



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Christie Hitchcock
Registration Specialist
Makhteshim Agan of North America, Inc.
4515 Falls of Neuse Rd., Suite 300
Raleigh, NC 27609

AUG 8 2008

Subject: Label Notification(s) for Pesticide Registration Notice 2007-4 and 98-10

Dear Ms. Hitchcock:

The Agency is in receipt of your Application(s) for Pesticide Notification under Pesticide Registration Notice (PRN) 2007-4 and 98-10 dated June 17, 2008 for:

EPA Registration 66222-49

Valuron 60DF

The Registration Division (RD) has conducted a review of this request for applicability under 2007-4 and 98-10 and finds that the label change(s) requested falls within the scope of 2007-4 and 98-10. The label has been date-stamped "Notification" and will be placed in our records.

Please be reminded that 40 CFR Part 156.140(a)(4) requires that a batch code, lot number, or other code identifying the batch of the pesticide distributed and sold be placed on nonrefillable containers. The code may appear either on the label (and can be added by non-notification/PR Notice 98-10) or durably marked on the container itself.

If you have any questions, please contact me directly at 703-305-6249 or Nicole Williams of my staff at 703-308-5551.

Sincerely,

A handwritten signature in black ink, appearing to be "Linda Arrington".

Linda Arrington
Notifications & Minor Formulations Team Leader
Registration Division (7505P)
Office of Pesticide Programs

2/22



June 17, 2008

Document Processing Desk (NOTIF)
Registration Division (7504P)
OPP, USEPA
Ariel Rios Building
1200 Pennsylvania Ave, NW
Washington DC 20460

Re: Valuron 60DF Herbicide EPA Reg. No. 66222-49
Notification per PRN 98-10 and 2007-4

To Whom It May Concern:

We are notifying the Agency of several label updates as allowed in PR Notices 98-10 and 2007-4. The changes are summarized below:

- Added "Manufactured for" in front of the company name (allowed per PRN 98-10 §II(N)(2))
- Added a voluntary marketing statement about use of an adjuvant (allowed per PRN 98-10, §II(N)(3))
- Updated the Warranty Statement that is now consistent with EPA's guidance document dated 10-17-06) (allowed per PRN 98-10 §II(J))
- Added Emergency Responder phone numbers in Storage & Disposal section (allowed per PRN 2006-01 §II(E))
- Updated container disposal instructions per PRN 2007-4

In support of this submission, the following documents are attached:

- Application for Pesticide Registration (EPA Form 8570-1)
- One copy of final printed labeling

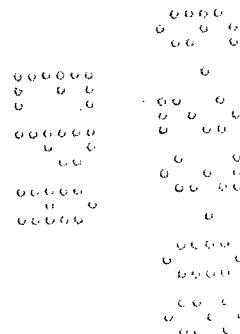
Please contact me at 919-256-9342 or by email at chitchcock@manainc.com if you have any questions regarding this submission or would like a copy of the annotated label showing the changes for your files.

Sincerely,

Christie Hitchcock

Christie Hitchcock
Registration Specialist

Enclosures





United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☐ Amendment
☒ Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 66222-49	2. EPA Product Manager Linda Arrington	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Valuron 60DF Herbicide	PM# Registration Support Branch	
5. Name and Address of Applicant (Include ZIP Code) Makhteshim Agan of North America, Inc. 4515 Falls of Neuse Rd., Suite 300 Raleigh, NC 27609 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: NOTIFICATION EPA Reg. No. _____ Product Name <u>AUG 08 2008</u>	

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Notification per PRN 98-10 & 2007-4: This notification is consistent with the provisions of PR Notice 98-10 & 2007-4 and EPA regulations at 40 CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make false statements to EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 & 2007-4 and 40 CFR 152.46, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA.

Section - III

1. Material This Product Will Be Packaged In:			
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2. Type of Container <input type="checkbox"/> Metal <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Glass <input checked="" type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____
* Certification must be submitted			
If "Yes" Unit Packaging wgt. No. per container		If "Yes" Package wgt. No. per container	
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 50 lbs or less; more than 50 lbs	
		5. Location of Label Directions <input checked="" type="checkbox"/> on label	
6. Manner in Which Label is Affixed to Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input checked="" type="checkbox"/> Other Self-adhesive	

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Christie Hitchcock	Title Registration Specialist	Telephone No. (Include Area Code) 919-256-9342
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received (Stamped)
2. Signature <i>Christie Hitchcock</i>	3. Title Registration Specialist	
4. Typed Name Christie Hitchcock	5. Date 06-17-08	



**Makhteshim Agan of
North America, Inc.**

Notification of label change per PR Notice 2007-4. This notification is consistent with the guidance of PR Notice 2007-4 and requirements of EPA's regulations at 40 CFR §§156.10, 156.140, 156.144, 156.146, and 156.156. No other changes have been made to the labeling or the Confidential Statement of Formula for this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make any false statements to EPA. I further understand that if the amended label is not consistent with the requirements of 40 CFR §§156.10, 156.140, 156.144, 156.146, and 156.156, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA.

Christie Hitchcock

Christie Hitchcock
Registration Specialist
Regulatory Affairs, MANA

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: | <ul style="list-style-type: none"> • 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: | <ul style="list-style-type: none"> • 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: | <ul style="list-style-type: none"> • 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: | <ul style="list-style-type: none"> • 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.

NET CONTENTS: 8 OZ.

EPA Reg. No. 66222-49
 EPA Est. No. [REDACTED]



Manufactured for:
 Makhteshim Agan of North America, Inc.
 4515 Falls of Neuse Road, Suite 300
 Raleigh NC 27609

6/22

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.

Valuron 60DF 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 60DF herbicide is recommended for use on land primarily dedicated to the production of wheat, barley, fallow, pasture, and rangeland.

Valuron 60DF 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 60DF is registered in your state. Valuron 60DF is not registered for use in Alamosa, Conejos, Costilla, Rio Grande, and Saquache counties of Colorado.

Valuron 60DF is a dry-flowable granule that controls weeds in wheat (including durum), barley, pasture, rangeland grasses, and fallow. Valuron 60DF is mixed in water or can be preslurried 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 60DF is noncorrosive, nonflammable, nonvolatile, and does not freeze.

When an adjuvant is to be used with this product, Makhteshim Agan of North America, Inc. suggests the use of a Chemical Producers and Distributors Association certified adjuvant.

Valuron 60DF controls weeds by postemergence activity. For best results, apply Valuron 60DF 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 60DF 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 60DF 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 60DF 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 60DF 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 60DF.

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 60DF per acre to wheat or barley.
Pasture and Rangeland	Apply 1/10 to 4/10 oz. Valuron 60DF per acre as a broadcast treatment to pasture and rangeland. For spot applications, use 1 oz. per 100 gallons of water. Do not exceed 3/4 oz. Valuron 60DF per acre.
Harvest Aid	Apply 1/10 Valuron 60DF 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 60DF 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 60DF 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 60DF may be used on some native grasses such as bluestems and grama, and on other pasture grasses such as bermudagrass, bluegrass, orchardgrass, bromegrass, fescue, and timothy. Specific application information on several of these pasture grasses follows:

Pasture Grass	Minimum time from grass establishment to Valuron 60DF application
Bermudagrass	2 months
Bluegrass, Bromegrass, Orchardgrass	6 months
Timothy	12 months
Fescue	24 months

Fescue Precautions:

Note that Valuron 60DF may temporarily stunt fescue, cause it to turn yellow, or cause seedhead suppression. To minimize these symptoms, take the following precautions:

- Tank mix Valuron 60DF 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 60DF.

Timothy Precautions:

Timothy should be at least 6" tall at application and be actively growing. Applications of Valuron 60DF to timothy under any other conditions may cause crop yellowing and/or stunting. To minimize these symptoms, take the following precautions:

- Tank mix Valuron 60DF 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 60DF 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 60DF 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 60DF and will be severely stunted or injured by Valuron 60DF.

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, ladysthumb, 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	

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*	
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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 60DF tank mixtures with 2,4-D or MCPA postemergence to mustards, but before bloom.

Canada Thistle and Sowthistle: Apply either Valuron 60DF plus surfactant or Valuron 60DF 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 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.

Corn Gromwell and Prostrate Knotweed: Apply Valuron 60DF 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 60DF can improve results.

Kochia, Russian thistle, Prickly lettuce: Naturally occurring resistant biotypes of these weeds are known to occur. For best results, use Valuron 60DF in a tank mix with BANVEL/BANVEL SGF and 2,4-D, or bromoxynil and 2,4-D (such as ¾ - 1 pint BUCTRIL + ¼ - 3/8 lb. active 2,4-D ester). Valuron 60DF 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 60DF plus surfactant or Valuron 60DF 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 60DF 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 60DF at 2/10 – 3/10 oz. per acre in the spring or early summer prior to flowering or 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 60DF 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 60DF 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 60DF is very effective for removal of bahiagrass from bermudagrass pastures. In highly infested pastures, the use of Valuron 60DF can clear the areas of useful forage until the bermudagrass has time to cover the area. Therefore, Valuron 60DF 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 60DF should not be used for the control of common or Argentine bahiagrass. Also, Valuron 60DF should not be applied in liquid fertilizer solutions for Pensacola bahiagrass control, as poor control and/or regrowth may occur.

Serecia lespedeza: Apply Valuron 60DF 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 60DF 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 60DF 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.

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 60DF 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 60DF is measured using the Valuron 60DF 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 60DF may be tank mixed with other suitable registered herbicides to control weeds listed under Weeds Suppressed, weeds resistant to Valuron 60DF, 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 60DF.

Tank Mixtures in Cereals (Wheat and Barley)

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

Valuron 60DF 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 60DF 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 60DF plus MCPA after the 3- to 5-leaf stage but before boot (with Durum and Wampum varieties do not apply before tillering). Apply Valuron 60DF 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 60DF 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 60DF 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 60DF + 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 to 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 60DF may be tank mixed with 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 pints 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 60DF 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 60DF and the grass product to a small area.

To control wild oat, tank mix Valuron 60DF with AVENGE or ASSERT.

When tank mixing Valuron 60DF with ASSERT, always include 2,4-D ester, MCPA ester, or bromoxynil-containing products (such as BUCTRIL or BRONATE). Tank-mixed applications of Valuron 60DF plus ASSERT may cause temporary crop discoloration, stunting, or injury when heavy rainfall occurs shortly after application. Do not tank mix Valuron 60DF with HOELON 3EC, as grass control may be reduced.

With EXPRESS

Valuron 60DF 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 60DF 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 60DF 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 60DF 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 60DF 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 60DF 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 60DF in fertilizer solution. Valuron 60DF 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 60DF 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 60DF and fertilizer mixture, ester formulations tend to be more compatible (see manufacturer's label). Do not add surfactant when using Valuron 60DF 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 60DF 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 60DF 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 quarts 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, marestalk, puncturevine, and common and wild sunflower. In areas where 2,4-D use is restricted, apply Valuron 60DF with surfactant only; however, this treatment may be less effective.

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With ROUNDUP

Use 1/10 oz. Valuron 60DF plus the locally recommended rate of ROUNDUP (see ROUNDUP label for maximum seasonal rate). Valuron 60DF 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 60DF 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 60DF.

Tank Mixtures in Pastures or Rangeland

Valuron 60DF 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 60DF 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 60DF in fertilizer solution. Valuron 60DF 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 60DF 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 60DF and fertilizer mixture, ester formulations tend to be more compatible (see manufacturer's label). Do not add surfactant when using Valuron 60DF 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 60DF, 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 60DF applied. Valuron 60DF 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 60DF breakdown in soil while high soil pH, low soil temperature, and low soil moisture slow Valuron 60DF 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.

Soil pH Limitations

Valuron 60DF 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 60DF 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 60DF.

Checking Soil pH

Before using Valuron 60DF 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 60DF 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 60DF 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 I-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 7.6-7.9	22 33	22 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

Location		Crop	Soil pH	Minimum Cumulative Precipitation (inches)	Minimum Rotation Interval (months)
State	County or Area				
South Dakota	Statewide	Flax, Safflower, Sunflower	7.9 or lower	No restrictions	22
	South of Hwy. 212 & east of 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 60DF 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, brome grass, 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, brome grass, 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 60DF. 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 60DF.

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 60DF.

3. Continue agitation until the Valuron 60DF is fully dispersed, at least 5 minutes.
4. Once the Valuron 60DF is fully dispersed, maintain agitation and continue filling tank with water. Valuron 60DF 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 reagitrate before using.
7. Apply Valuron 60DF spray mixture within 24 hours of mixing to avoid product degradation.
8. If Valuron 60DF and a tank mix partner are to be applied in multiple loads, preslurry the Valuron 60DF in clean water prior to adding to the tank. This will prevent the tank mix partner from interfering with the dissolution of the Valuron 60DF.

Do not use Valuron 60DF 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 60DF in suspension.

SPRAYER CLEANUP

Spray equipment must be cleaned before Valuron 60DF 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 60DF section of this label.

At the End of the Day

When multiple loads of Valuron 60DF 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 60DF 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 60DF 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.
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 60DF 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 60DF and applications of other pesticides to Valuron 60DF-sensitive crops during the same spray season, it is recommended that a sprayer be dedicated to Valuron 60DF 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 $\frac{3}{4}$ 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.

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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. 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 60DF 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 60DF 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 60DF.

INTEGRATED PEST MANAGEMENT

To better manage weed resistance when using Valuron 60DF, use a combination of tillage and tank-mix partners or sequential herbicide applications that have a different mode of action than Valuron 60DF, 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 60DF 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 60DF application, temporary discoloration and/or crop injury may occur. Valuron 60DF 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 60DF 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 60DF. For increased crop safety, delay Valuron 60DF 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:

Nonrefillable Container (flexible-bag-all weights): Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available.

Nonrefillable Container (rigid-fifty lbs. or less): Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Nonrefillable Container (rigid-greater than fifty lbs.): Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container $\frac{1}{4}$ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

Refillable Container: Refillable container. Refill this container with metsulfuron methyl only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

FOR 24-HOUR EMERGENCY ASSISTANCE (SPILL, LEAK OR FIRE), CALL INFOTRAC AT (800) 535-5053.

LIMITATION OF WARRANTY AND LIABILITY

Read the entire directions for use, conditions of warranties and limitations of liability before using this product. If terms are not acceptable, return the unopened product container at once.

By using this product, user or buyer accepts the following **CONDITIONS, DISCLAIMER OF WARRANTIES and LIMITATIONS OF LIABILITY.**

CONDITIONS: The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the 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, Inc. All such risks shall be assumed by the user or buyer.

DISCLAIMER OF WARRANTIES: To the extent consistent with applicable law, Makhteshim Agan of North America, Inc. makes no other warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise, that extend beyond the statements made on this label. No agent of Makhteshim Agan of North America, Inc. is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. To the extent consistent with applicable law, Makhteshim Agan of North America, Inc. disclaims any liability whatsoever for special, incidental or consequential damages resulting from the use or handling of this product.

LIMITATIONS OF LIABILITY: To the extent consistent with applicable law, the exclusive remedy of the user or buyer for any and all losses, injuries or damages resulting from the use or handling of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid or at Makhteshim Agan of North America, Inc.'s election, the replacement of product.

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