

# SPECIMEN LABEL

# THUNDER<sup>®</sup>

**ACTIVE INGREDIENT:**

Ammonium salt of imazethapyr

(±)-2-[4,5-dihydro-4-methyl-4-(1-methylethyl)

5-oxo-1H-imidazol-2-yl]-5-ethyl-3-pyridinecarboxylic acid\* ..... 22.87%

**OTHER INGREDIENTS**..... 77.13%

**TOTAL**..... 100.00%

\*Equivalent to 21.6% (+)-2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-ethyl-3-pyridinecarboxylic acid (1 gallon contains 2.0 pounds of active ingredient as the free acid)

## KEEP OUT OF REACH OF CHILDREN CAUTION / PRECAUCION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.

(If you do not understand this label, find someone to explain it to you in detail).

See inside booklet for PRECAUTIONARY STATEMENTS, FIRST AID, and DIRECTIONS FOR USE.

*HERBICIDE FOR USE IN ALFALFA, CLOVER, PEAS AND BEANS, FIELD CORN (Apply Only on CLEARFIELD<sup>®</sup> corn hybrids), PEANUTS, AND SOYBEANS*

Manufactured for:  
**ALBAUGH, LLC**  
1525 NE 36th Street,  
Ankeny, IA 50021

EPA Reg. No. 42750-146  
AD070617

 **ALBAUGH<sup>®</sup>**  
your alternative

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<b>FIRST AID</b>	
<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 INHALED:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air. 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 treatment advice.</li> </ul>
<b>IF IN EYES:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<p>Have the product container or label with you when calling a poison control center (1-800-222-1222) or doctor or going for treatment. For non-emergency exposure information on this product, call 1-888-347-6732 (7 days/week, 24-hr). For medical emergencies, dial 911.</p>	

## **PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS**

CAUTION. Harmful if inhaled or absorbed through skin. Avoid breathing spray mist. Avoid contact with skin, eyes or 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 disposing of equipment washwaters or rinsate.

## **PERSONAL PROTECTIVE EQUIPMENT (PPE):**

**Applicators and other handlers must wear:**

1. Long-sleeved shirt and long pants
2. Chemical-resistant gloves, such as butyl rubber  $\geq 14$  mils, or natural rubber  $\geq 14$  mils, or neoprene rubber  $\geq 14$  mils, or nitrile rubber  $\geq 14$  mils.
3. Shoes plus socks

Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

## **USER SAFETY RECOMMENDATIONS**

**Users Should:**

1. Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
2. Remove clothing/PPE 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.

## **Groundwater Advisory and Proper Handling Instructions**

This chemical 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.

This product may not be mixed or loaded within 50 feet of any wells (including abandoned wells and drainage wells), sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes or reservoirs. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas.

Operations that involve mixing, loading, rinsing, or washing of this product into or from pesticide handling or application equipment or containers within 50 feet of any well are prohibited unless conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be positioned on or moved across the pad. Such a pad shall be designed and maintained to contain any product spills or equipment leaks, container or equipment rinse or washwater, and rainwater that may fall on the pad. Surface water shall not be allowed to either flow over or from the pad, which means the pad must be self-contained. The pad shall be sloped to facilitate material removal. An unroofed pad shall be of sufficient capacity to contain at a minimum 110% of the capacity of the largest pesticide container or application equipment on the pad. A pad that is covered by a roof of sufficient size to completely exclude precipitation from contact with the pad shall have a minimum containment capacity of 100% of the capacity of the largest pesticide container or application equipment on the pad. Containment capacities as described above shall be maintained at all times. The above specific minimum containment capacities do not apply to vehicles when delivering pesticide shipments to the mixing/loading site. States may have in effect additional requirements regarding wellhead setbacks and operational containment.

DO NOT apply this product through any type of irrigation system.

Product must be used in a manner which will prevent back siphoning in wells, spills or improper disposal of excess pesticide, spray mixture.

## **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.

This labeling must be in the possession of the user at the time of pesticide application.

Observe all cautions and limitations on this label and on the labels of products used in combination with THUNDER®. Do not use THUNDER® other than in accordance with the instructions set forth on this label. The use of THUNDER® not consistent with this label may result in injury to crops. Keep containers closed to avoid spills and contamination.

### **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 4 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:

1. Coveralls
2. Chemical-resistant gloves, such as butyl rubber  $\geq 14$  mils, or natural rubber  $\geq 14$  mils, or neoprene rubber  $\geq 14$  mils, or nitrile rubber  $\geq 14$  mils.
3. Shoes plus socks

## STORAGE AND DISPOSAL

**PROHIBITIONS:** KEEP FROM FREEZING. DO NOT store below 32°F. DO NOT contaminate water, food or feed by storage or disposal.

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

**CONTAINER HANDLING: 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 ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

**(non-refillable >5 gallons):** Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ 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. 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 for 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 imazethapyr only. Do not reuse this container for any other purposes. 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.

## PRODUCT INFORMATION

THUNDER® kills weeds by root and/or foliage uptake and rapid translocation to the growing points. Adequate soil moisture is important for optimum THUNDER® activity. When adequate soil moisture is present, THUNDER® will provide residual control of susceptible germinating weeds; activity on established weeds will depend on the weed species and the location of its root system in the soil.

Occasionally, internode shortening and/or temporary yellowing of crop plants may occur following THUNDER® applications. These effects occur infrequently and are temporary. Normal growth and appearance should resume within 1 to 2 weeks.

When organophosphate (such as Lorsban) or carbamate insecticides are tank-mixed with THUNDER® herbicide, temporary injury may result to the treated crops.

Use of THUNDER® herbicide in accordance with label directions is expected to result in normal growth of rotational crops in most situations; however, various environmental and agronomic factors make it impossible to

eliminate all risks associated with the use of this product and, therefore, rotational crop injury is always possible. Under some conditions (such as heavy texture soil, high organic matter, low pH or low rainfall) THUNDER® may cause injury to subsequent planted crops. Vegetable crops and particularly sugar beets are sensitive to THUNDER® residues in the soil.

Naturally occurring biotypes\* of some of the weeds listed on this label may not be effectively controlled by this and/or other products with either the ALS/AHAS enzyme inhibiting mode of action. Other herbicides with the ALS/AHAS enzyme inhibiting mode of action include the sulfonylureas (e.g., Accent®, Basis®, Classic®, Harmony GT®, Spirit®, Permit®, etc.), the sulfonamides (e.g., FirstRate®, etc.) and the pyrimidyl benzoates (e.g. Staple®, etc.). If naturally occurring ALS/AHAS resistant biotypes are present in a field, THUNDER® and/or any other ALS/AHAS enzyme inhibiting mode of action herbicide should be tank-mixed or applied sequentially with an appropriate registered herbicide having a different mode of action to ensure control.

\* A weed biotype is a naturally occurring plant within a given species that has a slightly different, but distinct, genetic makeup from other plants.

Replanting: If replanting is necessary in a field previously treated with THUNDER®, the field may be replanted to soybeans, peanuts or CLEARFIELD® corn (imidazolinone resistant/tolerant corn), lima beans or Southern peas. Rework the soil no deeper than the treated zone. Do not apply a second treatment of THUNDER®.

### **CLEARFIELD® CORN**

Apply THUNDER® herbicide only on selected field corn hybrids (CLEARFIELD® corn) warranted by the seed company to possess resistance/tolerance to direct application of THUNDER®. DO NOT apply THUNDER® to corn hybrids which lack resistance/tolerance to THUNDER® herbicide. Contact your seed supplier, chemical dealer or ALBAUGH, LLC to obtain information regarding CLEARFIELD® corn hybrids.

Crops growing under stressful environmental conditions can exhibit various injury symptoms which may be more pronounced if herbicides are used. Corn plants treated with THUNDER® may exhibit yellowing on new growth. Such effects occur infrequently and are temporary. Normal growth and appearance should resume within 1 to 2 weeks.

### **EDIBLE LEGUME VEGETABLES**

Reduced crop growth, quality, yield and/or delayed maturity may result from a THUNDER® application to edible legume vegetables. Since crop maturity may be delayed, timing of harvest may need to be adjusted accordingly. DO NOT apply THUNDER® if planting is delayed and chance of frost prior to maturity is likely.

USE THUNDER® ONLY if proper agronomic practices have been utilized, including good soil fertility, proper crop rotation, disease and insect management and tillage practices that eliminate compaction and hardpans. Plant peas, lentils or lima beans at least 1/2 inch deep to reduce risk of crop injury.

DO NOT apply THUNDER® if cold and/or wet conditions are present or predicted to occur within one week of application. DO NOT apply THUNDER® postemergence after crop has begun to flower or crop injury may result. (Refer to specific legume vegetable crop for specific application timings).

## **USE AREA RESTRICTIONS**

In New York State - Not for Sale or Use on Long Island.



## MIXING INSTRUCTIONS

### POSTEMERGENCE APPLICATIONS OF THUNDER® REQUIRE THE ADDITION OF AN ADJUVANT AND A FERTILIZER SOLUTION.

**NOTE:** Fertilizer solutions may not be used in the state of California.

#### I. ADJUVANTS

**CROP OIL CONCENTRATE:** A petroleum or vegetable seed based oil concentrate may be used. Methylated seed oils are recommended when weeds are under moisture or temperature stress. Use methylated seed oils at the rate of 1.0% v/v (1 gallon per 100 gallons of spray solution), or use a crop oil concentrate at 1.25% v/v (1.25 gallons per 100 gallons of spray solution).

DO NOT include a CROP OIL CONCENTRATE when applying THUNDER® to edible legume vegetable crops.

**OR**

**SURFACTANTS:** Use a non-ionic surfactant containing at least 80% active ingredient. Apply the surfactant at the rate of 0.25% v/v (1 quart per 100 gallons of spray solution). An organosilicone surfactant or dry surfactant may be used in place of a non-ionic surfactant.

**AND**

**(All States Except California)**

#### II. FERTILIZER SOLUTION

Recommended nitrogen based fertilizers include liquid fertilizers (such as 28%N, 32%N or 10-34-0) may be applied at the rate of 1.25 to 2.5 gallons per 100 gallons of spray solution. Use the higher rate when weeds are under moisture or temperature stress. Instead of a liquid fertilizer, spray grade ammonium sulfate may be used at the rate of 12-15 lbs. per 100 gallons of spray solution.

**Note:** Fertilizer solution is not required in THUNDER® applications in use areas south of Interstate highway 40, except in the states of Texas, New Mexico and Oklahoma.

Fill the spray tank one-half full with clean water. Use a calibrated measuring device to measure the required amount of THUNDER®. Add THUNDER® to the spray tank while agitating. Add adjuvants and fill the remainder of the tank with water.

#### TANK MIX COMBINATIONS WITH OTHER HERBICIDES

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

If other herbicides are tank-mixed with THUNDER®, while agitating, add components in the following order:

- 1) Fill spray tank 1/2 full with clean water.
- 2) Add soluble packet products and thoroughly mix.
- 3) Add WP (wetttable powder), DG (dispersible granule), DF (dry flowable) or liquid flowable formulations not in soluble packets.
- 4) Add THUNDER® and thoroughly mix.
- 5) Add other aqueous solution products.
- 6) Add EC (emulsifiable concentrate) products.
- 7) Add surfactant or crop oil to the spray tank.
- 8) Add liquid fertilizer.
- 9) While agitating, fill the remainder of the tank with water.



To avoid injury to sensitive crops, spray equipment used for THUNDER® applications must be drained and thoroughly cleaned with water before being used to apply other products.

When THUNDER® is used in combination with another herbicide, refer to the respective label for rates, methods of application, proper timing, weeds controlled, restrictions and precautions. Always use in accordance with the more restrictive label restrictions and precautions. Label dosages of tank mix herbicide cannot be exceeded. THUNDER® cannot be mixed with any product containing a label prohibiting such mixtures.

## **SPRAYING INSTRUCTIONS**

DO NOT apply when wind velocity is greater than 10 mph, or when spray may be carried to sensitive crops. Sensitive crops include, but are not limited to, leafy vegetables and sugar beets.

### **GROUND APPLICATIONS**

Uniformly apply with properly calibrated ground equipment in 10 or more gallons of water per acre. A spray pressure of 20 to 40 psi is recommended.

To ensure thorough coverage, use a minimum of 20 gallons of water per acre when applying THUNDER® to minimum or no-till crops. Use higher gallonage for fields with dense vegetation or heavy crop residues. Adjust the boom height to ensure proper coverage of weed foliage (according to the manufacturer's recommendation). Use only flat-fan nozzle tips for postemergence applications.

Avoid overlaps when spraying.

### **THUNDER® APPLICATIONS WITH A LOW VOLUME SPRAYER**

THUNDER® may be applied to soybeans with a low volume (Spra-Coupe®-type) sprayer. When applying THUNDER® with a low volume sprayer, spray the weeds before they reach the maximum size listed in this label. Adequate control of weeds is dependent upon good spray coverage of the weeds. The sprayer must be calibrated to deliver the recommended spray volume and pressure to ensure adequate spray coverage of the weeds.

When applying THUNDER® with a low volume sprayer, apply a minimum of 10 gallons per acre of spray solution with a nozzle pressure between 40-60 psi for optimum coverage. When spraying combinations including Banvel® or dicamba containing products on CLEARFIELD® corn, do not exceed 40 psi sprayer pressure.

### **AERIAL APPLICATION**

THUNDER® herbicide may be applied by air to crops listed in this label unless otherwise noted.

Uniformly apply with properly calibrated aerial equipment in 5 or more gallons of water per acre. When applied POSTEMERGENCE, the addition of a non-ionic surfactant AND fertilizer solution are required for optimum weed control. Apply a non-ionic surfactant at the rate of 1 quart per 100 gallons of spray solution OR a crop oil concentrate at the rate of 1.25 gallons per 100 gallons of spray solution AND a liquid fertilizer at the rate of 1.25 gallons per 100 gallons of spray solution. (See instructions under APPLICATION INFORMATION - POSTEMERGENCE).

## **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 determines the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulations.

1. The distance of the outer most nozzles on the boom must not exceed 75% of the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

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

The applicator must be familiar with and take into account the information covered in the following Aerial Drift Reduction Advisory:

[This section is advisory in nature and does not supersede the mandatory label requirements.]

### **IMPORTANCE OF 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 Inversion section).

### **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 - Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. 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 backwards, parallel to the airstream will produce larger droplets than other orientations. Significant deflection from the horizontal will reduce droplet size and increase drift potential.
- Nozzle Type - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce larger droplets than other nozzle types.

### **BOOM LENGTH**

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

### **APPLICATION HEIGHT**

Applications should not be 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 must be avoided below 2 mph due to variable wind direction and high inversion potential. **Note:** Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect drift.

### **TEMPERATURE AND HUMIDITY**

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

### **TEMPERATURE INVERSIONS**

Applications must not occur during a temperature inversion, because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small-suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable 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 smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a connected cloud (under low wind conditions) indicates an inversion, while smoke that moves upwards and rapidly dissipates indicates good vertical air mixing.

### **SENSITIVE AREAS**

The pesticide must 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).

## **APPLICATION INFORMATION**

### **POSTEMERGENCE**

THUNDER® is effective in controlling weeds in conservation tillage as well as in conventional production systems. Apply THUNDER® herbicide as an early postemergence treatment when weeds are actively growing and before they exceed a height of 3 inches, unless otherwise indicated. Delay application until the majority of the weeds are at the recommended growth stage. Application timing should be based on weed size and not crop growth stage. Apply THUNDER® to crops and weeds that are actively growing.

An adjuvant (either a crop oil concentrate or a surfactant) and a nitrogen-based fertilizer must be added to the spray solution for optimum weed control activity. See the ADJUVANTS section under MIXING INSTRUCTIONS for specific instructions.

When THUNDER® is applied postemergence, absorption will occur through both the roots and foliage. Susceptible weeds stop growing and either die or are not competitive with the crop. THUNDER® not only controls many existing broadleaf and grass weeds when applied postemergence, it also provides control of susceptible weeds that may emerge after application.

For maximum weed control, cultivate 7 - 10 days following a postemergence THUNDER® application. This timely cultivation will enhance residual weed control, especially under dry conditions.

THUNDER® should be applied a minimum of one hour before rainfall or overhead irrigation.

Unusually cool temperatures (50° F or less) reduce photosynthesis and transpiration and thus reduce uptake, translocation, and efficacy of THUNDER® herbicide in weeds. Delaying a THUNDER® application for 48 hours from the time the temperature increases above 50° F, if air temperature has been below 50° F for 10 hours or more hours, will improve weed control and reduce crop response.

### **NO-TILL/MINIMUM TILLAGE AND DOUBLE CROP SOYBEANS**

THUNDER® controls existing weeds and provides residual control of most weeds when applied early postemergence to CLEARFIELD® corn or soybeans in no-till or minimum tillage and double crop soybean production systems. The application may be applied either before or after emergence of the crop. (Refer to the WEEDS CONTROLLED POSTEMERGENCE chart for weeds controlled and recommended weed size).

If THUNDER® is applied prior to emergence of the crop, and weeds exceed the recommended size, a contact herbicide should be added to THUNDER® to enhance control.. (See instructions for NO-TILL OR REDUCED TILLAGE under the PREEMERGENCE section of this label).

### **SOIL APPLICATIONS**

THUNDER® provides effective weed control in conservation tillage systems designed to meet conservation compliance requirements. THUNDER® can be applied as an early preplant, preplant incorporated, or preemergence treatment in soybeans. It can also be applied in conventional, minimum tillage and no-till production systems. The application method of choice will depend on the anticipated weed spectrum and the preference of the applicator.

Adequate soil moisture is required for optimum activity. Rainfall or overhead irrigation is necessary to move THUNDER® 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 normally adequate. If adequate moisture is not received within 7 days after treatment, a cultivation is recommended to control escaped weeds. When adequate moisture is received after dry conditions, THUNDER® will provide residual control of susceptible germinating weeds; activity on established weeds will depend on the weed species and the location of its root system in the soil.

THUNDER® controls weeds by uptake by weed roots and translocation to the growing points where it stops weed growth. Susceptible weeds may emerge, growth will stop and the weeds will either die or are not competitive with the crop.

### **SOIL APPLICATIONS WITH LIQUID FERTILIZERS**

THUNDER® can be applied to the soil in liquid fertilizers, alone or in combination with PROWL® 3.3 EC, or OUTLOOK® to soybeans or CLEARFIELD® corn. Mixtures including trifluralin may be applied to soybeans only. Follow all THUNDER® label instructions regarding incorporation, timing of application, special instructions, restrictions and precautions. Apply treatments in 20 or more gallons of liquid fertilizer per acre with ground equipment. Always test the compatibility of THUNDER® with the liquid fertilizer before mixing in the spray tank.

### **PREEMERGENCE (SURFACE APPLICATIONS)**

THUNDER® offers flexibility in that it can be utilized in all production tillage systems. It can be applied prior to planting (up to 45 days prior to planting); at planting in conventional, reduced tillage or no-till production systems; or after planting and before crop emergence.

### **NO-TILL OR REDUCED TILLAGE**

Apply THUNDER® treatments before, during or after planting. To ensure thorough coverage, use a minimum of 20 gallons of water per acre. Use higher gallonage for fields with dense vegetation or heavy crop residues.

For maximum grass control, tank-mix THUNDER® with PROWL® 3.3 EC, or OUTLOOK®. To kill existing vegetation, Gramoxone® Extra, Starfire®, Roundup® Ultra or 2,4-D (early preplant - see 2,4-D label for limitations) may be tank-mixed with THUNDER® alone or in combination with PROWL® 3.3 EC, or OUTLOOK®. Gramoxone® Extra, Starfire®, Roundup® Ultra or 2,4-D should be deleted from the tank-mixture if vegetation is absent at the time of application.

**NOTE:** Adjust planters to ensure adequate soil coverage of seed.

### **PREPLANT INCORPORATED APPLICATIONS**

THUNDER® may be applied following land preparation and should be thoroughly incorporated to a depth of 1 to 2 inches. If crops are planted on beds, apply and incorporate after bed formation using PTO-driven equipment or a rolling cultivator. Maintain THUNDER® in the surface 1 to 2 inches of the finished beds. Application may be made up to 45 days prior to planting soybeans.

When THUNDER® is soil applied for control of nutsedge in peanuts incorporate with two passes of the incorporation implement. Make the second pass at an offset angle to the first pass to minimize the potential for streaking.

# FEDERAL CONSERVATION RESERVE PROGRAM AND AGRICULTURAL RESERVE PROGRAM LAND SEEDED TO FORAGE LEGUME SPECIES AND PERENNIAL FORAGE GRASSES.

## DIRECTIONS FOR USE

THUNDER® is effective in controlling many annual broadleaf and grass weeds in CONSERVATION RESERVE PROGRAMS and AGRICULTURAL RESERVE PROGRAMS (SET-ASIDE) land seeded to forage legume or grass crops. A THUNDER® application may result in temporary reduction in growth of legumes and grasses. Plants overcome temporary effects and become well established due to reduced weed competition.

## RESTRICTIONS:

- DO NOT feed or graze legumes or grasses following a THUNDER® application.
- DO NOT cut treated legumes or grasses for hay or forage.
- DO NOT harvest legume seed for livestock feed.
- DO NOT use seed from treated legumes for sprouting.
- Apply only one application of THUNDER® per year.

## COVER CROPS:\*

### LEGUMES:

Apply to forage legumes including alfalfa, clovers, crownvetch, birdsfoot trefoil and lespedeza.

### GRASSES:

THUNDER® may be applied to the following grasses: big bluestem, little bluestem, switchgrass, Russian wildrye, intermediate wheatgrass, crested wheatgrass, western wheatgrass, tall wheatgrass, smooth brome, canarygrass or orchardgrass.

**\*NOTE:** Cover crops may also be planted into fields previously treated with THUNDER® for weed control in soybeans. In this case, do not make a THUNDER® application to the cover crop until the following spring.

## POSTEMERGENCE APPLICATIONS OF THUNDER® TO CRP COVER CROPS.

### APPLICATION RATE:

Apply THUNDER® at 4 fluid ounces per acre.

### APPLICATION TIMING:

THUNDER® may be applied postemergence to seedling legumes (with at least 3 fully expanded trifoliate leaves) or to established legumes. On established legumes, THUNDER® may be applied in the fall or in the spring before weeds exceed the maximum recommended size for control.

### RESTRICTION:

- DO NOT apply to seeded grasses until they have 4 leaves.

Refer to the WEEDS CONTROLLED under the SOYBEAN section of this label.

## ALFALFA AND CLOVER

### DIRECTIONS FOR USE

#### USE RATE: (3 - 6 OUNCES PER ACRE)

Apply THUNDER® at a broadcast rate of 3 to 6 ounces per acre postemergence only.

### RESTRICTIONS:

- A maximum of 0.094 lbs ae/A imazethapyr (6 ounces of THUNDER®) per acre per year may be applied to alfalfa or clover.
- DO NOT apply THUNDER® at more than 4 ounces per acre in North Dakota or Minnesota north of highway #210.
- Do not apply more than 4 ounces of product to alfalfa or clover during the last year of the stand.
- PRE-HARVEST INTERVAL - Do not graze or harvest alfalfa or clover for 30 days following an application of THUNDER® to alfalfa or clover.



## SEEDLING ALFALFA/CLOVER

THUNDER® must be applied postemergence to seedling alfalfa or clover. Apply THUNDER® when the seedling alfalfa or clover is in the second (2nd) trifoliate stage or larger and when the majority of the weeds are 1-3 inches. For low growing weeds (such as mustards) apply THUNDER® before the rosette exceeds 3 inches. When THUNDER® is applied to seedling alfalfa or clover, there may be a temporary reduction in growth.

## ESTABLISHED ALFALFA/CLOVER

THUNDER® can be applied to established alfalfa or clover in the fall, in the spring to dormant, or semi-dormant alfalfa or clover (less than 3 inches of re-growth), or between cuttings. Any application should be made before significant alfalfa or clover growth or re-growth (3 inches) to allow THUNDER® to reach the target weeds.

**Replanting:** If replanting is necessary in a field previously treated with THUNDER®, do not plant alfalfa or clover for 4 months following a THUNDER® application. Refer to the ROTATIONAL CROP INSTRUCTIONS section on this label for plant-back interval of various crops.

### WEEDS CONTROLLED

When applied as directed, THUNDER® will control or reduce competition from the weeds listed below. Refer to the MIXING INSTRUCTIONS section for recommendations when weeds are at the maximum recommended growth stage, or are under stress.

**NOTE:** R = Reduced Competition

Weeds noted with an “R” will be suppressed by THUNDER®. For best results, apply before the weeds exceed the size indicated below.

## BROADLEAF WEEDS CONTROLLED

Weeds Controlled	THUNDER® APPLICATION RATE		
	3 Oz/A	4 Oz/A	6 Oz/A
	Maximum Weed Size (Inches)		
Artichoke, Jerusalem	R	6	8
Beets, wild	4	5	6
Bedstraw, catchweed	-	3	4
Buckwheat, wild	-	3	4
Chickweed common	R	3	4
mousear	R	3	3
Cocklebur, common	R	8	8
Cress, hoary	-	R	R
Dandelion	-	R	R(5)
Dock, broadleaf (seedling)	-	-	R(6)
curly (seedling)	-	-	R(6)
Dodder	-	-	R*
Fiddleneck	-	-	R(4)
Filaree redstem	-	R	3
whitestem	-	R	3
Fleabane, rough	-	3	3
Flixweed	R	3	4

Weeds Controlled	THUNDER® APPLICATION RATE		
	3 Oz/A	4 Oz/A	6 Oz/A
	Maximum Weed Size (Inches)		
Goosefoot, nettleleaf	R	3	4
Grounsel, common	-	-	R(3)
Henbit	-	R	3
Jimsonweed	-	3	4
Knotweed, prostrate	-	R	3
Kochia (non-ALS resistant)	R	3	3
Lambsquarter, common (1-2 leaves)	-	R	R(2)
Lettuce, miners	-	3	4
Mallow, common little	- -	3 3	3 3
Marshelder	-	4	6
Morningglory, entireleaf ivy pitted smallflower tall	- - - R -	R R R 3 R	3 3 3 4 3
Mustards tumble wild black	3 3 3	3 3 3	4 4 4
Nettle, burning	-	3	4
Nightshade black Eastern black Hairy	3 3 3	3 3 3	4 4 4
Oxtongue, bristly	-	-	R(3)
Pennycress, field	3	3	4
Pepperweed, field Virginia	3 R	3 3	4 3
Pigweed redroot smooth spiny	4 4 -	6 6 6	8 8 8
Radish, wild		R	4
Ragweed common giant	- -	2 3	3 3

(continued)



Weeds Controlled	THUNDER® APPLICATION RATE		
	3 Oz/A	4 Oz/A	6 Oz/A
	Maximum Weed Size (Inches)		
Redmaids	-	3	4
Rocket			
London	3	4	6
Yellow	R	3	4
Rockpurslane, desert	-	-	3
Shepherdspurse	3	3	4
Smartweed			
Ladysthumb	R	3	4
Pennsylvania	R	3	4
swamp (seedling)	-	3	4
Spurge			
prostrate	-	R	3
spotted	-	R	3
petty	-	3	4
Spurry, corn	-	3	3
Sunflower, common	R	4	6
Swinecress	-	3	3
Tansymustard			
green	3	3	4
pinnate	3	3	4
Thistle, Russian	R	3	3
Velvetleaf	R	3	4
Wartcress, creeping	-	2	3
Watercress	-	3	3
Willowweed, panicle	-	3	3

\*For best results in suppressing dodder (*cuscuta* spp), apply THUNDER® with crop oil concentrate or methylated seed oil after dodder has emerged but prior to or soon after attachment.

## GRASSES AND SEDGES CONTROLLED

Weeds Controlled*	THUNDER® APPLICATION RATE	
	4 Oz/A	6 Oz/A
	Maximum Weed Size (Inches)	
Barnyardgrass	R	3
Bluegrass, annual	-	R(3)
Canarygrass, littleseed	R	R(3)
Cereals, volunteer		
barley	R	R(4)
oats	R	R(4)
Wheat	R	R(4)
Crabgrass,		
large	R	3
Smooth	R	3
Cupgrass, woolly**	3	3
Foxtail,		
giant	6	6
green	3	4
Yellow	3	3
Johnsongrass,		
seedling	8	8
Rhizome	R	R(6-12)
Millet, wild proso	R	3
Nutsedge,		
yellow	R	R(6)
Purple	R	R(6)
Oats, wild	R	R(4)
Rice, red	3	4
Shattercane	8	10
Signalgrass, broadleaf	R	8
Quackgrass ***	-	R(7)

\* THUNDER® is active against many grass species. However, when heavy grass pressure is anticipated, THUNDER® should be used in a sequential application with a registered postemergence grass herbicide such as Poast® Plus for optimum control.

\*\* THUNDER® controls emerged woolly cupgrass only.

\*\*\* Quackgrass will be suppressed only when actively growing and before it exceeds 7 inches in height.

### TANK MIX COMBINATIONS WITH OTHER HERBICIDES

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

To control weeds not listed on the THUNDER® label, herbicides such as Buctril®, 2,4-DB, Poast®, Poast Plus®, Prism® or Select® may be tankmixed with THUNDER®. When THUNDER® is used in combination with another herbicide, refer to the respective label for rates, methods of application, proper timing, weeds controlled, restrictions and precautions. Always use in accordance with the more restrictive label restrictions and precautions. No label dosages may be exceeded.

### **APPLICATION INFORMATION**

THUNDER® is effective in controlling a broad spectrum of broadleaf and grass weeds. Alfalfa and clover are tolerant to postemergence applications of THUNDER® after the second trifoliolate leaf has expanded. Minor height reduction or slight leaf yellowing may occur soon after application.

Apply THUNDER® as an early postemergence treatment when the weeds are actively growing. Weeds are generally easier to control before they exceed 3 inches in height. Weeds under stress are less susceptible to control in cold or drought stress conditions.

If applied to alfalfa or clover under cool conditions (40° F or less), temporary stunting and yellowing of the crop may occur.

### **STAND ESTABLISHMENT**

Apply THUNDER® after the alfalfa or clover has 2 fully expanded trifoliolate leaves. Weeds must not exceed the size listed in the WEEDS CONTROLLED tables. THUNDER® may be applied to summer, fall or spring seeded alfalfa or clover.

#### **Inter-seeded Oats**

Oats inter-seeded with alfalfa will reduce soil erosion and allow the alfalfa or clover to establish. Oats, however can compete with the alfalfa or clover. An application of THUNDER® will kill or significantly reduce the growth of the oats and allow the alfalfa or clover to establish with minimal erosion or competition from the oats. Apply THUNDER® to the oats when the oats have 3-4 leaves.

### **ESTABLISHED ALFALFA / CLOVER - DORMANT**

THUNDER® may be applied to dormant alfalfa or clover in the fall following the last cutting. THUNDER® may also be applied in the spring to dormant alfalfa or clover, or as alfalfa or clover breaks dormancy. Apply spring treatments prior to excessive alfalfa or clover growth (less than 3 inches), to reduce spray interference.

### **ESTABLISHED ALFALFA / CLOVER - GROWING**

For weed control during the season, apply THUNDER® following alfalfa or clover cutting. Remove the hay from the field and apply THUNDER® prior to excessive alfalfa or clover regrowth.

#### **Perennial Grass Suppression**

If perennial grasses (such as orchardgrass, fescues, bromes or timothy) are present in an alfalfa or clover stand, THUNDER® will reduce the growth and competitive effect of the grass.

## **CLEARFIELD® CORN**

### **DIRECTIONS FOR USE**

#### **THUNDER® HERBICIDE USE AREA**

(Not for use in California)

#### **USE RATE**

(4 OUNCES PER ACRE)

Apply THUNDER® at a broadcast rate of 4 ounces per acre (1/4 pint) for all methods of application: early pre-plant, preplant incorporated, preemergence, and postemergence (including minimum and no-till). At this broadcast rate, one gallon of THUNDER® will treat 32 acres of CLEARFIELD® corn. (See instructions on page 24 for applications in North Dakota and Minnesota north of highway #210).

**RESTRICTION:**

- A maximum of 0.063 lbs a.e./A of imazethapyr (4 fluid ounces/Acre of THUNDER®) per year may be applied to CLEARFIELD® corn.
- Only one application of THUNDER® may be made during the year.

**WEEDS CONTROLLED**

When applied as directed, THUNDER® will control or reduce competition from the weeds listed below. Refer to the MIXING INSTRUCTIONS section for recommendations when weeds are at the maximum recommended growth stage, or are under stress.

**NOTE:** C = Control, R = Reduced Competition

(The number under Maximum Leaf Stage indicates the MAXIMUM number of leaves at which weeds should be sprayed postemergence).

**BROADLEAF WEEDS**

Weeds Controlled	SOIL APPLIED	POSTEMERGENCE	
		Maximum Leaf Stage	Size (inches)
Alligator weed	-	4	1-3
Anoda, spurred	C	2	1-2
Artichoke, Jerusalem	-	8	6-10
Buffalobur	C*	R	1-3
Bristly starbur	-	2	1-2
Carpetweed	C	-	-
Cocklebur, common	R	8	1-8
Galinsoga	C	-	-
Jimsonweed	C*	4	1-3
Kochia (non-ALS resistant)	C	4	1-3
Lambsquarters, common	C*	R	1-2
Mallow, Venice	R	-	-
Marshelder	C	4	1-3
Morningglory entireleaf	R	2	1-2
ivyleaf	R	2	1-2
pitted	R	2	1-2
smallflower	C	4	1-3
tall	R	2	1-2
Mustard sp.	C	4	1-3
Nightshade black	C	4	1-3
Eastern black	C	4	1-3
hairy	C	4	1-3

(continued)

Weeds Controlled	SOIL APPLIED	POSTEMERGENCE	
		Maximum Leaf Stage	Size (inches)
Pigweed			
redroot	C	8	1-8
smooth	C	8	1-8
spiny	C	8	1-8
Poinsettia, wild	C	-	-
Puncturevine	C	-	-
Purslane, common	C	-	-
Pusley, Florida	C	-	-
Sida, prickly	C	-	-
Ragweed,			
common	R	4	1-3
giant	R	4	1-3
Sage, barnyard	-	R	1-3
Smartweed ladythumb	C	4	1-3
Pennsylvania	C	4	1-3
Spurge			
prostrate	C	4	1-3
spotted	C	4	1-3
Sunflower	C*	4	1-3
Velvetleaf	C*	4	1-3
Thistle, Canada	-	R	1-3

\* When THUNDER® is soil applied, these weeds are more consistently controlled by preplant incorporated treatments.

DO NOT count cotyledon leaves when determining weed stage of growth.

### GRASS WEEDS\*

Weeds Controlled**	SOIL APPLIED	POSTEMERGENCE	
		Maximum Leaf Stage	Size (inches)
Barnyardgrass	R	3	1-3
Crabgrass,			
large	R	3	1-3
smooth	R	3	1-3
Cupgrass, woolly	-	3	1-3
Foxtail,			
giant	C	6	1-6
green	C	3	1-3
yellow	C	3	1-3
Goosegrass	R	-	-

(continued)

Weeds Controlled**	SOIL APPLIED	POSTEMERGENCE	
		Maximum Leaf Stage	Size (inches)
Johnsongrass, seedling rhizome	C -	6 R	1-8 6-12
Millet, wild proso	R	R	1-3
Panicum, fall Texas	R R	- -	- -
Red rice	-	3	1-3
Sandbur, field	R	R	<1
Shattercane	R	6	1-8
Signalgrass, broadleaf	R	4	1-8
Sorghum alnum	R	6	1-3

### SEDGES

Nutsedge purple yellow	R R	R R	1-3 1-3
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\* Preplant incorporated treatments of THUNDER® are more consistent for grass control.

\*\* THUNDER® controls many grass species. However, when heavy grass pressure is anticipated, a soil applied grass herbicide underlay (such as PROWL®, or OUTLOOK®) is recommended for optimum control. DO NOT incorporate PROWL® 3.3 EC herbicide; apply preemergence or early postemergence only. THUNDER® may also be used in sequential programs with registered burndown herbicides and/or soil applied atrazine-containing products.

### TANK-MIXTURE HERBICIDE COMBINATIONS WITH THUNDER® (Postemergence)

Accent®<sup>1</sup>

Atrazine<sup>\*,\*\*</sup>

Banvel®<sup>\*,\*\*\*</sup>

Basagran®<sup>\*</sup>

Buctril®<sup>\*,\*\*</sup>

Clarity®<sup>\*,\*\*\*</sup>

Dual®

Marksman®<sup>\*</sup>

Outlook®

PROWL® 3.3 EC

### RESTRICTION:

- DO NOT use crop oil concentrates as adjuvants in THUNDER® combinations with Buctril®.

THUNDER® is active against many broadleaf and grass species. However, for long term weed management, alternate mode of action herbicides are recommended with THUNDER®. The application of a soil applied grass herbicide underlay will control grass weeds not on the THUNDER® herbicide label and enhance the control of certain broadleaf weeds such as common lambsquarters.

When THUNDER® is used in combination with another herbicide, refer to the respective label for rates, methods of application, proper timing, weeds controlled, restrictions and precautions. Always use in accordance with the more restrictive label restrictions and precautions. No label dosages may be exceeded. THUNDER® cannot be mixed with any product containing a label prohibiting such mixtures.

<sup>1</sup> If Accent is used in combination with THUNDER® on Pioneer imidazolinone-resistant (IR) corn, any registered soil insecticide applications may be used.

If THUNDER® plus Accent tank-mixes are used on imidazolinone -tolerant (IT) hybrids, DO NOT use COUNTER® 15G. Other registered organophosphate insecticides such as COUNTER® CR (banded applications only) or THIMET® or other registered carbamate or pyrethroid insecticides may be used when THUNDER® plus Accent® tankmixes are applied to IT corn hybrids.

\* In some cases the grass activity of THUNDER® will be reduced when used in combination with atrazine, Buctril®, Banvel®, Basagran®, Clarity®, or Marksman®.

\*\* Some corn leaf burn may result with Buctril® or atrazine postemergence combinations with THUNDER®

\*\*\* Applications of Banvel® or Clarity® herbicide to corn during periods of rapid growth may result in temporary leaning.

**APPLICATIONS TO CLEARFIELD® CORN IN NORTH DAKOTA AND MINNESOTA  
(north of highway #210).**

**APPLICATION RATE:** Apply THUNDER® at 3 ounces per acre postemergence only.

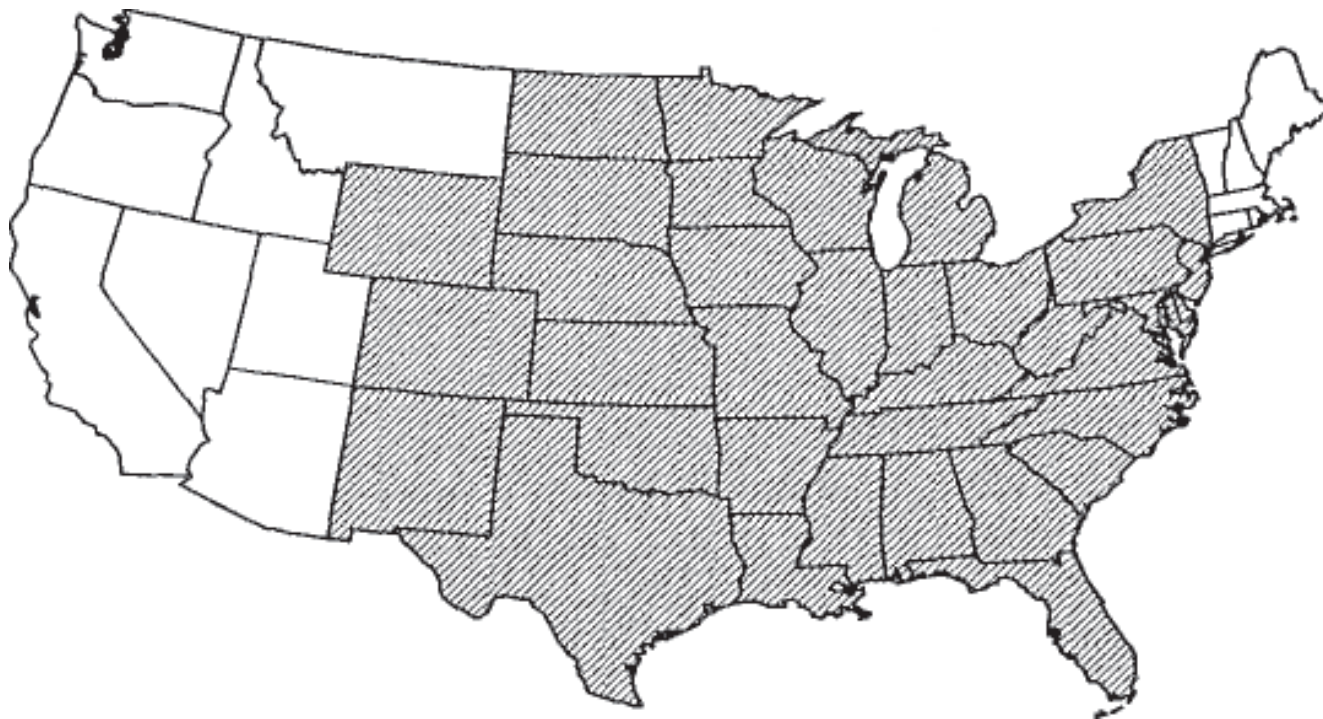
Weeds Controlled	POSTEMERGENCE	
	Maximum Leaf Stage	Size (inches)
Kochia (non-ALS resistant)	4	1-3
Mustard, species	4	1-3
Nightshade, Black	4	1-3
Eastern black	4	1-3
Hairy	4	1-3
Pigweed, redroot	4	1-4
Wild oats*	3	1-4

\*THUNDER® will reduce competition from wild oats.



**NAVY, GREAT NORTHERN, RED KIDNEY, BLACK TURTLE, CRANBERRY, PINTO, LIMA, AND SMALL WHITE TYPE DRY BEANS, ADZUKI, LENTILS, WHITE LUPINS, CHICKPEAS (GARBANZO BEANS), DRY EDIBLE PEAS, ENGLISH AND SOUTHERN PEAS**

**DIRECTIONS FOR USE in the states east of and including:** North Dakota, South Dakota, Wyoming, Colorado, and New Mexico, except the states of Vermont, Massachusetts, Connecticut, Rhode Island, New Hampshire, and Maine. Refer to map for geographical use area.



**RESTRICTIONS:**

- Use only nonionic surfactants as a spray additive for postemergence applications. DO NOT use crop oils, methylated seed oils, or petroleum oils.
- DO NOT make more than one application of THUNDER® per year.
- A maximum of 0.063 lb a.e./Acre of imazethapyr (4 oz./A of THUNDER®) per year may be applied to peas and beans in this region.
- Allow at least 30 days between application and harvest of succulent lima beans, English peas, and Southern peas. Allow at least 60 days between application and harvest of dry edible peas, lentils, chickpeas, and other dry bean or pea types listed on this label.
- DO NOT APPLY THUNDER® POSTEMERGENCE BEFORE CROP HAS AT LEAST ONE TRIFOLIATE LEAF OR PEAS ARE AT LEAST THREE INCHES IN HEIGHT OR CROP INJURY (REDUCED CROP GROWTH AND/OR DELAYED MATURITY) MAY RESULT.
- DO NOT APPLY THUNDER® POSTEMERGENCE TO LIMA BEANS, LENTILS, WHITE LUPINS, OR CHICKPEAS.
- DO NOT apply to Domino variety black turtle beans.
- DO NOT apply this product through any type of irrigation system.

Pinto varieties UI-1 1 1 and Olathe are more sensitive to THUNDER® than other varieties.

## **APPLICATION INSTRUCTIONS**

### **NAVY, GREAT NORTHERN, RED KIDNEY, BLACK TURTLE, CRANBERRY, PINTO, AND SMALL WHITE DRY BEANS, ADZUKI, DRY EDIBLE PEAS, ENGLISH AND SOUTHERN PEAS**

#### **RESTRICTIONS:**

- In Michigan or the Delaware, Maryland, and Virginia (DelMarVa) peninsula: DO NOT apply more than 2 fl. oz. (0.031 lb of acid equivalent) of THUNDER® to sands or loamy sand soils.
- In North Dakota or north of Highway 210 in Minnesota: DO NOT apply more than 2 fl. oz. (0.031 lb of acid equivalent) of THUNDER®.
- DO NOT make more than one application of THUNDER® per year.

#### **Preplant Incorporated Applications.**

Apply THUNDER® at the broadcast rate of up to 3 ounces per acre to dry beans (navy, great northern, red kidney, black turtle, cranberry, pinto and small white type dry beans, and adzuki), dry edible peas, and English peas, or up to 4 ounces per acre for southern peas only, within 1 week before planting. Applied preplant incorporated, THUNDER® may be tank-mixed with a registered grass herbicide.

#### **Preemergence Applications.**

Apply THUNDER® at the broadcast rate of up to 3 ounces per acre to dry beans, dry edible peas and English peas, or up to 4 ounces per acre for southern peas only, immediately after, or up to 3 days after planting. THUNDER® may be applied in a tank-mix with a registered grass herbicide or applied preemergence following a preplant incorporated application of a registered grass herbicide.

#### **Early Postemergence Applications.**

Apply THUNDER® at the broadcast rate of up to 3 ounces per acre to dry beans, dry edible peas, and English peas, or up to 4 ounces per acre for southern peas only. Apply to dry beans with at least one fully expanded trifoliolate leaf. Apply to dry edible peas, English peas, and southern peas at least 3 inches in height but prior to 5 nodes and before flowering. The use of trifluralin prior to THUNDER® application may increase the likelihood and severity of crop injury. A nonionic surfactant must be added to the spray solution. The nonionic surfactant must contain at least 80% active ingredient and should be used at a rate of 2 pints per 100 gallons of spray mixture.

Basagran® may be tank-mixed with THUNDER® to control weeds not listed on the THUNDER® label. Addition of Basagran may also cause antagonism, thereby reducing control of grass weeds. Nitrogen-based fertilizer may be included as a spray additive ONLY when THUNDER® is tank-mixed with Basagran. Refer to the Basagran label for proper application rates and restrictions. Always use in accordance with the more restrictive label restrictions and precautions.

## **LIMA BEANS, CHICKPEAS (GARBANZOS), LENTILS, AND WHITE LUPINS**

#### **RESTRICTIONS:**

- DO NOT apply THUNDER® to white lupins grown on sand or loamy sand soils.
- In Michigan or the Delaware, Maryland, and Virginia (DelMarVa) peninsula: DO NOT apply more than 2 oz (0.031 lb of acid equivalent) of THUNDER® to sands or loamy sand soils.
- In North Dakota or north of Highway 210 in Minnesota: DO NOT apply more than 2 oz (0.031 lb of acid equivalent) of THUNDER®.

#### **Preplant Incorporated Applications.**

Apply THUNDER® at the broadcast rate of up to 3 ounces per acre within 1 week before planting. Applied preplant incorporated, THUNDER® may be tank-mixed with a registered grass herbicide.

#### **Preemergence Applications.**

Apply THUNDER® at the broadcast rate of up to 3 ounces per acre immediately after or up to 3 days after planting. THUNDER® may be applied in a tank-mix with a registered grass herbicide or applied preemergence following a preplant incorporated application of a registered grass herbicide.

## WEEDS CONTROLLED

THUNDER® applied at the broadcast rate of 2 ounces per acre preplant incorporated, preemergence, or early postemergence will control:

Mustard, wild  
 Nightshade, black\*  
 Nightshade, eastern black\*  
 (\*suppression only)

THUNDER® applied at the broadcast rate of 3 ounces per acre preplant incorporated, preemergence, or early postemergence will control:

Mustard, wild  
 Nightshade, black  
 Nightshade, Eastern black  
 Nightshade, hairy  
 Pigweed, redroot

Postemergence applications of 3 ounces per acre must be made to weeds less than 2 inches tall for best results.

When applied as directed at the broadcast rate of 4 ounces per acre (for southern peas only), THUNDER® will control or reduce competition from the weeds listed below:

**NOTE:** C = Control, R = Reduced Competition

The number under Maximum Leaf Stage indicates the MAXIMUM number of leaves at which weeds should be sprayed postemergence.

## BROADLEAF WEEDS

WEEDS CONTROLLED	SOIL APPLIED	POSTEMERGENCE	
		Maximum Leaf Stage	Size (inches)
Anoda, spurred	C	2	1 - 2
Artichoke, Jerusalem	-	8	6 - 10
Buffalobur	C*	-	-
Bristly starbur	-	2	1 - 2
Carpetweed	C	-	-
Cocklebur, common	C*	8	1 - 8
Galinsoga	C	-	-
Jimsonweed	C**	4	1 - 3
Kochia (non-ALS resistant)	C	4	1 - 3
Lambsquarters	C**	R	1 - 2
Mallow, Venice	R	2	1 - 2
Morningglory entireleaf	R	2	1 - 2
ivyleaf	R	2	1 - 2
pitted	R	2	1 - 2
smallflower	C	4	1 - 3
tall	R	2	1 - 2
Mustard sp.	C	4	1 - 3

*(continued)*

WEEDS CONTROLLED	SOIL APPLIED	POSTEMERGENCE	
		Maximum Leaf Stage	Size (inches)
Nightshade, black	C	4	1 - 3
Eastern black hairy	C	4	1 - 3
	C	4	1 - 3
Pigweed, redroot	C	4	1 - 4
smooth	C	4	1 - 4
spiny	C	4	1 - 4
Poinsettia, wild	C	-	-
Puncturevine	C	-	-
Purslane, common	C	-	-
Pusley, Florida	C	-	-
Sida, prickly	C**	-	-
Ragweed, common	R	4	1 - 3
giant	R	4	1 - 3
Sage, barnyard	-	R	1 - 3
Smartweed, ladysthumb	C	4	1 - 3
Pennsylvania	C	4	1 - 3
Spurge, prostrate	C	4	1 - 3
spotted	C	4	1 - 3
Sunflower, common	C**	4	1 - 3
Thistle, Canada	-	R	1 - 3
Velvetleaf	C**	4	1 - 3

\* Use soil applications for light to moderate infestations only. Must be preplant incorporated for best results.

\*\* When soil applied, common lambsquarters, jimsonweed, prickly sida, velvetleaf and common sunflower are more consistently controlled by preplant incorporated treatments.

## GRASS WEEDS\*

WEEDS CONTROLLED	SOIL APPLIED	POSTEMERGENCE	
		Maximum Leaf Stage	Size (inches)
Barnyardgrass	R	3	1 - 3
Crabgrass, large smooth	R	3	1 - 3
	R	3	1 - 3
Cupgrass, woolly	-	3**	1 - 3
Foxtail, giant green robust purple robust white yellow	C	6	1 - 6
	C	3	1 - 3
	C	3	1 - 3
	C	3	1 - 3
	C	3	1 - 3
Goosegrass	R	-	-
Johnsongrass, seedling rhizome	C	6	1 - 8
		R	1 - 8
Panicum, fall Texas	R		
	R		
Red rice	-	3	1 - 3
Shattercane	R	6	1 - 8
Signalgrass, broadleaf	R	4	1 - 8

## SEDGES

Nutsedge, purple yellow	R	R	1 - 3
	R	R	-

**DO NOT** count cotyledon leaves when determining weed stage of growth.

\* When soil applied to grasses, more consistent control can be obtained from preplant incorporated treatments.

\*\* THUNDER® controls emerged woolly cupgrass only.

Refer to the PRECAUTIONS section for additional instructions.

## RED KIDNEY BEANS

**DIRECTIONS FOR USE in the state of California.**

### APPLICATION RATE AND TIMING

#### Postemergence Applications:

Apply THUNDER® at the rate of 3 ounces per acre. A non-ionic surfactant must be added to the spray solution. The nonionic surfactant must contain at least 80% active ingredient and should be used at a rate of 2 pints per 100 gallons of spray mixture.

Apply THUNDER® herbicide when weeds are actively growing and red kidney beans have at least 1 fully expanded trifoliate leaf.

For maximum weed control, cultivate 7-10 days following a postemergence THUNDER® application. This timely cultivation will enhance residual weed control, especially under dry conditions.

**RESTRICTIONS:**

- Do Not Apply By Aerial Application.
- DO NOT apply THUNDER® postemergence when the crop and weeds have been subjected to stress conditions such as temperature or moisture extremes.
- DO NOT MAKE MORE THAN ONE APPLICATION OF THUNDER® PER YEAR.
- A maximum of 0.047 lb a.e./A of imazethapyr (3 oz./A OF THUNDER®) per year may be applied to Red Kidney Beans.
- DO NOT APPLY THUNDER® POSTEMERGENCE BEFORE CROP HAS AT LEAST ONE TRUE LEAF OR CROP INJURY (REDUCED CROP GROWTH AND/OR DELAYED MATURITY) MAY RESULT.
- Allow at least 60 days between application and harvest.

**WEEDS CONTROLLED**

When applied as directed, THUNDER® will control or reduce competition from the weeds listed below. Refer to the MIXING INSTRUCTIONS section for recommendations when weeds are at the maximum recommended growth stage, or are under stress.

(The number under Maximum Leaf Stage indicates the MAXIMUM number of leaves at which weeds should be sprayed postemergence).

**WEEDS**

Weeds Controlled	POSTEMERGENCE	
	Maximum Leaf Stage	Size (inches)
Kochia (non-ALS resistant)	4	1-3
Mustard, wild	4	1-3
Nightshade, black	4	1-3
Eastern black	4	1-3
Hairy	4	1-2
Pigweed, Redroot	4	1-3

Refer to the PRECAUTIONS section for additional instructions.

**SNAP BEANS**

**DIRECTIONS FOR USE in the states of Alabama, Florida, Georgia, Illinois, Minnesota, Michigan, New Jersey, North Carolina and Wisconsin.**

**APPLICATION INSTRUCTIONS**

**Preplant Incorporated Applications.**

Apply THUNDER® at 1.5 oz per acre within 1 week of planting. Applied preplant incorporated, THUNDER® may be tank-mixed with a registered grass herbicide.

**Preemergence Applications.**

Apply THUNDER® at the broadcast rate of 1.5 oz per acre immediately after, or up to 1 day after planting. THUNDER® may be applied in a tank-mix with a registered grass herbicide or applied preemergence following a preplant incorporated application of a registered grass herbicide.

**RESTRICTIONS:**

- Do Not Apply By Aerial Application.
- Do Not Apply THUNDER® After July 31st (June 20th in New Jersey).
- DO NOT MAKE MORE THAN ONE APPLICATION OF THUNDER® PER YEAR.



## **WEEDS SUPPRESSED**

**THUNDER® applied at the broadcast rate of 1.5 oz/A preplant incorporated or preemergence will suppress or reduce competition of the following weeds:**

Common Purslane

Redroot Pigweed

Eastern Black Nightshade

Wild Mustard

Allow at least 30 days between application and harvest.

A maximum of 0.023 lb a.e./A of imazethapyr (1.5 oz./A of THUNDER®) per year may be applied to Snap Beans.

Refer to the PRECAUTIONS section for additional instructions.

## **SNAP BEANS**

**DIRECTIONS FOR USE in the states of Arkansas, Missouri, North Carolina, Oklahoma, Texas (counties of Bailey, Castro, Lamb and Parmer only) and New Mexico (counties of Curry and Roosevelt only).**

### **APPLICATION INSTRUCTIONS**

#### **Postemergence Applications.**

Apply THUNDER® at 1.5 oz per acre in a tank-mix combination with Basagran®. A nonionic surfactant must be added to the spray solution. The nonionic surfactant must contain at least 80% active ingredient and should be used at a rate of 2 pints per 100 gallons of spray mixture.

Refer to the Basagran® label for proper application rates and restrictions.

**DO NOT APPLY THUNDER® POSTEMERGENCE BEFORE CROP HAS AT LEAST ONE TRUE LEAF OR CROP INJURY (REDUCED CROP GROWTH AND/OR DELAYED MATURITY) MAY RESULT.**

#### **RESTRICTIONS:**

- Allow at least 30 days between application and harvest.
- A maximum of 0.023 lb a.e./A of imazethapyr (1.5 oz./A of THUNDER®) per year may be applied to Snap Beans.
- DO NOT Apply By Aerial Application.
- DO NOT Apply THUNDER® after July 31.
- DO NOT MAKE MORE THAN ONE APPLICATION OF THUNDER® PER YEAR.

## **WEEDS SUPPRESSED**

**THUNDER® applied at the broadcast rate of 1.5 oz/A postemergence will suppress or reduce competition of the following weeds:**

Eastern Black Nightshade

Redroot Pigweed

Refer to the PRECAUTIONS section for additional instructions.

## **SUCCULENT PEAS, DRY EDIBLE PEAS, LENTILS, CHICKPEAS, AND LIMA BEANS**

**DIRECTIONS FOR USE in the states of Idaho, Montana, Nevada, Oregon, Utah, and Washington.**

### **APPLICATION RATE AND TIMING**

#### **Preplant Applications for No-Till and Minimum Tillage Systems Only:**

Apply THUNDER® at a broadcast rate of 3 ounces per acre within 30 days before planting.

In no-till and minimum tillage systems, THUNDER® may be applied in the fall prior to spring planting. Rainfall is required for incorporation and activation. Unpredictable weed control can be expected since factors such as length of time between application and planting as well as uncontrollable weather factors will determine herbicide activity and longevity. Apply THUNDER® in the fall when soil temperature at the 4-inch depth is less than 55°F and before the ground is frozen.



**Preplant Incorporated Applications:**

Apply THUNDER® at the broadcast rate of 3 ounces per acre within 1 week before planting. DO NOT incorporate deeper than 3 inches.

**Preemergence Applications:**

Apply THUNDER® at the broadcast rate of 3 ounces per acre after planting, but prior to crop emergence.

THUNDER® may be tank-mixed with Sencor® DF or Lexone® DF to assist in the control of lambsquarters or may-weed-chamomile (dogfennel). Refer to the Sencor or Lexone label for proper application rates and restrictions.

**Postemergence Applications (Dry Edible Peas Only):**

Apply THUNDER® at 2 ounces per acre. A nonionic surfactant must be added to the spray solution. The nonionic surfactant must contain at least 80% active ingredient and should be used at a rate of 2 pints per 100 gallons of spray mixture.

Basagran® may be tank-mixed with THUNDER® to control weeds not listed on the THUNDER® label. Addition of Basagran® may also cause antagonism, thereby reducing control of grass weeds. Nitrogen-based fertilizer may be included as a spray additive only when THUNDER® is tank mixed with Basagran®. Use liquid fertilizer at 1.25 to 2.5 gal. per 100 gal. of spray solution or ammonium sulfate at the rate of 12-15 lbs/100 gal. of spray solution.

**RESTRICTIONS:**

- If incorporated, DO NOT incorporate deeper than 3 inches.
- DO NOT APPLY THUNDER® POSTEMERGENCE BEFORE CROP HAS AT LEAST ONE TRIFOLIATE LEAF OR PEAS ARE AT LEAST THREE INCHES IN HEIGHT OR CROP INJURY (REDUCED CROP GROWTH AND/OR DELAYED MATURITY) MAY RESULT. DO NOT APPLY THUNDER® POSTEMERGENCE TO LIMA BEANS, LENTILS, OR CHICKPEAS.
- DO NOT MAKE MORE THAN ONE APPLICATION OF THUNDER® PER YEAR.
- Allow at least 30 days between application and harvest for succulent peas and succulent lima beans.
- Allow at least 60 days between application and harvest for dry edible peas, chickpeas, lentils and dry lima beans.
- A maximum of 0.047 lb a.e./A of imazethapyr (3.0 oz./A of THUNDER®) per year may be applied to Peas and Beans in this region.

**WEEDS CONTROLLED**

**THUNDER® applied PPI and/or Preemergence at 3 oz/A will control:**

Weeds Controlled	Preplant Incorporated	Preemergence
Buckwheat, wild	C	C
Kochia (non-ALS resistant)	C	C
Lambsquarters, common	C	-
Mustard, wild	C	C
Nightshade, Black	C	C
Eastern black	C	C
Hairy	C	C
Pigweed, redroot	C	C
Shepherdspurse	C	C
Thistle, Russian	C	C

**NOTE:** C = Control

**THUNDER® applied postemergence at the broadcast rate of 2 ounces will control:**

Wild mustard                                      Black nightshade\*  
Eastern black nightshade\*                      Hairy nightshade\*

\*Suppression only

Refer to the PRECAUTIONS section for additional instructions.

## CHICKPEAS

### **DIRECTIONS FOR USE in the states of Arizona and California.**

#### **APPLICATION RATE AND TIMING**

Preplant Incorporated Applications. Apply THUNDER® at the broadcast rate of up to 3 ounces per acre within 1 week before planting. Applied preplant incorporated, THUNDER® may be tank-mixed with a registered grass herbicide.

Preemergence Applications. Apply THUNDER® at the broadcast rate of up to 3 ounces per acre immediately after or up to 3 days after planting. THUNDER® may be applied in a tank-mix with a registered grass herbicide or applied preemergence following a preplant incorporated application of a registered grass herbicide.

#### **RESTRICTIONS:**

- DO NOT MAKE MORE THAN ONE APPLICATION OF THUNDER® PER YEAR.
- Allow at least 30 days between application and harvest of succulent chickpeas. Allow at least 60 days between application and harvest of dry chickpeas.
- A maximum of 0.047 lb a.e./A of imazethapyr (3.0 oz./A of THUNDER®) per year may be applied to Chickpeas in this region.

### **WEEDS CONTROLLED**

<b>Weeds Controlled</b>	<b>Preplant Incorporated</b>	<b>Preemergence</b>
Buckwheat, wild	C	C
Kochia (non-ALS resistant)	C	C
Lambsquarters, common	C	-
Mustard, wild	C	C
Nightshade, Black	C	C
Eastern black	C	C
Hairy	C	C
Pigweed, redroot	C	C
Shepherdspurse	C	C
Thistle, Russian	C	C

**NOTE:** C = Control

Refer to the PRECAUTIONS and RESTRICTIONS section for additional instructions.

## PEANUTS

### **DIRECTIONS FOR USE**

#### **THUNDER® HERBICIDE USE RATE**

(4 OUNCES PER ACRE)  
(Not for use in California)

Apply THUNDER® at a broadcast rate of 4 ounces per acre (1/4 pint) for all methods of application (except sequential - see below): preplant incorporated, preemergence, ground-cracking and postemergence. At this broadcast rate, one gallon of THUNDER® will treat 32 acres of peanuts.

THUNDER® may also be applied in a sequential application. Apply 2 ounces in a soil application (preplant incorporated or preemergence) followed by 2 ounces applied at ground-crack or postemergence.

#### **RESTRICTIONS:**

- A maximum of 0.063 lb a.e./A of imazethapyr (4.0 oz./A of THUNDER®) per year may be applied to Peanuts.

**NOTE:** In Arizona for use only in Yuma and La Paz counties.

## WEEDS CONTROLLED

When applied as directed, THUNDER® will control or reduce competition from the weeds listed below. Refer to the MIXING INSTRUCTIONS section for recommendations when weeds are at the maximum recommended growth stage, or are under stress.

**NOTE:** C = Control, R = Reduced Competition

(The number under Maximum Leaf Stage indicates the MAXIMUM number of leaves at which weeds should be sprayed postemergence).

### BROADLEAF WEEDS

Weeds Controlled	SOIL APPLIED	AT-CRACK	POSTEMERGENCE	
			Maximum Leaf Stage	Size (inches)
Alligator weed		C	4	1-3
Anoda, spurred	C	C	2	1-2
Buffalobur	C*	C	R	1-3
Bristly starbur			2	1-2
Carpetweed	C	C		
Cocklebur, common	R	C	8	1-8
Devilsclaw	C	C		
Galinsoga	C	C		
Jimsonweed	C*	C	4	1-3
Lambsquarters, common	C*	C	R	1-2
Morningglory entireleaf	R	C	2	1-2
ivyleaf	R	C	2	1-2
pitted	R	C	2	1-2
smallflower	C	C	4	1-3
tall	R	C	2	1-2
Mustard sp.	C	C	4	1-3
Nightshade black	C	C	4	1-3
Eastern black	C	C	4	1-3
hairy	C	C	4	1-3
Pigweed redroot	C	C	8	1-8
smooth	C	C	8	1-8
spiny	C	C	8	1-8
Poinsettia, wild	C	C	-	-
Puncturevine	C	C	-	-
Purslane, common	C	C	-	-
Pusley, Florida	C	C	-	-
Ragweed, common	R	R	4	1-3
giant	R	R	4	1-3

(continued)

Weeds Controlled	SOIL APPLIED	AT-CRACK	POSTEMERGENCE	
			Maximum Leaf Stage	Size (inches)
Sida, prickly (teaweed)	C*	C	-	-
Smartweed	C	C	4	1-3
ladysthumb	C	C	4	1-3
Pennsylvania	C	C	4	1-3
Spurge	C	C	4	1-3
prostrate	C	C	4	1-3
spotted	C	C	4	1-3
toothed	C	C	-	-
Sunflower	C*	C	4	1-3
Velvetleaf	C*	C	4	1-3

- When THUNDER® is soil applied, these weeds are more consistently controlled by preplant incorporated treatments.

### GRASS WEEDS

Weeds Controlled	SOIL APPLIED*	AT-CRACK	POSTEMERGENCE	
			Maximum Leaf Stage	Size (inches)
Barnyardgrass	R	R	3	1-3
Crabgrass,	R	C	3	1-3
large	R	C	3	1-3
smooth	R	C	3	1-3
Cupgrass, woolly	-	-	3	1-3
Foxtail,	C	C	6	1-6
giant	C	C	3	1-3
green	C	C	3	1-3
Yellow	C	C	3	1-3
Goosegrass	R	R	-	-
Johnsongrass,	C	C	6	1-8
seedling	-	-	R	6-12
rhizome	-	-	R	6-12
Panicum,	R	-	-	-
fall	R	-	-	-
Texas	R	-	-	-
Red rice	-	-	3	1-3
Shattercane	R	R	6	1-8
Signalgrass, broadleaf	R	C	4	1-6
SEDGES				
Nutsedge	C	C	3	1-3
purple	C	C	3	1-3
yellow	C	C	3	1-3

When THUNDER® is soil applied to grasses, more consistent control can be obtained from preplant incorporated treatments.

Do not count cotyledon leaves when determining weed stage of growth.

“AT CRACK” APPLICATION refers to the time when the soil cracks due to the emerging peanut seedling. This generally occurs from 10 to 14 days following planting. At this time weeds have generally not germinated, or are in the seedling stage. If weeds have more than 2 true leaves, refer to the POSTEMERGENCE weed control column for weeds controlled.

In West Texas and New Mexico, wait until late cracking (most of the peanuts have emerged) before applying THUNDER®.

THUNDER® is active against many broadleaf and grass species. However, when heavy grass or common lambsquarters pressure is anticipated, THUNDER® should be used in combination with a registered soil-applied grass herbicide (See HERBICIDE COMBINATIONS section).

#### **WEEDS CONTROLLED BY SEQUENTIAL APPLICATIONS OF THUNDER®**

The sequential (split) application of THUNDER® consists of an application of 2 ounces of product soil applied (either preplant incorporated or preemergence) followed by 2 ounces applied either at ground-crack or postemergence.

When applied as a sequential treatment, THUNDER® will control the weeds listed under the “SOIL APPLIED” and “AT-CRACK” applications in the BROADLEAF WEEDS and GRASS WEEDS tables (in the peanut section of the label). It enhances the control of yellow and purple nutsedge. Apply the second application before the nutsedge exceeds 3 leaves.

## **SOYBEANS**

### **DIRECTIONS FOR USE**

#### **USE RATE - (4 OUNCES PER ACRE)**

Apply THUNDER® at a broadcast rate of 4 ounces per acre (1/4 pint) for all methods of application: early pre-plant, preplant incorporated, preemergence, and postemergence (including minimum and no-till). At this broadcast rate, one gallon of THUNDER® will treat 32 acres of soybeans. (See instructions under section APPLICATIONS TO SOYBEANS IN NORTH DAKOTA AND MINNESOTA for applications in North Dakota and Minnesota north of highway #210).

#### **RESTRICTIONS:**

- Only one application of THUNDER® may be made during the year.
- A maximum of 0.063 lb a.e./A of imazethapyr (4 oz./A of THUNDER®) per year may be applied to soybeans.
- Not for use in California

### **WEEDS CONTROLLED**

When applied as directed, THUNDER® will control or reduce competition from the weeds listed below. Refer to the MIXING INSTRUCTIONS section for recommendations when weeds are at the maximum recommended growth stage, or are under stress.

**NOTE:** C = Control, R = Reduced Competition

(The number under Maximum Leaf Stage indicates the MAXIMUM number of leaves at which weeds should be sprayed postemergence).

Do not count cotyledon leaves when determining weed stage of growth.

## BROADLEAF WEEDS

Weeds Controlled	SOIL APPLIED	POSTEMERGENCE	
		Maximum Leaf Stage	Size (inches)
Alligator weed	-	4	1-3
Anoda, spurred	C	2	1-2
Artichoke, Jerusalem	-	8	6 10
Buffalobur	C*	R	1-3
Bristly starbur	-	2	1-2
Carpetweed	C	-	-
Cocklebur, common	R	8	1-8
Galinsoga	C	-	-
Jimsonweed	C*	4	1-3
Kochia (non-ALS resistant)	C	4	1-3
Lambsquarters, common	C*	R	1-2
Mallow, Venice	R	-	-
Marshelder	C	4	1-3
Morningglory entireleaf	R	2	1-2
ivyleaf	R	2	1-2
pitted	R	2	1-2
smallflower	C	4	1-3
tall	R	2	1-2
Mustard sp.	C	4	1-3
Nightshade black	C	4	1-3
Eastern black	C	4	1-3
hairy	C	4	1-3
Pigweed redroot	C	8	1-8
smooth	C	8	1-8
spiny	C	8	1-8
Poinsettia, wild	C	-	-
Puncturevine	C	-	-
Purslane, common	C	-	-
Pusley, Florida	C	-	-
Sida, prickly	c*	-	-
Ragweed, common	R	R	1-3
giant	R	R	1-3
Sage, barnyard	R	1-3	-
Smartweed ladysthumb	C	4	1-3
Pennsylvania	C	4	1-3

(continued)

Weeds Controlled	SOIL APPLIED	POSTEMERGENCE	
		Maximum Leaf Stage	Size (inches)
Spurge prostrate spotted	C	4	1-3
	C	4	1-3
Sunflower	C*	4	1-3
Velvetleaf	C*	4	1-3
Thistle, Canada	-	R	1-3

- When THUNDER® is soil applied, these weeds are more consistently controlled by preplant incorporated treatments.

### GRASS WEEDS\*

Weeds Controlled**	SOIL APPLIED	POSTEMERGENCE	
		Maximum Leaf Stage	Size (inches)
Barnyardgrass	R	3	1-3
Crabgrass, large smooth	R	3	1-3
	R	3	1-3
Cupgrass, woolly***	-	3	1-3
Foxtail, giant green yellow	C	6	1-6
	C	3	1-3
	C	3	1-3
Goosegrass	R	-	-
Johnsongrass, seedling rhizome	R	6	1-8
	C	R	6-12
Millet, wild proso	R	R	1-3
Panicum, fall Texas	R	-	-
	R	-	-
Red rice	-	3	1-3
Shattercane	R	6	1-8
Signalgrass, broadleaf	R	4	1-8
Sorghum, alnum	R	6	1-3
SEDGES			
Nutsedge purple yellow	R	R	1-3
	R	R	1-3

\* Preplant incorporated treatments of THUNDER® are more consistent for grass control.

\*\*THUNDER® only controls emerged woolly cupgrass



## HERBICIDE COMBINATIONS

### GRASS WEEDS

A selective postemergence grass herbicide such as Poast® Plus may be mixed with THUNDER® to control volunteer corn or grasses not controlled by THUNDER®. For best results use crop oil concentrate AND liquid fertilizer with grass herbicide tank-mixtures.

THUNDER® + POAST® For Enhanced Grass Control

Apply THUNDER® at the rate of 4 ounces per acre.

Refer to the POAST® label for the appropriate rate of POAST® for enhanced grass control. The addition of POAST® to THUNDER® at the recommended rates will control the grasses listed below. (Refer to the POAST® label for additional weeds controlled).

Annual Grasses Controlled	Size (inches)
Wild Proso Millet	4-10"
Shattercane	3-12"
Foxtail, Giant	3-8"
Junglerice	3-8"
Panicum, Fall	3-8"
Texas	3-8"
Signalgrass, Broadleaf	3-8"
Volunteer Corn	4-10"
Barnyardgrass	3-8"
Crabgrass, Large	3-6"
Smooth	3-6"
Cupgrass, woolly	3-8"
Foxtail, Green	3-8"
Yellow	3-8"
Goosegrass	3-6"
Johnsongrass, Seedling	3-8"
Sprangletop, Red	3-8"
Witchgrass	3-8"

The addition of POAST® herbicide to THUNDER® enhances the grass control, especially when heavy infestations of grass exist. It also provides control of grasses not controlled by THUNDER®. In some cases the activity of POAST may be reduced when mixed with THUNDER®. The reduction in activity may be overcome by delaying the application of POAST® herbicide 7 days following the application of THUNDER®. If POAST is applied first, wait 3 days before applying THUNDER®.

For optimum control, apply the tank mixture to actively growing weeds at the sizes indicated in the table above, (for sequential applications refer to application rates and weeds sizes indicated in the THUNDER® and POAST® labels). Refer to the POAST® label for additional information regarding application rates, restrictions, precautions, weeds controlled, adjuvants recommended and other information.

## BROADLEAF WEEDS

### **Broadleaf herbicides that can be tank-mixed with THUNDER® include**

ULTRA BLAZER® (acifluorfen)

Basagran® (bentazon)

Cobra® (lactofen)

FirstRate® (cloransulam-methyl)

Gramoxone® Extra (paraquat)

Storm® (bentazon + acifluorfen)

Flexstar® (Fomesafen)

Reflex® (Fomesafen)

Roundup® Ultra (glyphosate) may be tank-mixed with THUNDER® to aid in control of certain weeds only in Roundup Ready® Soybeans.

See the Roundup Ultra® label for rates and weeds controlled and other restrictions. Certain herbicides should not be applied with THUNDER® (see PRECAUTIONS section).

THUNDER® + ULTRA BLAZER® For Enhanced Control of Common Ragweed and Pigweeds (including tall and common waterhemp).

The addition of ULTRA BLAZER® to THUNDER® at the specified rates will enhance the control of several broadleaf weeds, including common and giant ragweed, pigweed species and waterhemp. (Refer to the ULTRA BLAZER® label for specified rates and additional weeds controlled). When tank-mixing ULTRA BLAZER® with THUNDER®, apply THUNDER® at the rate of 4 ounces per acre.

THUNDER® + FirstRate® for Enhanced Control of Ragweed Species.

FirstRate® may be tank-mixed with THUNDER® to aid in the control of common and giant ragweed. See the FirstRate label for recommended rates and precautions.

THUNDER® + Sulfentrazone Containing Compounds.

THUNDER® provides control of many grasses and broadleaf weeds when applied to the soil or applied postemergence to weeds. It also provides season-long control of many weeds. Sulfentrazone containing products (such as Authority® or Canopy® XL) may be tank-mixed with THUNDER® in soil applications for enhanced weed control in soybeans.

THUNDER® may be applied postemergence to soybeans previously treated with sulfentrazone containing products.

**NOTE:** Sulfentrazone-containing products are only labeled for soil applications to soybean.

THUNDER® + Harmony® GT for Enhanced Control of Common Lambsquarters

For optimal weed control management, apply a soil applied grass herbicide such as PROWL®, TRI-4®, or Trifluralin followed by THUNDER® postemergence. If common lambsquarters are not adequately controlled by the soil applied treatment, Harmony® GT herbicide may be tank-mixed with THUNDER® for additional activity.

The addition of Harmony® GT herbicide to THUNDER® may cause severe injury and/or stunting to soybeans, especially when applied under hot, humid conditions. The USER ASSUMES ALL RISKS AND CONSEQUENCES associated with applications of this tank-mixture to soybeans.

### **Add to the spray mixture:**

Non-ionic surfactant

1 quart per 100 gallons (0.25% v/v)

### **AND**

Liquid nitrogen based fertilizer (such as 28%N, 32%N, or 10-34-0) at the rate of 1.25 to 2.5 gallons per 100 gallons of spray solution. Instead of a liquid fertilizer, spray grade ammonium sulfate may be used at the rate of 12-15 lbs. per 1.00 gallons of spray solution.

Apply to 1-3 trifoliolate stage soybeans only.

### Other Tank mixture Combinations

THUNDER® + SCEPTER® DG for Volunteer Corn and Common Sunflower

The application of THUNDER® plus SCEPTER® DG may be applied to states or portions of states described as Region 2 or Region 3 on the SCEPTER® DG label, and the following counties in South Dakota: Yankton, Bon Homme, Hutchinson, McCook, Hanson, Davison, Miner, Lake and Kingsbury. Refer to the respective labels for the recommended use area.

#### RESTRICTION:

- Do not use this tank mixture in North Dakota or in Minnesota north of state highway #210.

The tank mixture of THUNDER® plus SCEPTER® DG will suppress volunteer corn. Apply to volunteer corn up to 10 inches in height. The tank-mixture of THUNDER® and SCEPTER® DG will enhance the control of common sunflowers. Apply to sunflowers up to 3 inches in size. Refer to the SCEPTER® DG label for additional weeds controlled.

A postemergence application of THUNDER® plus SCEPTER® DG will NOT suppress volunteer CLEARFIELD® corn (field corn hybrids which possess tolerance or resistance to imidazolinone herbicides i.e., THUNDER® and SCEPTER® DG).

### APPLICATIONS TO SOYBEANS IN NORTH DAKOTA AND MINNESOTA (north of highway #210).

#### Application Rate:

Apply THUNDER® at 3 ounces per acre postemergence only.

Weeds Controlled	POSTEMERGENCE	
	Maximum Leaf Stage	Size (inches)
Cocklebur, common*	4	1-4
Kochia (non-ALS resistant)	4	1-3
Mustard, species	4	1-3
Nightshade, black	4	1-3
Eastern black	4	1-3
hairy	4	1-3
Pigweed, redroot	4	1-4
Wild oats**	3	1-4

\* For control of common cocklebur, add ULTRA BLAZER® herbicide at the rate specified on the ULTRA BLAZER label

\*\*THUNDER® will reduce competition from wild oats.

## ROTATIONAL CROP RESTRICTIONS

The following rotational crops may be planted after applying THUNDER® at the specified rate: (Planting earlier than the recommended interval may result in crop injury).

PLANTBACK INTERVAL	CROPS
Anytime	CLEARFIELD® corn hybrids (resistant/tolerant to THUNDER®) Lima beans Peanuts Southern peas Soybeans
Four Months	Alfalfa Clover Edible beans and peas (other than lima beans and Southern peas) Rye (Except in North Dakota and Minnesota north of highway #210) Wheat
Eight and one-half months	Field corn Field corn grown for seed
Nine and one-half months	Barley Tobacco
Eighteen months	Cotton* Lettuce Oats Popcorn Rice (non-imidazolinone tolerant) Rye in North Dakota and Minnesota north of highway #210 Sorghum Sunflower Sunflower Sweet corn
Twenty six months	Flax Potatoes
Forty months	All crops not listed elsewhere in these ROTATIONAL CROP RESTRICTIONS**

\* Refer to the following table for a Cotton Rotation Interval following THUNDER® application to alfalfa or clover grown for seed production. These instructions do not apply to THUNDER® applications made to alfalfa grown for hay or forage (Use the 18 month Rotational Interval above).

### Cotton Rotation Following Application of THUNDER® to Alfalfa or Clover Grown For Seed

Irrigation/Precipitation Requirements	Rotation Interval	
	Less than 3 acre feet or 36" of water	40 Months
	Greater than or equal to 3 acre feet or 36" of water	18 Months

\*\*Following forty months after a THUNDER® application, and before planting any crop not listed elsewhere in the ROTATIONAL CROP RESTRICTIONS, a successful field bioassay must be completed. The field bioassay consists of a test strip of the intended rotational crop planted across the previously treated field and grown to maturity. The test strip should include low areas and knolls, and include variations in soil such as type and pH. If no crop injury is evident in the test strip, the intended rotational crop may be planted the following year.

Sugarbeet production can be reduced when grown in soil conditions with a pH less than 6.5. If the field is limed to adjust pH prior to planting rotational crops not listed in the ROTATIONAL CROP RESTRICTIONS, apply the lime at least 12 months prior to planting the rotational crop.

Use of THUNDER® herbicide in accordance with label directions is expected to result in normal growth of rotational crops in most situations; however, various environmental and agronomic factors make it impossible to eliminate all risks associated with the use of this product and, therefore, rotational crop injury is always possible.

### **EXCEPTIONS TO ROTATIONAL CROP RESTRICTIONS**

**Barley:** (States of Delaware, Indiana, Kentucky, Maryland, New Jersey, Ohio, Pennsylvania, and Virginia only). Barley may be planted 4 months following a THUNDER® application in these states.

**CLEARFIELD® canola:** CLEARFIELD® varieties of canola, such as Pioneer® 45A71 and Pioneer® 46A76, may be planted as a rotational crop the next season after an application of THUNDER® herbicide at label rates on registered crops.

**Corn inbred lines:** Corn inbred seed lines may be planted the year following an application of THUNDER®. Several seed companies have tested a wide range of inbreds for sensitivity to THUNDER® soil residues and have reported good crop safety. However, due to the proprietary nature of seed production, Albaugh has not been given access to the inbred data. Growers are directed to contact the seed company for information and recommendations regarding the planting of corn grown for seed in fields treated with THUNDER® the previous year. Since growing conditions, environmental conditions and grower practices are beyond the control of Albaugh, all risks and consequences associated with planting seed corn inbreds into fields treated previously with THUNDER® shall, to the extent allowable by applicable law, be assumed by the user.

**Sweet corn and popcorn varieties:** (States of Illinois, Indiana, Iowa, Minnesota, Ohio, Tennessee, and Wisconsin only). Sweet corn and popcorn varieties may be planted the year following an application of THUNDER®. Some sweet corn and popcorn varieties may be injured when planted at less than 18 months following an application of THUNDER® herbicide. Before planting sweet corn for processing, contact the processor company for information and recommendations regarding the tolerance of sweet corn varieties planned for fields treated with THUNDER® the previous year. DO NOT plant fresh market sweet corn varieties prior to 18 months after THUNDER® use. Before planting popcorn, contact the popcorn company for information and recommendations regarding the tolerance of popcorn varieties planned for fields treated with THUNDER® the previous year. Since growing conditions, environmental conditions and grower practices are beyond the control of ALBAUGH, LLC, TO THE EXTENT ALLOWABLE BY APPLICABLE LAW, ALL RISKS AND CONSEQUENCES ASSOCIATED WITH PLANTING SWEET CORN OR POPCORN VARIETIES INTO FIELDS TREATED PREVIOUSLY WITH THUNDER® SHALL BE ASSUMED BY THE USER.

Stunting and maturity delay or other adverse effects may result when sweet corn or popcorn are planted following THUNDER® use.

**Certain vegetable crops:** (States of Alabama, Delaware, Florida, Georgia, Indiana, Kentucky, Maryland, New Jersey, North Carolina, Pennsylvania, South Carolina, and Virginia only). The following crops may be planted 18 months following the last application of THUNDER®: bahagrass, cabbage, cantaloupe, cucumber, Irish potato, onion, sweet potato transplants, sweet pepper transplants, tomato transplants, and watermelon.

**Cotton:** (States of North Carolina, South Carolina and Virginia only) Cotton may be planted nine and one-half months after an application of THUNDER® if all of the following criteria are met:

- THUNDER® applied to peanuts only
- Soil texture is sandy loam or loamy sand only
- Greater than 16 inches of rainfall and/or irrigation is received following application of THUNDER® through October of the application year

**Field Corn and Field Corn Grown for Seed:** (Arizona, Hawaii, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming). Nine and one-half months after THUNDER® application.

**Snap Beans:** When applied at no more than 1.5 ounces per acre to snap beans in the use areas defined on this label, snap beans may be replanted at anytime after application of THUNDER®.

**Wheat:** Wheat may be planted 3 months following a THUNDER® application in areas east of Interstate highway 1-35.

When THUNDER® is applied at no more than 3 ounces per acre to edible legumes in the use areas described the following rotational restrictions apply:

- Chickpeas, lentils and peas may be planted anytime following a THUNDER® application.
- Snap beans may be planted 3 months and barley 4 months following an application of THUNDER®.

## **PRECAUTIONS FOR SPECIFIC CROPS**

### **PRECAUTIONS FOR CLEARFIELD® CORN**

- All soil insecticides, including labeled banded or in-furrow applications, may be used in combination with Pioneer imidazolinone resistant (IR) corn hybrids.
- Imidazolinone tolerant hybrids from other seed companies may occasionally exhibit injury symptoms when soil insecticides are used in combination with THUNDER®.
- Other registered organophosphate insecticides such as banded applications of COUNTER® CR or THIMET® soil and systemic insecticide, or in-furrow applications of COUNTER® CR or other registered carbamate or pyrethroid insecticides may be used in combination with THUNDER® applications. ALBAUGH, LLC has not tested all hybrids in which the imidazolinone tolerance trait is claimed and cannot be responsible for factors which are beyond its control, such as growing conditions, environmental conditions, grower practices and the specific genetics of each hybrid tolerance to THUNDER® and insecticide applications.

### **PRECAUTIONS FOR SOYBEANS**

- If soybeans are furrow irrigated, till the soil prior to planting winter wheat or barley. The beds should be broken up and the soil mixed with tillage equipment set to cut 4-6 inches deep.
- THUNDER® applications should be made before soybean bloom.
- THUNDER® may be applied postemergence following a soil application of Command®.

### **PRECAUTIONS FOR PEANUTS**

- Classic® may be applied postemergence to peanuts following an THUNDER® application. Refer to the Classic® label for specific use directions.

### **PRECAUTIONS FOR ALL CROPS**

- Full rate application of products containing chlorimuron ethyl (Classic®, Canopy® XL, Synchrony®, etc.) chlorsulfuron-methyl (FirstRate®), flumetsulam (Hornet®, Python®), imazaquin (SQUADRON®, SCEPTER® 7ODG) or products containing imazethapyr (THUNDER® DG or THUNDER® & PLUS EC) the same year as THUNDER® may increase the risk of injury to sensitive follow crops. Consult labels for recommended uses of these products in combinations.

## **RESTRICTIONS FOR SPECIFIC CROPS**

### **RESTRICTIONS FOR CLEARFIELD® CORN**

- There must be an interval of at least 45 days between an application of THUNDER® and corn harvest (silage, fodder, or grain).
- DO NOT graze or feed treated corn forage, silage, fodder, or grain for at least 45 days after an application of THUNDER®.
- DO NOT USE COUNTER® 15G systemic insecticide-nematicide in-furrow with imidazolinone tolerant corn hybrids.



### **RESTRICTIONS FOR NON-GRASS ANIMAL FEED (ALFALFA AND CLOVER)**

- Do not feed, graze or harvest alfalfa or clover for 30 days following an application of THUNDER® to alfalfa or clover.

### **RESTRICTIONS FOR SOYBEANS**

- There must be an interval of at least 85 days between an application of THUNDER® and soybean harvest.
- Do not graze or feed treated soybean forage, hay or straw to livestock.
- DO NOT tank-mix THUNDER® with clomazone containing herbicides (Command®).

### **RESTRICTIONS FOR PEANUTS**

- Do not graze or feed treated peanut forage, vines, hay or straw to livestock.
- There must be an interval of at least 85 days between an application of THUNDER® and peanut harvest.
- DO NOT apply PURSUIT PLUS® EC to peanuts the same year as THUNDER®.

### **RESTRICTIONS FOR EDIBLE VEGETABLE LEGUMES**

- There must be an interval of at least 30 days between application and harvest of snap beans, lima beans, chickpeas (Arizona and California), English peas, and Southern peas.
- There must be an interval of at least 60 days between application and harvest of dry edible peas, lentils, chickpeas, red kidney beans, and other dry bean or pea types listed on this label.

### **RESTRICTIONS FOR ALL CROPS**

- Only rotational crops harvested at maturity may be used for feed or food.
- In the event of a crop loss due to weather, soybeans, peanuts or CLEARFIELD® corn can be replanted. DO NOT work the soil deeper than 2 inches.

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## **DISCLAIMER**

The label instructions for the use of this product reflect the opinion of experts based on research and field use. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, herbicide resistant weed populations, or the use of, or application of the product contrary to label instructions, all of which are beyond the control of ALBAUGH, LLC All such risks shall be assumed by the user.

ALBAUGH, LLC shall not be responsible for losses or damages resulting from use of this product in any manner not set forth on this label. User assumes all risks associated with the use of this product in any manner not specifically set forth on this label.



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#### **Edible Bean User/Grower**

THIS PRODUCT WHEN USED ON EDIBLE LEGUME CROPS MAY LEAD TO CROP INJURY, LOSS, OR DAMAGE. ALBAUGH, LLC RECOMMENDS THAT THE USER AND/OR GROWER TEST THE PRODUCT IN ORDER TO DETERMINE ITS SUITABILITY FOR SUCH INTENDED USE. ALBAUGH, LLC MAKES THIS PRODUCT AVAILABLE TO THE USER AND/OR GROWER SOLELY TO THE EXTENT THE BENEFIT AND UTILITY, IN THE SOLE OPINION OF THE USER AND/OR GROWER, OUTWEIGH THE EXTENT OF POTENTIAL INJURY ASSOCIATED WITH THE USE OF THIS PRODUCT. THE DECISION TO USE OR NOT TO USE THIS HERBICIDE MUST BE MADE BY EACH INDIVIDUAL THUNDER® USER AND/OR GROWER ON THE BASIS OF POSSIBLE CROP INJURY FROM THUNDER®, THE SEVERITY OF WEED INFESTATION, THE COST OF ALTERNATIVE WEED CONTROLS, AND OTHER FACTORS. ALBAUGH, LLC INTENDS THAT BECAUSE OF THE RISK OF FAILURE TO PERFORM OR CROP DAMAGE THAT ALL SUCH USE IS AT THE USER'S AND/OR GROWER'S RISK.

ALBAUGH, LLC DISCLAIMS ANY LIABILITY FOR CLAIMS, CAUSES OF ACTION, FINES, PENALTIES, DAMAGES, INCLUDING CONSEQUENTIAL INCIDENTS AND DAMAGES, LOSSES, LIABILITIES, JUDGMENTS, AND EXPENSES ARISING OUT OF OR RELATING TO INJURY TO PERSONS, CROPS, OR PROPERTY RESULTING FROM THE USE OF THUNDER® HERBICIDE ON EDIBLE LEGUMES CONTRARY TO THE LABEL INSTRUCTIONS.

#### **Uses With Other Products (Tank-mixes)**

If this product is used in combination with any other product except as specifically recommended in writing by ALBAUGH, LLC, then ALBAUGH, LLC shall have no liability for any loss, damage or injury arising out of its use in any such combination not so specifically recommended. If used in combination recommended by ALBAUGH, LLC, the liability of ALBAUGH, LLC shall in no manner extend to any damage, loss or injury not directly caused by the inclusion of the ALBAUGH, LLC product in such combination use, and in any event, to the extent allowable by applicable law, shall be limited to return of the amount of the purchase price of the ALBAUGH, LLC product.