	<b>U.S. ENVIRONMENTAL PROTECTION AGENCY</b> Office of Pesticide Programs Registration Division (H7505C) 401 "M" St., S.W. Washington, D.C. 20460	EPA Reg. Number: <b>33906-12</b>	Date of Issuance: <b>FEB - 4 2002</b>
		Term of Issuance: <b>Conditional</b>	
		Name of Pesticide Product: <b>Achiva Herbicide</b>	

(under FIFRA, as amended)

**NOTICE OF PESTICIDE:**  
  x   Registration  
     Reregistration

Name and Address of Registrant (include ZIP Code):  
**Nissan-Chemical Industries. Ltd**  
**Kowa-Hitotsubashi Building**  
**7-1-2 Chome Kanda-Nishiki-Cho**  
**Chiyoda-Ku, Tokyo 101-0054, Japan**

**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 conditionally registered in accordance with FIFRA section 3(c)(7)(A) provided that you:**

1. Submit/cite all data required for registration/reregistration of your product when the Agency requires all registrants of similar products to submit such data.
2. Make the labeling changes listed below before you release the product for shipment.
  - a. Add the phrase "EPA Registration No. 33906-12."
  - b. Under the Agricultural Use Requirements Box "waterproof gloves" must be changed to "Chemical resistant gloves, such as butyl rubber, natural rubber, neoprene rubber, or nitrile rubber  $\geq$  14 mils."
3. Submit three (3) copies of your final printed before you release the product for shipment.

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

**A stamped copy of labeling is enclosed for your records.**

Signature of Approving Official: 	Date: <b>2-4-02</b>
---	------------------------

# ACHIVA<sup>TM 1</sup>

## herbicide

### Complete Directions For Use Pamphlet

EPA Reg. No. 33906-xxx

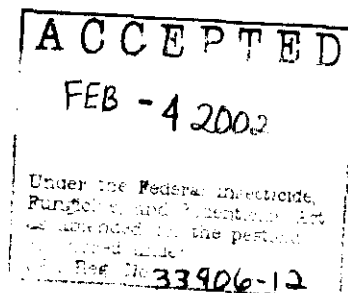
Achiva is a selective herbicide for postemergence control of listed broadleaf weeds and nutsedge in field corn, field corn grown for seed, grain sorghum (milo), sweet corn, popcorn, sugarcane, fallow ground, rice, turfgrass sod & seed farms, and tree nuts (Almonds, Beechnuts, Brazil nuts, Butternuts, Cashews, Chestnuts, Chinquapins, Filberts, Hickory nuts, Macadamia nuts, Pecans, Pistachios, Walnuts {Black and English}).

Read the entire label before using this product.

Use only according to label instructions.

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

THIS IS AN END-USE PRODUCT. NISSAN<sup>2</sup> DOES NOT INTEND AND HAS NOT REGISTERED IT FOR REFORMULATION OR REPACKAGING.



#### ACTIVE INGREDIENT:

\*Halosulfuron-methyl..... 75.0%

OTHER INGREDIENTS:..... 25.0%

TOTAL:..... 100.0%

\* Manufactured by Nissan Chemical Industries, Ltd.  
Product is protected by U.S. Patent No. 4,668,277.

<sup>1</sup> 'Achiva' is a proposed trade name by Nissan Chemical Industries, Ltd.

<sup>2</sup> 'Nissan' represents 'Nissan Chemical Industries, Ltd.'

**PRECAUTIONARY STATEMENTS**

**Hazards to Humans and Domestic Animals**

**Keep Out Of Reach Of Children.**

**CAUTION**

CAUSES EYE IRRITATION.  
HARMFUL IF SWALLOWED.

Avoid contact with eyes or clothing.

**FIRST AID**

<b>IF IN EYES</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<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 by mouth to an unconscious person.</li> </ul>
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. In case of emergency involving this product, call collect, day or night, 1-630-775-9784.	

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

**Applicators and other handlers must wear:** long-sleeved shirt and long pants and 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.

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

**USER SAFETY RECOMMENDATIONS:**

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

---

**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 washwaters.

This chemical demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of this chemical in areas where soils are permeable, particularly where the ground water is shallow, may result in ground water contamination.

---

**DIRECTIONS FOR USE**

---

It is a violation of Federal law to use this product in any 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 12 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, waterproof gloves and shoes plus socks.

For more product information, call collect, day or night, 1-630-775-9784.

---

**STORAGE AND DISPOSAL**

---

Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

**STORAGE:** Store under cool, dry conditions (below 120° F). Do not store under moist conditions.

26/11/2001

**PESTICIDE DISPOSAL:** Wastes resulting from the use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, state or local procedures.

**CONTAINER DISPOSAL:** Emptied container retains vapor and product residue. Observe all labeled safeguards until container is destroyed. Do not reuse container. Triple rinse container, then puncture and dispose of in a sanitary landfill, or by incineration, or by burning, if allowed by state and local authorities. If burned, stay out of smoke.

Disposal authorities: If none of the foregoing procedures is permitted by state and local authorities, then contact your State Pesticide or Environmental Control Agency, or your local Hazardous Waste Disposal office, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

## GENERAL INFORMATION

### Biological Information

The level of weed control following Achiva herbicide application is dependent upon application rate, weed species and size at application time, and growing conditions. For best results, applications should be made to actively growing weeds at the heights defined in the "USE RATE GUIDE" sections of this label. Heavy infestations should be treated early before the weeds become too competitive with the crop. When early postemergence treatments are used, sequential applications may be required to control later weed flushes.

Soon after Achiva herbicide is applied, growth of susceptible weeds is inhibited, and susceptible weeds are no longer competitive with the crop. Following growth inhibition, the leaves and growing point begin to discolor. Complete control typically occurs within 7-14 days depending on the weed size, species and growing conditions.

## APPLICATION EQUIPMENT AND INSTRUCTIONS

Applications may be made by ground equipment to healthy, actively growing weeds. For best results, avoid applications when weeds are under drought stress, disease, or insect damage. Rainfall or irrigation occurring within 4 hours after application may also reduce effectiveness.

### **Ground Applications:**

Apply Achiva herbicide uniformly with properly calibrated ground equipment in 10 or more gallons of water per acre. Other water based spray carriers may be used for directed applications, avoiding contact with crop foliage. Select spray volumes that ensure thorough and uniform weed coverage. Choose nozzles which provide optimum spray distribution and coverage at the appropriate pressure (psi). Use only ground application equipment. Thoroughly clean equipment prior to mixing spray solution. Avoid streaking, skips, overlaps, and spray drift during applications.

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

Avoid disturbing (e.g. cultivation) treated areas for at least 7 days following application.

Thoroughly clean application equipment immediately after Achiva herbicide use and prior to spraying a crop other than corn or grain sorghum. Prepare a tank cleaning solution which consists of a 1 percent solution of household ammonia (one quart of ammonia for every 25 gallons of water). Use sufficient cleaning solution to thoroughly rinse all surfaces and to flush all hoses. Repeat the procedure with the ammonia solution. Complete the cleaning process by rinsing with clean water.

### **Aerial Applications:**

**Aerial applications may only be made to Rice.** Apply this product or approved tank mixtures with properly calibrated equipment in 3 to 15 gallons of water per acre.

Thoroughly clean equipment prior to mixing spray solution. Avoid streaking, skips, overlaps, and spray drift during applications.

### **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 determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulations.

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

#### The importance of spray 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 may not prevent drift if applications are made improperly or under unfavorable environmental conditions (see the following Wind, Temperature and Humidity, and Temperature Inversion sections of this advisory).

#### Controlling initial droplet size:

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher flow rates produce larger droplets.
- **Pressure** - Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy protection. 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 the spray stream is released backwards, parallel to the airstream, will produce larger droplets than other orientations. Significant deflection from the horizontal will reduce droplet size and increase drift potential.
- **Nozzle type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce larger droplets than other nozzle types.

#### Controlling placement of spray droplets:

- **Boom length** - For some use patterns, reducing the effective boom length to less than  $\frac{3}{4}$  of the wingspan or rotor length may further reduce drift without reducing swath width.
- **Application height** - Applications should not be greater than 10 feet above the top of the tallest plants unless a greater height is required for aircraft safety. Greater application heights result in greater droplet size reduction through evaporation and greater movement in air currents. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.
- **Application speed** - Slower aircraft speeds within a safe range will produce less air turbulence and fewer small droplets.
- **Swath adjustment** - When applications are made with a cross-wind, 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 (wind speed, droplet size, etc.).

#### Key environmental factors:

- **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 when wind speeds are below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Applicators 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 air currents that are 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

26 11/2001

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 detector. 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:**

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

Avoid disturbing (e.g. cultivation) treated areas for at least 7 days following application.

Thoroughly clean application equipment immediately after the use of Achiva herbicide. Prepare a tank cleaning solution which consists of a 1 percent solution of household ammonia (one quart of ammonia for every 25 gallons of water). Use sufficient cleaning solution to thoroughly rinse all surfaces and to flush all hoses. Repeat the procedure with the ammonia solution. Complete the cleaning process by rinsing with clean water.

### **MIXING INSTRUCTIONS**

Fill the spray tank to about three-fourths of the desired volume with water or carrier. Add the recommended amount of this product as listed in the "WEEDS CONTROLLED" sections. Complete the filling process while maintaining agitation. Remove the hose from the mixing tank immediately after filling to avoid siphoning back into the carrier source. Add non-ionic surfactant and other adjuvants as the last ingredients in the tank.

Spray solutions should be applied within 24 hours after mixing.

**Adjuvants:** A **nonionic surfactant (NIS)** is the only adjuvant required in the spray solution. Use only nonionic surfactants which are approved by EPA for use on food crops and which contain at least 80 percent active ingredient. Use 0.25 to 0.5 percent nonionic surfactant concentration (1 to 2 quarts per 100 gallons of spray solution).

**Crop oil concentrate (COC)** may be used with Achiva herbicide **instead of** nonionic surfactants. Do not use both NIS and COC in the spray mixture. Add COC to the spray mixture at 1% vol./vol. (1 gallon per 100 gallons of spray mixture). Use only good quality petroleum- or vegetable-based crop oil concentrates which contain at least 14 percent emulsifiers.

Nonionic surfactant **OR** COC are the only additives necessary for Achiva herbicide applications. Liquid nitrogen fertilizer solution (e.g., 28-0-0) may be added to the spray solution to improve the control of certain species, particularly if Achiva herbicide is being tank mixed with a companion herbicide which requires use of a liquid nitrogen additive. However, a nonionic surfactant **OR** COC will still be necessary. Refer to the companion product label for specific additive requirements. Otherwise, add liquid nitrogen fertilizer at a rate of 2 to 4 quarts per acre. Do not use liquid nitrogen fertilizer



26/11/2001

solutions or suspensions as the total carrier because excessive crop injury may occur. A high quality, spray grade ammonium sulfate (e.g. 21-0-0) may be applied at a rate of 2 to 4 lb. per acre in place of the liquid nitrogen fertilizer.

### CROP RECOMMENDATIONS

**TREE NUTS (ALMONDS, BEECHNUTS, BRAZIL NUTS, BUTTERNUTS, CASHEWS, CHESTNUTS, CHINQUAPINS, FILBERTS, HICKORY NUTS, MACADAMIA NUTS, PECANS, PISTACHIOS, WALNUTS (BLACK AND ENGLISH))**

Growth Stage: Achiva herbicide may be applied as a directed spray to established plantings of tree nut crops any time following planting. Established plantings are defined as those that have been transplanted into their final growing location for a sufficient period of time to allow the soil to be firmly settled around the roots from packing and rainfall or irrigation.

Extreme care must be exercised to avoid contact of spray containing Achiva herbicide with trunk, stems, roots, or foliage of tree nuts or severe damage or death may result.

Apply 2/3 to 1 1/3 ounces by weight (0.032 to 0.063 lb active ingredient) of this product per acre. Mechanical cultivation or mowing may be required to control weed species not on the Achiva herbicide label. If so, a **sequential treatment** may be required to control weeds in areas of disturbed soil. Achiva herbicide may be applied up to 2 applications with a total application not to exceed 2 2/3 ounces of product by weight (0.125 lb. active ingredient) per acre per use season.

**Do not apply Achiva herbicide within 1 day of harvest.**

Achiva herbicide may be applied at 2/3 to 1 1/3 ounces by weight per acre in combination with Roundup® herbicide for control of emerged annual grasses, broadleaf weeds and nutsedge.

### RICE

Achiva herbicide, when applied alone, may be applied for postemergent weed control from prior to the emergence of rice until field flooding occurs.

Achiva herbicide may be applied at 2/3 to 1 1/3 ounces by weight per acre, with the total application rate not to exceed 1 1/3 ounces of product by weight (0.063 lb. active ingredient) per acre per use season.

Achiva herbicide may be applied at 2/3 ounce by weight per acre in combination with Roundup herbicide for preplant burndown of emerged annual grasses, broadleaf weeds and nutsedge. If this product is applied preplant burndown, refer to TIME INTERVAL BEFORE PLANTING tables in complete directions for use.

**Do not apply within 48 days of harvest.**

**For aerial applications in Rice Only.** Apply this product or approved tank mixtures with properly calibrated equipment in 3-15 gallons of water per acre.

**Note:** See "APPLICATION EQUIPMENT AND INSTRUCTIONS" section for spray drift management techniques.

## SWEET CORN AND POPCORN

**Corn Growth Stage:** When used alone, Achiva herbicide may be applied over-the-top or with drop nozzles from the spike through layby stage of the corn.

Apply 2/3 ounce by weight (0.032 lb. active ingredient) of this product per acre broadcast over the top or with drop nozzles in sweet corn or popcorn. Mechanical cultivation may be required to control weed species not on the Achiva herbicide label. Avoid cultivation for at least 7 days following application. If necessary, a **sequential treatment** of this product at 2/3 ounce by weight per acre may be applied only with drop nozzles **semi-directed or directed** to avoid application into the corn plant whorl. No more than 2 applications of Achiva herbicide may be made per year in sweet corn or popcorn. (Any single application must not exceed 2/3 ounce by weight per acre)

Following application to foliage, allow 30 days before grazing domestic livestock, harvesting forage, or harvesting silage.

Achiva herbicide may be applied to sweet corn and popcorn, however, the user assumes responsibility for such use. All hybrids/varieties have not been tested for sensitivity to Achiva herbicide nor does Nissan have access to all seed company or processor data. Consequently, any injury arising from the use of Achiva herbicide on sweet corn or popcorn is the responsibility of the user. Do not apply Achiva herbicide to sweet corn or popcorn unless the seed company, processor or State Agricultural Extension service has tested Achiva herbicide on the particular hybrid/variety and specifically approves and recommends the use. Do not apply Achiva herbicide to sweet corn or popcorn if the crop is under severe stress due to drought, water-saturated soils, low fertility (especially low nitrogen levels) or other poor growing conditions. Refer to the following "WEEDS CONTROLLED" section for use rate recommendations.

Achiva herbicide is not recommended for use on 'Jubilee' sweet corn.

Nissan does not recommend application of Achiva herbicide to sweet corn or popcorn previously treated with soil applied organophosphate insecticides. Do not apply an organophosphate insecticide within 7 days before or 3 days after any Achiva herbicide application.

## WEEDS CONTROLLED ACHIVA HERBICIDE SWEET CORN & POPCORN USE RATE GUIDE

Use Rate - 2/3 ounce of product by weight per acre  
(0.032 pound active ingredient per acre)

Weed Species	Size Range Height (inches)
Cocklebur, common	1 to 9
Fleabane, Philadelphia	1 to 3
Kochia	1 to 3
Mallow, Venice	1 to 3
Passionflower, maypop	1 to 3
Pigweed, redroot	1 to 3
Pokeweed, common	1 to 6
Ragweed: common	1 to 9
giant	1 to 3
Smartweed, Pennsylvania	1 to 2
Sunflower, common	1 to 12
Velvetleaf	1 to 9

### FIELD CORN AND FIELD CORN GROWN FOR SEED

Corn Growth Stage: When used alone, Achiva herbicide™ can be applied over-the-top or with drop nozzles from the spike through layby stage of field corn.

Achiva herbicide may be applied up to 2 applications with a total application not to exceed 2 2/3 ounces of product by weight (0.125 pound active ingredient) per acre per use season.

Following application to foliage, allow 30 days before grazing domestic livestock, harvesting forage, or harvesting silage.

**WEEDS CONTROLLED**  
**ACHIVA HERBICIDE**  
**FIELD CORN AND FIELD CORN GROWN FOR SEED**  
**USE RATE GUIDE**

Use Rate - 1 to 1 1/3 ounces of product by weight per acre  
 (0.047 to 0.063 pound active ingredient per acre)

Weed Species	Size Range Height (inches)
Cocklebur, common	9 to 14
Mallow, Venice	4 to 12
Milkweed, honeyvine	1 to 6
Mustard, wild	4 to 6
Nutsedge: <sup>1</sup>	
yellow	4 to 12
purple	4 to 12
Pigweed, redroot <sup>2</sup>	4 to 6
Radish, wild	4 to 6
Ragweed: common	9 to 12
giant	4 to 6
Sunflower, common	12 to 15
Velvetleaf <sup>2</sup>	9 to 12

<sup>1</sup> Heavy infestations of nutsedge may require sequential applications. An earlier treatment may be required to prevent nutsedge from competing with the crop.

<sup>2</sup> For large velvetleaf and pigweed, the addition of liquid nitrogen fertilizer (2 to 4 quarts per acre) plus crop oil concentrate or nonionic surfactant is recommended.

**WEEDS SUPPRESSED**

Use Rate - 2/3 to 1 1/3 ounces of product by weight per acre  
 (0.032 to 0.063 pound active ingredient per acre)

Weed Species	ounces by weight per acre	
	2/3 ounce Height (in.)	1 to 1 1/3 ounces Height (in.)
Burcucumber	1 to 3	4 to 12
Kochia	*	3 to 6
Lambsquarters, common	1 to 2	---
Milkweed, common	3 to 5	6 to 12
Milkweed, honeyvine	1 to 3	---
Morningglory	---	1 to 3
Nutsedge: yellow	4 to 12	*
purple	4 to 12	*

- Refer to "WEEDS CONTROLLED" section of this label.

# Grain Sorghum (Milo)

Grain Sorghum Growth Stage: Achiva herbicide, alone, can be applied from the 2-leaf through layby stage (before grain head emergence).

Only apply Achiva herbicide in a single application with the total application rate not to exceed 1.0 ounce of product by weight (0.047 pound active ingredient) per acre per use season.

Temporary stature reduction may occur to the crop following application of Achiva herbicide if the grain sorghum is under stress. This effect will be most evident 7-10 days after application. The crop will quickly recover under normal growing conditions.

Following application to foliage, allow 30 days before grazing domestic livestock, harvesting forage, or harvesting silage.

## WEEDS CONTROLLED ACHIVA HERBICIDE SORGHUM USE RATE GUIDE

Use Rate - 2/3 ounce of product by weight per acre  
(0.032 pound active ingredient per acre)

Weed Species	Size Range Height (inches)
Cocklebur, common	1 to 9
Fleabane, Philadelphia	1 to 3
Kochia	1 to 3
Mallow, Venice	1 to 3
Passionflower, maypop	1 to 3
Pigweed, redroot	1 to 3
Pokeweed, common	1 to 6
Ragweed: common	1 to 9
giant	1 to 3
Smartweed, Pennsylvania	1 to 2
Sunflower, common	1 to 12
Velvetleaf	1 to 9

Use Rate - 1.0 ounce of product by weight per acre  
(0.047 pound active ingredient per acre)

Weed Species	Size Range Height (inches)
Nutsedge: yellow	4 to 12
purple	4 to 12

**WEEDS SUPPRESSED**

Use Rate - 2/3 ounce of product by weight per acre  
(0.032 pound active ingredient per acre)

Weed Species	Size Range Height (inches)
Burcucumber	1 to 3
Lambsquarters, common	1 to 2
Milkweed, common	3 to 5
Milkweed, honeyvine	1 to 3
Nutsedge: yellow	4 to 12
purple	4 to 12

**APPLICATIONS TO FALLOW GROUND**

Applications of Achiva herbicide may be made to fallow ground at use rates ranging between 2/3 to 1 1/3 ounces of product by weight per acre. Achiva herbicide may be applied up to 2 applications with a total application not to exceed 2 2/3 ounces of product by weight (0.125 pound active ingredient) per acre per use season.

Refer to the "FIELD CORN" section of this label for weed control recommendations. Also refer to the "ROTATIONAL CROP INFORMATION" section of this label for applicable rotational crop restrictions.

**TANK MIXTURES**

Before mixing in the spray tank, it is recommended that compatibility be tested by mixing all components in a small container in proportionate quantities as listed below. For tank mixtures, add individual formulations to the spray tank in the following sequence: water soluble bags, dry flowables, emulsifiable concentrates, drift control additive, water soluble liquids followed by nonionic surfactant.

Tank mixtures should not be applied if the crop is under severe stress due to drought, water-saturated soils, poor fertility (especially low nitrogen levels), hail, frost, insects or when the maximum daytime temperature is above 92°F. Tank mix applications under these conditions may cause temporary crop injury.

Ensure that spray equipment is set up to avoid applying an excessive rate directly over the rows and into the whorl of the cornstalk. To insure good spray coverage of weeds and to reduce the risk of spraying directly into the whorl, tank-mix applications made after corn is 24 inches tall should be directed or semi-directed using drop nozzles.

**TANK MIXTURES**  
**CORN AND GRAIN SORGHUM**  
**ACHIVA HERBICIDE™ Tank-Mixture Options in Field Corn & Seed Corn**

Tank Mix Partners	Rate per Acre	Additives	Application Method	Comments
<b>Banvel™ or Clarity™</b>	2 to 8 fl ounces	NIS	<ul style="list-style-type: none"> <li>Broadcast up to 36" tall corn.</li> <li>Use lower Banvel rates or directed sprays on corn taller than 8"</li> </ul>	<ul style="list-style-type: none"> <li>COC may cause crop injury, especially with higher Banvel/Clarity rates.</li> <li>For large corn, avoid direct spraying into whorl of cornstalk.</li> </ul>
<b>Marksman™</b>	1/2 to 2 pints	NIS	<ul style="list-style-type: none"> <li>Broadcast up to 8" tall corn.</li> </ul>	<ul style="list-style-type: none"> <li>COC may cause crop injury.</li> </ul>
<b>2,4-D (4 pound/gal)</b>	4 to 8 fl ounces	NIS	<ul style="list-style-type: none"> <li>Broadcast up to 8" tall corn.</li> </ul>	<ul style="list-style-type: none"> <li>If corn exceeds 8", directed sprays with drop nozzles are required.</li> </ul>
<b>Buctril™</b>	1/2 to 1 pint	NIS	<ul style="list-style-type: none"> <li>Broadcast to corn up to tassel emergence.</li> </ul>	<ul style="list-style-type: none"> <li>Leaf burn may occur.</li> <li>COC or 28% may cause additional leaf burn.</li> </ul>
<b>BUCTRIL+atrazine</b>	1 to 2 1/2 pints	NIS	<ul style="list-style-type: none"> <li>Broadcast to corn up to 12" tall.</li> </ul>	<ul style="list-style-type: none"> <li>Leaf burn may occur.</li> <li>COC or 28% may cause additional leaf burn.</li> </ul>
<b>Atrazine 4L</b>	1 1/2 to 3 pints	COC	<ul style="list-style-type: none"> <li>Broadcast to corn up to 12" tall.</li> </ul>	<ul style="list-style-type: none"> <li>Control is best when weeds are small.</li> <li>Effective for burndown of grass weed escapes.</li> <li>Antagonism may occur on larger broadleaf weeds.</li> </ul>
<b>Accent™</b>	2/3 ounce	COC or NIS	<ul style="list-style-type: none"> <li>Broadcast or apply with drop nozzles to corn up to 24" tall.</li> <li>For corn 24 to 36" tall, apply with drop nozzles only.</li> </ul>	<ul style="list-style-type: none"> <li>Ammonium nitrogen fertilizer (e.g. 28%) is also recommended as an additive.</li> <li>Avoid spraying directly into whorls of larger cornstalks.</li> <li>Refer to Accent label for soil insecticide interaction information.</li> </ul>
<b>Beacon™</b>	0.76 ounce 1/2 packet	COC or NIS	<ul style="list-style-type: none"> <li>Broadcast or apply with drop nozzles to corn up to 20" tall.</li> <li>For corn 20" to pretassel, apply with drop nozzles only.</li> </ul>	<ul style="list-style-type: none"> <li>Ammonium nitrogen fertilizer (e.g. 28%) is also recommended as an additive.</li> <li>Avoid spraying directly into whorls of larger corn.</li> <li>Refer to Beacon label for soil insecticide interaction restrictions.</li> <li>Consult your dealer, seed supplier, or Novartis representative for a list of susceptible hybrids.</li> </ul>

NIS = Nonionic surfactant. COC = Crop oil concentrate.

Refer to "MIXING INSTRUCTIONS" "TANK MIXTURES" and "USE RATE GUIDES" sections of this label for detailed information.

**Refer to the specific product labels and observe all precautions, mixing and application instructions for all products used in tank mixtures.**

**ACHIVA HERBICIDE™ plus BANVEL™ plus NONIONIC SURFACTANT****ACHIVA HERBICIDE plus 2,4-D plus NONIONIC SURFACTANT**

For the control of additional broadleaf weeds, Achiva herbicide may be applied in tank mixtures with Banvel or 2,4-D. Avoid spraying just after corn leaves unfold, as injury may occur. An Achiva herbicide tank mixture with 2,4-D may be applied during the period from corn emergence through the 5 leaf stage or 8 inches tall, whichever comes first. If corn exceeds 8 inches, directed spray applications with drop nozzles must be used for tank mixtures with 2,4-D.

An Achiva herbicide tank mixture with 2,4-D may be applied to grain sorghum when the crop is 6 to 15 inches tall. If sorghum exceeds 8 inches, use drop nozzles and keep the spray off foliage. Do not treat during the boot, flowering or dough stage.

An Achiva herbicide tank mixture with low rates of Banvel may be applied during the period beginning at corn emergence and continuing until corn is 36 inches in height. Applications should not be made when corn exceeds 36 inches or 15 days before tassel emergence, whichever comes first. Applications should not be made when grain sorghum exceeds 15 inches. Do not treat grain sorghum during the boot, flowering, or dough stage. Clarity™ or Marksman™ may be substituted in this tank mixture.

**Refer to the labels for Banvel, 2,4-D, Clarity and Marksman products for label restrictions.**

**ACHIVA HERBICIDE  
USE RATE GUIDE****ACHIVA HERBICIDE plus BANVEL plus NONIONIC SURFACTANT  
ACHIVA HERBICIDE plus 2,4-D plus NONIONIC SURFACTANT**

Achiva herbicide Use Rate - 2/3 ounce of product by weight per acre

Banvel Use Rate - 1/4 to 1/2 pint per acre

2,4-D Use Rate - 1/4 to 1/2 pint per acre

- (0.125 - 0.25 pound active ingredient per acre)



Weed Species	Size Range Height (inches)
Bindweed	1 to 6
Burcucumber <sup>1</sup>	4 to 12
Cocklebur, common	1 to 12
Dogbane, hemp <sup>3</sup>	1 to 6
Horsenettle	1 to 8
Jimsonweed	1 to 4
Kochia <sup>1</sup>	1 to 6
Lambsquarters, common <sup>2</sup>	1 to 6
Mallow, Venice	1 to 3
Milkweed, common	1 to 6
Morningglory, ivyleaf	1 to 6
Morningglory, tall	1 to 6
Nightshade, black <sup>1</sup>	1 to 6
Pigweed, redroot	1 to 12
Pokeweed, common <sup>1</sup>	1 to 18
Ragweed: common	1 to 12
giant <sup>1</sup>	1 to 6
Smartweed, Pennsylvania	1 to 3
Sunflower, common	1 to 12
Thistle, Canada <sup>1</sup>	1 to 6
Velvetleaf	1 to 12

<sup>1</sup> Banvel tank mixture only.

<sup>2</sup> A tank mixture of Achiva herbicide (2/3 ounce by weight per acre) plus Banvel at 2 fluid ounces per acre (1/8 pint per acre) is recommended for the control of common lambsquarters less than 4 inches in height.

<sup>3</sup> Provides suppression of this weed.

### **ACHIVA HERBICIDE™ plus BUCTRIL™ plus NONIONIC SURFACTANT**

Achiva herbicide may be applied in combination with Buctril or BUCTRIL + atrazine herbicides for postemergence control of many annual broadleaf weeds in corn and grain sorghum. Use 2/3 ounce of Achiva herbicide by weight plus surfactant in combination with 1/2 to 1 pint of Buctril and 1 to 2 1/2 pints of BUCTRIL + atrazine herbicide.

**Refer to Buctril and BUCTRIL + atrazine labels for use instructions, weeds controlled and application restrictions.**

### **ACHIVA HERBICIDE™ plus ATRAZINE**

Achiva herbicide may be applied in combination with atrazine for postemergence control of labeled broadleaf weeds. The addition of atrazine will also aid in the burndown and control of many grass weeds (1.5 inches or less) which have

escaped preemergence herbicide treatments. Applications should be made when broadleaf weeds are small (3 inches or less).

Mixtures with atrazine may result in reduced control (antagonism) of larger broadleaf weeds. Use the labeled rate for ACHIVA Herbicide plus atrazine 4L at 1 1/2 to 3 pints per acre (0.75 to 1 1/2 pounds active ingredient per acre). The addition of crop oil concentrate (COC) is recommended for this mixture.

**Refer to the atrazine 4L label for use instructions, additive requirements, weeds controlled and application restrictions.**

**TANK MIXTURES**  
**FIELD CORN AND SEED CORN ONLY**  
**ACHIVA HERBICIDE™ plus ACCENT™ plus NONIONIC SURFACTANT**  
**ACHIVA HERBICIDE plus BEACON™ plus NONIONIC SURFACTANT**

A tank mixture of Achiva herbicide plus Accent or Beacon may be used for the postemergence control of annual broadleaf weeds and annual grasses in corn only.

Achiva herbicide plus Accent may be applied over-the-top or with drop nozzles to field corn up to 24 inches tall (free standing). For corn 24 to 36 inches tall, refer to the Accent label for application restrictions. Achiva herbicide plus Beacon may be applied over-the-top or directed to field corn when corn height is between 4 and 20 inches tall. Drop nozzles are required with the Beacon mixture when corn is between 20 inches tall and tassel emergence. Banvel, Marksman, Clarity, Buctril or BUCTRIL + atrazine may also be added to these tank mixtures for improved control of certain weed species.

**Refer to Accent and Beacon labels for use instructions and restrictions on corn varieties and insecticides.**

**ACHIVA HERBICIDE™ HERBICIDE USE RATE GUIDE**

**ACHIVA HERBICIDE plus ACCENT plus NONIONIC SURFACTANT**

**ACHIVA HERBICIDE plus BEACON plus NONIONIC SURFACTANT**

Achiva herbicide Use Rate - 2/3 to 1.0 ounce of product by weight per acre

Accent Use Rate - 2/3 ounce by weight per acre

Beacon Use Rate - 1/2 packet per treated acre  
 (0.76 ounce product per acre)

Broadleaves	Size Range Height (inches)
Cocklebur, common	1 to 9
Fleabane, Philadelphia	1 to 3
Kochia	1 to 3

Mallow, Venice	1 to 3
Passionflower, maypop	1 to 3
Pigweed, redroot	1 to 3
Pokeweed, common	1 to 6
Ragweed: common	1 to 9
giant	1 to 3
Smartweed, Pennsylvania	1 to 2
Sunflower, common	1 to 12
Velvetleaf	1 to 9

Grasses	Size Range Height (inches)	
	Achiva + Accent	Achiva + Beacon
Barnyardgrass	2 to 4	
Cupgrass, woolly	2 to 4	
Foxtails: giant, yellow, green, bristly	2 to 4	
Itchgrass	2 to 6	
Johnsongrass, rhizome	8 to 18	8 to 16
seedling	4 to 12	4 to 12
Millet, wild proso	1 to 4	
Oats, wild	2 to 4	
Panicum, browntop	1 to 3	
Panicum, fall	2 to 4	Less than 2
Panicum, Texas	1 to 3	
Quackgrass	4 to 10	4 to 8
Ryegrass, Italian	2 to 6	
Sandbur	1 to 3	
Shattercane	4 to 12	4 to 12
Signalgrass, broadleaf	1 to 2	
Sorghum-alum	4 to 12	4 to 12

### ACHIVA HERBICIDE™ plus ACCENT™ plus SOIL RESIDUALS

Micro-Tech® plus Achiva herbicide plus Accent, Partner® plus Achiva herbicide plus Accent or Lasso® plus Achiva herbicide plus Accent for early postemergence control of foxtails in field corn (including seed corn).

These tank mixtures will provide postemergence control of emerged foxtails as well as residual preemergence control or reduced competition of annual grasses and broadleaf weeds listed in the "WEEDS CONTROLLED" section of the Micro-Tech, Partner and Lasso herbicide labels.

Apply these tank-mixtures to emerged foxtails less than 2 inches tall and to corn less than 5 inches tall. Include 28% nitrogen fertilizer at a rate of 4 gallons per 100 gallons of spray solution plus NIS at 1 quart per 100 gallons of spray solution in 15 to 30 gallons of water per acre. The addition of Banvel or Clarity at 2 ounces of product per acre is recommended to these mixtures to control emerged lambsquarters less than 4 inches tall.

#### RECOMMENDED RATES/ACRE:

Micro-Tech

or Lasso	or	Partner	Plus	Achiva	Plus	Accent
(Quarts)		(Pounds)		(Ounces)		(Ounces)

1.5 to 3.5	2.5 to 5.3	2/3	1/3 to 1/2
------------	------------	-----	------------

#### ACHIVA HERBICIDE plus ROUNDUP® plus NONIONIC SURFACTANT

Achiva herbicide may be applied at 2/3 ounce by weight per acre in combination with Roundup herbicide for preplant burndown of emerged annual grasses, broadleaf weeds and nutsedge with **Pioneer IR** corn hybrids only. **Pioneer IR** hybrids are required to ensure crop safety due to the preplant application. Banvel or 2,4-D may also be applied in this tank mixture for enhanced preplant burndown of broadleaf weeds.

**Refer to the Roundup, Banvel and 2,4-D labels for use instructions, weeds controlled, and application restrictions.**

#### ACHIVA HERBICIDE SOIL APPLICATIONS

When used exclusively with **Pioneer IR field corn hybrids**, Achiva herbicide may be soil applied at the rate of 1 1/3 to 2 ounces by weight per acre (0.063 to 0.094 pound of active ingredient per acre) for residual control of velvetleaf, common cocklebur, common lambsquarters, common ragweed, pigweed, smartweed, sunflower and other difficult to control weeds.

This product is recommended as an early preplant surface-applied, preplant incorporated, or preemergence treatment. Achiva herbicide offers effective broadleaf control across all tillage systems and is intended for use in tank mixtures with the following herbicides: **Harness®**, **Harness® Xtra**, **Micro-Tech®**, **Partner®**, **Dual™**, **Eradicane™**, **Sutan+™**, **Surpass™**, or **Frontier™**.

**Refer to the labels for Harness, Harness Xtra, Micro-Tech, Partner, Dual, Eradicane, Sutan+, Surpass, and Frontier for use instructions, weeds controlled, and application restrictions.**

#### SUGARCANE

(Not for use in sugarcane in Arizona and California)

When used alone, Achiva herbicide may be applied prior to planting, prior to emergence or after the emergence of the sugarcane, and until row closure. Apply 2/3

to 1 1/3 ounces by weight (0.032 to 0.063 lb. active ingredient) of this product per acre. Mechanical cultivation may be required to control weed species not on the Achiva herbicide label. If so, a **sequential treatment** may be required to control weeds in areas of disturbed soil. No more than 3 applications (including preplant applications) may be made with the total use rate not to exceed 2 2/3 ounces of product by weight (0.125 lb. active ingredient) per acre per year.

Following application to foliage, allow 30 days before grazing domestic livestock, harvesting forage, or harvesting silage.

Achiva herbicide may be applied at 2/3 to 1 1/3 ounces by weight per acre (0.032 to 0.063 lb. active ingredient per acre) in combination with Roundup® herbicide for preplant burndown of emerged annual grasses, broadleaf weeds and nutsedge in sugarcane.

### **Tank Mixtures for Sugarcane**

Achiva herbicide may be tank mixed with Asulox™, atrazine 4L, Evik™ or 2,4-D for application in sugarcane.

Before mixing in the spray tank, it is recommended that compatibility be tested by mixing all components in a small container in proportionate quantities to those being applied. For tank mixtures, add individual formulations to the spray tank in the following sequence: water soluble bags, dry flowables, emulsifiable concentrates, drift control additive, water soluble liquids followed by nonionic surfactant or crop oil concentrate.

### **Achiva herbicide plus Roundup plus Nonionic Surfactant**

Achiva herbicide may be applied at 2/3 to 1 1/3 ounces by weight per acre (0.032 to 0.063 pound ai/acre) in combination with recommended rates of Roundup herbicide for preplant burndown of emerged annual grasses, broadleaf weeds and nutsedge in sugarcane.

Refer to the Roundup herbicide label for use instructions, additive requirements, weeds controlled, the size range of weeds that should be treated, and application restrictions.

### **Achiva herbicide plus Asulox plus Nonionic Surfactant or Crop Oil Concentrate**

Achiva herbicide may be applied in tank mixtures with Asulox for the control of labeled grasses. An Achiva herbicide tank mixture with Asulox may be applied to sugarcane before crop emergence or postemergence until 90 days before harvest. Up to 2 applications per year may be made in accordance with label recommendations.

Achiva Use Rate - 2/3 to 1 1/3 ounces of product by weight per acre. Up to 3 treatments per year may be applied, not exceeding 2 2/3 ounces of product by weight per acre per year.

Asulox Use Rate - 6 to 8 pints of product per acre. Up to 2 treatments per year may be applied.

Refer to the Asulox label for use instructions, additive requirements, weeds controlled, the size range of weeds that should be treated, and application restrictions.

**Achiva herbicide plus atrazine 4L plus Nonionic Surfactant or Crop Oil Concentrate**

Achiva herbicide may be applied in combination with atrazine 4L for postemergence control of labeled broadleaf weeds in sugarcane. The addition of atrazine will also aid in the burndown and control of many grass weeds (1.5 inches or less) which have escaped preemergence herbicide treatments. Applications should be made when broadleaf weeds are small (3 inches or less). Mixtures with atrazine may result in reduced control (antagonism) of larger broadleaf weeds.

Achiva Use Rate - 2/3 to 1 1/3 ounces of product by weight per acre. Up to 3 treatments per year may be applied, not exceeding 2 2/3 ounces of product by weight per acre per year. Atrazine Use Rate - 4 to 8 pints per acre (1 to 2 lb. active ingredient). Follow the specific recommendations on the atrazine label for number and timing of applications, and for maximum number of applications per year.

Refer to the atrazine 4L label for use instructions, additive requirements, weeds controlled, the size range of weeds that should be treated, and application restrictions.

**Achiva herbicide plus Evik plus Nonionic Surfactant**

Achiva herbicide may be applied in tank mixtures with Evik for the control of additional broadleaf weeds and grasses. An Achiva herbicide tank mixture with Evik may be applied to sugarcane before crop emergence or postemergence until row closure.

Achiva Use Rate - 2/3 to 1 1/3 ounces of product by weight per acre. Up to 3 treatments per year may be applied, not exceeding 2 2/3 ounces of product by weight.

Evik Use Rate - 1/2 to 1 1/2 lb. of product per acre. Follow the specific recommendations on the Evik label for number and timing of applications, and for maximum number of applications per year.

Refer to the Evik label for use instructions, additive requirements, weeds controlled, the size range of weeds that should be treated, and application restrictions.

**Achiva herbicide plus 2,4-D Amine plus Nonionic Surfactant**

Achiva herbicide may be applied in tank mixtures with 2,4-D amine for the control of additional broadleaf weeds. An Achiva herbicide tank mixture with 2,4-D may be applied to sugarcane before crop emergence or postemergence until 6 weeks before harvest.

Achiva Use Rate - 2/3 to 1 1/3 ounces of product by weight per acre. Up to 3 treatments per year may be applied, not exceeding 2 2/3 ounces of product by weight.

2,4-D Use Rate - 2 to 4 pints per acre (1 to 2 lb active ingredient per acre). Up to 4 treatments per year may be applied.

Refer to the 2,4-D amine label for use instructions, additive requirements, weeds controlled, the size range of weeds that should be treated, and application restrictions.

Refer to the companion product labels for use rates, restrictions and other important application information. See the companion labels for additional weeds controlled by these tank mixtures. Always follow the directions for use provided on the companion product label, including any state restrictions.

**WEEDS CONTROLLED BY  
ACHIVA HERBICIDE**

Use Rate - 2/3 to 1 1/3 ounces of product by weight per acre  
(0.032 to 0.063 pound active ingredient per acre)

Weed Species	ounces by weight per acre	
	2/3 oz. Height (inches)	1 to 1 1/3 oz. Height (inches)
Cocklebur, common	1 to 9	9 to 14
Fleabane, Philadelphia	1 to 3	--
Kochia	1 to 3	--
Mallow, Venice	1 to 3	4 to 12
Milkweed, honeyvine	--	1 to 6
Mustard, wild	--	4 to 6
Nutsedge <sup>1</sup> :		
yellow	--	4 to 12
purple	--	4 to 12
Passionflower, maypop	1 to 3	--
Pigweed, redroot <sup>2</sup>	1 to 3	4 to 6
Pokeweed, common	1 to 6	--
Radish, Wild	--	4 to 6
Ragweed:		
common	1 to 9	9 to 12
giant	1 to 3	4 to 6
Smartweed, Pennsylvania	1 to 2	--
Sunflower, common	1 to 12	12 to 15
Velvetleaf <sup>2</sup>	1 to 9	9 to 12

<sup>1</sup> Heavy infestations of nutsedge may require sequential applications. An earlier treatment may be required to prevent nutsedge from competing with the crop.

<sup>2</sup> For large velvetleaf and pigweed, the addition of liquid nitrogen fertilizer (2 to 4 quarts per acre) plus crop oil concentrate or nonionic surfactant is recommended.

**WEEDS SUPPRESSED**

Use Rate - 2/3 to 1 1/3 ounces of product by weight per acre  
(0.032 to 0.063 pound active ingredient per acre)

Weed Species	ounces by weight per acre	
	2/3 oz. Height (inches)	1 to 1 1/3 oz. Height (inches)
Burcucumber	1 to 3	4 to 12
Kochia	*	3 to 6
Lambsquarters, common	1 to 2	---
Milkweed, common	3 to 5	6 to 12
Milkweed, honeyvine	1 to 3	---
Morningglory	---	1 to 3
Nutsedge:		
yellow	4 to 12	*
purple	4 to 12	*

\* Refer to "WEEDS CONTROLLED" section of this label.

Refer to the "ROTATIONAL CROP INFORMATION" section of this label for applicable rotational crop restrictions.

**TURFGRASS SOD AND SEED FARMS**

Achiva herbicide is a selective herbicide for postemergence control of sedges such as purple and yellow nutsedge in sod or turf seed farms. This product will not injure nearby established ornamentals, trees and shrubs when used according to label directions.

For postemergence control of purple or yellow nutsedge found in established turfgrass, apply 2/3 to 1 1/3 ounces by weight of this product per acre (0.031 to 0.062 pounds active ingredient per acre) after nutsedge has reached the 3 to 8 leaf stage of growth. Use the lower rate in light infestations and the higher rate in heavy infestations.

A second treatment may be required 6 to 10 weeks after the initial treatment. As a sequential treatment, when new purple or yellow nutsedge plants have reached the 3 to 8 leaf stage of growth, apply 2/3 to 1 1/3 ounces by weight of this product per acre (0.031 to 0.062 pounds active ingredient per acre). Use the lower rate in light infestations and the higher rate in heavy infestations. No more than 2 applications can be made with the total use rate not exceeding 0.125 pounds active ingredient per acre per use season.

Use 0.25 - 0.5 percent nonionic surfactant concentration (1-2 quarts per 100 gallons of spray solution) for broadcast applications. For high volume applications, DO NOT exceed 1 quart of surfactant per acre. Use only nonionic surfactants which contain at least 80 percent active material.



**DO NOT** exceed the recommended amount of surfactant due to the potential for turf injury at higher rates. Refer to the surfactant label and observe all precautions, mixing and application instructions.

When applied as directed under the conditions described, the following established turfgrasses are tolerant to application of this product:

#### **Established Cool-Season Grasses**

Bentgrass, creeping  
*Agrostis stolonifera*

Fescue, fine  
*Festuca rubra*

Bluegrass, Kentucky  
*Poa pratensis*

Fescue, tall  
*Festuca arundinacea*

Ryegrass, perennial  
*Lolium perenne*

#### **Established Warm-Season Grasses**

Bahiagrass  
*Paspalum notatum*

Seashore paspalum  
*Paspalum vaginatum*

Bermudagrass  
*Cynodon dactylon*

St. Augustinegrass  
*Stenotaphrum secundatum*

Centipedegrass  
*Eremochloa ophiuroides*

Zoysiagrass  
*Zoysia japonica*

Kikuyugrass  
*Pennisetum clandestinum*

#### **Fallow Treatments in Turfgrass Seed and Sod Production Areas**

This product may be used on fallow areas prior to establishing turfgrass plants. Allow 4 weeks between application and seeding or sodding of turfgrass.

#### **Use Precautions**

For optimum results, do not mow turf for 2 days before or 2 days after application.

This product is effective if no rainfall occurs within 3 hours, but best results are obtained with no rainfall or irrigation for at least 8 hours.

This product may be used on seeded, sodded, or sprigged turfgrass that is well established. Allow the turf to develop a good root system and uniform stand before application.

**Avoid application of Achiva herbicide when turfgrass or nutsedge is under stress since turf injury and poor nutsedge control may result.**

Do not apply as an over-the-top spray to desirable shrubs or trees.

## TANK MIXTURES

This product may be applied in combination with other products that are registered for the same crop and application.

**Refer to the companion product label for use instructions, additive requirements, weeds controlled, the size range of weeds that should be treated, and application restrictions.**

Before mixing in the spray tank, it is recommended that compatibility be tested by mixing all components in a small container in proportionate quantities as listed below. For tank mixtures, add individual formulations to the spray tank in the following sequence: water soluble bags, dry flowables, emulsifiable concentrates, drift control additive, water soluble liquids followed by nonionic surfactant.

Tank mixtures should not be applied if the crop is under severe stress due to drought, water-saturated soils, poor fertility (especially low nitrogen levels), hail, frost, insects or when the maximum daytime temperature is above 92°F. Tank mix applications under these conditions may cause temporary crop injury.

Ensure that spray equipment is set up to avoid applying an excessive rate directly over the rows and into the whorl of the cornstalk. To insure good spray coverage of weeds and to reduce the risk of spraying directly into the whorl, tank-mix applications made after corn is 24 inches tall should be directed or semi-directed using drop nozzles.

## ACHIVA HERBICIDE USE RATE GUIDE

### ACHIVA HERBICIDE plus ROUNDUP plus NONIONIC SURFACTANT

Achiva herbicide may be applied at 2/3 ounce by weight per acre in combination with Roundup herbicide for preplant burndown of emerged annual grasses, broadleaf weeds and nutsedge.

**Refer to the Roundup label for use instructions, weeds controlled, and application restrictions.**

---

**ROTATIONAL CROP INFORMATION**

Labeled crops may be planted at specified time intervals following application of approved rates of Achiva herbicide. Use the time intervals listed below to determine the required time interval before planting.

**TIME INTERVAL BEFORE PLANTING**  
**(Months after treatment with Achiva herbicide)**

<b>Crop</b>	<b>Months</b>
IR/IMR Field corn	0
Sugarcane	0
IT Field corn	1
Normal Field corn	1
Barley (winter)	2
Forage Grasses	2
Oats	2
Proso Millet	2
Rice	2
Rye (winter)	2
Seed corn	2
Sorghums	2
Spring cereal crops	2
Wheat (winter)	2
Popcorn, Sweet corn*	3
Cotton	4
Peanuts	6
Tomato (transplant)	8
Alfalfa	9
Clovers	9
Dry Beans	9
Field Peas	9
Peas	9
Potatoes	9
Cucumbers, Pumpkins, Squash	9
Snap Beans	9
Soybeans	9
Peppers	10
Eggplant	12
Radish	12
Cabbage	15
Canola	15
Carrot	15
Mint	15
Broccoli, Cauliflower,	
Collards	18
Leeks, Onions	18
Lettuce crops	18
Sunflowers	18
Sugarbeet (Michigan only)	21
Sugarbeet and Red Beet	24
Spinach	24
Sugarbeet	36
(ND, MN, Red River Valley)**	

\* In-crop and preplant applications of Achiva herbicide to sweet corn and popcorn are based on application rates and timings specific for use in those crops. Rotational interval must be adhered to for planting subsequent sweet corn or popcorn crops after Achiva herbicide applications in sweet corn or popcorn crops that are lost, terminated or harvested.

\*\*Also includes other regions where rainfall is sparse or irrigation is required.

**Refer to individual product labels to determine rotational crop restrictions when tank mixtures are used.**

---

## APPENDIX

### LIST OF COMMON AND SCIENTIFIC NAMES OF BROADLEAF WEEDS.

Bindweed, hedge

*Calystegia sepium*

Burcucumber

*Sicyos angulatus*

Cocklebur, common

*Xanthium strumarium*

Dogbane, hemp

*Apocynum cannabinum*

Fleabane, Philadelphia

*Erigeron philadelphicus*

Horsenettle

*Solanum carolinense*

Kyllinga, green

*Kyllinga brevifolia*

Kochia

*Kochia scoparia*

Jimsonweed

*Datura stramonium*

Lambsquarters, common

*Chenopodium album*

Mallow, Venice

*Hibiscus trionum*

Milkweed, common

*Asclepias syriaca*

Milkweed, honeyvine

*Ampelamus albidus*

Morningglory  
*Ipomoea* spp.

Morningglory, ivyleaf  
*Ipomoea hederacea*

Morningglory, tall  
*Ipomoea purpurea*

Mustard, wild  
*Sinapis arvensis*

Nutsedge, yellow  
*Cyperus esculentus*

Nutsedge, purple  
*Cyperus rotundus*

Passionflower, maypop  
*Passiflora incarnata*

Pigweed, redroot  
*Amaranthus retroflexus*

Pokeweed, common  
*Phytolacca americana*

Radish, wild  
*Raphanus raphanistrum*

Ragweed, common  
*Ambrosia artemisiifolia*

Ragweed, giant  
*Ambrosia trifida*

Smartweed, Pennsylvania  
*Polygonum pensylvanicum*

Sunflower, common  
*Helianthus annuus*

Velvetleaf  
*Abutilon theophrasti*

Waterhemp, common  
*Amaranthus rudis*

Waterhemp, tall  
*Amaranthus tuberculatus*

26/11/2001

## LIMIT OF WARRANTY AND LIABILITY

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

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

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

This Company does not warrant any product reformulated or repackaged from this product except in accordance with this Company's stewardship requirements and with express written permission from this Company.

THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

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

Bullet, Harness (EPA Reg. No. 524-473), Lasso, Micro-Tech, Partner and Roundup are registered trademarks of Monsanto Company.

Accent is a trademark of E. I. du Pont de Nemours & Co., Inc.

Asulox and Bucril is a trademark of Rhone-Poulenc Ag Company.

Banvel, Clarity, Frontier, Marksman are trademarks of Sandoz AG.

Eradicane, Surpass and Sutan+ are trademarks of Zeneca Agrochemicals.

Evik, Beacon, and Dual are trademarks of Novartis Corporation.

Pioneer is a registered trademark of Pioneer Hi-Bred International, Inc.

---

In case of emergency involving this product,  
Call Collect, day or night, 1-630-775-9784.

---

Nissan Chemical Industries, Ltd.  
Kowa Hitotsubashi Building  
7-1, 3-chome, Kanda-Nishiki-cho  
Chiyoda-ku, Tokyo 101-0054  
JAPAN