



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

September 21, 2016

Karina Castro  
Federal Regulatory Manager  
Makhteshim Agan of North America, Inc. (d/b/a ADAMA)  
3120 Highwoods Blvd., Suite 100  
Raleigh, NC 27604

Subject: Label Amendment – Label revisions including removal of tank mix recommendations  
Product Name: MANA 31301  
EPA Registration Number: 66222-256  
Application Date: May 14, 2015  
Decision Number: 505697

Dear Ms. Castro:

The amended label referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act, as amended, is acceptable. This approval does not affect any conditions that were previously imposed on this registration. You continue to be subject to existing conditions on your registration and any deadlines connected with them.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 18 months from the date of this letter. After 18 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

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Your release for shipment of the product constitutes acceptance of these conditions. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6. If you have any questions, please contact Emily Schmid by phone at 703-347-0189, or via email at [schmid.emily@epa.gov](mailto:schmid.emily@epa.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "Reuben Baris". The signature is stylized with a large, sweeping "R" and "B".

Reuben Baris, Product Manager 25  
Herbicide Branch  
Registration Division (7505P)  
Office of Pesticide Programs

Enclosure

# MANA 31301

(Alternate Brand Name: *Glory*<sup>®</sup> 4L)

For use on alfalfa and sainfoin, asparagus, carrots, field and sweet corn, garbanzo, lentils and peas, potatoes, soybeans, sugarcane, tomatoes, cereals, weed control in a wheat/fallow wheat rotation and for weed control in a fallow rotation with barley and wheat.

<b>ACTIVE INGREDIENT:</b>	<b>% BY WT.</b>
Metribuzin: 4-Amino-6-(1,1-dimethylethyl)-3-(methylthio)-1,2,4-triazin-5(4H)-one.....	41.0%
<b>OTHER INGREDIENTS:</b>	59.0%
<b>TOTAL:</b>	100.0%

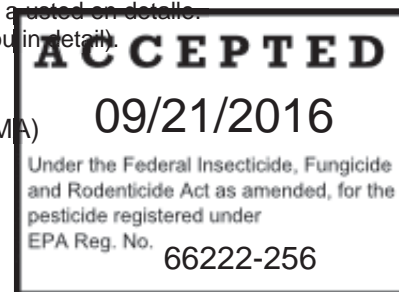
MANA 31301 is a suspension concentrate containing 3.8 lb. of metribuzin per gallon.

## KEEP OUT OF REACH OF CHILDREN CAUTION/PRECAUCION

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

**Manufactured for:**  
Makhteshim Agan of North America, Inc. (d/b/a ADAMA)  
3120 Highwoods Blvd., Suite 100  
Raleigh, NC 27604

**How can we help? 1-866-406-6262**



EPA Reg. No. 66222-256

EPA Est. No. XXXXXXXXXX

NET CONTENTS: \_\_\_\_\_

### FIRST AID

<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give anything to an unconscious person.</li> </ul>
<b>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15 to 20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<p><b>Note to Physician:</b> Treat the patient symptomatically. Symptoms of Poisoning. The compound does not cause any definite symptoms that would be diagnostic. Poisoning is accompanied by breathing difficulties and sedation. Have the product container or label with you when calling a poison control center or doctor or going for treatment. For emergency medical treatment information, call PROSAR 24 hours a day at 1-877-250-9291.</p>	

In case of spill, fire, leaks or accidents call 1-800-535-5053.

### PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS CAUTION

Harmful if swallowed or absorbed through skin. Avoid contact with skin, eyes, and clothing.

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## **PERSONAL PROTECTIVE EQUIPMENT (PPE)**

### **Applicators and other handlers must wear:**

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

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

## **ENGINEERING CONTROLS STATEMENTS**

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

### **USER SAFETY RECOMMENDATIONS**

#### **Users should:**

- Wash hands after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. Wash thoroughly and change into clean clothing as soon as possible.

## **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 cleaning equipment or disposing of equipment wash water or rinsate.

**GROUNDWATER ADVISORY:** Metribuzin is a chemical which can travel (seep or leach) through soil and can contaminate groundwater which may be used as drinking water. Metribuzin has been found in groundwater as a result of agricultural use. Users are advised not to apply metribuzin where the water table (groundwater) is close to the surface, and where the soils are very permeable, i.e., well drained soils such as loamy sands. Contact your local agricultural agencies for further information on the type of soil in your area and the location of groundwater.

## **PHYSICAL OR CHEMICAL HAZARDS**

Do not mix or allow to come into contact with oxidizing agents. Hazardous chemical reaction may occur.

## **DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Read entire label before using this product. This label must be in the possession of the user at the time of pesticide application.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

### 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 12 hours.**

**Exception:** If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

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
- Waterproof gloves
- Shoes plus socks

### PRODUCT INFORMATION

MANA 31301 is a broad spectrum herbicide for control of certain grasses and broadleaf weeds on alfalfa, asparagus, cereals, field corn, garbanzo beans, lentils, peas, potatoes, sainfoin, soybeans, sugarcane, and tomatoes. MANA 31301 can be applied pre- or post- emergence to the soil to provide residual weed control. MANA 31301 may also be applied as a contact herbicide to labeled weeds for post emergent control. Always refer to specific instructions on applications for each crop.

**Stress:** as used on this label is any condition or combination of conditions which impairs normal crop growth. Weather, disease, insect damage, fertility or other factors may cause stress. Applications of MANA 31301 made to crops under stress may result in temporary leaf burn, yellowing and/or stunting of the crop. Recovery from damage is generally rapid with no lasting effects on new growth. Under extreme stress, stand reductions may occur.

**Soil Texture:** As used on this label, "Coarse soils" are loamy sand or sandy loam soils. "Medium soils" are loam, silt loam, silt, sandy clay, or sandy clay loam. "Fine soils" are silty clay, silty clay loam, clay, or clay loam. Silty clay loam soils are transitional soils and may be classified as medium textured soils in some regions of the U.S. Before making an application of MANA 31301, applicators must evaluate soil and weed conditions carefully to assure that they choose the most effective label rate.

#### Restrictions:

- Do not use on other crops grown for food or forage. Apply this product only as specified on this label.
- Do not allow sprays to drift onto adjacent desirable plants.
- Do not apply using low-pressure and high volume hand-wand equipment.

#### ROTATIONAL CROP RESTRICTIONS:

Waiting Period after MANA 31301 Application<sup>1</sup>

4 Months	Alfalfa, Asparagus, Barley <sup>2</sup> , Corn, Forage Grasses, Sainfoin, Sugarcane, Tomato, and Wheat (Spring Fallow Application) <sup>2</sup>
8 Months	Barley, Lentils, Peas, Wheat (Fall Fallow Application)
12 Months	Potatoes and Rice <sup>3</sup>
18 Months	Sugar Beets, Onions and other root crops not listed on this label and all other crops not listed on this label.

- <sup>1</sup> Cover crops for soil building or erosion control may be planted any time, but do not graze or harvest for food or feed. Stand reductions may occur in some areas.
- <sup>2</sup> Following peas, lentils or soybeans or spring fallow application
- <sup>3</sup> Do not rotate rice after any application to a primary crop greater than 1.0 lb AI/A of MANA 30301 per season.
- Do not rotate any crop not listed on this label after application of MANA 31301 to sugarcane.

### RESISTANCE MANAGEMENT

MANA 31301 is a Group 5 herbicide based on the mode of action classification system of the Weed Science Society of America and a C1 photosynthesis photosystem II inhibitor as classified by the Herbicide Resistant Action Committee (HRAC). Any weed population may contain or develop plants naturally resistant to MANA 31301 and other Group 5 herbicides. Weed species with natural or acquired resistance to Group 5 may eventually dominate the weed population if Group 5 herbicides are used repeatedly in the same field or in successive years as the primary method of control for targeted species. Such resistant weed plants may not be effectively managed using Group 5 herbicides but may be effectively managed utilizing another herbicide alone or in mixtures from a different Group and/or by using cultural or mechanical practices. However, the herbicide mode of action classification by itself may not adequately address specific weeds that are resistant to specific herbicides.

To delay herbicide resistance, consider using diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides:

- Avoid the consecutive use of MANA 31301 or other target site of action Group 5 herbicides that have a similar target site of action on the same weed species.
- Using tank-mixtures or premixes with herbicides from different target site of action Groups as long as the involved products are all registered for the same use, have different sites of action, and are both effective at the tank mix or premix rate on the weed(s) of concern.
- Base herbicide use on a comprehensive Integrated Pest Management (IPM) and Integrated Resistance Management (IRM) program.
- Use labeled rate and directions for use to delay selection for resistance.
- Monitor treated weed populations to facilitate the early identification of weeds shifts and/or weed resistance development (also provides direction on future weed management practices).
- Control escaped weeds by implementing measures to avoid allowing weeds to reproduce by seed or to proliferate vegetatively is one of the best ways to contain resistant populations.
- Contact your local extension specialist, certified crop advisor, and/or manufacturer for herbicide resistance management and/or integrated weed management recommendations for specific crops and resistant weed biotypes.

### APPLICATION PROCEDURES

MANA 31301 cannot be applied with low-pressure or high-volume hand-wand equipment.

Use a standard low pressure (20 to 40 psi.) herbicide boom sprayer equipped with suitable nozzles and screens no finer than 50-mesh in nozzle and in-line strainers. Agitate thoroughly before and during application with bypass agitation.

**Ground Application:** Apply the proper rate of MANA 31301 in a minimum of 10 to 40 gallons of spray mixture per acre broadcast.

**Banded Application:** Use proportionally less MANA 31301 per acre in a band versus a broadcast application. For band application use 1/4 to 1 gallon of spray mix per inch of band width regardless of row spacing.

For band applications, calculate amount to be applied per acre as follows:

$$\frac{\text{Band width in inches}}{\text{Row spacing in inches}} \times \text{Broadcast rate per acre} = \text{Amount needed per acre of field}$$



**Aerial Application:** Where permitted, apply specified rate in a minimum of 2 to 10 gallons of spray mixture per acre.

**Restriction:** Do not apply aerially when wind speed is greater than 10 mph.

**ONLY USE THIS COMPATIBILITY CHECK WHEN MIXING WITH LIQUID FERTILIZERS.**

**Interpretation of Results:** If the solution in the jar appears to be uniform, without signs of agglomeration, or without a separation of an oily film on top of the fertilizer, the mixture may be used. If not, repeat the compatibility check using twice the amount of water or add a compatibility agent to the water. If separation occurs, but the mixture can be re-suspended by shaking, then application is possible with good agitation in the spray tank.

**Compatibility Check: -**

1. Pre-mix 2 teaspoons of MANA 31301 with 8 teaspoons of water (1:4 ratio) in a quart jar by adding the water first and follow with MANA 31301. Mix thoroughly. If a second herbicide is to be used, double the amount of water (1:8 ratio) and add the second herbicide after mixing MANA 31301 first.
2. Then pour 1 pint of liquid fertilizer into the quart jar and shake well.
3. Allow to stand for 5 minutes.

**Tank Mixing Guidelines: -** It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions and precautionary language of the products in the mixture (for example, first aid from one product, spray drift management from another).

1. Add the required amount of water and compatibility agent (if required) to the tank. Start agitation system while adding MANA 31301 and follow by adding the liquid fertilizer and agitate.
2. If a second herbicide is to be used, follow as above in 1, but use twice the amount of water. Start agitation and add MANA 31301 and follow by adding the second herbicide, and then continue filling the tank with liquid fertilizer.
3. Maintain continuous agitation to assure uniform spray mixture until the tank is emptied.

**COMMERCIAL IMPREGNATION AND APPLICATION OF MANA 31301 ON DRY BULK FERTILIZER**

Dry bulk fertilizer may be impregnated or coated with MANA 31301 for application to established alfalfa and soybeans. All instructions, cautions, and precautions on this label must be followed along with state regulations relating to dry bulk fertilizer blending, impregnating and labeling.

**Impregnation:** To impregnate, use a system consisting of a belt, conveyor, or closed drum which is used for dry bulk fertilizer blending. Any commonly used fertilizer can be impregnated with MANA 31301 except ammonium nitrate, or fertilizers containing ammonium nitrate, potassium nitrate, or sodium nitrate. Do not use on powder limestone.

Apply using a minimum of 200 lb dry bulk fertilizer per acre and up to a maximum of 450 lb per acre. To impregnate or coat dry bulk fertilizer, mix MANA 31301 with sufficient water to form a sprayable slurry. The delivery nozzles must be directed to deliver a fine spray toward the fertilizer for thorough coverage while avoiding spray contact with mixing equipment. Uniform impregnation of MANA 31301 to dry bulk fertilizer will vary and if the absorptivity is not adequate, an adsorptive powder may be added to produce a dry, free-flowing mixture. Micro-Cel E is the recommended absorbent powder. When another herbicide is used with MANA 31301, mix and impregnate immediately.

Apply immediately after impregnation unless experience has shown that impregnated fertilizer can be stored without becoming lumpy and difficult to spread.

**Rates:** Select the indicated rate of MANA 31301 per acre from the appropriate section of this label and refer to the formula below to determine the amount of MANA 31301 which is to be impregnated on a ton of dry bulk fertilizer based on the amount of fertilizer which will be distributed on one acre.



$$\frac{\text{Pt MANA 31301}}{\text{Per Acre}} \times \frac{2000 \text{ lb Fertilizer}}{\text{Acre}} = \frac{\text{Pt MANA 31301}}{\text{Ton of Fertilizer}}$$

**APPLICATION:** Uniform application is essential for satisfactory weed control. Accurate calibration of fertilizer application equipment is essential for uniform distribution to the soil surface. Apply half the labeled rate and overlap 50 percent, or to double, apply by splitting the middles to obtain the best distribution pattern.

If fertilizer materials are excessively dusty, use diesel oil or other suitable additive to reduce dust prior to impregnation as dusty fertilizer will result in poor distribution during application. Crop injury and/or poor weed control may occur where the impregnated fertilizer is not uniformly applied.

**INCORPORATION AND COMBINATION USES:** When MANA 31301 is to be used in combination with another herbicide, follow directions on this label for combinations, rates, crops, incorporation, and precautions.

### CHEMIGATION

MANA 31301 can be applied through sprinkler irrigation equipment to asparagus, potatoes, soybeans, and tomatoes as directed on this label. Refer to the crop sections for labeled use rates, weeds controlled or suppressed, restrictions, and precautions.

Apply this product only through sprinkler (including center pivot, lateral move, or solid set) irrigation systems. Do not apply this product through any other type of irrigation system.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.

**Calibration: (Center Pivot and Self-Propelled Lateral Move Systems):** Sprinkler irrigation systems must be accurately calibrated for application of MANA 31301. Greater accuracy in calibration (and distribution) will be achieved by injecting a larger volume of a more dilute mixture of product and water per hour. Follow the steps below to calibrate center pivot and lateral move systems:

1. Determine number of minutes required to make one complete revolution while applying 1/4 to 3/4 inch of water per acre.
2. With the system at operating pressure determine the exact number of minutes required to inject one gallon of water.
3. Divide the time required for one revolution (step 1) by the time required to inject one gallon (step 2). This gives total gallons of product-water mixture to be added to nurse tank.
4. Add required amount of water to nurse tank and start the agitation system. Then add sufficient MANA 31301 at the listed rate (See **BROADCAST APPLICATIONS**) to the nurse tank.

If you have questions about calibration, contact State Extension Service Specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Maintain continuous agitation in the injection nurse tanks during the herbicide application, sufficient to keep herbicide in suspension.

Apply specified dosage in 1/4 to 3/4 inch of water (1/4- to 1/2-inch of water on sandy soils) per acre as a continuous injection in center pivot and lateral move systems or in the last 15 to 30 minutes of set in permanent solid set sprinkler systems. Application of more than the quantity of irrigation water indicated on this label may result in decreased product performance by removing the chemical from the zone of effectiveness. Where sprinkler distribution patterns do not overlap sufficiently unacceptable weed control may result.

Where sprinkler distribution patterns overlap excessively crop injury may result. Allow sufficient time for pesticide to be flushed through all lines and all nozzles before turning off irrigation water. To insure that lines are flushed and free of remaining pesticide, an indicator dye may be injected into the lines to mark the end of the application period.

Use a minimum of 1 part water to 1 part herbicide for injection. The use of a larger volume of water will insure greater accuracy and more uniform distribution.

### **MIXING INSTRUCTIONS**

#### **Spray Drift Management**

Avoiding spray drift at the application site is the responsibility of the applicator and the grower. The interaction of many equipment-and weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions regarding spraying.

Apply only as a medium or coarser spray (ASABE standard 572.1) or a volume mean diameter of 300 microns or greater for spinning atomizer nozzles.

Apply only when the wind speed is 2 – 10 mph at the application site.

#### **For ground applications:**

- Do not apply with a nozzle height greater than 4 feet above the crop canopy.

#### **For aerial applications:**

- The distance of the outermost nozzles on the boom must not exceed 3/4 the length of the wingspan or 90% of the rotor blade diameter. Nozzles must always point backward parallel with the air stream and never be pointed downward more than 45°.

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

The applicator should be familiar with and take into account the information covered in the ***Spray Drift Management*** section.

To avoid spray drift, do not apply under windy conditions. Avoid spray overlap as crop injury may result.

#### **Information on Droplet Size**

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

#### **Controlling Droplet Size**

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.

- **Pressure** - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle-type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

### **Boom Length**

For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

### **Application Height**

Applications should be made at the lowest height consistent with efficacy and flight safety. Do not make at a height greater than 10 feet above the top of the largest plants unless a greater height is recommended for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

### **Swath Adjustment**

When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller drops, etc.).

### **Wind**

Drift potential is lowest between wind speeds of 2-10 mph. However, many factors including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential.

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

### **Temperature and Humidity**

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

### **Temperature Inversions**

Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

### **Sensitive Areas**

The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

### MIXING PROCEDURES

1. Be sure sprayer is clean and not contaminated with any other materials or crop injury or sprayer clogging may result.
2. Fill tank  $\frac{1}{4}$  full with clean water.
3. Start agitation.
4. Be certain that the agitation system is working properly and creates a rippling or rolling action on the liquid surface.
5. Pour product directly from container into partially filled spray tank.
6. Continue filling tank until 90% full. Increase agitation if necessary to maintain surface action.
7. Add tank mix herbicide(s).

When an adjuvant is to be used with this product, ADAMA suggests the use of a Chemical Producers and Distributors Association (CPDA) certified adjuvant.

### COMPATIBILITY

**Tank Mix Partners:** MANA 31301 may be applied alone or in combination with labeled tank mix partner(s). Before making application always refer to each product's label for use rates, precautionary statements, restrictions, application information and weeds controlled. The most restrictive restrictions and precautions of all the products used must be observed.

To determine the compatibility of MANA 31301 with other products, the following procedure should be followed: Pour the specified proportions of the products into a suitable container of water, mix thoroughly and allow to stand at least five (5) minutes. If the combination remains mixed or can be re-mixed readily, the mixture is considered physically compatible. For further information contact your local ADAMA representative.

**ALFALFA AND SAINFOIN INCLUDING MIXED STANDS WITH GRASSES  
(All Areas Except California)**

CROPS	PESTS	PRODUCT RATE PER ACRE	REMARKS
<b>ALFALFA</b> <b>SAINFOIN</b>	<p><b>Grasses</b>  Barnyardgrass  Bluegrass  Chickweed, Common  Cheat  Deadnettle, Purple  Downy brome  Foxtail, Barley  Foxtail, Green  Little Barley  Japanese brome  Pennycress  Rescuegrass  Shepherdspurse  Smooth Brome  Wild Oats</p> <p><b>Broadleaves</b>  Chickweed, Mousear  Curly Dock*  Dandelion  Fleabane, Rough  Flaxseed  German Moss*  Henbit  Knawel*  Kochia  Lambsquarters, Common  Marestail  Meadow Salsify Mustard,  Blue  Mustard, Jim Hill (tumble)  Mustard, Tansy  Pepperweed  Pigweed, Redroot  Prickly Lettuce  Ragweed, Common  White Cockle  Wild Buckwheat  Yellow Rocket</p> <p>*Indicates weeds partially  controlled or suppressed  at the highest use rate.</p>	8.2-33.7 fl oz	<p>Refer to product information for detailed information on the application of MANA 31301. For information on applying MANA 31301 in liquid or on dry fertilizer refer to the application of MANA 31301 in liquid fertilizers or commercial impregnation and application of MANA 31301 on dry bulk fertilizer under the product information section of this label. MANA 31301 can be used in aerial or ground spray equipment as a broadcast surface application to established crops of alfalfa and sainfoin for the control of certain grass and broadleaf weeds.</p> <p><b>For use on mixed stands of alfalfa and grasses:</b>  Rates of 16.8-25.3 fl oz/A. of MANA 31301 per acre will provide partial reduction of forage grass stands. These rates may be used to reduce forage grass stands to prevent crowding out of alfalfa. Higher rates will severely reduce forage grass stands.</p>

**PRECAUTIONS:**

- Reduced weed control may occur when extended dry conditions follow application of MANA 31301.
- Crop injury may occur when crop is under stress conditions such as diseases, insect infestations, poorly drained soils, and drought or winter injury at time of application.
- Crop injury may occur when crop is treated within 12 months after seeding.
- Crop injury may occur when there is excessive irrigation or rainfall immediately after application.
- Applications should not be made when weather conditions favor spray drift, especially in areas where wheat is growing on coarse textured soils in adjacent fields or injury may occur.
- Higher rates will severely reduce forage grass stands.

**RESTRICTIONS:**

- Use MANA 31301 only on established alfalfa and sainfoin. Do not apply after growth begins in the spring or before growth ceases in the fall, except as specified on this label.
- Pre-harvest Interval (PHI): Do not graze or harvest within 28 days after application.
- Do not apply more than ½ inch of water in the first irrigation after MANA 31301 is applied.
- Do not use MANA 31301 on sand soils.
- In areas west of the Rocky Mountains, do not use MANA 31301 on soils with calcareous surface area, high levels of lime or sodium, or a pH greater than 8.2.
- Post dormant application of MANA 31301 impregnated on dry fertilizer only in Connecticut, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Nebraska, New Mexico, New York, Ohio, Oklahoma, Pennsylvania, South Dakota, Tennessee, Texas and Wisconsin.
- Do not apply with aerial spray equipment when wind speed is greater than 10 mph.
- Do not apply when weather conditions favor spray drift and/or when sensitive cool season crops, including cole crops, onions, peas, or strawberries, are present in adjacent fields.

ASPARAGUS (Established)CROPS	PESTS	PRODUCT RATE PER ACRE	REMARKS
<b>ASPARAGUS (ESTABLISHED)</b>	<p><b>Broadleaves</b> Chickweed, Common Jimsonweed Lambsquarters Pigweed, Redroot Ragweed, Common Smartweed, Pennsylvania Sorrel, Red Velvetleaf</p> <p><b>Grasses</b> Crabgrass Foxtails, ssp. Sandbur, Field</p>	See Rate Chart below.	<p>MANA 31301 can be used in ground spray equipment or sprinkler irrigation (center pivot, lateral move, or solid set) systems as a single preemergence broadcast application or as a split application consisting of a preemergence broadcast application followed by a post-harvest broadcast application. Refer to the "Product Information" section of this label for directions.</p> <p><b>Preemergence Application Only:</b> Make a single surface application in early Spring before asparagus spears or ferns emerge. If the field is to be disked, apply MANA 31301 after disking but before the crop emerges. Use the lower rate for control of the broadleaf weeds listed above. Use the higher rate in fields with a history of severe infestations of grasses and for maximum residual control.</p> <p><b>Split Applications: (Preemergence followed by postharvest)</b> <b>Preemergence Application:</b> Apply before asparagus spears or ferns emerge. If the field is to be disked, apply after disking but prior to crop emergence. Do not apply within 14 days of harvest.</p> <p><b>Post-Harvest Application:</b> Apply after last harvest of the season but prior to emergence. The lower combination rates may be used for control of common ragweed, lambsquarters, redroot pigweed, and red sorrel. Use the higher combination rates for other weeds listed or in fields with severe grass infestations or for maximum post-harvest control of emerged weeds.</p> <p><b>RESTRICTIONS:</b></p> <ul style="list-style-type: none"> <li>• Do not use on newly seeded asparagus nor on young plants during first growing season after setting crowns.</li> <li>• Do not apply post-harvest applications until after the last harvest of spears.</li> <li>• Do not apply aerially.</li> <li>• The total amount of MANA 31301 in one crop season may not exceed 67.4 fl. oz/AI.</li> <li>• Pre-Harvest Interval (PHI): For preemergence applications only, do not apply within 14 days of harvest.</li> </ul>
<b>BROADCAST APPLICATION RATES</b>			
<b>CROP</b>	<b>MANA 31301 RATE PER ACRE</b>		
Asparagus (Preemergence Application only)	33.7-67.4 fl oz		
Split Application	16.8-33.7 fl oz preemergence Plus 33.7-50.5 fl oz post-harvest		



### CARROTS

CROPS	PESTS	PRODUCT RATE PER ACRE	REMARKS
<b>CARROTS</b>	Carpetweed ( <i>Mullugo verticillata</i> ) Galisoga ( <i>Galinsoga parviflora</i> ) Horseweed ( <i>Coryza Canadensis</i> ) Lambsquarters, Common ( <i>Chenopodium album</i> ) Mustard, Wild ( <i>Sinapis arvensis</i> ) Pigweed, Redroot ( <i>Amaranthus retroflexus</i> ) Pigweed, Smooth ( <i>Amaranthus hybridus</i> ) Prickly Lettuce ( <i>Latua serriola</i> ) Shepherdspurse ( <i>Capsella bursa-pastoris</i> ) Pineappleweed ( <i>Matricaria matricarioides</i> )	8 fl. oz	Apply MANA 31301 broadcast, post emergence over the top of the crop, with ground equipment when carrots have 5-6 true leaves but before weeds are 1 inch in height or diameter. Thorough spray coverage is essential for adequate weed control  If needed, a second supplication may be made after an interval of at least 3 weeks. Applications may be made up to 60 days of harvest.
<p><b>PRECAUTIONS:</b></p> <ul style="list-style-type: none"> <li>• Crop injury or delayed maturity may result from applications of MANA 31301 if carrots are growing under stress conditions such as periods of drought or cool, wet and cloudy weather preceding application.</li> <li>• Following an application of MANA 31301, chlorosis (yellowing) and burning of the leaf tissue may occur.</li> <li>• For newly introduced varieties of carrots with unknown tolerance to MANA 31301, treat only a small area to determine if MANA 31301 can be used without injury to the crop.</li> </ul> <p><b>RESTRICTIONS:</b></p> <ul style="list-style-type: none"> <li>• The total amount of MANA 31301 applied in one crop season may not exceed 1 pt. per acre.</li> <li>• Do not apply to carrots grown for seed.</li> <li>• Do not apply within 3 days after periods of cool, wet or cloudy weather or crop injury will occur.</li> <li>• Do not apply MANA 31301 within 3 days of any other chemical unless specified on this label.</li> <li>• Do not apply on very hot days or excessive crop injury will result.</li> <li>• Do not apply until carrots have at least 5-6 true leaves. Earlier applications will result in excessive crop damage.</li> <li>• Do not use air blast or other high pressure spray equipment to make post-emergence applications of MANA 31301.</li> </ul>			

**FIELD CORN AND SWEET CORN**

**PREPLANT AND PREEMERGENCE APPLICATIONS**

CROPS	PESTS	PRODUCT RATE PER ACRE	REMARKS
<b>FIELD CORN SWEET CORN</b>	Horseweed/Marestail Ladysthumb Lambsquarters, common Pigweed ssp. Ragweed, common Smartweed, Pennsylvania Sunflower Velvetleaf Waterhemp, Tall	3.2-8.2 fl oz  (Refer to Field Corn Rates Chart below for specific use rate by states and application timing)	MANA 31301 can be used for additional residual control of certain broad leaf weed species in corn. MANA 31301 can be applied pre plant surface or preemergence as a broadcast or band application in water, liquid fertilizer, or impregnated on dry fertilizer. Ground or aerial equipment may be used. For heavy weed infestations and/or early pre plant (30 days prior to planting) applications, use highest rates.  <b>For Fall Or Early Spring Application:</b> Spring applications of MANA 31301 may be applied up to 30 days prior to planting or preemergence. Apply only by ground equipment when MANA 31301 is used for burndown of existing vegetation in conservation tillage systems. MANA 31301 tank mix partner burndown rates are listed in "MANA 31301 BURNDOWN RATES-FIELD CORN" table.

- PRECAUTIONS:**
- Reduced residual weed control may result when used on organic soils. For this reason, residual weed control is not claimed on organic soils.
  - Corn seed should be planted a minimum of 1-1/2 inches deep or injury may occur.
  - MANA 31301 may only be used in hybrid seed corn production fields if both inbred parents are known to be tolerant to MANA 31301.

- RESTRICTIONS:**
- Do not apply more than 8.2 fluid ounces MANA 31301 per acre per growing season.
  - Do not apply on soils having pH 7.0 or greater.
  - Do not apply to coarse textured soils with less than 1.5% organic matter.
  - Do not apply more than 6.3 fl oz/A on soils with less than 2.0% organic matter.
  - Pre-harvest Interval (PHI): Corn treated with MANA 31301 may be harvested for silage or grain 60 days after treatment.
  - Do not apply to corn at spike.
  - Do not use on muck soils.
  - Do not use aerial applications if sensitive crops or plants are growing in the vicinity of the area to be treated.
  - Do not allow spray drift onto sensitive crops or plants.

**MANA 31301 BURNDOWN RATES – FIELD CORN**

Crops	Application Timing	MANA 31301 Rate (oz/A)
Iowa, Kansas, Missouri, Nebraska, South Dakota	Preplant (0 to 30 days)	3.2 to 8.2
	Preemergence	
Illinois, Indiana, Kentucky, Michigan, Minnesota, Ohio, Wisconsin	Preplant (10 to 30 days)	3.2 to 8.2
	Preplant (0 to 9 days)	3.2 to 6.3
	Preemergence	3.2 to 8.2

**FIELD CORN RATES**

Soil Texture Group	Soil Organic Matter Content	
	1.5% to 2.9%	3.0% or More
All Sand Soils	DO NOT USE	
Coarse	2.5-3.8 fl oz/A	3.9-4.4 fl oz/A
Medium	4.7-5.2 fl oz/A	5.1-5.8 fl oz/A
Fine	5.7-6.3 fl oz/A	5.7-6.9 fl oz/A

**POSTEMERGENCE SPRAY APPLICATION:**

CROPS	PESTS	PRODUCT RATE PER ACTRE	REMARKS
<b>FIELD CORN</b>	Carpetweed Cocklebur Crabgrass Dayflower Florida beggarweed Mexicanweed Pigweed ssp. Purslane Sicklepod Velvetleaf	2.5-4.7 fl oz	<p><b>Ground Application:</b> adjust nozzle height above crop and weed canopy to ensure uniform spray coverage. Spray volume should be increased with increasing weed size and population density.</p> <p><b>Aerial Application:</b> Apply in a minimum spray volume of 3 gallons per acre. For optimum spray coverage and distribution, use a minimum of 5 gallons per acre and a maximum pressure of 40 psi. Use a boom and nozzle configuration which will provide a uniform deposition pattern and coverage with low drift potential. Avoid overlaps to prevent potential crop injury.</p>
	<p><b>PRECAUTIONS:</b></p> <ul style="list-style-type: none"> <li>• Corn seed should be planted a minimum of 1-1/2 inches deep or injury may occur.</li> <li>• Only use MANA 31301 in hybrid seed corn production fields if both inbred parents are known to be tolerant to MANA 31301.</li> </ul> <p><b>RESTRICTIONS:</b></p> <ul style="list-style-type: none"> <li>• Do not apply more than 8.2 fluid ounces MANA 31301 per acre per growing season.</li> <li>• Do not apply on soils having pH 7.0 or greater.</li> <li>• Do not use on muck soils.</li> <li>• Do not use crop oil concentrate (COC) or any adjuvant containing vegetable or petroleum oils with any MANA 31301 tank mixtures as severe leaf burn, crop stunting, and/or stand reduction may occur.</li> <li>• Do not use on corn grown for seed, sweet corn, popcorn or white corn.</li> <li>• Do not use aerial applications if sensitive crops or plants are growing in the vicinity of the area to be treated.</li> <li>• Do not allow spray drift onto sensitive crops or plants.</li> <li>• Do not use on sand, loamy sand or sandy loam soils that have less than 0.5% organic matter.</li> <li>• Do not use on sand or loamy sand soils in Washington, Oregon or Idaho or crop injury may occur.</li> <li>• Do not apply when field corn is under stress.</li> <li>• Pre-harvest Interval (PHI): Field corn treated with MANA 31301 may be grazed or harvested for silage or grain 60 days after treatment.</li> </ul>		

**GARBANZO, LENTILS AND PEAS  
(Idaho, Oregon, and Washington)**

CROPS	PESTS	PRODUCT RATE PER ACRE	REMARKS
<b>GARBANZO (CHICKPEAS) LENTILS PEAS</b>	Common chickweed Common Lambsquarters Dog fennel Field pennycress Henbit Pigweed ssp. Pennsylvania Shepardspurse Smartweed Pineapple weed Prostrate knotweed Wild mustard	6.3-12.6 fl oz	<p>MANA 31301 can be used as a preemergence and postemergence application for the suppression of certain broadleaf weeds in garbanzo, lentils and peas.</p> <p><b>Preemergence application:</b> One preemergence application may be made per season. Apply in 10 or more gallons of water per acre with ground spray equipment. Apply MANA 31301 before or after planting. Thorough incorporation, either by rainfall or by mechanical means, is essential for weed suppression. Under dry conditions, incorporate MANA 31301 into the top 1 to 2 inches of soil with spike harrows, or similar shallow incorporation equipment, then cross harrow to ensure uniform soil incorporation. Where soil surface is moist at the time of application and rain follows before weed emergence, a broadcast application should provide adequate weed suppression. Use the higher rate on fine-textured soils (high in clay or organic matter) and in fields with a history of high weed populations.</p> <p><b>Postemergence application:</b> One postemergence application may be made per season. Use 4.2 to 8.2 fl oz/A MANA 31301 on lentils and spring peas. On winter peas, use 6.3 to 8.2 fl oz/A of MANA 31301. For suppression of dog fennel, use 8.2 fl oz/A MANA 31301 per acre. For optimum control, apply as a broadcast spray when weeds are small (less than 2 inches in height or diameter) and before crop is 6 inches tall. Apply specified dosage in 20 or more gallons of water per acre with ground spray equipment. Do not exceed 40 psi with ground spray equipment.</p>

**PRECAUTIONS:**

- Crop injury may result if crop is under stress conditions caused by cold weather, low fertility, disease or insect damage.
- Crop injury may also result if application is followed by heavy rain.
- Temporary chlorosis of the crop may occur. There is an added risk of crop injury if a postemergence application is made following a previous preemergence or post plant incorporated MANA 31301 application.
- This treatment may cause some chlorosis or minor necrosis. Because lentil and pea varieties may vary in their susceptibility to MANA 31301, determining crop tolerance prior to adoption as a field scale practice is suggested to prevent possible injury.
- Do not apply postemergence within 3 days after periods of cool, wet, or cloudy weather or crop injury may occur.

**RESTRICTIONS:**

- Do not apply more than 16.8 fl oz/A of MANA 31301 per year.
- Pre-harvest Interval (PHI): Do not apply within 50 days of harvest of peas, or within 75 days of harvest of lentils.
- Do not graze or feed treated vines to livestock within 40 days after application.
- Do not use on coarse-textured soils, sandy soils or soils with less than 1.5% organic matter.
- Do not apply to "Estin" lentils.
- Do not use on clay knobs or poorly covered subsoils.
- Do not apply on shallow seedlings less than 2 inches deep (preemergence only).
- Do not apply over very moist soils or wet crop foliage.
- Do not apply within 24 hours of treatment with other pesticides.

**POTATOES**

CROPS	PESTS	PRODUCT RATE PER ACRE	REMARKS
<p><b>POTATOES</b></p>	<p><b>Broadleaves</b>                      Carpetweed, common<sup>1</sup>                      Cocklebur, common<sup>1,2</sup>                      Jimsonweed<sup>1</sup>                      Kochia<sup>3</sup>                      Lambsquarters, common<sup>1,2</sup>                      Mustard, Indian<sup>1</sup>                      Mustard, tansy<sup>1</sup>                      Mustard, tumble<sup>1</sup>                      Mustard, wild<sup>1</sup>                      Pennycress, field<sup>1,2</sup>                      Pigweed, redroot<sup>1,2</sup>                      Pigweed, smooth<sup>1,2</sup>                      Ragweed, common<sup>1,2</sup>                      Shepherdspurse<sup>1</sup>                      Sicklepod<sup>1</sup>                      Smartweed, Pennsylvania<sup>1,2</sup>                      Sunflower, common<sup>3</sup>                      Thistle, Russian<sup>2</sup></p> <p><b>Grasses</b>                      Barnyardgrass<sup>3</sup>                      Crabgrass, large<sup>1</sup>                      Crabgrass, smooth<sup>1</sup>                      Foxtail, giant<sup>1</sup>                      Foxtail, green<sup>1</sup>                      Foxtail, yellow<sup>1</sup>                      Johnsongrass, seedling<sup>1</sup>                      Panicum, fall<sup>1</sup>                      Signalgrass, broadleaf<sup>1</sup></p> <p><sup>1</sup> Weeds controlled with preemergence applications.  <sup>2</sup> Weeds controlled with postemergence applications.  <sup>3</sup> Weeds requiring two applications for control.</p>	<p>8.2-33.7 fl oz</p> <p>MANA 31301 applied to potatoes according to directions, will provide economic control of the following weeds. For optimum control, applications should be made before weeds are 1 inch tall. (For best results refer to BROADCAST APPLICATIONS.)</p>	<p><b>Ground Application:</b> MANA 31301 can be used with ground spray equipment applied as a preemergence and/or postemergence application for control of the listed grass and broadleaf weeds in potatoes. Apply as a uniform broadcast spray at 20 or more gallons per acre.</p> <p><b>Aerial Application:</b> MANA 31301 may be applied in aerial spray equipment as a preemergence and/or postemergence application at 5 or more gallons per acre.</p> <p><b>Chemigation:</b> MANA 31301 may be applied preemergence and/or early postemergence to potatoes using center pivot, solid set and lateral roll systems. Apply specified dosage in 1/4 to 3/4 inch of water per acre (1/4 to 1/2 inch on sandy soil) as a continuous injection in self-propelled systems or apply in the last 15 to 30 minutes of the set in other systems. Be sure all the MANA 31301 has been flushed from the lines before shutting down the system.</p>
<p><b>PRECAUTIONS:</b></p> <ul style="list-style-type: none"> <li>The varieties Atlantic, Bellchip, Centennial, Chipbelle and Shepody are sensitive to MANA 31301. Avoid postemergence application on these varieties. Preemergence applications on these varieties may cause crop injury under adverse weather conditions, on coarse soils, under high soil pH, with higher rates per acre and with mechanical incorporation.</li> <li>Early maturing smooth skinned white and all red skinned varieties may be injured with postemergence applications.</li> <li>Postemergence applications may cause some chlorosis or minor necrosis. These symptoms may be more severe if seed-piece decay is occurring or if growing conditions favor crop stress.</li> <li>Postemergence applications may be made only on russet or white skinned varieties that are not early maturing.</li> <li>Potato varieties may vary in their response to herbicide application. When using MANA 31301 for the first time on a particular variety, always determine crop tolerance before using on a field scale.</li> </ul>			

- Certain cereal varieties are sensitive to MANA 31301 (see cereal section of this label for sensitive varieties) and must not be planted during the next growing season unless the following cultural practices occur:
    - 1. Potato vines left in rows as a result of harvest must be uniformly distributed over the soil surface prior to plowing and,
    - 2. Plow with a moldboard plow to a depth sufficient to mix the upper 8 inches of soil.
- RESTRICTIONS:**
- Do not use MANA 31301 on potatoes in Kern County, California.
  - Do not apply more than a total of 33.7 fl oz/A MANA 31301 per acre in a single crop season regardless of the method of application.
  - Pre-harvest Interval (PHI): Do not apply MANA 31301 within 60 days of harvest.
  - Do not make postemergence applications prior to rainfall or irrigation on recently cultivated potatoes, nor within 3 days after periods of cool, wet cloudy weather or injury may occur.
  - Do not use air blast sprayers.
  - Do not apply to sweet potatoes or yams.
  - Do not plant sensitive crops including onions, lettuce, cole crops and cucurbits during the next growing season following MANA 31301 applications.

**BROADCAST APPLICATIONS**

CROP	MANA 31301 fl oz /A
Potatoes	8.2-33.7

**PREEMERGENCE:** Apply specified dosage as a broadcast spray. Do not mechanically incorporate into soil. Use the 8.2 to 16.8 fl oz/A rate for control of wild mustard (*Brassica sp.*) only. On sand soils or sensitive varieties, do not exceed 16.8 fl oz/A.

Potatoes (Except early maturing smooth skinned, red skinned, and other specified varieties.)	8.2-16.8
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**POSTEMERGENCE:** Apply specified dosage as a broadcast spray over the tops of potato plants.\* Use rates of 8.2 to 16.8 fl oz/A for control of redroot pigweed and common Lambsquarters only. Apply the 16.8 fl oz/A rate for control of other weeds listed on this label.

**SPLIT APPLICATIONS:** This product may be applied once preemergence and once postemergence as directed above. Do not exceed 33.7 oz. total per acre per season.

**IDAHO, OREGON AND WASHINGTON ONLY:** Two postemergence applications can be made as broadcast sprays over the tops of potato plants if MANA 31301 is not applied preemergence. Use 8.2 to 16.8 fl oz/A for control of redroot pigweed and Lambsquarters only. On coarse (sandy) soils with low organic matter do not exceed 12.6 fl.oz./A per application. On medium and heavy soils only, use 16.8 fl oz/A per application for control of other weeds listed on this label and for suppression of hairy nightshade. Make the first application early in the season while weeds are still small. Allow at least 14 days before the second application. Do not apply after June 30 if treated land is to be planted to crops other than potatoes.

**HARD TO CONTROL WEEDS**

Although MANA 31301 may not provide commercially acceptable control in every instance, it will suppress growth of the following weeds and reduce their competition with potato plants.

BROADLEAVES			
Kochia	Nightshade, hairy	Purslane, common	Sunflower, common
GRASSES			
Barnyardgrass	Nutsedge, yellow		
<b>NOTE:</b> Where triazine-resistant weeds are present, MANA 31301 alone may not provide adequate control.			



**SOYBEANS  
(Except California)**

CROPS	PESTS	PRODUCT RATE PER ACRE	REMARKS
SOYBEAN	<p><b>Broadleaves</b>            Black Nightshade            Bristly Starbur            Buffalobur            Carpetweed            Cocklebur            Copperleaf, Hophornbeam            Florida Beggarweed            Florida Pusley            Galinsoga            Jimsonweed            Knotweed            Kochia            Lambsquarters            Morningglory, ssp.            Pigweeds ssp.            Prickly Sida/Teaweed            Purslane            Ragweed, Common            Redweed            Russian Thistle            Sesbania            Shepherdspurse            Sicklepod            Smartweed ssp.            Spotted Spurge            Spurred Anoda            Sunflower            Velvetleaf            Venice Mallow            Wild Mustards</p> <p><b>Grasses</b>            Barnyardgrass            Bluegrass, Annual            Broadleaf Signalgrass            Browntop Millet            Crabgrass            Crowfootgrass            Cupgrass            Foxtail ssp.            Goosegrass            Johnsongrass, Seedling            Junglerice            Nutsedge, Yellow            Panicum, Fall            Panicum, Texas            Red Rice            Sandbur            Shattercane            Sorghum, Volunteer            Sprangletop            Stinkgrass            Wheat, Volunteer            Witchgrass</p>	<p>6.3-33.7 fl oz</p> <p><b>(Rate Ranges:</b> Soil types can vary by field. When choosing a rate for a respective application, always refer to the use rate chart for soil type and texture. Choose the rate corresponding to the most restrictive soil type for that application. Refer to the table below "RATE SELECTION TABLE-SOYBEANS").</p>	<p>A minimum amount of soil moisture is required to activate MANA 31301. In areas of low rainfall, preemergence applications to dry soil should be followed with light irrigation of 1/4 acre inch of water.</p> <p><b>Preemergence Application:</b> The following rates of MANA 31301 may be applied preemergence to soybeans through center pivot or lateral move sprinkler irrigation systems that apply water in a uniform manner.</p> <p><b>Fall or Spring Application:</b> Spring applications of MANA 31301 may be applied up to 30 days prior to planting or preemergence. Apply only by ground equipment when MANA 31301 is used for burndown of existing vegetation in conservation tillage systems. MANA 31301 tank mix partner burndown rates are listed in "MANA 31301 BURN DOWN RATES – SOYBEANS" table.</p> <p><b>Broadcast or Band Application:</b>            MANA 31301 can be applied broadcast or banded. This application may be made during planting or as a separate operation after planting but before crop emergence.</p> <p><b>Directed Post Emergence Applications:</b>            MANA 31301 can be applied to soybeans as a directed post emergence application for control of emerged weeds less than 4 inches tall. For specific restrictions to this use please see below.</p>

**PRECAUTIONS:**

Injury to soybeans may occur when MANA 31301 is used under the following conditions:

- Minimize tillage to prevent crop injury.
- When soils have a calcareous surface area or a pH of 7.5 or higher.
- Due to the sensitivity of certain soybean varieties, consult your ADAMA representative or your seed supplier for information on the tolerance of newly released soybean varieties, prior to use of MANA 31301.
- When applied in conjunction with soil-applied organic phosphate pesticides.
- Over application or boom overlapping may result in stand loss and soil residues.
- Uneven application or improper incorporation can decrease the level of weed control and/or increase the level of injury.
- When applied to any soil with less than 1/2% organic matter.
- Soil incorporation deeper than indicated.
- When sprayers are not calibrated accurately.
- When heavy rains occur soon after application, especially in poorly drained areas where water may stand for several days
- When soybeans are planted less than 1 1/2 inches deep
- If replanting is necessary in fields treated with MANA 31301 as directed on this label, the field may be replanted to soybeans.
- Do not apply a second treatment as injury to soybeans may occur.

**RESTRICTIONS FOR DIRECTED POSTEMERGENCE APPLICATIONS:**

- Postemergence directed spray applications may only be made to soybeans in Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas.
- Do not apply directly to soybeans or serious crop injury will occur. Use of a hood or shield may be used to limit exposure to soybean crop.
- Do not allow spray to contact more than the lower 1/4 to 1/3 of soybean plants. Soybean leaves contacted by the spray will be killed.
- Do not apply MANA 31301 postemergence to sensitive soybean varieties. See "Precautions" in the front of this label.
- Do not feed or graze green soybean vines.
- Pre-harvest Interval (PHI): Do not harvest soybeans or use dry soybean vines for feed or forage within 70 days of last application.
- To avoid injury to other crops or desirable plants from spray drift, sprayer pressure must not exceed 30 psi and the sprayer must be fitted with nozzles no smaller than 8002 T-Jet (or equivalent). Do not apply under weather conditions which favor drift.

**RESTRICTIONS:**

- Do not apply to sand soils, or to sandy loam or loamy sand soils containing less than 2% organic matter.
- Do not incorporate into soil or apply more than once per season.
- Do not apply heavy irrigation immediately after application.
- Do not graze or feed treated vines to livestock 40 days after application when MANA 31301 is applied alone.
- Apply only 2,4-D low volatile ester formulations which are registered and recommended for preplant or burndown use in soybeans.
- Do not apply tank mixture containing 2,4-D low volatile ester if wind is blowing toward desired susceptible plants (i.e. cotton, tobacco, tomato, etc.) or when wind speeds exceed 6 miles per hour.

**RATE SELECTION TABLE - SOYBEANS**

**OUNCES OF MANA 31301 PER ACRE**

SOIL TEXTURE	ORGANIC MATTER		
	Less than 2%	2 to 4%	Over 4%
<b>COARSE SOILS</b>	DO NOT USE	6.3-12.6	6.3-16.8
<b>MEDIUM SOILS<sup>1</sup></b>	12.6-16.8	16.8-21	21-25.3
<b>FINE SOILS<sup>1</sup></b>	16.8-21.0	21-25.3	25.3-29.5
<b>Mississippi Delta Only</b>	up to 25.3	up to 29.5	up to 33.7

<sup>1</sup> For control of Lambsquarters, redroot pigweed and wild mustard, and for suppression of green, yellow and giant foxtails on alkaline (calcareous) soils in Nebraska, Minnesota, South Dakota and North Dakota only, apply MANA 31301 at rates of 8.2 oz./A. on medium soils and 8.2 to 12.6 oz./A. on fine soils regardless of soil organic matter percentage (use 12.6 oz./A. only where soil pH is less than 7.5

and weed pressure is heavy). The 8.2 oz./A. rate of MANA 31301 alone can be applied regardless of soil pH. For control of other weeds listed on this label use MANA 31301 at full rates indicated in the table above, but note that crop injury may occur on soils having a calcareous surface area or a pH of 7.5 or higher.

**MANA 31301 BURNDOWN RATES – SOYBEANS**

<b>Crops</b>	<b>Application Timing</b>	<b>MANA 31301 Rate (oz/A)</b>
Soybeans	Preplant (0 to 30 days)	3.2 to 8.2
	Preemergence	

**SUGARCANE**  
(For use only in TX, LA and FL)

CROPS	PESTS	PRODUCT RATE PER ACRE	REMARKS
<b>SUGARCANE</b>	<p><b>Broadleaves</b>  Ageratum  Amaranth ssp.  Bindweed, Field  Butterweed  Chickweed  Cudweed  Euphorbia ssp.  Fireweed  Floras paintbrush  Haole Koa  Henbit  Hialoa  Hilahila  Lambsquarters  London rocket  Marestail  Mustard, Wild  Purslane, Common  Rattlepod  Spurge, Garden  Richardia  Sowthistle  Spurge, Graceful  Tarweed</p> <p><b>Grasses</b>  Alexandergrass  Bristly foxtail  Broadleaf Signalgrass  Crabgrass ssp.  Foxtail ssp.  Goosegrass  Guineagrass  Johnsongrass, Seedling  Signalgrass, Broadleaf  Oats, Winter  Panicum, Broadleaf  Plushgrass  Ricegrass  Wiregrass</p>	<p>25.3-101.1 fl oz</p> <p>(Do not exceed rates for specific states as specified in the chart below.)</p>	<p>MANA 31301 is effective as a preemergence broadcast application for certain grass and broadleaf weeds.</p> <p><b>Broadcast application in Texas and Louisiana:</b> Apply MANA 31301 at a rate of 25.3 to 101.1 oz/A using a spray volume of 10-40 gallons per acre. Apply as a broadcast spray after planting or to the stubble after harvest. A second application may be made early in the spring when sugarcane is less than 14 inches tall.</p> <p><b>Aerial application:</b> Apply MANA 31301 at a rate of 25.3 to 50.5 oz/A when weeds are less than 4 inches tall in 5 to 10 gallons of spray mixture per acre. Apply to stubble or plant cane that is less than 14 inches tall.</p> <p><b>Postemergence directed spray application (Florida Only):</b> Apply MANA 31301 at a rate of 25.3 to 50.5 oz/A as a spot treatment to provide control of emerged perennial grasses and broadleaf weeds that are less than 3 inches in height.</p>

**PRECAUTIONS:**

- Spray contact with sugarcane foliage may result in minor leaf margin chlorosis and/or necrosis.
- Use the higher rate on heavy clay soils with high organic matter.

**RESTRICTIONS:**

- Florida only: Do not apply no more than 67.4 oz/A using postemergence directed spray application allowed only.
- Louisiana and Texas only: Do not exceed 101.1 oz/A using pre and postemergence directed spray application allowed only.
- For aerial and chemigation application methods, the maximum application rate is 50.55 oz/A.
- Do not use treated foliage for feed or forage.
- Do not rotate any crop not listed on this label for 18 months following an application of MANA 31301. Refer to crop rotation restrictions for more information.
- Do not use on sand soils.
- Pre-harvest Interval (PHI): Do not apply within 60 days of harvest.
- Do not allow spray overlaps or variations in application speed that may result in insufficient or excessive rates of application.
- To assure that spray will not adversely affect adjacent sensitive non target plants, apply this product by aircraft at a minimum upwind distance of 400 ft. from sensitive plants.

**SUGARCANE- LOUISIANA AND TEXAS ONLY**

Preemergence and postemergence applications of MANA 31301 with aerial or ground spray equipment are recommended for the control of the following weeds in sugarcane:

Broadleaves

Amaranth, spiny (*Amaranthus spinosus*)  
 Bindweed, Field (*Convolvulus arvensis*)  
 Chickweed (*Cerastium vulgatum*)  
 Henbit (*Lamium amplexicaule*)  
 Lambsquarters (*Chenopodium album*)  
 London rocket (*Sisymbrium irio*)  
 Marestalk (*Conyza Canadensis*)  
 Mustard, Wild (*Brassica kaber*)  
 Pigweeds (*Amaranthus spp.*)  
 Purslane (*Portulaca oleracea*)  
 Sowthistle (*Sonchus spp.*)

Grasses

Broadleaf Signalgrass (*Brachiaria platyphylla*)  
 Crabgrass (*Digitaria spp.*)  
 Foxtails (*Setaria spp.*)  
 Johnsongrass, Seedling (*Sorghum halepense*)  
 Oats, Winter (*Avena spp.*)

MANA 31301 Lb/Acre	Remarks
2 to 4	<u>Broadcast</u> : Apply specified dosage per acre using 20 to 30 gallons of water with ground equipment or 5 gallons of water with aircraft spray equipment. Apply as a broadcast spray during the fall after planting or to the stubble after harvest. Make a second application early in the spring.
1 to 2	<u>Band</u> : Apply specified dosage in 10 to 20 gallons of water per acre in a 30 to 36 inch band over the row during the fall after planting or to the stubble after harvest. Make a second application early in the spring.

**RESTRICTIONS (Louisiana and Texas Only):**

- Do not use treated foliage for feed or forage.
- Use the higher rate on heavy clay soil and soil with a high percentage of organic matter. If necessary, a third application may be made in late spring at lay-by.

Pre-harvest Interval (PHI): Do not apply within 60 days of harvest.

**SUGARCANE – FLORIDA ONLY**

Postemergence over-the-top or directed spray applications of MANA 31301 are recommended for the control of the following weeds in sugarcane:

<p><u>Broadleaves</u>                  Amaranth, spiny (seedling) (<i>Amaranthus spinosus</i>)                  Butlerweed (Cressleaf groundsell)(<i>Senecio glabellus</i>)                  Cudweed (<i>Gnaphalium spp.</i>)                  Purslane (<i>Portulaca oleracea</i>)</p>	<p><u>Grasses</u>                  *Crabgrass, large (<i>Digitaria sanguinalis</i>)                  Foxtail, bristlegrass (<i>Setaria magna</i>)                  Goosegrass (<i>Eleusine indica</i>)                  Panicum, broadleaf (<i>Panicum adspersum</i>)                  Signalgrass, broadleaf (<i>Brachiaria platyphylla</i>)</p>
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\*Best control is achieved when applications are made when this weed is less than 4" in diameter.

**APPLICATIONS**

MANA 31301 Lb./Acre	Remarks
1 1/3 to 2 2/3	<p><u>Ground Application:</u> MANA 31301 may be used in one or two applications with a minimum of 14 days between each application. Apply when weeds are less than 6 inches tall in 10 to 40 gallons of spray mixture per acre.</p> <p><u>Postemergence Broadcast or Band:</u> Apply over-the-top of stubble or plant cane while sugarcane is less than 14 inches tall.</p> <p><u>Postemergence Directed Spray:</u> Apply to sugarcane that is a minimum of 14 inches tall and before row closing.</p>
1 1/3 to 2	<p><u>Aerial Application:</u> Apply when weeds are less than 4 inches tall in 5 to 10 gallons of spray mixture per acre. Apply to stubble or plant cane while the sugarcane is less than 14 inches tall.</p>

**TOMATOES**

CROPS	PESTS	PRODUCT RATE PER ACRE	REMARKS
<p><b>TOMATOES</b> Preplant incorporated applications (Transplant tomatoes only)</p>	<p><b>Broadleaves</b> Galinsoga Lambsquarters Pigweed, Redroot Purslane, Common</p> <p><b>Grasses</b> Goosegrass</p> <p><b>Suppression</b> Barnyardgrass Goosegrass Foxtail ssp. Panicum ssp.</p>	<p>8.2-16.8 fl oz</p> <p>(For optimum control of these weeds, use the highest rate indicated on the label for the type of application to be made. Repeat postemergence applications may be needed for best control.)</p>	<p><b>Preplant Incorporated--Transplant Tomatoes Only:</b> Apply specified dosage in 10 or more gallons of water per acre as a broadcast spray to the soil surface immediately before transplanting. Incorporate to a depth of 2 to 4 inches with equipment capable of uniformly mixing the chemical into the soil. This application may be made alone or in a tank mix combination. When transplanting tomatoes, place the root system of the plants below the herbicide incorporation zone or injury may occur.</p>
<p>Postemergence applications (Established tomatoes)</p>	<p><b>Broadleaves</b> Carpetweed Fumitory Galinsoga Jimsonweed Ladysthumb Lambsquarters Mustard, Wild Pigweeds Purslane Ragweed, Common Smartweed, Pennsylvania Toadflax Velvetleaf</p> <p><b>Grasses</b> Foxtail, Yellow Goosegrass</p>	<p>8.2-16.85 oz/A for broadcast sprays</p> <p>16.85-33.7 oz/A for directed sprays</p> <p>Use the higher rate in fields with a history of severe weed pressure and for maximum residual weed control.</p>	<p><b>Postemergence Directed Spray--Established Tomatoes:</b></p> <p>Apply MANA 31301 at a rate of 16.8 to 33.7 oz/A of in a specified dosage in 20 or more gallons of water per acre as a directed spray. One or more applications may be applied per use season. This method of treatment is preferred for use in fields with a history of severe weed pressure or in fields infested with hard-to-control weeds. For transplanted tomatoes, do not apply until transplants have recovered from transplant shock and new growth is evident.</p>



**PRECAUTIONS**

- For effective control of grasses and broadleaf weeds with postemergence applications, apply MANA 31301 before weeds are 1-inch tall. Thorough spray coverage on weed foliage is essential for adequate control with postemergence applications.
- Crop injury or delayed maturity may result from broadcast or directed spray applications if tomatoes are growing under stress conditions such as periods of drought or cool, wet and cloudy weather preceding application.
- For newly introduced tomato varieties with unknown tolerance to MANA 31301, treat only a small area to determine if MANA 31301 can be used without injury to the crop.

**RESTRICTIONS**

- Do not apply through chemigation.
- Do not allow MANA 31301 to come into contact with tomato foliage.
- Do not use air blast or other high pressure spray equipment to make postemergence applications of MANA 31301.
- Do not apply aerially.
- Pre-harvest Interval (PHI): Do not apply within 7 days of harvest.
- Do not apply more than a total of 33.7 oz/A per crop season
- Do not apply the total amount of 33.7 oz/A within a time span of less than 35 days, except in the case of directed sprays.
- Allow at least 14 days between applications, regardless of dosage or method of application or severe crop injury may occur.
- Do not apply within 3 days after periods of cool, wet or cloudy weather, or crop injury will occur.
- Do not use hot caps on tomatoes within 7 days before or at any time after application of MANA 31301.
- Do not treat seeded tomatoes until plants have reached the 5 to 6 leaf stage or severe crop injury may occur.
- Do not apply to tomatoes within 24 hours of application of other pesticides.

**CEREALS**  
**Spring and Winter Barley and Winter Wheat**

CROPS	PESTS	PRODUCT RATE PER ACRE	REMARKS
<b>CEREALS</b> Winter Wheat Winter Barley	<p><b>Broadleaves</b>            Buckwheat, Wild            Bittercress            Buttercup, spp.            Catchfly, Conical            Catchweed            Chickweed, Common            Chickweed, Mousear            Corncockle            Cowcockle            Dogfennel            Evening Primrose, Cutleaf            Falseflax, Smallseed            Fiddleneck, Tarweed            Filaree, Redstem            Geranium, Carolina            Gromwell, ssp.            Henbit            Knotweed, Prostrate            Kochia            Lambsquarters            Lettuce, Miners            Lettuce, Prickly            Mustard, Blue            Mustard, Tumble            Mustard, Wild            Pennycress, Field            Pepperweed, Virginia            Pigweed, ssp.            Pineappleweed            Radish, Wild Shepardspurse            Speedwell, Ivyleaf            Tansy mustard            Thistle, Russian            Turnip, Wild            Vetch, Winter</p> <p><b>Grasses</b>            Barley, Hare (Wild) Barley,            Little            Blackgrass            Bluegrass, Annual Bluegrass,            Bulbous            Brome, Downy* Brome,            Japanese*, Ripgutbrome *            Cheat*            Foxtail, spp*            Oat, Wild* Rescuegrass*            Whitlowgrass, Spring (Vernal)            Windgrass</p>	<p>1.6 to 16.8 fl oz</p> <p>(Refer to Post Emergence Broadcast Application By Soil Type and Growth Stage Chart below for specific use rate.)</p> <p>Weed control may not be observed for 2 to 4 weeks under normal growth conditions and for 4 to 6 weeks under very dry conditions.</p>	<p>MANA 31301 may be applied postemergence by aerial or ground application equipment. Use a minimum spray volume of 2 GPA by air and 10 GPA by ground. Uniform spray coverage is necessary to obtain optimum weed control and to minimize potential for crop injury.</p> <p>Sequential applications: allow a minimum of 21 days between applications if wheat is actively growing or allow 45 days between applications if wheat is growing in adverse conditions, has entered dormancy or is stressed due to frost damage, disease, drought or excessive moisture.</p> <p>Moisture (at least 1/2 inch) is required within 2 to 3 weeks after application to move MANA 31301 into the weed root zone. Lack of adequate moisture after application may result in poor or erratic weed control. Control or suppression of listed weeds is dependent on weed size at time of application. Control or suppression may be reduced if broadleaf weeds are taller than 1 inch or grasses have more than 2 leaves.</p>

**Cereal Rotations Following Potatoes Treated with MANA 31301:** If planting a sensitive cereal variety (listed under the wheat and barley variety tolerance portion of this label), following potatoes treated with MANA 31301 or metribuzin containing products, refer to the potato section of the MANA 31301 label for special cultural practices to follow.

**PRECAUTIONS**

- Crop injury may occur if MANA 31301 is applied:
- When the crop is under stress such as winter kill, frost damage, disease, drought or excessive moisture, severe grazing, or when these conditions follow the application.
- In combination with fluid fertilizer especially with the addition of surfactant,
- Prior to the growth stage specified on this label.
- To soils high in lime or sodium, a pH greater than 7.7, calcareous, gravelly, thinly covered or exposed subsoil areas.
- To fields where cereal seeds have been planted less than 1 inch deep.
- To a non-winter hardy wheat or barley variety.
- To a sensitive wheat or barley variety as listed below.
- To frozen soil or crop still in winter dormancy.
- Not all varieties exhibit the same tolerance to MANA 31301. To avoid possible crop injury, treat a small strip of any unknown variety with the listed MANA 31301 rate to ascertain crop tolerance before treating an entire field.

**RESTRICTIONS**

- Do not use Durum Wheat.
- Pre-harvest Interval (PHI): Do not graze wheat within 14 days of MANA 31301 application or harvest grain within 21 days after last application.
- Do not graze or harvest barley before crop maturity.
- Do not apply MANA 31301 through any type of irrigation equipment.
- Do not apply when wheat under stress.
- Do not use on soils containing less than 0.75% organic matter.
- Do not apply more than a total of 16 fluid ounces MANA 31301 (8 ounces active ingredient) per acre per year.
- On irrigated cereals, do not apply more than 0.5 inch of water for the first irrigation, the maximum amount for each additional irrigation must not exceed 1 inch. Allow a minimum of 14 days between the first irrigation and subsequent irrigations.

**Postemergence Broadcast Application By Soil Type and Growth Stage**

Crop Growth Stage	Soil Texture	MANA 31301 Use Rate (oz/A)	
		% Organic Matter	
2 Leaf To 2 Tiller		0.75 to 2.0%	>2.0%
	Coarse	1.6 to 3.2	1.6 to 4.7
	Medium	1.6 to 4.7	3.2 to 4.7
	Fine	3.2 to 4.7	3.2 to 6.3
Use these rates on crops with secondary roots smaller than 1 inch. For dryland winter wheat (non-irrigated), apply the highest listed rate to achieve maximum weed suppression/control			
3 Tiller To 4 Tiller	Coarse	4.7 to 6.3	6.3 to 7.9
	Medium	6.3 to 7.9	7.9 to 9.5
	Fine	7.9 to 9.5	7.9 to 9.5
Do not apply within 2 weeks after grazing or breaking of winter dormancy. Apply after the crop is at or beyond the 3 tiller growth stage but before jointing. Secondary roots should be developed and larger than 1 inch long. Do not apply before 75 days after planting. For dryland winter wheat (non-irrigated), apply the highest listed rate to achieve maximum weed suppression/control.			
Over 4 Tillers	Coarse	6.3 to 9.5	7.9 to 12.6
	Medium	6.3 to 12.6	7.9 to 12.6
	Fine	7.9 to 12.6	12.6 to 16.8

Do not apply within 2 weeks after grazing or breaking of winter dormancy. Apply after the crop is at or beyond the 3 tiller growth stage but before jointing. Secondary roots should be developed and larger than 1 inch long. Do not apply before 75 days after planting.

For dryland winter wheat (non-irrigated), apply the highest listed rate to achieve maximum weed suppression/control.

GEORGIA ONLY: Wheat must be planted before November 15 in the Piedmont area and Northern part of the state, and before December 1 in the Coastal Plain area.

**FOR WEED CONTROL IN A WHEAT/FALLOW/WHEAT ROTATION  
(Idaho, Oregon, Utah and Washington Only)**

CROPS	PESTS	PRODUCT RATE PER ACRE	REMARKS
<b>WHEAT/ FALLOW ROTATION</b>	<b>Broadleaves</b> Chickweed, Common Henbit Kochia Lambsquarters Mustard, Blue or Purple Mustard, Jim Hill Mustard, Tansy Mustard, Treacle Mustard, Wild Pennycress, Field Pigweed ssp. Russian thistle Wild Sunflower  <b>Grasses</b> Cheatgrass Downy Brome Wheat, Volunteer	16.8-25.3 fl oz  (See corresponding use rate for application timing and state below.)	MANA 31301 may be applied to provide weed control during the fallow period after wheat or barley harvest or in the Spring before winter wheat or barley is planted. Use higher rate for longer weed control. Mechanical tillage or the application of a contact herbicide may be required to control weeds germinating prior to seeding of winter wheat. Best results will be obtained where straw and chaff are evenly distributed across the field.
<p><b>PRECAUTIONS:</b></p> <ul style="list-style-type: none"> <li>• Rainfall (1/2 inch or more) is required for herbicide application.</li> <li>• Where weed growth is present at application time, MANA 31301 should be applied with a contact herbicide.</li> </ul> <p><b>RESTRICTIONS:</b></p> <ul style="list-style-type: none"> <li>• Do not rotate any crop not listed on this label for 18 months following application of MANA 31301.</li> <li>• Do not graze treated fields.</li> <li>• Do not plant spring seeded cereals following fall fallow applications of MANA 31301.</li> <li>• Where MANA 31301 was applied in the fall, do not apply MANA 31301 in the spring.</li> <li>• Do not plant winter wheat until 4 months (120 days) or after application.</li> <li>• For fall applications, do not exceed a rate of 21.0 oz/A in a single application.</li> <li>• For spring applications, do not exceed 16.0 oz/A in a single application.</li> </ul>			

**FOR WEED CONTROL IN A FALLOW ROTATION WITH BARLEY AND WHEAT  
(Colorado, Kansas, Montana, Nebraska, and Wyoming Only)**

CROPS	PESTS	PRODUCT RATE PER ACRE	REMARKS
<b>Wheat/ Fallow Rotation</b>	<b>Broadleaves</b> Chickweed Common Henbit Cowcockle Kochia Lambsquarters Mustard, Blue or Purple Mustard, Jim Hill Mustard, Tansy Mustard, Treacle Mustard, Wild Pennycress, Field Pigweed ssp. Russian thistle Sunflower, Wild  <b>Grasses</b> Cheatgrass Downy Brome Foxtail, Green Oats, Wild Wheat, Volunteer	12.6-25.3 fl oz  (See corresponding use rate for application timing and state below.)	MANA 31301 may be applied to provide weed control during the fallow period after wheat harvest or in the Spring before winter wheat is planted. Use higher rate for longer weed control. Mechanical tillage or the application of a contact herbicide may be required to control weeds germinating prior to seeding of winter wheat. Best results will be obtained where straw and chaff are evenly distributed across the field.
<p><b>PRECAUTIONS:</b></p> <ul style="list-style-type: none"> <li>• Rainfall (1/2 inch or more) is required for herbicide application.</li> <li>• Where weed growth is present at application time, MANA 31301 should be applied with Parazone or other contact herbicide.</li> </ul> <p><b>RESTRICTIONS:</b></p> <ul style="list-style-type: none"> <li>• Do not rotate any crop not listed on this label for 18 months following application of MANA 31301.</li> <li>• Do not graze treated fields.</li> <li>• Do not plant spring seeded cereals following fall fallow applications of MANA 31301.</li> <li>• Where MANA 31301 was applied in the fall, do not apply MANA 31301 in the spring.</li> <li>• Do not plant winter wheat until 4 months (120 days) or after application.</li> <li>• For fall applications, do not exceed a rate of 25.3 oz/A in a single application.</li> <li>• For spring applications, do not exceed 16.8 oz/A in a single application.</li> </ul>			

**STORAGE AND DISPOSAL**

Do not contaminate water, food, or feed by storage and disposal.

**PESTICIDE STORAGE:**

Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food and feed. Store in original container and out of reach of children, preferably in a locked storage area.

Do not store above 100°F for extended periods of time. Storage below 20°F can result in formation of crystals. If product crystallizes, store at 50°F to 70°F and agitate to redissolve crystals. If container is damaged or spill occurs, use product immediately or dispose of product and damaged container as indicated below.

**PESTICIDE DISPOSAL:**

Open dumping is prohibited. Pesticide wastes are toxic. Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the hazardous waste representative at the nearest EPA Regional Office for guidance.

**CONTAINER HANDLING:**

**Rigid, Nonrefillable containers small enough to shake (i.e. with capacities equal to or less than five gallons).**

Nonrefillable container. Do not reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 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. Then offer for recycling or reconditioning if available, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or a mix tank or collect rinsate at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Once container is rinsed, offer for recycling if available, or puncture and dispose of in a sanitary landfill.

**Rigid, Nonrefillable containers that are too large to shake (i.e. with capacities greater than 5 gallons or 50 lb).**

Nonrefillable container. Do not reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 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. Offer for recycling or reconditioning if available, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or a mix tank or collect rinsate at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Once container is rinsed, offer for recycling if available, or puncture and dispose of in a sanitary landfill.

**Refillable Container**

Refill this container with pesticide 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.

**Refilling or Returning Containers**

If refilling or returning container is planned, end users are not authorized to remove tamper evident cables, one way valves or clean container.

**Recycle or Disposal of Containers**

End users are authorized to remove tamper evident cable as required to remove the product from the container unless the container is equipped with one way valves and refilling or returning is planned. Instructions for container rinsing and either recycling or disposal are as follows:

**Bottom Discharge IBC (e.g. Schuetz Caged IBC or Snyder Square Stackable).**

Pressure rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To pressure rinse the container before final disposal, empty the remaining contents from the IBC into application equipment or mix tank. Raise the bottom of the IBC by 1.5 inches on the side which is opposite of the bottom discharge valve to promote more complete product removal. Completely pump or drain rinsate into application equipment or rinsate collection system while pressure rinsing. Continue pressure rinsing for 2 minutes or until rinsate becomes clear. Replace the lid and close bottom valve.

**Top Discharge IBC, Drums, Kegs (e.g. Snyder 120 Next Gen, Bonar B120, Drums and Kegs).**

Triple rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To triple rinse 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. Rinse all interior surfaces. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

**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 ADAMA. All such risks shall be assumed by the user or buyer.

**DISCLAIMER OF WARRANTIES:** To the extent consistent with applicable law, ADAMA 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 ADAMA is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. To the extent consistent with applicable law, ADAMA 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 ADAMA's election, the replacement of product.

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