# Clearcast®

## Herbicide

SePRO

**GROUP 2 HERBICIDE**

**FOR THE CONTROL OF VEGETATION IN AND AROUND AQUATIC AND NON-CROPLAND SITES INCLUDING AREAS THAT MAY BE GRAZED OR CUT FOR HAY**

| | |
|---|---|
| **Active Ingredient:** | |
| ammonium salt of imazamox 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1*H*-imidazol-2-yl]-5-(methoxymethyl)-3-pyridinecarboxylic acid† | 12.1% |
| **Other Ingredients** | 87.9% |
| **TOTAL** | 100.0% |

† Equivalent to 11.4% 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1*H*-imidazol-2-yl]-5-(methoxymethyl)-3-pyridinecarboxylic acid

1 gallon contains 1.0 pound of active ingredient as the free acid

**Keep Out of Reach of Children**

**CAUTION/PRECAUCIÓN**

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

See inside for complete Precautionary Statements, Directions for Use, Conditions of Sale and Warranty, and state-specific crop and/or use site restrictions.

Notice: Read the entire label before using. Use only according to label directions. Before buying or using this product, read Warranty Disclaimer and Misuse statements inside label booklet. If terms are unacceptable, return at once unopened.

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EPA Est. No. 067690-NC-002
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Manufactured for:
SePRO Corporation 11550 N. Meridian St., Ste. 600, Carmel, IN 46032 U.S.A.

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| FIRST AID | |
|---|---|
| **If on skin or clothing** | • Take off contaminated clothing.<br>• Rinse skin immediately with plenty of water for 15 to 20 minutes.<br>• Call a poison control center or doctor for treatment advice. |
| **If in eyes** | • Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes.<br>• Remove contact lenses, if present, after the first 5 minutes; then continue rinsing eyes.<br>• Call a poison control center or doctor for treatment advice. |
| **If inhaled** | • Move person to fresh air.<br>• If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably mouth to mouth if possible.<br>• Call a poison control center or doctor for further treatment advice. |
| **HOTLINE NUMBER** | |
| Have the product container or label with you when calling a poison control center or doctor or going for treatment. In case of an emergency endangering life or property involving this product, call **INFOTRAC** for emergency medical treatment information: **1-800-535-5053**. | |

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION.** Harmful if absorbed through skin or inhaled. Causes moderate eye irritation. Avoid breathing spray mist. Avoid contact with skin, eyes or clothing.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

**Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants;
- Chemical-resistant gloves such as barrier laminate, butyl rubber ≥14 mils, nitrile rubber ≥ 14 mils, neoprene rubber ≥ 14 mils, natural rubber (includes natural rubber blends and laminates) ≥ 14 mils, polyethylene, polyvinyl chloride (PVC) ≥ 14 mils, or Viton ≥ 14 mils;
- Shoes plus socks.

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

### USER SAFETY RECOMMENDATIONS

**Users should:**

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE 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.

### ENVIRONMENTAL HAZARDS

This pesticide may be hazardous to plants outside the treated area. **DO NOT** apply to water except as specified in this label. **DO NOT** contaminate water when disposing of equipment washwaters and rinsate.

## DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling. This labeling must be in the possession of the user at the time of pesticide application.

**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.

Ensure spray drift to nontarget susceptible species does not occur.

**DO NOT** apply **Clearcast®** Herbicide in any manner not specifically described in this label.

Observe all cautions and limitations on this label and on the labels of products used in combination with **Clearcast.**
**DO NOT** use **Clearcast** other than in accordance with the instructions set forth on this label. Keep containers closed to avoid spills and contamination.

## STORAGE AND DISPOSAL

**DO NOT** contaminate food, feed or water by storage or disposal.
**Pesticide Storage**
Keep from freezing. **DO NOT** store below 32°F.
**Pesticide Disposal**
Wastes resulting from the use of this product may be disposed of on-site or at an approved waste disposal facility.
**Container Handling**
**Nonrefillable Container. DO NOT** reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.
**Triple rinse containers small enough to shake (capacity ≤ 5 gallons) as follows:** Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 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.
**Triple rinse containers too large to shake (capacity >5 gallons) as follows:** 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 it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application

## STORAGE AND DISPOSAL *(continued)*

equipment or a mix tank, or store rinsate for later use or disposal. Repeat this procedure two more times.

**Pressure rinse as follows:** Empty the remaining contents into application equipment or 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 Container.** Refill this container with pesticide only.

**DO NOT** reuse this container for any other purpose. Triple rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

**Triple rinse as follows:** 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% 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.

When this container is empty, replace the cap and seal all openings that have been opened during use; return the container to the point of purchase or to a designated location. This container must only be refilled with a pesticide product. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transport. **DO NOT** transport if this container is damaged or leaking. If the container is damaged, or leaking, or obsolete and not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling, if available, or dispose of container in compliance with state and local regulations.

## IN CASE OF EMERGENCY

In case of large-scale spill of this product, call INFOTRAC at 1-800-535-5053.

In case of medical emergency regarding this product, call:

- Your local doctor for immediate treatment
- Your local poison control center (hospital)
- INFOTRAC: 1-800-535-5053

**Steps to take if material is released or spilled:**

- Dike and contain the spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal.
- Remove contaminated clothing, and wash affected skin areas with soap and water.
- Wash clothing before reuse.
- Keep the spill out of all sewers and open bodies of water.

## PRODUCT INFORMATION

**Clearcast® herbicide** is an aqueous formulation that may be diluted in water and either applied directly to water for the control/suppression of certain submerged aquatic vegetation or applied as a broadcast or spot spray to floating and emergent vegetation. Aquatic sites that may be treated include estuarine and marine sites, ponds, lakes, reservoirs, wetlands, marshes, swamps, bayous, arroyos, ditches, canals, streams, rivers, creeks and other slow-moving or quiescent bodies of water. **Clearcast** may also be used during drawdown conditions. **Clearcast** may also be applied for terrestrial and riparian vegetation control in industrial noncropland sites, and railroad, utility, and highway rights-of-way. Industrial noncropland sites include utility plant sites, tank farms, pumping installations, storage areas, fence rows and ditch banks. **Clearcast** may also be used for the establishment and maintenance of wildlife openings. **Clearcast** may also be used on those sites listed above that may be grazed or cut for hay.

**Clearcast** is quickly absorbed by foliage and/or plant roots and rapidly translocated to the growing points stopping growth. Susceptible plants may develop a yellow appearance or general discoloration and will eventually die or be severely growth inhibited.

**Clearcast** is herbicidally active on many submerged, emergent and floating broadleaf and monocot aquatic plants. The relative levels of control and selectivity can be manipulated by using a choice of rates and herbicide placement (water injected or floating/emergent foliar application).

To help maintain the utility of herbicide programs, the use of herbicides with different modes of action is effective in managing weed resistance.

### Spray Adjuvants

Applications of **Clearcast** to emergent, floating or shoreline species require the use of a spray adjuvant. Always use a spray adjuvant that is appropriate for aquatic sites.

**Nonionic Surfactants** - Use a nonionic surfactant at 0.25% volume/volume (v/v) or higher (see manufacturer's label) of the spray solution (0.25% v/v is equivalent to 1 quart in 100 gallons). For best results, select a nonionic surfactant with an HLB (hydrophilic to lipophilic balance) ratio between 12 and 17 with at least 70% surfactant in the formulated product (alcohols, fatty acids, oils, ethylene glycol or diethylene glycol should not be considered as surfactants to meet the above requirements).

**Methylated Seed Oils or Vegetable Oil Concentrates** - Instead of a surfactant, a methylated seed oil or vegetable-based seed oil concentrate may be used at 1.5 to 2 pints per acre. When using spray volumes greater than 30 gallons per acre, mix methylated seed oil or vegetable-based seed oil concentrates at 1% of the total spray volume, or alternatively use a nonionic surfactant as described above. Research indicates that these oils may aid in **Clearcast** deposition and uptake by plants under stress.

**Silicone-based Surfactants** - See manufacturer's label for specific rates. Silicone-based surfactants may reduce the surface tension of the spray droplet allowing greater spreading on the leaf surface as compared to conventional nonionic surfactants. However, some silicone-based surfactants may dry too quickly, limiting herbicide uptake.

**Invert Emulsions** – **Clearcast** can be applied as an invert emulsion. The spray solution results in an invert (water-in-oil) spray emulsion designed to minimize spray drift and spray runoff, resulting in more herbicide on the target foliage. The spray emulsion may be formed in a single tank (batch mixing) or injected (in-line mixing). Consult the invert chemical label for proper mixing directions.

**Other** - An antifoaming agent, spray pattern indicator, sinking agent or drift-reducing agent may be applied at the product labeled rate if necessary or desired.

### Spray Drift Requirements for Aerial Application

- Applicators are required to use a coarse or coarser droplet size (ASABE S572) or, if specifically using a spinning atomizer nozzle, applicators are required to use a volume mean diameter (VMD) of 385 microns or greater for release heights below 10 feet. Applicators are required to use a very coarse or coarser droplet size or, if specifically using a spinning atomizer nozzle, applicators are required to use a VMD of 475 microns or greater for release heights above 10 feet. Applicators must consider the effects of nozzle orientation and flight speed when determining droplet size.
- Applicators are required to use upwind swath displacement.
- The boom length must not exceed 60% of the fixed wingspan or 90% of the rotor blade diameter to reduce spray drift.
- **DO NOT** apply when wind speed is greater than 10 mph.
- If applying at wind speeds less than 3 mph, the applicator must determine if
  1. Conditions of temperature inversion exist **or**
  2. Stable atmospheric conditions exist at or below nozzle height.

**DO NOT** make applications into areas of temperature inversions or stable atmospheric conditions.

### Spray Drift Requirements for Ground Boom Application

- Applicators are required to use a nozzle height below 4 feet above the ground or plant canopy and coarse or coarser droplet size (ASABE S572) or, if specifically using a spinning atomizer nozzle, applicators are required to use a volume mean diameter (VMD) of 385 microns or greater.
- Applications with wind speeds greater than 10 mph are prohibited.
- Applications into temperature inversions are prohibited.

**DO NOT** apply when wind conditions may result in drift, when temperature inversion conditions exist, or when spray may be carried to sensitive areas. See *Managing Off-target Movement* section for more drift reduction recommendations.

## AQUATIC USE DIRECTIONS

**Clearcast® herbicide** may be applied directly to the water for the control of submerged aquatic plant species and some emergent and floating species, or as a foliar application specifically for emergent and floating species.

**DO NOT exceed maximum use rate per application:**

- Water treatment - 500 parts per billion (ppb) (173 fl ozs of **Clearcast** per acre foot)
- Foliar broadcast application – 1 gallon per acre (1.0 lb ae/A)
- Foliar spot application - up to 5% **Clearcast** by volume

**Clearcast** may be applied by surface and aerial equipment including both fixed-wing aircraft and helicopter.

## Foliar Application

**Targeted Emergent and/or Floating Vegetation Application**
To make surface applications targeting emergent or floating vegetation, uniformly apply with properly calibrated broadcast or spot treatment equipment in 10 or more gallons of water per acre. Spot treatments can be made with up to 5% **Clearcast** by volume. To ensure thorough spray coverage, higher spray volumes may be required when treating areas with large and/or dense vegetation. Use an appropriate spray pressure to minimize the drift potential depending upon spray equipment, conditions and application objectives.

**Foliar Treatment of Emergent and Floating Vegetation Guidelines**
- Always use a surfactant for foliar applications of emergent and floating weeds.
- Foliar applications of **Clearcast** may be made as a broadcast spray or as a spot spray with a percent spray solution ranging from 0.25% to 5% **Clearcast** by volume.
- Control will be reduced if spray is washed off foliage by wave action.

In aquatic sites, those application techniques described in the *Terrestrial Use Directions section may be used to treat emergent vegetation.*

## Application to Water

**Water Application to Target Submerged and/or Emergent/Floating Vegetation**
**Clearcast** may be broadcast-applied to the water surface or injected below the water surface. **Clearcast** may be applied as undiluted product or diluted with water prior to application. Under surface-matted conditions, inject **Clearcast** below the water surface to achieve better product distribution.

Apply **Clearcast** to water to achieve a final concentration of the active ingredient of no more than 500 ppb. Multiple applications of Clearcast may be made during the annual growth cycle to maintain the desired vegetation response.

| Clearcast Rates Per Treated Surface Acre | | | | |
|---|---|---|---|---|
| Average Water Depth of Treatment Site (feet) | Desired Active Ingredient Concentration (ppb)† | | | |
| | 50 | 100 | 200 | 500 |
| | Clearcast Rate per Treated Surface Acre (fl ozs) | | | |
| 1 | 17 | 35 | 69 | 173 |
| 2 | 35 | 69 | 138 | 346 |
| 3 | 52 | 104 | 207 | 518 |
| 4 | 70 | 138 | 277 | 691 |
| 5 | 87 | 173 | 346 | 864 |
| 6 | 104 | 207 | 415 | 1,037 |
| 7 | 122 | 242 | 484 | 1,210 |
| 8 | 139 | 277 | 553 | 1,382 |
| 9 | 157 | 311 | 622 | 1,555 |
| 10 | 174 | 346 | 691 | 1,728 |

†**Clearcast** contains 1.0 pound of active ingredient per gallon. There are 128 fl ozs in one gallon.

## Aerial Application

**Clearcast** may be applied by both fixed-wing aircraft and helicopter. There is no minimum spray volume when making applications directly to the water. For applications targeting emergent and/or floating vegetation, uniformly apply with properly calibrated equipment in 5 or more gallons of water per surface acre. For best results, make aerial applications using a minimum of 20 gallons per acre.

## Drawdown Application

**Clearcast** may be used in drawdown situations to provide postemergence and/or preemergence control/suppression of aquatic vegetation. Apply **Clearcast** as a broadcast spray at rates up to 1 gallon/A or as a spot spray treatment with up to 5% **Clearcast** by volume. Make applications when water has receded and exposed soil is moist to dry. For postemergence (foliar) applications, wait at least two weeks after application before reintroducing water. When treating irrigation canals, the initial flush of recharge water after application must not be used for irrigation purposes.

# RESTRICTIONS

- **DO NOT** apply **Clearcast** to achieve a total active ingredient concentration in the water greater than 500 ppb.
- **DO NOT** apply more than 1 gallon of **Clearcast** per surface acre for the control of emergent and floating vegetation.

## Irrigation Restrictions

- **DO NOT** use treated water to irrigate greenhouses, nurseries or hydroponics until the imazamox concentration has been determined by an acceptable method to be less than or equal to 1.0 ppb.
- **DO NOT** plant sugar beets, onions, potatoes or non-**CLEARFIELD®** canola in soils that have been previously irrigated with **Clearcast**-treated water until a soil bioassay successfully demonstrates acceptable levels of crop tolerance. The only exception to this restriction is if the water is from foliar applications to emergent and/or floating vegetation in flowing water sites where it has been applied at less than or equal to 1.5 quarts per acre to waters with an average depth of greater than or equal to 4 feet.
- **DO NOT** use **Clearcast**-treated waters resulting in a concentration greater than 50 ppb for irrigation of established (emerged) plants until residue levels have been shown to be less than or equal to 50 ppb by an acceptable method.
- **DO NOT** make **Clearcast** applications in and around golf course irrigation, sod farm irrigation, and vineyard irrigation waterbodies without testing potential irrigation water prior to irrigation and confirming the imazamox concentration to be less than or equal to 1.0 ppb.
- In still or quiescent waters, do not use **Clearcast**-treated water resulting in a concentration greater than 10 ppb for irrigation of newly seeded or newly established plants until residue levels have been shown to be less than or equal to 10 ppb by an acceptable method.
- Wait 24 hours before irrigating from still or quiescent waters after making a **Clearcast** application for submerged vegetation less than 100 feet from an irrigation intake.
- Wait 24 hours before irrigating from still and quiescent waters after making a **Clearcast** application to emergent and/or floating vegetation if greater than 25% of the surface area of the water body has been treated or application was made less than 100 feet from an irrigation intake.
- Flowing waters may be used to irrigate allowable sites with no restrictions when **Clearcast** is applied at less than or equal to 2 quarts per acre to waters with an average depth of greater than or equal to 4 feet.
- After application of **Clearcast** to dry irrigation canals/ditches, the initial flush of water during recharge must not be used for irrigation purposes unless the imazamox concentration has been determined by an acceptable method to be less than 25 ppb.

**Clearcast** applied at less than or equal to 2 quarts per acre in or on waters with a minimum average depth greater than or equal to 4 feet will result in **Clearcast** concentrations less than 50 ppb.

## Other Water Use Restrictions

There are no restrictions on livestock watering, swimming, fishing, domestic use, or use of treated water for agricultural sprays.

## Potable Water

**Clearcast** may be applied to potable water sources at concentrations up to 500 ppb to within a distance of ¼ mile from an active potable water intake. Within ¼ mile of an active potable water intake, **Clearcast** may be applied, but water concentrations resulting from injection and/or foliar applications may not exceed 50 ppb. If water concentrations greater than 50 ppb are required, the potable water intake must be shut and, if necessary, an alternate water supply be made available until the water concentration can be shown to be less than 50 ppb by an acceptable method.

## Endangered Plant Species

To prevent potential negative impacts to endangered plant species, **DO NOT** apply **Clearcast** in a way that adversely affects federally listed endangered and threatened species.

## WEEDS CONTROLLED OR SUPPRESSED BY CLEARCAST

Efficacy and selectivity of **Clearcast** is dependent upon many factors including: dose, time of year, stage of plant growth, plant susceptibility, method of application, and water movement. Rate selection will be partially dependent on characteristics of the treatment area and whether growth regulation or control is desired. Some areas may require a repeat application to control or suppress regrowth. Consult SePRO Corporation to determine best treatment protocols to manage individual species and to meet specific aquatic plant management objectives.

| **Emergent, Floating, and Shoreline Species Controlled with Foliar Application** | | | |
|---|---|---|---|
| **Common Name** | **Scientific Name** | **Rate (fl ozs/A)** | **Comments** |
| Alligatorweed | *Alternanthera philoxeroides* | 64 to 128 | Repeat applications may be necessary. Add 1 qt/A of AquaPro® herbicide for quicker brownout. |
| American lotus | *Nelumbo lutea* | 64 to 128 | |
| Arrowhead | *Sagittaria* spp. | 32 to 64 | |
| Cattail | *Typha* spp. | 32 to 64 | Apply after full green up through killing frost. |
| Chinese tallowtree | *Sapium sebiferum* | 64 to 128 | |
| Common reed | *Phragmites* spp. | 96 to 128 | Use 1 qt/A methylated seed oil (MSO); apply in late vegetative stage up to killing frost. Also apply as a spot treatment using 1% to 2% **Clearcast** per spray volume. Older stands of phragmites and stands growing in water may be more difficult to control and will require follow-up applications. |
| Common salvinia | *Salvinia minima* | 32 to 64 | Apply with MSO or MSO + silicone-based surfactant; retreatment will be necessary. |
| Floating heart | *Nymphoides* spp. | 64 to 128 | Also apply as a spot treatment using 2% to 5% **Clearcast** and 1% MSO per spray volume. |
| Floating pennywort | *Hydrocotyle ranunculoides* | 32 to 64 | Repeat applications may be necessary. |
| Flowering rush | *Butomus umbellatus* | 64 to 128 | |
| Four-leaf clover | *Marsilea* spp. | 32 to 64 | |
| Frog's bit,<br>Sponge plant | *Lymnobium* spp. | 16 to 32 | |
| Giant cane | *Arundo donax* | 64 to 128 | |
| Japanese knotweed | *Polygonum cuspidatum* | 64 to 128 | |
| Mexican lily | *Nymphaea mexicana* | 32 to 64 | |
| Mosquito fern | *Azolla* spp. | — | Apply using 2% to 5% Clearcast and 1% MSO by volume. |
| Parrotfeather | *Myriophyllum aquaticum* | 64 to 128 | Apply only to emergent vegetation. |
| Pickerelweed | *Pontederia cordata* | 32 to 64 | |
| Saltcedar | *Tamarix* spp. | 64 to 128 | Also apply using 2% to 5% **Clearcast** and 1% MSO per spray volume. |
| Smartweed, ladysthumb<br>Smartweed, Pennsylvania<br>Smartweed, swamp | *Polygonum persicaria,*<br>*Persicaria maculosa*<br>*Polygonum pensylvanicum,*<br>*Persicaria pensylvanica*<br>*Polygonum coccineum,*<br>*Persicaria amphibia* | 64 to 128 | |
| Spatterdock | *Nuphar lutea* | 64 to 128 | |
| Variable-leaf milfoil | *Myriophyllum heterophyllum* | 64 to 128 | Apply with MSO (1% v/v) as an emergent foliar treatment when plants have emerged on the surface. Also apply as a spot treatment using 1% to 3% **Clearcast** per spray volume. |
| Water chestnut | *Trapa natans* | 64 to 128 | Apply with MSO to emergent part of plant. Also apply as a spot treatment using 2% to 5% Clearcast per spray volume. |
| Water hyacinth | *Eichhornia crassipes* | 16 to 32 | |
| Water lettuce | *Pistia stratiotes* | 48 to 96 | |
| Water lily | *Nymphaea* spp. | 32 to 64 | |
| Water primrose | *Ludwigia* spp. | 32 to 64 | Add 1 qt/A of AquaPro® herbicide for quicker brownout. |
| Watershield | *Brasenia schreberi* | 48 to 64 | |
| Wild taro | *Colocasia esculenta* | 96 to 128 | |

### Species Susceptible to Water-injected Applications

The following categories are provided to define species that may be growth regulated or controlled with 50 to 500 ppb **Clearcast® herbicide** following in-water applications: susceptible, moderately susceptible, and less susceptible. The rates associated with each susceptibility category, including the **Special Weed Control** section, are provided as guidance with the overriding allowance that an application rate from 50 to 500 ppb may be used depending on the aquatic vegetation management objective and the characteristics of the aquatic vegetation and water body being treated.

Some species that are susceptible to foliar applications of **Clearcast** may be less susceptible to in-water applications. Use of higher rates are necessary to achieve desired control/suppression in areas of greater water exchange; when treating more mature or less susceptible plants; when targeting more difficult-to-control aquatic species; and when treating small areas in larger bodies of water (partial or spot treatments). Lower concentrations are generally used when conducting early season large-scale treatments; when greater selectivity is desired; and treating larger areas, more immature or susceptible plants, and areas with less potential for rapid water exchange.

Use of lower rates may increase selectivity on some species within the same category. Effects on susceptible plants can range from control to growth regulation depending on treatment site characteristics, exposure time, and application rate. Susceptible plant species may exhibit herbicide stress or reduced growth during active treatment phases. Whole lake applications with lower rates may provide plant growth regulation or greater selectivity while higher rates will generally provide broader activity.

### Susceptible Vascular Aquatic Plants (50 to 200 ppb)

| Common Name | Scientific Name |
|---|---|
| Curlyleaf pondweed | *Potamogeton crispus* |
| Eurasian watermilfoil | *Myriophyllum spicatum* |
| Hydrilla | *Hydrilla verticillata* |
| Sago pondweed | *Stuckenia pectinata* |
| Water hyacinth | *Eichhornia crassipes* |
| Water stargrass | *Heteranthera dubia* |

### Moderately Susceptible Vascular Aquatic Plants (100 to 300 ppb)

| Common Name | Scientific Name |
|---|---|
| American pondweed | *Potamogeton nodosus* |
| Bladderwort | *Utricularia* spp. |
| Frog's bit | *Lymnobium spongia* |
| Illinois pondweed | *Potamogeton illinoensis* |
| Pickerelweed | *Pontederia cordata* |
| Salvinia | *Salvinia* spp. |
| Spikerush | *Eleocharis baldwinii* |
| Variable-leaf milfoil | *Myriophyllum heterophyllum* |
| Wigeon grass | *Ruppia maritima* |

### Less Susceptible Vascular Aquatic Plants (200 to 500 ppb)

| Common Name | Scientific Name |
|---|---|
| Bulrush | *Schoenoplectus californicus* |
| Cattail | *Typha* spp. |
| Coontail | *Ceratophyllum demersum* |
| Eelgrass, Japanese | *Zostera japonica* |
| Egeria | *Egeria densa* |
| Flowering rush | *Butomus umbellatus* |
| Southern naiad | *Najas guadalupensis* |
| Spatterdock | *Nuphar lutea* |
| Water lily | *Nymphaea odorata* |
| Watershield | *Brasenia schreberi* |

### Special Weed Control

**Eurasian Watermilfoil.** Apply **Clearcast herbicide** at 100 to 200 ppb to actively growing plants early in the growing season. Applications made to mature Eurasian watermilfoil (vegetation topped out) may require multiple applications.

**Hydrilla**. Apply **Clearcast** at 150 to 200 ppb to actively growing plants early in the growing season. Applications made prior to topped-out hydrilla may require repeat application. A single application of 50 to 75 ppb can be used to suppress and growth-regulate hydrilla for up to 10 to 12 weeks. If desired, an additional 50 to 75 ppb can be applied to extend the period of growth suppression when normal hydrilla growth resumes.

**Japanese Eelgrass**. Japanese eelgrass is a submerged aquatic plant which can be found in tidal and intertidal areas. Clearcast herbicide may be applied directly to the water or directly to the plant (e.g. at low tide).

• **Low-tide application** - To make applications when the plant is exposed at low tide, uniformly apply with properly calibrated broadcast or spot treatment equipment in 10 or more gallons of water per acre. An appropriate spray adjuvant approved for aquatic use may be used but is not required. Spot treatments can be made with up to 5% Clearcast by volume. To ensure thorough spray coverage, higher spray volumes may be required when treating areas with large and/or dense vegetation. Use an appropriate spray pressure to minimize drift potential depending upon spray equipment, conditions, and application objectives. Apply 4 fl ozs to 32 fl ozs Clearcast/A. Use the lower rate for management of seedlings. An appropriate aquatic use spray adjuvant may be used but is not required.

• **In-water application** - When Japanese eelgrass is submerged, Clearcast may be broadcast-applied to the water surface or injected below the water surface. Clearcast may be applied as undiluted product or diluted with water before application. Under surface-matted conditions, inject Clearcast below the water surface to achieve better product distribution. Apply Clearcast to water to achieve a final concentration of the active ingredient of no more than 500 ppb. Multiple applications of Clearcast may be made during the annual growth cycle to maintain the desired vegetation response.

**Sago Pondweed.** In dry ditches (drainage and irrigation), sago pondweed may be controlled or growth-suppressed with soil-applied **Clearcast** at 64 to 128 fl ozs/A. In irrigation canals, apply **Clearcast** after drawdown and prior to water recharge.

## TERRESTRIAL USE DIRECTIONS

## Restrictions

- The maximum amount of active ingredient that can be applied is 1 gallon (equivalent to 1 pound of active ingredient as the free acid) per acre per year.
- **DO NOT** exceed 2 applications of **Clearcast** per year.

**Clearcast** may be applied with ground and aerial equipment including both fixed-wing aircraft and helicopter. Applications may be made using foliar broadcast spray, foliar spot spray, injection (hack and squirt), frill and girdle, cut stump, or basal methods.

### Broadcast Spray Application

**DO NOT** apply more than 1 gallon of **Clearcast** per acre per year.

### Foliar Spot Application

Apply **Clearcast** as a percent solution, containing up to 5% **Clearcast** by volume.

### Injection (Hack and Squirt), Frill and Girdle, and Cut Stump Application

Treatments may be made using up to 100% **Clearcast** by volume.

### Basal Application

Treatments can be made using up to 25% **Clearcast** by volume. Basal applications require the use of a good emulsion system to maintain **Clearcast** in a stable emulsion with the penetrating agent being used.

All foliar applications of **Clearcast** require the use of a spray adjuvant. Refer to *Spray Adjuvants* section for additional information.

### Managing Off-target Movement

The following information is general guidance for managing and minimizing off-target exposure of this product. Specific use directions in this label may vary from these general guidelines depending on the application method and objectives and should supersede the information provided below.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-related and weather-related factors determines 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:

1. The distance of the outermost nozzles on the boom must not exceed ¾ the length of the fixed wingspan or 90% of rotor blade diameter.
2. Nozzles must always point backward parallel with the airstream and never be pointed downward more than 45 degrees.
3. **DO NOT** apply if wind speed is greater than 10 mph, except when making injection or subsurface applications to water.

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

The applicator must be familiar with and take into account the information covered in the following aerial drift reduction advisory information.

### Information on Droplet Size

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

### Controlling Droplet Size:

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** – **DO NOT** exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provides uniform coverage.

- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is recommended practice. 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 the largest droplets and the lowest drift.

### Boom Length

For some use patterns, reducing the effective boom length to less than ¾ of the fixed wingspan or 90% of rotor blade diameter may further reduce drift without reducing swath width.

### Application Height

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 upwind 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 droplets, etc.).

### Wind

Drift potential is lowest between wind speeds of 2 to 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 must be familiar with local wind patterns and how they affect spray drift.

### Temperature and Humidity

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

### Temperature Inversions

Applications must not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing that 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 concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

### Sensitive Areas

The pesticide 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, or crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

To the extent consistent with the applicable law, applicator is responsible for any loss or damage which results from spraying **Clearcast** in a manner other than directed in this label. In addition, applicator must follow all applicable state and local regulations and ordinances in regard to spraying.

**Clearcast** may be used for the control of the following plant species. **Clearcast** may be effective for the control or suppression of additional plant species not listed below. The use of **Clearcast** for the control or suppression of undesirable plants not listed below may be done at the discretion of the user.

**To the extent consistent with applicable law, the user assumes responsibility for any lack of control or suppression associated with application to weeds not listed on this label.**

| Weeds Controlled | | | |
|---|---|---|---|
| **Common Name** | **Scientific Name** | **Rate Foliar** (fl ozs/A) | **Comments** |
| Alligator weed | *Alternanthera philoxeroides* | 64 to 128 | Addition of AquaPro® herbicide will improve efficacy. |
| Annual ryegrass | *Lolium multiflorum* | 16 to 32 | |
| Artichoke, Jerusalem | *Helianthus tuberosus* | 64 to 128 | |
| Bedstraw | *Galium aparine* | 64 to 128 | |
| Beet, wild | *Beta procumbens* | 64 to 128 | |
| Brazilian pepper*<br>Christmasberry* | *Schinus terebinthifolius* | 96 to 128 | Also apply using 2% to 5% Clearcast per spray volume |
| Buckwheat, wild | *Polygonum convolvulus* | 64 to 128 | |
| Buttercup | *Ranunculus* spp. | 64 to 128 | |
| California bulrush* | *Schoenoplectus californicus* | 64 to 128 | |
| Camphor tree* | *Cinnamomum camphora* | 2% to 5% v/v | |
| Canola, volunteer (non-**Clearfield**®) | *Brassica campestris*<br>*Brassica napus* | 64 to 128 | |
| Cattail | *Typha* spp. | 32 to 64 | |
| Chickweed, common | *Stellaria media* | 64 to 128 | |
| Chinese tallowtree;<br>Popcorn tree | *Sapium sebiferum* | 64 to 128 | See Special Weed Control section. |
| Cocklebur, common | *Xanthium strumarium* | 64 to 128 | |
| Filaree, redstem<br>Filaree, whitestem | *Erodium cicutarium*<br>*Erodium moschatum* | 64 to 128 | |
| Flixweed | *Descurainia sophia* | 64 to 128 | |
| Giant ragweed** | *Ambrosia trifida* | 32 to 64 | |
| Henbit | *Lamium amplexicaule* | 64 to 128 | |
| Jamaican nightshade* | *Solanum jamaicense* | 2% to 5% v/v | |
| Japanese stiltgrass | *Microstegium vimineum* | 32 to 64 | Use MSO at 1% by spray volume. Clearcast will provide some residual control of subsequent seedling emergence. |
| Jimsonweed | *Datura stramonium* | 64 to 128 | |

*continued*

| **Weeds Controlled** *(continued)* | | | |
|---|---|---|---|
| **Common Name** | **Scientific Name** | **Rate Foliar** (fl ozs/A) | **Comments** |
| Johnsongrass, rhizome<br>Johnsongrass, seedling | *Sorghum halepense* | 32 to 64<br>16 to 32 | |
| Knotweed, prostrate | *Polygonum aviculare* | 64 to 128 | |
| Kochia | *Kochia scoparia* | 64 to 128 | |
| Lambsquarters, common | *Chenopodium album* | 64 to 128 | |
| Lettuce, miner's | *Montia perfoliata* | 64 to 128 | |
| Mallow, common<br>Mallow, Venice | *Malva neglecta Hibiscus trionum* | 64 to 128 | |
| Mustard spp. | *Brassica* spp. | 64 to 128 | |
| Nettle, burning | *Urtica urens* | 64 to 128 | |
| Nettleleaf goosefoot | *Chenopodium murale* | 64 to 128 | |
| Nightshade, black<br>Nightshade, Eastern black<br>Nightshade, hairy | *Solanum nigrum*<br>*Solanum ptycanthum*<br>*Solanum sarrachoides* | 64 to 128 | |
| Old world climbing fern* | *Lygodium microphyllum* | 5% v/v | |
| Pennycress,field | *Thlaspi arvense* | 64 to 128 | |
| Phragmites* | *Phragmites australis* | | Use 1 qt/A methylated seed oil (MSO); apply in late vegetative stage up to killing frost. Also apply as a spot treatment using 1% to 2% Clearcast per spray volume. Older stands of phragmites and stands growing in water may be more difficult to control and will require follow-up applications. |
| Pigweed, prostrate<br>Pigweed, redroot<br>Pigweed, smooth<br>Pigweed, spiny | *Amaranthus blitoides*<br>*Amaranthus retroflexus*<br>*Amaranthus hybridus*<br>*Amaranthus spinosus* | 64 to 128 | |
| Puncturvine | *Tribulus terrestris* | 64 to 128 | |
| Purple loosestrife* | *Lythrum salicaria* | 32 to 64 | |
| Purslane, common | *Portulaca oleracea* | 64 to 128 | |
| Radish, wild | *Raphanus raphanistrum* | 64 to 128 | |
| Ragweed, common<br>Ragweed, giant | *Ambrosia artemisiifolia*<br>*Ambrosia trifida* | 64 to 128 | |
| Rocket, London<br>Rocket, yellow | *Sisymbrium irio*<br>*Barbarea vulgaris* | 64 to 128 | |
| Saltcedar* | *Tamarix* spp. | 64 to 128 | Also apply using 2% to 5% Clearcast and 1% MSO per spray volume. |
| Sedge*, purple<br>Sedge*, yellow | *Cyperus rotundus*<br>*Cyperus esculentus* | 32 to 64 | Also apply using 2% to 5% Clearcast per spray volume. |
| Shepherd's-purse | *Capsella bursa-pastoris* | 64 to 128 | |
| Smartweed, ladysthumb<br>Smartweed, Pennsylvania<br>Smartweed, swamp | *Polygonum persicaria,*<br>*Persicaria maculosa*<br>*Polygonum pensylvanicum,*<br>*Persicaria pensylvanica*<br>*Polygonum coccineum,*<br>*Persicaria amphibia* | 64 to 128 | |
| Spike rush* | *Eleocharis* spp. | 64 to 128 | |
| Spurge, prostrate | *Euphorbia maculata* | 64 to 128 | |
| Sunflower, common | *Helianthus annuus* | 64 to 128 | |
| Swinecress | *Coronopus didymus* | 64 to 128 | |
| Tansymustard, green | *Descurainia pinnata* | 64 to 128 | |
| Taro | *Taro* spp. | 64 to 128<br>5% v/v | |
| Thistle, Russian | *Salsola iberica* | 64 to 128 | |
| Tropical soda apple* | *Solanum viarum* | 2% to 5% v/v | |
| Water primrose | *Ludwigia* spp. | 32 to 64 | Addition of **AquaPro® herbicide** will improve efficacy. |
| Wetland nightshade* | *Solanum tampicense* | 2% to 5% v/v | |
| Whitetop* Hoary cress* | *Cardaria draba* | 8 to 16 | |
| Willoweed panicle | *Epilobium brachycarpum* | 64 to 128 | |
| Velvetleaf | *Abutilon theophrasti* | 64 to 128 | |
| * Use not permitted in California unless otherwise directed by supplemental labeling<br>** Suppression of larger, well-established plants | | | |

In general, the use of methylated seed oil (MSO) at 1% v/v will provide the best control with foliar applications.

## Special Weed Control - Chinese tallowtree

**Clearcast** at 64 to 128 fl ozs/A or 0.5 to 2.0% v/v may be applied as a foliar application for selective control of Chinese tallowtree in and around tolerant tree species. Control Chinese tallowtree with foliar applications using aerial, handgun, or backpack application methods. When treating Chinese tallowtree, ensure that application method and spray volume provide adequate coverage of targeted Chinese tallowtree plants. Add methylated seed oil at 32 fl ozs/A for broadcast applications, or at 1% v/v for spot backpack and handgun applications. Tolerant hardwood species may exhibit varying degrees of leaf discoloration and temporary injury.

## Areas that may be Grazed or Cut for Hay

Apply **Clearcast** to listed aquatic and terrestrial noncrop sites that may be grazed or cut for hay at a maximum use rate of 1 gallon per acre of **Clearcast** or 5% (v/v) spray solution for spot treatments. There are no grazing or haying restrictions.

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**SePRO Corporation**
11550 North Meridian Street, Suite 600
Carmel, IN 46032, U.S.A.