

# CASCADE™ LV 4

For selective control of many broadleaf weeds in certain crops, including, cereal grains (wheat, barley, millet, oats and rye), corn (field corn, popcorn and sweet corn), fallow land and crop stubble, sorghum (grain and forage sorghum), and soybeans (preplant burndown application only), forests, rangeland and established grass pastures, including Conservation Reserve Program (CRP) acres, non-cropland, grasses grown for seed or sod, and ornamental turf.

## Active Ingredients:

2,4-Dichlorophenoxyacetic Acid, 2-Ethylhexyl Ester .....	68.0%
Other Ingredients .....	<u>32.0%</u>
<b>Total</b> .....	<b>100.0%</b>

Acid Equivalents: 2,4-dichlorophenoxyacetic acid: 45% - 3.8 lb/gal

This product contains petroleum distillates.

## KEEP OUT OF REACH OF CHILDREN CAUTION PRECAUCION

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.)

### 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 and Disclaimer" at end of label booklet. If terms are unacceptable, return at once unopened.** Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

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#### Distributed By:

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## Precautionary Statements - Hazards to Humans and Domestic Animals

### CAUTION PRECAUCION

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**Harmful If Swallowed Or Absorbed Through Skin • Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Skin Reactions In Some Individuals. Avoid breathing vapors or mists. Avoid contact with skin, eyes, or 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 E 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, Nitrile Rubber, Neoprene Rubber, or Viton
- 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.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, 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 Statements

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

**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 on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a Poison Control Center or doctor for treatment.

**Note:** Have the product container or label with you when calling a Poison Control Center or doctor or going for treatment.

**Note to Physician:** Contains petroleum distillate - vomiting may use aspiration pneumonia.

### Environmental Hazards

This product is toxic to fish and aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and nontarget 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 or rinsate.

This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Application around a cistern or well may result in contamination of drinking water or groundwater.

**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

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

### 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. 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 12 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:

- Coveralls
- Chemical-resistant gloves such as Barrier Laminate, Nitrile Rubber, Neoprene Rubber, or Viton
- 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.

#### Use Requirements for Rangeland, Pasture and Non-cropland Areas

No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is applied to rangeland, pasture or non-cropland areas that are not harvested for hay or seed.

#### Use Requirements for Turf

Restricted Entry Interval: When used on grass seed crops, follow PPE and reentry instructions in the "Agricultural Use Requirements" section of this label. For use on other turf areas, 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.

**Pesticide 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:** Nonrefillable container. Do not reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. 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.

Triple rinse as follows:

**Containers 5 gallons or less:** 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 ¼ 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. Once cleaned, offer for recycling or reconditioning if appropriate.

**Containers larger than 5 gallons:** Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip 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 a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

**Pressure rinse as follows (all sizes):** Empty the remaining contents into 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 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:** Return container to point of purchase for reuse with seal intact and in sellable condition.

Refill this container with pesticide only. Do not reuse this container for any other purpose.

Before refilling, inspect thoroughly for damage such as cracks, punctures, bulges, dents, abrasions, and damaged or worn threads on closure devices.

After filling and before transporting, check for leaks. Do not refill or transport damaged or leaking container.

Cleaning this 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 mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

**General:** Consult federal state, or local disposal authorities for approved alternate procedures. Be sure that use of this product conforms to all application regulations.

## Product Information

CASCADE LV 4 herbicide is intended for selective control of many broadleaf weeds in certain crops, including, cereal grains (wheat, barley, millet, oats and rye), corn (field corn, popcorn and sweet corn), fallow land and crop stubble, sorghum (grain and forage sorghum), and soybeans (preplant burndown application only), forests, rangeland and established grass pastures including Conservation Reserve Program (CRP) acres, non-cropland, grasses grown for seed or sod, and ornamental turf.

Apply CASCADE LV 4 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 specified 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 specified 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.

## Product Use Precautions and Restrictions

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

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 uses specified 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 CASCADE LV 4 directly to, or otherwise permit contact with cotton, flowers, fruit trees, grapes, ornamentals, vegetables, or other desirable plants that 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 and dormant periods. Do not use in greenhouses.

**Ground Equipment:** With ground equipment, spray drift can be lessened by keeping the spray boom as low as possible; by applying 10 gallons or more of spray per acre; by using no more than 20 pounds spraying pressure and large droplet producing nozzle tips; by spraying when wind velocity is low; and by stopping all spraying when wind exceeds 10 miles per hour. Do not apply with hollow cone-type insecticide or other nozzles that produce a fine-droplet spray.

**Avoid Movement of Treated Soil:** Do not apply under conditions that favor movement of treated 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 CASCADE LV 4. Do not apply other agricultural chemicals or pesticides with equipment used to apply CASCADE LV 4 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 Advisory Information section.

#### 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 specified 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 must 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 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 must 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 must 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 must 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 CASCADE LV 4 with agitation, and finally the rest of the water.

**Note:** CASCADE LV 4 in water forms an emulsion that tends to separate unless the mixture is kept agitated.

2. If oil is added, first mix the CASCADE LV 4 and the oil and then add this mixture to the water. However, with adequate agitation, the oil can be added after CASCADE LV 4 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 Precautions:

- Read carefully and follow all applicable use directions, precautions, and limitations on the respective product labels.
- Do not exceed specified application rates. Do not tank mix with another pesticide product that contains the same active ingredient as this product unless the label of either tank mix partner specifies the maximum dosages that may be used.

**Tank Mix Compatibility Testing:** A jar test is recommended prior to tank mixing to ensure compatibility of this product and other pesticides. Use a clear glass quart jar with lid and mix the tank mix ingredients in their relative proportions. Invert the jar containing the mixture several times and observe the mixture for approximately 1/2 hour. If the mixture balls-up, forms flakes, sludge's, jels, oily films or layers, or other precipitates, it is not compatible and the tank mix combination should not be used.

#### 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 CASCADE LV 4 in accordance with recommendations for these crops provided in this label. Use liquid fertilizer at rates specified 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 CASCADE LV 4 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 CASCADE LV 4 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.
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

**Spray Volume:** 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, apply the specified rate of this product in a spray volume of 2 or more gallons per acre by air and 10 or more gallons per acre for ground equipment. Use low-pressure sprays to minimize drift. 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.**

**Application Rates:** Generally, lower rates in specified rate ranges will be satisfactory for more sensitive weeds species, when weeds are small, and when environmental conditions are favorable for rapid growth. Use higher rates in the specified rate range for less sensitive species and under less favorable growing conditions. For crop uses, do not mix with oil or other adjuvants unless specifically recommended on this label. Deep-rooted perennial weeds such as Canada thistle and field bindweed and many woody plants usually require repeated applications for effective control.

### 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 CASCADE LV 4 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 CASCADE LV 4 (fl oz or ml) corresponding to the desired broadcast rate in one (1) or more gallons of spray. To calculate the amount of CASCADE LV 4 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. An area of 1000 sq ft is approximately 10.5 X 10.5 yards (strides) in size. To calculate the amount of CASCADE LV 4 required for a broadcast rate higher than those listed, use a multiple of the table value, for example, if a spot treatment requires the equivalent of an 8 pt per acre, use 2X the amount per gallon of spray required for the 4 pt/acre rate.

**Rate Conversion Table for Spot Treatment:**

Label Broadcast Rate (pt/acre)							
1/2	2/3	3/4	1	2	3	4	8
Equivalent Amount of CASCADE LV 4 per 1000 sq ft							
1/5 fl oz * (5.5 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; 1fl oz = 29.6 (30) ml



**Band Application:** CASCADE LV 4 may be applied as a band treatment. Use the formulas below to determine the appropriate rate and volume per treated acre.

Band width in inches X Broadcast rate = Band rate per  
 Row width in inches per acre treated acre

Band width in inches X Broadcast volume = Band volume  
 Row width in inches per acre per treated acre

### Annual or Biennial Weeds

beggarticks<sup>1</sup>  
 bittercress, smallflowered<sup>2</sup>  
 bitterweed  
 broomweed, common<sup>1</sup>  
 burdock, common  
 buttercup, smallflowered<sup>1, 2</sup>  
 carpetweed  
 cinquefoil, common<sup>2</sup>  
 cinquefoil, rough<sup>2</sup>  
 cocklebur, common  
 coffeeweed  
 copperleaf, Virginia<sup>2</sup>  
 croton, Texas  
 croton, woolly  
 flixweed  
 galinsoga  
 geranium, Carolina<sup>2</sup>  
 hemp, wild  
 horseweed (marestail)<sup>2</sup>  
 jewelweed  
 jimsonweed knotweed<sup>2</sup>  
 kochia  
 lambsquarters, common  
 lettuce, prickly<sup>1, 2</sup>  
 lettuce, wild  
 lupines  
 mallow, little<sup>1</sup>  
 mallow, Venice<sup>1</sup>  
 marshelder  
 morningglory, annual  
 morningglory, ivy  
 morningglory, woolly  
 mousetail<sup>2</sup>  
 mustards (except blue mustard)

### Weeds Controlled

parsnip, wild  
 pennycress (fanweed)  
 pepperweeds (*Lepidium* spp.)<sup>1, 2</sup>  
 pigweeds (*Amaranthus* spp.)<sup>1</sup>  
 poorjoe  
 primrose, common  
 purslane, common<sup>2</sup>  
 pusley, Florida  
 radish, wild  
 ragweed, common  
 ragweed, giant  
 rape, wild  
 rocket, yellow  
 salsify, common<sup>1</sup>  
 salsify, western<sup>1</sup>  
 shepherdspurse  
 sicklepod  
 smartweed (annual species)<sup>1, 2</sup>  
 sneezeweed, bitter  
 sowthistle, annual  
 sowthistle, spiny  
 spanishneedles  
 sunflower  
 sweetclover  
 tansy mustard  
 thistle, bull  
 thistle, musk<sup>1</sup>  
 thistle, Russian (tumbleweed)<sup>1</sup>  
 velvetleaf  
 vetches

Austrian fieldcress<sup>1</sup>  
 bindweed (hedge, field and European)<sup>1, 2</sup>  
 blue lettuce  
 blueweed, Texas  
 broomweed  
 bullnettle<sup>1, 2</sup>  
 carrot, wild<sup>1</sup>  
 catnip  
 chicory  
 clover, red<sup>1, 2</sup>  
 coffeeweed  
 cress, hoary<sup>1</sup>  
 cutleaf<sup>2</sup>  
 dandelion<sup>1</sup>  
 docks<sup>1</sup>  
 dogbanes<sup>1</sup>  
 evening primrose,  
 goldenrod  
 garlic, wild<sup>1</sup>  
 hawkweed, orange<sup>1</sup>  
 healal  
 ironweed, western<sup>2</sup>  
 ivy, ground<sup>1</sup>  
 Jerusalem-artichoke  
 loco, bigbend  
 nettles (including stinging)<sup>1</sup>  
 onion, wild<sup>1</sup>  
 pennywort  
 plantains  
 ragwort, tansy<sup>1</sup>  
 sowthistle, perennial  
 thistle, Canada<sup>1, 2</sup>  
 vervains<sup>1</sup>  
 wormwood

### Perennial Weeds

Alfalfa<sup>1, 2</sup>  
 artichoke, Jerusalem<sup>1</sup>  
 aster, many-flower<sup>1</sup>

<sup>1</sup> These weeds are only partially controlled and may require repeat applications and/or use of higher specified rates of this product even under ideal conditions of application.

<sup>2</sup> This product may not be used to control this weed species in the state of California.

## Crop Uses

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

### Control of Woody Weeds in Low-Bush Blueberry Fields in Maine

Crop/Application Timing	CASCADE LV 4 (rate)	Specific Use Directions
Postemergence	2 qt/100 gal	Make directed wipe or spot applications during June and July when weed tops have emerged sufficiently above the blueberry stems to allow treatment of the weeds without contacting blueberry plants. <b>Use Precautions:</b> Do not allow spray solution to contact blueberry plants. Do not harvest-rake field during the herbicide treatment year or until a two-year interval thereafter. Apply only during the year before the first burn. To use this method of weed control, two-year burns should be extended to three years.
Postharvest	1 qt/10 gal of oil	Make directed applications to cut stems of invading woody plants growing in the row or row middles in summer or fall after harvest. Do not allow spray solution to contact blueberry stems.

### Cereal Grains (Wheat, Barley, Millet, Oats, Rye) - (Not Underseeded with Legumes)

Crop/Application Timing	CASCADE LV 4 (pt/acre)	Specific Use Directions
<b>Wheat, Barley, Millet, Rye</b> Annual and biennial broadleaf weeds	1/2 to 2 <sup>1</sup>	Apply after crop is fully tillered, but before boot stage of growth (usually 4 to 8 inches tall) and weeds are small. <b>Do not apply before tillering or from early boot through the milk stage of growth.</b>
Perennial broadleaf weeds	1 to 2 <sup>1</sup>	
<b>Oats</b> (Spring Seeded) (Fall Seeded Southern)	1/2 3/4 to 1 1/4 <sup>1</sup>	Apply after crop is fully tillered, but before boot stage of growth (usually 4 to 8 inches tall) and weeds are small. <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>Preharvest application (all cereals)</b>	1	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>

<sup>1</sup> 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 CASCADE LV 4 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 3.5 pt/acre of CASCADE LV 4 per use season.

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

<b>Application Timing/ Stage of Growth</b>	<b>CASCADE LV 4 (pt/acre)</b>	<b>Specific Use Directions</b>
<b>Preplant (Burndown) Preemergence</b> (Field corn, popcorn, and sweet corn)	1 to 2	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.
<b>Postemergence</b> (Field corn, popcorn, and sweet corn) Annual broadleaf weeds Crop up to 8 inches tall  Crop 8 inches tall to tasseling (directed spray only)  Perennial broadleaf weeds	1/2 to 1   1  1	Apply 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 keep spray off 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. <b>Sweet Corn:</b> To minimize potential for crop injury, use only lowest rate in rate range.
<b>Preharvest</b> (Field corn or popcorn only)	up to 3	Apply after corn is in hard dough (or denting) stage. Do not apply to sweet corn.

**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 postemergence 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 6.0 pt/acre of CASCADE LV 4 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 3.0 pt/acre of CASCADE LV 4 per use season.

**Fallowland and Crop Stubble** - Fallowland is idle land, postharvest to crops or between crops.

Type of Weeds	CASCADE LV 4 (pt/acre)	Specific Use Directions
Annual broadleaf weeds	1 to 2	Use lower rate in rate range when weeds are small (2 to 3 inches) 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 to 4	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 to 4	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 garlic and onion in crop stubble	4	Apply to new regrowth of wild garlic or onion 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 4 pt/acre of CASCADE LV 4 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 re-apply within 30 days of a previous application.
- For grazed areas, do not apply more than 4.0 pt/acre of CASCADE LV 4 per application.
- Limited to 2 applications per year.

**Planting in Treated Areas:**

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

**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 typical conditions in your area.

### Sorghum (Grain Sorghum (Milo) and Forage Sorghum)

Application Timing/ Stage of Growth	CASCADE LV 4 (pt/acre)	Specific Use Directions
<b>Postemergence*</b> Crop 6-8 inches tall Crop 8-15 inches tall (directed spray only)	1/2 to 1* 3/4 to 1	Apply when sorghum is 6 to 15 inches tall. If Sorghum more than 8 inches tall (top of canopy), Use drop nozzles to keep spray off foliage. Do not use with oil or other adjuvants. <b>Do not treat during boot, flowering or dough stage.</b>

\*Temporary crop injury can be expected under conditions of high soil moisture and high air temperatures. If it is necessary to apply CASCADE LV 4 under these conditions, use no more than 2/3 pint per acre.

#### Precautions and Restrictions:

- Sorghum 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.
- 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 1.0 pt/acre of CASCADE LV 4 per use season.
  - Pre-harvest Interval (PHI): Do not harvest grain or forage within 30 days after application.

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

Application Timing	CASCADE LV 4 (pt/acre)	Specific Use Directions
Preplant (Burndown)	3/4 to 1	Apply not less than 7 days before planting soybeans. <b>See Use Precautions and Restrictions below.</b>
	1 to 2	Apply not less than 15 days before planting soybeans. <b>See Use Precautions and Restrictions below.</b>

**Use Directions:** Use CASCADE LV 4 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 added to spray mixtures to increase the herbicidal effectiveness on certain weeds. 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 CASCADE LV 4 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 CASCADE LV 4.
- Do not apply more than 2 pt/acre of CASCADE LV 4 per use season.

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

**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 of this label.

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

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

Treatment Site Method of Application	CASCADE LV 4	Specific Use Directions
<b>Annual Weeds</b>  <b>Biennial and perennial broadleaf weeds and susceptible woody plants</b>	2 to 4 pt/acre  4 to 8 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 4 qt of CASCADE LV 4 plus 1 to 4 qt of Garlon 3A herbicide per acre. For conifer release, make application in early spring before budbreak of conifers when weeds are small and actively growing.
<b>Spot Treatment to control broadleaf weeds</b>	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 rate specified 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	1 1/2 to 3 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	4 qt/100gal	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.

Basal Spray (May also be used in Rangeland, Pastures and Noncropland)	8qt/100 gal or	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.
Surface of Cut Stumps (May also be used in Rangeland, Pastures, and Noncropland)	2.6 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.
Frill and Girdle (May also be used in Rangeland, Pastures, and Noncropland)		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. Saturate the freshly cut frills with the 2,4-D mixture.
Tree Injection Application (May also be used in Rangeland, Pastures, and Noncropland)	(1 to 2 ml per injection site)	To control and prevent resprouting of 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 ml of undiluted CASCADE LV 4 per inch of trunk diameter as measured at breast height (DBH), approximately 4 1/2 ft above the ground. Injection sites, however, should be 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. For hard to control species such as ash, maple, and dogwood use 2 ml of undiluted CASCADE LV 4 per injection site or double the number of 1 ml injections. <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 seedbeds.
- 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 4 pt/acre of CASCADE LV 4 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 8.0 pt/acre of CASCADE LV 4 per 12 month period.
- Limited to 1 broadcast application per year.
- Limited to 1 basal spray or cut surface application per year.
- Limited to 1 injection application per year.

#### Rangeland, Established Grass Pastures (including Perennial Grasslands not in Agricultural Production such as Conservation Reserve Program Acres)

Target Weeds or Woody Plants	CASCADE LV 4 (pt/acre)	Specific Use Directions
Annual broadleaf weeds	2	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 specified rates, even under ideal conditions of application.
Biennial and perennial broadleaf weeds	2 to 4	

<b>Spot Treatment to control broadleaf weeds</b>	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 specified 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>Basal spray, cut surface, frill and girdle, and tree injection application methods</b>		Refer to the "Forestry Uses" section for specific use instructions for these application methods.
<b>Wild garlic and wild onion</b>	4	Make three applications (fall-spring-fall or spring-fall-spring) starting in late fall or early spring.
<b>Broadleaf weed control in newly sprigged coastal bermudagrass</b>	2 to 4	Applications may be made either preemergence or postemergence. Follow "Specific Use Directions" for Rangeland and Established Grass Pastures, above.
<b>Sand shinnery oak Sand sagebrush</b>	2	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>	4	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>	4	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 Broadcast application</b>	Up to 4	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.
<b>Spot treatment</b>	1 gal/100 gal of spray	Spot treatment: Apply when foliage is well developed. Thorough coverage is required. Use 1 gallon of CASCADE LV 4 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.
<b>CRP Acres</b>		For program lands such as CRP, consult program rules to determine whether grass or hay may be used. The more restrictive requirements of the program rules or this label must be followed.

#### 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 4 pt/acre of CASCADE LV 4 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 8 pt/acre of CASCADE LV 4 per use season.
- Limited to 2 applications per year.
- Maximum of 2.0 lbs. ae 2,4-D per acre per application.



**Non-cropland - Including fencerows, hedgerows, roadsides,  
rights-of-way, utility power lines, railroads, airports and industrial sites.**

Treatment Site or Method of Application	CASCADE LV 4 (pt/acre)	Specific Use Directions
<p><b>Annual, Biennial and Perennial broadleaf weeds</b></p> <p><b>Susceptible woody plants</b></p>	<p>2 to 4</p> <p>4 to 8</p>	<p>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 woody species, tank mix up to 4 quarts of CASCADE LV 4 plus 1 to 4 qt of Garlon 3A per acre. Oil or wetting agent may be added to the spray, if needed for increased effectiveness.</p> <p><b>For ground application (High volume):</b> apply a total spray volume of 100 to 400 gallons per acre; (low volume) apply a total spray volume of 10 to 100 gallons per acre.</p> <p><b>For helicopter:</b> Apply a total spray volume of 5 to 30 gallons per acre.</p>
<p><b>Spot Treatment to control broadleaf weeds</b></p>	<p>See Instructions for "Spot Treatment"</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 specified 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, cut surface, frill and girdle , and tree injection application methods</b></p>		<p>Refer to the "Forestry Uses" section for specific use instructions for these application methods.</p>
<p><b>Southern wild rose Broadcast application</b></p> <p><b>Spot treatment</b></p>	<p>up to 4</p> <p>1 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.</p> <p>Apply when foliage is well developed. Thorough coverage is required. Use 4 qt of CASCADE LV 4 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 4 pt/acre of CASCADE LV 4 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 8.0 pt/acre of CASCADE LV 4 per use season.

**Postemergence (annual and perennial weeds)**

- Limited to 2 applications per year.
- Maximum of 2.0 lbs. ae 2,4-D per acre per application
- Minimum of 30 days between applications.

**Postemergence (woody plants)**

- Limited to 1 application per year
- Maximum of 4.0 lbs. ae 2,4-D per acre per year

Applications to non-cropland areas are not applicable to treatment of commercial timber or other plants being grown for sale or other commercial use, or for commercial seed production or for research purposes.

### Turf Uses - Grasses Grown for Seed or Sod

**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.

Treatment Site (Application Timing)	CASCADE LV 4 (pt/acre)	Specific Use Directions
Grasses Grown for Seed (Postemergence Use) Seedling grass (five-leaf stage or later)  Well-established grasses	3/4 to 1    1 to 4	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 pt/acre. Cool season grasses are more tolerant to 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-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.
<b>Sod Farms (Postemergence)</b>	2 to 4	Delay irrigation until the day following application.

**Precautions and Restrictions:**

- Do not use on creeping grasses such as bentgrass except for spot treatment.
- Do not use on susceptible southern grasses such as St. Augustine grass.
- Do not use on dichondra or other herbaceous ground covers; legumes may be damaged or killed.
- **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 4 pt/acre of CASCADE LV 4 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 8 pt/acre of CASCADE LV 4 per use season.
- Limited to 2 applications per year
- Maximum of 2.0 lbs. ae 2,4-D per acre per year
- Minimum of 21 days between applications

**Ornamental Turf (Excluding Grasses Grown for Seed or Sod Farms) (Includes lawns, golf courses, cemeteries and parks, airfields, roadsides and vacant lots)**

**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.

<b>Treatment Site (Application Timing)</b>	<b>CASCADE LV 4 (pt/acre)</b>	<b>Specific Use Directions</b>
Ornamental Turf (Postemergence) Seedling grass (five –leaf stage or later)  Well-established grasses  Biennial and perennial Broadleaf weeds	3/4 to 1  2 to 3  3	Apply when weeds are small and actively growing. For best results, apply when soil moisture is adequate for active weed growth. Deep-rooted perennial weeds such as bindweed and Canada thistle may require repeat applications. 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.

**Precautions and Restrictions:**

- Do not use on creeping grasses such as bentgrass except for spot treatment.
- Do not use on susceptible southern grasses such as St. Augustine grass.
- Do not use on dichondra or other herbaceous ground covers; legumes may be damaged or killed.
- **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.
- Do not make more than 2 broadcast applications per treatment site per year (does not include spot treatments).
- Do not apply more than 3 pt/acre of CASCADE LV 4 per acre.

#### **CONDITION OF SALE AND LIMITATION OF WARRANTY AND LIABILITY**

**NOTICE:** Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather, presence of other materials or other influencing factors in the use of the product, which are beyond the control of ALTITUDE CROP INNOVATIONS, LLC or Seller. To the extent consistent with applicable law, all such risks shall be assumed by Buyer and User, and Buyer and User agree to hold ALTITUDE CROP INNOVATIONS, LLC and Seller harmless for any claims relating to such factors.

ALTITUDE CROP INNOVATIONS, LLC warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or ALTITUDE CROP INNOVATIONS, LLC, and Buyer and User assume the risk of any such use. **TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, ALTITUDE CROP INNOVATIONS, LLC MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.**

To the extent consistent with applicable law, neither ALTITUDE CROP INNOVATIONS, LLC nor Seller shall be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF ALTITUDE CROP INNOVATIONS, LLC AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF ALTITUDE CROP INNOVATIONS, LLC OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

ALTITUDE CROP INNOVATIONS, LLC and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of ALTITUDE CROP INNOVATIONS, LLC.