

66222-202

11/12/2009

1116



U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division (7505P)
Ariel Rios Building
1200 Pennsylvania Ave., NW
Washington, D.C. 20460

EPA Reg. Number:

66222-202

Date of Issuance:

NOV 12 2009

NOTICE OF PESTICIDE:

Registration
 Reregistration
(under FIFRA, as amended)

Term of Issuance: Unconditional

Name of Pesticide Product:

Ironclad Herbicide

Name and Address of Registrant (include ZIP Code):

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

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

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act. Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is unconditionally registered in accordance with FIFRA provided that you:

1. Submit and/or cite all data required for registration review/reregistration of your product when the Agency requires all registrants of similar products to submit data.
2. Submit one-year Storage Stability (Guideline 830.6317) and Corrosion Characteristics (Guideline 830.6320) studies within one-year from the date of this notice.
3. Make the following label changes:
 - a. Change the EPA Reg. No. to "66222-202".
 - b. Include the EPA Establishment Number and Net Contents.
 - c. The Hazards to Humans and Domestic Animals statement should be revised to read "Causes moderate eye irritation. Avoid contact with eyes or clothing." The statements "Harmful if absorbed through skin." and "Avoid contact with skin." are optional.
 - d. Revise the PPE phrase to read "If no such instructions for washables exist..."

Continued on Page 2

Signature of Approving Official:

Jim Tompkins
Product Manager 25
Herbicide Branch
Registration Division (7505P)

Date:

NOV 12 2009

- e. Revise the User Safety Recommendations phrase to read “Remove clothing/**PPE** immediately...”
- f. On page 2, revise the sentence to read “Ironclad Herbicide is ~~recommended for use~~ **used** on field corn grown in most states.”
- g. Under Spray Drift Management, make the following changes in bold:
 - i. “To minimize spray drift, the applicator ~~should~~ **must** be familiar with and take into account the following drift reduction ~~advisory~~ information.”
 - ii. “The boom length ~~should~~ **must** not exceed $\frac{3}{4}$ of the wing or rotor length...”
 - iii. Add the restriction “**Do not apply during a temperature inversion.**” under the Temperature Inversions section.
- h. Revise the heading from “General Information” to ‘Product Information’.
- i. On page 5 under Application Instructions, revise the sentence to read “All direct or indirect contact (such as spray drift) with crops other than field corn ~~should~~ **must** be avoided...”
- j. Revise the heading from “General Precautions and Restrictions” to “Precautions and Restrictions”.
- k. Revise the Storage and Disposal statement to read “Do not contaminate water, food, or feed by storage and disposal.”
- l. Revise the Pesticide Disposal statement to read “Wastes resulting from the use of this product ~~may~~ **must** be disposed of on site or at an approved waste disposal facility.”
- m. Under the Container Disposal section for Nonrefillable Container (flexible-bag-all weights), add the statement in bold as follows:
“Nonrefillable container. Do not reuse or refill this container. **Completely empty bag into application equipment.** Offer for recycling, if available...”
- n. Under the Container Disposal section for Nonrefillable Container (rigid-greater than fifty lbs), replace the last sentence “Offer for recycling.” with “Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning If burned, stay out of smoke.”
- o. Under the Container Disposal section for Refillable Container, after the sentence “Repeat this rinsing procedure two more times.” add the statement “Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning If burned, stay out of smoke.”
- p. Due to the importance of resistance management to a long-term pest-management strategy, it is suggested that resistance management grouping symbols and statements be included on the front panel of the label as described in PR Notice 2001-5.

The basic Confidential Statement of Formula (CSF) dated August 4, 2009 is acceptable.

A stamped copy of the label is enclosed for your records. Submit one (1) copy of the revised final printed label before you release the product for shipment. Products shipped after eighteen (18) months from the date of this notice or the next printing of the label, whichever occurs first, must bear the new revised label. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA §6(e). Your release for shipment of the product constitutes acceptance of these conditions.

Enclosure

4/16

ACCEPTED
with COMMENTS
in EPA Letter Dated
NOV 12 2009

Ironclad™ Herbicide

Water-Dispersible Granule
For use in Field Corn

Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.

66222-202

Contains nicosulfuron and rimsulfuron, the active ingredients used in Steadfast®.
Ironclad™ Herbicide is not manufactured or distributed by DuPont™.

ACTIVE INGREDIENTS:	% BY WT.
Nicosulfuron: 2-[[4,6-dimethoxypyrimidin-2-yl)aminocarbonyl]aminosulfonyl]-N,N-dimethyl-3-pyridinecarboxamide.....	50.0%
Rimsulfuron: N((4,6-dimethoxypyrimidin-2-yl) aminocarbonyl)-3-(ethylsulfonyl)-2-pyridinesulfonamide	25.0%
OTHER INGREDIENTS:	25.0%
TOTAL	100.0%

KEEP OUT OF REACH OF CHILDREN CAUTION

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

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

EPA Reg. No. 66222-xxx

EPA Est. No. _____

NET CONTENTS: _____ LBS

FIRST AID

IF IN EYES:	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
IF SWALLOWED:	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
IF INHALED:	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice.
<p>Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact Prostar at 1-877-250-9291 for emergency medical treatment information.</p>	

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS CAUTION

Causes moderate eye irritation. Harmful if absorbed through the skin. Avoid contact with skin, eyes, and clothing.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for Category A on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants.
- Chemical-resistant gloves Category A (such as butyl rubber, natural rubber, neoprene rubber, or nitrile rubber) ≥ 14 mils.

- Shoes plus socks.

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

USER SAFETY RECOMMENDATIONS

USERS SHOULD: Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

ENVIRONMENTAL HAZARDS

Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment rinse water. Do not apply where/when conditions could favor runoff. Do not apply if a severe storm is expected within 24 hours.

DIRECTIONS FOR USE

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

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

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

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

- Coveralls
- Chemical-resistant gloves Category A (such as butyl rubber, natural rubber, neoprene rubber, or nitrile rubber), all ≥ 14 mils
- Shoes plus socks

IMPORTANT: Ironclad™ Herbicide is recommended for use on field corn grown in most states. Check with your agricultural dealer, state Cooperative Extension Service or Department of Agriculture before use, to be certain Ironclad™ Herbicide is registered in your state. Read the entire Use Directions and Limitations of Warranty and Liability before using Ironclad™ Herbicide.

SPRAY DRIFT MANAGEMENT

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment- and weather-related factors determines the potential for spray drift. The applicator is responsible for considering all these factors when making application decisions. To minimize spray drift, the applicator should be familiar with and take into account the following drift reduction advisory information. Additional information may be available from state enforcement agencies or the state Cooperative Extension Service on the application of this product.

Importance of Droplet Size

The most effective way to reduce drift potential is to apply large droplets (> 150 - 200 microns). The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. The presence of sensitive species nearby, the environmental conditions, and pest pressure may affect how an applicator balances drift control and coverage. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly or under unfavorable environmental conditions! See **Wind, Temperature and Humidity**, and **Temperature Inversions** sections of this label.

Controlling Droplet Size – General Techniques

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow rates are needed, use a higher-capacity nozzle instead of increasing pressure.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles.

Controlling Droplet Size - Aircraft

- **Number of Nozzles** - Use the minimum number of nozzles with the highest flow rate that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is emitted backwards, parallel to the airstream will produce larger droplets than other orientations.

- **Nozzle Type** - Solid stream nozzles (such as disc and core with swirl plate removed) oriented straight back produce larger droplets than other nozzle types.
- **Boom Length** - The boom length should not exceed 3/4 of the wing or rotor length – longer booms increase drift potential.
- **Application Height** - Application more than 10 ft above the canopy increases the potential for spray drift.

Boom Height

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

Wind

Drift potential increases at wind speeds of less than 3 mph (due to inversion potential) or more than 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given wind speed. **Avoid gusty and windless conditions.** It is important that every applicator be familiar with local wind patterns and how they affect spray drift because local terrain can influence wind patterns.

Temperature and Humidity

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

Temperature Inversions

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

Shielded Sprayers

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

CHEMIGATION APPLICATION

Do not apply Ironclad™ Herbicide through any type of irrigation system.

INTEGRATED PEST MANAGEMENT

Ironclad™ Herbicide may be used as part of an Integrated Pest Management (IPM) program that can include biological, cultural, and genetic practices aimed at preventing economic pest damage. IPM principles and practices include field scouting or other detection methods, correct target pest identification, population monitoring, and treating when target pest populations reach locally determined action thresholds. Consult your state Cooperative Extension Service, professional consultants or other qualified authorities to determine appropriate action treatment threshold levels for treating specific pest/crop systems in your area.

RESISTANCE

When herbicides that affect the same biological site of action are used repeatedly over several years to control the same weed species in the same field, naturally-occurring resistant biotypes may survive a correctly applied herbicide treatment, propagate, and become dominant in that field. Adequate control of these resistant weed biotypes cannot be expected. If weed control is unsatisfactory, it may be necessary to retreat the problem area using a product affecting a different site of action.

To better manage herbicide resistance through delaying the proliferation and possible dominance of herbicide resistant weed biotypes, it may be necessary to change cultural practices within and between crop seasons such as using a combination of tillage, retreatment, tank-mix partners and/or sequential herbicide applications that have a different site of action. Weed escapes that are allowed to go to seed will promote the spread of resistant biotypes.

It is advisable to keep accurate records of pesticides applied to individual fields to help obtain information on the spread and dispersal of resistant biotypes. Consult your agricultural dealer, consultant, applicator, and/or appropriate state agricultural extension service representative for specific alternative cultural practices or herbicide recommendations available in your area.

GENERAL INFORMATION

Formulation: Ironclad™ Herbicide is a water-dispersible granule containing 75% active ingredient by weight. It is used at the rate of 3/4 ounce per acre for selective postemergence grass and broadleaf weed control in field corn. It may be applied by ground (broadcast or band) or by air. The use rate will depend on spectrum and size of weeds at time of application. The degree and duration of control are affected by many factors including but not limited to spray coverage, weed spectrum, weed size, growing conditions before and after treatment, soil moisture, and adjuvant selection.

Mode of Action: Ironclad™ Herbicide contains nicosulfuron and rimsulfuron which belong to the sulfonylurea class of herbicides. Herbicides in this class inhibit branched-chain amino acid synthesis in plants. Ironclad™ Herbicide provides weed control through foliar absorption and rapidly inhibits growth of susceptible weeds, reducing weed competition within as little as 6 hours after application. Susceptible plants are controlled in 7 to 21 days. Best performance is attained when Ironclad™

Herbicide is applied to young, actively growing weeds. Performance is further maximized if applications are made during warm, moist conditions (70°F or more) and there is adequate soil moisture both before and after application.

The degree and duration of control depend on spray coverage, activating rainfall, weed spectrum, weed size, growing conditions before and after treatment, soil moisture, and adjuvant selection. Adequate soil moisture is critical for optimum activity. Rainfall within 5 to 7 days will enhance Ironclad™ Herbicide residual activity. Ironclad™ Herbicide is rainfast in 4 hours. A timely cultivation may be required for maximum weed control without an activating rain. See the **CULTIVATION** section of this label for more information.

Beware that poor weed control or crop injury may result from applications made to plants under stress due to: (a) abnormally hot or cold weather; (b) environmental conditions such as drought, water-saturated soils, hail damage, or frost; (c) disease, insect or nematode injury; or (d) prior herbicide use, or carryover from a previous year's herbicide application. Severe stress from conditions immediately following application may also result in crop injury or poor weed control. Although stress can affect control of all weeds, control of stressed woolly cupgrass, green and yellow foxtail, and wild proso millet may be reduced more than other species because control of these weeds is especially affected by stress. Application of Ironclad™ Herbicide should be delayed if the corn or grass weeds are under stress at the time of application.

Crop Uses: Under normal planned use, apply Ironclad™ Herbicide to field corn that is up to 20" tall (free standing) and exhibiting up to and including 6 leaf-collars. Do not apply to corn taller than 20" or exhibiting more than 6 leaf collars, whichever is more restrictive. Some State and field corn hybrid restrictions apply (see below). Not all Ironclad™ Herbicide tank mixtures may be applied to corn that is beyond 12" tall. Consult **TANK MIX APPLICATIONS WITH IRONCLAD™ HERBICIDE** for more information.

While Ironclad™ Herbicide has a wide application window, research has shown best results are obtained when applications are made early postemergence when field corn and weeds are small. Target applications to corn that is less than 12" tall for best overall performance. In the states of KS, OK and TX, limit Ironclad™ Herbicide applications to field corn that is up to 12" tall and/or up to and including 5 leaf collars, whichever is most restrictive.

Apply Ironclad™ Herbicide to field corn hybrids with a relative maturity (RM) rating of 77 days or more, including "food grade" (yellow dent, hard endosperm), waxy and oil corn. Not all field corn hybrids of less than 77 days RM, not all white corn hybrids nor Hi-Lysine hybrids have been tested for crop safety, nor does MANA have access to all seed company data. Consequently, injury arising from the use of Ironclad™ Herbicide on these types of field corn is the responsibility of the user. Consult with your seed supplier before applying Ironclad™ Herbicide to any of these field corn types. Applications of Ironclad™ Herbicide to field corn hybrids of 77-88 CRM should be limited to corn that is 12" tall, less than or equal to 5-leaf collars, whichever is most restrictive. In addition, the application of tank mixtures with dicamba-containing herbicides (such as Clarity® or Distinct®) to 77-88 CRM field corn should contain no more than 2 ounces active ingredient dicamba (e.g. 4 ounces Clarity). Seed company publications indicate "Warning", "Crop Response Warning", or "Sensitive" notations for the use of some ALS herbicides on field corn hybrids of 77 CRM or higher. As noted in the seed company publications, MANA sulfonylurea herbicides such as Ironclad™ Herbicide should be used with caution on these hybrids. Consult with your local MANA representative for any additional supplemental labeling information relative to potential field corn hybrid sensitivity to Ironclad™ Herbicide.

Grazing: Do not graze or feed forage, hay, or straw from treated areas to livestock within 30 days of Ironclad™ Herbicide application.

SPRAY ADJUVANTS

Each application of Ironclad™ Herbicide must include either a crop oil concentrate (COC) or a nonionic surfactant (NIS). In addition to spray adjuvant, an ammonium nitrogen fertilizer must be used with Ironclad™ Herbicide unless specifically prohibited by the tank mix partner labeling. A COC plus ammonium nitrogen fertilizer is the preferred adjuvant system for Ironclad™ Herbicide. Consult your local agricultural dealer, applicator, crop consultant, state Cooperative Extension Service, or MANA fact sheets or technical bulletins prior to using an adjuvant system. If another herbicide is tank mixed with Ironclad™ Herbicide, select adjuvants authorized for use with both products. Products must contain only EPA-exempt ingredients (40 CRF 1001).

Nonionic Surfactant (NIS)

- Apply at 0.25% v/v (1 quart per 100 gallons spray solution) or 0.5% under arid conditions.
- Surfactant products must contain at least 60% NIS with a hydrophilic/lipophilic balance (HLB) greater than 12.

Petroleum Crop Oil Concentrate (COC) or Modified Seed Oil (MSO)

- Apply at 1% v/v (1 gallon per 100 gallons of spray solution) or apply 2% under arid conditions.
- MSO adjuvants may be used at 0.5% v/v (0.5 gallons per 100 gallons spray solution) if specifically noted on adjuvant product labeling.
- Oil adjuvants must contain at least 80% high quality, petroleum (mineral) or modified vegetable seed oil with at least 15% surfactant emulsifiers.

Ammonium Nitrogen Fertilizer

- Use 2 quarts per acre of a high-quality urea ammonium nitrate (UAN), such as 28%N or 32%N, or 2 pounds per acre of a spray-grade ammonium sulfate (AMS). Use 4 quarts per acre UAN or 4 pounds per acre AMS under arid conditions.
- Do not use liquid nitrogen fertilizer as the total carrier solution.

Special Adjuvant Types

- Combination adjuvant products may be used with Ironclad™ Herbicide at doses that provide the required amount of NIS, COC, MSO and/or ammonium nitrogen fertilizer. Consult product literature for use rates and restrictions.
- In addition to the adjuvants specified above, other adjuvant types may be used if they provide the same functionality. Consult your local agricultural dealer, applicator, crop consultant, state Cooperative Extension Service, or MANA fact sheets or technical bulletins prior to using an adjuvant system not specified on this label.

SPRAY EQUIPMENT, MIXING AND CLEANUP INSTRUCTIONS

Equipment: For specific application equipment, refer to the manufacturer's recommendations for additional information on GPA, pressure, speed, nozzle types and arrangements, nozzle heights above the target canopy, etc. Air and ground equipment should be properly calibrated with clean water before making an application of Ironclad™ Herbicide. Thorough coverage is required for best weed control. The spray delivery system should provide a uniform spray pattern with a minimum of drift.

Avoid spray drift onto non-target sites by using properly calibrated equipment, appropriate spray volumes for the crop and avoiding an application during inclement weather conditions that favor spray drift. For additional information on spray drift refer to the **SPRAY DRIFT MANAGEMENT** section of this label.

Mixing Instructions: It is very important that the spray equipment be clean and free of previous pesticide deposits before mixing Ironclad™ Herbicide. Follow these steps when mixing a spray solution with Ironclad™ Herbicide:

1. Fill the tank 1/4 to 1/3 full of water.
2. While agitating, add the required amount of Ironclad™ Herbicide.
3. Continue agitation until Ironclad™ Herbicide is fully dispersed; this could take at least 5 minutes.
4. When Ironclad™ Herbicide is fully dispersed, maintain agitation and continue filling the tank with water. Thoroughly mix Ironclad™ Herbicide with water before adding any other material.
5. As the tank is filling, add the required spray adjuvants (COC, NIS, or ammonium nitrogen fertilizer).
6. Dispersed tank-mix partners can settle if the tank mixture is not continually agitated. If settling occurs, thoroughly re-agitate before using. Avoid overfilling the spray tank.
7. Mix only enough product for the job at hand and apply Ironclad™ Herbicide spray mixture within 24 hours of mixing to avoid product degradation.
8. If Ironclad™ Herbicide and a tank-mix partner are to be applied in multiple loads, pre-slurry Ironclad™ Herbicide in clean water prior to adding to the tank. This will prevent the tank-mix partner from interfering with the dissolution of Ironclad™ Herbicide.

Equipment Cleanup: The spray equipment must be cleaned and free of previous pesticide deposits before Ironclad™ Herbicide is mixed. Follow the cleanup procedures specified on the labels of the previously applied products. If no cleanup directions are provided, follow the steps provided below for cleaning up after spraying Ironclad™ Herbicide. Thoroughly clean all mixing and spray equipment immediately following applications of Ironclad™ Herbicide to avoid subsequent crop injury.

When cleaning spray equipment before mixing Ironclad™ Herbicide, read and follow label directions for proper rinsate disposal of the product previously sprayed. Steam cleaning of aerial spray tanks will help to dislodge any visible pesticide deposits. When spraying or mixing equipment will be used over an extended period to apply multiple loads of Ironclad™ Herbicide, partially fill the tank with fresh water at the end of each day of spraying, flush the boom and hoses, and allow to sit overnight.

Cleanup Procedure

1. Drain the tank and thoroughly hose down the interior surfaces. Flush the tank, hoses, and boom with clean water for a minimum of 5 minutes.
2. Partially fill the tank with clean water and add one gallon of household ammonia (contains a minimum of 3% active) for every 100 gallons of water. Equivalent amounts of an alternate strength ammonia solution or a tank cleaner may be used if recommended by MANA.
3. Finish filling the tank with water and then flush the cleaning solution through the hoses, boom, and nozzles. Add more water to completely fill the tank and allow to agitate/recirculate for at least 15 minutes. Flush the hoses, boom, and nozzles with the cleaning solution again and then drain the tank.
4. Repeat Steps 2 & 3.
5. Remove the nozzles and screens and clean separately in a bucket containing the cleaning agent and water.
6. Thoroughly rinse the tank with clean water for a minimum of 5 minutes flushing the water through the hoses and boom.

APPLICATION INSTRUCTIONS

Ironclad™ Herbicide may be applied by ground and aerial equipment. For all application systems, use 50 mesh or larger strainer screens. Many crops are highly sensitive to Ironclad™ Herbicide. All direct or indirect contact (such as spray drift) with crops other than field corn should be avoided (see the **SPRAY DRIFT MANAGEMENT** section of this label for more information).

Apply Ironclad™ Herbicide when minimum nighttime temperatures are above 40°F and the maximum daytime temperatures are below 92°F to maximize performance and minimize the potential for crop injury. Applications made during or immediately following periods of large day/night temperature fluctuations or where daytime temperatures do not exceed 50°F may decrease weed control and increase the potential for crop injury.

Ground Application (broadcast): Under most conditions, use a minimum of 15 gallons of water per acre for best performance. A lower minimum volume of 10 gallons of water per acre may be used for light, scattered stands of weeds. For best performance, select nozzles and pressure combinations that deliver MEDIUM spray droplets as described in the nozzle manufacturer's catalogues and in accordance with ASAE Standard S572. Nozzles that deliver COARSE spray droplets may be used to reduce drift, provided spray volume is increased to maintain coverage on small weeds. For optimal product performance and minimal spray drift, adjust the spray boom to the lowest possible spray height recommended in the manufacturers' specifications. Equipment is to be set up so that application of excessive rates directly over the rows and into the corn plant whorl is avoided. DO NOT position a nozzle directly above the row. Spray overlaps that occur at starting, stopping, slowing, and turning while spraying may result in crop injury.

Ground application of Ironclad™ Herbicide to dry, dusty fields may reduce weed control in wheel track areas.

Ground Application (band): For band applications, use proportionately less spray mixture than broadcast and carefully calibrate the band applicator so that the labeled rate is not exceeded. Carefully follow the manufacturer's instructions for nozzle type (flat fans), orientation, distance of nozzles from the crop and weeds, spray volumes, calibration and spray pressure.

Aerial Application: Use nozzle types and arrangements that provide optimum spray distribution and maximum coverage at a minimum of 5 gallons of water per acre. Do not apply during a temperature inversion, when winds are gusty, or when conditions favor poor coverage and/or off-target spray movement. See the **SPRAY DRIFT MANAGEMENT** section of this label for additional information on aerial application. Aerial application of Ironclad™ Herbicide is prohibited in the states of New York and California.

Soil Insecticide Interaction Information: Ironclad™ Herbicide may interact with certain insecticides previously applied to the field corn crop. Therefore, before using Ironclad™ Herbicide, be sure to check that it is compatible with any insecticides previously applied to the corn crop. Crop response varies with field corn type, insecticide used, insecticide application method, and soil type. Ironclad™ Herbicide may be applied to corn previously treated with Fortress®, Aztec®, or Force® insecticides or non-organophosphate (OP) soil insecticides regardless of soil type. Do not apply Ironclad™ Herbicide to corn previously treated with Counter® 15G or to corn treated with Counter® 20CR in-furrow or over the row at cultivation. Applications of Ironclad™ Herbicide to corn previously treated with Counter 20CR, Lorsban®, or Thimet® may cause unacceptable crop injury, especially on soils with less than 4% organic matter.

Timing to Weeds: Apply Ironclad™ Herbicide when weeds are young and actively growing, but before they exceed the sizes listed on this label. Incomplete control may result if weeds are at growth stages greater than those listed below. This could result in reduced yields. As mentioned previously under **Mode of Action**, adequate soil moisture is required for optimum activity. Residual activity of Ironclad™ Herbicide is enhanced by activating rainfall or sprinkler irrigation (>0.5 inch) within 5 to 7 days after application. If rainfall or sprinkler irrigation is not received within 5 to 7 days, a cultivation or sequential application of MANA Adapt™ Herbicide should be made if additional weed control is needed. See **CULTIVATION**, or **SEQUENTIAL ADAPT™ HERBICIDE APPLICATIONS** sections of this label for more information.

APPLICATION RATE

Apply Ironclad™ Herbicide at a rate of 3/4 ounce per acre for season-long control of grass and broadleaf weeds listed in **Table 1**. As all weeds mature, their sensitivity to Ironclad™ Herbicide decreases. This is especially true for grassy weeds growing under stress due to drought or other environmental factors because they may become mature (more than 3 tillers) before they reach the size listed and not be adequately controlled by Ironclad™ Herbicide.

TABLE 1. WEEDS CONTROLLED WITH IRONCLAD™ HERBICIDE AT 3/4 OUNCE PER ACRE

Weeds	Weed Height (Inches) at Application
Grasses	
Barnyardgrass	4"
Canarygrass	6"
Cereals, volunteer	2"
Crabgrass, large ¹	1"
Cupgrass, woolly ¹	3"
Foxtails	-
Bristly	4"
Giant	4"
Green	4"
Yellow ¹	4"
Goosegrass	2"
Johnsongrass, seedling or rhizome	8-12"
Millet, wild proso	4"
Muhly, wirestem ¹	4"

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Panicum, fall & Texas	4"
Quackgrass ¹	8"
Ryegrass, Italian	4"
Sandbur, field ¹	2"
Shattercane	6"
Signalgrass, broadleaf	2"
Oats, wild	2"
Witchgrass	4"
Broadleaves - Controlled	
Amaranth, powell	4"
Burcucumber	4"
Dandelion	8"
Jimsonweed	4"
Morningglory, annual	4"
Mustard, wild	4"
Pigweed, redroot & smooth	4"
Sunflower, common	4"
Broadleaves - Suppression	
Cocklebur, common	4"
Ladysthumb	4"
Lambsquarters, common	4"
Hemp dogbane	4"
Nutsedge, yellow	4"
Smartweed, PA	4"
Thistle, Canada	4"
Velvetleaf	4"
Waterhemp, tall & common	2"

1. Cultivation or retreatment with MANA Adapt™ Herbicide may be required. See **For Additional Control of Crabgrass and Later Emerging Grasses** section of this label for more information.

SEQUENTIAL APPLICATIONS FOLLOWING REDUCED RATES OF PREEMERGENCE HERBICIDES

Ironclad™ Herbicide may be used as a sequential application in a planned postemergence weed control program in field corn following a reduced rate of a preemergence herbicide.

Apply a reduced rate of a preemergence grass herbicide prior to field corn emergence and then follow with a postemergence application of Ironclad™ Herbicide. Apply products such as Cinch®, Balance® PRO, Axiom®, "Dual" II Magnum, Surpass®, Frontier® and Harness® Xtra at rates as low as 1/4 to 1/2 of the full labeled use rate and follow with a sequential postemergence application of Ironclad™ Herbicide. Refer to the **Mode of Action** section for more information. Refer to the preemergence grass herbicide label for use restrictions, application information, rotational crop guidelines, and cautionary statements prior to applying Ironclad™ Herbicide.

Do not apply Ironclad™ Herbicide to field corn that exhibits herbicide injury from previous applications made to the current or preceding crop.

TANK MIX APPLICATIONS WITH IRONCLAD™ HERBICIDE

Improved Broadleaf Weed Control: To achieve additional control of broadleaf weeds, Ironclad™ Herbicide may be tank mixed with a number of herbicides registered for postemergence application in field corn (See Table 2). Read and follow the use directions on the label of the tank-mix partner for weeds controlled, precautions, use restrictions, adjuvant and crop rotation information. The most restrictive language on either label shall apply.

Application of Ironclad™ Herbicide tank mixtures containing atrazine and/or dicamba (in some states) are limited to corn that is up to 12" tall, up to and including 5 leaf collars, whichever is most restrictive. See **Tank Mixtures with Distinct or Dicamba** for additional information.

A COC must be used in the tank mixtures specified in Table 2. The use of a NIS is permitted in place of a COC for tank mixtures containing dicamba, however, overall weed control may be reduced. See **SPRAY ADJUVANTS** for adjuvant rate recommendations.

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TABLE 2. IRONCLAD™ HERBICIDE TANK-MIX PARTNERS FOR IMPROVED BROADLEAF WEED CONTROL

Product	Rate Per Acre
Atrazine 4L or 90DF	8 to 64 fl. oz., or 4 to 35 oz.
Dicamba (e.g., Clarity at 4 lbs/gal dicamba)	2 to 4 fl. oz.
Dicamba + Atrazine (e.g. Marksman® at 1.1 lbs/gal dicamba)	8 to 16 fl. oz.
Distinct	1 to 2 oz.
Callisto®	1.5 to 3 fl. oz.
Hornet® WDG	2 to 3 oz.

Rates listed are for the specific products noted in Table 2. If other brands or formulations are used, rates of active ingredients should be adjusted to correspond to the rates of the products listed. Formulations of products other than those listed may not have been tested with Ironclad™ Herbicide. Check with the manufacturer for information on tank-mix compatibility prior to using (see the **TANK MIX COMPATABILITY TESTING** section of this label for more information).

The broadleaf weeds controlled using preferred tank mixtures with Ironclad™ Herbicide are listed in Table 3. Unless noted elsewhere in this label, all tank mixtures in the table below require the addition of COC and ammonium nitrogen fertilizer as noted in the **SPRAY ADJUVANTS** section of this label. Do not use MSO adjuvants when tank mixing with Ironclad™ Herbicide with >1.5 ounces Callisto.

TABLE 3. BROADLEAF WEEDS CONTROLLED WITH IRONCLAD™ HERBICIDE TANK-MIXTURES

Maximum Weed Height (Inches)

	Ironclad™ Herbicide Alone	+ 4 oz. Clarity	+ 2 oz. Distinct	+ 1 pt. Marksman	+ 2 oz. "Hornet" WDG	+ 1/2 lb Atrazine	+ 2oz. Callisto ³
Broadleaf Weeds							
Cocklebur, common	4" ¹	4"	4"	4"	4"	4"	4"
Dandelion	8"	10"	10"	10"	10"	10"	10"
Kochia	-	4" ¹	4" ¹	4" ¹	-	-	4" ²
Ladysthumb	4" ¹	4" ¹	4" ¹	4" ¹	4"	4" ¹	4"
Lambsquarters, common	2" ¹	4"	4"	4"	2" ¹	4"	4"
Mallow, Venice	-	-	-	-	4"	-	4" ²
Nightshade, eastern black	-	2"	2"	4"	2" ¹	2"	4"
Ragweed, common	-	4"	4"	4"	4"	4"	4" ²
Ragweed, giant	-	4" ¹	4" ¹	4" ¹	4"	4" ¹	4"
Smartweed, PA	4" ¹	4"	4"	4"	4"	4"	4"
Velvetleaf	4" ¹	4"	4"	4"	4"	2"	4"
Waterhemp, common, tall	2" ¹	2"	2"	4"	2" ¹	2"	4"

¹ Suppression

² Requires the addition of 0.25 pound active ingredient atrazine

³ See Callisto tank mix chart in Table 5.

Tank Mixtures with Atrazine: Ironclad™ Herbicide may be tank mixed with products containing up to 2 pounds active ingredient of atrazine for additional control of the broadleaf weeds listed in Table 4. For best results, use 0.25 to 2 quarts Atrazine 4L or 4 to 35 ounces Atrazine 90DF with Ironclad™ Herbicide. Products containing atrazine are restricted use products. Application of a tank mixture of Ironclad™ Herbicide + atrazine may result in reduced control of grasses (antagonism) if applied to grasses under low moisture stress or to grasses exceeding the maximum labeled height. Before applying Ironclad™ Herbicide + atrazine tank mix, refer to the atrazine product label for information regarding the maximum amount of atrazine that may be applied in a season.

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TABLE 4. IRONCLAD™ HERBICIDE + ATRAZINE

Broadleaf Weeds	Weed Height (Inches) at Application
Sicklepod	1 to 2"
Prickly sida	1 to 2"
Wild Radish	6 to 12"
Cutleaf evening primrose	4 to 6"
Florida pusley	1 to 2"

Tank Mixtures with Callisto or Callisto + Atrazine: Ironclad™ Herbicide may be tank mixed with 1.5 to 3.0 fluid ounces per acre of Callisto herbicide for improved broadleaf weed control as shown in Table 5. If weeds are at maximum height, addition of 0.25 to 0.75 pounds active ingredient per acre of atrazine may provide better control. For improved grass and broadleaf control, Ironclad™ Herbicide tank mixtures with 1.5 ounces Callisto (with or without atrazine) may be applied with 0.5% v/v MSO spray adjuvant. Do not use MSO adjuvants when tank mixing Ironclad™ Herbicide with > 1.5 ounces Callisto. Use a petroleum-based COC + an ammonium nitrogen fertilizer.

TABLE 5. IRONCLAD™ HERBICIDE + CALLISTO OR CALLISTO + ATRAZINE

Broadleaf Weeds	Maximum Weed Height (Inches)					
	Callisto Alone 1.5 fl. oz.	Callisto Alone 2.0 fl. oz.	Callisto Alone 3.0 fl. oz.	Callisto + Atrazine 1.5 fl. oz.	Callisto + Atrazine 2.0 fl. oz.	Callisto + Atrazine 3.0 fl. oz.
Cocklebur	4"	4"	4"	10"	10"	10"
Dandelion	10"	10"	10"	10"	10"	10"
Jimsonweed	4"	4"	4"	4"	10"	10"
Kochia	--	--	4"	--	4"	4"
Lambsquarters, common	4"	4"	4"	10"	10"	10"
Morningglory, annual	4"	4"	4"	4"	4"	4"
Mustard, wild	--	--	4"	--	--	10"
Nightshade, black	4"	4"	4"	10"	10"	10"
Nightshade, eastern black	4"	4"	4"	10"	10"	10"
Pigweed, Palmer	--	--	4"	4"	4"	10"
Pigweed, redroot	4"	4"	4"	10"	10"	10"
Ragweed, common	--	--	--	4"	10"	10"
Ragweed, giant	--	3"	4"	4"	10"	10"
Smartweed, ladysthumb	--	4"	4"	4"	10"	10"
Smartweed, Pennsylvania	4"	4"	4"	4"	10"	10"
Sunflower, common	4"	4"	4"	4"	4"	10"
Velvetleaf	4"	4"	4"	10"	10"	10"
Waterhemp, tall & common	--	4"	4"	4"	10"	10"

Tank Mixtures with Distinct or Dicamba: In situations where the use of a COC with growth regulator herbicides is not desirable (e.g. extremely cold weather), Ironclad™ Herbicide may be tank mixed with 2 ounces Distinct + NIS at 0.25% v/v (1 quart per 100 gallons spray solution) in place of COC, but overall weed control may be reduced.

When tank mixing Ironclad™ Herbicide with herbicides containing dicamba (e.g. 1 to 2 ounces Distinct and 4 fluid ounces Clarity), applications should be limited to field corn that is up to 12" tall, and up to and including 5 leaf collars, whichever is most restrictive, except for the states east of the line formed by the western borders of MI, IN, KY, TN, and MS, and except where noted in local MANA fact sheets or technical bulletins. In these states the upper corn size limits are 20" tall, up to and including 6 leaf collars.

Tank Mixtures with Exceed® or Spirit®: Ironclad™ Herbicide may be tank-mixed with 0.5 ounces of Spirit or 0.125 ounces of Exceed herbicides for additional control of velvetleaf, common and giant ragweed, lambsquarters, ivyleaf morningglory, PA smartweed, and sunflower. Applications must be made to emerged field corn before the corn is 12" tall or is exhibiting 6 leaf collars, whichever is the more restrictive.

Tank Mixtures For Additional Control of Broadleaf Weeds:

Lumax® or Lexar®: Ironclad™ Herbicide may be tank mixed with 2 pints per acre of Lumax or 2 1/3 pints of Lexar for improved burndown or residual control of several broadleaf weeds including common waterhemp, common ragweed, common

lambquarters, and velvetleaf. When applying mixtures of Ironclad™ Herbicide plus Lumax or Lexar the use of a NIS is recommended. Tank mix rates of Lumax herbicide should be limited to no more than 2 pints per acre. Refer to the Lumax or Lexar labels for additional information regarding application timing, tank mixtures, adjuvants, and rotational crops.

Impact®: Ironclad™ Herbicide may be tank mixed with 0.5 to 0.75 fluid ounces per acre of Impact plus Atrazine at 0.375 to 1.5 pounds active per acre for improved burndown or residual control of several broadleaf weeds including common waterhemp, common ragweed, common lambquarters, and velvetleaf. When applying mixtures of Ironclad™ Herbicide plus Impact at 0.5 fluid ounces per acre, the use of a MSO is recommended. Refer to the Impact label for additional information regarding application timing, tank mixtures, adjuvants, and rotational crops.

The use of a NIS is recommended in place of COC for tank mixtures with preemergence grass herbicides such as Prowl®, Cinch and Lumax where applications are made early postemergence to small weeds.

Starane®: Ironclad™ Herbicide may be tank mixed with 1/3 to 2/3 pint per acre of Starane for improved control of Kochia. Use higher rates when weed infestation is heavy. Refer to the specific Starane label for application timing and restrictions.

Dicamba in CO, KS and OK: Ironclad™ Herbicide may be tank mixed with 2.0 to 3.0 ounces active ingredient per acre of dicamba (e.g. 4.0 to 6.0 fluid ounces per acre of Clarity) and COC for additional control of Palmer pigweed in CO, KS and OK. Applications must be made to corn that is 4 to 8" tall and is exhibiting fewer than 4 leaf-collars.

For Additional Control of Yellow Nutsedge: Ironclad™ Herbicide may be tank mixed with up to 0.66 ounce per acre Permit® Herbicide or up to 4 ounces Yukon® Herbicide for control of yellow nutsedge. Applications must be made before the field corn exhibits 6 leaf collars or is 12" tall, whichever is the more restrictive. Consult the Permit or Yukon labels for additional weeds controlled. Always add COC and ammonium nitrogen fertilizer.

For Additional Control of Crabgrass and Later Emerging Grasses: Ironclad™ Herbicide may be tank mixed with full or reduced rates of preemergence grass herbicides labeled for early postemergence application to field corn (such as Cinch, Prowl, Surpass EC, "Dual" II Magnum, and Outlook®) for increased residual activity of later-emerging flushes of grasses such as smooth and large crabgrass. Application must be made before the crabgrass emerges and before other grass weeds on the Ironclad™ Herbicide label exceed their labeled sizes.

Notes for Tank-mixtures with Ironclad™ Herbicide:

- a. See **SPRAY ADJUVANTS** for adjuvant rate recommendations.
- b. When tank mixing Ironclad™ Herbicide with preemergence herbicides that restrict the use of ammonium nitrogen fertilizer adjuvants and applications are made early-postemergence to small weeds, follow restrictions on the tank mix partner label and/or omit the fertilizer adjuvants.
- c. When tank mixing Ironclad™ Herbicide with EC formulated preemergence grass herbicides such as Cinch, Dual II Magnum®, Parallel® or Prowl, do not add Callisto Herbicide to the tank mixture. When other formulations of preemergence grass herbicides are tank mixed with Ironclad™ Herbicide + Callisto such as Cinch ATZ, Parallel® Plus or Bicep II Magnum®, limit preemergence herbicide rates to no more than 2/3 of the full preemergence use rates, always add a NIS in place of a COC, and limit broadleaf weed sizes to less than or equal to 4" tall.
- d. Tank mixes of Ironclad™ Herbicide and preemergence grass herbicides must be broadcast applied postemergence to field corn before the crop exceeds the heights listed on the preemergence grass herbicide label. Refer to **SEQUENTIAL APPLICATIONS FOLLOWING REDUCED RATES OF PREEMERGENCE HERBICIDES** and the preemergence grass herbicide label for complete postemergence application information, rates, and restrictions.

Tank Mixtures with Insecticides: Ironclad™ Herbicide may be tank mixed with pyrethroid or carbamate insecticides such as Asana® XL or Lannate® insecticides. Do not tank mix Ironclad™ Herbicide with foliar-applied organophosphate insecticides such as Lorsban, malathion, parathion, etc., as severe crop injury may occur.

Tank Mixtures to Avoid: To avoid crop injury or antagonism, apply the products indicated below at least seven days before or three days after the application of Ironclad™ Herbicide, but do not apply in tank mixtures.

- a. Do not tank mix Ironclad™ Herbicide with Basagran® and Laddok® or severe crop injury may occur.
- b. Do not tank mix Ironclad™ Herbicide with 2,4-D – containing products as severe grass control antagonism may occur.
- c. Do not tank mix Ironclad™ Herbicide with other acetolactate synthase (ALS) inhibiting herbicides unless the mixture is specifically recommended on Ironclad™ Herbicide labels or fact sheets, as severe crop injury may occur.
- d. As noted above, do not tank mix Ironclad™ Herbicide with foliar-applied organophosphate insecticides.

Other than the exceptions noted, and in addition to the tank mix partners and rates indicated above, Ironclad™ Herbicide may be tank mixed with or followed by sequential applications of full or reduced rates of other products registered for use in field corn provided: (a) the tank mix product is labeled for the same timing, method of application, adjuvants, and use restrictions as Ironclad™ Herbicide; (b) the tank mixture is not specifically prohibited on the label of the tank mix product; (c) the tank mix combination is compatible as determined by a "jar test" described in the **TANK MIX COMPATIBILITY TESTING** section of this label.

Tank Mixing Precautions:

- Weed control and crop response with tank mixtures not specifically recommended in this label are the responsibility of the user and manufacturer of the tank mix product.
- Read and follow all applicable use directions, precautions, and limitations specified on the respective product labels and fact sheets.
- Do not exceed labeled application rates. Do not tank mix Ironclad™ Herbicide with other products that contain the same active ingredients as Ironclad™ Herbicide (nicosulfuron and rimsulfuron) unless the label of either tank mix partner specifies the maximum rate that may be used.
- A corn plant's predisposition to develop fused tissue emerging from the whorl (rattail) after the V-11 stage may increase when a product containing dicamba (i.e. Clarity, Marksman) is applied to small corn under early stressful conditions. Be aware of this when applying tank mixes with dicamba to small corn (V-3 stage or smaller) under stressful conditions. See the **Mode of Action** section of this label for a description of these stressful conditions.

TANK MIX COMPATIBILITY TESTING

Perform a jar test prior to tank mixing to ensure compatibility of Ironclad™ Herbicide and other pesticides. Use a clear glass quart jar with lid and mix the tank mix ingredients in their relative proportions. Invert the jar containing the mixture several times and observe the mixture for approximately ½ hour. If the mixture balls-up, forms flakes, sludges, gels, oily film or layers, or other precipitates, it is not compatible and the tank mix combination should not be used.

SEQUENTIAL ADAPT™ HERBICIDE APPLICATIONS

Apply Adapt™ Herbicide 14 or more days after Ironclad™ Herbicide applications to control grasses that may emerge later in the season. Refer to the Adapt™ Herbicide label for grass species controlled, proper size of weeds, rates, corn sizes, and other information. When following an application of Ironclad™ Herbicide, do not use more than 2/3 ounce of Adapt™ Herbicide per acre.

A sequential application of Adapt™ Herbicide or other herbicide containing the active ingredients rimsulfuron and nicosulfuron (such as Accent®) will effect crop rotation intervals to certain sensitive crops, such as sugarbeets. For maximum crop rotation flexibility, consult the **CROP ROTATION** section of this label before applying Adapt™ Herbicide or other herbicide containing the same active ingredients to a field previously treated with Ironclad™ Herbicide.

CULTIVATION

A timely cultivation may be necessary to control suppressed weeds, or weeds that emerge after an application of Ironclad™ Herbicide in the absence of an activating rainfall. Optimum timing for cultivation is 7 to 14 days after Ironclad™ Herbicide application or upon seeing the establishment of new weeds.

CROP ROTATION

Rotational crops vary in their response to low concentrations of Ironclad™ Herbicide remaining in the soil. Ironclad™ Herbicide dissipates rapidly in warm, acidic, microbiologically active soils. The amount of Ironclad™ Herbicide which may be present in the soil depends on soil pH and organic matter content, elapsed time since application, crop production practices, and environmental factors. Injury to rotational crops may occur in high-pH, cold soils if dry weather prevails between application and rotational crop planting. Consult your local MANA representative for additional guidelines.

For fields treated with sequential applications of Ironclad™ Herbicide and Adapt™ Herbicide (or other herbicide containing rimsulfuron and nicosulfuron), consult the crop rotation intervals listed on the herbicide labels. Use the most restrictive replanting interval from either label. Soil pH should be determined by laboratory analysis using the 1:1 soil: water suspension method on representative soil samples taken at 0 to 4" depth. Soil pH varies within fields; therefore, recropping should be based on the highest soil pH within each field. Consult local extension publications for recommended soil sampling procedures.

The rotational intervals presented in Table 6 must be observed when using Ironclad™ Herbicide.

TABLE 6. PLANTING INTERVALS FOR ROTATIONAL CROPS FOLLOWING APPLICATION OF IRONCLAD™ HERBICIDE

Soil pH Restriction	Rotational Crop	Time Interval Before Planting (Months)
None	Corn (field)	Anytime
None	Corn (pop, sweet, seed) ¹	10
None	Soybeans	0.5 (15 days)
None	Cereals, spring (barley, oats, rye, wheat)	8
None	Cereals, winter (barley, oats, rye, wheat)	4
None	Canola ²	10
None	Cotton	10
None	Dry Beans, Snap Beans	10
None	Alfalfa ^{2,3}	10
None	Flax ²	10
None	Red Clover ²	10
None	Peas	10

None	Potato ²	10
None	Sunflower ²	10
< 6.5	Sorghum	10
6.5 to 7.5	Sorghum	10
> 7.5	Sorghum ⁴	18
< 6.5	Sugarbeets ^{5, 6}	10
6.5 to 7.5	Sugarbeets ^{5, 6}	18
> 7.5	Sugarbeets ^{5, 6}	18
< 6.5	All other crops not listed above	10
6.5 to 7.5	All other crops not listed above	18
> 7.5	All other crops not listed above	18

1. Except the sweet corn varieties "Merit", "Carnival", and "Sweet Success", for which the minimum time interval is 15 months.
2. Rotational intervals should be extended to 18 months if drought conditions prevail after application and before the rotational crop is planted, unless sprinkler irrigation has been applied and totals greater than 15" during the growing season.
3. On sprinkler irrigated fields in ID, UT, and Northern NV it is best to use deep fall tillage such as plowing prior to planting alfalfa. Product degradation may be less on furrow irrigated soils and may result in some crop injury.
4. Except in TX and OK east of Highway 281, where the rotational interval is 10 months, regardless of pH.
5. Except on irrigated sites in CO, WY, NE, TX, or in MI east and south of the Red River Valley, MI and OH, where precipitation and/or irrigation following application must exceed 25" prior to planting beets, where the interval is 10 months on soils with pH < 7.5. In the States of CO, WY, and NE, temporary crop response, stunting and/or crop injury may occur if soil pH is > 7.5, or precipitation and/or irrigation following application is less than 25" prior to planting sugarbeets.
6. In ND and northwest MN, the cumulative precipitation and/or irrigation in the 18 months following application must exceed 28" in order to rotate to sugarbeets.

GENERAL PRECAUTIONS AND RESTRICTIONS

When using Ironclad™ Herbicide, injury to or loss of adjacent sensitive crops, desirable trees or vegetation may result if the following are not observed:

- Do not apply or drain or flush equipment containing Ironclad™ Herbicide on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots.
- Do not use on lawns, walks, driveways, tennis courts, or similar areas.
- Prevent drift of spray to desirable plants.
- Do not contaminate any body of water.
- Thoroughly clean application equipment immediately after use of Ironclad™ Herbicide. (See the **Equipment Cleanup** section of this label for instructions).

Specific Use Restrictions

1. Do not apply to field corn grown for seed, to popcorn or to sweet corn.
2. Do not make more than one application of Ironclad™ Herbicide per cropping season.
3. Do not apply aerially in California or New York State.
4. Do not apply Ironclad™ Herbicide through any type of irrigation system.
5. Do not graze or feed forage, hay or straw from treated areas to livestock within 30 days of applications of fields treated with Ironclad™ Herbicide.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store product in original container only. Store in a cool, dry place.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Nonrefillable Container (flexible-bag-all weights): Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Dispose of sack in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Nonrefillable Container (rigid-fifty lbs. or less): Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ 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, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Nonrefillable Container (rigid-greater than fifty lbs.): Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ 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.

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

LIMITATION OF WARRANTY AND LIABILITY

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

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

CONDITIONS: The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Makhteshim Agan of North America, Inc. All such risks shall be assumed by the user or buyer.

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

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