

**Agri Star**<sup>®</sup>  
By Albaugh Inc.

# REFUTE<sup>®</sup>

*For the control of annual and perennial broad leaf weeds in rangeland and permanent grass pastures, non-crop areas such as fence rows, non-irrigation ditch banks, roadsides and around farm buildings, and CRP acres.*

Manufactured by:

**ALBAUGH, INC.**

1525 NE 36th Street  
Ankeny, Iowa 50021

**FOR CHEMICAL SPILL, LEAK,  
FIRE, OR EXPOSURE, CALL  
CHEMTREC (800) 424-9300**

**ACTIVE INGREDIENT:**

triclopyr TEA: 3,5,6-trichloro-2-pyridinyloxyacetic acid, triethylamine salt ..... 33.0%  
clopyralid TEA: 3,6-dichloro-2-pyridinecarboxylic acid, triethylamine salt. .... 12.1%

**INERT INGREDIENTS** ..... 54.9%

**TOTAL** ..... 100.0%

Acid Equivalent: Triclopyr - 23.7% - 2.25 lb/gal, Clopyralid - 7.9% - 0.75 lb/gal

EPA Reg. No. 42750-125

EPA Est. No. 42750-MO-001

**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).**

**FIRST AID**

<b>IF IN EYES:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</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>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>IF INHALED:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>

**NOTE TO PHYSICIAN:** Probable mucosal damage may contraindicate the use of gastric lavage.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

Contact CHEMTREC toll free at 1-800-424-9300 for transportation or emergency medical treatment information.

**See inside booklet for additional PRECAUTIONARY STATEMENTS.**

# PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS DANGER

Corrosive. Causes irreversible eye damage. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Harmful if swallowed or inhaled. Do not get in eyes or on clothing. Avoid breathing vapor or spray mist.

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

**Applicators and other handlers must wear:**

1. Long-sleeved shirt and long pants
2. Chemical-resistant gloves made of any waterproof material
3. Shoes plus socks
4. Protective eyewear (goggles, face shield or safety glasses)

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.

## ENGINEERING CONTROLS

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

## USER SAFETY RECOMMENDATIONS

**Users should:**

1. Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
2. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
3. 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.

## ENVIRONMENTAL HAZARDS

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

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

Clopyralid is a chemical which can travel (seep or leach) through soil and under certain conditions contaminate groundwater which may be used for irrigation or drinking purposes. Users are advised not to apply clopyralid where soils have a rapid to very rapid permeability throughout the profile (such as loamy sand to sand) and the water table of an underlying aquifer is shallow, or to soils containing sinkholes over limestone bedrock, severely fractured surfaces, and substrates which would allow direct introduction into an aquifer. Your local agricultural agencies can provide further information on the type of soil in your area and the location of groundwater.

## DIRECTIONS FOR USE

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.

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.

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:

1. Coveralls
2. Chemical-resistant gloves made of any waterproof material
3. Shoes plus socks
4. Protective eyewear (goggles, face shield or safety glasses)

## NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for Agricultural Pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

**Entry Restrictions for Non-WPS Uses:** When this product is applied to rangeland or grazed pastures (not harvested for hay), do not enter or allow entry into treated areas until sprays have dried, unless applicator and other handler PPE is worn.

# STORAGE AND DISPOSAL

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

**PESTICIDE STORAGE:** Store above 28°F or agitate before use.

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

## CONTAINER DISPOSAL:

**Non-refillable containers (1, 2.5, 30 & 55 gallon):** Do not reuse or refill this container. Offer for recycling, if available. Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

**(Non-refillable <5 gallons):** Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

**(Non-refillable > 5 gallons):** Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

**Pressure rinse as follows (all sizes):** Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

**Refillable container (250 gallon & bulk):** Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

To clean the container before final disposal, empty the remaining contents from the container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing process two more times.

## GENERAL INFORMATION

REFUTE® herbicide is a broad-spectrum postemergence herbicide for control of broadleaf weeds in rangeland and permanent grass pastures, non-crop areas such as fence rows, non-irrigation ditch banks, roadsides and around farm buildings, and CRP acres. A non-ionic surfactant cleared for use on growing crops at the manufacturer's recommended rate is essential for all applications of this product. Use a higher recommended rate of surfactant in the spray mixture when applying lower spray volumes per acre.

## GENERAL USE PRECAUTIONS AND RESTRICTIONS

- In Arizona: The state of Arizona has not approved REFUTE® for use on plants grown for commercial production, specifically on designated grazing areas.
- Maximum Application Rate: Do not apply more than 4 pint per acre of REFUTE® per annual growing season (1.125 lb ae of triclopyr plus 0.375 lb ae of clopyralid).
- In California and Florida, the maximum use rate is 2-2/3 pints (0.75 lb ae triclopyr, 0.25 lb ae clopyralid) per acre per annual use season.
- Chemigation: Do not apply this product through any type of irrigation system.
- Rotation to Broadleaf Crops: Do not plant broadleaf crops such as tobacco, cotton, soybeans, sunflower, clover, alfalfa, and many others in treated areas until an adequately sensitive bioassay shows that clopyralid is no longer detectable in the soil.
- Field Bioassay Instructions: In fields previously treated with this product, plant short test rows of the intended rotational crop across the original direction of application in a manner to sample field conditions such as soil texture, soil pH, drainage, and any other variable that could affect the seed bed of the new crop. Field bioassay at any time prior to planting of the intended rotational crop. Observe the test crop for herbicidal activity, such as poor stand (effect on seed germination) chlorosis (yellowing), and necrosis (dead leaves or shoots), or stunting (reduced growth). If herbicidal symptoms do not occur, the test crop can be grown. If there is apparent herbicidal activity, wait one year before repeating bioassay or plant a crop tolerant to clopyralid such as barley, canola (rapeseed), grasses, field corn, oats, sugar beets, or wheat.
- Do not contaminate water intended for irrigation or domestic purposes: To avoid injury to crops or other desirable plants, do not treat or allow spray drift to fall onto banks or bottoms of irrigation ditches or other channels that carry water that may be used for irrigation purposes.
- Tank (Mixtures: Observe the label of other products used in tank mixtures and follow all applicable label directions. If directions on this label and tank mix partners differ, follow the most restrictive label directions.
- Do not spray pastures if injury to existing forage legumes or other desirable broad leaf plants cannot be tolerated. This product will injure or kill legumes and most other broadleaf plants. However, the stand and growth of established perennial grasses is usually improved after treatment, especially when rainfall is adequate and grazing is deferred.
- Do not apply to desirable legume species with exposed roots or suckers such as pod bearing plants like acacia, locust, mimosa, redbud, or mesquite.
- Established grasses are tolerant to this product, but newly seeded grasses may be injured until well established as indicated by tillering, development of a secondary root system, and vigorous growth.
- Do not use on smooth brome grass grown for seed.

## GRAZING AND HAYING RESTRICTIONS

### Grazing or harvesting green forage:

1. Lactating dairy animals: Do not graze or harvest green forage from treated area until the next growing season.
2. Other Livestock: There are no grazing restrictions for other livestock including horses, sheep, goats, pigs, etc.

**Haying (harvesting of dried forage):**

1. Lactating dairy animals: Do not harvest hay until the next growing season.
2. Other Livestock: Do not harvest hay for 14 days after treatment.

**Slaughter Restrictions:**

Withdraw livestock from grazing treated grass or consumption of treated hay at least 3 days before slaughter. This restriction applies to grazing during the season of treatment or hay harvested during the season of treatment.

Do not transfer livestock from treated grazing areas (or feeding of treated hay) to sensitive broadleaf crop areas without first allowing 7 days of grazing on an untreated pasture (or feeding of untreated hay). If livestock are transferred within less than 7 days of grazing untreated pasture or eating untreated hay, urine and manure may contain enough clopyralid to cause injury to sensitive broadleaf plants.

**Grazing poisonous plants:** Herbicide application may increase palatability of certain poisonous plants. Do not graze treated areas until poisonous plants are dry and no longer palatable to livestock.

Do not apply this product with a mistblower.

## AVOIDING INJURY TO NON-TARGET PLANTS

This product can affect susceptible broadleaf plants directly through foliage and indirectly by root uptake from treated soil. Therefore, do not apply this product directly to, or allow spray drift to come into contact with, vegetables, ornamentals, various susceptible broadleaf crops, or other susceptible desirable non-target plants. Small areas of new legume seedlings should be established prior to seeding more extensive areas in order to determine if phytotoxic residues are present in the soil of previously treated areas at levels that could inhibit legume establishment.

Do not use plant materials from treated areas or manure from animals grazing treated areas for composting or mulching of desirable susceptible broadleaf plants or apply such materials to land used for growing broadleaf crops, ornamentals, orchards, or other susceptible desirable plants.

Plant materials or manure may contain enough clopyralid to cause injury to susceptible plant species.

**Residues in Plants or Manure:** Do not use plant residues, including hay or straw from treated areas, or manure from animals that have grazed or consumed forage from treated areas for composting or mulching, where susceptible plants may be grown the following season. Do not spread manure from animals that have grazed or consumed forage or hay from treated areas on land used for growing susceptible broadleaf crops. To promote herbicidal decomposition, plant residues should be evenly incorporated or burned. Breakdown of clopyralid in crop residues or manure is more rapid under warm, moist soil conditions and may be enhanced by supplemental irrigation.

## AVOID SPRAY DRIFT

Avoid spray drift since very small quantities of the spray, which may not be visible, may severely injure susceptible crops during active growth or dormant periods. Use coarse sprays to minimize drift. To aid in further reducing drift, a drift control or deposition agent suitable for agricultural use may be used with this product. If used, follow all use recommendations and precautions on the product label.

**Ground Application:**

With ground equipment, spray drift can be lessened by keeping the spray boom as low as possible; by applying 10 gallons or more of spray per acre; by keeping the operating spray pressures at the manufacturer's minimum recommended pressures for the specified nozzle type used (low pressure nozzles are available from spray equipment manufacturers); and by spraying when the wind velocity is low (follow state regulations). Avoid application under completely calm conditions which may be conducive to air inversion. In hand-gun applications, select the minimum pressure required to obtain adequate plant coverage without forming a mist. Do not apply with a mist blower.

**Aerial Application:**

With aircraft, drift can be lessened by using straight stream nozzles directed straight back; by using a spray boom no longer than 3/4 of the rotor or wing length of the aircraft; by using drift control systems or drift control additives, and by keeping spray pressures low enough to provide coarse spray droplets. Do not use a thickening agent with the Microfoil or the Thru-Valve booms, or other systems which cannot accommodate thick sprays. Spray only when the wind velocity is low (follow state regulations). Avoid calm conditions which may be conducive to air inversions.

Do not apply by aircraft when an air temperature inversion exists. Such a condition is characterized by little or no wind and with lower air temperature near the ground than at higher levels. The use of a smoke device on the aircraft or continuous smoke column at or near the site of application will indicate air direction and velocity, and whether a temperature inversion is present, as indicated by horizontal layering of the smoke.

**Sprayer Clean-Out**

To avoid injury to desirable plants, equipment used to apply REFUTE® should be thoroughly cleaned before reusing to apply any other chemicals.

1. Rinse and flush application equipment thoroughly at least three times with water after use. Dispose of rinse water in non-cropland area away from water supplies.
2. During the second rinse, add 1 quart of household ammonia for every 25 gallons of water. Circulate the solution through the entire system so that all internal surfaces are contacted (15-20 minutes). Let the solution stand for several hours, preferably overnight.
3. Flush the solution out of the spray tank through the boom.
4. Rinse the system twice with clean water, recirculating and draining each time.
5. Remove nozzles and screens and clean separately.

## SPRAY DRIFT MANAGEMENT

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

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications:

1. The distance of the outermost operating nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the airstream and never be pointed downwards more than 45 degrees.

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

The applicator should be familiar with and take into account the information covered in the following “[Aerial Drift Reduction Advisory](#)”. [This information is advisory in nature and does not supersede mandatory label requirements.]

## **Aerial Drift Reduction Advisory**

### **Information on Droplet Size**

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

### **Controlling Droplet Size**

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

### **Boom Length**

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

### **Application Height**

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

### **Swath Adjustment**

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

### **Wind**

Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. **Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray.

### **Temperature and Humidity**

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

### **Temperature Inversions**

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

### **Sensitive Areas**

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

## **MIXING DIRECTIONS**

### **Water Dilution – To prepare a water dilution of REFUTE®:**

1. Add 3/4 of the required spray volume to the spray tank and start agitation.
2. Add the required amount of REFUTE®.
3. Add any surfactants, crop oils, or other adjuvants according to manufacturer’s label.
4. Add any spray thickening agent, if needed to control drift, according to the manufacturer’s label.
5. Agitate during final filling of the spray tank and maintain sufficient agitation during application to ensure uniformity of the spray mixture.

**Note:** Allow time for thorough mixing of each spray ingredient before adding the next. If allowed to stand after mixing, agitate spray mixture before use.

### Mixing with Liquid Fertilizer for Broadleaf Weed Control in Rangeland and Permanent Grass Pastures.

REFUTE® may be tank mixed with liquid fertilizers and foliarly applied for weed control and fertilization of rangelands and permanent grass pastures. Using liquid fertilizers in applications to woody plants is not recommended as efficacy may be reduced. Apply liquid fertilizers at rates recommended by supplier or local Extension Service Specialist.

**Compatibility with Liquid Fertilizer:** Prior to large scale batch mixing, conduct a “jar test” for spray mixture compatibility by mixing each component in the required order and proportion in a clear glass jar. Close the jar and agitate the mixture until evenly dispersed. Use of a compatibility agent is indicated if components of the mixture do not disperse readily or do not remain dispersed after mixing. Use of a compatibility aid such as Unite or Compex is recommended to help obtain and maintain a uniform spray solution during mixing and application. Compatibility is best with liquid fertilizer solutions containing only nitrogen. Mixing with N-P-K solutions may be difficult, even with the addition of a compatibility aid. Pre-mixing 1 part REFUTE® with 25-30 parts water is recommended before adding to the spray tank. **Note:** Agitation in the spray tank must be vigorous to compare with jar test agitation.

### Suggested Mixing and Application Procedure

With continuous vigorous agitation:

1. Add 1/2 the amount of liquid fertilizer to the spray tank.
2. Add compatibility aid such as Unite or Compex at 1 quart per 100 gallons of total spray mix.
3. First add the amount of REFUTE® needed for the total spray mixture.
4. Mixing with N-P-K fertilizer solutions may be improved by premixing REFUTE® with water (1 part REFUTE® to 25-30 parts water) before adding to the spray tank.
5. Add the remaining liquid fertilizer to produce the needed total spray volume.
6. Apply as soon as mixing is complete, maintaining continuous, vigorous agitation throughout mixing and application without interruption.

Application during very cold (near freezing) weather is not advisable. The likelihood of mixing or compatibility problems with liquid fertilizer increases under cold conditions. Do not store the spray mixture.

## APPLICATION DIRECTIONS

### Application Timing

Apply to actively growing weeds. Extreme growing conditions such as drought or cold temperatures prior to, at, or following application may reduce or delay weed control. Only weeds which are emerged at the time of application will be controlled. Wet foliage at the time of application may decrease control. Applications of this product are rainfast within 2 hours after application.

### Application Rates

Generally, application rates at the lower end of the recommended rate range will be satisfactory for young, succulent growth of sensitive weed species. For less sensitive species, perennials, and under conditions where control is more difficult (plant stress conditions such as drought or extreme temperatures, dense weed stands and/or larger weeds), the higher rates within the rate range will be needed. Weeds growing in the absence of grass competition generally require higher rates to obtain satisfactory control or suppression.

### Use of Surfactants

A non-ionic surfactant cleared for use on growing crops at the manufacturer’s recommended rate is essential for all applications of this product. Use a higher recommended rate of surfactant in the spray mixture when applying lower spray volumes per acre.

### Coverage

Apply in 3 or more gallons per acre by air or 10 or more gallons per acre by ground equipment. Use sufficient spray volume to provide thorough coverage and a uniform spray pattern. Inadequate spray volume and coverage may result in decreased weed control. As vegetative canopy and weed density increase, spray volume should be increased to obtain equivalent weed control. Use larger nozzle tips or decrease spraying speed to increase spray volume rather than increasing boom pressure. Refer to manufacturer’s recommendations for information on relationships between spray volume, nozzle size and arrangement.

### Spot Application

To prevent misapplication, it is recommended that spot applications be applied with calibrated equipment or with hand sprayers according to directions provided below.

**Hand-Held Sprayers:** Hand-held or backpack sprayers may be used for spot applications. Care should be taken to apply the spray uniformly and at a rate equivalent to a broadcast application. Application rates in the table are based on an area of 1000 sq ft. Mix the amount of this product (fl oz or ml) corresponding to the desired broadcast rate in one or more gallons of spray. To calculate the amount of product required for larger areas, multiply the table value (fl oz or ml) by the area to be treated in “thousands” of square feet (e.g., if the area to be treated is 3500 sq ft, multiply the table value by 3.5 [calc. 3500 ÷ 1000 = 3.5]). An area of 1000 sq ft is approximately 10.5 X 10.5 yards (strides) in size.

<b>Amount of REFUTE® to Equal Specified Broadcast Rate (Mix with 1 Gallon or More of Water and Apply to 1000 sq ft)</b>			
<b>1 pt/acre</b>	<b>2 pt/acre</b>	<b>3 pt/acre</b>	<b>4 pt/acre</b>
0.37 fl oz (11 ml)	0.75 fl oz (22 ml)	1.1 fl oz (33 ml)	1.5 fl oz (44 ml)

1 fl oz = 29.6 (30) ml

# RANGELAND AND PERMANENT GRASS PASTURES AND NON-CROPLAND AREAS

**Broadcast (Ground or Air) and Spot Application:** For control of listed broadleaf weeds, apply REFUTE® as a broadcast spray or spot application at 1-1/2 to 2 pt/acre for control of annuals and up to 4 pt/acre for control of deep-rooted perennial broadleaf weeds. Use a total spray volume of 10 or more gallons per acre for ground broadcast or 3 or more gallons per acre by air. Refer to **Application Directions** for **Spot Application**.

**Restrictions:**

- Do not apply more than 4 pt/acre of REFUTE® per year.
- REFUTE® is not registered for use in landscaping or on turfgrass or lawns.

## WEEDS CONTROLLED OR SUPPRESSED AND USE RATES

### GENERAL RECOMMENDATIONS

- Use the higher rates when hard-to-control species are prevalent, when applications are made to mature weeds in advanced stages of growth, or during periods of drought stress or low temperatures.
- Rates in the lower end of the rate range are recommended only where grass response (competition) will help to suppress weed growth following treatment.
- This product is not recommended for broadcast control of woody plants; however, suppression or short-term control of certain woody plants such as multiflora rose and blackberry within treated areas may be observed at application rates recommended for control of annual and perennial weeds.
- Unless otherwise noted, apply when weeds are actively growing; use lower rate when weeds are 6 inches or less in height, increase rate for larger weeds up to flowering.

### WEED SPECIES

APPLICATION RATE (Pints/Acre)	WEED SPECIES	COMMENTS
1 – 2	Biennial thistles including: bull, distaff, milk, musk, and plumeless	Apply 1 pt/acre at rosette, 1.5 pt/acre at bolting and 2 pt/acre at prebud.
1.5 – 2	Broomweed, annual Burdock Clover, red Clover, white Cocklebur, common Coffeeweed Cornflower (bachelor button) Croton Dandelion, common Dandelion, false (spotted catsear) Goldenrod Groundsel, common Henbit Horseweed Jimsonweed Knapweed including: black diffuse, meadow, and spotted Lambsquarters Lettuce, prickly Locoweed Marshelder Nightshade Pepperweed, Virginia Pineappleweed Plantain, broadleaf Plantain, narrowleaf (buckhorn) Ragweed, common Ragweed, Western Salsify, meadow Shepherdspurse Sneezeweed, bitter Smartweed Sorrel, red Sorrel, sheep Sowthistle, annual Starthistle, yellow Sunflower, common Teasel, common Vetch Wormwood, absinth	<b>Knapweeds and Yellow Starthistle:</b> Apply from rosette to early flower or to fall regrowth. Optimum time is mid-bolt.  <b>Marshelder:</b> Apply early season when plants are less than 6 inches.  <b>Western ragweed:</b> Use lower rate when plants are less than 4 inches. Herbicide effect is slow.

(continued)

## WEED SPECIES (cont.)

APPLICATION RATE (Pints/Acre)	WEED SPECIES	COMMENTS
2 – 3	Buttercup, hairy Dock, curly Horsenettle Oxeye daisy Poison ivy	<b>Curly dock:</b> Apply before flower elongation.  <b>Horsenettle:</b> Best when applied at 4- to 6-inch stage of growth. Only plants that have emerged will be controlled.
2.5 – 4	Amaranth, spiny (pigweed)(suppression) Chicory Dogfennel (suppression) Ironweed, Western Ragwort, tansy Skeleton, rush Sowthistle, perennial Thistle, wavyleaf Tropical soda apple	<b>Western Ironweed:</b> Apply after plants are 8 inches tall, weed control effect can be slow.  <b>Wavyleaf thistle:</b> Apply either after the majority of basal leaves have emerged through the beginning of the bud stage or at the time of fall regrowth.
3 – 4	Hawkweed Knapweed, Russian Mallow Thistle, Canada	<b>Canada thistle:</b> Apply either after the majority of basal leaves have emerged through the beginning of the bud stage or at the time of fall regrowth.  <b>Russian knapweed:</b> Apply from bud to mid-flower stage or fall regrowth.

## HIGH-VOLUME FOLIAR APPLICATIONS

Spray to thoroughly wet foliage and stems. The use of an approved agricultural surfactant is essential.

<b>3-4 Quarts/100 Gallons of Spray: Apply at the indicated stage of growth to control the following woody plants:</b>	
WEED	SPECIFIC USE DIRECTIONS
Blackberry	Apply in late spring to early summer after leaves are fully expanded and mature. For best results on blackberry, treat during or after bloom. Himalayan blackberry can be treated up to the fall, but before leaf coloration.
Kudzu	Apply between late June and October when soil moisture is sufficient for active plant growth. For best results, apply just prior to or during, flowering using a 3/4% solution (3 qt per 100 gal or 2 fl oz per 3 gal) plus surfactant. <b>Note:</b> This type of application should be used only in areas that can tolerate foliage damage and some brown-up of neighboring broadleaf vegetation. Eradication may require annual repeat applications, depending on the age of the kudzu stand.
Locusts McCartney rose Multiflora rose	Apply in spring or summer after full leaf expansion through fall when conditions are favorable for plant growth. Avoid treatment soon after mowing when plants have a high percentage of new growth. For best results, delay treatment for at least 9 months after shredding or mowing.

## WEED CONTROL PRIOR TO SEEDING GRASSES

Weed control with REFUTE® fits into most re-vegetation programs. Apply REFUTE® at the rate listed for the target weed species. To optimize weed control, the site should be left undisturbed for 14 days prior to seedbed preparation or seeding.

## TREATMENT OF CONSERVATION RESERVE PROGRAM (CRP) ACRES

### (Established Permanent Grass Stands)

Use REFUTE® on CRP acres only after perennial grasses are well established (see precaution for newly seeded grasses under **General Use Precaution**).

#### **Broadcast Application (Ground or Air) and Spot Application:**

For control of listed broadleaf weeds, apply REFUTE® as a broadcast spray at 1-1/2 to 2 pt per acre for control of annuals and up to 4 pt per acre for control of deep-rooted perennial broadleaf weeds. Use a total spray volume of 10 or more gallons per acre for ground broadcast or 3 or more gallons per acre by air. Refer to **Application Directions** for **Spot Application**.

**Restrictions:** When applying to CRP lands, follow all applicable state and federal regulations. Follow the most severe grazing restriction imposed by the pesticide label or by the USDA Acreage Conservation Reserve Program. After that time period, follow local (CRP) guidelines regarding cropping and haying restrictions. Do not use REFUTE® if damage or loss of existing legumes or other desirable broadleaf plants cannot be tolerated.

On CRP acres, do not apply more than 4 pt per acre of REFUTE® per annual use season.



## TERMS AND CONDITIONS OF USE

If terms of the following **Warranty Disclaimer**, **Inherent Risks of Use**, and **Limitation of Remedies** are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. Otherwise, use by the buyer or any other user constitutes acceptance of the terms under **Warranty Disclaimer**, **Inherent Risks of Use** and **Limitation of Remedie**.

### WARRANTY DISCLAIMER

Albaugh, Inc. 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. ALBAUGH, INC. MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

### 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 Albaugh, Inc. or the seller. All such risks shall be assumed by buyer.

### LIMITATION OF REMEDIES

To the extent permitted by law, 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 Albaugh, Inc.'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

To the extent permitted by law, Albaugh, Inc. shall not be liable for losses or damages resulting from handling or use of this product unless Albaugh, Inc. is promptly notified of such loss or damage in writing. To the extent permitted by law, in no case shall Albaugh, Inc. be liable for consequential or incidental damages or losses.

The terms of the **Warranty Disclaimer**, **Inherent Risks of Use** and this **Limitation of Remedies** cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Albaugh, Inc. or the seller is authorized to vary or exceed the terms of the **Warranty Disclaimer** or this **Limitation of Remedies** in any manner.

REFUTE® and AgriStar® are registered trademarks of Albaugh, Inc.

Product of China