

42750-55

3/13/2000

1/20



U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division (7510C)
401 "M" St., S.W.
Washington, D.C. 20460

EPA Reg. Number:
42750-55

Date of Issuance:
MAR 13 2000

NOTICE OF PESTICIDE:
 x Registration
 Reregistration

Term of Issuance:
Conditional

Name of Pesticide Product:
Range Star™

(under FIFRA, as amended.)

Name and Address of Registrant (include ZIP Code):

Albaugh, Inc.
121 NE 18th Street
Ankeny, IA 50021

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

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

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

This product is conditionally registered in accordance with FIFRA sec. 3(c)(7)(A) provided that you:

1. Submit and/or cite all data required for registration/reregistration of your product when the Agency requires all registrants of similar products to submit such data.
2. Make the following label change before you release the product for shipment:
 - a. Revise the EPA Registration Number to read "EPA Reg. No. 42750-55".
3. Submit an acceptable Dermal Sensitization study (Guideline No. 870.2600) using this product as the test substance within 90 days. This study is needed to confirm the findings of the previously submitted study (MRID #449480-08) which was found to be unacceptable.
4. Submit one copy of the revised final printed label for the record before you release the product for shipment.

Signature of Approving Official:

Susan L. Stanton, for Joanne I. Miller

Date:

MAR 13 2000

page 2
 EPA Reg. No. 42750-55

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

A stamped copy of the label is enclosed for your records.

Joanne I. Miller
 Product Manager (23)
 Herbicide Branch
 Registration Division (7505C)

Enclosure

RD:STANTON:PM Team 23:Rm. 239:CM-2:305-5218:Disk #12:42750-LL.REG

CONCURRENCES

SYMBOL ▶	7505C							
SURNAME ▶	S. Stanton							
DATE ▶	Mar 9, 2000							

3/20

ACCEPTED
MAR 13 2000
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 42750-55

Albaugh, Inc.

RANGE STAR™

ACTIVE INGREDIENTS:

Dimethylamine salt of dicamba (3,6-dichloro- <i>o</i> -anisic acid)*	12.4%
Dimethylamine salt of 2,4-dichlorophenoxyacetic acid**	35.7%
INERT INGREDIENTS:	51.9%
TOTAL	100.0%

*This product contains 10.3% 3,6-dichloro-*o*-anisic acid (dicamba) or 1 pound per gallon (120 g/L)
 **This product contains 29.6% 2,4-dichlorophenoxyacetic acid (2,4-D) or 2.87 pounds per gallon (344 g/L). Isomer specific by AOAC method 973.05, 15th Edition

SHAKE WELL BEFORE USING

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.)

STATEMENT OF PRACTICAL TREATMENT

- IF IN EYES:** Hold eyelids open and flush with a steady, gentle stream of water for 15 minutes. Get medical attention.
- IF SWALLOWED:** Call a doctor and get medical attention. Do not induce vomiting or give anything by mouth to an unconscious person. Drink promptly a large quantity of milk, egg whites, gelatin solution, or if these are not available, drink large quantities of water. Avoid alcohol.
- IF ON SKIN:** Wash with plenty of soap and water. Get medical attention.

Note to physician: Probable mucosal damage may contraindicate the use of gastric lavage.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER

Corrosive. Causes irreversible eye damage. Do not get in eyes or on clothing. Harmful if swallowed or absorbed through skin. Avoid contact with skin.

EPA Reg. No. 42750-xx

EPA Est. No.

Manufactured by:
ALBAUGH, Inc.
 Ankeny, IA 50021

NET CONTENTS
 ___ Gals. (___ Liters)

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

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

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

Containers greater than 1 gallon but less than 5 gallons:

Mixers and loaders who do not use a mechanical system (probe and pump) to transfer the contents of this container must wear coveralls or a chemical-resistant apron in addition to the other required PPE.

Discard clothing or 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. After each day of use, clothing or PPE must not be reused until it has been cleaned.

Engineering Controls Statements:

Containers 5 gallons or more:

Do not open pour product from this container. A mechanical system (such as a probe and pump or spigot) must be used for transferring the contents of this container. If the contents of a non-refillable pesticide container are emptied, the probe must be rinsed before removal. If the mechanical system is used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4)], the handler PPE requirements may be reduced or modified as specified in the WPS.

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

USER SAFETY RECOMMENDATIONS

Users should:

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

This product is toxic to aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and non-target plants. 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 disposing of equipment washwaters. Apply this product only as directed on label.

Most cases of groundwater contamination involving phenoxy herbicides such as 2,4-D have been associated with mixing/loading and disposal sites. Caution should be exercised when handling 2,4-D pesticides at such 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.

DIRECTIONS FOR USE

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

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

AGRICULTURAL USE REQUIREMENTS

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

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 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: coveralls, waterproof gloves, shoes plus socks, and protective eyewear.

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

BEFORE USING RANGE STAR™ READ AND FOLLOW ALL PRECAUTIONS APPEARING ON THE CONTAINER AND IN THIS BOOKLET

IMPORTANT

The following directions apply to all uses of Range Star™.

Do not contaminate irrigation ditches or water used for domestic purposes.

SENSITIVE CROP PRECAUTIONS: Range Star™ may cause injury to desirable trees and plants, particularly beans, cotton, flowers, fruit trees, grapes, ornamentals, peas, potatoes, soybeans, sunflowers, tobacco, tomatoes and other broadleaf plants when contacting their roots, stems or foliage. These plants are most sensitive to Range Star™ during their development or growing stage. FOLLOW THE PRECAUTIONS LISTED BELOW WHEN USING RANGE STAR™.

Do not treat areas where either possible downward movement into the soil or surface washing may cause contact of Range Star™ with the roots of desirable plants such as trees and shrubs.

Avoid making applications when spray particles may be carried by air currents to areas where sensitive crops and plants are growing. Do not spray near sensitive plants if wind is gusty or in excess of 5 mph and moving in the direction of nearby sensitive crops or if a temperature inversion exists. However, always make applications when there is some air movement to determine the direction and distance of possible spray drift. Leave an adequate buffer zone between area to be treated and sensitive plants. Coarse sprays are less likely to drift out of the target area than fine sprays. Agriculturally-approved drift-reducing additives may be used.

Do not use aerial equipment to apply Range Star™ when sensitive crops and plants are growing in the vicinity of area to be treated.

To avoid injury to desirable plants, equipment used to apply Range Star™ should be thoroughly cleaned (see PROCEDURE FOR CLEANING SPRAY EQUIPMENT) on page [] before reusing to apply any other chemicals.

Crops growing under stress conditions such as drought, poor fertility, or foliar damage due to hail, wind or insects, can exhibit various injury symptoms that may be more pronounced if herbicides are applied.

Consult your local or state authorities for possible application restrictions and advice concerning these and other special local use situations. Tank mix recommendations are for use only in states where the tank mix product and application site are registered.

MIXING AND APPLICATION

Range Star™ may be applied broadcast using either ground or aerial equipment. When using ground equipment, apply 5 to 40 gallons of diluted spray per treated acre. Volume of spray applied will depend on the height, density, and type of weeds, or brush being treated and on the equipment being used. When using aerial equipment, apply 3 to 10 gallons of diluted spray per treated acre.

Range Star™ may be applied to individual clumps or small areas (SPOT TREATMENT) of undesirable vegetation using handgun or similar types of application equipment. Apply diluted sprays to allow complete wetting (up to runoff) of foliage and stems. For knapsack or other small capacity sprayers, utilize the table below to calculate material needed. (The table below is based on the assumption that the spot treatment rate equates to 60 gallons per acre on the broadcast basis.)

Knapsack Sprayer Dilution Instructions

Sprayer Capacity (Gallons of water)	Fluid Ounces* of Range Star™ to add per filled tank
1.0 gallon	1.0 oz
2.5 gallons	2.5 oz
3.0 gallons	3.0 oz
5.0 gallons	5.0 oz

The addition of a surfactant can help improve control. Add ½% (0.005) by volume. For example, 5 gallons (40 pt/640 fl oz) of herbicide solution would require 0.2 pt (3.2 fl oz) of surfactant.

*1 fluid ounce = 2 tablespoons and 1 cup (liquid) = 16 tablespoons

Select nozzles designed to produce minimal amounts of fine spray particles. Spray with nozzles as close to the weeds as is practical for good weed coverage.

Range Star™ should not be applied during periods of gusty wind or when wind is in excess of 15 mph as uneven spray coverage may occur.

Avoid disturbing (e.g., cultivating or mowing) treated areas for at least 7 days following application.

Range Star™ is a water-soluble formulation that may be applied alone or in tank mixes to improve weed control. Applications may be made using water or sprayable fluid fertilizer. If sprayable fluid fertilizer is used as the herbicide carrier, always determine mixture compatibility using the COMPATIBILITY TEST described below. Sprayable liquid fertilizer (28-0-0 or 32-0-0) should be mixed with Range Star™ in the following manner:

- 1) Always complete jar compatibility test with fertilizer formulations.
- 2) Add to the spray tank all the Range Star™ required.
- 3) Add water to the spray tank at 10 times the amount of Range Star™. System should be under constant agitation.
- 4) Then add non-ionic surfactant or Prepoil at 0.25 to 0.5% v/v of the total of Range Star™ plus the 10X water added to the tank.
- 5) Finally, add the fertilizer carrier to the spray tank with agitation to the final desired level.
- 6) Spray within 24 hours.

COMPATIBILITY TEST

Before mixing Range Star™ with sprayable fluid fertilizer, whether alone or with tank mixes with other herbicides, it is advisable to test compatibility by mixing all components in a small container in proportionate quantities (see following table).

Amount of Herbicide to add to One Pint of Spray Carrier
(Assuming Volume is 25 Gallons per Acre)

HERBICIDE FORMULATIONS	RATE PER ACRE	LEVEL TEASPOONS
Dry	1 lb	1 1/2
Liquid	1 pt	1/2

Tank mix partners may be dry or liquid formulations.

If herbicide(s) do not ball-up or form flakes, sludge, gels, oily films or layers, or other precipitates, then the tested spray mix is compatible. Usually, incompatibility in any of the above-described forms will occur within 5 minutes after mixing.

If components are incompatible, the use of the compatibility agent is recommended. Rerun the above COMPATIBILITY TEST with a suitable compatibility agent (1/4 teaspoon is equivalent to 2 pints per 100 gallons of fluid fertilizer).

PROCEDURE FOR CLEANING SPRAY EQUIPMENT

The steps listed below are suggested for thorough cleaning of spray equipment following application of Range Star™.

- 1) Hose down thoroughly the inside as well as outside surfaces of equipment while filling the spray tank half-full of water. Flush by operating sprayer until the system is purged of the rinse water.
- 2) Fill tank with water while adding 1 quart of household ammonia for every 25 gallons of water. Operate the pump to circulate the ammonia solution through the sprayer system for 15 to 20 minutes and discharge a small amount of the ammonia solution through the boom and nozzles. Let the solution stand for several hours, preferably overnight.
- 3) Flush the solution out of the spray tank through the boom.
- 4) Remove the nozzles and screens and flush the system with two full tanks of water.

REFER TO THE STORAGE AND DISPOSAL SECTION FOR INSTRUCTIONS CONCERNING DISPOSAL OF WASTE AND CLEANING RINSES.

PASTURE (INCLUDING PASTURE FOR HAY), RANGELAND AND GENERAL FARMSTEAD (Non-Cropland Only)

IMPORTANT

Range Star™ is recommended for use for pasture (including pasture grown for hay), rangeland, general farmstead (non-cropland only), weed and brush control, or use in State Recognized Noxious Weed areas (non-cropland areas).

Range Star™ uses described in this situation also pertain to small grains (such as barley, forage sorghum, oats, rye, sudangrass or wheat) grown for pasture or hay only. Newly seeded areas, including small grains grown for pasture or hay, may be injured if rates of Range Star™ greater than 2pt/A are applied.

Do not use on bentgrass, susceptible grass pastures (such as carpetgrass, buffalograss or St. Augustine grass), lespedeza, wild winter peas, vetch, clover and alfalfa pastures as injury will occur. For pasture renovations, wait 3 weeks per quart per acre of Range Star™ used before interseeding or injury may occur.

If grasses are grown for seed or for seed-down purposes, do not apply after grass reaches the joint stage. Do not use seed from treated grasses for feed or food purposes.

Grazing and feeding restrictions - Non-lactating animals

Remove meat animals from treated areas 30 days prior to slaughter. There is no waiting period between treatment and grazing for non-lactating animals.

Grazing and feeding restrictions - Lactating animals

Do not graze lactating dairy animals within 7 days of treatment. Treated grasses may be harvested for dry hay but do not harvest within 37 days of treatment.

Adjuvants or other spray additives (emulsifiers, surfactants, wetting agents, drift control agents, or penetrants) may be used for wetting, penetration, or drift control. Spray additives must be agriculturally-approved when used in pasture applications. If spray additives are used, read and follow all use recommendations and precautions on product label.

WEEDS CONTROLLED RATES AND TIMINGS

Application rates and timings of Range Star™ are given on pages XXX. When perennial weeds are reaching maturity, mowing and allowing some regrowth will enhance control. Difficult to control weeds may require repeat applications. Do not exceed a total of 2 gallons per acre of Range Star™ per calendar year.

WEED STAGE / APPLICATION STAGE

WEED	RANGE STAR™ RATE (pints / acre)					
	0.5	1.0	1.5	2.0	3.0	4.0
Beebalm, Spotted				pre-bloom	post-bloom	
Bindweed, Field						actively growing
Broomweed	1-3"	3" branching		branching		after branching

WEED	RANGE STAR™ RATE (pints / acre)					
	0.5	1.0	1.5	2.0	3.0	4.0
Buckeye Spp. ¹					full leaf	
Buffalobur				1-6"		flowering
Burdock Spp.		pre-flower				
Buttercup Spp.		pre-flower		post-flower		
Chickweed, Common		seedling	1-3"	over 3"		
Chickory				rosette	early bolting	
Clover, Bur			prior to flowering	mature		
Cocklebur, Common		1-6"	6-12"	12-30"		
Coccoloba, Plains		1-6"		prior to flowering		
Croton, Woolly (Doveweed, Goatweed)	1-4"	4-12"	12-30"			
Dandelion, Common		rosette		bolting		
Dewberry, Southern ²						spring or fall
Dock, Curly			prior to bolting		after bolting	
Dogfennel (Cypressweed, Rosinweed)				10-15"		
Elderberry ³						actively growing
Eupatorium, Late (Thoroughwort)				10-15"		
Fieabane, Annual		1-4"	4-8"	8"		
Goldenrod, Missouri				3" to flower		
Goldenweed, Common						actively growing
Groundsel, Texas (Yellowtop)		rosette	post bolting			
Henbit			pre-flower		flower	
Honeysuckle, Hairy					spring or fall	
Horsenettle, Carolina ⁴						flower or berry
Ivy, Poison				spring or fall		
Knapweed, Black ⁵						actively growing

¹ May require repeat applications.

² May require repeat applications.

³ Recommended rate will provide Top Growth Suppression only.

⁴ May require repeat applications.

⁵ Recommended rate will provide Top Growth Suppression only.

WEED	RANGE STAR™ RATE (pints / acre)					
	0.5	1.0	1.5	2.0	3.0	4.0
Knapweed, Russian ¹						actively growing
Knapweed, Spotted						actively growing
Knotweed Spp.		< 3" runners		> 3" runners		
Kochia		1-6"	6-10"	10-20"		
Lambsquarters, Common		1-6"	6-10"	10-20"		
Mesquite ²						45-90 days after bud break
Morningglory, Tall		pre-flower		post-flower		
Mustards, Annual			rosette	early bolt		
Nightshade, Silverleaf ³						full flower early berry
Pennycress, Field				rosette		
Pepperweed, Virginia		1-3"	3-6"	after branching		full leaf
Persimmon, Eastern ⁴						actively growing
Pigweed, Redroot (Carelessweed)		< 3"	3-10"	> 10"		
Poorjoe		prior to flowering		mature		
Prickly Lettuce				rosette		actively growing
Rabbitbrush ⁵						actively growing
Ragweed, Common Lanceleaf, Western	1-3"	3-6"	6-10"	> 10"		
Ragwort, Tansy				rosette		
Redvine ⁶						actively growing
Sage, Fringed ⁷						actively growing
Sneezeweed, Bitter (Bitterweed)		1-4"	prior to flowering	flower		
Smartweed, Pennsylvania		< 4"				
Smartweed, Perennial						actively growing
Sorrel, Red (Sour Dock, Sheep Sorrel)		rosette	bolting	flower		

¹ Recommended rate will provide Top Growth Suppression only.

² For improved root kill of woody species such as Mesquite and Eastern Persimmon, spray 4 pt/A of Range Star™ each year for three consecutive years.

³ May require repeat applications.

⁴ For improved root kill of woody species such as Mesquite and Eastern Persimmon, spray 4 pt/A of Range Star™ each year for three consecutive years.

⁵ Recommended rate will provide Top Growth Suppression only.

⁶ Recommended rate will provide Top Growth Suppression only.

⁷ Recommended rate will provide Top Growth Suppression only.

WEED	RANGE STAR™ RATE (pints / acre)					
	0.5	1.0	1.5	2.0	3.0	4.0
Sowthistle, Perennial ¹						actively growing
Spurge, Leafy ²						actively growing
Sunflower		1-3'	3-6"	6-24"		
Thistle, Bull			rosette	bolting		
Thistle, Canada ³						actively growing
Thistle, Musk				rosette bolting		
Thistle, Plumeless			rosette	bolting		
Velvetleaf		< 5"	6-20"	> 20"		
Vetch, Hairy		1-4'	4-8"	8" full flower		
Yankee weed (Rosinweed)				10-18"		
Yellow Starthistle ⁴						rosette

For increased control of weeds such as Blackberry and Dewberry, Range Star™ may be tank mixed with ALLY® (1/10 – 2/10 ounces per acre), if labeled for the use site. Read and follow all labeled directions for use for ALLY.

¹ Recommended rate will provide Top Growth Suppression only.

² Recommended rate will provide Top Growth Suppression only.

³ Recommended rate will provide Top Growth Suppression only.

⁴ May require repeat applications.

Spot Application in Pastures (Including pasture for hay), Fencerows and General Farmstead (Non-cropland only)

Range Star™ may be applied using water or oil and water emulsions in spot application to control undesirable vegetation using handgun or similar types of application equipment. Before using, read and follow grazing and feeding restrictions on page [].

To prepare oil and water emulsions, mix in the following order: water, emulsifier, chemical and oil. Mix in the following proportions:

Total Mix (gal)	Water (gal)	Emulsifier* (oz)	Range Star™ (pt)	Diesel (gal)
10	8.75	1.5	2.0	1.0
50	43.75	7.5	10.0	5.0
100	87.5	15.0	20.0	10.0

* Some emulsifiers are more effective than others. Mixture should remain milky colored without oily layer on top when under agitation. If oily layer forms, increase the amount of emulsifier or change to a more effective emulsifier.

For pastures, do not exceed 28 gallons of spray solution per treated acre per application. Twenty-eight gallons of spray solution contains 0.7 lb ae dicamba and 2.0 lb ae 2,4-D. Spray individual plants to wet. Do not allow this spray mixture to come into contact with desirable vegetation.

For fencerows and general farmstead, do not exceed 40 gallons of spray solution per treated acre per application. Forty gallons of spray solution contains 1.0 lb ae dicamba and 2.87 lb ae 2,4-D. Spray individual plants to wet. Do not allow this spray mixture to come into contact with desirable vegetation.

Cut Surface Treatments

Range Star™ may be applied as a cut surface treatment for control of unwanted trees and prevention of sprouts of cut trees. Use Range Star™ in an undiluted state.

FRILL OR GIRDLE TREATMENTS: Make a continuous cut or a series of overlapping cuts using an axe to girdle tree trunk. Spray or paint cut surface with Range Star™.

STUMP TREATMENTS: Spray or paint freshly cut surface with Range Star™. The cambium layer (the layer adjacent to the bark) should be thoroughly wet. Treat stumps within 6 hours after cutting.

TREES AND VINES CONTROLLED:

Alder	Dogwood	Kudzu	Rose, McCartney
Ash	Elm	Locust, Black	Rose, Multiflora
Aspen	Grape	Maple	Sagebrush, Fringe
Basswood	Greenbriar	Mesquite	Sassafras
Beech	Hawthorn (Thornapple)	Oak	Spruce
Blackberry	Hemlock	Oak, Poison	Sumac
Blackgum	Hickory	Olive, Russian	Sweetgum
Cedar	Honeylocust	Persimmon, Eastern	Sycamore
Cherry	Honeysuckle	Pine	Tarbrush
Chinquapin	Hornbeam	Plum, Sand (Wild Plum)	Willow
Cottonwood	Huckleberry	Poplar	Witchhazel
Creosotebush	Huisache	Rabbitbrush	Yaupon
Dewberry	Ivy, Poison	Redcedar, Eastern	Yucca

PREPLANT APPLICATION DIRECTIONS FOR BROADLEAF CONTROL IN CROPLAND ROTATED TO WHEAT (POST-HARVEST / FALLOW / STUBBLE / SET-ASIDE) IMPORTANT

Before using this product, read and carefully observe all applicable directions, restrictions, and precautionary statements in this booklet and on the container label.

WEEDS CONTROLLED

Range Star™, when applied at the recommended rates, will control the ANNUAL and BIENNIAL weeds and suppress the PERENNIAL weeds listed below.

ANNUALS		
Buckwheat, Wild	Mustards	Salsify, Western
Cockle, Cow	Nightshade, Black	Smartweed, Pennsylvania
Cocklebur, Common	Pigweed, Redroot (Carelessweed)	Sowthistle, Annual
Knotweed	Pigweed, Rough	Sunflower
Kochia	Purslane, Common	Tansymustard
Lambsquarters, Common	Ragweed, Common	Thistle, Russian
Mallow, Common	Sage, Lanceleaf	Velvetleaf
BIENNIALS		
Carrot, Wild	Starthistle, Yellow	Thistle, Musk
Ragwort, Tansy	Thistle, Bull	Thistle, Plumeless
PERENNIALS		
Bindweed, Field	Dock, Curly	Thistle, Canada

RATES AND TIMINGS

Application may be made to fallow land, wheat stubble or land to be rotated to wheat. Application should be made to emerged and actively growing weeds. Use higher rate when treating dense vegetative growth. Avoid disturbing treated areas for seven days following application.

Wheat injury may occur if the interval between application and planting is less than 10 days for each pint per acre of Range Star™ used. Exclude days when ground is frozen.

Weed Type & Stage	Broadcast rate per Treated Acre Amount
Annual	
Small, actively growing (less than 4 inches)	1.0 – 1.5 pints
Established weed growth (greater than 4 inches)	1.5 – 3.0 pints
Biennial	
Rosette diameter (3 inches or less)	1.5 – 2.0 pints
(3 inches or more)	2.0 – 4.0 pints
Greater than 4 inches, tillering bolted or flowering	4.0 pints
Perennial	
Suppression or top growth control	2.0 – 4.0 pints
Seasonal Control	4.0 – 8.0 pints

Add 0.5% v/v of an agriculturally-approved surfactant to Range Star™ when used alone or in a tank mix. The addition of a surfactant will enhance spray coverage and the herbicide's penetration of weed foliage.

Retreatments may be made as needed; however, do not exceed a total of 8 pints of Range Star™ per treated acre.

TANK MIX TREATMENTS

Range Star™ may be tank mixed with one or more of the following herbicides for control of grasses or additional broadleaf weeds. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, weeds controlled, geographic or other restrictions. Add 0.5% v/v of an agriculturally-approved surfactant to all tank mixes.

Herbicide	Rate per Treated Acre (lb ai)
Atrazine	1/2 to 3.0
Chlorsulfuron (Glean®)	0.016 to 0.024
Cyanazine	1-3/5 to 3-1/5
Glyphosate (Roundup®)	1/4 to 2.0
Metribuzin	1/3 to 3/4
Paraquat	1/2 to 1.0

FALL AND SPRING SEEDED WHEAT (NOT UNDERSEED TO LEGUMES) IMPORTANT

If small grains are grown for pasture or hay only, refer to the PASTURE (INCLUDING PASTURE FOR HAY), RANGELAND AND GENERAL FARMSTEAD (Non-cropland only) section.

Do not graze or harvest for livestock feed prior to crop maturity.

WEEDS CONTROLLED

Range Star™, when applied at recommended rates, will control ANNUAL and BIENNIAL broadleaf weeds commonly found in small grains, such as:

Buckwheat, Wild	Nightshade, Black*
Bittercress, Smallerflower	Pennycress, Field
Chickweed, Common	Pigweed, Redroot (Carelessweed)
Cockle, Cow*	Pigweed, Rough
Cocklebur, Common*	Purslane, Common*
Eveningprimrose, Common	Ragweed, Common
Flax	Sheperdspurse
Henbit*	Smartweed, Pennsylvania*
Knotweed*	Sowthistle, Annual*
Kocia	Sunflower
Lambsquarters, Common	Tansymustard
Lettuce, Prickly	Thistle, Russian
Mallow, Common*	Velvetleaf*
Mustards	

Use higher rate or tank mixes for control of noted () annuals.

Range Star™ can be used to control sulfonyl urea resistant or tolerant weeds. Tolerant biotypes of the following weeds are known to occur: Kochia; Russian thistle; Prickly lettuce; Common lambsquarter. Consult County Extension Agents for programs to prevent tolerant weeds from multiplying.

RATES AND TIMINGS

RANGE STAR™ MUST BE APPLIED TO FALL SEEDED WHEAT AFTER IT IS FULLY TILLERED PRIOR TO THE JOINTING STAGE. APPLICATIONS TO SPRING SEEDED WHEAT MUST BE MADE BEFORE WHEAT EXCEEDS THE 5 LEAF STAGE.

Application of Range Star™ may be made after wheat is fully tillered to emerged and actively growing weeds. See specific crop for timing restrictions. For best performance, make application when weeds are in the 2-3 leaf stage and rosettes are less than 2 inches across. Use the higher level of listed rate ranges when treating more mature weeds or dense vegetative growth.

BROADCAST RATE PER TREATED ACRE: ¾ - 1 pint

TANK MIX TREATMENTS

For control of grasses or additional broadleaf weeds, Range Star™ may be tank mixed with the herbicides listed in the table below. Read and follow the label of each tank mix product used for precautionary statements, directions for use, weeds controlled, geographic and other restrictions.

BROADCAST RATE PER TREATED ACRE:

Apply ½ - 1 pint¹ Range StarTM with:

Herbicide	Amount of product ^{2 3 4}
2,4-D amine or ester (4 lb/gal)	8.0 – 12.0 oz
MCPA (4 lb/gal)	8.0 – 12.0 oz
Bromoxynil (Buctril® 2 lb/gal)	16.0 – 24 oz
Metribuzin (Sencor®)	1.5 – 10.0 oz
Diuron (Karmex® 80 WP)	½ - 1.5 lb
Sulfonylureas	
Express®	1/6 – 1/3 oz
Harmony® Extra	0.3 – 0.6 oz
Amber®	0.14 – 0.28
Finesse®	0.1 – 0.2 oz
Ally	1/20 – 1/10 oz
Glean®	1/12 – 1/6 oz

In spring seeded wheat, ½ pint of Range StarTM should be tank mixed with the 1/3 pint rate of 2,4-D only. In spring seeded wheat, if the higher rate of 1 pint Range StarTM is used, do not tank mix with 2,4-D.

¹ Use the ¾ to 1 pint rate of Range StarTM for difficult to control weeds noted by an asterisk in the Weeds Controlled section on page XXX.

² Based on 4 pounds per gallon formulations of MCPA and 2,4-D.

³ If additional residual weed control is desired, weeds have bolted or a high population of the weeds are present, select the higher rate recommendations.

⁴ Read and follow the label of each tank mix product used for precautionary statements, weeds controlled, geographic and other restrictions.

SORGHUM (Milo)

Applications of Range Star™ to sorghum during periods of rapid growth may result in temporary leaning of plants or rolling of leaves. These effects are usually outgrown within 10 to 14 days. Sorghum growing under conditions of stress such as high moisture, low fertility, and abnormal temperature may be more sensitive to applications of Range Star™. Do not use Range Star if the potential for sorghum injury is not acceptable.

Do not graze or feed treated sorghum forage or silage prior to mature grain stage. If sorghum is grown for pasture or hay, refer to the pasture use section on the Range Star™ container label. Do not apply Range Star™ to sorghum grown for seed production.

Make sure no more than one application is applied per growing season.

WEEDS CONTROLLED

Range Star™, when applied at the recommended rate for grain sorghum, will control many actively growing ANNUAL broadleaf weeds and will reduce competition from established PERENNIAL broadleaf weeds as well as controlling their seedlings.

Annuals

- Cocklebur, Common
- Kochia
- Morningglory, Ivyleaf
- Morningglory, Tall
- Pigweed, Prostrate
- Pigweed, Redroot
- Pigweed, Rough
- Pigweed, Smooth
- Pigweed, Tumble
- Russian, Thistle
- Sunflower, Annual

Perennials (Suppression)

- Bindweed, Field
- Horsenettle, Carolina
- Nightshade, Silverleaf

Consult your local or state authorities for possible application restrictions, especially concerning aerial applications and advice concerning special local use situations.

RATES AND TIMINGS

Postemergence applications of Range Star™ can be made to sorghum in the 3 to 5 leaf stage (4 to 8" tall). For best performance, make application when weeds are small (less than 3" tall). Do not use surfactants or oils. The use of surfactants or oils may increase the risk of crop injury.

BROADCAST RATE PER TREATED ACRE:

1.0 pint per acre

TANK MIX TREATMENT

Range Star™ plus atrazine:

For improved control of emerged, actively growing broadleaf weeds including triazine tolerant species and added suppression of perennial broadleaf weeds, tank mix 1.0 pint of Range Star™ with 0.5 to 1.25 lb ai atrazine per treated acre. For control of grasses (less than 1.5" tall), tank mix 1.0 pint of Range Star™ with 2.0 lb ai atrazine per treated acre. For best performance and minimal crop injury, make application when the sorghum is in the 3 to 5 leaf stage (4 to 8" tall) and when broadleaf weeds are small (less than 3" tall). The atrazine rate will depend upon soil texture and length of residual weed control desired. Do not apply tank mixtures of Range Star™ and atrazine on coarse soils or medium textured soil with less than 1.5% organic matter. Do not apply postemergence in OK, TX, NM, CO and Western KS before sorghum is 6" tall.

Follow all atrazine label restrictions and state and federal restrictions pertaining to atrazine application.

SUGARCANE IMPORTANT

Consult your local or state authorities for possible application restrictions, especially concerning aerial applications and advice concerning special local use situations.

WEEDS CONTROLLED

Range Star™, when applied at recommended rates, will control the ANNUAL and PERENNIAL broadleaf weeds commonly found in sugarcane, such as:

ANNUALS

Burclover, California
Buttercup (Ranunculus Spp.)
Chickweed, Common
Clovers, Annual
Cocklebur, Common
Eveningprimrose, Cutleaf
Fleabane, Annual
Geranium, Carolina
Henbit
Lettuce, Prickly

Pepperweed, Virginia
Pigweed, Prostrate
Pigweed, Redroot (Carelessweed)
Pigweed, Smooth
Purslane, Common
Ragweed, Common
Shepherdspurse
Sida, Prickly (Teaweed)
Sowthistle, Annual
Spurge, Prostrate

PERRENIALS

Aster, Spp.
Bindweed, Field
Chickweed, Mouseear
Dandelion, Common
Dock, Curly
Dogfennel

Garlic, Wild
Goldenrod Spp.
Groundsel, Cressleaf
Onion, Wild
Sowthistle, Perrennial

APPLICATION DIRECTIONS

DO NOT USE AERIAL APPLICATION EQUIPMENT IF SENSITIVE CROPS ARE GROWING IN THE VICINITY OF THE AREA TO BE TREATED. When band treatments are desired, apply an equivalent rate and volume per acre by using the formula below:

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast RATE per treated acre} = \text{Band RATE per treated acre}$$

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast VOLUME per treated acre} = \text{Band VOLUME per treated acre}$$

Application of Range Star™ can be made any time after the weeds have emerged and are actively growing but prior to the close-in stage of sugarcane. When possible, direct the spray beneath the sugarcane canopy in order to minimize the likelihood of crop injury. The use of directed sprays will also aid in maximizing spray coverage of weed foliage. Application rates and timing are given below. Use the higher level of listed rate ranges when treating dense vegetative growth.

- For control of listed ANNUAL broadleaf weeds, apply 1 quart of Range Star™ per treated acre.
- For suppression of listed PERENNIALS, apply 1 - 2 quarts of Range Star™ per treated acre.
- For control of listed PERENNIAL broadleaf weeds, apply 2 -3 quarts of Range Star™ per treated acre.

Retreatments may be made as needed, however, do not exceed 8 quarts of Range Star™ per treated acre during a growing season.

TANK MIX TREATMENTS

Range Star™ may be tank mixed with one or more of the following herbicides for control of grasses or additional broadleaf weeds. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, weeds controlled, geographic and other restrictions.

HERBICIDE	RATES PER TREATED ACRE (lb ai)
ametryn (Evik®)	2/5 to 8.0
asulam (Asulox®)	2.0 to 3.0
Atrazine	2/5 to 4.0
dalapon (Dalapon®)	3 ½ to 8 ½
fenac (Fenatrol® Sugarcane)	2.7 to 6.0
metribuzin (Sencor® Lexone®)	0.75 to 3.0
terbacil (Sinbar®)	1.6 to 3.2

STORAGE AND DISPOSAL

PROHIBITIONS

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

STORAGE

Store in original container in a well-ventilated area separately from fertilizer, feed and foodstuffs. Avoid cross-contamination with other pesticides. Spillage or leakage should be contained and absorbed with clay granules, sawdust, or equivalent material for disposal.

PESTICIDE DISPOSAL

Pesticide wastes are toxic. Triple rinse pesticide from containers and use rinsates in the pesticide application. Improper disposal of excess pesticide, spray mixture, or rinsate, is a violation of Federal Law and may contaminate groundwater. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL

Plastic or Metal: After triple rinsing (or equivalent), offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities, such as burning of plastic containers. If burned, stay out of smoke.

WARRANTY LIMITATIONS AND DISCLAIMER

Seller 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 for Use when used under normal conditions. This is the only warranty made on this product. No other express and no implied warranty of merchantability or fitness for a particular purpose is made outside of this label. Therefore, neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use of this product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), under abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes, etc.) or under conditions not reasonably foreseeable to or beyond the control of seller.

When buyer or user suffers losses or damages resulting from the use or handling of this product (including claims based on contract, negligence, strict liability, or other legal theories), buyer or user must promptly notify seller, in writing, of any claims to be eligible to receive either remedy given below. The exclusive remedy of the buyer or user and the limit of liability of seller will be one of the following, at the election of the seller:

1. Refund of purchase price paid by buyer or user for product bought or
2. Replacement of amount of product used.

The seller will not be liable for consequential or incidental damages or losses.

The terms of this Warranty Limitations and Disclaimer cannot be varied by any written or verbal statements or agreements. Any employee or sales agent of the seller is not authorized to vary or exceed the terms of this Warranty Limitations and Disclaimer in any manner.

REGISTERED TRADEMARKS

Ally®, Express®, Finesse®, Glean®, Harmony® Extra, Lexone®, Karmex®80 WP, and Sinbar® are registered trademarks of E.I. DuPont de Nemours & Company.

Amber® and Evik® are registered trademarks of Ciba-Geigy Corporation.

Asulox® and Buctril® are registered trademarks of Rhone-Poulenc.

Dalapon® is a registered trademark of SDS Biotech Corporation.

Fenatrol® Sugarcane is a registered trademark of Union Carbide Agricultural Products Co., Inc.

Roundup® is a registered trademark of Monsanto Company.

Sencor® is a registered trademark of Bayer AG.