524-376

10/30/2003

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

Mr. Stephen J. Wratten
Monsanto Company
600 13th Street, NW, Suite 660
Washington, DC 20005

Dear Mr. Wratten:

Subject: Landmaster II Herbicide (Update Label)
EPA Registration No. 524-376
Application Dated August 5, 2003

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act as amended is acceptable, provided you make the following changes before you release the product for shipment.

1. At the beginning of the list of Personal Protective Equipment (PPE) within the Precautionary Statements, add the statements " Some of the materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart." In addition, revise the requirement for "waterproof gloves" to a requirement ro "chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinylchloride.

2. Within the list of PPE for early re-entry in the Agricultural Use Requirements box, revise the requirement for "waterproof gloves" to a requirement for "chemical-resistant gloves made of any waterproof material."

3. Revise the second sentence of your Environmental Hazards section to read "Do not contaminate water when **cleaning equipment or** disposing of equipment washwaters.

4. In your Storage and Disposal section revise "Storage" to read "Pesticide Storage" and "Disposal" to read "Pesticide Disposal".

Submit three (3) copies of your final printed labeling before you release the product for shipment. Amended labeling supercedes all previously accepted ones. A stamped copy of labeling is enclosed for your records.

Sincerely,

Vicki Walters for
James A. Tompkins
Product Manager 25
Herbicide Branch
Registration Division (7505C)

LANDMASTER® II HERBICIDE

For control or suppression of emerged weeds in fallow and reduced tillage systems and CRP or set-aside acres.

Complete Directions for Use

AVOID CONTACT OF HERBICIDE WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS, OR FRUIT OF CROPS, DESIRABLE PLANTS, AND TREES BECAUSE SEVERE INJURY OR DESTRUCTION MAY RESULT.

EPA Reg. No. 524-376

ACCEPTED
with COMMENTS
In EPA Letter Dated:
OCT 30 2003
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 524-376

Read the entire label before using product.

Use only according to label instructions.

Read "LIMIT OF WARRANTY AND LIABILITY" before buying or using. If terms are not acceptable, return at once unopened.

THIS IS AN END-USE PRODUCT. MONSANTO DOES NOT INTEND AND HAS NOT REGISTERED IT FOR REFORMULATION. SEE INDIVIDUAL CONTAINER LABEL FOR REPACKAGING LIMITATIONS.

LIMIT OF WARRANTY AND LIABILITY

This Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use label booklet ("Directions") when used in accordance with those Directions under the conditions described therein. NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to conditions and limitations stated herein.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

Buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

This Company does not warrant any product reformulated or repackaged from this product except in accordance with this Company's stewardship requirement and with the express written permission from this Company. THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES.

Buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Keep out of reach of children.

DANGER! PELIGRO!

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

CORROSIVE. CAUSES IRREVERSIBLE EYE DAMAGE.
HARMFUL IF SWALLOWED.
If swallowed, may cause irritation of mouth and throat.
Do not get in eyes or on clothing.

FIRST AID: Call a poison control center 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.
IF SWALLOWED:	• Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. This product is identified as Landmaster II Herbicide, EPA Registration No. 524-376. You may also contact (314) 694-4000, collect day or night, for emergency medical treatment information.	
NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.	

Personal Protective Equipment (PPE)

Applicators and other handlers (other than mixers and loaders) must wear: long-sleeved shirt and long pants, shoes plus socks and protective eyewear.

Mixers and loaders must wear: long-sleeved shirt and long pants, waterproof gloves, shoes plus socks and protective eyewear.

CONTAINERS GREATER THAN ONE GALLON BUT LESS THAN FIVE GALLONS: Mixers and loaders who do not use a mechanical system (probe and pump) to transfer the contents of this container must wear coveralls or a chemical-resistant apron in addition to the other required PPE.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. After each day of use, clothing or PPE must not be reused until it has been cleaned.

Engineering controls statements:
CONTAINERS FIVE GALLONS OR MORE: A mechanical system (probe and pump) 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 Protection 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.

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

Environmental Hazards

Drift or runoff may adversely affect nontarget plants.

Do not apply directly to water, or 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.

Most cases of ground water 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 ground water supplies. Use of closed systems for mixing or transferring this pesticide will reduce the possibility of spills. Placement of the mixing/loading equipment on an impervious pad to contain spills will help prevent ground water contamination.

Physical or Chemical Hazards

Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

ACTIVE INGREDIENTS

*Glyphosate, in the form of its isopropylamine salt	13.3%
**2,4-D, 2,4-dichlorophenoxyacetic acid, in the form of its isopropylamine salt	11.1%
OTHER INGREDIENTS:	75.6%
	100.0%

* Contains 144 grams per litre or 1.2 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt, equivalent to 108 grams per litre or 0.9 pound per U.S. gallon of the acid, glyphosate

** Contains 120 grams per litre or 1 pound per U.S. gallon of the active ingredient 2,4-D, in the form of its isopropylamine salt, equivalent to 96 grams per litre or 0.8 pound per U.S. gallon of the acid, 2,4-D.

No license granted under any non-U.S. patent(s).

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. This product can only be used in accordance with the Directions for Use on this label or in separately published Monsanto Supplemental Labeling.

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 statement on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

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

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, are: coveralls, waterproof gloves, shoes plus socks and protective eyewear.

For more product information, call toll-free 1-800-332-3111.

Storage and Disposal

Do not contaminate water, food, or feed by storage or disposal. Do not store near fertilizers, seeds, insecticides or fungicides.

STORAGE: Keep container closed to prevent spills and contamination.

STORE ABOVE 40°F to keep product in solution. See container label for additional STORAGE instructions.

[ALTERNATE CONTAINER STORAGE INSTRUCTIONS BY CONTAINER TYPE]

[FOR SMALL CONTAINERS THAT ARE MOBILE]
If crystals form, place in a warm room (e.g., 72°F), allow the product to reach room temperature and roll or shake periodically until crystals have dissolved.

[FOR LARGE MOBILE CONTAINERS]
If crystals form, place in a warm room (e.g., 72°F), allow the product to reach room temperature. Mix well or circulate periodically until crystals have dissolved.

[FOR STATIONARY OR VERY LARGE MOBILE CONTAINERS]
If product cools below this temperature, allow to warm above 60°F for several days and circulate well before using.

DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixtures, or rinsate is a violation of Federal law and may contaminate ground water. 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.

Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

See container label for DISPOSAL instructions.

[ALTERNATE CONTAINER LABEL DISPOSAL STATEMENTS BY CONTAINER TYPE]

[FOR PLASTIC ONE-WAY CONTAINERS & BOTTLES]
Do not reuse container. Triple rinse container, then puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

[FOR ONE-WAY DRUMS]
Do not reuse container. Return container per the Monsanto container return program. If not returned, triple rinse container, then puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

[FOR METAL CONTAINERS (non-aerosol)]
Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

[FOR REFILLABLE PORTABLE (MINI-BULK) CONTAINERS]
This container must only be refilled with pesticide product. **Do not reuse this container for any other purpose.**

Final disposal must be in compliance with state and local regulations. If not refilled, returned, or recycled, triple rinse or pressure rinse, puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Do not transport this container if it is damaged or leaking. If the container is damaged, leaking or obsolete, or to obtain information about recycling portable refillable containers, contact Monsanto Company at **[insert contact information]**.

Users: When the container is empty, replace the cap and seal all openings that have been made during usage, and return the container to the point of purchase, or to an alternate location designated by the manufacturer at the time of purchase of this product. If not returned, triple rinse or pressure rinse the empty container and offer it for recycling if available.

Refillers: Do not reuse this mini-bulk container except for refill in accordance with a valid Monsanto Repackaging or Toll Repackaging Agreement. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transporting.

[FOR REFILLABLE STATIONARY BULK CONTAINERS]
This container must only be refilled with pesticide product. **Do not reuse this container for any other purpose.**

Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices.

Final disposal must be in compliance with state and local regulations. If not refilled, triple rinse or pressure rinse container and offer for recycling or reconditioning if possible. If burned, stay out of smoke.

GENERAL INFORMATION

Landmaster II herbicide is a postemergence herbicide for control or suppression of emerged weeds in fallow and reduced tillage systems, prior to planting or emergence of wheat, barley, corn, oats, rye or sorghum (grain or forage), and as a spot treatment in corn, sorghum, forage grasses or forage legumes.

Do not harvest or feed treated vegetation for 8 weeks after application. Following spot treatment in forage grasses or legumes, allow 30 days before harvesting or grazing domestic livestock.

This product enters the plant through the foliage and moves throughout the plant. Visual effects of control are a gradual wilting or yellowing of the plant, which advances to complete browning of above ground growth and deterioration of affected underground plant parts. Visible symptoms will usually develop on labeled weeds within 2 to 4 days after application, but may not occur for 7 or more days. Extremely cool or cloudy weather following treatment may slow activity of this product and delay the visual effects of control.

Application Precautions And Warnings

- Do not plant any crop other than corn, wheat, barley, oats, rye or sorghum (grain or forage) for 3 months after treatment or until this product has disappeared from the soil.
- Applications of this product after planting and prior to crop emergence may cause crop injury if rainfall or environmental conditions delaying crop emergence are experienced.
- This product is recommended for control of emerged weeds prior to establishment of labeled crops. Large amounts of green or decaying vegetation left standing or incorporated into the seedbed may enhance the development of disease in newly planted crops. This may result in poor emergence and/or stands, especially under cool and/or wet conditions.
- Spraying early to control young weeds before dense stands develop or light cultivation to assist weed decay will favor preparation of suitable seedbeds.
- In reduced tillage and no-till systems, ensure good seed to soil contact and proper seeding depth.
- Do not feed or forage vegetation from treated areas for 8 weeks following application.
- DO NOT APPLY IN THE VICINITY OF 2,4-D SENSITIVE CROPS SUCH AS COTTON, GRAPES, TOMATOES AND OTHER DESIRABLE VEGETATION.
- Applications should be made only when there is no hazard from spray drift since very small quantities of spray, which may not be visible, may severely injure susceptible crops or desirable vegetation.
- The likelihood of injury occurring to adjacent crops from the use of this product is greatest when winds are gusty or in excess of 5 miles per hour, or when other conditions including lesser wind velocities will favor spray drift.
- Movement of this product on soil particles during windstorms may cause damage to susceptible plants that are contacted. This hazard is reduced if rainfall occurs shortly after application.
- Buyer and all users are responsible for all loss or damage in connection with the use or handling of mixtures of this herbicide or other materials that are not expressly recommended in this labeling. Mixing this product with herbicides or other materials not recommended on this label may result in reduced performance. Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or other unintended consequences.

Landmaster II herbicide is subject to all state and county regulations for 2,4-D amine.

Mixing Instructions

Landmaster II Herbicide Alone

Fill the spray tank to about 75 percent of the desired volume with clean water. Add the recommended amount of this product, then complete the filling process while maintaining agitation. Remove the hose from the mix tank immediately after filling to avoid siphoning back into the carrier source. During mixing and application, foaming of the spray solution may occur. To prevent or minimize foam, terminate by-pass and return lines at the tank bottom and/or use an agriculturally approved anti-foam or defoaming agent.

Additional surfactant is not recommended for this formulation.

NOTE: Reduced control may occur if water containing soil is used, such as water from ponds and unlined ditches.

Tank Mixtures

Always predetermine the compatibility of labeled tank mixtures of this herbicide with water carrier by mixing small proportional quantities in advance.

Mix labeled tank mixtures of this product with water as follows:

1. Place a 20- to 35-mesh screen or wetting basket over filling port.
2. Through the screen, fill the sprayer tank one-half full with water and start agitation.
3. If a wettable powder is used, make a slurry with the water carrier, and add it SLOWLY through the screen into the tank. Continue agitation.
4. If a flowable formulation is used, premix one part flowable with one part water. Add diluted mixture SLOWLY through the screen into the tank. Continue agitation.
5. If an emulsifiable concentrate formulation is used, premix one part emulsifiable concentrate with two parts water. Add diluted mixture SLOWLY through the screen into the tank. Continue agitation.
6. Continue filling the sprayer tank with water and add the required amount of this product near the end of the filling process.
7. Add individual formulations to the spray tank as follows: wettable powder, flowable, emulsifiable concentrate, drift control additive and water soluble liquid.

Maintain good agitation at all times until the contents of the tank are sprayed. If the spray mixture is allowed to settle, thorough agitation is required to resuspend the mixture before spraying is resumed.

Keep by-pass line on or near bottom of tank to minimize foaming. Screen size in nozzle should be no finer than 100 mesh and in-line strainers should be no finer than 50 mesh. Carefully select proper nozzle to avoid spraying a fine mist. For best results with conventional ground application equipment, use flat fan nozzles.

Check label of all products used in tank mix for cleaning instructions. Clean as per the hardest material to remove.

Ammonium Sulfate

The addition of 1 to 2 percent dry ammonium sulfate by weight (or liquid equivalent) may increase the performance of tank mixtures of this product on annual weeds. Add 8.5 to 17 pounds of dry ammonium sulfate per 100 gallons of spray

solution. The improvement in performance may be apparent where environmental stress is a concern. Use the higher rate of ammonium sulfate with this product when treating dense populations or large weeds. Low-quality ammonium sulfate may contain material that will not readily dissolve which could result in nozzle tip plugging. To determine quality, perform a jar test by adding one-third cup of ammonium sulfate to 1 gallon of water and agitate for 1 minute. If undissolved sediment is observed, predissolve the dry additive in water and filter prior to addition to the spray tank. If ammonium sulfate is added directly to the spray tank, add slowly with agitation. Adding too quickly may clog outlet line. ENSURE THAT AMMONIUM SULFATE IS COMPLETELY DISSOLVED IN THE SPRAY TANK BEFORE ADDING HERBICIDES. THOROUGHLY RINSE THE SPRAY SYSTEM WITH CLEAN WATER AFTER USE TO REDUCE CORROSION. OBSERVE ALL PRECAUTIONARY STATEMENTS ON THE AMMONIUM SULFATE PRODUCT LABELS.

NOTE: Compatibility problems may occur at carrier volumes below 5 GPA.

Hand-Held Sprayers

Prepare the desired volume of spray solution by mixing the amount of this product in clean water as shown in the following table:

SPRAY SOLUTIONS

DESIRED VOLUME	AMOUNT OF LANDMASTER II HERBICIDE
1 gallon	1.3 fluid ounces
25 gallons	1 quart
100 gallons	1 gallon

2 tablespoons = 1 fluid ounce

Application Equipment

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

This product may be applied using either ground or aerial spray equipment. Use extreme care to avoid misting or drifting of herbicide solution onto foliage, green stems or fruit of desirable crops, trees, or plants during both growing and dormant periods, since even very small quantities of spray can cause severe plant injury.

Ground Application: Apply recommended rates of this product in 3 to 10 gallons of water per acre as a broadcast spray. For optimum spray distribution and coverage, use flat fan or low-volume flood nozzles. When using flood nozzles, space them no more than 40 inches apart and ensure double overlap of spray pattern. Refer to the manufacturer's recommendations for correct pressure and nozzle height above the target canopy. Avoid pressure and nozzles which produce fine droplets or mist.

Use appropriate marking devices to ensure uniform spray coverage and best results from Landmaster II herbicide.

Hand-Held and High-Volume Equipment: (use coarse sprays only): Mix this product in clean water and apply to foliage of vegetation to be controlled. For applications made on a spray-to-wet basis, spray coverage should be uniform and complete. Do not spray to the point of runoff. Use a 1-percent solution for field bindweed.

Aerial Application: Apply the recommended rates of this product in 3 to 5 gallons of water per acre as a broadcast spray.

AERIAL SPRAY DRIFT MANAGEMENT

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

1. The distance of the outermost nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
2. Nozzles must always point backward, parallel with the air stream and never be pointed downwards more than 45 degrees. Where states have more stringent regulations, they should be observed.

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 the **"Wind", "Temperature and Humidity"** and **"Temperature Inversions"** sections of this label).

Controlling Droplet Size

- **Volume:** Use high-flow-rate nozzles to apply the highest practical spray volume. Nozzles with the higher rated flows produce larger droplets.
- **Pressure:** Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow rates are needed, use higher-flow-rate nozzles instead of increasing pressure.
- **Number of nozzles:** Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle orientation:** Orienting nozzles so that the spray is released backwards, parallel to the air stream, 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 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.
- **Application height:** Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces the exposure of the 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 droplets, etc.).

Wind

Drift potential is lowest between wind speeds of 2 to 10 miles per hour. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 miles per hour 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

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Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a 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 product should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

Avoid direct application to any body of water.

Sprayer Cleanup

CLEAN THE ENTIRE SPRAYER AFTER APPLICATION OF THIS PRODUCT. Failure to clean the sprayer thoroughly may result in injury to desirable crops which are subsequently sprayed. First, add clean water to the tank and thoroughly rinse the entire sprayer system. Secondly, fill the tank with water and ammonia. Add 1 quart of household ammonia per 25 gallons of water. Pump enough solution through the hoses, boom and nozzles to fill these parts completely. Then fill the tank, close and leave for 24 hours before draining and rinsing thoroughly with water.

Application or use of other agricultural chemicals with the equipment used for this product may result in injury to desirable vegetation.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE. The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38413 may prevent corrosion.

Application Instructions

Timing Of Application

This product should be applied postemergence to vigorously growing weeds when they have reached the recommended size given in the "RECOMMENDED RATES AND WEEDS CONTROLLED" section of this label. Application should be delayed until maximum emergence of the target weeds, but before weeds exceed the maximum size recommended. For annual weeds, allow 1 day after treatment before tillage. For field bindweed, allow at least 7 days after treatment before tillage.

Reduced control may result if treatments are made during poor growing conditions such as drought stress, disease or insect damage or if weeds have been mowed, grazed or cut. Heavy dust on foliage or an overstory canopy covering targeted weeds may also reduce control.

Rainfall or irrigation occurring within 6 hours after application may reduce effectiveness. Heavy rainfall or irrigation within 2 hours after application will wash this product off the foliage and a repeat treatment will be required.

For field bindweed and quackgrass, do not till between harvest and fall applications or in fall or spring prior to spring application.

Recommended Rates And Weeds Controlled for Application of Landmaster II Alone

For best results, apply this product after most weed seeds have germinated but before seedhead formation in grasses or flower bud formation in broadleaves.

When applied as directed, this product will provide control or suppression of the grass and broadleaf weed species listed below. Rates recommended are for maximum weed height at treatment time.

ANNUAL WEED SPECIES	Rate Per Acre (Fluid Ounces)	Maximum Height (Inches)
Foxtail, green *Setaria viridis*	27	12
Barley *Hordeum vulgare*	40	6
Brome, downy* *Bromus tectorum*		
Cheat* *Bromus secalinus*		
Foxtail *Setaria spp.*		
Kochia* *Kochia scoparia*		
Lettuce, prickly* *Lactuca serriola*		
Marestail/Horseweed *Conzya canadensis*		
Morningglory *Ipomoea spp.*		
Mustard, tumble *Sisymbrium altissimum*		
Oats, wild *Avena fatua*		
Puncturevine *Tribulus terrestris*		
Purslane, common *Portulaca oleracea*		
Ragweed, common *Ambrosia artemisiifolia*		

Ragweed, giant *Ambrosia trifida* **Velvetleaf** *Abutilon theophrasti*		
Cocklebur *Xanthium strumarium* **Lambsquarters** *Chenopodium album* **Mustard, tansy** *Descurainia pinnata* **Pigweed, redroot** *Amaranthus retroflexus* **Pigweed, smooth** *Amaranthus hybridus* **Rye** *Secale cerale* **Stinkgrass** *Eragrostis cilianensis* **Thistle, Russian** *Salsola kali* **Wheat, Volunteer** *Triticum aestivum* **Witchgrass** *Panicum capillare*	40	12
Barnyardgrass *Echinochloa crus-galli* **Buffalobur** *Solanum rostratum* **Goatgrass** *Aegilops cylindrica* **Mustard (blue)** *Chorispora tenella* **Panicum (fall)** *Panicum dichotomiflorum*	54	6
Oats, wild *Avena fatua*	54	12

Sandbur, field
Cenchrus spp.

PERENNIAL WEED SPECIES	Rate Per Acre (Fluid Ounces)	Length of Vines/ Treatment Height (Inches)
Bindweed (field)** *Convolvulus arvensis*	64 to 80 (suppression only)	6 to 18
Spurge, leafy *Euphorbia esula*	54 (suppression only)	spring flowering or postbloom

* For improved control in no-till systems or heavy infestations or overwintered stands, use 54 fluid ounces. For best results on light kochia infestations, treat after the plant has passed through the woolly stage of growth and is 3 to 6 inches in height. When treating medium to heavy infestations or plants that are in the woolly stage (1 to 3 inches in height), add 2 fluid ounces of Banvel□ to the recommended rate of this product. The addition of ammonium sulfate is recommended for use with tank mixtures of this product plus Banvel. Refer to the "AMMONIUM SULFATE" section for complete instructions. Refer to the Banvel label for planting, cropping and other restrictions. Follow all precautions on the Banvel label.

** Use the higher recommended rates of this product for dense, well-established stands of field bindweed and for longer-term suppression. This product may also be used as a 1-percent solution on a spray-to-wet basis for annual weed control and field bindweed suppression. Spray coverage should be uniform and complete. Do not spray to the point of runoff.

Spot Treatment

Applications in growing crops must be made prior to heading of small grains and grain sorghum (milo) and silking of corn.

For forage grasses and legumes, apply in areas where the movement of domestic livestock can be controlled. No more than one-tenth of any acre should be treated at one time. Further applications may be made in the same area at 30-day intervals. Remove domestic livestock before application and wait 30 days after application before grazing livestock or harvesting.

Postharvest Applications

This product will provide control of weeds following grain harvest. Weeds should be allowed to regrow after damage incurred during harvest operations and to recover from environmental stress before application of this product. Weeds should be treated prior to the heading stage of annual grasses and before broadleaf weeds exceed 24 inches in height. Ammonium sulfate will improve performance on annual weeds under stress conditions.

Weeds controlled with 40 fluid ounces per acre include downy brome, green foxtail, stinkgrass and volunteer wheat.

Weeds controlled with 54 fluid ounces per acre include kochia, lambsquarters, mustard, pigweed and Russian thistle.

Weeds controlled with 64 fluid ounces per acre include barnyardgrass, sandbur, witchgrass, yellow foxtail and prickly lettuce.

Aid To Tillage

This product, used in conjunction with preplant and conventional fallow tillage practices, will provide control of downy brome, cheat, volunteer wheat, tansy mustard, and foxtails. Apply 27 fluid ounces of this product in 3 to 10 gallons of water per acre to weeds that are actively growing. Treat when weeds are less than 6 inches in height. Application must be followed by conventional tillage practices before regrowth of the treated plant occurs. Allow at least 1 day after application before tillage.

Landmaster II Herbicide Plus Atrazine Tank Mixture

For use only in Colorado, Iowa, Kansas,
Missouri, Nebraska, Oklahoma, Oregon,
South Dakota and Washington.

Tank mixtures of this product plus atrazine will provide postemergence control of listed annual weeds in fallow and reduced tillage systems. In addition, these tank mixtures will provide soil residual control of weeds listed on the atrazine labels. Ensure that the specific atrazine product is labeled for application in fallow and reduced tillage systems.

ANNUAL WEEDS CONTROLLED WITH ATRAZINE TANK MIXTURE:

Barnyardgrass
Echinochloa crus-galli

Brome, downy
Bromus tectorum

Foxtail, green
Setaria virdis

Kochia
Kochia scoparia

Lambsquarters
Chenopodium album

Lettuce, prickly
Lactuca serriola

Mustard, tansy
Descurainia pinnata

Pigweed, redroot
Amaranthus retroflexus

Sandbur, field
Cenchrus spp.

Stinkgrass
Eragrostis cilianensis

Thistle, Russian

Salsola kali

Wheat, Volunteer
Triticum aestivum

Witchgrass
Panicum capillare

Weeds controlled with 40 fluid ounces of this product plus 1 pound or less of the active ingredient, atrazine, per acre include downy brome, green foxtail, stinkgrass and volunteer corn.

Additional weeds controlled with 54 fluid ounces of this product plus 2 pounds or less active ingredient of atrazine per acre include kochia, lambsquarters, mustard, pigweed, prickly lettuce, and Russian thistle.

Additional weeds controlled with 64 fluid ounces of this product plus 3 pounds or less active ingredient of atrazine per acre include sandbur, witchgrass, and yellow foxtail. Barnyardgrass will be suppressed with 64 fluid ounces per acre and controlled with 86 fluid ounces per acre.

The addition of 1 to 2 percent dry ammonium sulfate by weight is recommended to increase the performance of this product plus atrazine tank mixtures.

In Oregon and Washington, do not exceed 1 pound of the active ingredient, atrazine, per acre.

Consult the atrazine labels for use rates, soil type, planting, cropping and other restrictions, as well as other precautionary statements and use according to the most restrictive label.

These tank mixtures may be applied with ground or aerial equipment. See the "APPLICATION EQUIPMENT" section for instructions.

Ecofarming Systems

The Ecofarming System consists of the following rotation: winter wheat, corn/sorghum, ecofallow.

Use the following 3-way tank mixtures for control of emerged annual weeds before planting corn or sorghum in the Ecofarming System.

	Application rate per acre
LANDMASTER II herbicide	54 to 64 fluid ounces
ATRAZINE	0.75 to 1 pound active ingredient
LASSO® herbicide	2.5 to 3 quarts

The above tank mixture should be applied in 28-0-0 or 32-0-0 liquid fertilizer carrier at 20 to 30 gallons per acre. The liquid fertilizer may be diluted with water to achieve the proper carrier volume.

WEEDS CONTROLLED - The following weeds, up to a maximum height of 4 inches, will be controlled by the above specified tank mixture:

Brome, downy
Bromus tectorum

Cheat
Bromus secalinus

Foxtail, green

Setaria viridis

Foxtail, yellow
Setaria lutescens

Kochia*
Kochia scoparia

Lettuce, prickly
Lactuca serriola

Pigweed, redroot
Amaranthus retroflexus

Thistle, Russian
Salsola kali

Wheat, volunteer
Triticum aestivum

*For improved control of kochia, add 4 fluid ounces per acre (0.125 pound active ingredient per acre) of Banvel to the above tank mixture.

Risk of crop injury from 2,4-D or Banvel can be reduced by applying this treatment 7 to 14 days before planting.

Refer to the label booklet for Lasso herbicide for preemergence weed control achieved by this tank mixture.

Refer to the specific product labels for crop rotation restrictions and cautionary statements for all products used in these tank mixtures.

Landmaster, Lasso, and Monsanto and the Vine symbol are trademarks of Monsanto Technology LLC.

Banvel is a trademark of BASF Corp.

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.