OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION
WASHINGTON, D.C. 20460

February 24, 2025

Dazhi Mao
Regulatory Scientist
Nufarm Americas Inc.
11901 S. Austin Ave
Alsip, IL 60803

Subject: PRIA Label Amendment – added pineapple and sugarcane uses on label and add drench application method for existing ornamentals uses.
Product Name: Nufarm Ethephon 2 Plant Growth Regulator
EPA Registration Number: 228-660
Application Date: June 22, 2020 and March 10, 2023
Case Number: 474783 and 480289

Dear Dazhi Mao,

The amended label referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is acceptable. This approval does not affect any conditions that were previously imposed on this registration. You continue to be subject to existing conditions on your registration and any deadlines connected with them.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 18 months from the date of this letter. After 18 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. “To distribute or sell” is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

Should you wish to add/retain a reference to the company’s website on your label, then please be aware that the website becomes labeling under FIFRA and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) lists examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product’s label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find

or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

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

If you have any questions, please contact Elisha Graham at graham.elisha@epa.gov.

Sincerely,

Kristy Crews, Ph.D., Product Manager 22
Fungicide Branch, Registration Division (7505T)

Enclosure- Stamped Label

Nufarm Ethephon 2 Plant Growth Regulator

[Alternate brand name: VERVE™ Plant Growth Regulator]

Intended for Commercial or Agricultural Use Only

For use on Apples, Blackberries, Blueberries, Cantaloupes, Cherries, Grapes, Peppers, Pineapple, Sugarcane, Tobacco, Field and Greenhouse Tomatoes, Walnuts, and for Minimizing Lodging in Barley and Wheat

For the Removal of Dwarf Mistletoe in Ornamental Conifers and Leafy Mistletoe in Ornamental Deciduous Trees, for Controlling Plant Height and Increasing Branching/Shoot Number in Certain Ornamental Plant Species, for the Elimination of Undesirable Fruit on Ornamental Trees and Shrubs, for Inducing Flowering of Ornamental Bromeliads, for Increased Lateral Branching in Ornamentals, for Reducing Plant Height of Potted Daffodils and Stem Topple of Potted Hyacinths, in the Production of Cucumber, Squash and Pumpkin Hybrid Seed, and for Use on Golf Course Turf

ACTIVE INGREDIENT:	
Ethephon: (2-Chloroethyl) phosphonic acid*	21.7%
OTHER INGREDIENTS:	78.3%
TOTAL:	100.0%

*1 Gallon contains 2 lb ethephon

KEEP OUT OF REACH OF CHILDREN

DANGER / PELIGRO

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

See inside label booklet for [FIRST AID and] PRECAUTIONARY STATEMENTS [and DIRECTIONS FOR USE][and STORAGE AND DISPOSAL INFORMATION]

For Medical Emergencies Call (877) 325-1840

For Chemical Spill, Leak, Fire, or Exposure, Call CHEMTREC (800) 424-9300

FIRST AID	
IF IN EYES	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
IF SWALLOWED	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything to an unconscious person.
IF ON SKIN OR CLOTHING	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
IF INHALED	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
HOTLINE NUMBER: Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact (877) 325-1840 for emergency medical treatment information.	
NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage. No specific antidote is available. All treatments should be based on observed signs and symptoms of distress in the patient. Overexposure to materials other than this product may have occurred. Victims of severe overexposure by inhalation should be kept under medical observation for up to 72 hours for delayed onset of pulmonary edema. In a victim of overexposure by ingestion, careful gastric lavage is required due to the possibility of stomach or esophageal perforation. This material is an acid but the use of alkaline substances to neutralize it is contraindicated.	

EPA REG. NO. 228-660
EPA EST. NO. _____

ACCEPTED
02/24/2025
Under the Federal Insecticide, Fungicide and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 228-660

MANUFACTURED FOR
NUFARM AMERICAS INC.
11901 S. AUSTIN AVE
ALSIP, IL 60803

NET CONTENTS _____ Gallons (_____ Liters)

[Designation as "NONREFILLABLE" or "REFILLABLE" for containers > 5 GAL]

[Grow a better tomorrow.]

000228-00660.20241030.MASTER

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
DANGER/PELIGRO

CORROSIVE: Causes irreversible eye damage. Wear safety goggles when handling. Harmful if swallowed or absorbed through skin. Do not get in eyes or on clothing. Avoid contact with skin. Do not inhale vapors as this product will irritate mucous membranes.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

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

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

Engineering Controls Statement

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

USER SAFETY RECOMMENDATIONS

Users should:

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

ENVIRONMENTAL HAZARDS

Do not contaminate water used for irrigation or domestic purposes. Do not apply directly to water, or to areas where surface is water present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Avoid spray drift to nearby crops, as this product will cause modifications in plant growth. Plant injury or reduced yields may result. Do not plant another crop within 30 days after treatment.

NON-TARGET ORGANISM ADVISORY STATEMENT: This product is toxic to plants and may adversely impact the forage and habitat of non-target organisms, including pollinators, in areas adjacent to the treated site. Protect the forage and habitat of non-target organisms by following label directions intended to minimize spray drift.

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 regulations.

Read entire label before using this product.

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), notification to workers, and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 48 hours. The REI is 72 hours in areas where average rainfall is less than 25 inches per year.

Exemptions: If the product is applied by drenching or soil-injected, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area at any time if there will be no contact with anything that has been treated.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: Coveralls over long-sleeved shirt and long pants; waterproof gloves; chemical-resistant footwear plus socks; protective eyewear; chemical-resistant headgear for overhead exposure.

Notify workers of the application by warning them orally and posting warning signs at entrances to treated areas.

NON-AGRICULTURAL USE REQUIREMENTS

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

Keep unprotected persons out of treated areas until sprays have dried

PRODUCT INFORMATION

This product is a plant growth regulator which penetrates plant tissues and degrades to ethylene which affects the growth process of the plant. This product can be used to produce the following effects in treated crops:

Apples, Grapes, Peppers, Tomatoes:	Earlier maturation and coloring of leaves
Apples, Cherries [except CA], Walnuts:	Loosens fruit/nut for earlier and more efficient harvest
Blackberries [WA & OR only]:	Earlier ripening, loosens fruit
Blueberry	Concentrates maturation for earlier harvest, reduces undesirable barrenberry fruit
Cantaloupes:	Helps abscission of fruit
Pineapples:	Stimulates uniform initiation of flowering and uniform fruit coloration
Sugarcane:	Prevents or reduces flowering; can also increase biomass accumulation and recoverable sugar yield
Sweet Cherries:	Increases hardiness of dormant fruit buds, delays spring bloom in the Pacific Northwest
Flue-Cured Tobacco:	Uniform coloring of mature leaves, earlier harvest
Ornamental Plant Species:	Controlling Plant Height and Increasing Branching/Shoot Number
Ornamental Trees and Shrubs: Apple, Crabapple, Carob, Cottonwood, Elm, Flowering Pear, Horsechestnut (Buckeye), Maple, Oak, Olive, Pine, Sour Orange, Sweetgum, and Sycamore:	Reduces or eliminates undesirable fruit development
Ornamental Conifers:	Eliminates dwarf mistletoe
Ornamental Deciduous Trees:	Eliminates leafy mistletoe

Ornamental Bromeliads such as *Ananas, Aechmea, Neoregelia, Vriesia*, and *Billbergia*.	Initiates flowering
Roses, Tallhedge, and Apple Nursery Stock	Initiates earlier leaf drop, allowing digging of stock plants prior to the onset of unfavorable weather
Greenhouse, Shadehouse, and Field Grown Ornamental Plants such as Azalea, Begonia, chrysanthemum, Geranium, Impatiens, Lantana, Verbena, Vinca vine.	Increases lateral branching
Potted Daffodils and Hyacinths	Aids in reducing total plant height of potted daffodils and stem topple of potted hyacinths at time of full flower
Cucumber, pumpkin, and squash	Modifies sex expression and flowering pattern to facilitate hybrid seed production. **DO NOT TREAT CROPS FOR HUMAN OR ANIMAL CONSUMPTION**
Turf:	Slows growth of turfgrass; suppresses seedhead formation of *Poa annua* and white clover

Additional information on how to use this product (including use rates, spray volumes (gallons of water per acre), and spray equipment) or if an application needs to be made based on weather conditions (such as variable temperatures or anticipated rainfall) can be obtained from your local Extension or Horticultural Specialist, Nufarm Representative, or Farm Advisors.

SPRAY DRIFT

AERIAL APPLICATIONS

- Do not release spray at a height greater than 10 feet above the vegetative canopy, unless a greater application height is necessary for pilot safety.
- For all applications, applicators are required to use a fine to medium or coarser droplet size (ASABE S572.I).
- The boom length must not exceed 65% of the wingspan for airplanes or 75% of the rotor blade diameter for helicopters.
- Applicators must use ½ swath displacement upwind at the downwind edge of the field.
- Nozzles must be oriented so the spray is directed toward the back of the aircraft.
- Do not apply when wind speeds exceed 10 miles per hour at the application site.
- Do not apply during temperature inversions.

GROUND BOOM APPLICATIONS

- Apply with the nozzle height recommended by the manufacturer, but no more than 3 feet above the ground or crop canopy.
- For all applications, applicators are required to use a fine to medium or coarser droplet size (ASABE S572.I).
- Do not apply when wind speeds exceed 10 miles per hour at the application site.
- Do not apply during temperature inversions.

AIRBLAST APPLICATIONS

- Direct spray into the canopy.
- Turn off outward pointing nozzles at row ends and when spraying outer rows

SPRAY DRIFT ADVISORIES

THE APPLICATOR IS RESPONSIBLE FOR A VOIDING OFF-SITE SPRAY DRIFT.
BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

BOOM-LESS GROUND APPLICATIONS

Setting nozzles at the lowest effective height will help to reduce the potential for spray drift.

IMPORTANCE OF DROPLET SIZE

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

Controlling Droplet Size - Ground Boom

- Volume - Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure - Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle - Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

Controlling Droplet Size - Aircraft

- Adjust Nozzles - Follow nozzle manufacturers recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

BOOM HEIGHT - Ground Boom

For ground equipment, the boom should remain level with the crop and have minimal bounce.

RELEASE HEIGHT - Aircraft

Higher release heights increase the potential for spray drift.

SHIELDED SPRAYERS

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area

TEMPERATURE AND HUMIDITY

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

TEMPERATURE INVERSIONS

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature inversions.

WIND

Drift potential generally increases with wind speed. AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.

Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

RESTRICTIONS

- Do not apply this product through any type of irrigation system (Exception for Ornamental Use Only).
- Do not plant another crop in treated fields until 30 days after the last application.

USE INFORMATION

- Avoid spray drift to nearby crops. This product affects plant growth and may cause injury or reduced yields in non-target crops.
- For best results, use only the additives specified on this label with this product.

MIXING DIRECTIONS

Prepare only enough spray solution for immediate use. Storage and use of previous day's spray mixture may result in equipment corrosion and reduced activity. Take precautions to avoid spillage of the concentrated product on any spray equipment or on airplane parts.

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.

THIS PRODUCT IS CORROSIVE. CLEAN UP SPILLS IMMEDIATELY BY FLUSHING WITH PLENTY OF WATER.

DO NOT MIX THIS PRODUCT WITH AMMONIUM THIOSULFATE. SUCH TANK MIXTURES RESULT IN FORMATION OF TOXIC FUMES.

APPLICATION VOLUMES AND SPRAY COVERAGE

Thorough spray coverage is essential for this product to produce maximum effects. Spray coverage is affected by choice of equipment, nozzle selection and spray boom setup as well as spray pressure, plant size and canopy density. For both air and ground applications, choose equipment that will assure thorough coverage of plant canopy (foliage and fruit). The actual spray volume required will vary with the size and density of the plant canopy and the equipment used. In California and Arizona use a minimum spray volume of 5 gallons per acre for aerial applications.

EQUIPMENT CLEANING

This product is acidic and can damage acrylic plastics, certain paints, and metals when exposed to spray droplets for extended periods of time. To prevent damage, rinse any exposed surface thoroughly using detergent and water within one hour of exposure.

CHEMIGATION

For Ornamental Use Only

- Apply this product only through pressurized drench (flood), sprinkler, or drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation systems.
- Do not connect chemigation system to a public water system.
- Crop injury, lack of effectiveness, or illegal residues in the crop can result from non-uniform distribution of
- treated water.
- If you have questions about calibration, contact your State Extension Service specialists, equipment
- manufacturers, or other experts.
- Do not connect any irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.
- Should the need arise, a person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments.

Pressurized Drench (Flood) System

Systems utilizing a pressurized water and pesticide injection system must meet the following requirements:

- The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump, (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from back flow if water flow stops.

Sprinkler and Drip (Trickle) Chemigation

- The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve

located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump, (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

Special Instructions for Injectors

Special Instructions for Proportional Injectors (e.g. Dosatron, Dosmatic, Anderson, and similar equipment) Determine the treatment rate for crop and pathogen from the foliar application table below. Determine the injection ratio for the individual system to be used for application. For systems using a 1:100 ratio, measure and add the exact specified amount of product per 100 gallons to each gallon of water in a stock bucket or tank. For systems using a 1:200 ratio, multiply the specified amount per 100 gallons by 2. For systems using a 1:50 ratio, divide the specified amount per 100 gallons added by 2. For systems using a 1:16 ratio, divide the specified amount per 100 gallons by 6. Greater accuracy in calibration and distribution will be achieved by injecting a larger volume of a more dilute suspension per unit time. An injection ratio of 1:100 is preferred for most greenhouse and nursery systems.

APPLES

This product promotes fruit maturity and loosens apples. Hand and mechanical harvest will be easier and more efficient. It can be applied with FRUITONE® N to control pre-harvest drop. This mixture stimulates early development of red color and ripening without loosening fruit.

The effects of this product on apples will depend on the rate and time of application. Some of the benefits of this product include: fruit loosening, uniform ripening and coloring without loosening, thinning and return bloom, and increased flower bud development in young trees. Follow the specific instructions in the table below for the type of effect desired from applications of this product.

RESTRICTIONS

- Do not apply more than 8.0 pints of this product (2.0 lb a.i. ethephon) per acre per year for all apple uses.
- Do not exceed 5 pints/A (1.25 lb ai/A) per year when using for fruit loosening, and promotion of uniform ripening and coloring of red varieties without loosening.
- Do not graze or feed cover crops grown in treated apple orchards to livestock.
- Limit to 3 applications per year.
- Minimum retreatment interval: 7 days
- Preharvest Interval: 7 days.

USE INFORMATION

- A number of environmental factors can affect thinning and return bloom. Test small plots of trees each year under the program desired to gain experience under local conditions.
- Overthinning and reduced fruit size may result from applications of this product. Use caution when applying it to young trees just starting to bear as excessive fruit thinning and fruit size reduction can occur.
- When this product is applied to achieve early maturity, the fruit size is reduced, especially if fruits are small at application.
- Reduced fruit quality and size is noticed in harvested apples when this product is applied earlier than 3 weeks before normal anticipated harvest.
- Apply this product only to vigorous trees. Weakened trees which are treated will show an excessive reduction in growth.
- Avoid overlap of spray applications in orchards.

WHEN TO HARVEST APPLES

Monitor fruit daily. The proper harvest period is shorter with this product treated fruit than untreated fruit. Harvest fruit before they become overripe on the trees. Check fruit intended for fresh markets for quality and maturity. In addition to fruit color, the internal maturity of applies must be checked using a pressure gauge or other suitable methods. Fruit which are harvested when over-ripe and then stored soften sooner than untreated fruit.

Crop	Product Application Rate (Pints/Acre)	Apples – Application Instructions
FOR FRUIT LOOSENING		
APPLES **EARLY AND MID-SEASON MATURING VARIETIES** **(Varieties maturing with McIntosh or earlier)**	2 ½ (0.625 lb ai/A)	Make foliar applications of this product 7 to 14 days before normal anticipated harvest. Apply in a sufficient amount of water for thorough, uniform spray coverage of foliage and fruit. Use a wetting agent to improve spray coverage. The application equipment and size of trees will affect the volume required. Make applications of this product when temperatures are between 60°F and 90°F, although applications can be made if temperatures are at 50°F but will rise during the day.

Crop	Product Application Rate (Pints/Acre)	Apples – Application Instructions
LATE MATURING VARIETIES IN THE EASTERN UNITED STATES (varieties maturing later than McIntosh)	5 (1.25 lb ai/A)	**High temperatures:** fruit treated with this product experiences reduced color response, however ripening and loosening effects will be accelerated. **Cool temperatures:** longer periods of time between application and harvest is required. **Do Not** exceed 5 pints/A (1.25 lb ai/A) per year.
FOR PROMOTION OF UNIFORM RIPENING AND COLORING OF RED VARIETIES WITHOUT LOOSENING		
APPLES **EARLY OR MIDSEASON MATURING VARIETIES (varieties maturing with McIntosh or earlier)**	1 – 4 (0.25-1.0 lb ai/A)	Make foliar applications of this product with a preharvest drop control chemical registered for use on applies (such as FRUITONE® N). Follow the directions for use on the preharvest drop control label since instructions vary depending on location and apple variety. Time applications to begin 2 to 3 weeks before normal harvest and about 1 to 2 weeks before desired harvest date. Apply in a sufficient amount of water for thorough, uniform spray coverage of foliage and fruit. The application equipment and size of trees will affect the volume required. Use a wetting agent to improve spray coverage. For apples which will be stored after harvest, use the lower application rate. As long as harvested fruit are in good condition, they can be stored in cold air storage facilities. **Do Not** apply this product to more acreage than can be harvested in 1 to 2 days. **Do Not** exceed 5 pints/A (1.25 lb ai/A) per year.
LATE MATURING VARIETIES **(varieties maturing later than McIntosh)**	2 – 4 (0.5 – 1.0 lb ai/A)	
FOR THINNING AND RETURN BLOOM		
APPLES **Most Varieties**	1.5 – 4 (0.375 – 1.0 lb ai/A)	Make applications of this product 10 to 20 days after full bloom. Tank mixes of the following products will provide greater thinning: AMID-THIN® W, SEVIN® brand 4F Carbaryl Insecticide, SEVIN brand 80 WSP Carbaryl Insecticide, SEVIN brand 80 S Carbaryl Insecticide, or SEVIN brand XLR Plus Carbaryl Insecticide. Read all labels for specific use directions on apples and follow the most restrictive of the label limitations and precautions. Do not exceed label use rates. Do not mix this product with any product with a label which prohibits such mixing. Consult local Extension Specialists for more information about which products can be mixed with this product. Add a non-ionic surfactant to improve effects. In locations where water is alkaline, add buffers to the spray solution to a pH of 3 to 5 for improved performance. Apply in a sufficient amount of water for thorough, uniform spray coverage of foliage and fruit. The application equipment and size of trees will affect the volume required.
DIFFICULT TO THIN VARIETIES, SUCH AS GOLDEN DELICIOUS	3 – 6 (0.75 – 1.5 lb ai/A)	Ensuring a good crop from one season to another can be a problem when a high percentage of spurs and lateral buds bloom in a single season. The trees in the following year will show a severe drop in bearing. This problem can be avoided with the application of this product or a combination of this product plus AMID-THIN W or this product plus one of the SEVIN products listed above. Make applications 7 to 21 days after full bloom. Selection of the best program to use will depend on the amount of thinning required and the biennial bearing history of the orchard. A reduction of “type” and fruit size of Red Delicious apples is expected particularly from applications to trees under stress. **Higher Rates:** reduced fruit size result.
FOR INCREASED FLOWER BUD DEVELOPMENT		

Crop	Product Application Rate (Pints/Acre)	Apples – Application Instructions
APPLES **NON-BEARING TREES**	2 – 8 (0.5 – 2.0 lb ai/A)	Make applications of this product 2 to 4 weeks after full bloom To minimize fruit thinning, time applications to occur 6 weeks after full bloom and after June drop. Apply in a sufficient amount of water to the point of runoff. The application equipment and size of trees will affect the volume required. Use a wetting agent to improve spray coverage. **Higher Rate**: for use on more vigorous trees. **Non-bearing trees:** Make applications of this product 2 to 4 weeks after full bloom for increased flower bud development. This product causes excessive fruit thinning and reduced fruit size and yield reduction the year of use. However, vegetative growth should be reduced and flowering increased the following spring. Do not treat trees to initiate flower buds unless they are large enough to support a crop of apples.
BEARING TREES	1/2 – 3 (0.125 – 0.75 lb ai/A)	

BLACKBERRIES – OREGON AND WASHINGTON ONLY

This product applied to blackberries will concentrate maturity and loosen fruit. Harvest efficiency will improve and cane injury from mechanical harvest will be reduced.

RESTRICTIONS

- Do not apply more than 8 pints of this product (2 lbs ai ethephon) per acre per year.
- Do not make more than 1 application per year.
- Preharvest Interval: 3 days.

USE INFORMATION

- Spray only the blackberries that can be harvested three days after treatment as considerable fruit will drop.
- To prevent a reduction in berry size, apply this product only at the specified times and rates to healthy, vigorous plants and not to damaged or diseased plants.

Crop	Product Application Rate (Pints/Acre)	Blackberries – Application Instructions
Blackberries – Oregon and Washington Only (Cultivars Chehalem Thornless and Evergreen)	5 – 8 (1.25 – 2.0 lb ai/A)	Make foliar applications of this product at least three days before harvest. Wait to make applications when air temperatures are between 60°F and 90°F and when rain is not predicted within 24 hours. To obtain thorough, uniform coverage of the foliage and fruit, use sufficient spray volumes. Applications of this product can be made early in the harvest season to reduce the number of pickings, or late in the harvest season for a once-over final picking.

BLUEBERRIES

Applications of this product to blueberries will concentrate maturity of berries for easier and more efficient harvest. This product will abort black barrenberry (*Aronia melanocarpa*) flowers and/or fruit growing in Maine lowbush blueberry fields; this effect reduces the number of undesirable barrenberry fruit harvested with blueberries.

RESTRICTIONS

- Do not make more than one application per year.
- Do not apply more than 8 pints (2.0 lb ai ethephon) of this product per acre per year.
- If this product is used for barrenberry control in Maine, do not make a second application for blueberry concentration of maturity or coloring.

USE INFORMATION

- Do not apply to cultivars other than those listed in the table below, or excessive steminess and/or premature crops will result.
- Note: Application of this product increases the number of berries with stems, and berries with slightly decreased fruit size or soluble solids and acidity. This product affects berry color more quickly than it will internal ripening.
- Application to blueberry plants under drought stress or when excessively high temperatures exist results in defoliation and reduced yield.

WHEN TO HARVEST BLUEBERRIES

Harvest when berries have reached maturity, i.e., when colored, which typically occurs one to two weeks after application of this product. Monitor berries often. The proper harvest timing for optimum internal and external berry quality is shorter with this product treated fruit than with untreated fruit. Berries will ripen faster at high temperatures (90°F).

Crop	Product Application Rate (Pints/Acre)	Blueberries – Application Instructions
FOR CONCENTRATION OF MATURITY AND EARLIER FRUIT COLORING		
Blueberries Cultivars Bluecrop, Weymouth, Jersey, Rancocas, Rubel, Bluetta, Erliblue, Wolcott, Croatan, Murphy, Angola, Morrow, Garden Blue, Trifblue and NC901	4-8 (1.0 – 2.0 lb ai/A)	Make foliar applications of this product in 150 to 200 gallons per acre when air temperatures are 60° to 90°F. Thorough uniform spray coverage of foliage and fruit is essential. A wetting agent such as Triton B-1956™ at 0.5 pints per 100 gallons or X-77® at 2.0 pints per 100 gallons will help the uniform wetting of plants. **High Rate**: when using the high rate, use the higher spray volume on large dense foliage bushes or when temperatures are cool. **When applying at first harvest:** make applications when 15 to 20% of the berries are blue. **When applying at final harvest:** make applications of this product after the first or second picking.
FOR BLACK BARRENBERRY CONTROL		
Lowbush Blueberries in Maine	4-8 (1.0 – 2.0 lb ai/A)	Make applications of this product in 100 to 200 gallons per acre for ground sprayers and 10 gallons per acre for aerial application. Thorough uniform spray coverage of foliage and fruit is essential. A wetting agent such as X-77 at 0.1% of spray volume will help the uniform wetting of plants. **Lower Rate:** use when black barrenberries are at 90 to 100% petal fall. **Higher Rate:** use when black barrenberry fruit is 1/8 to 3/16 inch in diameter which occurs generally 7 to 10 days after blueberries are in the same stages of development. Blueberry harvest can generally occur when fruit are ripe, 6 to 8 weeks after application.

CANTALOUPES – ARIZONA, CALIFORNIA AND TEXAS ONLY

Application of this product to cantaloupe results in abscission (slipping) of fruit, which results in a more efficient and economical harvesting.

RESTRICTIONS

- Do not apply more than 3 pints of this product (0.75 lb a.i. ethephon) per acre per year.
- Do not make more than 1 application per year.
- Preharvest Interval: 2 days.
- Rotation Crop Restriction: Do not plant another crop in treated fields within 30 days after treatment.

USE INFORMATION

- Do not apply this product if night temperatures are below 60°F.
- Make applications of this product to fruit that have a fairly uniform fruit set, have vines in good condition, and have fruit with marketable soluble solids and internal flesh color. Do not treat fields where soluble solids are running less than 10%.
- Applications of this product can cause some yellowing or rapid aging of vines, and some plants with poor vigor will not respond properly.

WHEN TO HARVEST CANTALOUPE

Monitor treated fields closely. Harvest fruit when the quality is acceptable for marketing. Do not allow fruit to remain in the field too long or quality will decline. Typically fruit can be harvested 2 to 5 days after treatment; however temperature will also affect the time to harvest after applications.

Crop	Product Application Rate (Pints/Acre)	Cantaloupes – Application Instructions
Cantaloupes – Arizona, California and Texas Only	3 (0.75 lb ai/A)	Make applications of this product in a minimum of 40 gallons per acre for ground sprayers. **Texas Only:** apply in a minimum of 10 gallons per acre for aerial application. Thorough uniform spray coverage of foliage and fruit is essential for uniform abscission. The effects of this product occur faster at higher temperatures. Time applications to occur once fruit quality (i.e., soluble solids and flesh color) have reached marketable levels since applications of this product do not increase these qualities. Applications made too early will yield fruit with poor color and unacceptable soluble solids.

CHERRIES – EXCLUDING CALIFORNIA

Applications of this product to cherry trees will loosen fruit and allow an early, uniform ripening. These effects reduce the shaker force needed for mechanical harvest of fruit, and thereby increases efficiency and recoverable yields, while maintaining fruit quality and reducing tree injury. In the Pacific Northwest, applications to sweet cherries increases dormant bud hardiness and delays bloom the following spring.

RESTRICTIONS

- Do not use on cherries in California.
- Do not apply more than 4.0 pints of this product (1.0 lb a.i.ethephon) per acre per year.
- Do not make more than 1 application per year.
- Preharvest Interval: 7 days

USE INFORMATION

- Fruit drop with stems attached occurs if applications are made too early.
- Applications cause early leaf yellowing and drop and gummosis.
- Severe gummosis occurs if temperatures during and after application remain higher than 85°F. Do not treat trees that have experienced severe gummosis the previous year to prevent tree damage.
- Excessive gummosis will occur if applications are made to trees that are of low vigor or have experienced severe stress (such as winter injury, drought, or disease), and particularly if high temperatures and/or drought conditions follow treatment. Make applications when air temperatures are between 60° and 85°F. Do not treat when air temperatures exceed 85°F.
- Irrigation of orchards after application prevents drought stress which can lead to gummosis.
- Applications to sweet cherry trees under the fall bud hardiness treatment causes slight gummosis and reduced individual fruit sizes.
- Do not apply until all fruit, including those inside the tree canopy, are in stage 3 (defined as when fruit undergo rapid size increase and change from bright green to yellow background color).
- Thorough, uniform coverage of fruit and foliage is important. Use caution when applying with concentrated sprays and avoid erratic application as these can lead to gummosis and tip dieback.

Crop	Product Application Rate (Pints/Acre)	Cherries – Application Instructions
Tart Cherries	Dilute Spray: 1 (0.25 lb ai/A) Concentrate Spray: 2/3 – 1 (0.165 – 0.25 lb ai/A)	Make applications of this product as either a dilute or a concentrate spray. Concentrate sprays are typically less than 100 gallons per acre. Use sufficient water for thorough, uniform coverage. Several factors (such as trees size, density of trees, and type of application equipment) will determine the optimum spray volumes to select. When the lower use rates are used, the treatment to harvest interval are longer.
Sweet Cherries (including varieties such as Windsor, Napoleon-Royal Anne, Emperor Francis)	Dilute Spray: 3-4 (0.75 – 1.0 lb ai/A) Concentrate Spray: 2 – 3 (0.5 – 0.75 lb ai/A)	
Sweet Cherries – Pacific Northwest Only	3 (0.75 lb ai/A)	**To increase dormant fruit bud hardiness and to delay spring bloom** An application of this product in the first two weeks of September increases fruit bud hardiness by decreasing the chance for winter injury and delays bloom by 3 to 5 days, which helps avoid frost injury. Bloom delay from treatment of early flowering varieties helps to coincide pollination from other varieties.

GRAPES – CALIFORNIA AND ARIZONA ONLY

TABLE GRAPES: Applications of this product cause early uniform color development in the table grape varieties listed below which allows a more efficient harvest of quality fruit.

GRAPES GROWN FOR RAISINS: A foliar spray of this product will speed the maturation of Thompson seedless grapes and result in higher quality raisins containing less acids and increased sugars.

RESTRICTIONS

- Do not apply more than 2 pints of this product (0.5 lb a.i. ethephon) per acre per year.
- Do not make more than 1 application per year.
- Preharvest Interval: 14 days.

USE INFORMATION

Table Grapes

- Do not use rates higher than 1 pint/A to avoid an increase in cracked fruit. Only use the higher rates when grapes had difficulty in coloring in previous year.
- Applications of this product to certain grape varieties cause berry softening which limits or influences storage of grapes.
- Do not store Tokay grapes.

Raisin Production (Thompson Seedless)

- Do not treat grapes which are under stress from insect damage or moisture. Monitor treated vineyards closely and harvest when grapes are mature as indicated by sugar acid levels.

WHEN TO HARVEST GRAPES

Monitor treated vineyards closely and harvest when grapes are mature—usually two weeks or longer after application–as indicated by color and sugar acid levels. Harvest grapes before the berries become too dark. Contact your Farm Advisor or Extension Viticulturist for more information regarding local experiences with this product on grapes.

Crop	Product Application Rate (Pints/Acre)	Grapes – Application Instructions
TABLE GRAPES (such as Cardinal, Emperor, Flame Seedless, Red Malaga, and Queen) California and Arizona Only	1/2 – 2 (0.125 – 0.5 lb ai/A)	**High temperature conditions (above 85°F):** apply this product at ½ to 1 pint per A. **Low temperature conditions (but above 65°F):** apply this product at the higher use rates. Thorough, uniform coverage of the fruit and vines are needed for optimum effect. Use sufficient water using conventional ground sprayers. Make applications when 5 – 30% of the berries show color.
TOKAY GRAPES California and Arizona Only	1 – 2 (0.25 – 0.5 lb ai/A)	Make applications when 5 – 15% of berries show color.
RAISIN PRODUCTION (Thompson Seedless) California and Arizona Only	1 -2 (0.25 – 0.5 lb ai/A)	Make foliar applications at 5% berry softening and when 5 – 30% of berries show color. This product speeds the maturation of Thompson Seedless grapes and produces grapes with reduced acids, increased sugars and increased raisin quality. Contact your Farm Advisor or Extension Viticulturist for more information regarding local experiences with this product on grapes.

PEPPERS

This product can be applied as a foliar spray to peppers and leads to early, uniform ripening and coloring for more efficient harvesting, packaging and handling of fruit.

RESTRICTIONS

- Do not apply more than 4 pints of this product (1.0 lb a.i. ethephon) per acre per year.
- Do not make more than 1 application per year.
- Preharvest Interval: 5 days.

USE INFORMATION

- Do not make applications when temperatures exceed 100°F, or if prolonged temperatures of 95°F or more are expected after treatment. Applications under these conditions will cause excessive fruit ripening, yellowing of foliage, defoliation, and immature fruit abscission.
- Do not treat when average temperatures are below 60°F as these temperatures reduce or negate the effects of this product. It will not ripen immature, green fruit.
- Applications cause yellowing and general aging of treated leaves.
- Under certain conditions, tank mixtures of this product with desiccants containing sodium chlorate could result in the formation of hypochlorous acids which on heating will emit toxic chloride fumes.

WHEN TO HARVEST PEPPERS

Typically, fruit can be harvested 14 or more days after treatment when fruit reach desired color and maturity. Monitor the crop in several locations for crop stage and degrees of maturity. Do not apply this product too early or if there is a lack of uniform, mature, green fruit (due to split fruit set or other soil cultural practices) or total yields will be reduced.

Crop	Product Application Rate (Pints/Acre)	Peppers – Application Instructions
Peppers	1 1/4 – 4 (0.3125 – 1.0 lb ai/A)	For optimum results, ensure thorough, uniform coverage of spray solution to fruit and foliage by selecting the appropriate application equipment (ground or air) and spray volumes. Make applications of this product to bell peppers when 10% of fruit turn red and chocolate in color and to chili and pimento pepper varieties when 10 to 30% of fruit turn red and chocolate in color. Be sure that there are sufficient mature green fruit to produce desired tonnage since this product will not ripen immature, green fruit. **Higher Rate:** for situations when cool temperatures are anticipated (less than 65°F), or when dense foliage is present; also use when higher spray volumes (3-4 pints/40 gal/A) are required. **Lower Rate:** for use with lower spray volumes (1 ¼ to 2 pint rate in 20 gal/A). **Note:** Using the 3-4 pint rate in less than 40 gallons per acre causes foliage burn under hot dry conditions.

PINEAPPLES

Application of this product to pineapple plants induces uniform flower initiation and stimulates uniform shell color of pineapple fruit.

RESTRICTIONS

- Do not graze treated pineapple forage.
- Do not apply more than 12 pints of this product (3 lb a.i. ethephon) per acre per year.
- Limit to 2 applications per year.
- Minimum retreatment interval: 2 days.
- Pre-harvest interval: 2 days.

Desired Effect	Product Application Rate (Pints/Acre)	Pineapples – Application Instructions
Flower Induction To stimulate uniform initiation of flowering	4 – 8 (1.0 – 2.0 lb ai/A)	Apply as a foliar spray when plants are at "bearing age", approximately 12 months after planting, usually about 6 months before desired harvest. Apply when foliage is dry. Proper rate varies with local growing conditions, varieties, plantation management practices, and time of year. Use the higher rate where earlier harvest is desired.
Maturity Concentration To stimulate uniform shell color development	2 – 8 (0.5 – 2.0 lb ai/A)	Apply as a broadcast spray when the first fruits begin to change color. Thoroughly cover both foliage and fruit. Use the higher rate during periods of cool or cloudy weather when normal ripening has slowed.

SUGARCANE – FOR USE IN HAWAII ONLY

Application of this product to sugarcane prevents or reduces flowering and can also result in increased biomass accumulation and recoverable sugar yield.

RESTRICTIONS

- Do not graze treated sugarcane forage.
- Do not apply more than 2 pints of this product (0.5 lb ai ethephon) per acre per year.

- Do not make more than 1 application per year.
- Pre-harvest interval: 2 months.

Desired Effect	Product Application Rate (Pints/Acre)	Sugarcane – Application Instructions
Flower Prevention To prevent or reduce flowering **Biomass Increase** Use of this product to prevent flowering can also result in increased biomass accumulation and recoverable sugar yield	2 (0.5 lb ai/A)	Apply just before flower initiation by fixed wing aircraft or helicopter using equipment designed to give uniform coverage. Use a minimum spray volume of 7 gallons per acre. Actual biomass increase is affected by the time between treatment and harvest. To determine the optimum harvest date, consider anticipated recoverable sugars as well as biomass.

TOBACCO – FLUE-CURED ONLY

This product, when applied as a foliar spray to flue-cured tobacco, causes the mature leaves to uniformly turn yellow. This feature provides flexibility in scheduling harvest and also reduces curing time. The applications can be made by directing the spray to the bottom or middle part of the plant or by spraying over the top of the plants.

RESTRICTIONS

- Do not apply more than 8 pints of this product (2 lb a.i. ethephon) per acre per year.
- Do not make more than 1 application per year.
- Do not harvest tobacco treated with this product sooner than 2 days after application.

USE INFORMATION

- Do not apply this product to immature leaves as this can result in unsatisfactory coloring, weight loss and reduced leaf quality.
- Do not allow the crop to over ripen in the field after using this product since this causes some reduction in yield and quality.
- Do not treat before an anticipated major storm which could prevent harvest and result in crop loss.
- Do not apply this product if rain is expected with 6 hours.

APPLICATION TIMING

For best results, apply this product to mature leaves. Treatment of immature leaves can lead to leaves that are not acceptable in color, quality or dryness. The correct timing for application can be tested by spraying a few plants in several different locations of the field. If the leaves begin to yellow within 24-72 hours, the leaves are mature. If some treated leaves do not change color within 72 hours, do not apply this product until another test is carried out a few days later to determine if the leaves are mature. To prepare a test spray solution, add 4 tsp. of this product to 1 qt. water. Apply about 1 oz of the test spray solution as a fine mist and thoroughly cover the leaves. Immature leaves won't change color.

When the test shows that the desired number of leaves per plant change color, calculate the number of acres to treat in order to fill the barn.

Remove yellowed leaves before making an application as this will help yields and prevent leaf drop. Typical growing conditions will require the lower rates specified in the table below. If the higher rates are used, only apply if temperatures are below 65°F on the day of application.

WHEN TO HARVEST TOBACCO

Within 24 to 72 hours after the application of this product, mature, sprayed leaves will begin to turn yellow, but the exact timing is dependent on the weather so that under cooler temperatures, yellowing will be delayed while under warm, sunny conditions, yellowing occurs faster. Monitor weather conditions and intensity of tobacco leaves color to determine timing of harvest. Usually the leaves have reached the desired color intensity and can be harvested within 48 hours after the application of this product.

To avoid reduced yields and quality, harvest the tobacco before it over-ripens in the field after an application.

CURING TREATED TOBACCO

A number of factors must be considered when curing treated tobacco. These factors include, but are not limited to tobacco condition, timing between application of this product and harvest, weather conditions, and type of curing. Best quality tobacco is obtained when the curing process is closely monitored during late leaf coloring and early leaf drying stages.

Application of this product to tobacco begins the coloring process before harvest, so the amount of time required in the coloring phase and drying phase will be reduced. Harvested green leaves will need to be colored for a few hours. Harvested yellow leaves will require adjustment of temperature and ventilation so the tobacco dries as quickly as possible without scalding. At the point of 75% dried state, the leaves can be treated using normal procedures for curing. However, leaves treated with this product cure faster, so cure treated and untreated leaves in separate barns.

Type of Application	Product Application Rate (Pints/Acre)	Tobacco – Application Instructions
Directed Spray	4 (1.0 lb ai/A)	Apply this product with drop nozzles and TG or OC spray tips designed to apply 50-60 gal/A at 35-40 psi and at tractor speed of 2-3 mph. Best results are obtained when thorough sprays are directed to the leaves to be ripened. Adjust the sprayer so that there are 2 nozzles per row placed low enough to direct the spray to the leaves. For this type of application, harvest when 20% or more of the leaves have yellowed.
Over-the-top Spray	4-8 (1.0-2.0 lb ai/A)	Apply this product in a minimum spray volume of 40 gal/A. Make applications only to the mature leaves left on the stalk. Use the test procedure described in the Application Timing section above to determine if remaining leaves are mature and will respond to applications of this product. Apply the lower rate of this product for mature crop or if experience indicates that a minimum ripening inducement is required. The higher rate is used for heavy, more rank crops or when temperatures are lower than normal.

TOMATOES

TOMATOES FOR PROCESSING: Foliar application of this product speeds the ripening of tomatoes and leads to a uniform maturation of fruit. The uniform maturation generates a high yield of ripe tomatoes which are obtained from a once-over harvest. This early maturation extends the harvest season and allows growers to select when to harvest for more efficient handling of the processed commodity.

TOMATOES FOR FRESH MARKETS IN CALIFORNIA: Foliar application of this product speeds ripening of tomatoes and increases early yields of marketable tomatoes.

RESTRICTIONS

- Do not apply more than 6.5 pints of this product (1.63 lb a.i. ethephon) per acre per year.
- Do not make more than 1 application per year.
- Pre-harvest interval: 3 days.

USE INFORMATION

- Apply this product only when there is sufficient mature green fruit to produce the desired tonnage since it does not ripen immature green fruit. Foliage becomes yellow or age after an application of this product.
- Do not treat plants with poor root systems or if growing under stress (from poor soil conditions, drought, disease, or insect damage) because these weakened plants will lose their foliage cover, and risk sunburn and sunscalding, especially under high temperature conditions.
- To prevent foliar damage, do not apply this product if temperatures are expected to remain above 105°F. For sensitive varieties, do not apply if temperatures are above 100°F to prevent foliar damage. Particularly sensitive varieties include VF 10, VF 315, VF 145, 21-4, and 13L. Use the lower rates on these varieties when temperatures are high.
- Do not apply this product as a tank mix with sun protection products, sun protection whiteners, spray adjuvants or other additives.
- Do not apply this product to more acres than can be harvested in 2 to 3 days.
- Do not use on varieties which soften rapidly or shatter when ripe.

WHEN TO HARVEST TOMATOES
Observe treated fields closely and harvest fruit at proper maturity after application of this product.

Crop	Product Application Rate (Pints/Acre)	Tomato – Application Instructions
Tomatoes for Processing	1 1/4 – 3 1/4 (0.3125 – 0.8125 lb ai/A)	**Early and Midseason Crops OR High Temperatures** Make the application of this product when enough mature green fruit will give the tonnage required and when 5-15% of the fruit are red and pink (includes breakers). To determine the proper application date, check the fruit weight and calculate the percent fruit which is red and pink, including breakers. Do not rely on fruit size alone and check for specific directions to determine treatment stage for your situation. Foliage and fruit must receive a thorough coverage of this product. Use settings on spray equipment (ground or air) and volumes that provide uniform spray coverage. When temperatures exceed 85°F, the lower rate is effective. Do not overlap spray swaths to prevent severe foliage injury. If banded spray applications are made, reduce the amount of this product in proportion to the area actually treated. Continue normal cultural practices after application and prior to harvest. Before making the application of this product, contact the processor to check delivery schedules and quotas. If you have questions on how to use this product, contact your local Nufarm Company Representative, Extension Horticultural Specialist or Farm Advisor. They can advise you especially if fields have variable plant vigor due to differences in soil conditions or cultural practices and can provide rates of fruit ripening as affected by temperature, within the rate and timing limitations shown on the label.
	3 1/4 – 6 1/2 (0.8125 – 1.625 ai/A)	**Late Season or Coastal Crops or Cool Temperatures** Make the application of this product when enough mature green fruit will give the tonnage required and when 5-30% (for optimum response, 5-15%) of the fruit are red and pink (includes breakers). Foliage and fruit must receive a thorough coverage of this product. Use settings on spray equipment (ground or air) and volumes that provide uniform spray coverage. If night temperatures are expected to be cool (below 65°F) or if foliage is dense, use the higher rate of this product. When temperatures exceed 90°F, fruit ripens sooner. When temperatures fall below 65°F, the development of the fruit's natural color will be delayed and result in a longer period of time needed between application and harvest.
Tomatoes for the Fresh Market – California	1 1/4 – 5 (0.3125 – 1.25 ai/A)	Make an application of this product about 3-6 days prior to the desired harvest date but be sure that the desired tonnage of fruit has reached marketable size and maturity. No more than one harvest is expected from areas treated with this product. Foliage and fruit must receive a thorough coverage of this product. Spray equipment (ground or air) and spray volumes should be selected that will provide this uniform spray coverage. For late season crops, if temperatures are generally below 85°F and if foliage is dense, use the higher application rate and longer preharvest interval (3 days). When temperatures exceed 85°F, the lower rate is effective and does not damage foliage especially in sensitive varieties.

Crop	Product Application Rate (Pints/Acre)	Tomato – Application Instructions
		To time harvest of different blocks of fruit on different days, apply this product to a different block each day. Then harvest the blocks daily in the same sequence.

GREENHOUSE TOMATOES – [NOT FOR USE IN CALIFORNIA]

Use this product to accelerate fruit maturation or to facilitate uniform fruit ripening of greenhouse tomatoes.

RESTRICTIONS:

- Pre-Harvest Interval (PHI): 48 hours
- Do not make more than 1 application per year.
- Do not apply more than 5 pints of product per acre (1.25 lb a.i. ethephon) (1.8 fl oz/1000 ft^2) per year.

Crop Situation	Product Application Rate	Application Instructions
Late-season	1.25 to 5 pints/acre (0.3125 – 1.25 lb ai/A) (0.5 to 1.8 fl oz/1000 ft^2)	**Foliar Application** Spray the solution on the plant foliage and fruit. Apply when fruit has reached a marketable size.
Late-season	2 to 5 pints/acre (0.5 – 1.25 lb ai/A) (0.75 to 1.8 fl oz/1000 ft^2)	**Stem Application** Mix with water in a 1:6 ratio Apply with a brush or sponge directly to the stem in stripes 3 – 6 inches long just below the fruit. Apply when fruit has reached a marketable size. **NOTE:** Avoid application to fruit.
Directional application used to aid in uniform maturation of cluster tomatoes or individual fruit with irregular maturing	1.5 – 3.5 ml/L of spray solution **OR** 1 – 2.5 teaspoons per gallon of spray solution Buffer to pH 6.0	Apply directly to fruit to aid in uniform maturation. Use a handheld sprayer or spray applicator directed specifically to individual fruit. **NOTE:** To avoid damage to the plant, do not spray entire plant or foliage.

WALNUTS - CALIFORNIA ONLY

Applications of this product to walnut trees will loosen the nuts for a more efficient mechanical harvest. As a result of this application, nuts can be harvested earlier, their hull more effectively removed, and yields increased from a once-over harvest.

RESTRICTIONS

- Do not apply more than 5 pints of this product (1.25 lb a.i. ethephon) per acre per year.
- Do not make more than 1 application per year.
- Preharvest Interval: 5 days.

USE INFORMATION

- Reduced nut quality occurs if application is made before the packing tissue brown (mature) stage.
- Applications cause some leaf drop, which is enhanced if trees under stress (vigor, drought) are treated.
- Use caution when measuring the dosage. Injury to trees (excessive defoliation, reduced catkin formation and twig dieback) occur if higher than specified rates are used.

WHEN TO HARVEST WALNUTS

Sample nuts from different parts of the tree to determine the percent nut maturity. When the packing tissue between the kernel halves has turned completely brown, the nuts are mature.

Advancing Harvest – Make an application of this product when 95-100% of the nuts have reached maturity. Harvest as soon as adequate hullability occurs. Depending on walnut varieties and weather conditions, this typically occurs 10-16 days after the application. Schedule a second shake 10-12 days after the first shake.

Once-Over Harvest – Before deciding on a once-over harvest, contact an Extension Specialist or Farm Advisor to determine if your situation warrants this type of harvest. A number of factors will play a role in the walnut maturity timing for this type of harvest (i.e., variety, growing conditions and weather). Make an application of this product to mature walnuts 10 days before the expected harvest date. The timing of harvest actually ranges from 7-12 days after treatment.

Crop	Product Application Rate (Pints/Acre)	Walnuts – Application Instructions
Walnuts (California Only)	3 – 5 (0.75 – 1.25 lb ai/A)	**For optimum results**: Use spray concentrations between 300 and 900 ppm. These concentrations can be determined by checking the chart below. Make applications when the air temperature is between 60 and 90°F. The walnuts hull must be thoroughly covered by the spray solution to ensure maximum hull split and nut loosening. Use application equipment designed to provide penetration of the entire tree such as large air carrier sprayers or volute sprayer attachments. **High rate:** use under conditions of low humidity or low temperatures. Note that the time from application to harvest will be shorter with higher rates than with lower rates. At higher air temperatures (>90°F) and low humidity, this product evaporates and be less effective.

PREPARATION OF SPRAY SOLUTIONS FOR USE IN WALNUTS

Product Rate Pints/A (lb /A)	Spray Volume (gallons/A)				
	100	200	300	400	500
	Concentration (ppm)				
3 (0.75)	900	450	300	--	--
4 (1.00)	--	600	400	300	--
5 (1.25)	--	750	500	375	300

-- = Not Applicable

WHEAT AND BARLEY (NOT REGISTERED FOR USE IN CALIFORNIA)

Use this product to reduce lodging of wheat and barley.

This product can be applied as a preventative measure in a tank-mix with certain cereal insecticides and fungicides approved for such use. Do not apply such a tank mix to plants stressed by cold, disease, heat, insect or moisture as a decrease in yield or injury to crops may occur. When tank mixed with Tilt®, this product causes a decrease in yield or flag leaf burn.

Treatment timing of this product may or may not coincide with insecticide and fungicide treatments. Make an economic and plant condition assessment prior to deciding on a tank mix partner.

RESTRICTIONS

- Do not supplement this product with adjuvants, surfactants or wetting agents or tank mixed with nitrogen solutions or herbicides.
- Do not apply through any type of irrigation system. Failure to observe label instructions results in decreased product quality or yield.
- Lodging reduction effects may not occur for up to seven days following treatment. Once crops are lodged, this product is not effective.
- This product affects certain disease infestations, such as mildew, rust and Septoria. Use this product in conjunction with a fungicide control program where needed.
- Yield loss occurs if, during or after application, plants are subject to disease, moisture or temperature stress. Yield loss occurs if this product is applied under non-lodging conditions.
- Always follow label temperature restrictions.
- Harvest maturity will be delayed 1-4 days and heading by 1-2 days following use of this product. Additional harvest maturity delay occurs if crops are subject to extreme temperatures within five days following treatment. Extreme temperatures are under 35° F or above 85° F for non-irrigated crops, or over 90° F in irrigated crops.
- Do not use on late-seeded crops in short-season growing areas due to the potential for maturity and harvest delays.
- Secondary tillers increase following application of this product to certain spring barleys. This particularly occurs if crop is subject to temperature or moisture stress.
- Use of this product on Azure barley or Tyler wheat is prohibited.
- Do not apply this product when rain will likely occur within six hours.
- Grazing or foraging by livestock or cutting for hay or silage are prohibited. Mature straw at normal harvest can be consumed by animals.
- A 30-day plant-back interval is required.

TREATMENT DECISION GUIDE

Shortly before application, check the fields to be treated to determine the chance lodging will occur. Apply this product only under these circumstances:

- Lodging is anticipated with a considerable decrease in grain quality, harvest efficiency, and recoverable yield likely to occur.
- There is no disease stress or insect pressure on the crop.
- There is little to no chance of crop stress following application because of adequate irrigation or soil moisture. Extreme temperature fluctuations (as described above) are not anticipated to occur within five days following application.
- Crop is at the proper growth stage (Feekes 8 to 10).

APPLICATION TIMING

Apply this product at the point the flag leaf is slightly visible to the boot stage. Apply prior to awn emergence or sheath split. These visual cues correspond to Feekes-Large Scale 8-10 and Zadok's Code 37-45. Crop damage and decreased yields occur if application contacts exposed heads.

APPLICATION

. Best results can be obtained when post-treatment temperatures are no less than 60°F. Avoid overlapping sprays as yield and rate loss will be exaggerated.

Ground application: Make conventional ground equipment applications in at least 7 gals/A of water. Use of flat fan nozzles is suggested. Make air foil-type equipment or controlled droplet application (CDA) treatments in at least

5 gals/A of water. Adjust spray boom to drive at moderate speed and at the height of the plant canopy to avoid an uneven application.

Make aerial applications in at least 3 gals/A of water.

USE RATES

The specified application rate will be determined by environmental conditions and lodging pressure listed on the table. Contact your state extension specialist for information on local varying conditions. Use the 1 pint/A rate on more responsive varieties.

RESTRICTIONS

- Do not apply more than 2 pints (0.5 lb a.i. ethephon) of this product per acre per year.
- The pre-harvest interval is forty (40) days.
- Do not make more than 1 application per year.

BARLEY AND WHEAT APPLICATION RATES

CROP	ANTICIPATED LODGING PRESSURE			Application Instructions
	MODERATE	HEAVY	SEVERE	
	APPLICATION RATE (pt/A)			
Barley (Spring and Winter Seasons)	1 (0.25 lb ai/A)	1 to 1 1/2 (0.25 – 0.375 lb ai/A)	1 1/2 to 2* (0.375 – 0.5 lb ai/A)	The 2 pt/A rate are necessary for use on certain vigorously growing tall varieties.
Winter Wheat	1 (0.25 lb ai/A)	1 to 1 1/2 (0.25 – 0.375 lb ai/A)	1 1/2 to 2* (0.375 – 0.5 lb ai/A)	For certain tall straw varieties (e.g., "Roughrider" and "Agassiz"), the listed rates will be unable to control lodging under severe lodging conditions.
Most Spring Wheats	1 (0.25 lb ai/A)	1 (0.25 lb ai/A)	1 1/2 (0.375 lb ai/A)	For certain tall durum wheats (e.g., "Vic"), the listed rates will be unable to control lodging under severe lodging conditions.
Sensitive Variety or High Temperature **	1 (0.25 lb ai/A)	1 (0.25 lb ai/A)	1 (0.25 lb ai/A)	

RESTRICTIONS

* Restrict application with the 2-pint rate to the following anticipated yield-decreasing conditions: 1) very tall varieties that are lodging-prone, 2) cereal types like durum notorious for severe lodging, or 3) irrigated crops that are subject to abnormally severe lodging.

** Do not apply this product if it is anticipated that anytime during the five days following treatment, temperatures are to go above 85° F for non-irrigated crops or 90° F for irrigated crops.

- Do not apply more than 2 pints of (0.5 lb a.i. ethephon) this product per acre per year.
- Do not make more than 1 application per year.
- The pre-harvest interval is forty (40) days

NON-IRRIGATED WHEAT AND BARLEY

Application of this product to non-irrigated wheat and barley in states West of the Mississippi River is prohibited except West of the Cascade Range in the states of Oregon and Washington.

IRRIGATED WHEAT AND BARLEY

To prevent stress on the crop, irrigate prior to and after twenty-four (24) hours following application. Continue irrigation through the period of grain head filling if weather remains hot and dry. Please note that considerable decreases in yield and plant quality occurs if crop is subject to heat stress and moisture during grain fill and antithesis. As a result, it is imperative to avoid plant stress during these periods when treating with this product.

GROWTH STAGE CHART

Growth Class	2nd Node Detectable	Flag leaf Barely Visible	Flag Leaf Ligule Visible	Swollen Boot	First Spikelet Visible	Inflorescence 3/4 complete
Feekes Large Scale	7	8	9	**10**	10.1	10.4
Zadok's Code	32	37	39	45	50	57
Treatment time advice	Too early				Too late	

DRENCH APPLICATION – ORNAMENTAL USE ONLY*

Drench applications of Nufarm Ethephon 2 Plant Growth Regulator are effective in controlling plant height uniformly and increasing branching/shoot number in certain plant species. Only make drench applications to plants with well developed root systems.

Rates & Application Notations

In general, the rate range to apply Nufarm Ethephon 2 Plant Growth Regulator as a drench application is 20 to 250 ppm. This can be applied by overhead boom, hand held equipment and/or sub-irrigation. Table 1 below provides a list of plant species with suggested rates and notations for applying Nufarm Ethephon 2 Plant Growth Regulator as a drench to those species. As it is not possible to test all species and cultivars or to test those plants in all growing conditions, conduct trials to determine desired rates and timings for optimum results under local growing conditions. To determine optimum use rates, conduct trials on a small number of plants under actual use conditions starting with the lowest indicated rate. Test before applying a drench application of Nufarm Ethephon 2 Plant Growth Regulator to plants being produced at each growing facility. Table below is to be used as a general guide for applications.

Suggested Nufarm Ethephon 2 Plant Growth Regulator rates for drench applications

Plant/Species	Drench Rate (ppm)	Notations
Angelonia	20 to 40	Apply after the root system is well established.
Argryanthemum	50 to 75	
Bacopa	50 to 75	
Calibrachoa	50 to 75	
Celosia	20 to 40	
Coleus	50 to 100	
Dianthus	50 to 75	
Geranium, Cutting	50 to 100	
Geranium, Seed	20 to 40	
Marigold	50 to 75	
Nemesia	50 to 75	
Osteospermum	50 to 75	
Pansy	50 to 75	
Petunia	20 to 100	
Plumbago	100 to 200	Apply 2 weeks after pinching the plants and new shoots 2-4 inches long.
Snapdragon	50 to 75	Apply after the root system is well established.
Verbena (annual)	20 to 40	
Verbena (perennial)	50 to 100	Apply early in production, moderate height control.
Veronica	100	Apply early in production, little height control but increased branching with minimal to no delay in flowering.
Vinca	20 to 40	Apply after the root system is well established.

When applying Nufarm Ethephon 2 Plant Growth Regulator by drench, it is important that:

- Mix only the amount of solution you expect to use each day.
- Do not allow mixed solutions to stand overnight.
- Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures.
- Applications are made to moist potting substrate (media).
- Uniform distribution of the drench solution is achieved with the application.
- No more than 10% run through of solution occurs.
- Attention is to be paid to the growing substrate. Substrates containing bark or of high organic content may require the use of higher application rates.
- When applied as a drench through sub-irrigation in saucers or benches etc., it may be required to reduce rates by 25-50%. Test to determine optimal rates prior to large scale applications.
- Nufarm Ethephon 2 Plant Growth Regulator breaks down and becomes inactive with water pH conditions greater than 6.1. While all of the registered ethephon products contain acidifiers, in areas with high levels of alkalinity, the alkalinity will need to be neutralized before mixing the solution. The ideal endpoint pH for a Nufarm Ethephon 2 Plant Growth Regulator solution is ~4.5 to 5.0.

- For all drench applications, DO NOT apply more than 5 fl oz per 1,000 sq ft (3.4 lb of ethephon a.i./A) per application.
- DO NOT apply more frequently than every 28 days.
- DO NOT apply more than 2 applications per year.
- For all drench applications, DO NOT apply more than 3.4 lb of ethephon a.i./A per year.
- DO NOT MIX NUFARM ETHEPHON 2 PLANT GROWTH REGULATOR WITH AMMONIUM THIOSULFATE (a spray solution acidifier). SUCH TANK MIXES MAY RESULT IN FORMATION OF TOXIC FUMES.

Table below provides a dilution guide for determining the appropriate amount of Nufarm Ethephon 2 Plant Growth Regulator to add per gallon or per 10 gallons to achieve the appropriate concentration (PPM).

Nufarm Ethephon 2 Plant Growth Regulator (21.7%) dilution guide

PPM ETHEPHON	Milliliters Per 1 Gallon	Fluid Ounces Per 10 Gallons
20	0.3	0.1
40	0.6	0.2
50	0.8	0.3
75	1.2	0.4
100	1.6	0.5
150	2.4	0.8
200	3.2	1.1
250	3.9	1.3

A guide to determine the drench volume needed for the specified pot sizes based on the capacity of a 6 inch 'Azalea' type pot is provided below. Individual pots vary in style and depth and thus capacity. Growers must determine the appropriate concentration and volume of drench to apply according to the pot volume, media and species/variety of plant considered.

Drench volume guidelines

Pot Diameter (inches)	Drench Volume (fl. oz./pot)
4	2
5	3
6	4
8	10
10	25
10" hanging basket	15
12	40

DRENCH APPLICATIONS ON BULB CROPS

Drench applications of Nufarm Ethephon 2 Plant Growth Regulator can be applied at rates of 100 ppm to 500 ppm for reducing plant height in certain bulb crops (daffodil and hyacinth). Drench applications of Nufarm Ethephon 2 Plant Growth Regulator can be made indoors or outdoors.

Generally, 4 fluid ounces of drench solution is optimal per 6 inch pot. Larger or smaller pots will require an appropriate volume adjustment. The correct drench volume is determined by applying enough solution to achieve run through of no more than 10% of the initial volume. This assumes that the soil media is properly moist prior to application (Example: If 4.0 fl. oz. of drench is applied to a pot, no more than 0.4 fl. oz. should run through the bottom of the pot). Growers needs to determine proper drench solution volume by conducting small trials on a few pots using untreated water in place of the drench solution.

When applying Nufarm Ethephon 2 Plant Growth Regulator by drench, it is important that:

- Applications are made to moist potting media

- Uniform distribution of drench is achieved
- No more than 10% run through of solution occurs
- Maximum specified application rates must never be exceeded

Drench rate conversion table

PPM Ethephon	Milliliters Per 1 Gallon	Fluid Ounces Per 10 Gallons
100	1.6	0.5
200	3.2	1.1
300	4.7	1.6
400	6.3	2.1
500	7.8	2.7

For most bulb types drench apply Nufarm Ethephon 2 Plant Growth Regulator when plants reach a height of 1 - 3 inches with well-established roots. For hyacinth and daffodil which require a cold period, drench apply 1 to 6 days after bringing plants into the greenhouse. **DO NOT USE NUFARM ETHEPHON 2 PLANT GROWTH REGULATOR ON TULIPS AS EARLY APPLICATIONS OF ETHEPHON CAN RESULT IN FLOWER ABORTION.**

Optimum rates for drench applications on all bulb crops have not been determined. Optimum Nufarm Ethephon 2 Plant Growth Regulator rates will vary between growers and will depend on the desired final plant height, growing conditions, applications techniques, species, and variety or cultivar. **Use of NUFARM ETHEPHON 2 PLANT GROWTH REGULATOR as a drench application may cause a delay in flowering. For first time users of NUFARM ETHEPHON 2 PLANT GROWTH REGULATOR, always conduct trials on a small number of plants to determine optimum use rates for selected species and local growing conditions.**

Recommended starting concentrations for grower trials is 100 to 200 ppm. Always start trials at the lowest recommended rate and work up as required. Do not exceed the maximum rate.

***Not registered in CA**

FRUIT ELIMINATION – ORNAMENTAL USE ONLY

TO ELIMINATE UNDESIRABLE FRUIT: A foliar application of this product reduces or eliminates undesirable fruit development on ornamental trees and shrubs: apple, crabapple, carob, cottonwood, elm, flowering pear, horsechestnut (Buckeye), maple, oak, olive, pine, sour orange, sweetgum, and sycamore.

Crop	Product Application Rate	Ornamental Fruit Trees – Application Instructions
Apple, Crabapple, Cottonwood, Elm, Flowering Pear, Horsechestnut (Buckeye), Maple, Oak, Pine, Sour Orange, Sweetgum, and Sycamore	8 to 12 fl. oz. per 20 gallons of water (equivalent to 750 to 1,000 ppm) (0.25 – 0.38 lb ai/A)	Apply as a foliar spray to thoroughly wet buds and blooms, but not to runoff. Time application to occur at the mid to full bloom stage, but before fruit set. The amount of spray needed depends on the tree size. Use the higher rates when temperatures are cool. Do not use on small red fruited varieties of crabapple as fruit elimination will not be satisfactory.
Carob (Ceratonia siliqua)	6 fl. oz. per 20 gallons of water (equivalent to 500 ppm) (0.19 lb ai/A)	Apply as a foliar spray to thoroughly wet buds and blooms, but not to runoff. Time application to occur at the mid to full bloom stage, but before fruit set. The amount of spray needed depends on the tree size.
Olive (Olea europaea)	12 fl. oz. per 20 gallons of water (equivalent to 1000 ppm)	

Crop	Product Application Rate	Ornamental Fruit Trees – Application Instructions
	(0.38 lb ai/A)	

USE INFORMATION

- For optimum results, make applications before fruit set. Sprays applied too early or too late will be less effective and result in incomplete fruit elimination.
- Failure to wet blooms thoroughly will cause incomplete fruit elimination. Spraying too much (until runoff) may cause some defoliation or other plant injury.
- Some temporary leaf yellowing and drop of older leaves may occur after treatment.
- The activity of this product is linked to plant growth activity and is therefore slower acting when temperatures are low (60ºF) or very high (95º).
- When this product is applied to plants, the active ingredient readily enters the plant and breaks down to ethylene, a naturally occurring plant hormone. Ethylene production within the plant is stimulated by stress. For this reason it is important that plants being treated are not under stress from drought, high temperature, disease, or other environmental stresses. Treating stressed plants may cause severe injury such as defoliation or leaf scorching. While injury that may result from the use of this product usually does not kill the plant, it may render the plant unattractive.
- This product has not been tested on all varieties of trees or shrubs which may have undesirable fruit. When treating plant species not listed in this table for the first time, treat only a small portion of the plant using the lower rate of application and evaluate plant response.
- Do not use this product as a thinning agent for commercial fruit production.

RESTRICRTIONS

- Do not apply more than 1.5 pints (0.38 lb a.i. ethephon) of this product per acre per year.
- Do not make more than 1 application per year.

ORNAMENTALS – MISTLETOE REMOVAL

DWARF AND LEAFY MISTLETOE REMOVAL: This product, applied to ornamental conifers or ornamental deciduous trees, will remove the mistletoe species noted in the table below.

Crop	Product Application Rate	Mistletoe Removal – Application Instructions
FOR DWARF MISTLETOE REMOVAL		
Ornamental Conifers	2 pints per 20 gallons water (0.5 lb ai/A)	Apply as a foliar spray directed to dwarf mistletoe shoots before mistletoe seed dispersal. For effective removal, all mistletoe shoots must be sprayed to wet. Use of a non-ionic surfactant at the specified use rate may help increase the coverage of spray on shoots. Applications of this product in conjunction with sylvicultural mistletoe management will prevent the spread of the mistletoe parasite to other parts of the tree and other trees. This product speeds the normal mature needle drop that occurs in the fall. Do not apply higher rates to Douglas fir as excessive needle drop may result.
Douglas Fir Ornamentals	1 pint per 20 gallons water (0.25 lb ai/A)	
FOR LEAFY MISTLETOE REMOVAL		
Ornamental Deciduous Trees	4 pints per 20 gallons water (1.0 lb ai/A)	Apply as a foliar spray directed to mistletoe shoots after fall leaf drop through mid-winter. For effective removal, all mistletoe shoots must be sprayed to wet. Use of a non-ionic surfactant at the specified use rate may help increase the coverage of spray on shoots. Treat mistletoe regrowth during the indicated application period. Severe mistletoe infestations and mistletoe found in mesquite may be difficult to control with a single application and may require additional treatments.

RESTRCTIONS

- Do not apply more than 4 pints (1.0 lb a.i. ethephon) of this product per acre per year.
- Do not make more than 1 application per year.

FLOWER INDUCTION OF BROMELIADS

A foliar application of this product initiates flowering of ornamental bromeliads such as *Ananas, Aechmea, Neoregelia, Vriesia, and Billbergia*.

SPRAY CONCENTRATION

For most bromeliad varieties, mix 4.0 fluid ounces of this product per 3 gallons of water (1.3 fl. oz./gallon of water). This prepares a spray concentration of approximately 2,500 ppm.

For treating groups of plants, use approximately 1/2 pint of spray solution per 10 sq. ft. of greenhouse bench or outdoor bed area.

APPLICATION INSTRUCTIONS

Spray all surfaces of the plant to “wet”. Avoid overspraying to “runoff” which may cause damage to leaves or the growing points.

Prepare only the amount of spray solution needed for immediate use and apply within 4 hours. Do not save unused spray solutions as they will not be as effective as fresh solutions.

The degree of flower induction with a given rate of product is influenced by plant age, variety, growth rate, climate, and cultural conditions. Lower rates may effectively force flowering or produce desirable foliage coloring on certain varieties. Trial applications at lower rates are suggested before making extensive treatments.

GUIDELINES FOR CONSISTENT FLOWER FORCING

1) Grow plants on photoperiods regulated to maintain plants vegetatively active prior to treatment: long days for *Ananas, Billbergia, Neoregelia*, and short days for *Aechmea, and Vriesia*.
2) Treat mature plants that have well established root systems. Treatments too early in the development of the plants will cause erratic flower initiation and the few flowers formed will be small.
3) Remove water at base of leaves. Allow foliage to dry prior to treatment. Water may be replaced 24 hours after treatment.
4) Maintain a minimum night temperature of 65-70ºF or higher throughout the forcing period.
5) Do not apply fertilizer for two weeks prior to or following treatment.

NOTE: Inconsistent results may be obtained if the leaf surface is covered with algae.

RESTRICTIONS

- Do not apply more than 4 fl oz/1,000 sq ft (or 10.9 pints/A, equivalent to 2.73 lb ai/A) of this product per year.
- Do not make more than 1 application per year.

DEFOLIATION

A foliar application of this product after buds have matured initiates earlier leaf drop of roses, tallhedge and apple nursery stock.

Site	Product Application Rate	Application Instructions
ROSES	10.6 fl. oz. per 20 gallons water (0.17 lb ai/A)	Apply to thoroughly wet foliage. The amount of spray solution needed depends on the size of the rose bush. The amount of defoliation obtained depends on the variety and temperature. The addition of 1 pint of nonionic surfactant such as Tween 20 or X-77 per 100 gallons of spray solution will improve defoliation. Do not treat sensitive varieties such as Red American Beauty as bud injury may result.
TALLHEDGE BUCKTHORN	53 to 106 fl. oz. (3.3 to 6.6 pints) per 20 gallons water (0.83 – 1.65 lb ai/A)	Apply to thoroughly wet foliage. The amount of spray solution needed depends on the size of tallhedge. Use the higher rate when temperatures are cool or earlier defoliation is desired.
APPLE NURSERY STOCK (Washington)	2.6 to 5.3 fl. oz. (0.04 – 0.08 lb ai/A) **PLUS** 3 quarts Dupont Surfactant WK per 50 gallons water	Apply no more spray solution than is necessary to moisten foliage without runoff. A second treatment 3 to 7 days later may be applied. Apply no more than 10.6 fl. oz. of product per year. The amount of defoliation obtained depends on the variety of apple and on temperatures. Do not use on Rome apples as defoliation will not be satisfactory.

RESTRICTIONS

- Do not apply more than 6.6 pints (1.65 lb a.i. ethephon) of this product per acre per year.

- Do not make more than 1 application per year.

INCREASED LATERAL BRANCHING

A foliar application of this product increases lateral branching in the following ornamental species: Azalea, Garden Chrysanthemum (perennial species), Fuchsia, Zonal Geranium, Ivy Geranium, Lantana, Verbena, Vinca vines (*Vinca major*). To minimize the risk of unacceptable plant injury, do not use this product on ornamental varieties or species not specifically listed on the label.

When this product is applied to plants, the active ingredient readily enters the plant and breaks down to ethylene, a naturally occurring plant hormone. Ethylene production within the plant is stimulated by stress. For this reason it is important that plants being treated are not under stress from drought, high temperature, disease, or other environmental stresses. Treating stressed plants may cause severe injury such as defoliation or leaf scorching. While injury that may result from the use of this product usually does not kill the plant, it may render the plant unattractive and unfit for sale. The activity of this product is linked to plant growth activity and is therefore slower acting when temperatures are below 60ºF or above 95ºF.

Site	Product Application Rate	Application Instructions
STOCK PLANT (EXCEPT AZALEA)	5.3 fl. oz. per 20 gallons of water (equivalent to 500 ppm) (0.08 lb ai/A)	Spray to thoroughly wet foliage but not to runoff. Make applications at normal pinching times instead of hand pinching. To optimize the vigor of cuttings, do not make applications for 2 weeks prior to harvesting cuttings from stock plants.
YOUNG PLANTS (EXCEPT AZALEA)	5.3 fl. oz. per 20 gallons of water (equivalent to 500 ppm) (0.08 lb ai/A)	Spray to thoroughly wet foliage but not to runoff. Make applications at normal pinching times instead of hand pinching. To ensure flowering and full foliage on finished plants, do not make applications for 6 to 8 weeks prior to bloom or planned sale.
FOR AZALEA (BOTH STOCK AND YOUNG PLANTS)	26.6 to 53.3 fl. oz. (1.7 to 3.3 pints) per 20 gallons of water (equivalent to 2,500 to 5,000 ppm) (0.42 - 0.83 lb ai/A)	Apply the spray solution to thoroughly wet foliage. The amount of spray solution needed depends upon the size of the plant being treated. Make applications at normal pinching times. Hand pinching or chemical pinching agents may be used in conjunction with applications of this product. Use the higher rate on vigorous tolerant varieties as determined by experience. To prevent unacceptable plant injury, do not treat sensitive varieties such as Sweetheart and other varieties as determined by experience. To optimize vigor of cuttings, do not make applications for 2 weeks prior to harvesting cutttings from stock plants. To ensure full foliage and flowering on finished plants, do not make applications for 6 to 8 weeks prior to bloom or planned sale.

RESTRICTIONS

- Do not apply more than 3.3 pints (0.83 lb a.i. ethephon) of this product per acre per year.
- Do not make more than 1 application per year.

REDUCTION OF HYACINTH STEM TOPPLE AND DAFFODIL PLANT HEIGHT

Potted Hyacinth

To reduce potted hyacinth stem topple at time of full flower, apply a foliar spray of this product before florets have opened. Most cultivars will respond to applications of 1,000 to 2,000 ppm spray solution (equivalent to 2.6 to 5.3 fl. oz. of this product in 5 gallons of water). Bismarck, Jan Bos, Blue Giant, Delft Blue, and Madame Kruger may benefit from a second spray 2 days after the first treatment.

Potted Daffodils

To reduce total plant height of potted daffodils, apply a foliar spray of this product when the shoots are 3 to 4 inches tall. Most cultivars will respond to applications of 2,000 ppm spray solution (equivalent to 5.3 fl. oz. of this product in 5 gallons of water). For earlier forcing, Dutch Master, Joseph MacLeod, Flower Record, and Barrett Browning will benefit from a second spray 2 or 3 days after the first treatment. Bridal Crown and Geranium require only 1,000 ppm spray solution (equivalent to 2.6 fl. oz. of this product in 5 gallons of water). Gold Medal, Van Sion, February Gold, and Tête-à-Tête do not require treatments with this product.

RESTRICTIONS

- Do not apply more than 5.3 fl oz/1,000 sq ft (or 14.4 pints/A, equivalent to 3.6 lb ai/A) of this product per year.
- Do not make more than 1 application per year.

HYBRID SEED PRODUCTION

This product modifies sex expression and flowering pattern of cucumber, squash and pumpkins to facilitate hybrid seed production. It increases the number of pistillate (female) and decreases the number of staminate (male) flowers. The use of this product brings about earlier formation of female flowers at lower nodes where normally only male flowers are formed in standard (nomoecious) cucumber, squash and pumpkin varieties.

Sexual modification towards femaleness in treated plants is temporary (5 to 15 nodes). Variety, location, climate and cultural practices may influence the best rate for treatment. Due to the wide range in sensitivity of cucumber and squash cultivars, excessive injury may result from application of this product even when all label directions are observed. Treatment of cultivars classified as strongly male (Straight Neck, Crookneck) may result in an unacceptable level of male flowers remaining. New breeding lines require trial applications before full scale treatments are made.

HYBRID SEED PRODUCTION IN CUCUMBER AND SQUASH

Application Rate

Apply 5 fl. oz. of this product per acre in 40 to 100 gallons of water (100 to 250 ppm). The actual amount needed to achieve a satisfactory level of performance without excessive injury is dependent on the specific cultivar and environmental conditions at time of treatment. Spray plants at the two leaf stage.

When germination is variable, a second application 7-10 days after the first treatment may be necessary. **DO NOT HARVEST ANY TREATED CUCUMBERS OR SQUASH FOR HUMAN OR ANIMAL CONSUMPTION. TREATMENTS ARE TO BE MADE FOR SEED PRODUCTION ONLY.**

HYBRID SEED PRODUCTION IN PUMPKINS (ILLINOIS ONLY)

Application Rate

Apply 1 pint of this product per acre in 40 to 100 gallons of water (300 to 750 ppm). Make the first application at the 2-4 leaf stage. Do not exceed 6 applications per year at 7-10 day intervals. Do not harvest within 42 days of last application.

DO NOT HARVEST ANY TREATED PUMPKINS FOR HUMAN OR ANIMAL CONSUMPTION. TREATMENTS ARE TO BE MADE FOR SEED PRODUCTION ONLY.

HYBRID SEED PRODUCTION IN CUCUMBER, PUMPKINS, AND SQUASH (CALIFORNIA ONLY)

Application Rate

Apply up to 1 pint of this product per acre in 40 to 100 gallons of water (300 to 750 ppm) by ground equipment. Make the first application at the first true leaf stage. Do not exceed 6 applications per year at 3-10 day intervals. Do not harvest within 60 days of last application.

The actual amount and number of applications needed to achieve a satisfactory level of performance without excessive injury is dependent on the specific cultivar and environmental conditions at time of treatment.
DO NOT HARVEST ANY TREATED CUCUMBERS, PUMPKINS, OR SQUASH FOR HUMAN OR ANIMAL CONSUMPTION. TREATMENTS ARE TO BE MADE FOR SEED PRODUCTION ONLY.RESTRICTIONS

Do not apply more than 1 pints (0.25 lb a.i. ethephon) of this product per acre per application.

Do not exceed 6 applications per year.

Do not apply more than 6 pints (1.5 lb a.i. ethephon) of this product per acre per year.

TURF

Applications of this product to turf can be used to suppress seedheads of *Poa annua* and white clover and to suppress growth of turfgrass on golf courses.

RESTRICTIONS

- Use is permitted on golf course turf only. Do not use on residential turf or lawns, institutional turf, parks, recreational fields, or sod farms.
- Use on golf courses is limited to tees, greens, and fairways only.
- Do not apply more than 3.4 lb of ethephon a.i./A per application.
- Do not apply more frequently than every 14 days.

- Do not make more than 6 applications per year.
- East of the Mississippi River: Do not apply more than 13.6 lb of ethephon a.i./A per year.
- West of the Mississippi River: Do not apply more than 20.4 lb of ethephon a.i./A per year.
- Do not allow entry to treated areas until sprays have dried.

USE INFORMATION

- Make applications to turfgrass with good root systems growing under favorable conditions. Do not apply if turfgrass or the roots are stressed from poor soil conditions, drought, disease or insect damage.
- Make applications in sufficient amounts of water so that uniform coverage of the grass is achieved.
- Only apply this product to actively growing turf and which has not become dormant. Do not apply this product if excessive thatch is present in the turf.
- Use of more than 2 applications of this product to suppress *Poa* seedhead formation causes scalping on creeping bentgrass cultivars.
- Although this product has been used successfully on many bentgrass cultivars, test new cultivars for tolerance to it on small areas before applying it on large areas.
- Spreaders or stickers are not required when applying this product. If tank mix partners are used with this product, test the tank mix on a small plot before using on large areas.
- This product is acidic. Long term exposure to spray deposits will damage acrylic plastics, certain paints and metals. Wash any plastic materials and painted surfaces which came in contact with the spray mixture of this product thoroughly with detergent and water within one hour after exposure.

Sites	Product Application Rate	Turf - Application Instructions
For *Poa annua* and White Clover Seedhead suppression		
Golf courses including Greens*, Tees*, and Fairways. (Turfgrass varieties including Bentgrass, Kentucky Bluegrass, Perennial Ryegrass, Tall and Fine Fescue, and Bermudagrass***)**	5 fl. oz./1000 sq. ft. (3.4 lb ai/A)	Make a foliar application of this product before new seed heads emerge. Apply this product in 1 to 2 gallons of water per 1000 sq. ft. A period of 2 to 3 weeks after application is required for maximum performance. Make a repeat application if needed but no sooner than 2 weeks after the previous application. *****Not registered for use on greens and tees, or Bermudagrass in California
For Growth Suppression of Turfgrass		
Golf course turf including Greens*, Tees*, and Fairways. (Turfgrass varieties including Bentgrass, Kentucky Bluegrass, Perennial Ryegrass, Tall and Fine Fescue)	5 fl. oz./1000 sq. ft. (3.4 lb ai/A)	Applications of this product to turf will slow the growth of turfgrasses. Apply in 1 to 2 gallons of water per 1000 sq. ft. Fewer mowings will be required and less clippings will be generated. Best results are obtained if this product is applied during the day when temperatures are 65°F and rising. Wait to make an application of this product until the turfgrass mowing heights have been established for the season. Do not make multiple applications of this product in areas where excessive thatch has accumulated since it must reach the turfgrass to be effective. Make multiple applications of this product at the following retreatment intervals: Bentgrass – 4 weeks Kentucky Bluegrass – 7 weeks Perennial Ryegrass – 7 weeks Tall/Fine Fescue – 4 weeks *****Not registered for use on tees and greens in California
For *Poa annua* and White Clover Seedhead suppression - Tank Mixtures of this product with Anuew EZ Plant Growth Regulator or products containing Trinexapac-Ethyl		
Golf courses including Greens*, Tees*, and Fairways. (Turfgrass varieties including Bentgrass, Kentucky	This product at 5 fl. oz./ 1000 sq. ft. (3.4 lb ai/A) **PLUS**	This product can be tank mixed with Anuew EZ Plant Growth Regulator, or products containing trinexapac-ethyl, at the given rates to suppress seedhead formation and to promote turfgrass quality. Make multiple applications of the tank mix if needed but do not exceed the maximum number of applications or total use

Sites	Product Application Rate	Turf - Application Instructions
Bluegrass, Perennial Ryegrass, Tall and Fine Fescue, and Bermudagrass***)**	Anuew EZ at 0.05 to 0.2 fl oz./1000 sq.ft. or products containing trinexapac-ethyl at 0.125-0.25 fl. oz./1000 sq. ft.	rate or timings for either product and observe the most restrictive application interval for turfgrass. Temporary discoloration of turfgrass may occur if the tank mix is applied when frost is present. *****Not registered for use on greens and tees, or Bermudagrass in California

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in original container and keep tightly closed. Store in a cool, dry place.

PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER HANDLING:

[Note to Reviewer: The following statement will be included on all Final Printed Labels bearing multiple Container Handling statements**] "NOTE:** This product is available in multiple containers. Refer to the Net Contents section of this product's labeling for the applicable "Nonrefillable" or "Refillable" designation. Follow the container handling instructions below that apply to your container type/size."

[Nonrefillable containers 5 gallons or less]

Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. **Triple rinse as follows**: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. Plastic containers are also disposable by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

[Nonrefillable containers larger than 5 gallons]

Nonrefillable container. Do not reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse as follows:** Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure-rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. Plastic containers are also disposable by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

[Refillable containers larger than 5 gallons]

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

WARRANTY DISCLAIMER

The directions for use of this product must be followed carefully. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, (1) THE GOODS DELIVERED TO YOU ARE FURNISHED "AS IS" BY MANUFACTURER OR SELLER AND (2) MANUFACTURER AND SELLER MAKE NO WARRANTIES, GUARANTEES, OR

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If you do not agree with or do not accept any of the directions for use, the warranty disclaimers, or limitations of liability, do not use the product and return it unopened to the Seller, and the purchase price will be refunded.

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[OPTIONAL GRAPHICS/LOGOS FOR USE ON DISTRIBUTOR LABELING:]