

66222-49

10/4/2001

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division, HP8087
401 "M" St., S.W.
Washington, D.C. 20460

Registration Number:
66222-49

Date of Issuance:
OCT 4 2001

NOTICE OF PESTICIDE:

☒ Registration
☐ Reregistration

Term of Issuance:
Conditional

Under FIFRA, as amended:

Name of Pesticide Product:
Valuron 60 DF
Herbicide

Name and Address of Registrant (Include ZIP Code):

Makhteshim-Agan of North America, Inc
551 Fifth Avenue, Suite 1100
New York, NY 10176

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, at his discretion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any registration in connection with the registration of a product under this Act is not to be construed as an endorsement or recommendation of the use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with section 3(c)(7)(A) and (B) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) provided that you:

1. Submit/cite all data required for registration/reregistration of your product when the Agency requires all registrants of similar products to submit such data.

2. Make the labeling changes listed below before you release the product for shipment.

a. Add the phrase "EPA Registration No. 66222-49"

b. The statement "Weed control in pastures and rangeland are not within the scope of the Worker Protection Standard." must be removed from the label, since pasture and rangeland that may be cut for hay are subject to the Worker Protection Standard.

3. Submit three (3) copies of your final printed labeling bearing the above change before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec.6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A stamped copy of labeling is enclosed for your records.

Signature of Approving Official:

Date:
OCT 4 2001

For future submissions, labels requiring revisions will not be stamped "Accepted". Labels requiring revisions will be rejected pending submission of corrected labels.

VALURON™ 60DF

HERBICIDE

DRY FLOWABLE

FOR USE ON WHEAT, BARLEY, FALLOW, PASTURES, AND RANGELAND

ACTIVE INGREDIENT: Metsulfuron Methyl:	% BY WT.
methyl 2-[[[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)amino]carbonyl]amino]sulfonyl]benzoate	60.0
INERT INGREDIENTS:	40.0
TOTAL	100.0

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID

- IF IN EYES:
- Hold eye open and rinse slowly and gently with water for 15-20 minutes.
 - Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
 - Call a poison control center or doctor for treatment advice.
- IF ON SKIN OR CLOTHING:
- Take off contaminated clothing.
 - Rinse skin immediately with plenty of water for 15-20 minutes.
 - Call a poison control center or doctor for treatment advice.
- IF SWALLOWED:
- Call a poison control center or doctor immediately for treatment advice.
 - Have person sip a glass of water if able to swallow.
 - Do not induce vomiting unless told to do so by a poison control center or doctor.
 - Do not give anything by mouth to an unconscious person.
- IF INHALED:
- Move person to fresh air.
 - If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
 - Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor or going for treatment.

For medical emergencies involving this product, call toll-free Prosar 1-800-250-9291.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Causes eye irritation. Avoid contact with skin, eyes, or clothing. Avoid breathing dust or spray mist.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks

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.

USER SAFETY RECOMMENDATIONS

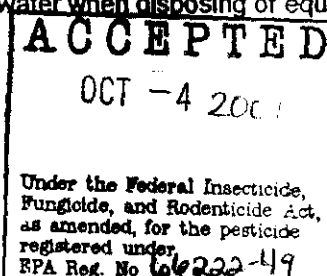
Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

ENVIRONMENTAL HAZARDS

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.

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EPA Est. No.



Makhteshim-Agan of North America, Inc.
551 Fifth Avenue, Suite 1100
New York, NY 10176

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IMPORTANT INFORMATION PESTICIDE HANDLING

- Calibrate sprayers only with clean water away from the well site.
- Make scheduled checks of spray equipment.
- Assure accurate measurement of pesticides by all operation employees.
- Mix only enough product for the job at hand.
- Avoid overfilling of spray tank.
- Do not discharge excess material on the soil at a single spot in the field or mixing/loading station.
- Dilute and agitate excess solution and apply at labeled rates/uses.
- Avoid storage of pesticides near well sites.
- When triple rinsing the pesticide container, be sure to add the rinsate to the spray mix.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its 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 statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

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

- Coveralls
- Shoes plus socks

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Weed control in pastures and rangeland is not within the scope of the Worker Protection Standard.

Valuron should be used only in accordance with recommendations on this label or in separate published Makhteshim-Agan recommendations.

Makhteshim-Agan will not be responsible for losses or damages resulting from the use of this product in any manner not specifically recommended by Makhteshim-Agan.

CHEMIGATION STATEMENT

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

GENERAL INFORMATION

Valuron herbicide is recommended for use on land primarily dedicated to the production of wheat, barley, fallow, pasture, and rangeland.

Valuron is recommended for use on wheat, barley, fallow, pasture, and rangeland in most states; check with your state extension or Department of Agriculture before use to be certain Valuron is registered in your state. Valuron is not registered for use in Alamosa, Conejos, Costilla, RioGrande, and Saguache counties of Colorado.

Valuron is a dry-flowable granule that controls weeds in wheat (including durum), barley, pasture, rangeland grasses, and fallow. Valuron is mixed in water or can be presumed in water and added to liquid nitrogen carrier solutions and applied as a uniform broadcast spray. A surfactant should be used in the spray mix unless otherwise specified on this label. Valuron is noncorrosive, nonflammable, nonvolatile, and does not freeze.

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Valuron controls weeds by postemergence activity. For best results, apply Valuron to young, actively growing weeds. The use rate depends upon the weed spectrum and size of weeds at application. The degree and duration of control may depend on the following factors:

- weed spectrum and infestation intensity
- weed size at application
- environmental condition at and following treatment

Environmental Conditions and Biological Activity

Valuron is absorbed through the foliage of broadleaf weeds rapidly inhibiting their growth. Leaves of susceptible plants appear chlorotic from 1 to 3 weeks after application and the growing point subsequently dies. Application of Valuron provides the best control in vigorously growing crops that shade competitive weeds. Weed control in areas of thin crop stand or seeding skips may not be as satisfactory. However, a crop canopy that is too dense at application can intercept spray and reduce weed control.

Valuron may injure crops that are stressed from adverse environmental conditions (such as extreme temperatures or moisture, abnormal soil conditions, or cultural practices). In addition, different varieties of the crop may be sensitive to treatment with Valuron under otherwise normal conditions. Treatment of such varieties may injure crops.

In warm, moist conditions, the expression of herbicide symptoms is accelerated in weeds; in cold, dry conditions, expression of herbicide symptoms is delayed. In addition, weeds hardened-off by drought stress are less susceptible to Valuron.

Weed control may be reduced if rainfall or snowfall occurs soon after application.

APPLICATION INFORMATION

Use Rates

Wheat (including durum) and Barley	Apply 1/10 oz. Valuron per acre to wheat or barley.
Pasture and Rangeland	Apply 1/10 to 4/10 oz. Valuron per acre as a broadcast treatment to pasture and rangeland. For spot applications, use 1 oz. per 100 gal of water. Do not exceed 3/4 oz. Valuron per acre.
Harvest Aid	Apply 1/10 Valuron per acre in combination with 2,4-D or Roundup to aid in dry down of many broadleaved weeds, thereby aiding grain harvest.
Fallow	Apply Valuron at 1/10 oz. per acre.

Wheat and Barley (Application Timing)

Dryland Wheat and Barley (except Durum or Wampum variety)	Make applications after the crop is in the 2-leaf stage but before boot.
Durum and Wampum variety Spring Wheat	Make applications after the crop is tillering but before boot. Applications to durum and wampum varieties should be made in combination with 2,4-D.
Irrigated Wheat and Barley	Make applications after the crop begins tillering but before boot. First post-treatment irrigation should be delayed for at least 3 days after treatment and should not exceed 1 inch of water.
Wheat and Barley-Harvest Aid	Make applications after the crop has reached the hard dough stage but no later than 10 days before harvest. See section on Harvest Aid tank mixtures.
Fallow	Valuron may be used as a fallow treatment in the spring or fall when the majority of weeds have emerged and are actively growing.

Do not apply during boot or early heading as crop injury may result.

Pasture Grasses (Application Timing)

Valuron may be used on some native grasses such as bluestems and grama, and on other pasture grasses such as bermudagrass, bluegrass, orchardgrass, brome grass, fescue, and timothy. Specific application information on several of these pasture grasses follows:

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Pasture Grass	Minimum time from grass establishment to Valuron application
Bermudagrass	2 months
Bluegrass, Bromegrass, Orchardgrass	6 months
Timothy	12 months
Fescue	24 months

Fescue Precautions:

Note that Valuron may temporarily stunt fescue, cause it to turn yellow, or cause seedhead suppression. To minimize these symptoms, take the following precautions:

- Tank mix Valuron with 2,4-D.
- Use the lowest recommended rate for target weeds.
- Use surfactant at ½ to 1 pint per 100 gallons of spray solution (1/16 to 1/8% v/v).
- Make application later in the spring after the new growth is 5 to 6 inches tall, or in the fall.
- Do not use surfactant when liquid nitrogen is used as a carrier.

The first cutting yields may be reduced due to seedhead suppression resulting from treatment with Valuron.

Timothy Precautions:

Timothy should be at least 6" tall at application and be actively growing. Applications of Valuron to timothy under any other conditions may cause crop yellowing and/or stunting. To minimize these symptoms, take the following precautions:

- Tank mix Valuron with 2,4-D.
- Use the lowest recommended rate for target weeds.
- Use surfactant at ½ pint per 100 gallons (1/16% v/v).
- Make applications in the late summer or fall.
- Do not use surfactant when liquid nitrogen is used as a carrier.

Ryegrass Pastures (Italian or perennial): Do not apply Valuron as injury to or loss of the pasture may result.

Other Pastures: Varieties and species of pasture grasses differ in their tolerance to herbicides. When using Valuron on a particular grass for the first time, limit use to one container. If no injury occurs throughout the season, larger acreage may be treated the following season.

Broadleaf pasture species, such as alfalfa and clover, are highly sensitive to Valuron and will be severely stunted or injured by Valuron.

WEEDS CONTROLLED

Unless otherwise directed, treat when weeds are less than 4" tall or in diameter and are actively growing. Effectiveness may be reduced if rainfall occurs within 4 hours after application.

Cereals, Pasture, Rangeland, and Fallow 1/10 oz. per acre

Blue/purple mustard*	Miner's lettuce
Bur buttercup (testiculate)	Pigweed (redroot, smooth, tumble)
Coast fiddleneck (tarweed)	Plains coreopsis
Common chickweed	Prickly lettuce*
Common purslane	Russian thistle*
Conical catchfly	Shepherd's purse
Cowcockle	Smallseed falseflax
False chamomile	Smartweed (green, ladythumb, pale)
Field pennycress (fanweed)	Snow speedwell
Filaree	Tansymustard*
Flixweed*	Treacle mustard (bushy wallflower)
Groundsel (common)	Tumble/Jim Hill mustard
Henbit	Volunteer sunflower
Kochia*	Waterpod
Lambsquarters (common, slimleaf)	Wild mustard
Mayweed chamomile	

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Additional Weeds in Pasture/Rangeland Only**1/10 to 2/10 oz. per acre**

Bitter sneezeweed	Dandelion
Buttercup	Marestail
Carolina geranium	Plantain
Common broomweed	Wild garlic*
Common mullein	Woolly croton*
Curly dock	

2/10 to 3/10 oz. per acre

Annual marshelder	Horsemint (beebalm)
Blackeyed-Susan	Musk thistle*
Buckbrush†	Pensacola bahiagrass*
Burclover	Purple scabious
Common yarrow	Western snowberry‡
Dogfennel	Wildcarrot

4/10 oz. per acre

Serecia lespedeza*

Weeds Suppressed ‡**Cereals, Pasture, Rangeland, and Fallow****1/10 oz. per acre**

Canada thistle*	Knotweed (prostrate)*
Common sunflower*	Sowthistle (annual)*
Corn gromwell*	Wild buckwheat*

Brush Suppressed‡**3/10 oz. per acre**

Blackberry	Multiflora rose*
Dewberry	

Weeds/Brush Suppressed with Spot Application (Pasture/Rangeland only)**1 oz. per 100 gallons of water**

Blackberry *	Dewberry*
Canada thistle*	Multiflora rose*

*See the Specific Weed Problems section.

‡Weed suppression is a reduction in weed competition (reduced population and/or vigor) as visually compared to an untreated area. The degree of suppression varies with the rate used, the size of the weeds, and the environmental conditions following treatment.

Specific Weed Problems

Note: Thorough spray coverage of all weed species listed below is very important.

Blue Mustard, Flixweed, and Tansymustard: For best results, apply Valuron tank mixtures with 2,4-D or MCPA postemergence to mustards, but before bloom.

Canada Thistle and Sowthistle: Apply either Valuron plus surfactant or Valuron plus 2,4-D or MCPA in the spring after the majority of thistles have emerged and are small (rosette stage to 6" elongating stems) and actively growing. The application will inhibit the ability of emerged thistles to compete with the crop. For Spot applications to Canada Thistle in pasture and rangeland, apply as a foliar spray once plant is fully leafed. Apply to runoff and include a surfactant in the spray mix at 1 to 2-quart per 100 gallons of spray solution. Complete coverage of all foliage and stems is required for control. On tall, dense stands, it is often necessary to spray from both sides to obtain adequate coverage.

Corn Gromwell and Prostrate Knotweed: Apply Valuron plus surfactant when weeds are actively growing, are no larger than 2" tall, and when crop canopy will allow thorough coverage. Tank mixing 2,4-D or MCPA with Valuron can improve results.

Kochia, Russian thistle, Prickly lettuce: Naturally occurring resistant biotypes of these weeds are known to occur. For best results, use Valuron in a tank mix with BANVEL/BANVEL SGF and 2,4-D, or bromoxynil and 2,4-D (such as ¼ - 1 pint BUCTRIL + ¼ - 3/8 lb. active 2,4-D ester). Valuron should be applied in the spring when kochia, Russian thistle, and prickly lettuce are less than 2" tall or 2" across and are actively growing (refer to the TANK MIXTURES section of this label for additional details).

Sunflower (Common/volunteer): Apply either Valuron plus surfactant or Valuron plus 2,4-D, or MCPA after the majority of sunflowers have emerged, are 2" to 4" tall and are actively growing. Use spray volumes of at least 3 gallons by air or 5 gallons by ground (10 gallons by ground in pastures).

Wild Buckwheat: For best results, apply Valuron plus 2,4-D or MCPA when plants have no more than 3 true leaves (not counting the cotyledons). If plants are not actively growing, delay treatment until environmental conditions favor active weed growth.

Musk Thistle: Apply Valuron at 2/10 – 3/10 oz. per acre in the spring or early summer prior to flowering on in the fall after newly emerged plants have reached the rosette stage of growth. Fall applications should be made before the soil freezes.

Multiflora Rose: For best control, apply Valuron as a broadcast application when multiflora rose is less than 3' tall. Application should be made in the spring, soon after multiflora rose is fully leafed.

For Spot applications in pasture and rangeland, apply as a foliar spray once plant is fully leafed. Apply to runoff and include a surfactant in the spray mix at 1 to 2-quarts per 100 gallons of spray solution. Complete coverage of all foliage and stems is required for control. On tall, dense stands, it is often necessary to spray from both sides to obtain adequate coverage.

Blackberry and Dewberry: For Spot applications in pasture and rangeland, apply as a foliar spray once plant is fully leafed. Apply to runoff and include a surfactant in the spray mix at 1 to 2 quarts per 100 gallons of spray solution. Complete coverage of all foliage and stems is required for complete control. On tall, dense stands, it is often necessary to spray from both sides to obtain adequate coverage.

Pensacola bahiagrass control in established Bermudagrass pasture: Apply Valuron at 3/10 oz. per acre plus surfactant. Apply after green-up in the spring but before bahiagrass seedhead formation. Application should be made when moisture is sufficient to enhance grass growth.

Valuron is very effective for removal of bahiagrass from bermudagrass pastures. In highly infested pastures, the use of Valuron can clear the areas of useful forage until the bermudagrass has time to cover the area. Therefore, Valuron treatments should be spread out over a period of years. Do not apply to an entire farm or ranch in one year. Fertilization (particularly with nitrogen and potassium) and/or replanting may accelerate the process of reestablishment of bermudagrass.

Under heavy bahiagrass pressure, grazing pressure, or adverse weather conditions (heat and drought), bahiagrass regrowth may occur.

Note: Valuron should not be used for the control of common or Argentine bahiagrass. Also, Valuron should not be applied in liquid fertilizer solutions for Pensacola bahiagrass control, as poor control and/or regrowth may occur.

Serecia lespedeza: Apply Valuron at 4/10 oz. per acre plus a surfactant at 1 to 2 quarts per 100 gallons of total spray solution. For best results, make applications to serecia lespedeza beginning at flower bud initiation through the full bloom stage of growth.

Note: Do not make applications if drought conditions exist at intended time of application.

Wild Garlic: Apply 1/10 to 2/10 oz. per acre of Valuron in the early spring when wild garlic is less than 12" tall with 2" to 4" of new growth.

Woolly Croton: Apply 1/10 to 2/10 oz. per acre of Valuron in the late spring or early summer at preemergence through 2 true leaf stage.

Surfactants

Unless other wise specified, add a Makhteshim-Agan recommended nonionic surfactant having at least 80% active ingredient at 1 to 2 quarts per 100 gallons of spray solution (0.25 to 0.5% v/v).

Exceptions: (1) On all spring wheat and spring or winter barley use ½ to 1 quart per 100 gallons; (2) on Fescue pastures use ¼ to ½ quart per 100 gallons; (3) on Timothy pastures use ¼ quart per 100 gallons. Consult your agricultural dealer, applicator, or Makhteshim-Agan representative for a listing of recommended surfactants. Antifoaming agents may be used if needed. Do not use low rates of liquid fertilizer as a substitute for surfactant.

Ground Application

To obtain optimum spray distribution and thorough coverage, use flat-fan or low-volume flood nozzles.

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For flood nozzles on 30" spacings, use at least 10 gallons per acre (GPA), flood nozzles no larger than TK10 (or equivalent), and a pressure of at least 30 pounds per square inch (psi). For 40" nozzle spacings, use at least 13 GPA; for 60" spacings, use at least 20 GPA. It is essential to overlap the nozzles 100% for all spacings. With RAINDROP RA nozzles, use at least 30 GPA and ensure that nozzle spray patterns overlap 100%.

For flat-fan nozzles, use at least 3 GPA for applications to wheat or barley. Use at least 10 GPA for applications to pasture or rangeland.

Use 50-mesh screens or larger.

Aerial Application

Use nozzle types and arrangements that provide optimum spray distribution and maximum coverage.

Wheat, Barley, and Fallow: Use 1 to 5 GPA. Use at least 3 GPA in Idaho, Oregon, or Utah.

Pasture and Rangeland: Use 2 to 5 GPA.

When applying Valuron by air in areas adjacent to sensitive crops, use solid stream nozzles oriented straight back. Adjust the swath to avoid spray drift damage to sensitive crops downwind and/or use ground equipment to treat the border edge of fields. See the Spray Drift Management section of this label.

Product Measurement

Valuron is measured using the Valuron volumetric measuring cylinder. The degree of accuracy of this cylinder varies by +/- 7.5%. For more precise measurement, use scales calibrated in ounces.

TANK MIXTURES

Valuron may be tank mixed with other suitable registered herbicides to control weeds listed under Weeds Suppressed, weeds resistant to Valuron, or weeds not listed under Weeds Controlled. Read and follow all manufacturer's label recommendations for the companion herbicide. If those recommendations conflict with this label, do not tank mix the herbicide with Valuron.

Tank Mixtures in Cereals (Wheat and Barley)

With 2,4-D (amine or ester) or MCPA (amine or ester)

Valuron can be used as a tank-mix treatment with 2,4-D or MCPA (ester formulations provide best results) herbicides after weeds have emerged. For best results, use 1/10 oz. of Valuron per acre; add 2,4-D or MCPA herbicides to the tank at ¼ to ½ lb. active ingredient. Surfactant may be added to the mixture at ½ to 1 quart per 100 gallons of spray solution; however, adding surfactant may increase the potential for crop injury. Apply Valuron plus MCPA after the 3- to 5-leaf stage but before boot (with Durum and Wampum varieties do not apply before tillering). Apply Valuron plus 2,4-D after tillering (refer to appropriate 2,4-D manufacturer's label), but before boot.

With BANVEL/BANVEL SGF

For best results, apply Valuron at 1/10 oz. per acre; add 1/16 to 1/8 lb. active ingredient BANVEL/BANVEL SGF. Surfactant may be added to the mixture at ½ to 1 quart per 100 gallons of spray solution; however, adding surfactant may increase the potential for crop injury. Also refer to BANVEL/BANVEL SGF labels for application timing and restrictions.

With 2,4-D (amine or ester) and BANVEL

Valuron may be applied in a 3-way tank mix with formulations of BANVEL and 2,4-D. Observe all applicable directions, restrictions, and precautions on labels of all products used. Make applications at 1/10 oz. of Valuron + 2-3 oz. BANVEL (4-6 oz. BANVEL SGF) + 4-6 oz. active 2,4-D Ester or Amine per acre. Use higher rates when weed infestation is heavy. Add 1-2 pints of surfactant to the 3-way mixture, where necessary, as deemed by local recommendations. Use of additional surfactant may not be needed with the higher phenoxy rates and ester phenoxy formulations. Consult the specific 2,4-D or BANVEL label, or local recommendations for more information. Apply this 3-way combination to winter wheat after the crop is tillering and prior to jointing (first node). In Spring Wheat (including Durum wheat), apply after the crop is tillering and before it exceeds the 5-leaf stage. Do not apply this 3-way mixture at high rates more than once a year or more than twice per year at the low rates.

With bromoxynil (such as BUCTRIL, BRONATE)

Valuron may be tank mixed bromoxynil-containing herbicides registered for use on wheat, barley, or fallow. For best results, add bromoxynil-containing herbicides to the tank at 3 to 6 oz. active ingredient per acre (such as BRONATE or BUCTRIL at ¾ to 1½ pint per acre).

Read and follow all label instructions on timing, precautions, and warnings for these herbicides before using these tank mixtures. Follow the most restrictive labeling.

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With grass control products

Tank mixtures of Valuron and grass control products may result in poor grass control. Makhteshim-Agan recommends that you first consult your state experiment station, university or extension agent, Agricultural dealer, or Makhteshim-Agan representative as to the potential for antagonism before using the mixture. If no information is available, limit the initial use of Valuron and the grass product to a small area.

To control wild oat, tank mix Valuron with AVENGE or ASSERT.

When tank mixing Valuron with ASSERT, always include 2,4-D ester, MCPA ester, or bromoxynil-containing products (such as BUCTRIL or BRONATE). Tank-mixed applications of Valuron plus ASSERT may cause temporary crop discoloration, stunting, or injury when heavy rainfall occurs shortly after application.

Do not tank mix Valuron with HOELON 3EC, as grass control may be reduced.

With EXPRESS

Valuron may be tank mixed with EXPRESS based on local recommendations.

Read and follow all label instructions on timing, precautions, and warnings for these herbicides before using this tank mixture.

With HARMONY EXTRA

Valuron may be tank mixed with HARMONY EXTRA based on local recommendations.

Read and follow all label instructions on timing, precautions, and warnings for these herbicides before using this tank mixture.

With Insecticides and Fungicides

Valuron may be tank mixed or used sequentially with insecticides and fungicides registered for use on cereal grains. However, under certain conditions (drought stress, cold weather, or if the crop is in the 2-4 leaf stage), tank mixes or sequential applications of Valuron with organophosphate insecticides (such as parathion, DI-SYSTON) may produce temporary crop yellowing or, in severe cases, crop injury. The potential for crop injury is greatest when wide fluctuations in day/night temperatures occur just prior to or soon after application. Test these mixtures in a small area before treating large areas. Do not apply Valuron within 60 days of crop emergence where an organophosphate insecticide (such as DI-SYSTON) has been applied as an in-furrow treatment, as crop injury may result. Do not use Valuron plus malathion as crop injury will result.

With Liquid Nitrogen Solution Fertilizer

Liquid nitrogen fertilizer solutions may be used as a carrier in place of water. Run a tank mix compatibility test before mixing Valuron in fertilizer solution. Valuron must first be slurred with water and then added to liquid nitrogen solutions (e.g., 28-0-0, 32-0-0). Ensure that the agitator is running while the Valuron is added. Use of this mixture may result in temporary crop yellowing and stunting. If using low rates of liquid nitrogen fertilizer in the spray solution (less than 50% of the spray solution volume), the addition of surfactant is necessary. Add surfactant at ½ pint to 1 quart per 100 gallons of spray solution (0.06-0.25% v/v) based on local recommendations. When using high rates of liquid nitrogen fertilizer in the spray solution, adding surfactant increases the risk of crop injury. Consult your agricultural dealer, consultant, fieldman, or Makhteshim-Agan representative for a specific recommendation before adding an adjuvant to these tank mixtures. If 2,4-D or MCPA is included with Valuron and fertilizer mixture, ester formulations tend to be more compatible (see manufacturer's label). Do not add surfactant when using Valuron in tank mix with 2,4-D ester or MCPA ester and liquid nitrogen fertilizer solutions. Do not use low rates of liquid fertilizer as a substitute for a surfactant. Do not use with liquid fertilizer solutions with a pH less than 3.0.

Tank Mixtures in Harvest Aid

A tank mix of Valuron plus 2,4-D and surfactant, or ROUNDUP, will typically aid in dry down of many broadleaved weeds, thereby aiding grain harvest. Postemergence application should be made to actively growing weeds after the crop is in the hard dough stage. If weeds are not dry within 10 days after application, delay harvest until weeds are dry. See weeds listed in the WEEDS CONTROLLED chart of this label.

With 2,4-D

Use 1/10 oz. Valuron plus ¼ to ½ lb. active ingredient 2,4-D per acre on moderate weed infestations; higher rates of 2,4-D may be used on large weeds if permitted by the 2,4-D brand labeling. Include 1 to 2 quart surfactant per 100 gallons spray solution. In addition to the weeds listed in WEEDS CONTROLLED chart of this label, the 2,4-D combination will also dry down common cocklebur, mare's tail, puncturevine, and common and wild sunflower. In areas where 2,4-D use is restricted, apply Valuron with surfactant only; however, this treatment may be less effective.

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With ROUNDUP

Use 1/10 oz. Valuron plus the locally recommended rate of ROUNDUP (see ROUNDUP label for maximum seasonal rate). Valuron requires the use of an adjuvant for optimum activity-Consult the ROUNDUP label or local recommendations for the amount of adjuvant to include.

Tank Mixtures in Fallow

Valuron may be used as a fallow treatment and may be tank mixed with other herbicides that are registered for use in fallow. Read and follow all manufacturer's label recommendations for the companion herbicide. If those recommendations conflict with this label, do not tank mix the herbicide with Valuron.

Tank Mixtures in Pastures or Rangeland

Valuron can be applied in a tank-mix combination with GRAZON P+D, TORDON 22K, 2,4-D, BANVEL,* or WEEDMASTER in states where these products are labeled for postemergence control of the following weeds:

Annual marshelder	Common ragweed
Burclover	Giant ragweed
Carolina horsenettle	Prickly lettuce
Common cocklebur	Sunflower
Common milkweed	Western ragweed

For best results, apply Valuron at 1/10 to 2/10 oz. per acre with one of the following products:

Product	Rate (oz./A)
GRAZON P+D	8 to 32
TORDON 22K	4 to 16
2,4-D	16 to 32
BANVEL	4 to 32
WEEDMASTER	8 to 32
REMEDY	8
AMBER	0.35*

*For suppression of Ragweed in Phenoxy Restricted and Herbicide Regulated Counties.

With Liquid Nitrogen Solution Fertilizer

Liquid nitrogen fertilizer solutions may be used as a carrier in place of water. Run a tank mix compatibility test before mixing Valuron in fertilizer solution. Valuron must first be slurried with water and then added to liquid nitrogen solutions (e.g., 28-0-0, 32-0-0). Ensure that the agitator is running while the Valuron is added. Use of this mixture may result in temporary crop yellowing and stunting.

If using low rates of liquid nitrogen fertilizer in the spray solution (less than 50% of the spray solution volume), the addition of surfactant is necessary. Add surfactant at ¼ pint per 100 gallons of spray solution (0.03% v/v).

When using high rates of liquid nitrogen fertilizer in the spray solution, adding surfactant increases the risk of crop injury. Consult your agricultural dealer, consultant, fieldman, or Makhteshim-Agan representative for a specific recommendation before adding an adjuvant to these tank mixtures.

If 2,4-D or MCPA is included with Valuron and fertilizer mixture, ester formulations tend to be more compatible (see manufacturer's label). Do not add surfactant when using Valuron in tank mix with 2,4-D ester and liquid nitrogen fertilizer solutions. Do not use low rates of liquid fertilizer as a substitute for a surfactant. Do not use with liquid fertilizer solutions with a pH less than 3.0.

CROP ROTATION

Before using Valuron, carefully consider your crop rotation plans and options. For rotational flexibility, do not treat all of your wheat, barley, fallow, pasture, or rangeland acres at the same time.

Minimum Rotational Intervals

Minimum rotation intervals* are determined by the rate of breakdown of Valuron applied. Valuron breakdown in the soil is affected by soil pH, presence of soil microorganisms, soil temperature, and soil moisture. Low soil pH, high soil temperature, and high soil moisture increase Valuron breakdown in soil while high soil pH, low soil temperature, and low soil moisture slow Valuron breakdown. Of these 3 factors, only soil pH remains relatively constant. Soil temperature, and to a greater extent, soil moisture, can vary significantly from year to year and from area to area. For this reason, soil temperatures and soil moisture should be monitored regularly when considering crop rotations.

*The minimum rotation interval represents the period of time from the last application to the anticipated date of the next planting.

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Soil pH Limitations

Valuron should not be used on soils having a pH above 7.9 as extended soil residual activity could extend crop rotation intervals beyond normal. Under certain conditions, Valuron could remain in the soil for 34 months or more, injuring wheat and barley. In addition, other crops planted in high pH soils can be extremely sensitive to low concentrations of Valuron.

Checking Soil pH

Before using Valuron determine the soil pH of the areas of intended use. To obtain a representative pH value for the test area, take several 0" to 4" samples from different areas of the field and analyze them separately. Consult local extension publications for additional information on recommended soil sampling procedures.

Rotational Intervals for Cereals All Areas-Following Use of Valuron at 1/10 oz. per Acre

Crop	Soil pH	Minimum Cumulative Precipitation (inches)	Minimum Rotation Interval (months)
Winter and spring wheat	7.9 or lower	No restrictions	1
Durum wheat, barley, spring/winter oat	7.9 or lower	No restrictions	10

Rotation Intervals for Crops in Non-Irrigated Land Following Use of Valuron at 1/10 oz. per Acre on Wheat, Barley, Fallow, or Pasture

Location		Crop	Soil pH	Minimum Cumulative Precipitation (inches)	Minimum Rotation Interval (months)
State	County or Area				
Colorado	Statewide	Grain sorghum, Proso millet	7.9 or lower	No restrictions	10
		Flax, Safflower, Sunflower	7.9 or lower	No restrictions	22
	Generally north of 1-70	Field corn	7.9 or lower	15	12
Idaho	Southern Idaho	Flax, Safflower, Sunflower	7.9 or lower	No restrictions	22
	Statewide	Peas, Lentils, Canola	6.8 or lower	18	10
		Peas	6.9 to 7.9	18	15
		Lentils	6.9 to 7.9	18	34
		Canola	6.9 to 7.9	18	22
Kansas	Statewide	Grain sorghum, Proso millet	7.9 or lower	No restrictions	10
		Flax, safflower, Sunflower	7.9 or lower	No restrictions	22
	Central and Western Kansas (West of the Flint Hills)	Field corn	7.9 or lower	15	12
	Western Kansas west of Hwy. 183	Soybeans	7.5 or lower	22	22
			7.6-7.9	33	34
Central Kansas; generally east of Hwy. 183 and west of the Flint Hills	Soybeans	7.9 or lower	15	12	

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Location		Crop	Soil pH	Minimum Cumulative Precipitation (inches)	Minimum Rotation Interval (months)
State	County or Area				
Montana	Statewide	Grain sorghum, Proso millet, Field corn	7.9 or lower	22	22
		Alfalfa (hay only)	7.6-7.9 7.5 or lower	No restrictions No restrictions	34 22
		Flax, Safflower, Sunflower	7.9 or lower	No restrictions	22
Nebraska	Statewide	Grain sorghum, Proso millet	7.9 or lower	No restrictions	10
		Flax, Safflower, Sunflower	7.9 or lower	No restrictions	22
	Generally west of Hwy. 77 and east of the Panhandle	Field corn	7.9 or lower	15	12
		Soybeans	7.5 or lower 7.6-7.9	22 33	22 34
New Mexico	Statewide	Grain sorghum, Proso millet	7.9 or lower	No restrictions	10
		Flax, Safflower, Sunflower	7.9 or lower	No restrictions	22
	Eastern New Mexico	Cotton (dryland only)	7.9 or lower	30	22
North Dakota	West of Hwy. 1	Grain sorghum, Proso millet, Field corn, Dry beans, Flax, Safflower, Sunflower	7.9 or lower	22	22
	East of Hwy. 1	Grain sorghum, Proso millet, Field corn, Dry beans, Flax, Safflower, Sunflower	7.9 or lower	34	34
Oklahoma	Statewide	Grain sorghum, Proso millet	7.9 or lower	No restrictions	10
		Flax, Safflower, Sunflower	7.9 or lower	No restrictions	22
		Field corn	7.9 or lower	15	12
	Panhandle	Cotton (dryland only)	7.9 or lower	30	22
	East of the Panhandle	Cotton (dryland only)	7.9 or lower	25	14
Oregon	Statewide	Peas, Lentils, Canola	6.8 or lower	18	10
		Peas	6.9 to 7.9	18	15
		Lentils	6.9 to 7.9	18	34
		Canola	6.9 to 7.9	18	22

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Location				Minimum Cumulative Precipitation (inches)	Minimum Rotation Interval (months)
State	County or Area	Crop	Soil pH		
South Dakota	Statewide	Flax, Safflower, Sunflower	7.9 or lower	No restrictions	22
	South of Hwy. 212 & East of the Missouri River, & South of Hwy. 34 & West of Missouri River	Grain sorghum, Proso millet	7.9 or lower	13	12
	Generally East of Missouri River & South of Hwy. 14, & West of Missouri River	Field corn	7.9 or lower	15	12
Texas	Statewide	Grain sorghum, Proso millet	7.9 or lower	No restrictions	10
		Flax, Safflower, Sunflower	7.9 or lower	No restrictions	22
	Panhandle	Field corn	7.9 or lower	15	12
		Cotton (dryland only)	7.9 or lower	30	22
	North Central Texas*	Field corn	7.9 or lower	15	12
		Cotton (dryland only)	7.9 or lower	25	14
	* The counties of North Central Texas are: Archer, Baylor, Bell, Bosque, Bowie, Callahan, Camp, Cass, Clay, Collin, Cooke, Coryell, Dallas, Delta, Denton, Eastland, Ellis, Falls, Fannin, Foard, Franklin, Grayson, Hardeman, Haskell, Hill, Hood, Hopkins, Hunt, Jack, Johnson, Kaufman, Knox, Lamar, Limestone, McLennan, Milam, Montague, Morris, Nafarro, Palo Pinto, Parker, Rains, Red River, Robertson, Rockwall, Shackelford, Somervell, Stephens, Tarrant, Throckmorton, Titus, Upshur, Van Zandt, Wilbarger, Wichita, Williamson, Wise, Wood, Young				
Washington	Statewide	Peas, Lentils, Canola	6.8 or lower	18	10
		Peas	6.9 to 7.9	18	15
		Lentils	6.9 to 7.9	18	34
		Canola	6.9 to 7.9	18	22
Utah	Statewide	Flax, Safflower, Sunflower	7.9 or lower	No restrictions	22
Wyoming	Statewide	Flax, Safflower, Sunflower	7.9 or lower	No restrictions	22
	Southern Wyoming	Grain sorghum, Proso millet	7.9 or lower	No restrictions	10
	Southern Wyoming (Goshen, Laramie, and Platte counties only)	Field corn	7.9 or lower	15	12
	Northern Wyoming	Grain sorghum, Proso millet, Field corn	7.9 or lower	22	22

Rotation Intervals not covered above—The minimum rotation interval is 34 months with at least 28" of cumulative precipitation during the period:

- To any major field crop not listed (See the Rotation Intervals table)
- If the soil pH is not in the specified range
- if the use rate applied is not specified in the table
- or if the minimum cumulative precipitation has not occurred since application

To rotate to a major field crop at an interval shorter than recommended, a field bioassay must be successfully completed to that crop. A field bioassay must be successfully completed before rotation to any minor crops (as determined by the USDA criteria). See section on Field Bioassay for further information.

Rotation Intervals in Pasture or Rangeland for Overseeding and Renovation

Location	Crop	Maximum Valuron Rate on Pasture (oz. per acre)	Minimum Rotation Interval (months)
AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA, WV	Alfalfa, red clover, white clover, sweet clover, bermudagrass, bluegrass, orchardgrass, bromegrass, ryegrass, fescue, timothy	1/10 to 3/10	4
	Wheat (except durum)	1/10 to 3/10	1
	Durum, barley, oat	1/10 to 3/10	10
All Areas Not Included Above*	Red clover, white clover, sweet clover	1/10 to 2/10	12
	Bermudagrass, bluegrass, orchardgrass, bromegrass, ryegrass, timothy	1/10 to 2/10	6
	Fescue	1/10 to 2/10	18
	Wheat (except durum)	1/10 to 2/10	1
	Durum, barley, oat	1/10 to 2/10	10

Rotation Intervals not covered above—The minimum rotation interval is 34 months with at least 28" of cumulative precipitation during the period:

- to any major field crop or pasture crop not listed (See the Rotation Intervals table)
- if the use rate applied is not specified in the table

To rotate to a major field crop at an interval shorter than recommended, a field bioassay must be successfully completed to that crop. A field bioassay must be successfully completed before rotation to any minor crops (as determined by the USDA criteria). See section on Field Bioassay for further information.

BIOASSAY

A field bioassay must be completed before rotating to any crop not listed (see the Rotation Intervals table), or if the soil pH is not in the specified range, or if the use rate applied is not specified in the table, or if the minimum cumulative precipitation has not occurred since application.

Field Bioassay

To conduct a field bioassay, grow test strips of the crop or crops you plan to grow the following year in fields previously treated with Valuron. Crop response to the bioassay will indicate whether or not to rotate to the crop(s) grown in the test strips. If a field bioassay is planned, check with your local Agricultural dealer or Makhteshim-Agan representative for information detailing the field bioassay procedure.

GRAZING

There are no grazing restrictions on Valuron.

IMPORTANT PRECAUTIONS

Treated vegetation may be cut for forage or hay. Coveralls and shoes plus socks must be worn if cutting within 4 hours of treatment.

MIXING INSTRUCTIONS

1. Fill the tank $\frac{1}{4}$ to $\frac{1}{3}$ full of water (if using liquid nitrogen fertilizer solution in place of water, see TANK MIXTURES sections for additional details).
2. While agitating, add the required amount of Valuron.
3. Continue agitation until the Valuron is fully dispersed, at least 5 minutes.

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4. Once the Valuron is fully dispersed, maintain **agitation and** continue filling tank with water. Valuron should be thoroughly mixed with water before adding any other material.
5. As the tank is filling add tank mix partners (if desired) then add the necessary volume of nonionic surfactant. Always add surfactant last.
6. If the mixture is not continuously agitated, **settling will occur**. If settling occurs, thoroughly reagitate before using.
7. Apply Valuron spray mixture within 24 hours of mixing to avoid product degradation.
8. If Valuron and a tank mix partner are to be applied in **multiple loads**, preslurry the Valuron in clean water prior to adding to the tank. This will prevent the tank mix partner from interfering with the dissolution of the Valuron.

Do not use Valuron with spray additives that reduce the pH of the spray solution to below 3.0.

SPRAY EQUIPMENT

For specific application equipment, refer to the **manufacturer's** recommendations for additional information on GPA, pressure, speed, nozzle types and arrangements, **nozzle** heights above the target canopy, etc.

Be sure to calibrate air or ground equipment **properly before** application. Select a spray volume and delivery system that will ensure thorough coverage and a **uniform spray pattern** with minimum drift. Use higher spray volumes to obtain better coverage when the crop canopy is dense. Avoid swath overlapping, and shut off spray booms while starting, turning, slowing, or stopping to avoid crop injury.

Do not make applications using equipment and/or **spray volumes** or under weather conditions that might cause spray to drift onto nontarget sites. For additional information on spray drift, refer to the Spray Drift Management section of the label.

Continuous agitation is required to keep Valuron **in suspension**.

SPRAYER CLEANUP

Spray equipment must be cleaned before Valuron is **sprayed**. Follow the cleanup procedures specified on the labels of previously applied products. If no directions are provided, follow the six steps outlined in After Spraying Valuron section of this label.

At the End of the Day

When multiple loads of Valuron herbicide are applied, it is recommended that at the end of each day of spraying, the interior of the tank be rinsed with fresh water and then partially filled, and the boom and hoses flushed. This will prevent the buildup of dried pesticide deposits that can accumulate in the application equipment.

After Spraying Valuron and Before Spraying Crops other than Wheat, Barley, Fallow, Pasture, or Rangeland

To avoid subsequent injury to desirable crops, thoroughly clean all mixing and spray equipment immediately following applications of Valuron as follows:

1. Drain tank; thoroughly rinse spray tanks, boom, and hoses with clean water. Loosen and physically remove any visible deposits.
2. Fill the tank with clean water and 1 gallon of household ammonia* (contains 3% active) for every 100 gallons of water. Flush the hoses, boom, and nozzles with the cleaning solution. Then add more water to completely fill the tank. Circulate the cleaning solution through the tank and hoses for at least 15 minutes. Flush the hoses, boom, and nozzles again with the cleaning solution, and then drain the tank.
3. Remove the nozzles and screens and clean separately in a bucket containing cleaning agent and water.
4. Repeat step 2.
5. Rinse the tank, boom, and hoses with clean water.
6. If only ammonia is used as a cleaner, the rinsate solution may be applied back to the crop(s) recommended on this label. Do not exceed the maximum labeled use rate. If other cleaners are used, consult the cleaner label for rinsate disposal instructions. If no instructions are given, dispose of the rinsate on site or at an approved waste disposal facility.

*Equivalent amounts of an alternate-strength ammonia solution or a Makhteshim-Agan-approved cleaner can be used in the cleanout procedure. Carefully read and follow the individual cleaner instructions. Consult your agricultural dealer, applicator, or Makhteshim-Agan representative for a listing of approved cleaners.

Notes:

1. **Attention:** Do not use chlorine bleach with ammonia as dangerous gases will form. Do not clean equipment in an enclosed area.

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2. Steam-cleaning aerial spray tanks is recommended prior to performing the above cleanout procedure to facilitate the removal of any caked deposits.
3. When Valuron is tank mixed with other pesticides, all required cleanout procedures should be examined and the most rigorous procedure should be followed.
4. In addition to this cleanout procedure, all precleanout guidelines on subsequently applied products should be followed as per the individual labels.
5. Where routine spraying practices include shared equipment frequently being switched between applications of Valuron and applications of other pesticides to Valuron sensitive crops during the same spray season, it is recommended that a sprayer be dedicated to Valuron to further reduce the chance of crop injury.

SPRAY DRIFT MANAGEMENT

The interaction of many equipment and weather-related factors determines the potential for spray drift. The applicator is responsible for considering all these factors when making application decisions. AVOIDING SPRAY DRIFT IS THE RESPONSIBILITY OF THE APPLICATOR.

IMPORTANCE OF DROPLET SIZE

The most effective way to reduce drift potential is to apply large droplets (>150-200 microns). The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. The presence of sensitive species nearby, the environmental conditions, and pest pressure may affect how an applicator balances drift control and coverage. 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 sections of this label.

Controlling Droplet Size-General Techniques

- **Volume-** Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure-** Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. WHEN HIGHER FLOW RATES ARE NEEDED, USE A HIGHER-CAPACITY NOZZLE INSTEAD OF INCREASING PRESSURE.
- **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.

Controlling Droplet Size-Aircraft

- **Number of Nozzles-** Use the minimum number of nozzles with the highest flow rate that provide uniform coverage.
- **Nozzle Orientation-** Orienting nozzles so that the spray is emitted backwards, parallel to the airstream will produce larger droplets than other orientations.
- **Nozzle Type-** Solid stream nozzles (such as disc and core with swirl plate removed) oriented straight back produce larger droplets than other nozzle types.
- **Boom Length-** The boom length should not exceed $\frac{1}{4}$ of the wing or rotor length-longer booms increase drift potential.
- **Application Height-** Application more than 10 ft. above the canopy increases the potential for spray drift.

BOOM HEIGHT

Setting the boom at the lowest labeled height (if specified) which provides uniform coverage reduces the exposure of droplets to evaporation and wind. For ground equipment, the boom should remain level with the crop and have minimal bounce.

WIND

Drift potential increases at wind speeds of less than 3 mph (due to inversion potential) or more than 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given wind speed. AVOID GUSTY OR WINDLESS CONDITIONS.

Note: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

TEMPERATURE AND HUMIDITY

When making applications in hot and dry conditions, set up equipment to produce larger droplets to reduce effects of evaporation.

TEMPERATURE INVERSIONS

Drift potential is high during a temperature inversion. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain close to the ground and move laterally in a concentrated cloud.

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Temperature inversions are characterized by increasing temperature 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.

SHIELDED SPRAYERS

Shielding the boom or individual nozzles can reduce the effects of wind. However, it is the responsibility of the applicator to verify that the shields are preventing drift and not interfering with uniform deposition of the product.

AIR ASSISTED (AIR BLAST) FIELD CROP SPRAYERS

Air assisted field crop sprayers carry droplets to the target via a downward directed air stream. Some may reduce the potential for drift, but if a sprayer is unsuitable for the application and/or set up improperly, high drift potential can result. It is the responsibility of the applicator to determine that a sprayer is suitable for the intended application, is configured properly, and that drift is not occurring.

Note: Air assisted field sprayers can affect product performance by affecting spray coverage and canopy penetration. Consult the application equipment section of this label to determine if use of an air assisted sprayer is recommended.

WEED RESISTANCE

Biotypes of certain weeds listed on this label are resistant to Valuron and other herbicides with the same mode of action*, even at exaggerated application rates. Biotypes are naturally occurring individuals of a species that are identical in appearance but have slightly different genetic compositions; the mode of action of an herbicide is the chemical interaction that interrupts a biological process necessary for plant growth and development.

If weed control is unsatisfactory, it may be necessary to retreat problem areas using a product with a different mode of action, such as postemergence broadleaf and/or grass herbicides.

If resistant weed biotypes such as kochia, prickly lettuce, and Russian thistle are suspected or known to be present, use a tank-mix partner with Valuron to help control these biotypes, or use a planned herbicide rotation program where other residual broadleaf herbicides having different modes of action are used.

*Naturally occurring weed biotypes that are resistant to ALS inhibitor herbicides (such as AMBER Herbicide, PURSUIT Herbicide, FINESSE Herbicide, or HARMONY EXTRA Herbicide) may also be resistant to Valuron.

INTEGRATED PEST MANAGEMENT

To better manage weed resistance when using Valuron, use a combination of tillage, and tank-mix partners or sequential herbicide applications that have a different mode of action than Valuron, to control escaped weeds. Do not let weed escapes go to seed.

Consult your agricultural dealer, consultant, applicator, and/or appropriate state agricultural extension service representative for specific alternative herbicide recommendations available in your area.

It is advisable to keep accurate records of pesticides applied to individual fields to help obtain information on the spread and dispersal of resistant biotypes.

PRECAUTIONS

- Injury to or loss of desirable trees or vegetation may result from failure to observe the following:
 - ⇒ Do not apply (except as recommended), drain, or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots.
 - ⇒ Do not use on lawns, walks, driveways, tennis courts, golf courses, athletic fields, commercial sod operations, or other high-maintenance, fine turfgrass areas, or similar areas.
 - ⇒ Do not use on grasses grown for seed.
- Do not apply to irrigated land where tailwater will be used to irrigate crops other than wheat and barley.
- Do not apply to frozen ground as surface runoff may occur.
- Do not apply to snow-covered ground.
- Wheat and barley varieties may differ in their response to various herbicides. Makhteshim-Agan recommends that you first consult your state experiment station, university, or extension agent as to sensitivity to any herbicide. If no information is available, limit the initial use of Valuron to a small area.
- Under certain conditions such as heavy rainfall, prolonged cold weather, or wide fluctuations in day/night temperatures prior to or soon after Valuron application, temporary discoloration and/or crop injury may occur.

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Valuron should not be applied to wheat or barley that is stressed by severe weather conditions, drought, low fertility, water-saturated soil, disease, or insect damage, as crop injury may result. Risk of injury is greatest when crop is in the 2- to 5-leaf stage. Severe winter stress, drought, disease, or insect damage following application also may result in crop injury.

- The combined treatment effects of Valuron postemergence preceded by preemergence wild oat herbicides may cause crop injury to spring wheat when crop stress (soil crusting, planting too deep, prolonged cold weather, or drought) causes poor seedling vigor.
- In the Pacific Northwest, to prevent cold weather-related crop injury, avoid making applications during winter months when weather conditions are unpredictable and can be severe.
- Do not apply to wheat, barley, or pastures undersown with legumes, as injury to the forage may result.
- To reduce the potential for movement of treated soil due to wind erosion, do not apply to powdery dry or light sandy soils until they have been stabilized by rainfall, trashy mulch, reduced tillage, or other cultural practices. Injury to immediately adjacent crops may occur when treated soil is blown onto land used to produce crops other than cereal grains or pasture/rangeland.
- For ground applications applied to weeds when dry, dusty field conditions exist, control of weeds in wheel track areas may be reduced. The addition of 2,4-D or MCPA should improve weed control under these conditions.
- Preplant or preemergence applications of 2,4-D or herbicides containing 2,4-D made within 2 weeks of planting spring cereals may cause crop injury when used in conjunction with early postemergence applications of Valuron. For increased crop safety, delay Valuron treatment until crop tillering has begun.

STORAGE AND DISPOSAL

STORAGE: Store product in original container only. Do not contaminate water, other pesticides, fertilizer, food, or feed in storage.

PRODUCT DISPOSAL: Do not contaminate water, food, or feed by storage, disposal or cleaning of equipment. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Triple-rinse (or equivalent). Then offer for recycling or reconditioning, or 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.

WARRANTY STATEMENT

MAKHTESHIM-AGAN OF NORTH AMERICA warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for purposes stated on such label only when used in accordance with directions under normal use conditions. It is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of MAKHTESHIM-AGAN OF NORTH AMERICA. In no case shall MAKHTESHIM-AGAN OF NORTH AMERICA be liable for consequential, special, or indirect damages resulting from the use or handling of this product. All such risks shall be assumed by the Buyer. In addition to the foregoing, no purchaser of this product (other than an end user) shall be entitled to any reimbursement for any loss suffered as a result of any suspension or cancellation of the registration for this product by the U.S. Environmental Protection Agency. Except as expressly provided herein, MAKHTESHIM-AGAN OF NORTH AMERICA makes no warranties, guarantees, or representations of any kind, either expressed or implied, or by usage of trade, statutory or otherwise, with regard to the product sold, including, but not limited to merchantability, fitness for a particular purpose, use or eligibility of the product for any particular trade usage. The exclusive remedy of any buyer or user of this product for any and all losses, injuries, or damages resulting from or in any way arising from the use, handling, or application of this product, whether in contract, warranty, tort, negligence, strict liability, or otherwise, shall be damages not exceeding the purchase price paid for this product or, at MAKHTESHIM-AGAN OF NORTH AMERICA's election, the replacement of this product.

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