6 to 15 inches tall. If sorghum plants are more than 8 inches tall (top of canopy), use drop nozzles to minimize spray contact with crop foliage. Do not use with oil or other adjuvants. <b>Do not treat during boot, flowering or dough stages.</b>

† Temporary crop injury can be expected under conditions of high soil moisture and high air temperatures. If it is necessary to apply Esteron 638 under these conditions, use no more than 7/8 pint per acre.

**Precautions and Restrictions:**

- Sorghum hybrids vary in tolerance to 2,4-D. To avoid potential crop injury, use this product only on varieties known to be tolerant to 2,4-D. Consult your seed company representative, agricultural experiment station or extension service weed specialist for information regarding tolerant hybrids.
- **Preharvest Interval:** Do not harvest grain for 30 days after application.
- Do not permit meat or dairy animals to consume treated crop as fodder or forage for 30 days after application.
- Do not apply more than 1.4 pt/acre of Esteron 638 per use season.

**Soybeans (Preplant Burndown Application Only)**  
(Not for Use in California)

Application Timing	Esteron 638 (pt/acre)	Specific Use Directions
Preplant (Burndown)	1 to 1 1/3	Apply not less than 7 days before planting soybeans. <b>See Use Precautions and Restrictions below.</b>
	1 1/3 to 2 2/3	Apply not less than 15 days before planting soybeans. <b>See Use Precautions and Restrictions below.</b>
<b>General Use Directions:</b> Use Esteron 638 to control emerged broadleaf weeds or existing cover crops. For best results, apply when weeds are small and actively growing. Use the higher rate in the respective rate range for larger weeds and when perennials are present. Compatible crop oil concentrates, agricultural surfactants and fluid fertilizers approved for use on growing crops may be		

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added to spray mixtures to increase the herbicidal effectiveness on certain weeds. This product may be applied in tank mix combination with other herbicides registered for preplant use in soybeans. Read and follow all directions and precautions on this label and on the label of each product added to the spray mixture.

**Use Precautions, Restrictions and Limitations:**

- **Important Notice:** Unacceptable injury to soybeans planted in treated fields may occur. Whether or not soybean injury occurs and the extent of such injury will depend on weather (temperature and rainfall) from herbicide application until soybean emergence and agronomic factors such as the amount of weed vegetation and previous crop residue present at the time of application. Injury is more likely under cool rainy conditions and where there is less weed vegetation and crop residue present.
- Do not disturb treated soil through tillage between application and planting of soybeans.
- Do not use on sandy soils with less than 1.0% organic matter.
- In treated fields, plant soybean seed as deep as practical, but not less than 1.0 inch deep. Adjust the planter, if necessary, to ensure that planted seed is adequately covered.
- Do not make more than one application per season regardless of the application rate used.
- Do not allow livestock grazing or harvest hay, forage, or fodder from treated fields. Livestock should be restricted from feeding/grazing of treated cover crops.
- **Do not apply Esteron 638 as a preplant application in soybeans unless you are prepared to accept the results of soybean injury, including possible stand loss and/or yield reduction.**
- During the growing season following application, do not replant treated fields with crops other than those labeled for use with Esteron 638.
- Do not apply more than 2.67 pt/acre of Esteron 638 per use season.

**Forestry, Rangeland, Established Pasture,  
and Non-cropland, Uses**

**Agricultural Use Requirements for Forests (Except Tree Injection Use):** For use in forests, follow PPE and Reentry instructions in the "Agricultural Use Requirements" section under the "Directions for Use" heading of this label.

**Agricultural Use Requirements for Rangeland, Pasture, Forest (Tree Injection Only) and Non-cropland Areas:** When this product is applied to rangeland and established pastures not harvested for hay or seed; non-cropland areas, and when applied by tree injection method only in forest sites, follow reentry requirements given in the "Non-Agricultural Use Requirements" section under the "Directions for Use" heading of this label.

**Forestry Uses**

**Forest site preparation, forest roadsides, brush control, established conifer release (including Christmas trees and reforestation areas)**

Treatment Site or Method of Application	Rate of Esteron 638	Specific Use Directions
Annual Weeds	2 2/3 to 5 1/3 pt/acre	Apply when weeds are small and growing actively before the bud stage. Apply when biennial and perennial species are in the seedling to rosette stage and before flower stalks appear. For difficult to control perennial broadleaf weeds and woody species, use up to 1 1/3 gallon Esteron 638 Herbicide and 1 to 4 qt. Garlon® 3A herbicide per acre. For conifer release, make application in early spring
Biennial and perennial broadleaf weeds and susceptible woody plants	5 1/3 to 10 2/3 pt/acre	

		before budbreak of conifers when weeds are small and actively growing.
<b>Spot Treatment to control broadleaf weeds</b>	<b>See Instructions for "Spot Treatment"</b>	<b>Note:</b> To control broadleaf weeds in small areas with a hand sprayer, use an application rate equivalent to the broadcast rate recommended for this treatment site and spray to thoroughly wet all foliage. See rate conversion table and instructions for "Spot Treatment" and use of hand-held sprayers under "Application Instructions".
<b>Conifer Release:</b> Species such as white pine, ponderosa pine, jack pine, red pine, black spruce, white spruce, red spruce, and balsam fir	2 to 4 qt/acre	To control competing hardwood species such as alder, aspen, birch, hazel, and willow, apply from mid to late summer when growth of conifer trees has hardened off and woody plants are still actively growing. Apply with ground or air equipment, using sufficient spray volume to ensure complete plant. Because this treatment may cause occasional conifer injury, do not apply if such injury cannot be tolerated.
<b>Directed Spray:</b> Conifer plantations including pine	5 1/3 qt/100 gal	Apply when brush or weeds are actively growing by directing the spray so as to avoid contact with conifer foliage and injurious amounts of spray. Apply in oil, oil-water, or water carrier in a spray volume of 10 to 100 gallons per acre.
<b>Basal Spray</b>	10 2/3 qt/100 gal	Thoroughly wet the base and root collar of all stems until the spray begins to accumulate around the root collar at the ground line. Wetting stems also with the mixture may aid in control.
<b>Surface of Cut Stumps</b>	3.5 fl oz/gal of water	Apply as soon as possible after cutting trees. Thoroughly wet the cambium layer of the cut surface being careful to wet the entire circumference.
<b>Frill and Girdle</b>		Cut frills (overlapping v-shaped notches cut downward through the bark in a continuous ring around the base of the tree) using an axe or other suitable tool. Treat freshly cut frills with as much of the 2,4-D mixture as they will hold.
<b>Tree Injection Application</b>	(1 1/3 to 2 2/3 ml per injection site)	To control unwanted hardwood trees such as elm, hickory, oak, and sweetgum in forests and other non-crop areas, apply by injecting at a rate of 1 1/3 ml of undiluted Esteron 638 per inch of trunk diameter at breast height (DBH), approximately 4 1/2 ft above the ground. For hard to control species such as ash, maple, and dogwood use 2 2/3 ml of undiluted DMA 4 per injection site or double the number of 1 1/3 ml injections. Make applications as close to the root collar as possible and the injection bit must penetrate the inner bark. Applications may be made throughout the year, but for best results apply between May 15 and October 15. Maples should not be treated during the spring sap flow. <b>Note: No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is directly injected into agricultural plants.</b>

**Precautions and Restrictions:**

- Do not allow sprays to contact conifer shoot growth (current year's new growth) or injury may occur.
- Do not apply to nursery seed beds.
- For conifer release, do not use on plantations where larch is among the desired species.
- **Grazing and Haying Restrictions:** If grazing or haying is anticipated, do not apply more than 5 1/3 pt/acre of Esteron 638 per application. Do not harvest forage or hay from treated areas for 7 days after application. If treated area is grazed within 30 days of application, withdraw meat animals at least 3 days before slaughter.
- For broadcast applications, do not apply more than 11.4 pt/acre of Esteron 638 per 12 month period.

**Rangeland, Established Grass Pastures (Including Perennial Grasslands Not In Agricultural Production Such As Conservation Reserve Program Acres)**

Target Weeds or Woody Plants	Esteron 638 (pt/acre)	Specific Use Directions
Annual broadleaf weeds  Biennial and perennial broadleaf weeds	2 2/3 pt/acre  2 2/3 to 5 1/3 pt/acre	For best results, apply when weeds are small and growing actively before the bud stage. Apply when musk thistles or other biennial species are in the seedling to rosette stage and before flower stalks appear. Refer to the "Weeds Controlled" section for a listing of susceptible weed species and weeds that may be only partially controlled and require repeat applications and/or use of higher recommended rates, even under ideal conditions of application
Spot Treatment to control broadleaf weeds	See Instructions for "Spot Treatment"	<b>Note:</b> To control broadleaf weeds in small areas with a hand sprayer, use an application rate equivalent to the broadcast rates recommended for this treatment site and spray to thoroughly wet all foliage. See rate conversion table and instructions for "Spot Treatment" and use of hand-held sprayers under "Application Instructions".
Basal spray, surface of cut stumps, frill and girdle, and tree injection application methods		See specific use directions for these application methods in "Forestry Uses" section.
Wild garlic and wild onion	5 1/3 pt/acre	Make three applications (fall-spring-fall or spring-fall-spring) starting in late fall or early spring.
Broadleaf weed control in newly sprigged coastal bermudagrass	2 2/3 to 5 1/3 pt/acre	Applications may be made either preemergence or postemergence. Follow "Specific Use Directions" for Rangeland and Established Grass Pastures, above.
Sand shinnery oak Sand sagebrush	2 2/3 pt/acre	Sand shinnery oak: Apply by aircraft between May 15 and June 15. Sand sagebrush: Apply by ground or aircraft when foliage is fully expanded and plants are actively growing. Use a 1:4 oil-water emulsion as carrier and a spray volume of 3 to 5 gallons per acre.

<b>Big sagebrush Rabbitbrush</b>	5 1/3 pt/acre	Apply by ground or aircraft when foliage is fully expanded and plants are actively growing. Use a 1:4 oil-water emulsion as carrier and a spray volume of 3 to 5 gallons per acre. Retreatment may be needed.
<b>Chamise, manzanita, buckbrush, coastal sage, coyotebrush, and chaparral species.</b>	5 1/3 pt/acre	Apply by ground or aircraft when foliage is fully expanded and plants are actively growing. Use water or 1:4 oil-water emulsion as carrier and a spray volume of 5 to 10 gallons per acre. Retreatment may be needed.
<b>Southern wild rose</b> Broadcast application  Spot treatment	up to 5 1/3 pt/acre  1 1/3 gal/100 gal of spray	Broadcast: Apply in a spray volume of 5 or more gallons per acre by aircraft or 10 or more gallons per acre by ground equipment. Spot treatment: Apply when foliage is well developed. Thorough coverage is required. Use 1 1/3 gallon of Esteron 638 plus 4 to 8 fluid ounces of an agricultural surfactant per 100 gallons of water. Two or more treatments may be required. Do not exceed 4 pt per acre per application.

**Precautions and Restrictions:**

- Do not use on bentgrass, alfalfa, clover, or other legumes.
- Do not use on newly seeded areas until grass is well established.
- Do not use from early boot to milk stage where grass seed production is desired.
- Do not apply within 30 days of a previous application.
- **Grazing and Haying Restrictions:** In grazed areas, do not apply more than 5 1/3 pt/acre of Esteron 638 per application. Do not harvest forage or hay from treated areas for 7 days after application. If treated area is grazed within 30 days of application, withdraw meat animals at least 3 days before slaughter.
- For rangeland and pastures, the maximum use rate is 5 1/3 pt per acre of Esteron 638 per application.
- Do not apply more than 11.4 pt/acre of Esteron 638 per use season.

**Non-cropland**

Such as fencerows, hedgerows, roadsides, drainage ditches, rights-of way, utility power lines, railroads and other non-crop areas

Treatment Site Method of Application	Rate of Esteron 638	Specific Use Directions
<b>Annual broadleaf weeds</b>	2 2/3 to 5 1/3 pt/acre	Apply when annual weeds are small and growing actively before the bud stage. Biennial and perennial weeds should be rosette to bud stage, but not flowering at the time of application. For difficult to control perennial broadleaf weeds and woody species, tank mix up to 1 1/3 gallon Esteron 638 plus 1 to 4 qt. Garlon* 3A herbicide per acre. <b>For ground application:</b> (High volume) apply a total of 100 to 400 gal per acre; (low volume) apply a total of 10 to 100 gal per acre. <b>For helicopter:</b> Apply a total of 5 to 30 gal per acre spray volume.
<b>Biennial and perennial broadleaf weeds and susceptible woody plants</b>	5 1/3 to 10 2/3 pt/acre	

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<p><b>Spot Treatment to control broadleaf weeds</b></p>	<p><b>See Instructions for "Spot Treatment"</b></p>	<p><b>Note:</b> To control broadleaf weeds in small areas with a hand sprayer, use an application rate equivalent to the broadcast rates recommended for this treatment site and spray to thoroughly wet all foliage. See rate conversion table and instructions for "Spot Treatment" and use of hand-held sprayers under "Application Instructions".</p>
<p><b>Basal spray, surface of cut stumps, frill and girdle, and tree injection application methods</b></p>		<p>See specific use directions for these application methods in "Forestry Uses" section.</p>
<p><b>Southern wild rose</b> Broadcast application  Spot treatment</p>	<p>up to 5 1/3 pt/acre  1 1/3 gal/100 gal of spray</p>	<p>Broadcast: Apply in a spray volume of 5 or more gallons per acre by aircraft or 10 or more gallons per acre by ground equipment. Apply when foliage is well developed. Thorough coverage is required. Use 1 1/3 gallon of Esteron 638 plus 4 to 8 fluid ounces of an agricultural surfactant per 100 gallons of water. Two or more treatments may be required.</p>

**Precautions and Restrictions:**

- Do not apply to newly seeded areas until grass is well established.
- Bentgrass, St. Augustine, clover, legumes and dichondra may be severely injured or killed by this treatment.
- Do not reapply to a treated area within 30 days of a previous application.
- **Grazing and Haying Restrictions:** If grazing or haying is anticipated, do not apply more than 5 1/3 pt/acre of Esteron 638 per application. Do not harvest forage or hay from treated areas for 7 days after application. If treated area is grazed within 30 days of application, withdraw meat animals at least 3 days before slaughter.
- Do not apply more than 11.4 pt/acre of Esteron 638 per use season.

**Turf Uses**

**Grasses Grown for Seed or Sod Farms**

**Agricultural Use Requirements:** When used in grass grown for seed or sod farms, follow PPE and reentry instructions in the "Agricultural Use Requirements" section of this label.

<p><b>Treatment Site (Application Timing)</b></p>	<p><b>Esteron 638 (pt/acre)</b></p>	<p><b>Specific Use Directions</b></p>
<p><b>Grasses Grown for Seed (Postemergence Use)</b> Seedling grass (five-leaf stage or later)  Well-established grasses</p>	<p>1 to 1 1/3  2 to 3</p>	<p>Apply when weeds are small and actively growing. For best results, apply when soil moisture is adequate for active weed growth. Do not apply to newly seeded grasses until well established (five-leaf stage or later) and then use a maximum of 1 1/3 pt/acre. Cool season grasses are tolerant of higher rates. <b>Do not apply to grass in the early boot through milk stage if seed production is desired.</b> When grass is well established, higher rates of up to 4 pints/acre may be applied for control of hard-to-</p>



<p><b>Sod Farms (Postemergence)</b></p>	<p>2 2/3 to 5 1/3</p>	<p>kill annual or perennial weeds. Deep-rooted perennials such as bindweed and Canada thistle may require repeat applications. Avoid mowing sod farms for 1 to 2 days before or after application. Delay irrigation until the day following application.</p>
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**Precautions and Restrictions:**

- Do not use on creeping grasses such as bent except for spot treatment.
- Do not use on susceptible southern grasses such as St. Augustinegrass.
- Do not use on dichondra or other herbaceous ground covers; legumes may be damaged or killed.
- Do not apply within 21 days of a previous application.
- **Reseeding:** Delay reseeding at least 30 days following application. Preferably, with spring application, reseed in the fall and with fall application, reseed in the spring.
- **Grazing and Haying Restrictions:** If grazing or haying is anticipated, do not apply more than 5 1/3 pt/acre of Esteron 638 per application. Do not harvest grass for hay from treated areas for 7 days after application. If treated area is grazed within 30 days of application, withdraw meat animals at least 3 days before slaughter.
- Do not apply more than 11.4 pt/acre of Esteron 638 per use season.

**Ornamental Turf (Excluding Grasses Grown For Seed or Sod Farms)**

Includes lawns, golf courses, cemeteries and parks, airfields, roadsides, vacant lots, drainage ditch banks

**Use Requirements for Ornamental Turf Areas:** When this product is applied to ornamental turf areas, follow PPE and reentry instructions in the "Non-agricultural Use Requirements" section of this label.

Treatment Site (Application Timing)	Esteron 638 (pt/acre)	Specific Use Directions
<p><b>Ornamental Turf (Postemergence)</b> Seedling grass (five-leaf stage or later)</p> <p>Well-established grasses</p> <p>Biennial and perennial broadleaf weeds</p>	<p>1 to 1 1/3</p> <p>2 2/3 to 5 1/3</p> <p>5 1/3</p>	<p>Apply when weeds are small and actively growing. For best results, apply when soil moisture is adequate for active weed growth.</p> <p>Deep-rooted perennial weeds such as bindweed and Canada thistle may require repeat applications.</p> <p>Do not apply to newly seeded grasses until well established (five-leaf stage or later) and then use a maximum of 1 pt/acre. Cool season grasses are tolerant of higher rates.</p>

**Precautions, Restrictions:**

- Do not use on creeping grasses such as bent except for spot treatment.
- Do not use on susceptible southern grasses such as St. Augustinegrass.
- Do not use on dichondra or other herbaceous ground covers; legumes may be damaged or killed.
- Do not apply within 21 days of a previous application.
- **Reseeding:** Delay reseeding at least 30 days following application. Preferably, with spring application, reseed in the fall and with fall application, reseed in the spring.
- **Grazing and Haying Restrictions:** If grazing or haying is anticipated, do not apply more than 5 1/3 pt/acre of Esteron 638 per application. Do not harvest grass for hay from treated areas for 7 days after application. If treated area is grazed within 30 days of application, withdraw meat animals at least 3 days before slaughter.
- Do not apply more than 2 broadcast applications per year per treatment site (does not include spot treatments).

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**Terms and Conditions of Use**

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If terms of the following Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. Otherwise, use by the buyer or any other user constitutes acceptance of the terms under Warranty Disclaimer, Inherent Risks of Use and Limitations of Remedies.

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**Warranty Disclaimer**

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Seller warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. Seller MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

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**Inherent Risks of Use**

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It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of the Seller. All such risks shall be assumed by buyer.

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**Limitation of Remedies**

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The exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at Seller's election, one of the following:

- (1) Refund of purchase price paid by buyer or user for product bought, or
- (2) Replacement of amount of product used.

Seller shall not be liable for losses or damages resulting from handling or use of this product unless Seller is promptly notified of such loss or damage in writing. In no case shall Seller be liable for consequential or incidental damages or losses.

The terms of the Warranty Disclaimer above and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

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