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62719-279

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US ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF PESTICIDES PROGRAMS  
REGISTRATION DIVISION (TS-767)  
WASHINGTON, DC 20460

EPA REGISTRATION NO.

62719-279

DATE OF ISSUANCE

MAR 26 1996

TERM OF ISSUANCE

Conditional

NAME OF PESTICIDE PRODUCT

NAF-261

NOTICE OF PESTICIDE:  REGISTRATION  
 REREGRISTRATION

(Under the Federal Insecticide, Fungicide,  
and Rodenticide Act, as amended)

NAME AND ADDRESS OF REGISTRANT (Include ZIP code)

LOWE Lanco  
9336 Zionsville Road  
Indianapolis, IN 46268

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

On the basis of information furnished by the registrant, the above named pesticide is hereby Registered/Reregistered under the Federal Insecticide, Fungicide, and Rodenticide Act.

A copy of the labeling accepted in connection with this Registration/Reregistration is returned herewith.

Registration is in no way to be construed as an indorsement or approval of this product by this Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is registered in accordance with FIFRA section 4.

Conditions of registration are:

1. Use the phrase "EPA registration no. 62719-279" on the label before you release the product for shipment.
2. Submit to EPA all data required for reregistration of this product under FIFRA sec. 3(c)(5) when the Agency requires all registrants of similar products to submit such data; and submit all data responses required for reregistration of this product under FIFRA sec. 4.
3. Submit one (1) copy of the final printed labeling before you release the product for shipment.

If these conditions are not complied with, the registration will be suspended or canceled in accordance with FIFRA section 4(c). Your release of this product for shipment constitutes acceptance of these conditions. Failure to comply with these conditions may result in penalties.

Walter J. Smith  
Chief, Registration Division  
EPA Registration Division  
Washington, DC 20460

**BEST AVAILABLE COPY**

ATTACHMENT IS APPLICABLE

SIGNATURE OF APPROVING OFFICIAL

*Walter J. Smith*

DATE

MAR 26 1996

1996

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(Base label).

(logo) DowElanco

# NAF-281

**A selective herbicide for the control of broadleaf weeds in field corn.**

**Active Ingredients:**

flumetsulam: <i>N</i> -(2,6-difluorophenyl)-5-methyl-1,2,4-triazolo-[1,5a]-pyrimidine-2-sulfonamide .....	12.1%
clopyralid: 3,6-dichloro-2-pyridinecarboxylic acid .....	56.3%
Inert Ingredients .....	31.6%
Total .....	100.0%

**ACCEPTED  
with COMMENTS  
In EPA Letter Dated**

**MAR 26 1996**

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

62719-279

Contains 0.684 pounds of active ingredient per pound of product.

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## Precautionary Statements

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### Hazards to Humans and Domestic Animals

**Keep Out of Reach of Children**

**DANGER            PELIGRO**

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

**Causes Irreversible Eye Damage • Do Not Get In Eyes Or On Clothing • Harmful If Swallowed, Inhaled, Or Absorbed Through The Skin • May Cause Skin Sensitization Reactions In Certain Individuals**

**Avoid breathing vapors or spray mist and contact with skin, eyes, or clothing.**

### Personal Protective Equipment (PPE)

**Applicators and other handlers must wear:**

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

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

### User Safety Recommendations

Users should

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

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### First Aid

**If in eyes:** Hold eyelids open and flush with a steady, gentle stream of water for 15 minutes. Get medical attention.

**If swallowed:** Do not induce vomiting. Call a physician or Poison Control Center. If available, administer activated charcoal (6-8 heaping teaspoonfuls) with a large quantity of water. Do not give anything by mouth to an unconscious person. Immediately transport to a medical care facility and see a physician.

**If inhaled:** Remove individual to fresh air. Get medical attention if breathing difficulty occurs. If not breathing, give artificial respiration, preferably cardiopulmonary resuscitation assistance, and get medical attention immediately.

**If on skin:** Immediately wash with plenty of soap and water. Get medical attention if irritation develops.

### Environmental Hazards

Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

The active ingredients in this product are known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this product where soils are permeable, particularly where the water table is shallow, may result in leaching to ground water.

Caution should be exercised when handling this product at mixing and loading sites to prevent contamination of groundwater supplies. Use of closed systems for mixing or transferring this pesticide will reduce the probability of spills. Placement of the mixing/loading equipment on an impervious pad to contain spills will help prevent groundwater contamination.

### Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Refer to label booklet for additional precautionary information including Personal Protective Equipment (PPE), User Safety Recommendations and Directions for Use including Storage and Disposal.

**Notice:** Read the entire label. Use only according to label directions. **Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" inside label booklet.**

In case of emergency endangering health or the environment involving this product, call collect 517-636-4400

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

EPA Reg. No. 62719-~~00~~ ETO

EPA Est. 00000-XX-00

DowElanco • Indianapolis, IN 46268 U.S.A.

### Broadleaf Blend Herbicide

Net Weight 5 lb (or) contains 5, 16 oz Water Soluble Packets

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(Datapack cover):

(logo) DowElanco

# NAF-281

**A selective herbicide for the control of broadleaf weeds in field corn.**

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clopyralid: 3,6-dichloro-2-pyridinecarboxylic acid .....	56.3%
Inert Ingredients .....	31.6%
Total .....	100.0%

Contains 0.684 pounds of active ingredient per pound of product.

U.S. Patents 4,818,273 and 4,954,163

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DowElanco • Indianapolis, IN 46268 U.S.A.

### Broadleaf Blend Herbicide

### Net Weight 5 lb (or) contains 5, 16 oz Water Soluble Packets

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(Page 1 through end):

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**Precautionary Statements**

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**Avoid breathing vapors or spray mist and contact with skin, eyes, or clothing.**

**Personal Protective Equipment (PPE)**

**Applicators and other handlers must wear:**

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- Waterproof gloves
- Shoes plus socks
- Protective eyewear

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**User Safety Recommendations**

Users should:

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

**First Aid**

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**Environmental Hazards**

Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

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Caution should be exercised when handling this product at mixing and loading sites to prevent contamination of groundwater supplies. Use of closed systems for mixing or transferring this pesticide will reduce the probability of spills. Placement of the mixing/loading equipment on an impervious pad to contain spills will help prevent groundwater contamination.

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### Directions for Use

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It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read all Directions for Use carefully before applying.

**Handling Precautions if Product is Packaged in Water Soluble Packets:** Do not remove water soluble packet from overpack except for immediate use. Do not allow water soluble packet to come into contact with water prior to use. Do not handle water soluble packet with wet hands or wet gloves. Carefully reseal package containing unopened water soluble packets and protect package from moisture.

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

### Agricultural Use Requirements

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

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 48 hours.

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

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

- Coveralls
- Waterproof gloves
- Shoes plus socks
- Protective eyewear

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### Storage And Disposal

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

**Storage:** Store in original container in secured dry storage area. Prevent cross-contamination with other pesticides and fertilizers. Do not store above 122°F for extended periods of time. If container is damaged or spill occurs, use product immediately or contain with absorbent materials and dispose as waste.

**Water Soluble Packaging: Packets may become brittle when stored below 32°F. Handle carefully when frozen to avoid breakage or allow package to warm above 32°F before handling.**

**Disposal:** Wastes resulting from the use of this product may be disposed of on site according to label use directions or at an approved waste disposal facility.

**Container Disposal (water soluble packaging):** When all packets are used, dispose of empty package in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**Container Disposal (plastic jug):** Triple rinse (or equivalent). Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**General:** Consult federal, state, or local disposal authorities for approved alternative procedures.

### General Information

NAF-281 is a selective herbicide for broadleaf weed control in field corn. NAF-281 may be applied as a preplant surface, preplant incorporated, preemergence, or postemergence treatment. Soil surface treatments may be applied with water, liquid fertilizer, or impregnated on dry fertilizer. Postemergence treatments should be applied with water. Absorption of NAF-281 occurs from both shoot and root uptake. Susceptible weeds exposed to NAF-281 stop growing and either die or remain non-competitive with the crop. NAF-281 provides residual control of weeds that may emerge after application. Adequate soil moisture is necessary for optimal activation because uptake and translocation of NAF-281 involves uptake by emerging shoots and/or roots.

### General Use Precautions

#### Application/Incorporation

- Uneven application or uneven incorporation of NAF-281 can result in erratic weed control or crop injury. Over application may result in crop injury or rotational crop damage from soil residue.

#### Adverse Weather Conditions

- Extended cold, wet conditions (soil temperatures below 50°F for extended periods), or abnormally high soil moisture conditions during emergence and early crop development can cause injury symptoms on corn such as temporary yellowing of the leaves and/or crop stunting. Corn will quickly outgrow these symptoms once normal growing conditions resume.
- When applications are made under adverse (dry or cold) conditions or when large weeds or less susceptible species are treated, weed suppression may be observed. Weed suppression is a visual reduction in weed competition (reduced population, size, and/or vigor) as compared to an untreated area. Degree of control can be increased by applying NAF-281 under favorable growing conditions (i.e., adequate moisture and temperature), and by using a higher rate in the specified rate range.
- Dry weather following preplant surface or preemergence applications of NAF-281 may reduce effectiveness. If sufficient activating rainfall or overhead irrigation does not occur within 7 to 10 days of application, rotary hoe, harrow, or shallowly cultivate to incorporate the herbicide lightly into the soil. Use a preplant incorporated application if furrow irrigation is used or when a period of dry weather is expected after application.
- Do not apply when air temperature is near freezing or when freezing conditions are expected for several days following application.

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- Postemergence application of NAF-281 to corn that is stressed or damaged by conditions such as cold weather, hot weather (>90°F), hail, drought, water saturated soil, disease, or insects may cause further crop injury.

**Tank Mixing**

- NAF-281 may be tank mixed or followed by overlay or postemergence treatments registered for use on corn to broaden the spectrum of weeds controlled. Follow all applicable use directions, precautions, restrictions, and limitations on the labels for each product used in tank mixtures. Tank mixtures are permitted only in those states where the tank mix partner is registered.

**Soil Restrictions for Soil Surface Applications**

- Do not use on peat or muck soils.
- Do not apply to areas where the soil pH is greater than 7.8 as this may result in increased crop injury.
- Do not apply to a soil having a pH less than 5.9 and organic matter greater than 5% (both must apply).
- Use of NAF-281 on soils that average less than 1.5% organic matter (O.M.) may result in crop injury. Apply to soils which average less than 1.5% O.M. only if the risk of crop injury is acceptable.

**Insecticide Precautions****For Soil Surface Applications of NAF-281:**

- Soil insecticides should be applied in a T-band or a band to avoid potential crop injury when NAF-281 is used for broadleaf weed control in corn. If Counter (terbufos) insecticide has been applied to corn, NAF-281 should not be used.

**For Postemergence Applications of NAF-281:**

- Do not apply NAF-281 postemergence if corn was previously treated with Counter as severe crop injury may result.
- Applications to corn previously treated with other organophosphate insecticides such as Lorsban, Thimet, Aztec, or Dyfonate may cause temporary crop injury.
- Do not tank mix NAF-281 with foliar postemergence organophosphate insecticides as severe crop injury may result.

**Use With Other Products**

- If any ALS (acetolactate synthesis) inhibiting herbicides such as Pursuit, Preview, Canopy, Classic, Scepter, Squadron, etc. were applied the previous year, apply NAF-281 to corn only if the rotational restrictions to corn for these products have been met.
- Corn previously treated with NAF-281 that is stressed or damaged by conditions such as cold weather, hail, drought, water saturated soil, disease, or insects should not be treated with Accent, Beacon, Permit, Exceed, Basis, or other ALS inhibiting products as this may cause further crop injury.
- Do not foliar apply NAF-281 to corn that exhibits herbicide injury from previous applications made to the current or preceding crop.

**Maximum Application Rate**

- Do not exceed 1 application per year.
- Do not exceed a total application rate of 0.50 pound per acre of NAF-281 (0.07 lb flumetsulam) in a single crop year.
- Do not exceed 0.07 pound per acre active ingredient of flumetsulam per year if a postemergence application of NAF-281 is made following application of Broadstrike\*+Dual®

**Other Precautions and Restrictions**

- **Corn Planting Depth.** For soil applications of NAF-281, corn planting depth should be at least 1 1/2 inches.
- Do not apply NAF-281 to sweet corn or popcorn.
- Corn inbred lines grown for hybrid seed production may be injured by NAF-281. Inbred lines should be thoroughly tested for crop tolerance before treating large acreages. Do not apply NAF-281 postemergence to corn grown for seed.



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- **Preharvest interval:** An interval of at least 85 days is required between application of NAF-281 and field corn harvest.
- **Do not aerially apply NAF-281.**
- **Chemigation:** Do not apply this product through any type of irrigation system.
- **Avoid all direct or indirect contact with nontarget plants.** Do not apply near desirable vegetation. Allow adequate distance between target area and desirable plants under conditions of application to minimize potential exposure.
- **Crop residues from treated areas:** Crop residues from treated areas cannot be used for composting or mulching on ground where susceptible crops may be grown the following season. To promote herbicide decomposition, plant material should be evenly incorporated or burned. Adequate moisture is also required to promote breakdown of plant residues which contain clopyralid.
- **Do not move treated soil:** Avoid situations where soil particles may blow into areas where susceptible crops are grown. The hazard of movement of this product on dust is reduced if treated fields are irrigated or if rain occurs shortly after application.
- **Do not apply under conditions which favor runoff or wind erosion of soil containing NAF-281 to nontarget areas. To prevent off-site movement due to runoff or wind erosion:**
  - Avoid treating powdery dry or light sandy soils when conditions are favorable for wind erosion. Under these conditions, the soil surface should first be settled by rainfall or irrigation.
  - Do not apply to impervious substrates such as paved or highly compacted surfaces or frozen or snow covered ground.
  - Do not apply to soils when saturated with water.
  - Do not use tailwater from the first flood or furrow irrigation of treated fields to treat nontarget crops unless at least 1/2 inch of rainfall has occurred between application and the first irrigation.
- **Do not apply when weather conditions favor drift to nontarget sites. To minimize spray drift to nontarget areas:**
  - Use low pressure application equipment capable of producing a large-droplet spray.
  - Do not use nozzles that produce a fine-droplet spray.
  - Minimize drift by using sufficient spray volume to ensure adequate coverage with large-droplet size sprays.
  - Keep ground-driven spray boom as low as possible above the target surface.
  - Spray when conditions are calm or wind speed is low. Do not spray when wind is gusting or steady wind speed is greater than 10 mph.
- **Sprayer Cleanup:** To avoid injury to or exposure of nontarget crops, thoroughly clean and drain spray equipment used to apply NAF-281 after use. Cleaning should occur as soon as possible after application of NAF-281. Spray equipment should be cleaned after use with NAF-281 by the following procedure:
  1. Drain any remaining NAF-281 from the spray tank and dispose of according to label disposal instructions.
  2. Hose down the interior surfaces of the tank. Flush tank, hoses, boom, and nozzles with clean water for 10 minutes. Fill the tank with water and recirculate for 15 minutes. Spray part of the mixture through the hoses, boom, and nozzles and drain the tank. All rinse water must be disposed of in compliance with local, state, and federal guidelines.
  3. Remove the nozzles and screens and clean separately.
  4. If the spray equipment will be used on crops other than field corn, repeat steps 1 and 2 again and thoroughly wash the spray mixture from the outside of spray tank and the boom.

Placement of mixing/loading equipment on an impervious pad to contain spills will help prevent groundwater contamination.

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**Rotational Crop Restrictions:**

When tank mixing with companion herbicides, follow the most restrictive crop rotation guidelines on the label of each product used.

The following rotational crops may be planted after the indicated interval following application of rates up to 0.50 pound per acre of NAF-281:

Crop <sup>1</sup>	Interval (Months)
barley, oats, rye, wheat	4
rice	6
alfalfa, dry beans <sup>2</sup> , soybean <sup>2</sup> , pop corn,	10 1/2
grain sorghum	12
cotton, peas, peanuts potatoes, sunflower, sweet corn, tobacco	18

<sup>1</sup>Note: Rotation to sugar beets, canola, and all other crops requires a 26-month rotation interval and a successful field bioassay.

<sup>2</sup>For low moisture (less than 15 inches annual rainfall) and low organic matter (less than 2%) areas, dry beans, and soybeans should not be planted until 18 months after treatment.

**Field Bioassay Instructions:** Using typical tillage, seeding practices, and timings for the particular crop, plant several strips of the desired crop variety across the field previously treated with NAF-281. Plant the strips perpendicular to the direction NAF-281 was applied. The strips should also be located so that different field conditions are encountered, including differences in soil texture, pH, and drainage. If the crop does not show visible symptoms of injury, or stand reduction, the field can be seeded with the test crop in the growing season following the bioassay. If visible injury, stand reduction, or yield reduction occurs, the test crop should not be seeded, and the bioassay must be repeated the next growing season.

**Mixing and Application****Mixing Directions**

**Application Rates for Preplant Surface Applied, Preplant Incorporated, Postplant Preemergence, and Spike Stage Treatments**

Soil Texture	lb of NAF-281/acre	Acres Per 5 lb Plastic Jug <sup>†</sup>	Packet Factor <sup>††</sup> (acres/packet) For Water Soluble Packaging
Course	0.28 - 0.33	18 - 15	3.6 - 3.0
Medium or Fine	0.33 - 0.40	15 - 12	3.0 - 2.5

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**Application Rates for Postemergence Foliar Application**

Soil Texture	lb of NAF-281/acre	Acres Per 5 lb Plastic Jug†	Water Soluble Package Packet Factor†† (acres/packet)
All soil textures	0.165	30	6

†If the number of acres to be treated results in the use of a partial container, use the measuring device provided with the container to measure out 1 acre increments according to the scale indicated on the measuring device.

††To calculate the number of water soluble packets for your spray mix:

1. Determine the number of acres you wish to spray in the desired application.
2. Divide the number of acres by the packet factor that falls within the rate range you have chosen (Packet Factor = acres per packet at a specified application rate). See the above rate table for broadcast application rates and corresponding packet factors.
3. The result is the number of packets you are required to add to the spray mix.

**If the resulting number of packets is not a whole packet:**

1. Do not open the water soluble packets.
2. Round up or down to the nearest whole number of packets and check to make sure that the resulting number of acres/packet falls within the desired rate range for the application.

**Sample calculations:**

1. Planned application = 0.28 pounds per acre (The packet factor for 0.28 lb/acre is 3.6).
2. Assuming 17 acres is to be treated, 17 acres divided by the packet factor of 3.6 = 4.7 packets (Round up to 5 packets).
3. 17 acres divided by 5 packets = a packet factor of 3.4 which is within the desired packet factor range of 3.6 to 3.0 for the application.

**Spray Preparation:**

NAF-281 is a water dispersible granule formulation. Thorough mixing is required.

1. Fill the tank with 1/2 of the total amount of water or liquid fertilizer required for the load.
2. Start agitation system.
3. Add the required amount of NAF-281 directly into the spray tank while agitating. If product is packaged in water soluble packets, add the required number of water soluble packets (**See special pre-mixing instructions below for use of water soluble packaging in liquid fertilizer solutions**). Open overpack and add the soluble packet (product in transparent film) directly into the spray tank while agitating. Do not open water soluble packets. Water soluble packets will float on the surface until the water soluble film dissolves and releases the product. Handling packets with hands should be minimized.
4. Continue agitation and complete filling the tank while product disperses in the spray tank solution.
5. Before spraying make sure NAF-281 is thoroughly mixed in the solution. If product is in water soluble packets, make sure packets have completely disintegrated and product is thoroughly mixed with water. Depending on the water temperature and the degree of agitation, the packet and NAF-281 should be completely dispersed within 5 minutes from the time they were added to the water.

To insure a uniform spray mixture continuous agitation is required during mixing and spraying. Apply within 24 hours after mixing. If product is allowed to settle, thoroughly agitate to resuspend the mixture before spraying.

**Pre-mixing (Slurry) for Water Soluble Packets Only**

**Note:** These pre-mixing instructions must be followed when NAF-281 will be used in liquid fertilizer or impregnated onto dry granular fertilizer. Do not use liquid fertilizer as a carrier when NAF-281 is used as a postemergence foliar application to corn. The film used in water soluble packaging for NAF-281 is not soluble in liquid fertilizer solutions. Water soluble packets containing NAF-281 should be pre-mixed with

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water and added to the spray tank through a 20-35 mesh screen. For best results, a minimum of 1 pint of water should be used to slurry each 16-ounce packet of NAF-281. The packets can be stirred immediately on addition to water or allowed to dissolve. Stir until the packets are completely dissolved and granules are dispersed.

**NAF-281 in Tank Mix**

Vigorous, continuous agitation during mixing, filling, and throughout application is required for all tank mixes. Sparger pipe agitators generally provide the most effective agitation in spray tanks. To prevent foaming in the spray tank, avoid stirring or splashing air into the spray mixture.

**Note:** When tank mixing NAF-281 with other products, a compatibility test (jar test) using relative proportions of tank mix ingredients should be conducted prior to mixing ingredients in the spray tank.

**Mixing Order for Tank Mixes:** Fill the spray tank to 1/4 to 1/3 of the total spray volume required with water or liquid fertilizer solution. Start agitation. Add different formulation types in the order indicated below, allowing time for complete mixing and dispersion after addition of each product. Allow extra mixing and dispersion time for dry flowable products.

Add different formulation types in the following order: NAF-281 (slurried if mixing water soluble packets with liquid fertilizer) and other dry flowables; wettable powders; aqueous suspensions, and flowables. Maintain agitation and fill spray tank to 3/4 of total spray volume. Then add emulsifiable concentrates and any solutions.

**Note:** The non-ionic surfactant and urea ammonium nitrate adjuvants required for postemergence foliar applications should be added to the spray tank last.

Finish filling the spray tank. Maintain continuous agitation during mixing, final filling, and throughout application. If spraying and agitation must be stopped before the spray tank is empty, the materials may settle to the bottom. Settled materials must be resuspended before spraying is resumed. A sparger agitator is particularly useful for this purpose. Settled material may be more difficult to resuspend than when originally mixed.

Line screens in the spray tank should be no finer than 50 mesh (100 mesh is finer than 50 mesh).

**Spray Application**

Apply NAF-281 in sufficient spray volume to provide uniform coverage using only properly calibrated ground equipment. Apply in a total spray volume of 10 to 40 gallons per acre using low pressure (20-40 lb/sq in). Maintain sufficient agitation during mixing and spraying to ensure a uniform spray mixture. To ensure thorough coverage when applying to minimum or no-till field corn, apply in a total spray volume of 20 or more gallons per acre.

**Band Application:** Calculate the amount of herbicide needed for band treatment by the formula:

$$\begin{array}{l}
 \text{Band width in inches} \\
 \text{-----} \\
 \text{Row width in inches}
 \end{array}
 \times
 \begin{array}{l}
 \text{Broadcast rate} \\
 \text{per acre}
 \end{array}
 =
 \begin{array}{l}
 \text{Amount needed} \\
 \text{per acre of field}
 \end{array}$$

**Liquid Fertilizer Mixing Instructions**

NAF-281, may be added directly to liquid fertilizer. **Note:** If product is packaged in water soluble packets, a slurry must be prepared prior to adding to liquid fertilizer (see premixing instructions on this label). This is necessary because the water soluble film is not directly soluble in liquid fertilizer. Continuous agitation is required. When necessary, a compatibility agent can be used to ensure that NAF-281 mixes properly. The use of appropriate compatibility agents is especially important when tank mixing NAF-281 and other dry flowables, wettable powders, flowables, liquids, aqueous suspensions, or solutions with emulsifiable concentrates in liquid fertilizers. If the emulsifiable concentrate formulation rises to the surface of the fertilizer as an oil ("oils out"), the oil may combine with the wettable powder, flowable, or suspension to form oily curds (viscous phase) which are difficult to disperse. A jar test, utilizing relative proportions of the tank mix ingredients is recommended prior to mixing with liquid fertilizers.

**Note:** Do not use liquid fertilizer as the carrier for postemergence foliar applications.

**Application with Dry Bulk Fertilizer**

Dry bulk fertilizer may be impregnated or coated with NAF-281. Application of dry bulk fertilizer impregnated with NAF-281 provides weed control equal to the same rates of NAF-281 applied in liquid carriers. Follow label recommendations for NAF-281 regarding rates per acre, crops, special instructions, cautions, and special precautions. Apply 200 to 700 pounds of the fertilizer/herbicide mixture per acre. For best results, apply the mixture uniformly to the soil with properly calibrated equipment immediately after blending. Uniform application of the herbicide/fertilizer mixture is essential to prevent possible crop injury. Non-uniform application may also result in unsatisfactory weed control. In areas where conventional tillage is practiced, a shallow incorporation of the mixture into the soil may improve weed control.

**Precaution:** To avoid crop injury, do not use the fertilizer/herbicide mixture on bedded soil.

Compliance with all federal and state regulations relating to blending pesticide mixtures with dry bulk fertilizer, registration, labeling, and application are the responsibility of the individual and/or company offering the fertilizer and chemical mixture for sale.

**Limitations:** Apply a minimum of 200 pounds per acre of dry fertilizer impregnated with NAF-281 at the recommended rate. Most dry fertilizers can be used for impregnation with NAF-281. When coated ammonium nitrate and/or limestone are used alone, do not impregnate with NAF-281. These materials will not absorb the herbicide. Fertilizer blends containing coated ammonium nitrate and/or limestone as part of the fertilizer mixture of can be impregnated.

**Impregnation:** A water slurry of the NAF-281 must be made and sprayed onto the fertilizer at a minimum volume of 6 pints per ton of fertilizer. To make the water slurry, add the required rate of NAF-281 (see formula below) to enough water to give a total volume of at least 6 pints of solution per ton of fertilizer. Make sure the NAF-281 is thoroughly dispersed in the water before spraying onto the fertilizer. Spray nozzles should be placed to provide uniform spray coverage onto the fertilizer. Care should be taken to aim the spray directly onto the fertilizer and avoid spraying the walls of the blender. Use any closed drum, belt, ribbon, or other commonly used dry bulk fertilizer blender.

Calculate amounts of NAF-281 by the following formula:

$$\frac{2,000}{\text{Pounds of fertilizer per acre}} \times \text{Pounds/acre of NAF-281} = \text{Pounds of product per ton of fertilizer}$$

**Note: Thoroughly clean dry fertilizer blending equipment prior to use with other herbicides.** It is important to clean the blender, herbicide spray tank, and spraying apparatus thoroughly. Rinse the sides of the blender and the herbicide tank with water. Then, impregnate the rinsate onto a load of dry fertilizer intended for an approved crop. Use a maximum rate of 1 gallon of rinsate per ton of fertilizer. Follow with 1 to 2 loads of unimpregnated fertilizer in the blender before switching herbicides. The fertilizer application equipment must be empty, clean, and dry before applying any material to crops other than corn.

**Approved Uses**

**FIELD CORN**

**Soil Applied Treatments**

NAF-281 may be soil applied as a preplant surface, preplant incorporated, or preemergence treatment. Apply alone or in tank mix combination with a grass herbicide such as Dual II, Surpass, or Harness.

**Note:** NAF-281 may be tank mixed with other herbicides registered for use on field corn, unless tank mixing is specifically prohibited by the label of the tank mix product. When NAF-281 is tank mixed with a companion herbicide, follow relevant use directions, including precautions, restrictions, and limitations listed on the manufacturer's label.

**Preplant Surface Applied**

For minimum-tillage or no tillage systems, NAF-281 alone and with certain tank mixtures may be applied up to 30 days before planting. If weeds are present at the time of treatment, apply in a tank mixture combination with a contact herbicide such as Gramoxone Extra or Roundup. Observe directions for use, precautions, and restrictions on the label of the contact herbicide. To the extent possible do not move treated soil out of the row or move untreated soil to the surface during planting, or weed control will be diminished.

**Canada Thistle Control in Minimum and No-Till Corn:** NAF-281 may be applied as a burndown treatment for control of emerged Canada thistle in no-till corn. The application will result in reduced late season competition. Apply prior to crop emergence, but postemergence to the Canada thistle. Delay the application until most of the thistle has emerged and averages 4 to 8 inches in height. Tank mix NAF-281 with Roundup herbicide and non-ionic surfactant for burndown control of existing grass and annual broadleaf weeds. Do not apply in tank mixture with Gramoxone Extra as this will result in reduced control of Canada thistle. Do not cultivate for 14 to 20 days after application to allow for thorough translocation.

**Note:** NAF-281 will not control unemerged Canada thistle in minimum tillage or conventional tillage systems.

**Preplant Incorporated Application**

Apply and incorporate NAF-281 from 0 to 30 days before planting. Preplant incorporated treatments may be applied in water or liquid fertilizer. Uniformly incorporate the herbicide treatment into the top 2 to 3 inches of the final seedbed.

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### Preemergence Application

Apply at the time of planting or after planting, but prior to crop or weed emergence. Adequate soil moisture is required for optimum herbicidal activity. For surface applications, rainfall, or overhead sprinkler irrigation is necessary to move NAF-281 into the weed germination zone. The amount of rainfall or irrigation required following application depends on existing soil moisture, soil texture, and organic matter content. Sufficient water to moisten the soil to a depth of 2 inches is generally adequate. If adequate soil moisture is not received within 7 to 10 days after a surface applied treatment, a shallow cultivation is recommended to control established weeds and move the herbicide into the weed germination zone. When adequate soil moisture is received following dry conditions, performance may vary with weed species and the depth of the weed root system in the soil.

### Spike Stage Application

Apply during the periods of corn emergence (ground cracking stage) to before the corn is 2 inches in height (before the first leaf is unfurled). Adequate soil moisture is required for optimum herbicidal activity. Established broadleaf weeds at the time of application may be controlled. For those weeds that have not emerged at the time of application, rainfall or overhead sprinkler irrigation is necessary to move NAF-281 into the weed germination zone. The amount of rainfall or irrigation required following application depends on existing soil moisture, soil texture, and organic matter content. Sufficient water to moisten the soil to a depth of 2 inches is generally adequate. If adequate soil moisture is not received within 7 to 10 days after a surface applied treatment, a shallow cultivation is recommended to control established weeds and move the herbicide into the weed germination zone. When adequate soil moisture is received following dry conditions, performance may vary with weed species and rooting depth of target weeds.

### Application Rates and Weeds Controlled by Soil Applied Treatments to Field Corn:

#### Broadleaf Weeds Controlled By Soil Applied NAF-281

amaranth, Palmer	pigweed, smooth
anoda, spurred	poinsettia, wild
beggarweed, Florida	puncturevine
buckwheat, wild	purslane
carpetweed	ragweed, common
chickweed	ragweed, giant†
cocklebur, common	Russian thistle
clover, red	shepherd's purse
henbit	sicklepod
horseweed (maretail)	sida, prickly
Jimsonweed	smartweed
Kochia	spurge, nodding
ladysthumb	spurge, spotted
lambsquarters, common	spurge, prostrate
mallow, Venice	sunflower, common
morningglory species†	thistle, Canada ††
mustard, wild	velvetleaf
nightshade, black	waterhemp, tall
pigweed, redroot	

†Weeds partially controlled

††Burndown control in minimum and no till corn only

## Broadcast Application Rates

### Preplant Surface Applied, Preplant Incorporated, Postplant Preemergence, and Spike Stage Treatments

Soil Texture	lb of NAF-281/acre
Course	0.28 - 0.33
Medium or Fine	0.33 - 0.40

**Note:** Use the high end of the rate range on soils with greater than 3% organic matter and/or when applications are made 14 to 30 days before planting.

### Tank Mixes for Preplant Surface Applied, Preplant Incorporated, and Postplant Preemergence Treatments

**Note:** When tank mixing with a companion herbicide, read and follow each manufacturer's label for weeds controlled, applicable use directions, precautions, and limitations.

1. **NAF-281 plus Gramoxone Extra or Roundup for minimum-tillage or no-tillage systems**  
In minimum-tillage or no-tillage situations where corn is planted directly into a cover crop, stale seedbed, or previous crop residues, the contact herbicides Gramoxone Extra or Roundup may be tank mixed with NAF-281. Apply in 20 to 60 gallons of water or fluid fertilizer per acre with ground equipment.

**Application Timing:** Apply before, during (behind the planter), or after planting, but before the crop emerges.

**Gramoxone Extra:** See the label for Gramoxone Extra for weeds controlled, recommended rates for specific weeds, and application instructions. Do not apply combinations containing Gramoxone Extra in suspension type fertilizers as the activity of the active ingredient paraquat will be reduced.

**Roundup:** See the Roundup herbicide label for weeds controlled, recommended rates for specific weeds, and application instructions.

2. **NAF-281 plus 2,4-D for minimum-tillage or no-tillage systems**

Where heavy crop residues exist, add 1.0 to 2.0 pints per acre of an appropriately labeled 3.8 pounds a.e. per gallon 2,4-D amine or ester to the spray tank and apply in a minimum of 20 gallons of carrier per acre.

As carriers, nitrogen solutions and complete liquid fertilizers applied before corn emergence enhance burndown of existing weeds and, therefore, are recommended instead of water. Add X-77 surfactant at 1.0 to 2.0 quarts per 100 gallons diluted spray or another appropriate surfactant at its recommended rate. Apply before weeds exceed 3 inches high. **This tank mixture will not control emerged grasses.**

### NAF-281 Followed By Postemergence Treatments

Broadleaf weeds not controlled by NAF-281 may be controlled with postemergence herbicide products such as Banvel, Clarity, 2,4-D, Marksman, Buctril, or Beacon plus 2,4-D. Read and follow each manufacturer's label for weeds controlled, applicable use directions, precautions, and limitations before use.



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## Application Rates and Weeds Controlled by Postemergence Treatments to Field Corn:

**Application Rate:** Apply NAF-281 as a postemergence spray at a rate of 0.165 pound per acre. (If product is packaged in water soluble packets refer to Mixing Directions section to determine the number of water soluble packets required for the acreage to be treated. At a rate of 0.165 pound per acre, 1 packet will treat 6 acres.)

### Number of NAF-281 Water Soluble Packets Required To Treat Various Acreages

Number of Acres To Be Treated	Number of Water Soluble Packets Required
6	1
12	2
18	3
24	4

**If the acres to be treated do not result in a whole number of packets:**

1. Do not open the water soluble packets.
2. Round up or down to the nearest whole number of packets and check to make sure that the resulting number of acres per packet falls within the desired rate range for the application.

**Application Timing:** Application may be applied broadcast, or as a band treatment over the top of field corn up to 24 inches tall. Apply when broadleaf weeds are at the 2 to 8 inches in height. Weeds too large for optimum control may be suppressed, but may recover after 2 to 3 weeks. Spraying at the cotyledon stage is not recommended. Do not apply if rainfall is expected within 6 hours after application. Applications when the corn is taller than 24 inches should be applied as a directed spray with drop nozzles and kept off the corn. Do not apply NAF-281 within 85 days of harvest.

**Use of Surfactants:** All postemergence applications of NAF-281 must include a non-ionic surfactant at 0.25% volume/volume (1 qt/100 gal). Use a good quality surfactant with at least 80% active ingredient (of which at least 50% is actual non-ionic surfactant). Under extremely dry growing conditions, use of an agriculturally approved sprayable liquid fertilizer together with the non-ionic surfactant, may enhance control. Use 28%, 30%, or 32% urea ammonium nitrate at 2.5% volume/volume (2.5 gal/100 gal). **Note: Do not use liquid fertilizer solutions or suspensions as the total carrier because excessive crop injury may occur.** Use only EPA approved surfactants for use on food crops.

**Factors Affecting Weed Control:** Apply to actively growing weeds. Extreme growing conditions such as drought or near freezing temperatures before, at, or following application may result in reduced weed control. Degree of control will depend on coverage of treated weeds and weed susceptibility as well as growing conditions at the time of treatment.

**Cultivation:** Cultivation before, during or within 7 days after application is not recommended. Cultivation may put weeds under stress by pruning roots, thereby reducing herbicide uptake and weed control. For best results, delay cultivation for 10 days after application.

**Tank Mixing:** NAF-281 may be applied alone or in tank mix combination with other herbicides registered for postemergence application in field corn unless tank mixing is prohibited by the label of the tank mix product. When NAF-281 is tank mixed with a companion herbicide, follow relevant use directions including precautions, restrictions and limitations listed on the product's label.

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**Weeds Controlled by Postemergence Application:**

anoda, spurred	poinsettia, wild
beggarweed, Florida	puncturevine
buckwheat, wild	purslane
carpetweed	ragweed, common
chickweed	ragweed, giant†
cocklebur, common	Russian thistle
clover, red	shepherd's purse
henbit	sicklepod
horseweed (maretail)	sida, prickly
jimsonweed	smartweed
Kochia	spurge, nodding
ladysthumb	spurge, spotted
mallow, Venice	spurge, prostrate
morningglory species†	sunflower, common
mustard, wild	thistle, Canada†
nightshade, black†	velvetleaf

†Weeds partially controlled.

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**Warranty Disclaimer**

DowElanco warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. DowElanco MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY

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**Inherent Risks of Use**

It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of DowElanco or the seller. All such risks shall be assumed by buyer.

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### **Limitation of Remedies**

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The exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at DowElanco's election, one of the following:

- (1) Refund of purchase price paid by buyer or user for product bought, or
- (2) Replacement of amount of product used

DowElanco shall not be liable for losses or damages resulting from handling or use of this product unless DowElanco is promptly notified of such loss or damage in writing. In no case shall DowElanco be liable for consequential or incidental damages or losses.

The terms of the Warranty Disclaimer above and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of DowElanco or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

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