

CERONE[®] brand ETHEPHON Plant Regulator

For Reducing Lodging in Barley and Wheat

For Agricultural or Commercial Use Only. Not For Residential Use.

ACTIVE INGREDIENT: Ethephon (2-chloroethyl) phosphonic acid* **39.9%**
INERT INGREDIENTS: **60.1%**

*Contains 4 pounds ethephon per gallon

EPA Reg. No. 264-377

EPA EST NO. 264-PA-01

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.)

For **MEDICAL** And **TRANSPORTATION** Emergencies **ONLY** Call 24 Hours A Day 1-800-334-7577

For **PRODUCT USE** Information Call 1-866-99BAYER (1-866-992-2937)

The use of this product for a variety of plant growth regulation uses is covered by United States and foreign patents including U.S. Patent 4,240,819. No license is granted to use this product in countries other than the United States or for any use not contemplated by this label. Liability for patent infringement may result from use or sale of this product outside the United States.

FIRST AID

IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none"> 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 IN EYES:	<ul style="list-style-type: none"> 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:	<ul style="list-style-type: none"> Immediately call a poison control center or doctor for treatment advice. Do not induce vomiting unless told to do so by a poison control center or doctor. Have person sip a glass of water if able to swallow. Do not give anything by mouth to an unconscious person.

For **MEDICAL** Emergencies Call 24 Hours A Day 1-800-334-7577.

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

NOTE TO PHYSICIAN: Treat symptomatically. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. No specific antidote is available. Probable mucosal damage may contraindicate the use of gastric lavage.

PRECAUTIONARY STATEMENTS

DANGER

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Corrosive. Causes irreversible eye damage and skin irritation. Harmful if swallowed or absorbed through skin. Do not get in eyes, on skin or on clothing.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear long-sleeved shirt and long pants, chemical resistant gloves made of any waterproof material (such as Nitrile, Butyl, Neoprene and/or Barrier Laminate), 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, use detergent and hot water. Keep and wash PPE separately from other laundry.

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

User Safety Recommendations

Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

Users should remove clothing immediately if pesticide gets inside. Then wash body thoroughly and put on clean clothing.

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

IMPORTANT: Do not use this product for purposes other than those listed on the label.

SPRAY DRIFT

Avoid spray drift. Do not apply when weather conditions may cause drift. Do not allow this product to drift on to non-target areas. Drift may result in illegal residues or injury to adjacent crops and vegetation, in the form of leaf yellowing and defoliation. To avoid spray drift, DO NOT apply aerially when wind speed is greater than 10 mph or during periods of temperature inversions. Use of larger droplet size will also reduce spray drift.

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR.

The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator is responsible for considering all these factors when making decisions.

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

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

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

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

AERIAL DRIFT REDUCTION ADVISORY

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

INFORMATION ON DROPLET SIZE

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

CONTROLLING DROPLET SIZE

Volume - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.

Pressure - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

Number of nozzles - Use the minimum number of nozzles that provide uniform coverage.

Nozzle Orientation - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.

Nozzle Type - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

BOOM LENGTH

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

APPLICATION HEIGHT

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

SWATH ADJUSTMENT

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

WIND

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

TEMPERATURE AND HUMIDITY

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

TEMPERATURE INVERSIONS

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

SENSITIVE AREAS

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

GENERAL INFORMATION

CERONE[®] brand Ethephon Plant Regulator is intended for use as a lodging reduction agent in barley and wheat crops. Use CERONE[®] only on vigorously growing crops that are likely to lodge. **Do not use CERONE[®] in non-lodging situations or where lodging causes only minimal yield loss.**

Lodged crops increase harvest costs and decrease harvest efficiency and recoverable yields. Lodging can cause uneven maturity, higher moisture content and loss of grain quality.

CERONE[®] brand Ethephon Plant Regulator decomposes in the plant to release ethylene, a naturally occurring plant hormone. CERONE[®] increases stem strength thereby increasing the plant's resistance to lodging. CERONE[®] may shorten the plant depending on variety, environmental conditions and the rate used. CERONE[®] also reduces "necking" in barley and yield decreases due to shattering and head loss.

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.

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, chemical resistant gloves made of any waterproof materials such as nitrile, butyl, neoprene, or barrier laminate, chemical resistant footwear plus socks, and protective eyewear. For overhead exposure, chemical-resistant headgear is also required.

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

STORAGE AND DISPOSAL

STORAGE

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

If container is broken or contents have spilled, follow all precautions indicated above and clean up immediately. Before cleaning up, put on full-length trousers, long-sleeved shirt, protective gloves and goggles or face-shield. Soak up spill with absorbent media such as sand, earth or other suitable material and dispose of waste at an approved waste disposal facility.

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 DISPOSAL

Do not reuse empty container. Triple rinse or equivalent. Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

USE LIMITATIONS

Do not apply through any type of irrigation system.

Yield or quality decreases may occur if CERONE® brand Ethephon Plant Regulator is not properly used.

Allow 7 days after application for lodging reduction activity to begin. CERONE® brand Ethephon Plant Regulator is not effective on crops already lodged.

Disease infestations (rust, septoria, mildew, etc.) may be affected by CERONE® brand Ethephon Plant Regulator use. Use a fungicide control program where needed.

Temperature, moisture or disease stress at application or after CERONE® brand Ethephon Plant Regulator use can result in yield loss.

CERONE® brand Ethephon Plant Regulator use in non-lodging situations may result in yield loss.

Observe temperature limitations on this label at application.

CERONE® brand Ethephon Plant Regulator may delay heading 1 to 2 days and harvest maturity 1 to 4 days. Extreme temperatures (below 35°F or above 85°F in non-irrigated or 90°F in irrigated crops) within 5 days after application may cause further maturity delay.

Do not use on late seeded crops in short season growing areas because possible maturity delay may cause harvest difficulties.

CERONE® brand Ethephon Plant Regulator treatment may increase secondary tillers in some spring barleys especially under moisture or temperature stress.

Do not use CERONE® brand Ethephon Plant Regulator on Azure barley or Tyler wheat.

Do not apply CERONE® brand Ethephon Plant Regulator if rain is expected within 6 hours.

DO NOT GRAZE OR FORAGE TREATED CROP OR CUT FOR HAY OR SILAGE. Mature straw at normal harvest may be consumed by animals.

Do not plant another crop within 30 days after treatment.

TREATMENT DECISION GUIDE

Important- Inspect fields just prior to application to determine the probability of lodging. Use CERONE® brand Ethephon Plant Regulator only under the following conditions:

1. The crop is expected to lodge and significant loss of recoverable yield, grain quality, and/or harvest efficiency is expected.
2. The crop is free of stress from disease or insect damage.
3. Soil moisture or irrigation is adequate to prevent crop stress after application.
4. Temperature fluctuations (below 35° F or above 85° F non-irrigated and 90° F irrigated) are not expected for 5 days after application.
5. Application can be made at the correct stage, Feekes 8 to 10 - see growth stage chart.

SPRAY PREPARATION

Add 1/2 to 3/4 of the required amount of water to the spray tank and begin agitation. Add the required amount of CERONE® brand Ethephon Plant Regulator followed by the remaining amount of water. Prepare only as much spray solution as can be used on the day of mixing. Use of previous day's spray mix may result in reduced activity.

Do not spill the concentrated product on spray equipment, or any airplane parts. **Any spills should be rinsed immediately with plenty of water as CERONE® brand Ethephon Plant Regulator is corrosive.** Use of a nurse tank is recommended to avoid possible spills of concentrated formulation on spray equipment or airplane parts.

EQUIPMENT CLEANING

Because of the acidic nature of this product, prolonged exposure to spray deposits will damage acrylic plastics, certain paints, and metals. Rinse thoroughly with a detergent and water all exposed acrylic plastic-type materials (e.g., aircraft windshields), and painted surfaces **within an hour** after exposure to spray deposits. **At the end of each day**, rinse thoroughly with a detergent and water the spray system and all the metal parts of the aircraft exposed to the spray deposits.

WHEAT AND BARLEY

COMPATIBILITY

CERONE® brand Ethephon Plant Regulator can be tank-mixed with approved cereal insecticides and fungicides. Treatment is intended as a preventive measure. Insecticide and fungicide treatment programs should be based on timely scouting and economic threshold assessments. This may not coincide with CERONE® application timing. Do not use CERONE® as a tank mixture with insecticides or fungicides on crops stressed by adverse weather conditions, referenced above, or by insect or disease damage.

Crop injury or yield loss may result with tank mix application under stress conditions. (i.e. moisture, heat, cold, insect, disease). CERONE® + Tilt® tank mix application by air made under stress conditions may result in flag leaf burn and yield loss.

Do not tank mix with herbicides or nitrogen solutions.

Do not add adjuvants, surfactants or wetting agents to CERONE® brand Ethephon Plant Regulator .

APPLICATION TIMING

Apply when the flag leaf is just visible to boot stage, but before the awns have emerged or the sheath has split (Feekes-Large Scale 8-10, Zadok's Code 37-45). Do not allow spray solution to contact exposed heads, as damage and reduced yield may result. Inspect fields carefully to determine that application can be made at the proper stage.

APPLICATION

For CERONE® brand Ethephon Plant Regulator to be effective temperature after application should be at least 60°F.

Avoid spray overlap which can result in excess rate and yield loss.

GROUND: Use a minimum of 7 gallons of water per acre when applied by conventional ground equipment. Flat fan nozzles are recommended. Use a minimum of 5 gallons of water per acre with controlled droplet application (CDA) or air foil type equipment. To prevent uneven application adjust spray boom to plant canopy height and operate at moderate speed.

AIR: Use a minimum of 3 gallons of water per acre.

USE RATES

Lodging pressure and environmental conditions will affect the CERONE® brand Ethephon Plant Regulator rate needed.

On more responsive varieties use only the 0.5 pint per acre rate. Consult your state extension specialist or Bayer CropScience representative for more information.

Do not apply more than a total of 1.0 pint (0.5 lb. active) of CERONE® brand Ethephon Plant Regulator per acre per year.

Do not harvest wheat or barley within 40 days of last CERONE® brand Ethephon Plant Regulator application.

CERONE® RATE GUIDE FOR BARLEY AND WHEAT				
<u>EXPECTED LODGING PRESSURE</u>				
(CERONE® PINTS/ACRE)				
SITUATION	MODERATE	HEAVY	SEVERE	COMMENTS
Barley (Spring and winter)	1/2	1/2 to 3/4	3/4 to 1*	Some tall varieties with vigorous growth may require 1 pint per acre.
Winter Wheat	1/2	1/2 to 3/4	3/4 to 1*	In severe lodging situations, these rates may not be adequate to control lodging in some tall straw varieties such as "Roughrider" and "Agassiz".
Most Spring wheats	1/2	1/2	3/4	In severe lodging situations, these rates may not be adequate to control lodging in some tall durum wheats such as "Vic".
High Temperature** or Sensitive Variety	1/2	1/2	1/2	

NON-IRRIGATED BARLEY AND WHEAT

DO NOT apply CERONE® brand Ethephon Plant Regulator to non-irrigated barley and wheat in states west of the Mississippi River except: 1) in the Sacramento Valley and west of the Coastal Range in California and, 2) west of the Cascade Range in Washington and Oregon.

CERONE® brand Ethephon Plant Regulator is recommended in the non-irrigated areas in states east of the Mississippi River and 1) in Sacramento Valley and west of the Coastal Range in California, and 2) west of the Cascade Range in Washington and Oregon.

IRRIGATED BARLEY AND WHEAT

Irrigation prior to treatment is recommended to avoid stress and may be resumed 24 hours after treatment. If conditions are hot and dry continue irrigation through the grain head filling period.

Moisture and/or heat stress during anthesis and grain fill can cause significant yield loss. With CERONE® brand Ethephon Plant Regulator, it is important to avoid plant stress during these growth periods in order to obtain optimum yield and quality.

RESTRICTIONS AND LIMITATIONS

* Limit use of the 1.0 pint rate to situations where lodging is expected to result in a high loss of yield potential: 1) an irrigated crop with unusually severe lodging pressure, 2) very tall lodging prone variety, or 3) a cereal type such as durum known to be subject to severe lodging.

** Do not use CERONE® brand Ethephon Plant Regulator if daytime temperatures for the period 5 days after application are expected to exceed 85° F in non-irrigated or 90° F in irrigated wheat or barley crops.

CERONE® APPLICATION STAGE CHART

GROWTH STAGE
CHART



Growth Description	2nd node detectable	Flag leaf just visible	Flag leaf ligule visible	Boot swollen	First spikelet visible	3/4 of inflorescence completed
Feeks - Large Scale	7	8	9	10	10.1	10.4
Zadok's Code	32	37	39	45	50	57
Recommended CERONE treatment time	Too Early				Too Late	

IMPORTANT: READ BEFORE USE

Read the entire Directions for Use, Conditions, Disclaimer of Warranties and Limitations of Liability before using this product. If terms are not acceptable, return the unopened product container at once.

By using this product, user or buyer accepts the following Conditions, Disclaimer of Warranties and Limitations of Liability.

CONDITIONS: The directions for use of this product are believed to be adequate and should be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Bayer CropScience. All such risks shall be assumed by the user or buyer.

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