

# FLOREL® brand PLANT GROWTH REGULATOR

For Use on Ornamentals, For Production of Cucumber, Squash and Pumpkin Hybrid Seed, For Increasing Pickling Cucumber Fruit Set and Yield, For Inducing Flowering of Ornamental Bromelads, For Earlier Ripening of Home Garden Tomatoes, For Reducing Plant Height of Potted Daffodils and Stem Topple of Potted Hyacinths, For the Removal of Dwarf Mistletoe Shoots In Ornamental Conifers, and for the Removal of Leafy Mistletoe Shoots in Ornamental Deciduous Trees.

ACTIVE INGREDIENTS: Ethephon, [(2-chloroethyl) phosphonic acid]\*.....3.9%  
INERT INGREDIENTS: .....96.1%

\*This product contains 0.33 lbs. ethephon per gallon

EPA Reg. No. 264-263

EPA Es. No. 264-PA-01

**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

For MEDICAL and TRANSPORTATION EMERGENCY Information ONLY Call 24 Hours A Day 1-800-334-7577

For PRODUCT USE Information Call 1-800-334-9745

## STATEMENT OF PRACTICAL TREATMENT

**IF SWALLOWED:** Call a physician and promptly drink large quantities of milk, egg white, gelation solution or if these are not available, large quantities of water.

**IN CASE OF EYE CONTACT:** Flood eyes immediately with plenty of water for at least 15 minutes and get medical attention.

**ON SKIN:** Wash with plenty of soap and water. Get medical attention.

### NOTE TO PHYSICIAN

FLOREL® brand Plant Growth Regulator possesses characteristics of a strong acid. Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed.

## PRECAUTIONARY STATEMENTS

**CAUTION  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

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Harmful if swallowed, inhaled or absorbed through skin. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing before reuse.

## ENVIRONMENTAL HAZARDS

Do not apply FLOREL® brand Plant Growth Regulator through any type of irrigation system.  
Avoid spray drift to nearby crops as this product may cause temporary modifications in plant growth.  
Do not contaminate water used for irrigation or domestic purposes.  
Do not apply directly to water or wetlands (swamps, bogs, marshes, and potholes). Do not contaminate water when disposing of equipment washwaters.

## DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.  
Read entire label before using this product.

## GENERAL WORKER PROTECTION STATEMENTS

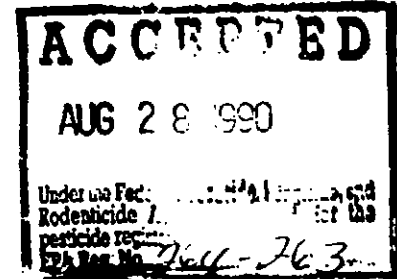
Do not apply this product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by unprotected persons.

Mixers, loaders and applicators, or persons entering treated areas within 24 hours after application should wear protective clothing such as long-sleeved shirt and long trousers. Because certain states may require more restrictive reentry intervals for various crops treated with this product, consult your State Department of Agriculture for further information.

Written or oral warnings must be given to workers who are expected to be in a treated area or in an area about to be treated with this product. When oral warnings are given, warnings shall be given in a language customarily understood by workers. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers. Written warnings must include the following information: appropriate signal word (CAUTION), area treated with FLOREL® brand Plant Growth Regulator, date of application, appropriate protective clothing, and reentry interval.

### FLOREL® brand PLANT GROWTH REGULATOR

- Modifies sex expression and flowering pattern of CUCUMBERS and SQUASH to facilitate hybrid seed production
- Increases pickling CUCUMBER FRUIT set and yield
- Causes BROMELIADS to flower
- Concentrates and accelerates TOMATO ripening for home garden tomato production
- Promotes earlier defoliation of ROSES, TALLHEDGE BUCKTHORN, and APPLE NURSERY STOCK
- Eliminates undesirable fruit on APPLE and CRABAPPLES, CAROB and OLIVE
- Stimulates lateral branching of AZALEAS and GERANIUMS
- Reduces plant height of potted DAFFODILS and stem topple of potted HYACINTHS
- Removes DWARF MISTLETOE shoots from ornamental conifers
- Removes LEAFY MISTLETOE shoots from ornamental deciduous trees



### GENERAL INFORMATION

#### INCREASED YIELDS OF PICKLING CUCUMBERS

A foliar spray of FLOREL® brand Plant Growth Regulator will modify sex expression and flowering patterns of pickling-type cucumbers, increasing fruit set and yields.

#### FLOWER INDUCTION OF BROMELIADS

A foliar spray of FLOREL® brand Plant Growth Regulator initiates flowering of ornamental bromeliads such as ANANAS, AECHMEA, NEOREGELIA, VRIESIA, and BILLBERGIA.

#### HYBRID SEED PRODUCTION

A foliar spray of FLOREL® brand Plant Growth Regulator will modify sex expression and flowering pattern of cucumbers and squash to facilitate hybrid seed production. Do not use on cucumbers or squash to be harvested for fresh or processed markets.

#### HOME GARDEN TOMATO RIPENING

FLOREL® brand Plant Growth Regulator can be used as an overall, foliar spray to concentrate and accelerate tomato ripening. Applied at the end of the growing season, FLOREL® will hasten ripening of mature green tomatoes and allow harvesting of fruit before frost.

#### DEFOLIATION

A foliar spray of FLOREL® brand Plant Growth Regulator applied after buds are matured, will initiate earlier leaf drop of Roses, Tallhedge, and Apple nursery stock (in Washington only). This will allow digging of stock plants prior to the onset of unfavorable weather.

#### UNDESIRABLE FRUIT ELIMINATION

A foliar spray of FLOREL® will reduce or eliminate undesirable fruit development on Apple, Crabapple, Carob, and Olive trees.

**MISTLETOE SHOOT REMOVAL**

A foliar spray of FLOREL® will cause the abscission of Dwarf Mistletoe shoots in ornamental conifers and Leafy Mistletoe shoots in ornamental deciduous trees.

**INCREASING LATERAL BRANCHING**

A foliar spray of FLOREL® brand Plant Growth Regulator in conjunction with chemical or mechanical pinching, will increase the number of lateral branches on Azaleas. When used on Geranium stock plants, prior to normal pinching time, an increase in the number of lateral branches to be used as cutting material can be expected.

**REDUCTION OF PLANT HEIGHT AND STEM TOPPLE**

A foliar spray of FLOREL® brand Plant Growth Regulator will aid in reducing total plant height of potted daffodils and stem topple of potted hyacinths at time of full flower.

**HYBRID SEED PRODUCTION**

FLOREL® brand Plant Growth Regulator modifies sex expression and flowering pattern of cucumber, squash and pumpkins to facilitate hybrid seed production. Application of FLOREL® increases the number of pistillate (female) and decreases the number of staminate (male) flowers. FLOREL® brings about earlier formation of female flowers at lower nodes where normally only male flowers are formed in standard (monoecious) 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 FLOREL® Plant Regulator application even when all label directions are followed. Treatment of cultivars classified as strongly male (Straight Neck, Crookneck) may result in an unacceptable level of male flowers remaining. New breeding lines will require trial applications before full scale treatments are made.

**HYBRID SEED PRODUCTION IN CUCUMBER AND SQUASH**

Amounts To Use: Apply 1 quart of FLOREL® brand Plant Regulator in 40 to 100 gallons of water per acre. 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 repeat application 7-10 days after the first may be necessary.

**HYBRID SEED PRODUCTION IN PUMPKINS (ILLINOIS ONLY)**

Amounts To Use: Apply 3 quarts of FLOREL® brand Plant Growth Regulator in 40 to 100 gallons of water per acre. Apply no more than 6 spray applications per year at 7-10 day intervals beginning at the 2-4 leaf stage. Do not harvest within 42 days of last application.

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

Amounts To Use: Apply up to 3 quarts per acre of FLOREL® brand Plant Growth Regulator in 40 to 100 gallons of water (300 to 750 ppm) by ground application. Apply no more than 6 spray applications per year at 3 to 10 day intervals beginning at first true leaf stage. 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.

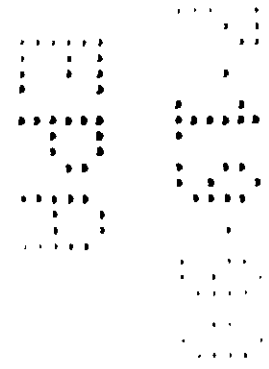
**GENERAL COMMENTS**

Apply FLOREL® brand Plant Growth Regulator spray solution within 4 hours after mixing. Mix only the amount of spray you plan to use immediately. DO NOT save unused diluted spray solutions as they will not be as effective as fresh solutions.

Plants sprayed with FLOREL® often flower 7 to 10 days earlier than untreated. Therefore pollen source plants should be seeded prior to seed parent to insure adequate pollen availability for hybrid seed production.

Temporary growth inhibition resulting from shortened internodes may be observed.

NOTE: For home garden use follow spray guide at end of pamphlet.



**PICKLING CUCUMBERS YIELD INCREASE**

FLOREL® brand Plant Growth Regulator modifies sex expression and flowering pattern of pickling-type cucumbers and induces femaleness and the potential for increased yield.

Amounts to Use: Mix 1.25 to 2.5 pints of FLOREL® brand Plant Growth Regulator in 50 gallons of water. Use the lower rate for gynocious varieties to maintain femaleness under adverse environmental conditions, and the higher rate for monoocious varieties to induce femaleness.

Make two applications, the first at the 2 to 4 leaf stage and a second 5 to 7 days later. Apply to point of run-off with low pressure ground sprayer at 25 to 50 gallons per acre.

Leave one untreated row in every 10 rows to ensure sufficient male flowers for pollination.

For use on pickling-type cucumbers only. Do not apply when fruit is present.

Do not harvest cucumbers treated with FLOREL® brand Plant Growth Regulator sooner than 17 days after the last application.

**CAUSES BROMELIADS TO FLOWER**

FLOREL® brand Plant Growth Regulator initiates flowering of ornamental bromeliads such as ANANAS, AECHMEA, NEOREGELIA, VRIESIA and BILLBERGIA.

**AMOUNTS TO USE**

For most bromeliad varieties, mix 8 fluid ounces of FLOREL® brand Plant Growth Regulator per gallon of water. This prepares a spray concentration of approximately 2,500 ppm of ethephon. Spray all surfaces of the plant to "wet". Avoid overspraying to "runoff" which may cause damage to leaves or the growing points. For treating groups of plants, use approximately 1/2 pint of spray solution per 10 square feet of greenhouse bench or outdoor bed area.

Apply FLOREL® brand Plant Growth Regulator spray solutions within 4 hours after mixing. Mix up only the amount of spray you plan to use immediately. DO NOT save unused diluted spray solutions as they will not be as effective as fresh solutions.

The degree of flower induction with a given rate of FLOREL® is influenced by the 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 plant 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. A minimum night temperature of 65-70°F or higher should be maintained throughout the forcing period.
5. Do not apply fertilizer two weeks prior or for two weeks after treatment.

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

**HOME GARDEN TOMATO PRODUCTION USE**

FLOREL® can be used as an overall, foliar spray to concentrate and accelerate tomato ripening. Apply FLOREL® at the end of the growing season to hasten ripening of mature green tomatoes and allow harvesting of fruit before frost. FLOREL® spray will be most effective on healthy plants. Harvest fruit at proper maturity, generally 14 to 21 days after treatment. Some defoliation or yellowing of foliage following treatment will be observed.

Do not harvest tomatoes for processing treated with FLOREL® brand Plant Growth Regulator sooner than 14 days after the last application.

Do not harvest fresh market tomatoes in California treated with FLOREL® brand Plant Growth Regulator sooner than 3 days after the last application.

## AMOUNTS TO USE

When treating several plants mix 1 teaspoon of FLOREL® in 3 ounces (6 tablespoons) of water. When treating a larger number of plants (10 to 15) mix 1 tablespoon of FLOREL® in 9 ounces (18 tablespoons) of water. Apply FLOREL® with a clean hand sprayer. Thoroughly wet all leaves and fruit.

## DEFOLIATION

A foliar spray of FLOREL® will cause earlier leaf drop of roses, tallhedge and apple nursery stock. Apply only after the buds are mature or some injury may result.

**FOR ROSES:** Mix 1 quart of FLOREL® brand Plant Growth Regulator in 10 gallons of water and apply to thoroughly wet foliage. Amount of spray used will depend on the size of the rose bush. Amount of defoliation obtained will depend 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.

**FOR TALLHEDGE BUCKTHORN:** Mix 5 to 10 quarts FLOREL® in 10 gallons water and apply to thoroughly wet foliage. Amount of spray used will depend on size of tallhedge. Use the higher rate when temperatures are cool or earlier defoliation is desired.

**FOR APPLE NURSERY STOCK IN WASHINGTON:** Mix 1-2 pints FLOREL® plus 3 quarts Dupont Surfactant WK in 50 gallons water and apply no more solution than is necessary to moisten foliage without runoff. A second treatment 3-7 days later using the above rates may be applied. Apply no more than 4 pints FLOREL® per season. Do not use on Rome apples as defoliation will not be satisfactory. Amount of defoliation obtained will depend on variety and temperatures.

## FRUIT ELIMINATION

A foliar spray of FLOREL® will reduce or eliminate undesirable fruit from apple trees, crabapple trees, carob trees, and olive trees. Applications should be made at the flower bud to full bloom stage, prior to fruit set.

**FOR APPLES AND CRABAPPLES:** Mix 3/4 to 1 quart of FLOREL® in 10 gallons of water (750 to 1,000 ppm) and apply to thoroughly wet foliage. Amount of spray used will depend on tree size. Use the higher rate when temperatures are cool. Do not use on small, red fruited varieties of crabapples as fruit elimination will not be satisfactory.

**FOR CAROB (Ceratonia siliqua):** Mix 1/2 quart FLOREL® in 10 gallons of water (500 ppm) and apply to thoroughly wet foliage. Amount of spray used will depend on tree size. Some leaf drop of older leaves may occur after treatment.

**FOR OLIVE (Olea europaea):** Mix 1 quart FLOREL® in 10 gallons water (1000 ppm) and apply to thoroughly wet foliage. Amount of spray used will depend on tree size. Some temporary leaf yellowing may occur. Applications must be made before fruit set for best results.

NOTE: This recommendation is not intended to be used in commercial fruit production as a thinning agent.

**DWARF MISTLETOE REMOVAL:** Use FLOREL® as a foliar spray on ornamental conifers for removal of dwarf mistletoe shoots and seeds. Applications made in conjunction with silvicultural mistletoe management will prevent spread of the mistletoe parasite to other parts of the tree and to other trees. Mix 1 quart of FLOREL® brand Plant Regulator in 4 gallons of water (2700 ppm) and spray to "wet". When treating mistletoe in Douglas Fir, mix 1 pint of FLOREL® brand Plant Regulator in 4 gallons of water (1350 ppm). Application of higher rates on Douglas fir may result in excessive needle drop. Use of non ionic surfactant at recommended rates may increase effectiveness. Treat any mistletoe regrowth before seed dispersal occurs. Mature needle drop, that normally occurs in the fall, may be hastened by the use of FLOREL® brand Plant Regulator.

**LEAFY MISTLETOE REMOVAL:** Use FLOREL® brand Plant Regulator as a foliar spray on ornamental deciduous trees for removal of leafy mistletoe shoots and seeds. Make applications after fall leaf drop through midwinter. Mix 2 quarts of FLOREL® in 4 gallons of water (5400 ppm). For effective removal all mistletoe shoots must be sprayed to "wet". Use of a non ionic surfactant at recommended rates may increase effectiveness. Large mistletoe infections and mistletoe found in mesquite may be difficult to control with a single application and retreatment may be necessary. Should regrowth of mistletoe occur retreat prior to mistletoe seed dispersal during the labeled application window.

## INCREASED LATERAL BRANCHING

A foliar spray of FLOREL® will increase lateral branching in Azaleas and Geraniums.

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**FOR AZALEAS:** Mix 2 1/2 to 5 quarts of FLOREL® in 10 gallons of spray solution and apply to thoroughly wet foliage. Amount of spray used will depend upon plant size. Apply at normal pinching time in conjunction with either hand or chemical pinching agents. Use the higher rate on vigorous tolerant varieties as determined by experience. Do not treat sensitive varieties such as Sweetheart as growth and flower inhibition can occur.

**FOR GERANIUMS:** Mix 1 quart of FLOREL® in 10 gallons of water and spray to thoroughly wet foliage. Apply two weeks prior to normal pinching. Use only on stock plants as delay in flowering can occur.

## REDUCTION OF HYACINTH STEM TOPPLE AND DAFFODIL PLANT HEIGHT

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To reduce potted hyacinth stem topple at time of full flower, apply a foliar spray of FLOREL® before florets show any color. Most cultivars will respond to 1000 ppm (1/2 pint in 2 1/2 gallons of water) of FLOREL®. Bismarck, Jan Bee, Blue Giant, Delft Blue, and Madame Kruger may benefit from a second spray 2 days after the first.

To reduce total plant height of potted daffodils, apply a foliar spray of FLOREL® when the shoots are 4 to 5 inches tall. Most cultivars will respond to 2000 ppm (1 pint in 2 1/2 gallons) sprays of FLOREL®. For earlier forcings, Dutch Master, Joseph MacLeod, Flower Record, and Barrett Browning will benefit from a second spray 2 or 3 days after the first. Bridal Crown and Geranium require only 1000 ppm (1/2 pint in 2 1/2 gallons of water). Gold Medal, Van Sion, February Gold, and Tete-a-Tete do not require FLOREL® treatment.

### FLOREL® brand HOME SPRAY GUIDE Read Detailed Instructions in This Pamphlet First

APPLICATION	FLOREL®	Amount to Use	WATER
Flower Induction Bromeliads	1 oz.		1 pt.
Tomato Ripening Fall Season	1 tsp.		3 oz.
Fruit Elimination Apples/Crabapples	3 oz.		1 g. li.
Carob	1-1/2 oz.		1 gal.
Olive	3 oz.		1 gal.
Lateral Branching Azaleas	2-4 oz.		1 qt.
Geraniums	3 oz.		1 gal.
Mistletoe Removal Dwarf Mistletoe	1 qt.		4 gal.
Leafy Mistletoe	2 qt.		4 gal.

## STORAGE AND DISPOSAL

### STORAGE

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

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### PESTICIDE DISPOSAL

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

### CONTAINER DISPOSAL

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration or if allowed by state and local authorities, by open burning. If container is burned, stay out of smoke.

## LIMITED WARRANTY AND DISCLAIMER

The manufacturer warrants (a) that this product conforms to the chemical description on the label; (b) that this product is reasonably fit for the purposes set forth in the directions for use when it is used in accordance with such directions; and (c) that the directions, warnings and other statements on this label are based upon responsible experts' evaluation of reasonable tests of effectiveness, of toxicity to laboratory animals and to plants, and of residues on food crops and upon reports of field experience. Tests have not been made on all varieties or in all states or under all conditions. THE MANUFACTURER NEITHER MAKES NOR INTENDS, NOR DOES IT AUTHORIZE ANY AGENT OR REPRESENTATIVE TO MAKE, ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, AND IT EXPRESSLY EXCLUDES AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

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