



## OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

WASHINGTON, D.C. 20460

September 11, 2024

Nikki Benson  
Regulatory Specialist  
Nufarm Inc.  
11901 S. Austin Ave.  
Alsip, IL 60803

Subject: Label Amendment - Registration Review Mitigation for Chlorsulfuron  
Product Name: NUP 08134  
EPA Registration Number: 71368-92  
Application Date: January 23, 2024  
Decision Number: 594954

Dear Nikki Benson:

The Agency, in accordance with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, has completed reviewing all the information submitted with your application to support the Registration Review of the above referenced product in connection with the Chlorsulfuron Interim Decision, and has concluded that your submission is acceptable. The label referred to above, submitted in connection with registration under FIFRA, as amended, is acceptable.

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

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling and must be used at your next label printing. You must

submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 12 months from the date of this letter. After 12 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

If you have any questions about this letter, please contact Caleb Carr by phone at (202) 566-0636, or via email at [carr.caleb@epa.gov](mailto:carr.caleb@epa.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "Linda Arrington", with a stylized flourish at the end.

Linda Arrington, Branch Chief  
Risk Management and Implementation Branch 4  
Pesticide Re-Evaluation Division  
Office of Pesticide Programs

ENCLOSURE: Stamped label

CHLORSULFURON	GROUP	2	HERBICIDE
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# NUP-08134 Herbicide

Dry Flowable  
For Use on Wheat, Triticale, Barley, and Oat

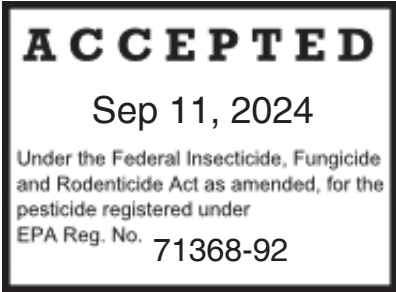
<b>ACTIVE INGREDIENT:</b>	<b>By Weight</b>
Chlorsulfuron: 2-Chloro-N-[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)aminocarbonyl] benzenesulfonamide .....	75.0%
<b>OTHER INGREDIENTS:</b> .....	25.0%
<b>TOTAL:</b> .....	100.0%

KEEP OUT OF REACH OF CHILDREN  
CAUTION

EPA Reg. No. 71368-92  
EPA Est. No.

**Manufactured by:**  
Nufarm Americas, Inc.  
150 Harvester Drive, Suite 200  
Burr Ridge, IL 60527

Net Weight:  
  
071368-00092.20240823  
NUP-08134



**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

**CAUTION**

Harmful if swallowed. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.

**PERSONAL PROTECTIVE EQUIPMENT**

**Applicators and other handlers must wear:**

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

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

**ENGINEERING CONTROL STATEMENTS**

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.

**IMPORTANT:** When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "Applicators and other handlers" and have such PPE immediately available for use in an emergency such as a spill or equipment break-down.

**USER SAFETY RECOMMENDATIONS**

**Users should:**

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

<b>FIRST AID</b>	
<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 the poison control center or doctor.</li><li>• Do not give anything by mouth to an unconscious person.</li></ul>
<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.</li><li>• 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>HOT LINE NUMBER</b>	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-424-9300 for emergency medical treatment information.	

**ENVIRONMENTAL HAZARDS**

**Groundwater Advisory:** Chlorsulfuron is known to leach through soil into groundwater under certain conditions as a result of label use. This chemical may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

**Surface Water Advisory:** This product may impact surface water quality due to runoff of rain water. This is especially true for poorly draining soils and soils with shallow ground water. This product is classified as having high potential for reaching surface water via runoff for weeks after application. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential loading of chlorsulfuron from runoff

water and sediment. Runoff of this product will be greatly reduced by avoiding applications when rainfall or irrigation is expected to occur within 48 hours.

**Non-target Organism Advisory:** This product is toxic to plants and may adversely impact the forage and habitat of non-target organisms, including pollinators, in areas adjacent to the treated area. Protect the forage and habitat of non-target organisms by minimizing spray drift. For further guidance and instructions on how to minimize spray drift, refer to the Spray Drift Management section of this label.

#### **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 intervals. 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
- Waterproof gloves
- Shoes plus socks

#### **IMPORTANT**

Nufarm Americas, Inc. recommends the use of this herbicide product on lands established for long-term production of barley, oats or wheat. NUP-08134 must be used only in accordance with directions on this label or in separate published Nufarm Americas, Inc. directions.

Nufarm Americas, Inc. will not be responsible for losses or damages resulting from the use of this product in any manner not specifically directed by Nufarm Americas, Inc..

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

#### **WINDBLOWN SOIL PARTICLES**

This product has the potential to move off-site due to wind erosion. Soils that are subject to wind erosion usually have a high silt and/or fine to very fine sand fractions and low organic matter content. Other factors which can affect the movement of windblown soil include the intensity and direction of prevailing winds, vegetative cover, site slope, rainfall, and drainage patterns. Avoid applying this product if prevailing local conditions may be expected to result in off-site movement.

#### **MANDATORY SPRAY DRIFT MANAGEMENT**

##### Aerial Applications:

- Do not release spray at a height greater than 10 feet above the vegetative canopy, unless a greater application height is necessary for pilot safety.

- For applications prior to the emergence of crops and target weeds, applicators are required to use a Coarse or coarser droplet size (ASABE S641).
- For all other applications, applicators are required to use a Medium or coarser droplet size (ASABE S641).
- The boom length must not exceed 65% of the wingspan for airplanes or 75% of the rotor blade diameter for helicopters.
- Applicators must use ½ swath displacement upwind at the downwind edge of the field.
- Nozzles must be oriented so the spray is directed toward the back of the aircraft.
- Do not apply when wind speeds exceed 10 miles per hour at the application site.
- Do not apply during temperature inversions.

#### Ground Boom Applications:

- Apply with the nozzle height recommended by the manufacturer, but no more than 3 feet above the ground or crop canopy unless making a turf, pasture, or rangeland application, in which case applicators may apply with a nozzle height no more than 4 feet above the ground.
- For applications prior to the emergence of crops and target weeds, applicators are required to use a Coarse or coarser droplet size (ASAE S572.3).
- For all other applications, applicators are required to use a Medium or coarser droplet size (ASAE S572.3).
- Do not apply when wind speeds exceed 10 miles per hour at the application site.
- Do not apply during temperature inversions.

#### Boom-less Ground Applications:

- Applicators are required to use a Medium or coarser droplet size (ASAE S572.3) for all applications.
- Do not apply when wind speeds exceed 10 miles per hour at the application site.
- Do not apply during temperature inversions.

### **SPRAY DRIFT ADVISORIES**

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT. BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

#### **IMPORTANCE OF DROPLET SIZE**

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

#### **Controlling Droplet Size – Ground Boom**

- Volume - Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure - Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle - Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

#### **Controlling Droplet Size – Aircraft**

- Adjust Nozzles - Follow nozzle manufacturers recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

**BOOM HEIGHT – Ground Boom** Use the lowest boom height that is compatible with the spray nozzles that will provide uniform coverage. For ground equipment, the boom should remain level with the crop and have minimal bounce.

#### **RELEASE HEIGHT - Aircraft**

Higher release heights increase the potential for spray drift. When applying aerially to crops, do not release spray at a height greater than 10 feet above the crop canopy, unless a greater application height is necessary for pilot safety.

### **SHIELDED SPRAYERS**

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

### **TEMPERATURE AND HUMIDITY**

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

### **TEMPERATURE INVERSIONS**

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or 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. Avoid applications during temperature inversions.

### **WIND**

Drift potential generally increases with wind speed. **AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.**

Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

### **Boom-less Ground Applications:**

- Setting nozzles at the lowest effective height will help to reduce the potential for spray drift.

### **Handheld Technology Applications:**

- Take precautions to minimize spray drift.

## **WEED RESISTANCE MANAGEMENT**

For resistance management, NUP-08134 Herbicide contains the Group 2 herbicide – chlorsulfuron. Any weed population may contain or develop plants naturally resistant to NUP-08134 Herbicide and other Group 2 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Appropriate resistance-management strategies should be followed.

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 delay herbicide resistance take one or more of the following steps:

- Rotate the use of NUP-08134 Herbicide or other Group 2 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group if such use is permitted; where information on resistance in target weed species is available, use the less resistance-prone partner at a rate that will control the target weed(s) equally as well as the more resistance-prone partner. Consult your local extension service or certified crop advisor if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed-management program for herbicide use that includes scouting and uses historical information related to herbicide use and crop rotation, and that considers tillage ( or other mechanical control methods), cultural ( e.g., higher crop seeding rates; precision fertilizer application

method and timing to favor the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.

- Scout before and after herbicide application to monitor weed populations for early signs of resistance development. Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; (2) a spreading patch of non-controlled plants of a particular weed species; (3) surviving plants mixed with controlled individuals of the same species. If resistance is suspected, prevent weed seed production in the affected area by an alternative herbicide from a different group or by a mechanical method such as hoeing or tillage. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.

- If a weed pest population continues to progress after treatment with this product, discontinue use of this product, and switch to another management strategy or herbicide with a different mode of action, if available.

- Contact your local extension specialist or certified crop advisors for additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

- [For further information or to report suspected resistance, contact [Nufarm contact] at [one of][any of] the following] [[[X]-XXX-XXX-XXXX] [.]][or]] 1-800-345-3330 [.]][or]] [Nufarm e-mail address] [.]][or]] [Nufarm website] [.]][or]] [XXXX]].]

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. Contact your local sales representative, crop advisor, or extension agent to find out if suspected resistant weeds to this MOA have been found in your region. Do not assume that each listed weed is being controlled by this mechanisms of action. Co-formulated active ingredients are intended to broaden the spectrum of weeds that are controlled. Some weeds may be controlled by only one of the active ingredient in this product.

Suspected herbicide-resistant weeds may be identified by these indicators:

- Failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds;
- A spreading patch of non-controlled plants of a particular weed species; and
- Surviving plants mixed with controlled individuals of the same species.

Naturally occurring weed biotypes which have been shown to be resistant to Amber® herbicide, Ally® herbicide, Finesse® herbicide, Express® herbicide or Harmony® Extra herbicide will also be resistant to NUP-08134.

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## GENERAL INFORMATION

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NUP-08134 contains the active ingredient chlorsulfuron which is a herbicide recommended for control of many broadleaf weeds in barley, wheat (including durum), triticale, and spring oat. NUP-08134 may also be used in winter oat in Texas, Western Oregon, and Western Washington and tall fescue grown for seed in Oregon and Washington. NUP-08134 is a dry flowable formulation which is not corrosive, not flammable, and not volatile. It must be mixed with water or added directly to liquid nitrogen fertilizer solutions. A surfactant is to be added to the spray mix unless otherwise noted in other sections of this label.

Both preemergent and postemergent applications of NUP-08134 will control weeds. **Preemergence activity** is optimized when NUP-08134 is applied prior to weed seed germination. Sprinkler irrigation or rainfall helps to move residues of NUP-08134 into the soil and close to the weed root zone. Optimum weed control from **postemergence applications** is achieved when weeds are young and actively

growing when NUP-08134 is applied. Several factors (including use rate, weed growth stage and degree of infestation at the time of application, and post-application weather conditions) will affect the range of weeds controlled and the length of residual activity.

Note: In some sections of this label, NUP-08134 applications are described for certain parts of some states. The **Directions for Crop Rotation** tables at the end of this label provide the counties or landmarks that define more specifically the use areas in those states.

## PESTICIDE HANDLING

All operators must be trained in the proper handling of this herbicide. All spray equipment must be routinely checked and calibrated prior to use. Store this product away from well sites. Dose levels must be verified before mixing. Prepare spray solutions according to the directions on this label and dispose of container rinsates by adding to the spray tank. Do not prepare more spray solution than is necessary for the day's application. Read and follow all precautions and restrictions on this label.

## ENVIRONMENTAL CONDITIONS AND ACTIVATION OF NUP-08134

NUP-08134 moves into plants by absorption through the roots and foliage and rapidly inhibits the growth of susceptible weeds. Within one to three weeks after application, weed growth slows, leaves of susceptible plants become yellow to white in color, and growing points die.

For optimum **preemergence** control of target weeds, NUP-08134 needs to reach the weed roots. Rainfall after an application moves the NUP-08134 into the soil and the weed root zone. In **postemergence** applications, poor weed control may be observed if rainfall occurs shortly after application. Under cold, dry conditions movement of NUP-08134 into the root zone will be delayed. NUP-08134 is less effective to weeds hardened off by cold weather or under stress from lack of water.

Optimum control of weeds shaded by a rapidly growing crop is achieved with a **postemergent** application of NUP-08134. Ineffective control of weeds may be seen where crop stands are thin or in sections with gaps in seeding. If the canopy of the crop completely intercepts the spray solution, weed control will be reduced.

Under most normal conditions, NUP-08134 will not harm labeled desirable grasses. Injury to crops may result from application of NUP-08134 to crops that are growing under stress (due to extreme temperatures or moisture, abnormal soil conditions, or cultural practices) or to certain sensitive varieties of the crops.

## GRAZING RESTRICTIONS

There are no grazing restrictions when using NUP-08134.

## INSTRUCTIONS FOR PREPARING TANK MIXES OF NUP-08134

1. Using clean fresh water, fill the spray tank  $\frac{1}{4}$  to  $\frac{1}{3}$  full. If a liquid nitrogen fertilizer solution is used in place of water, refer to the **Tank Mixtures with NUP-08134 in Cereal Crops** section for additional details.
2. Begin agitation and then add the required amount of NUP-08134.
3. Allow the solution to agitate for 5 minutes to completely disperse the dry flowable NUP-08134 formulation.
4. Continue agitation and fill the spray tank with the remaining water. Do not add any other material until the NUP-08134 is thoroughly mixed with the water.
5. As the tank is filling with the remaining amount of water, add any tank mix partners followed by the necessary volume of nonionic surfactant. Always add the surfactant last. Do not mix NUP-08134 with spray additives that reduce the pH of the spray solution below 3.0. Additional information is found in the section on **Surfactants** under the **Cereal Crops** part of this label.
6. NOTE: Continuous agitation is required or settling will occur. Before spraying, reagitrate the solution to ensure a uniform solution is sprayed.
7. Make only a sufficient amount of NUP-08134 spray mixture that can be used within 24 hours of mixing. The product may degrade if allowed to sit unused.
8. For application of multiple loads of NUP-08134 and a tank mix partner, make a pre-slurry of NUP-08134 in clean water and then add to the spray tank. This pre-mix helps to prevent the tank mix partner from interfering with the dissolution of the NUP-08134.

### SPRAY EQUIPMENT FOR APPLICATION OF NUP-08134

Refer to the manufacturer's recommendations for additional information on GPA, pressure, speed, nozzle types and arrangements, nozzle heights above the target canopy, etc.

Use calibrated air or ground equipment and apply in a spray volume and delivery system to ensure a thorough, uniform spray coverage of weed pests. Use precautions to minimize drift. Higher spray volumes will produce better coverage to dense canopies of weeds. Do not overlap sprays. To avoid injury to desirable species, turn off spray booms while starting, turning, slowing, or stopping.

Do not make applications using equipment and/or spray volumes or under weather conditions that might cause spray drift onto non-target sites. Additional information is provided in the sections **Spray Drift Management** and **Cereal Crops**.

Use application equipment that will ensure constant agitation of NUP-08134 spray solutions.

### HOW TO CLEAN SPRAYER EQUIPMENT

Clean all spray equipment before making an application of NUP-08134.

Immediately after an application or multiple applications of NUP-08134, clean all spray equipment using the cleanup procedures described on the labels of previously applied products. If there are no cleanup directions, use the following cleanup procedures. After spraying is completed at the end of the day, rinse the interior of the tank with fresh water. Partially refill the tank with fresh water and flush the boom and hoses. These rinses will prevent deposits of dried pesticide residues that can remain in the application equipment.

Residues of NUP-08134 that remain in the spray equipment may injure desirable crops if the equipment is used to make applications to crops other than barley, oats, wheat, or other labeled crops. Use the following steps to clean all mixing and spray equipment immediately following applications of NUP-08134:

1. Drain the spray tank and then use fresh water to rinse the interior surfaces of the tank. Then flush the tank, boom, and hoses with water for at least 5 minutes. Physically remove any solid deposits that are found around the equipment.
2. Use fresh clean water to fill the tank and add one gallon of household ammonia (3%)<sup>†</sup> per 100 gallons of water. Flush the boom, hoses, and nozzles with this cleaning solution. Completely fill the tank with fresh water and circulate the solution through the tank and hoses for 15 minutes. Flush the boom, hoses, and nozzles, and then drain the tank.
3. Remove and clean the nozzles and screens separately. Use a bucket filled with the cleaning solution.
4. Repeat step 2.
5. Use clean water to rinse the tank, boom and hoses.
6. If the cleaner used is only ammonia, the rinsate solution may be discarded by being applied to the crop(s) recommended on this label. Do not exceed the maximum labeled use rate. If other cleaners are used, consult the cleaner label for rinsate disposal instructions. If no instructions are given, dispose of the rinsate on-site or at an approved waste disposal facility.

<sup>†</sup> Other Nufarm Americas, Inc.-approved cleaning solutions or different strengths of ammonia solution can also be used as cleaning agents. Use the same amounts as noted in step 2, above. Carefully follow the directions for use on the labels of the individual cleaner. Consult your agricultural dealer, applicator, or Nufarm Americas, Inc. representative for a listing of approved cleaners.

#### Notes for Sprayer Equipment Cleaning:

- Caution! Do not use chlorine bleach with ammonia as dangerous gases will form. Clean equipment in well-ventilated areas.
- Before following the above cleanout procedure for aerial spray tanks, a steam-cleaning of the tanks is recommended to aid in removing caked deposits.
- Follow the most rigorous cleanout procedure for all pesticides which are tank-mixed with NUP-08134.

- After completing the above cleanout procedure and before using the sprayer equipment to make the next pesticide application, clean out the sprayer following the procedures on the pesticide product label that will be applied.
- It is recommended that a dedicated sprayer be kept for NUP-08134 applications during the growing season. Dedicated equipment for NUP-08134 applications will help to minimize the potential for injury to NUP-08134-sensitive crops if routine spraying practices include equipment shared between applications of NUP-08134 and applications of other pesticides during the same spray season.

#### FIELD BIOASSAY DIRECTIONS

If crops not listed on this label are to be rotated into areas previously treated with NUP-08134, or if crops are planted at shorter intervals than those listed in the section **Directions for Crop Rotation**, a field bioassay test must be carried out to determine if these crops can be replanted without injury. In some cases, residues of NUP-08134 can remain in the soil for up to 2 to 4 years after application and may injure crops other than barley, oats, wheat, or other labeled crops that are planted in treated soils. Carefully plan your planting and rotation crop strategy before applying NUP-08134.

The conditions that favor breakdown of NUP-08134 in soils include locations with soils that have a pH less than 7.0, regions that receive over 20" of annual rainfall, and areas with a long growing season that lead to warm soil temperatures. Conversely, residues of NUP-08134 breakdown more slowly in soils with pH over 7.0, at locations that receive little annual rainfall, and in regions with prolonged periods of soil temperatures below 40°F. Due to the variation from year to year of rainfall and soil temperatures, it is not possible to accurately predict when soils treated with NUP-08134 can be rotated to crops other than barley, oats, wheat, or other labeled crops.

However, a field bioassay of NUP-08134-treated fields can provide assurance that crops other than barley, oats, wheat, or other labeled crops can be safely planted. Follow the steps below to carry out a field bioassay of treated NUP-08134-treated fields with the crop(s) to be rotated. Additional information on the procedures for carrying out field bioassays can be obtained from your local dealer or Nufarm Americas, Inc. representative.

1. Test the crop or crops intended to be planted the year following a treatment with NUP-08134 by growing the crop or crops in small plots which received the NUP-08134 treatment. The crop's response will determine the feasibility of rotating these crops to large areas which had been treated with NUP-08134. For reliable results, be sure to choose NUP-08134-treated areas that are representative (areas with differences in soil texture or drainage, turnaround areas, eroded knolls, or alkaline spots). Use a sufficient number of planted strips for accurate results whether planting back to small or large fields.
2. The test strips should be planted perpendicular to the direction in which the field was sprayed. Be sure the test strips are long enough so that they cross the width of several spray swaths. The larger the test strip ( $\frac{1}{4}$  to  $\frac{1}{2}$  acre per test strip is recommended), the more reliable the results will be.
3. When planting the bioassay crop(s) in the test strips, use standard tillage and seeding equipment.
4. Select the crop(s) and variety(ies) you are considering growing the following year in NUP-08134-treated soils. Prepare the seed beds as normally done but make sure you plant at the same time and use the same conditions and all cultural practices normally carried out when growing these bioassay crops. To test the effectiveness of these practices, prepare a test strip that has not been treated with NUP-08134 and plant the bioassay crop in that strip.
5. Avoid the use of herbicides that may damage the bioassay crop(s).
6. A successful result is obtained when the bioassay crop(s) in the test strip(s) have grown to maturity with a normal harvest. Rotation to this new crop in NUP-08134-treated fields may be carried out in the following season.
7. Do not rotate to the bioassay crop(s) if the bioassay crop(s) in the test strips dies, is stunted, or fails to yield a normal harvest. These results indicate residues of NUP-08134 are present in the soil. Rotation to barley, oats, wheat, or other labeled crops will not result in injury to those crops. Repeat the bioassay until a successful result is obtained and then rotate to the new crop(s).

## **INTEGRATED PEST MANAGEMENT**

NUP-08134 may be used as part of an Integrated Pest Management (IPM) program. This program relies on tillage (or other mechanical), biological, cultural, and chemical control practices to prevent economic pest damage. IPM principles and practices include field monitoring, historical information related to herbicide use and crop rotation, correct identification of target pests, population monitoring, and treatment when target pest populations reach a locally-determined action threshold. Consult your state cooperative extension service, professional consultants or other qualified authorities to determine the action treatment threshold levels for treating specific pest/crop systems in your area.

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## **CEREAL CROPS**

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### **IMPORTANT PRECAUTIONS AND RESTRICTIONS - CEREALS**

Read the following restrictions and precautions to avoid injury to or loss of desirable trees or other desirable plants or vegetation.

- Before using NUP-08134, consult your state experiment station, university, or extension agent as to sensitivity of barley, oats and wheat varieties to various herbicides. If the sensitivity of the crop variety is unknown, test NUP-08134 on a small area of the crop variety.
- To avoid injury, do not apply NUP-08134 to barley, oats or wheat growing under conditions of stress (severe weather conditions, drought, low fertility, water-saturated soils, disease, or insect damage). Injury to these crops is possible if application is followed by severe winter stress including drought, disease, or insect damage.
- To avoid injury to forages, do not apply NUP-08134 to barely, oats or wheat which are undersown with legumes.
- To avoid possible crop injury, do not apply NUP-08134 during boot or early heading.
- Do not use this product on lawns, walks, driveways, tennis courts, or similar areas.
- Use caution to avoid spray drift or direct or indirect contact of sprays onto desirable plants or areas adjacent to treated fields.
- To minimize off-site movement of product on treated soils which can lead to damage of susceptible crops, do not apply if soils are powdery, dry or light, or sandy unless rainfall, mulch or other cultural practices stabilize these soils. Treated soil particles may move off-site to non-target crop sites through wind or water. Low levels of NUP-08134 may injure or kill crops other than barley, oats and wheat.
- To avoid the possibility of surface runoff, do not apply NUP-08134 to frozen ground or to snow-covered ground.
- Do not apply NUP-08134 to irrigated land if the tailwater will be used to irrigate other crops.
- To avoid severe injury or death, do not drain or flush equipment rinses on or near desirable trees or other plants, on areas where their roots may extend, or in areas where the product may be washed or moved into contact with desirable plant roots.
- Clean all spray equipment according to the directions in this label. Residues remaining in spray equipment may damage crops (other than wheat, barley and oats).
- Do not harvest grain until 45 days after NUP-08134 application.

#### **Pacific Northwest:**

- Do not make preemergence applications or early postemergence applications (2-4 leaf stage) to wheat or barley during late fall or winter. The combined stress from weather and the herbicide application can lead to greater crop injury than from stress due to weather or herbicide application alone.

#### **Far-western Kansas (last tier of counties along the Colorado/Kansas border), Western Nebraska, Eastern New Mexico, and the Oklahoma and Texas panhandles:**

- Do not use a tank mix containing Ally herbicide until 22 months after an NUP-08134 application.
- Do not use NUP-08134 in continuous cereals or cereal/fallow/cereal rotations.

- Use NUP-08134 in a tank mix at a rate of 1/6 to 1/3 oz per acre only as a fallow treatment in corn or sorghum stubble in wheat/sorghum/fallow, or wheat/corn/fallow rotations. Use only other residual broadleaf herbicides which have different modes of action than NUP-08134.

#### **California, Northern Idaho, Oregon, and Washington:**

- Do not make an early season treatment unless a tank mix can be made.
- Do not apply NUP-08134 during fallow.
- Injury to spring wheat may occur from a combination of several factors: 1) crop is grown under stress (soil crusting, planting too deep, prolonged cold, wet weather, or drought) which lead to poor seedling vigor; and 2) NUP-08134 is used preemergence with other preemergence wild oat herbicides.
- Soils that contain 5% or more organic matter may result in poor preemergence weed control or suppression.
- Spring-germinating weeds growing in coarse-textured soils with pH levels greater than 7.0 which receive fall applications of NUP-08134 may not be controlled or suppressed.
- To improve the postemergence control of weeds in wheel track areas when NUP-08134 is applied by ground under dry, dusty field conditions, add 2,4-D or MCPA to the spray tank.
- Injury to crops is possible when 2,4-D or herbicides containing 2,4-D are applied preemergence within 2 weeks of planting spring cereals and NUP-08134 preemergence or early postemergence applications are also made.
- If heavy precipitation follows an application of NUP-08134 plus Assert® tank mix, temporary discoloration and/or stunting or injury to the crop may occur.
- Read and follow the rotation crop restrictions for land treated with Finesse, Ally, Amber, Assert, or other longer residual herbicides with the same mode of action prior to NUP-08134 applications.

#### **SURFACTANTS**

Always add an Nufarm Americas, Inc.-authorized, nonionic surfactant to spray tanks unless directions elsewhere on this label recommend against this addition. The surfactant must have at least 80% active ingredient and is to be applied at 0.25 to 0.5% v/v (1 to 2 qt per 100 gal of spray solution).

Use the higher specified surfactant rate with spray volumes of 5 GPA or less and when low rates of NUP-08134 are to be applied. A list of approved surfactants can be obtained from your agricultural dealer applicator or Nufarm Americas, Inc. representative. Use an antifoaming agent if needed.

**Do not substitute low rates of liquid fertilizer for a surfactant.**

#### **GROUND APPLICATION**

The use of flat-fan or low-volume flood nozzles will provide optimum spray distribution and thorough coverage of spray solution. Use the following spray volumes for the type of nozzle selected: flat-fan nozzles – minimum 3 gal per acre (GPA); FloodJet® or RA Raindrop® nozzles - minimum 20 GPA; FloodJet TK 5 to TK 7.5 or equivalent – minimum 10 GPA (30-inch spacing) to 13 GPA (40-inch spacing). It is essential to overlap the nozzles 100% for all spacings.

Screens must be 50-mesh or larger.

#### **AERIAL APPLICATION**

Apply NUP-08134 at 1 to 5 gallons per acre using spray nozzle types and arrangements that optimizes spray distribution and coverage. In Idaho, Oregon, or Utah, apply at a minimum of 3 gallons per acre.

To prevent drift into adjacent areas or onto sensitive crops, apply NUP-08134 by air using solid stream nozzles oriented straight back. To minimize spray drift, supplement aerial applications of NUP-08134 with ground applications to borders and edges of fields. See additional precautions in the section **Spray Drift Management**.

#### HOW TO MEASURE REQUIRED AMOUNTS OF NUP-08134

The required amount of NUP-08134 can be measured using the volumetric cylinder supplied specifically for use with NUP-08134. If you do not have a measuring cylinder, weigh the product using a balance that has scales calibrated in ounces.

**WEEDS:** Refer to the tables and footnotes below.

#### WEEDS CONTROLLED - LABELED RATES IN CEREAL CROPS

<sup>1</sup> / <sub>6</sub> to <sup>1</sup> / <sub>4</sub> ounce per acre of NUP-08134	
Blue Mustard	Pineapple Weed
Conical Catchfly	Prostrate Pigweed
Curly Dock	Redroot Pigweed
Cutleaf Evening Primrose	Shepherd's Purse
Field Pennycress	Smooth Pigweed
Flixweed††	Tansymustard††
Hempnettle	Treacle Mustard
Henbit	Tumble Mustard (Jim Hill)
Mayweed	Waterpod
Miners Lettuce	Wild Mustard
<sup>1</sup> / <sub>3</sub> ounce per acre of NUP-08134	
Bur Beakchervil	Ladysthumb
Buttercup	Lambsquarters††
Coast Fiddleneck (tarweed)	Mouseeear Chickweed
Common Chickweed	Purslane (common)
Common Groundsel	Redstem Filaree
Corn Spurry	White Cockle
Cow Cockle	Wild Carrot
False Chamomile	Wild Turnip
Falseflax	

# WEEDS PARTIALLY CONTROLLED AT LISTED RATES†

<sup>1</sup> / <sub>3</sub> ounce per acre of NUP-08134	
Annual Ryegrass††	Prostrate Knotweed††
Bedstraw	Russian Thistle††† §
Canada Thistle††	Sunflower††
Corn Gromwell	Speedwell
Kochia ††† §	Wild Buckwheat††
Pennsylvania Smartweed	Wild Garlic/Wild Onion††
Prickly Lettuce†††	Wild Radish††

† Evidence of partial control of weeds includes a visual reduction in numbers of weeds as well as a significant loss of vigor. To improve results, apply NUP-08134 at 1/3 oz per acre and include another herbicide as a tank-mix partner (refer to **Tank Mixes with NUP-08134 in Cereal Crops**).

†† Refer to the section **Additional Directions for Specific Weeds in Cereal Crops** for more information.

††† Naturally-occurring resistant biotypes of these weeds are known to occur in the Central Plains and the Pacific Northwest. Refer to the sections **Tank Mixes with NUP-08134 in Cereal Crops** and **Resistance Management** for additional information.

§ For use only in Central Kansas, Central Nebraska, Central Oklahoma, and North Central Texas only.

**USE RATES:** Refer to the table below.

Timing of Application	Cereal Crops	Use Rate, Ounces NUP-08134 per Acre	Other Application Directions	Restrictions
Preemergence		<sup>1</sup> / <sub>3</sub> oz.		TX, Western OR, Western WA only
	Winter oat	<sup>1</sup> / <sub>2</sub> oz.	For annual ryegrass suppression.	TX only
	Winter wheat	<sup>1</sup> / <sub>2</sub> oz.	For annual ryegrass suppression.	North Central TX, Southern OK only
Postemergence	All Cereals	<sup>1</sup> / <sub>6</sub> to <sup>1</sup> / <sub>3</sub> oz.	Use the lower rate for suppression, short-term control, or and when residual control is not required. Use the higher rate when residual control is needed.	For soils with low pH (6.5 or lower), use the higher rate. Do NOT use less than <sup>1</sup> / <sub>6</sub> oz. per acre.

**MAXIMUM APPLICATION RATES AND REAPPLICATION INTERVALS:** Refer to the table below. The maximum use rates depend on the regions soil pH, temperature and moisture levels. Additional information is found under the section **Directions for Crop Rotation**.

Maximum Use Rate, Ounces NUP-08134 per Acre	Other Application Directions	Restrictions
Preemergence: <sup>1</sup> / <sub>2</sub> oz.  OR Postemergence: <sup>1</sup> / <sub>3</sub> oz.		N. Central TX, Southern OK  Make one application per crop cycle.
Postemergence:  <sup>1</sup> / <sub>3</sub> oz.	Apply either as a pre- or postemergence application but do not make both a pre- and a post- application in the same season.	Central and E. KS (East of Hwy. 183) S. Central NE  OK (East of panhandle except Southern OK) TX (East of panhandle except N. Central TX)  Make one application per crop cycle.
Postemergence:  <sup>1</sup> / <sub>3</sub> oz.		W. Central & Western KS (West of Hwy. 183) Eastern NM Western NE OK panhandle  TX panhandle

		Make one application every 36 months.
Postemergence: 1/3 oz.		CA, ID, OR, WA, UT
		Make one application every 18 months.

**APPLICATION TIMING:** Refer to the table below.

Timing	Other Application Directions	Restrictions
<b>Preemergence</b> (After Planting) to Winter Wheat and Winter Oat for Suppression of Annual Ryegrass	Time the application of NUP-08134 to occur after seed planting but before emergence of crop. Activation of NUP-08134 from rainfall or sprinkler irrigation is required after application. Best timing for activation is prior to weed seed germination and development of an established root system. Plant wheat and oat seeds at least 1" deep. Delay applications of NUP-08134 in the Pacific Northwest (Western OR and Western WA) if cold or dry weather conditions exist. Make applications after the weather improves and after the crop begins to grow vigorously. (Refer to the section <b>Postemergence to Winter Wheat and Winter Barley</b> below). If organophosphate insecticides (such as disulfoton (Di-Syston®) etc.) have been applied in-furrow, Nufarm Americas, Inc. does not recommend preemergence applications of NUP-08134 to avoid crop injury.	Do not apply NUP-08134 preemergence to barley.  Use NUP-08134 only on <b>winter wheat</b> in North Central Texas and Southern Oklahoma and <b>winter oat</b> in Texas, Western Oregon, and Western Washington.
<b>Postemergence</b> to Winter Wheat, Winter Barley, and Triticale and Winter Oat	Make an application of NUP-08134 in the fall or spring, after the crop is in the 2-leaf stage, but before boot.  Crop injury may result from a combination of stress from herbicide application, cold weather and/or moisture. Therefore, treat late-seeded wheat or barley with NUP-08134 after the crop has started to tiller. In the Pacific Northwest, crop stress (due to herbicide application and severe winter weather) may lead to injury, therefore, do not apply NUP-08134 after the crop has started to tiller.	Use NUP-08134 only on <b>winter oat</b> in Texas, Western Oregon and Western Washington only.  Do not apply during boot or early heading as crop injury may result.  To prevent injury to crops, do not use NUP-08134 within 60 days of crop emergence if organophosphate insecticides (such as disulfoton (Di-Syston) etc.) have been used as an in-furrow treatment.
<b>Postemergence</b> to Spring Wheat, Durum†, Spring Barley, Triticale, and Spring Oat	<b>Pacific Northwest:</b> Time application of NUP-08134 to occur any time the crops reach the 2-leaf stage through the second joint stage but before the flag leaf is visible. <b>All other areas:</b> Time application of NUP-08134 to occur any time the crop reaches the 2-leaf stage but before boot.	† Note: Apply to Vic durum after early tillering, but before boot.
Winter and Spring Wheat	For suppression only of the weeds listed below, apply NUP-08134 at 1/3 ounce per acre. Green Foxtail (pigeongrass) Yellow Foxtail Persian Darnel <b>Foxtail/Pigeongrass (Green and Yellow):</b> Make application to winter wheat, before planting spring wheat, or in spring to land which was fallow the previous year. Application in the spring to preemergent	Montana, North Dakota, South Dakota and Northeast Wyoming only.  Do not make more than one application of NUP-08134 at the 1/3 oz/A rate.

weeds provides best results. Applications made postemergent (but prior to foxtail that are more than 1" tall or are beyond the 1-2 leaf stage) that include a surfactant provide best results.

**Persian Darnel:** Make application to winter wheat or before planting spring wheat. Applications made postemergent (but before the Persian Darnel is past the 2 leaf stage) that include a surfactant provide best results.

**NOTE:** Either pre- or postemergence treatment requires ½ to 1" rainfall after application to move NUP-08134 into the weed root zone before weed seed germination and to suppress foxtail past the 2-3 leaf stage or Persian Darnel past the 2-leaf stage. Inadequate suppression may occur without adequate rainfall if foxtail reaches the 2-3-leaf stage or

Timing	Other Application Directions	Restrictions
Persian Darnel reaches the 3-leaf stage. However, too much rainfall may also result in poor suppression of these weeds. When applied in the fall, NUP-08134 will provide more consistent weed suppression in most areas because adequate rainfall occurs to activate NUP-08134. When applied in the late spring, NUP-08134 may not give consistent weed suppression due to lack of adequate rainfall.		

## TANK MIXES WITH NUP-08134 IN CEREAL CROPS

Tank mixes of NUP-08134 with registered herbicides will control weeds listed in the **Weeds** tables above, and other weeds either not listed on this label or that are resistant to NUP-08134. Tank mixes of NUP-08134 with insecticides and fungicides registered for use on cereal crops and with liquid fertilizers are permitted as directed in the table below. Read and follow all manufacturers' label recommendations for the tank mix partner. Before tank mixing the tank mix product with NUP-08134, be sure all recommendations on the herbicide label do not conflict with those on this label.

NUP-08134 Ounces Per Acre	Tank-Mix Partner and Use Rate	Application Directions	Timing and Restrictions
1/6 to 1/3 oz.	<b>Insecticides</b>	Only insecticides registered for use on cereal grains may be used in these tank mixes.	There are certain conditions (such as stress from drought, cold weather or warm days/cold nights post-application, or crops in the 2-4 leaf stage), when tank mixes or sequential treatments of NUP-08134 and organophosphate insecticides (such as methyl or ethyl parathion, disulfoton, etc.) should be avoided. Temporary crop yellowing or crop injury may occur unless these tank mixes have been tested on a small plot. If signs of crop injury are not evident 14 days after this test plot treatment, larger areas may be treated.  Crop injury may occur from tank mixes of NUP-08134 plus malathion.  When an organophosphate insecticide such as disulfoton (Di-Syston) has been applied in-furrow, crop injury may occur if NUP-08134 is applied within 60 days of crop emergence.
1/6 to 1/3 oz.	<b>Fungicides</b>	Only fungicides registered for use on cereal grains (mancozeb such as Manzate® 75DF fungicide or Manzate Flowable) may be used in these tank mixes.	Apply at the normal time when herbicides and fungicide treatments overlap.
1/6 to 1/3 oz.	<b>Liquid Fertilizers</b>	Liquid fertilizers are heavier than water. Nozzle types and pressures need to be adjusted in order to deliver the required spray volumes. Additional information for the proper spray nozzles to use is available from suppliers of fertilizer solutions and/or in company catalogs of spray equipment.	Do not use NUP-08134 with liquid fertilizers with a pH of 3.0 or less. The low pH can lead to degradation of NUP-08134. Increased chances of crop injury may occur when surfactants are added to these tank mixes. Test this tank mix on a small area of the crop and if no signs of injury are observed, larger areas may be treated.
	<b>Herbicides such</b>	These tank mixes can be	If Assert is used in the tank mix with NUP-

NUP-08134 Ounces Per Acre	Tank-Mix Partner and Use Rate	Application Directions	Timing and Restrictions
1/6 to 1/3 oz. per Acre	<p><b>as:</b></p> <p>Bromoxynil (such as Buctril® 4EC) ¼ to 1 pt per acre (or Bronate® ½ to 2 pt per acre)</p> <p>Banvel® 1/8 to ¼ pt per acre</p> <p>Banvel SGF ¼ to ½ pt per acre</p> <p>Curtail® 1 to 2 pt per acre</p> <p>Olympus® herbicide or Maverick® herbicide (for improved control of weeds in wheat) – refer to product labels for use rates</p>	used to improve control of weeds not listed on this label.	08134, always add a third broadleaf herbicide that has a different mode of action (such as MCPA ester, 2,4-D ester, Bronate or Buctril).
1/6 to 1/3 oz.	<p><b>2,4-D (Amine or Ester)</b> OR <b>MCPA (Amine or Ester)</b></p> <p>¼ to ½ lb. AI per acre</p>	<p>Apply after weeds have emerged. The ester formulations of 2,4-D or MCPA are preferred. Add a surfactant if desired (½ to 1 qt per 100 gal of spray solution) but the potential for crop injury increases. If a liquid fertilizer is added to the spray mix, do not add a surfactant.</p> <p>For tank mixes with MCPA, apply after the 3- to 5-leaf stage but before boot.</p>	<p>For tank mixes with 2,4-D, apply after tillering (consult the recommendations on the 2,4-D label) but before boot.</p> <p>Make one application per year.</p> <p>To avoid severe crop injury and/or foliar burn, the use of liquid fertilizers in either of these tank mixes is not recommended when temperatures are below 32°F or if the crop is under stress from cold weather just before winter dormancy.</p> <p>Do not apply either of these tank mixes with organophosphate insecticides.</p>
1/6 to 1/3 oz.	<p><b>Metribuzin (such as Lexone® DF)</b></p> <p>1 to 10 2/3 oz. per acre</p>	<p>This tank mix controls downy brome and cheatgrass in winter wheat (see states in which this use is recommended). This tank mix also provides control of weeds in cereal crops resistant to NUP-08134, partially controlled weeds, or other weeds not listed on this label.</p> <p>Use Lexone DF in the tank mix at 1 to 4 oz. for winter wheat at the 2-leaf to 3 tiller stage or up to 10-2/3 oz. if the crop has</p>	<p><b>Winter Wheat:</b> Kansas, Idaho, Oklahoma, Oregon, Texas, and Washington.</p> <p><b>Barley:</b> Recommended for use in Idaho, Oregon and Washington only.</p>

NUP-08134 Ounces Per Acre	Tank-Mix Partner and Use Rate	Application Directions	Timing and Restrictions
		at least 3 tillers, has a secondary roots that are at least 2" and is actively growing.	
1/6 to 1/3 oz.	<b>Diuron (such as Diuron DF)</b>  4/10 to 1 2/10 lb. AI per acre	This tank mix is useful to control prickly lettuce, corn gromwell, annual ryegrass and annual bluegrass. Make a pre- or postemergent application. Weeds must be less than 2" in height or 2" across and actively growing.	For use in the Pacific Northwest NUP-08134 must be activated with 1/2 to 1" rainfall within 1 to 2 weeks after application. Carefully read and follow the label guidelines and restrictions for the use of diuron to ensure there are no conflicts with the NUP-08134 label. Follow the label with the most restrictive directions.
1/6 to 1/3 oz.	<b>Starane® Herbicide</b>  1/3 to 1 1/3 pints per acre	These tank mixes improves control of broadleaf weeds such as kochia (2"-4" tall), Russian thistle, mustard species, and wild buckwheat.	Carefully read and follow the label guidelines and restrictions for the use of Starane to ensure there are no conflicts with the NUP-08134 label. Follow the label with the most restrictive directions.
1/6 to 1/3 oz.	<b>Starane + Sword® Herbicides</b>  3/4 to 2 3/4 pints per acre		Carefully read and follow the guidelines and restrictions on the Starane and Sword labels to ensure there are no conflicts with the NUP-08134 label. Follow the label with the most restrictive directions.
1/6 to 1/3 oz.	<b>Starane + Salvo® Herbicides</b>  2/3 to 2 2/3 pints per acre		Carefully read and follow the guidelines and restrictions on the Starane and Salvo labels to ensure there are no conflicts with the NUP-08134 label. Follow the label with the most restrictive directions.
1/6 to 1/3 oz.	<b>Everest®</b>	<p>This tank mix improves control of weeds in wheat.</p> <p>Tank mixes of NUP-08134 plus Everest plus a dicamba-containing herbicide; may reduce wild oat control in spring wheat (see section on <b>Tank Mixes for Spring Wheat</b>, below).</p> <p>Refer to the Use Rate table and footnotes below for rate recommendations for this tank-mix.</p> <p><b>Postemergence Application in Winter Wheat:</b> Time application to occur in the fall or spring but after the crop has 2 total leaves on main stem and any number of tillers and prior to initiation of jointing.</p>	<p>Carefully read and follow the guidelines and restrictions on the Everest label to ensure there are no conflicts with the NUP-08134 label. Follow the label with the most restrictive directions.</p> <p>Crop injury may occur from this tank mix with malathion.</p> <p>There are certain conditions (such as stress from drought, cold weather or warm days/cold nights post-application, or crops in the 2-4 leaf stage), when this tank mix or sequential treatments of NUP-08134 plus Everest and organophosphate insecticides (such as methyl or ethyl parathion, disulfoton (Di-Syston) etc.) should be avoided. Temporary crop yellowing or crop injury may occur unless these tank mixes have been tested on a small plot. If signs of crop injury are not evident 14 days after this treatment, larger areas may be treated.</p> <p>When an organophosphate insecticide such as disulfoton (Di-Syston) has been applied in-furrow, crop injury may occur if NUP-08134 is applied within 60 days of crop emergence.</p>
The potential for crop injury increases (due to stress from herbicide, cold weather and/or			

NUP-08134 Ounces Per Acre	Tank-Mix Partner and Use Rate	Application Directions	Timing and Restrictions
<p>moisture) unless late-seeded winter wheat is treated after the crop has started to tiller.</p> <p><b>Postemergence Application in Spring Wheat:</b> Time application to occur after emergence, but before the majority of plants have 4 total leaves on the main stem plus 2 tillers and do not apply after jointing begins. Do not apply to durum wheat.</p> <p><b>Tank-Mixes for Spring Wheat:</b> Always include 2,4-D or dicamba to the tank mix of NUP-08134 plus Everest.</p> <ul style="list-style-type: none"> <li>• 2,4-D Amine or LV Ester (4 lbs./gallon formulations): apply at 0.25 to 0.75 pt per acre</li> <li>• 2,4-D LV Ester (6 lbs/gallon formulations): apply at 0.17 to 0.5 pt per acre</li> <li>• Dicamba (4 lbs/gallon formulations): apply at 2 to 4 fl oz per acre</li> </ul> <p><b>Other Additives for Use in Winter Wheat</b></p> <p><b>Non-ionic Surfactant (NIS):</b> If directions allow this type of surfactant, use one that contains a minimum of 80% active ingredient at 2 quarts per 100 gallons of spray solution (0.5% v/v). If foaming becomes a problem, add an antifoaming agent.</p> <p><b>Ammonium Nitrogen Fertilizer:</b> If a non-ionic surfactant is added to the spray solution, a high-quality urea ammonium nitrate (UAN; for example 28%N or 32%N) may be added at the rate of 2 qt/acre. Alternatively, add a spray-grade ammonium sulfate (AMS) at the rate of 2 lbs/acre. If local conditions are arid, increase the rates to 4 qt/acre UAN or 4 lbs/acre AMS. Do not substitute low rates of liquid fertilizers for surfactants: add both ingredients to the spray solution.</p> <p><b>Carrier Solutions Other than Water (i.e., Liquid Nitrogen Solution Fertilizer):</b> In place of water, a liquid nitrogen fertilizer solution may be used as the spray solution carrier. Before preparing large amounts of this solution, check that the fertilizer solution is compatible with NUP-08134 and Everest. To prepare the tank mix solution, add NUP-08134 and Everest to water to form a slurry and add this slurry to the liquid nitrogen solutions (e.g., 28-0-0, 32-0-0). Before the slurry of NUP-08134 and Everest is added to the liquid nitrogen solutions, begin the agitator and continue to agitate during the addition of the slurry.</p> <p>Some crop injury (temporary crop yellowing and stunting) may be observed when liquid fertilizers are used in place of water as the carrier. Always use a non-ionic surfactant (1 qt per 100 gallons of spray solution (0.25%v/v)) when the liquid nitrogen fertilizer is 50% or less of the spray solution volume. When the liquid nitrogen fertilizer is 50% or greater of the spray solution volume, use caution if a surfactant is added as the potential for crop injury increases. Additional information may be obtained from your agricultural dealer, consultant, fieldsman, or Nufarm Americas, Inc. representative.</p> <p><b>Other Additives for Use in Spring Wheat</b></p> <p><b>Non-ionic Surfactant (NIS):</b> If directions allow this type of surfactant, use one that contains a minimum of 80% active ingredient at 1 pint per 100 gallons of spray solution (0.125% v/v). If foaming becomes a problem, add an antifoaming agent. DO NOT add NIS if 2,4-D LV Ester is tank-mixed with NUP-08134.</p>			

**USE RATES FOR TANK-MIXES OF NUP-08134 PLUS EVEREST:** Refer to the tables and footnotes below.

**Use Rate for Control, Partial Control and/or Suppression of Grass Weeds with Tank Mixes of NUP-08134 Plus Everest**

Grass Weeds	Early (#) or Late (#) Application of 0.6 oz. EVEREST plus 0.3 oz NUP-08134 Per Acre	Early (#) or Late (#) Application of 0.4 oz EVEREST plus 0.2 oz NUP-08134 Per Acre
Annual Ryegrass §§	√√	√
Downy Brome ( <i>Bromus tectorum</i> )	√	X
Cheat ( <i>Bromus secalinus</i> )	√√	√√ §
Japanese Brome <i>Bromus japonicus</i> )	√√	√√ §
Wild Oat	√√	√√

**Use Rate for Control, Partial Control and/or Suppression of Broadleaf Weeds with Tank Mixes of NUP-08134 Plus Everest**

<b>Broadleaf Weeds</b>	<b>Early (#) or Late (#) Application of 0.6 oz. EVEREST plus 0.3 oz NUP-08134 Per Acre</b>	<b>Early (#) or Late (#) Application of 0.4 oz EVEREST plus 0.2 oz NUP-08134 Per Acre</b>
Bedstraw	√	X
Black Mustard	√√	√√
Blue Mustard	√√	√√
Bur Beakchervil	√√	X
Bushy Wallflower/Treacle Mustard	√√	√√
Buttercup	√√	X
Canada Thistle	√	X
Coast Fiddleneck (tarweed)	√√	X
Common Chickweed	√√	X
Common Groundsel	√√	X
Conical Catchfly	√√	√√
Corn Gromwell	√	X
Curly Dock	√√	√√
Corn Spurry	√√	X
Cow Cockle	√√	X
Cutleaf Evening Primrose	√√	√√
False Chamomile	√√	X
Falseflax	√√	X
Field Pennycress	√√	√√
Flixweed	√√	√√
Hempnettle	√√	√√
Henbit	√√	√√
Kochia §	√	X
Ladysthumb	√√	X
Lambsquarters	√√	X
Mayweed	√√	√√
Miners Lettuce	√√	√√
Mouseear Chickweed	√√	X
Pennsylvania Smartweed	√	X
Pineappleweed	√√	√√
Pigweeds (redroot, smooth, prostrate, tumble)	√√	√√
Prickly Lettuce §	√	X
Prostrate Knotweed	√	X
Purslane (common)	√√	X
Redstem Filaree	√√	X
Russian Thistle §	√	X
Shepherd's-purse	√√	√√
Speedwell	√	X
Sunflower	√	X
Tansymustard	√√	√√
Volunteer Canola	√√	X (Early) √ (Late)
Waterpod	√√	√√

<b>Broadleaf Weeds</b>	<b>Early (#) or Late (#) Application of 0.6 oz. EVEREST plus 0.3 oz NUP-08134 Per Acre</b>	<b>Early (#) or Late (#) Application of 0.4 oz EVEREST plus 0.2 oz NUP-08134 Per Acre</b>
White Cockle	√√	X
Wild Buckwheat	√	X
Wild Carrot	√√	X
Wild Garlic / Wild Onion	√	X
Wild Mustard	√√	√√
Wild Radish	√	X
Wild Turnip	√√	X

# For Early Application the timing is at the 2 leaf stage to January 1 and for Late Application the timing is after January 1 but prior to joint.

√ = Partial Control (these controlled weeds will show signs of reduction in numbers and/or a significant loss of vigor)

√√ = Control

X = Not recommended

§ Naturally occurring resistant biotypes of these weeds are known to occur. Additional information can be found in the sections **Tank Mixes with NUP-08134 in Cereal Crops** and **Resistance Management**.

§§ Reduced ryegrass control may result from a tank mix application of **NUP-08134** plus Everest that includes 2,4-D.

#### **ADDITIONAL DIRECTIONS FOR SPECIFIC WEEDS IN CEREAL CROPS**

<b>Annual Ryegrass in Southeast Oklahoma, Central and North Central Texas</b>	Use an application rate of ½ oz per acre NUP-08134 preemergence. Ensure adequate rainfall (½ to 1") will occur after application to move NUP-08134 into the root zone of weeds before ryegrass emerges. If too much rainfall has occurred and application is delayed until the fall, NUP-08134 will not provide adequate control of ryegrass and/or broadleaf weeds that germinate the following spring. A sequential treatment of NUP-08134 followed by Lexone DF herbicide will provide best results. Although there are no grazing restrictions, it is best to remove any grazing cattle when fields are wet (muddy). This will prevent disturbance of the soil-herbicide barrier.
<b>Canada Thistle</b>	Time the application of NUP-08134 to occur after the majority of thistles emerge, are small (rosette stage to 4" – 6" tall) and are actively growing. Annual treatments may provide maximum long-term results.
<b>Flixweed, Tansymustard in Northern Idaho, Oregon and Washington</b>	For optimum postemergence results, apply NUP-08134 at 1/3 oz per acre as a tank mix with another herbicide (such as 2,4-D) which also controls these weeds.
<b>Flixweed, Tansymustard in All Other Areas</b>	Use NUP-08134 at a rate of 1/6 to 1/3 oz per acre. Apply to weeds when they are small and actively growing. Delay application when weather conditions (cold, dry weather before and/or after treatment) do not favor active weed growth. Make the application once temperature and rainfall improves, or as an alternate, apply NUP-08134 as a tank mix with 2,4-D or MCPA.
<b>Lambsquarters</b>	A minimum rate of 1/3 oz per acre of NUP-08134 provides best results when a fall application is made. Postemergence suppression: Tank mix NUP-08134 with either 2,4-D or MCPA once the majority of weeds have emerged (weeds will be less than 2" tall or 2" across) and are actively growing. Ensure weather conditions favor active weed growth (i.e., adequate soil moisture, daily temperatures are at least 60°F). The surfactant use rate is ½ to 1 qt per 100 gal of spray solution. Uniform and thorough coverage is important for best results.
<b>Prostrate Knotweed</b>	Fall applications provide optimum results.
<b>Sunflower in New Mexico,</b>	<b>Postemergence:</b> Wait until the majority of sunflowers have emerged but

<b>Oklahoma [Panhandle], and Texas</b>	before they are more than 2 inches in height before making an NUP-08134 application. The surfactant rate should be 2 qt per 100 gal of water. <b>Preemergence:</b> Make an application of NUP-08134 in the early spring. Spring rainfall should move the NUP-08134 into the weed root zone which should prevent weed germination or weed root system development.
<b>Wild Buckwheat</b>	Preemergence application of NUP-08134 to wild buckwheat provides optimum results. Postemergence applications work best from NUP-08134 tank mixes with 2,4-D, MCPA, Banvel/Banvel SGF, Buctril or Bronate and a surfactant. Direct sprays to emerged seedlings that are actively growing.
<b>Wild Garlic/Wild Onion</b>	NUP-08134 will only control aerial bulblet.
<b>Wild Radish</b>	Optimum results are achieved if NUP-08134 is applied postemergence.

**Foxtail in Montana and Northern Wyoming Only in Early Seeded Winter Wheat:** These applications are recommended only for early seeded winter wheat when growing conditions are favorable (good soil moisture, moderate temperatures) for good stand establishment prior to winter dormancy. Refer to the table below for use directions.

<b>Application Type†</b>	<b>Use Rate, ounces NUP-08134 per Acre</b>	<b>Other Application Directions</b>	<b>Precautions and Restrictions</b>
<b>Preplant Incorporation (PPI) and Preplant Surface (PPS)</b>	$\frac{1}{3}$ oz.	Apply NUP-08134 as a uniform broadcast spray not more than 3 weeks before the anticipated planting of early seeded winter wheat.  Plant winter wheat any time after the NUP-08134 treatment. A split application may be required when rainfall is high or if soils have a low pH (pH less than 6.5).	Due to differences in equipment and seeding techniques, Nufarm Americas, Inc. recommends that the first time PPI or PPS is used only a small area is treated to test the success of weed control. Minimize movement or displacement of treated soil to prevent poor weed control in the seed row.  Do not apply prior to late fall plantings. Weather conditions (cold/dry) delays seedling emergence and reduces seedling vigor and as a result, the winter wheat may be susceptible to injury from multiple factors (herbicide and weather stress).  Do not plant barley or spring oats after PPI or PPS applications of NUP-08134.
<b>Split Applications</b>		A split application of NUP-08134 can be made in the fall postemergence and in the spring postemergence. Apply second application before boot stage. The recropping interval is based on the date of the last application and total amount of NUP-08134 used.	Each application must be made with another broadleaf herbicide.  Allow at least 30 days to elapse between applications.  Do not make more than 2 applications of NUP-08134 per crop.  Do not apply early postemergence to late seeded wheat or barley. Temporary yellowing and stunting and may result in crop injury due to the combined stress from herbicide plus cold weather. The postemergence treatment to late seeded wheat or barley should be delayed until the crop has started to tiller.

**†NOTES:**

**Incorporation (PPI)** – Apply NUP-08134 and then mechanically incorporate to no deeper than 3" to 4". Incorporation may be done in a single pass or double pass (the second pass should be at right angles to the first pass). Use sweeps (duckfoot cultivator), spring tooth or field cultivator. A harrow pulled behind the primary incorporation implement may improve incorporation.

**Seeding after either PPI or PPS Treatment** – Minimal soil disturbance is achieved using disc type drills but a hoe type drill may be used if drill spacing is not more than 10" wide and the tractor speed is at least 5 mph. Variable weed control may result from the hoe drill and will depend on the amount of soil displacement in seed row. If a harrow is pulled behind the hoe drill, the treatment effectiveness should increase.

<b>Foxtail in Montana and Northern Wyoming Only in Winter Wheat (including Durum)</b>			
<b>Application Type</b>	<b>Use Rate, Ounces NUP-08134 per Acre</b>	<b>Other Application Directions</b>	<b>Precautions and Restrictions</b>
<b>Preemergence (after Planting)</b>	$\frac{1}{3}$ oz.	<p>Apply NUP-08134 after planting but before the crop emerges. For best results, a uniform application should be made to a smooth seedbed.</p> <p>A split application may be required when rainfall is high or if soils have a low pH (pH less than 6.5). Plant wheat at least 1" deep. Rainfall or sprinkler irrigation after application is required to move NUP-08134 into the root zone before weed seeds germinate and develop an established root system.</p>	<p>Do not apply preemergence to late fall seedlings. Weather conditions (cold/dry) delays seedling emergence and reduces seedling vigor. Delay treatment until crop emerges and weather conditions have improved sufficiently to allow wheat to show good vigor</p> <p>Do not apply preemergence (fall or spring) to irrigated durum wheat.</p> <p>Do not apply preemergence (fall or spring) to barley, spring oats or wampum variety of spring wheat as crop injury may result.</p> <p>Crop injury may occur if NUP-08134 is applied preemergence after an organophosphate insecticide has been used as an in-furrow treatment.</p>
<b>Split Applications</b>		<p>A split application of NUP-08134 can be made in the fall postemergence and in the spring postemergence. Apply second application before boot stage. The recropping interval is based on the date of the last application and total amount of NUP-08134 used.</p>	<p>Each application must be made with another broadleaf herbicide.</p> <p>Allow at least 30 days to elapse between applications.</p> <p>Do not make more than 2 applications of NUP-08134 per crop.</p> <p>Do not apply early postemergence to late seeded wheat or barley. Temporary yellowing and stunting may result in crop injury due to the combined stress from herbicide plus cold weather. The postemergence treatment to late seeded wheat or barley should be delayed until the crop has started to tiller.</p>

<b>Foxtail in Montana and Northern Wyoming Only</b>			
<b>Application Type</b>	<b>Use Rate, Ounces NUP-08134 per Acre</b>	<b>Other Application Directions</b>	<b>Precautions and Restrictions</b>
<b>Fall application before planting</b>	$\frac{1}{3}$ oz.	<p>Apply NUP-08134 (1/3 oz/A) to either undisturbed stubble with straw that is evenly spread on ground or to a uniform soil surface that has been cultivated. After application, a shallow tillage (no more than 4" deep) may be done. In the spring use shallow tillage to prepare a seedbed. Do not moldboard plow. Fall application will not control Canada thistle</p>	<p>Do not plant irrigated durum wheat, spring barley, wampum spring wheat or spring oats after a fall application of NUP-08134</p>

		that emerges the following spring.	
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#### **Foxtail in Montana and Northern Wyoming Only**

#### **Dry Fertilizer Impregnation and Application to Winter/Spring Wheat and Durum**

**Impregnation** – Only commercial fertilizer or chemical dealerships that are properly equipped for the impregnation processes are permitted to prepare this herbicide/fertilizer combination.

NOTE: Nufarm Americas, Inc. recommends that only dealers that have barley, oats, or wheat as their primary crop business use NUP-08134 impregnated on dry fertilizer. Extremely low levels of NUP-08134 will result in injury to other crops if residues remain in equipment and are mixed with other pesticides/fertilizers which are applied to crops other than barley, oats and wheat.

Do not impregnate more than 1/3 oz of NUP-08134 on a minimum of 150 lbs of dry fertilizer per acre.

1. Prepare a slurry of NUP-08134 in water (1 part NUP-08134 to at least 5 parts water; use one 20 oz jug in 3-4 qts water). Do not exceed slurry volume of 1 pt per 100 lbs of fertilizer. Keep the NUP-08134 agitated either by mechanical or recirculation methods to ensure the NUP-08134 remains in suspension during the impregnation process.
2. For the impregnation step, add the dry fertilizer and the slurry of herbicide to a closed rotary drum-type mixer and mix and blend the materials over a sufficient amount of time to ensure uniform coverage of the fertilizer particles. Place the delivery nozzle(s) inside the mixer in a manner that will deliver a uniform spray to the tumbling fertilizer. Use NUP-08134 impregnated dry fertilizer as soon as possible after blending.
3. All equipment must be thoroughly cleaned of NUP-08134 residues before using the equipment for impregnation of fertilizer with other pesticides that will be applied to crops other than wheat, barley or oats.

NOTE: All state regulations relating to dry bulk fertilizer blending, registration, labeling and application are the responsibility of the individual and/or company selling the fertilizer/herbicide mixture.

**Application of Impregnated Fertilizer** – The NUP-08134 impregnated dry fertilizer can be applied as an early fall treatment before planting or at post-crop emergence. Apply before planting in the spring. For spring wheat and durum that is planted into fall applications (refer to the section above on **Fall Application Prior to Planting Spring Wheat (including Durum)**). Use a properly calibrated applicator that will spread the fertilizer impregnated herbicide uniformly. Nufarm Americas, Inc. recommends that fan spreaders have 100% overlap: calibrate the fan spreader to deliver 1/2 the desired rate per acre and then apply in a pattern that overlaps and covers 1/2 of the previous swath.

**Incorporation – Fall:** Sufficient fall and winter rain or snow is available to move NUP-08134 residues into the weed root zone so mechanical incorporation is not needed for early fall applications. Late fall applications and a lack of sufficient rain or snow may result in poor weed control. However, should mechanical incorporation be carried out before planting, shallow-incorporate at no deeper than 3-4 inches and use one of the following methods:

- single pass
- double incorporation with sweeps (duckfoot cultivator) followed by springtooth (flexline) harrow;
- double-pass incorporation (second pass at right angle to first pass) with a culti-harrow, spike tooth or springtooth harrow or sweeps (duckfoot cultivator).

**Incorporation – Spring:** Prior to spring planting, a mechanical incorporation is recommended. Follow the procedures described above for fall mechanical incorporation. Rainfall (1"-2") that follows a mechanical incorporation prior to weed emergence will give better weed control than if dry conditions persist.

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## APPLICATION TO TALL FESCUE GROWN FOR SEED – OREGON AND WASHINGTON ONLY

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For control of wild carrot in tall fescue grown for seed, follow the directions for use of NUP-08134 in the table below. Note: There are no grazing restrictions when using NUP-08134.

Timing of Application	Use Rate, Ounces NUP-08134 per Acre	Other Application Directions	Precautions and Restrictions
Summer to early fall (postharvest to late September)	¼ oz.	<p><b>Emerged wild carrot:</b> add a non-ionic surfactant (1 qt. per 100 gal. spray solution).</p> <p><b>Tank Mix:</b> Add 0.5 to 1.0 lb AI of 2,4-D to tall fescue having little new foliar growth. This mixture helps to minimize crop injury.</p>	<p>For use in Oregon and Washington only.</p> <p>Crop oil or seed oil adjuvants may cause crop injury.</p> <p>Reduced height of tall fescue may result from application of NUP-08134. Avoid spray overlaps or crop height and yields in those areas may be reduced.</p> <p>Spring applications: Significant crop damage may result from application when Tall Fescue is actively growing.</p> <p>Fall applications of NUP-08134 may not control wild carrot germination the following spring.</p> <p>Severe crop injury may occur if NUP-08134 is applied with an organophosphate insecticide.</p>

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## DIRECTIONS FOR CROP ROTATION

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Do not treat all acres (wheat, barley, oat, or fallow) at the same time with NUP-08134 if rotational crop plant back flexibility is desired. Before using NUP-08134, plan your application and rotation crop strategy.

Follow the rotation crop intervals specified in the tables below. A field bioassay may be conducted if a shorter plant-back interval is desired. The tables below note cumulative precipitation in inches, which is defined as the amount of rainfall received from the date of NUP-08134 application to the date of planting. Do not rotate to the crops listed in the tables below until the next growing season if the listed cumulative precipitation has not been received.

### MINIMUM RECROPPING INTERVALS

Minimum recropping intervals are defined as the amount of time that must elapse from the last application to the anticipated date of the next planting. These intervals have been established based on how quickly NUP-08134 breaks down in the soil. Factors that influence the rate of breakdown include soil pH, soil temperature, and soil moisture. Soils that have a low pH (less than 7.0), high moisture (regions that receive over 20" of annual rainfall), and high soil temperatures (greater than 40°F) facilitate the breakdown of NUP-08134 in soil. Conversely, soils with high soil pH, low moisture and low soil temperatures tend to breakdown NUP-08134 more slowly.

Due to the variation from year to year in rainfall and soil temperatures and from region to region, it is important to monitor soil temperatures and soil moisture when crops will be planted back to NUP-08134 treated areas.

### SOIL pH LIMITATIONS

If soils have a pH above 7.9, NUP-08134 should not be applied to these fields or residues of NUP-08134 may persist. This residual activity may require crop rotation intervals longer than the timing listed in the table below in order to avoid injury to barley, oat, wheat or other sensitive crops. As described above, test the pH of the soils taken from different areas of the field prior to making any NUP-08134 application.

A field bioassay is required if soil pH is above 6.5.

Note: Do not plant sorghum grown for hybrid seed production.

**Testing Soil pH:** Do not apply NUP-08134 until you have tested the soil pH in areas where treatment is planned. To determine the pH of the soil, sample soils taken from different, representative areas at depths of between 0 and 4 inches. Send the samples to a laboratory for individual pH determination using the 1:1; soil:water suspension method. Additional information on soil sampling can be obtained from local extension publications.

### ROTATION CROP INTERVALS FOR PLANTING WHEAT, OATS, BARLEY, RYE AND TRITICALE†:

The minimum recropping interval is based upon the soil pH, the rate of NUP-08134 applied and the location. The minimum recropping interval is the amount of time that must elapse from the date of the last application to the anticipated date of planting. The crops that can be rotated are listed under the corresponding minimum recropping interval column in the table below.

Location	Soil pH†	Use Rate (oz/acre)	Minimum Recropping Interval				
			0 Months	4 Months	10 Months	16 Months	24 Months
AR, CO, LA, NM, and Southeastern WY	7.9 or lower	1/6 to 1/3	W/R/T	--	O and B	--	--
	7.9 or lower	½	--	W/R/T	O	B	--
	Above 7.9	Do Not Use	-- Does not apply --				
MN, MT, ND, SD and Northern WY	6.5 or lower	1/6 to 1/3	W/R/T	--	O and B	--	--
	6.5 or lower	½	--	W/R/T	O and B	--	--
	6.6 to 7.9	1/6 to 1/3	W/R/T	--	O	B	--
	Above 7.9	Do Not Use	-- Does not apply --				
CA, Northern ID, OR, UT, WA	6.5 or lower	1/6 to 1/3	W/R/T	--	O and B	--	--
	6.6 to 7.5	1/6 to 1/3	W/R/T	--	O	B	--
	7.6 to 7.9	1/6 to 1/3	--	W/R/T	--	O	B
NE, KS, OK, TX	7.9 or lower	1/6 to 1/3	W/R/T		O and B	--	--
	7.9 or lower	½	--	W/R/T	O	B	--

W/R/T = wheat, rye, triticale; B = barley; O = oats

†Refer to the sections of this label under **Maximum Use Rates** and **Soil pH Limitations**.

**ROTATION CROP INTERVALS FOR PLANTING NON-CEREAL CROPS – Non-Irrigated Land:** The listed non-cereal crops can be planted after the checked (√) period of time has elapsed after application of NUP-08134. The crops that can be rotated are listed under the corresponding minimum recropping interval column in the table below.

State, County or Area	Plantback Crop	Soil pH	Application Rate (oz/A)	Cumulative Precipitation (Inches)	Rotation Interval - Months					
					14	24	25	26	36	48
<b>Southwest AR and Northwest LA</b>	Cotton, Grain Sorghum, Soybeans	7.9 or lower	1/6 to ½	25	√					
<b>CO</b> Adams, Arapahoe, Logan, Morgan, Phillips, Sedgwick, Washington and Yuma Counties	Field Corn, Millets	7.5 or lower 7.5 or lower 7.6 to 7.9 7.6 to 7.9	1/6 to 1/3 ½ 1/6 to 1/3 ½	30 45 45 60		√			√ √	√
<b>Eastern CO</b>	Grain Sorghum	7.5 or lower 7.6 to 7.9	1/6 to ½ 1/6 to ½	45 60					√	√
<b>ID</b> Northern counties (Benewah, Bonner, Boundary, Clearwater, Idaho, Kootenai, Letah, Lewis and Nez Perce)	Pea (dry)	6.5 or lower	1/6 to 1/3	35		√				
	Lentils	6.5 or lower	1/6 to 1/3	50					√	
<b>KS,</b> Central (E. of Hwy 183, W. of the Flint Hills)	Grain Sorghum	7.9 or lower	1/6 to 1/3	25	√					
	Soybeans	7.5 or lower 7.6 to 7.9	1/6 to 1/3 1/6 to 1/3	25 46	√			√		
<b>KS</b> W. Central & Western (generally West of Hwy. 183 to the Western edge of Grant, Kearny, Logan, Rawlings, Stevens, Thomas and Wichita counties)	Grain Sorghum	7.5 or lower 7.6 to 7.9	1/6 to 1/3 1/6 to 1/3	21 42	√			√		
<b>KS,</b> Far Western (In the last tier of counties along the KS/CO border, Cheyenne, Greeley, Hamilton, Morton, Sherman, Stanton, and Wallace)	Grain Sorghum	7.5 or lower 7.6 to 7.9	1/6 to 1/3 1/6 to 1/3	36 60				√		√
<b>MN</b>					*	*	*	*	*	*
<b>MT</b>	Safflower	7.9 or lower  6.5 or lower	1/6 to 1/3  ½	39  --					<b>34 mo. **</b>	

State, County or Area	Plantback Crop	Soil pH	Application Rate (oz/A)	Cumulative Precipitation (Inches)	Rotation Interval - Months					
					14	24	25	26	36	48
<b>ND</b>	Safflower	7.9 or lower	1/6 to 1/3	45					34 mo. **	
		6.5 or lower	½	--						
<b>NE</b> S. Central (Franklin, Nuckolls, Thayer and Western counties)	Grain Sorghum	7.9 or lower	1/6 to 1/3	25	√					
	Soybeans	7.5 or lower 7.6 to 7.9	1/6 to 1/3 1/6 to 1/3	25 46	√			√		
<b>NE</b> Western (W. of Hwy 183 to WY border)	Field Corn, Millets, Grain Sorghum, Soybeans	7.5 or lower 7.6 to 7.9	1/6 to 1/3 1/6 to 1/3	40 60		√			√	
<b>NM</b> Curry and Quay Counties	Grain Sorghum	7.9 or lower	1/6 to 1/3	30			√			
<b>OK</b> Central & Eastern (E. of Hwy 183)	Grain Sorghum, Cotton, Mung Beans, Soybeans	7.9 or lower	1/6 to ½	25	√					
<b>OK</b> Western (W. of Hwy 183 & E. of the Panhandle)	Cotton, Grain Sorghum	7.9 or lower	1/6 to 1/3	25	√					
<b>OK</b> Panhandle	Grain Sorghum	7.9 or lower	1/6 to 1/3	30			√			
<b>OR</b> Northeastern counties (Baker, Umatilla, Union and Wallowa)	Pea (dry)	6.5 or lower	1/6 to 1/3	35		√				
	Lentils	6.5 or lower	1/6 to 1/3	50					√	
<b>SD</b>					*	*	*	*	*	*
<b>TX</b> Eastern counties (Archer, Bell, Bosque, Bowie, Camp, Cass, Clay, Colin, Cooke, Coryell, Dallas, Delta, Denton, Ellis, Falls, Fannin, Franklin, Grayson, Hill, Hood, Hopkins, Hunt, Jack, Johnson, Kaufman, Lamar, Limestone, McLennan, Milam, Montague, Morris, Navarro, Palo Pinto, Parker, Rains, Red River, Robertson, Rockwell, Somervell, Tarrant, Titus, Upshur, Van Zandt, Wichita, Williamson, Wise, Wood and Young)	Grain Sorghum, Cotton, Mung Beans, Soybeans	7.9 or lower	1/6 to ½	25	√					
<b>TX</b> Central counties (Baylor, Callahan, Eastland, Foard, Hardeman, Haskell, Knox, Shackelford, Stephens, Throckmorton and Wilbarger)	Cotton, Grain Sorghum	7.9 or lower	1/6 to 1/3	25	√			√		
		7.9 or lower	½	46						
<b>TX</b> Panhandle	Grain Sorghum	7.9 or lower	1/6 to 1/3	30			√			
<b>WA</b>	Pea (dry)	6.5 or lower	1/6 to 1/3	35		√				

State, County or Area	Plantback Crop	Soil pH	Application Rate (oz/A)	Cumulative Precipitation (Inches)	Rotation Interval - Months					
					14	24	25	26	36	48
Eastern counties (Asotin, Columbia, Garfield, Pend Oreille, Spokane, Stevens, Walla Walla and Whitman)	Lentils	6.5 or lower	1/6 to 1/3	50					√	
<b>Southeastern WY</b> Goshen, Laramie and Platte Counties on non-irrigated land	MILLETS	7.5 or lower 7.5 or lower 7.6 to 7.9 7.6 to 7.9	1/6 to 1/3 ½ 1/6 to 1/3 ½	30 45 45 60		√			√ √	√

\* Conduct a field bioassay test before planting back to crops other than barley, oats, wheat or CRP grasses

\*\* Conduct a field bioassay before planting back this crop.

### ROTATION CROP INTERVALS FOR PLANTING NON-CEREAL CROPS: GRAIN SORGHUM, SULFONYLUREA TOLERANT SOYBEANS (STS®) SOYBEAN, AND IMIDAZOLINONE RESISTANT (IR) CORN

**Minimum Rotation Crop Intervals:** Refer to the information above under **Minimum Recropping Intervals**. Before deciding to use NUP-08134, carefully consider your crop rotation plans and options. Do not treat all acres of barley, wheat or fallow acres at the same time to allow for rotational crop flexibility. The table below presents the recommended intervals (as designated by the √ symbol) for planting non-cereal grain crops in irrigated or non-irrigated land after wheat, barley or fallow lands have been treated with NUP-08134. See additional information under the **Catastrophic Crop Loss** section below.

**Soil pH Limitations:** Refer to the information above under **Soil pH Limitations**. If soils have a pH above 7.9, NUP-08134 should not be applied to these fields or residues of NUP-08134 may persist. This residual activity may require crop rotation intervals longer than the timing listed in the table below in order to avoid injury to wheat or barley or other sensitive crops. As described above, test the pH of the soils taken from different areas of the field prior to making any NUP-08134 application.

Location	Crop	Soil pH	Maximum Use Rate (oz/acre)	Minimum Interval - 4 Months	Minimum Interval - 6 Months
All areas of TX, OK, KS, NE and CO	STS Soybeans IR Corn	7.5 or lower	1/3	√	--
Panhandle of TX and OK, West of Hwy 183 in KS and NE, and all of CO	Grain Sorghum	7.2 or lower	¼	√	--
		7.3 – 7.5	¼	--	√
All other areas of TX, OK, KS, and NE	Grain Sorghum	7.5 or lower	1/3	√	--
All areas of AR, MD, VA, NC, SC and GA	STS Soybeans	7.5 or lower	1/2	--	√

**Catastrophic Crop Loss:** In the event of crop loss from natural disasters such as late freezing weather, hail damage, insect damage, or disease damage and an application of NUP-08134 has been made, the following can be planted at the designated time interval after the date of the NUP-08134 application:

- grain sorghum can be planted after 4 months if the soil pH is 7.3 – 7.5
- STS Soybeans and IR Corn can be replanted after 4 months if the soil pH is 7.5-7.9.

These crops will exhibit temporary discoloration and/or crop injury when planted at this reduced interval after NUP-08134 application. Crop injury may be severe and the crop may not grow or develop normally, resulting in reduced yield. The degree of injury increases if the soil pH levels are high, if NUP-08134 was applied at the higher use rate, if the soil is dry after the application and before the rotation crop is planted, or if a shorter rotation crop interval was chosen. In order to get a crop planted after this crop loss, the potential damage and yield loss must be acceptable to the grower. If a grower is not willing to accept this level of potential early season crop injury and yield loss, then he should follow the standard rotational guidelines in the table above. Additional information on the agronomic practices that can help to reduce crop injury may be obtained from your state experiment station, university, extension agent, or local crop consultant.

**Precautions and Restrictions:** To minimize injury to or loss of desirable trees or vegetation, observe these precautions and restrictions:

- Do not apply, drain or flush equipment on or near desirable trees or other plants, on areas where their roots may extend, or in areas where the product may be washed or moved into contact with desirable plant roots.
- Do not use on lawns, walks, driveways, tennis courts or similar areas.
- Do not allow sprays to drift to adjacent non-target sites or onto desirable plants.
- Do not contaminate any body of water. Clean all application equipment after use by following the directions in this label.
- Sorghum, STS soybeans, and IR Corn may exhibit temporary discoloration and signs of injury if these crops are planted after an application of NUP-08134 and certain conditions exist (such as drought, prolonged cold weather, pH variability in the fields).
- Do not apply to crops grown for seed.

**ROTATION CROP INTERVALS FOR PLANTING GRASSES ON CONSERVATION RESERVE PROGRAM (CRP) ACRES:** The grasses listed below may be planted into wheat, barley, oats or fallow areas previously treated with NUP-08134 after the appropriate rotation intervals (refer to table below for the designated interval noted by the √ symbol) has elapsed. Injury to legumes may occur and Nufarm Americas, Inc. does not recommend planting of grass and legume mixtures.

Bentgrass	Lovegrasses, sand, weeping
Blue Grama	Orchardgrass (excluding Piaute)
Bluestems, big, little, plains, sand, ww spar	Prairie sandreed
Buffalograss	Sand Dropseed
Galleta	Sheep fescue
Needlegrass, green	Sideoats gramma
Green sprangletop	Switchgrass
Indiangrass	Wheatgrasses - crested, intermediate, pubescent, slender, streambank, tall, thickspike, western
Indian ricegrass	Wildrye grasses - beardless, Russian

#### ROTATION CROP INTERVALS FOR PLANTING GRASSES ON CRP ACRES†

Location	Soil pH†	Use Rate (oz/acre)	Minimum Recropping Interval - 2 Months	Minimum Recropping Interval - 4 Months
MN, MT, ND, SD, and Northern WY	6.5 or lower	1/6 to 1/2	√	
	6.6 to 7.5	1/6 to 1/3		√
	7.6 to 7.9	1/6 to 1/3		√ (Wheatgrasses only)
AR, LA, CO, NM, and Southeastern WY	7.9 or lower	1/6 to 1/3	√	
		1/2		√
NE, KS, OK, TX	7.9 or lower	1/6 to 1/3	√	

Location	Soil pH†	Use Rate (oz/acre)	Minimum Recropping Interval - 2 Months	Minimum Recropping Interval - 4 Months
		½		√ (TX/OK only)
CA, ID, OR, UT, WA	7.9 or lower	1/6 to 1/3	√	

†Refer to the section under **Maximum Application Rates** and **Soil pH Limitations**.

#### STORAGE AND DISPOSAL

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

**PESTICIDE STORAGE:** Store product in original container only.

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

**CONTAINER DISPOSAL:** Non-refillable container. Do not reuse or refill this container. Offer for recycling, if available. 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.

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