

ALFALFA AND CLOVER

General Information

GENERAL INFORMATION

Not for use on CLEARFIELD rice or any other rice varieties or hybrids.

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 the 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 sulfonyleureas (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, INC. 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 recommended).

USE AREA RESTRICTIONS

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

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 the 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 APPLICATIONS

THUNDER herbicide may be applied by air to crops listed in the 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).

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 the 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.

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.

Limitations, Restrictions, and Exceptions

ALFALFA AND 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.

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 GUIDELINE section on the label for plant-back interval of various crops.

PRE-HARVEST INTERVAL

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

WEEDS CONTROLLED

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

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.

Method

[Broadcast/Foliar Air](#)

[Broadcast/Foliar Ground](#)

[Broadcast/Foliar Air](#)

[Broadcast/Foliar Ground](#)

Rates

[field rates 0](#)

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Restricted Entry Interval

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.

Timings

[Postemergence \(Weed\)](#)

[In the fall, in the spring to dormant, or semi-dormant alfalfa or clover \(less than 3 inches of re-growth\), or between cuttings.](#)