

2015-0095  
2015-01-29  
(sleeve)

GROUP	4	HERBICIDE
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## ADAMA

### 2,4-D Ester 700 Liquid Herbicide

CONTAINS 2,4-D EMULSIFIABLE CONCENTRATE

For use in wheat, barley, rye, soybeans, field corn, pastures and non-crop land.

### COMMERCIAL

**READ THE LABEL AND ATTACHED BOOKLET BEFORE USING**

**GUARANTEE:** 2,4-D, present as the 2-ethylhexyl ester ... 660 g a.e./L

REGISTRATION NO. 31698 PEST CONTROL PRODUCTS ACT



DANGER POISON  
POTENTIAL SKIN SENSITIZER

WARNING – SKIN IRRITANT  
(1 – Bulk) Litres

**ADAMA Agricultural Solutions Canada Ltd.**

300 – 191 Lombard Avenue

Winnipeg, Manitoba

R3B 0X1

1-855-264-6262

**For emergency medical help and health/safety inquires call ProPharma at 1-877-250-9291 (24 hours a day)**

**For spill, leak or fire call INFOTRAC at 1-800-535-5053 (24 hours a day)**

**PRECAUTIONS:**

KEEP OUT OF REACH OF CHILDREN. Fatal or poisonous if swallowed. Potential skin sensitizer. Causes skin irritation. DO NOT get on skin. Avoid contact with skin, eyes and clothing. Wash concentrate from skin or eyes IMMEDIATELY. After use, wash hands and other exposed skin. Avoid breathing spray mist.

**ENVIRONMENTAL HAZARDS:**

This product contains a petroleum distillate which is moderately to highly toxic to aquatic organisms.

Toxic to small mammals, birds, aquatic organisms and non-target terrestrial plants.

Observe buffer zones specified under DIRECTIONS FOR USE.

This product will harm other broadleaved plants in the vicinity of the treatment area. If applying this product using a mechanically pressurized handgun or backpack sprayer, do not directly spray or allow the spray to drift onto ornamentals or gardens.

Do not spray exposed roots of trees and ornamentals.

**Leaching:** The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

**Runoff:** To reduce runoff from treated areas into aquatic habitats avoid application to areas with moderate to steep slope, compacted soil, or clay.

Avoid application of this product when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a strip of untreated vegetation between the treated area and the edge of the water body. To prevent runoff, avoid spraying on driveways, sidewalks or other hard surfaces.

Do not irrigate within 24 hours after application.

**PROTECTIVE CLOTHING AND EQUIPMENT:**

**Handling the concentrate (mixing and loading):** Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes. Rinse gloves before removal.

**Handling the dilute spray solution (during application or repairing or cleaning equipment):** Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes. Rinse gloves before removal.

When handling more than 401 L of ADAMA 2,4-D Ester 700 Liquid Herbicide per day, workers must also use a closed system.

Gloves are not required during application when applicator is in an enclosed tractor or an enclosed airplane cockpit.

Mixers/loaders/applicators using mechanically pressurized handguns must wear a respirator if they will be handling more than 7.5 L per day.

DO NOT handle more than 12 L per day.

**OPERATOR USE PRECAUTIONS:**

- Wear freshly laundered clothing and clean protective equipment daily.
- Rinse gloves before removal.
- Wash hands before eating, drinking, using tobacco or using the toilet.

- If herbicide penetrates clothing remove immediately; then wash thoroughly and put on clean clothing. Throw away clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate.
- After using this product, remove clothing and launder separately and promptly, and thoroughly wash hands and exposed skin with soap and water. Follow manufacturer's instructions for cleaning personal protective clothing and equipment. If no such instructions for washables are provided, use detergent and hot water. Keep and wash personal protective equipment separate from household laundry.
- After work, remove all clothing and shower using soap and water.

#### **FIRST AID:**

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

**If on skin or clothing**, take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

**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 centre or doctor for treatment advice.

**If inhaled**, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you, when seeking medical attention.

#### **TOXICOLOGICAL INFORMATION:**

DO NOT induce vomiting. This product contains petroleum distillates. Vomiting may cause aspiration pneumonia. No specific antidote. Employ supportive care. This product may cause mild irritation to the eyes. Overexposure to 2,4-D may cause coughing, burning, dizziness or temporary loss of muscle coordination. Other possible effects of overexposure include fatigue, muscle weakness or nausea. Treatment should be based on judgement of the physician in response to reactions of the patient. Treat symptomatically.

#### **STORAGE CONDITIONS:**

Store the container tightly closed away from seeds, fertilizer, plants and foodstuffs. May be stored at any temperature. **SHAKE WELL BEFORE USING.**

#### **DISPOSAL:**

##### **For Recyclable Containers:**

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site.

Contact your local distributor/dealer or municipality for the location of the nearest collection site.

Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

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**For Returnable-Refillable Containers:**

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

**NOTICE TO USER:**

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(booklet)

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**DIRECTIONS FOR USE:**

DO NOT apply this product directly to freshwater habitats such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands, estuaries or marine habitats.

DO NOT contaminate irrigation/drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

**RESISTANCE-MANAGEMENT RECOMMENDATIONS:**

For resistance management, ADAMA 2,4-D Ester 700 Liquid Herbicide is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to ADAMA 2,4-D Ester 700 Liquid Herbicide and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

**To delay herbicide resistance:**

- Where possible, rotate the use of ADAMA 2,4-D Ester 700 Liquid Herbicide or other Group 4 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.



- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide groups.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact ADAMA Agricultural Solutions Canada Ltd. at 1-855-264-6262 or at [www.adama.com/canada](http://www.adama.com/canada).

#### **GENERAL USE PRECAUTIONS:**

ADAMA 2,4-D Ester 700 Liquid Herbicide may cause damage to susceptible crop, ornamental, and other plants, even in minute quantities.

Avoid spray drift to any desirable vegetation. Coarse sprays are less likely to drift.

Do not spray during periods of high winds.

Do not permit lactating dairy animals to graze fields within 7 days after application.

Do not graze or cut treated crops for forage until 30 days after application.

Withdraw meat animals from treated fields at least 3 days before slaughter.

#### **MIXING:**

Shake well before using. To ensure even mixing, half fill the sprayer tank with clean water, add the required amount of ADAMA 2,4-D Ester 700 Liquid Herbicide and agitate thoroughly. Add the remainder of the water and agitate before spraying. If the spray solution has been left standing, agitate thoroughly before use. Wash sprayer thoroughly after use.

For containers larger than 20L: Use a transfer system that avoids open pouring when transferring the liquid concentrate from such containers into the spray tank.

#### **EQUIPMENT AND SPRAY VOLUME:**

**Field Sprayer Application:** DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse

classification. Boom height must be 60 cm or less above the crop or ground. Apply in 50 to 200 litres of water per hectare by ground equipment unless otherwise indicated. Higher water volumes will reduce the risk of crop injury.

**Aerial Application:** DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length MUST NOT exceed 65% of the wing- or rotor-span.

Apply in a minimum of 30 litres of water per hectare by aerial equipment.

**Knapsack, Spot Treatment Applications:** Mix 200 mL of product in 10 L water. Spray to wet all foliage thoroughly.

**TANK MIXES:**

ADAMA 2,4-D Ester 700 Liquid Herbicide may be recommended in tank mix with other products.

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact ADAMA agricultural solutions Canada Inc. at 1.855.264.6262 for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by ADAMA agricultural solutions Canada Inc..

**CROPS, TIMING, RATES AND METHODS OF APPLICATION**

Use the dose required to control the weeds present.

To minimize the risk of crop injury, do not exceed the recommended rate listed for the crop.

Higher rates may be required to control certain weed species. Rates above those recommended for a crop may result in significant crop injury, and should only be used when the risk of crop injury will be offset by the benefits of enhanced weed control.

Apply in warm weather when the crop and weeds are growing well, and the weeds are at a susceptible stage.

Avoid application during drought conditions or during exceptionally hot weather.

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**CROP:**

Spring Cereals (Wheat, Barley, Rye), not underseeded with legumes

**APPLICATION TIME and RATE:**

**Prior to seeding or after seeding but prior to crop emergence:**

When weeds are less than 8 cm tall and actively growing, 0.5 to 0.8 L/ha.

If weeds are larger than 8 cm, or for harder-to-control weeds, up to 1.1 L/ha.

**After crop emergence:**

From the 4-leaf expanded to the early flag-leaf (shot blade) stage, up to 1.1 L/ha.

**METHOD:**

Ground or Aerial application.

**MAXIMUM RATE PER HECTARE PER YEAR:** 1.3 L.

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**CROP:**

Winter Cereals (Winter Wheat, Fall Rye)

**APPLICATION TIME and RATE:****Prior to seeding or after seeding but prior to crop emergence:**

When weeds are less than 8 cm tall and actively growing, 0.5 to 0.8 L/ha.

If weeds are larger than 8 cm, or for harder-to-control weeds, up to 1.1 L/ha.

**After crop emergence:**

In spring, from full tillering to the shot blade stage, up to 0.8 L/ha.

Do not apply during and after the flag-leaf stage.

Do not apply to seedling winter cereals in the fall.

**METHOD:**

Ground or Aerial application.

**MAXIMUM RATE PER HECTARE PER YEAR:** 1.3 L.

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**CROP:**

Field Corn

**APPLICATION TIME:**

As an overall spray, before the corn is 15 cm tall (leaf extended) and/or before the 6-leaf stage. Application as an overall spray at later stages will damage the corn.

For later applications (corn 15-75 cm, leaf extended), use a shielded spray or a directed spray with drop pipes. Keep spray off corn foliage.

Do not apply within 2 weeks of silking and tasselling.

Avoid cultivation for 2 weeks following spraying.

Use at least 100 L/ha water.

Do not add oil or surfactant.

Do not apply more than one treatment per year.

**METHOD:**

Ground or Aerial application.

**RECOMMENDED RATE PER HECTARE:** Up to 0.8 L.

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**CROP:**

Established Grasses Grown for Forage and Seed Production

**APPLICATION TIME:**

In spring, up to the shot blade stage of the grass, or in fall, after harvest.

Application during flower development or pollination will reduce seed yield.

Use at least 100 L/ha water.

Do not apply more than two treatments per year.

**METHOD:**

Ground or Aerial application.

**RECOMMENDED RATE PER HECTARE:**

Up to 0.8 L (crops for seed production)

Up to 1.6 L (hay or pasture crops)

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**CROP:**

Established Pasture and Rangeland (without legumes)

**APPLICATION TIME:**

Apply at a time of rapid growth, usually May, June and/or September.

Apply after pasture has been grazed or cut and weed growth has resumed.

Spray thoroughly using 100 to 300 litres of water per hectare.

A second treatment may be required to control perennial weeds.

Do not apply in freshly seeded grasses and pastures until well established.

Under conditions of good growth and adequate soil moisture, sprays can be applied up to 2 weeks before normal frost time.

Do not apply more than two treatments per year.

**METHOD:**

Ground or Aerial application.

**RECOMMENDED RATE PER HECTARE:** Up to 3.4 L.

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**NON-CROP USES:**

Stubble Land, Uncropped Land (i.e., roadsides, rights-of-way for transportation, rights-of-way for utility lines, airports, wastelands and industrial parks)

**APPLICATION TIME:**

Apply at a time of rapid growth, usually May, June and/or September.

Spray thoroughly using 100 to 300 litres of water per hectare.

A second treatment may be required to control perennial weeds.

Do not apply more than two treatments per year.

Cultivating grain stubble and spraying after regrowth may aid in control.

Under conditions of good growth and adequate soil moisture, sprays can be applied up to 2 weeks before normal frost time.

When using mechanically pressurized handguns, do not handle more than 7.5 L of ADAMA 2,4-D Ester 700 Liquid Herbicide/day/person without a respirator or 12 L/day/person with a respirator.

**METHOD:**

Ground or Aerial application (stubble land and uncropped land).

Ground application (roadsides, airports).

**RECOMMENDED RATE PER HECTARE:** Up to 3.4 L.

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**TURF USES:**

Sod farms, and golf courses (roughs and fairways).

Use adequate buffer zones as specified to protect sensitive non-target vegetation.

**APPLICATION INFORMATION:**

This product is only effective when applied to the leaves of actively growing weeds. This product will not prevent new weeds - apply only when weeds are present.

Apply at a time of rapid growth, usually May, June and/or September, before grasses are in the flag-leaf (shot blade) stage.

If weed populations do not warrant a broadcast application (e.g., entire lawn), consider spot treatments that target only weedy areas.

Applications while plants are under stress, such as during hot, cold or drought conditions, will increase risk of damage to turf and can result in reduced weed control.

Avoid mowing for several days before and after treatment.

Use caution when spraying near sensitive desirable vegetation.

Do not use on bentgrass or newly seeded areas.

DO NOT apply to the exposed roots of trees and ornamentals.

Do not apply if rainfall is expected, or irrigate, within 24 hours or during hot, dry periods.

Do not allow people (other than the applicator) or pets onto the treatment area during application.

Do not enter treated areas until spray has thoroughly dried.

**METHOD:**

Ground application only. DO NOT apply by air.

Spray thoroughly using 100 to 300 litres of water per hectare.

**Field Sprayer Application:**

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification.

**MAXIMUM APPLICATION FREQUENCY:**

DO NOT apply more than two broadcast applications per season. This does not include spot treatments.

**RECOMMENDED RATE PER HECTARE:**

Up to 1.9 L at each application.

Up to 3.8 L per year, total.

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**CONTROL OF WOODY GROWTH IN NON-GRAZED AREAS:**

Apply at time of rapid growth, usually May, June and/or September.

Apply 3.25 to 6.78 litres of product, by ground in 1000 to 3000 litres of water per hectare.

For aerial applications use 55 to 165 litres of spray solution per hectare.

For oil water carrier, use 15 litres of oil mixed in 40 litres of water with continuous agitation.

Use the lower rate for species that are more susceptible such as chokecherry, western snowberry and willow.

Spray brush species up to 3 metres tall after foliage is well developed.

Applications soon after leaves are fully open usually give the best results.

Apply sufficient spray volume to thoroughly wet all plant parts to the ground line.

Brush or trees above 3 metres tall should be cut close to the ground and sprayed when the regrowth is over 0.6 m tall.

With good growing conditions and adequate soil moisture, sprays may be applied up to 2 to 3 weeks before normal frost time.

To reduce potential drift hazard, a drift control agent may be added. Follow directions on the drift control agent label for the correct mixing sequence.

Ground or aerial application.

Do not apply more than two treatments per year.

When using mechanically pressurized handguns, do not handle more than 7.5 L of ADAMA 2,4-D Ester 700 Liquid Herbicide/day/person without a respirator or 12 L/day/person with a respirator.

## **BASAL BARK AND STUMP TREATMENT:**

Controls hard-to-kill woody brush and young trees.

The solution can be applied to the basal part of standing brush and young trees during any time of the year, prior to formation of corky bark.

To prevent regrowth treat stumps immediately after cutting by spraying or painting stumps, exposed roots and cut surface.

Thorough drenching is essential.

Mix 2.5 L in 100 L of fuel oil. Spray to run-off.

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## **WEEDS CONTROLLED:**

### **Susceptible Weeds:**

Annual sow-thistle, Bluebur (before the 4-leaf stage), Burdock (before the 4-leaf stage), Cocklebur, Daisy fleabane, False flax, False ragweed, Flixweed, Giant ragweed, Goat's-beard, Kochia, Lamb's-quarters, Mustards (except Dog and Tansy), Narrow-leaved hawk's-beard (in fall, and at the 1- to 2-leaf stage in spring), Plantain, Prickly lettuce, Ragweeds, Redroot pigweed, Russian pigweed, Russian-thistle, Shepherd's-purse, Stinging nettle, Stinkweed, Sweet Clover (seedling), Thyme-leaved spurge, Volunteer canola (all types, 1- to 4-leaf), Wild radish, Wild (prairie) sunflower.

### **Rates to Control Susceptible Weeds:**

Small seedlings (2- to 4-leaf), growing rapidly, good growing conditions: 0.5 to 0.8 L/ha.

Large weeds, dry or cold weather, heavy infestations: 0.8 L/ha.

Resistance increases with age.

### **Harder-To-Control Weeds:**

Curled dock (apply before 4-leaf stage), Dog mustard, Field pepper-grass, Flixweed (if treated before bolting in spring), Groundsel, Hairy galinsoga, Hawkweed, Heal-all, Knotweed (apply before the 4-leaf stage), Narrow-leaved hawk's-beard (if treated before bolting in spring), Oak-leaved goosefoot, Pineappleweed, Prostrate pigweed, Purslane, Sheep sorrel, Tansy mustard, Tumble pigweed, Velvetleaf, Volunteer canola (all types, 4- to 6-leaf).

### **Rates for Harder-To-Control Weeds:**

Small seedlings (2- to 4-leaf), growing rapidly, good growing conditions: 0.9 to 1.3 L/ha.

Large weeds, dry or cold weather, heavy infestations: 1.3 L/ha.

Resistance increases with age.

**Very-Hard-to-Control Weeds – Only Top Growth Control Can Be Expected:**

Biennial wormwood, Blue lettuce, Bull thistle, Burdock, Buttercup, Canada thistle, Chicory, Curled dock, Dandelion, Field bindweed, Field chickweed\*, Field horsetail\*, Gumweed, Hedge bindweed, Hemp-nettle\* (if treated before the 4-leaf stage), Hoary cress, Lady's-thumb\*, Leafy spurge, Mouse-eared chickweed\*, Perennial sow-thistle, Russian knapweed, Scentless mayweed, Smartweed\*, Tartary buckwheat, Teasel, Volunteer sunflower, Wild buckwheat\*, Yellow rocket (controlled with applications before 4-leaf stage).

\* Use highest listed rate for suppression.

**Rates for Top Growth Control of Very-Hard-To-Control Weeds:**

Small seedlings (2- to 4-leaf), growing rapidly, good growing conditions: 1.1 to 1.3 L/ha.

Large weeds, dry or cold weather, heavy infestations: 1.3 L/ha.

Resistance increases with age.

**CONTROL OF GIANT RAGWEED IN SOYBEAN**

**NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS:**

The **DIRECTIONS FOR USE** for this product for the use(s) described below were developed by persons other than ADAMA Agricultural Solutions Canada Ltd. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion Program. ADAMA Agricultural Solutions Canada Ltd. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crop(s) listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold ADAMA Agricultural Solutions Canada LTD. harmless from any claims based on efficacy and/or phytotoxicity in connection with the use described below.

**DIRECTIONS:**

**Crop:** Soybeans

**Pest:** Giant ragweed

**Application Time:**

Pre-emergent to soybean (applied a minimum of 7 days before planting)

Post-emergent to giant ragweed

**Method:** Ground application

**Recommended Rate per Hectare:** 0.5 – 0.8 L/ha

**USE PRECAUTION:** Do not use in sandy soils with less than 1% organic matter. Plant soybean seeds as deep as possible, but not less than 2.5 cm. Adjust planter to ensure adequate coverage of planted seed.



Do not graze or cut treated crops for forage or hay until 67 days after application.  
DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

**Spray Volume:** 50 – 200 L/ha

**Number of Applications:** One per season

**Pre-Harvest Interval (PHI):** 90 days

**NOTICE TO USER:** This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *PEST CONTROL PRODUCTS ACT* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

**RESTRICTED USE:**

**FOREST AND WOODLAND MANAGEMENT**

**NATURE OF RESTRICTION:**

This product is to be used only in the manner authorized. Consult local pesticide regulatory authorities about use permits that may be required.

**CONIFER RELEASE - AERIAL APPLICATION:**

To control undesirable hardwood species in stands of fir, hemlock, spruce and pine regeneration apply ADAMA 2,4-D Ester 700 Liquid Herbicide at 3.63 to 4.7 L/ha in 30 to 80 L/ha of total spray mixture. Use water or an "oil-water"\* mixture. Never allow any water or mixture containing water to get into the ADAMA 2,4-D Ester 700 Liquid Herbicide or the oil spray premix. Note: ADAMA 2,4-D Ester 700 Liquid Herbicide in water or oil-water sprays forms an emulsion, not a solution, and separation may take place unless sprays are agitated continuously until used up. Mechanical agitation is recommended.

To prevent conifer damage, delay spraying until all new conifer growth has hardened off, when the terminal buds feel sharp to touch.

Caution should be taken to ensure that the conifer is not in a second phase of active or "lammas" growth in late summer. Hardwoods should not have commenced fall colouration. Control of heavy suckering species such as maple, trembling aspen and balsam poplar may only be partial. Raspberries will not be controlled and may if present proliferate following removal of the hardwood overstory.

**FOREST SITE PREPARATION - AERIAL APPLICATION:**

To control mixed hardwood species on sites to be planted to conifers, use 4.7 to 6.78 litres of ADAMA 2,4-D Ester 700 Liquid Herbicide in 30 to 100 litres of total spray mixture per hectare. Apply as a uniform spray when the foliage is well developed and the brush is actively growing. Under conditions of good growth and high soil moisture,

sprays can be used 2 to 3 weeks before normal frost time. Do not apply more than two treatments per year. For best results use a 10% oil-water\* mixture. **NOTE:** When preparing sites for planting do not plant conifers before spraying as the conifers present at the time of spraying may be injured or killed.

To reduce potential drift hazard on non-crop locations, a drift control agent may be added. Follow all directions on the drift control agent label for the correct mixing sequence.

\* To prepare the "oil-water" mixture add the ADAMA 2,4-D Ester 700 Liquid Herbicide to the oil in a separate container. With vigorous agitation 1 litre of ADAMA 2,4-D Ester 700 Liquid Herbicide will emulsify up to 10 litres of oil in 100 litres of spray mixture. Start running the water into the empty spray tank, then slowly add the premix with continuous agitation. All the premix should be in the tank by the time 1/3 of the water is in. If the premix is put in the tank without any water, the first water added may form a thick "invert" (water in oil) emulsion which will be hard to break.

#### **USE PRECAUTIONS:**

With aircraft, uniform coverage can be obtained and drift minimized by using 235 kPa spray pressure or less at the nozzle, by using nozzles directed straight back, by using a spray boom no larger than 3/4 the wing span of the aircraft and by spraying when wind velocity is less than 8 km/h.

BEFORE AERIAL APPLICATION TO FORESTS consult the most recent provincially approved topographic maps of the area to be treated (1:50 000) or more up-to-date information (e.g. GPS systems) to identify sensitive aquatic habitats. Sensitive aquatic habitats include:(a) All running and standing water bodies, including impoundments, beaver pond sand bog ponds, that appear on the map or GPS system;(b) Running and standing water bodies that do not appear on the map or GPS system, but are visible from the air.

#### **Generic Aerial Application Label Instructions Directions for Use**

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices. No human flaggers are permitted.

#### **Use Precautions**

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

### **Operator Precautions**

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear coveralls over a long-sleeved shirt, long pants, chemical resistant gloves and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

### **Product Specific Precautions**

Read and understand the entire label before opening this product. If you have questions, call the manufacturer or obtain technical advice from the distributor or your provincial agricultural representative.

For application to rights-of-way, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies that minimize off-site drift, including meteorological conditions (e.g. wind direction, low wind speed) and spray equipment (e.g. coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

### **BUFFER ZONES:**

Use of the following spray methods or equipment DO NOT require a buffer zone: mechanically pressurized handgun or backpack sprayer and spot treatment.

For the use of the herbicide in site preparation and conifer release in forestry, terrestrial

buffer zones are not required. The buffer zones specified in the tables below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands), and estuarine/marine habitats. Seasonal water bodies require buffer zones if there is water in them during application. Water bodies which do not fill on an annual basis need not be buffered.

Method of Application	Crop		Buffer Zones (metres) Required for the Protection of:					
			Freshwater Habitat of Depths		Estuarine/Marine Habitats of Depths		Terrestrial Habitat	
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m		
Field sprayer*	Golf courses, turf		1	0	1	0	1	
	Field crops (wheat, barley, rye, field corn)		1	1	1	1	1	
	Grasslands, crop stubble, pastures, rangelands, non-cropland (including rights-of-way** and brush control)		1	1	1	1	2	
Aerial	Field crops (wheat, barley, field corn)		Fixed wing	10	0	1	0	45
			Rotary wing	10	0	1	0	40
	Grasslands, pastures, rangeland, fallowland and crop stubble		Fixed wing	15	0	1	0	60
			Rotary wing	15	0	1	0	50
	Non-cropland (including rights-of-way** and brush control)	3.4 L/ha	Fixed wing	70	0	1	0	150**
			Rotary wing	35	0	1	0	80**
		6.78 L/ha	Fixed wing	125	1	15	1	225**

		Rotary wing	50	1	5	1	100**
Forestry (site preparation)	3.4 L/ha	Fixed wing	175	0	1	0	NR
		Rotary wing	95	0	1	0	NR
	4.7 L/ha	Fixed wing	225	1	1	0	NR
		Rotary wing	125	1	1	0	NR
	6.8 L/ha	Fixed wing	350	1	20	1	NR
		Rotary wing	175	1	10	1	NR

NR = Not required

\* For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

\*\* For application to rights-of-way, buffer zones for protection of sensitive terrestrial habitats are not required.

NOTE: Applicators may recalculate a site-specific buffer zone by combining information on current weather conditions and spray configuration for the following applications: all airblast applications, and for field and aerial applications which specify the following droplet size category wording on the product label: 'DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) [Fine or Medium or Coarse] classification.' To access the Buffer Zone Calculator, please visit the Pest Management Regulatory Agency web site.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.