

264-263

8/16/2010

1/12



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

AUG 16 2010

Ms. Laura Phelps  
Product Registration  
Bayer Environmental Science  
P.O. Box 12014  
2T.W. Alexander Drive  
Research Triangle Park, NC 27709

Subject: Label Notification for Pesticide Registration Notice 2007-4  
(Storage & Disposal Changes)

Dear Registrant:

The Agency is in receipt of your Application(s) for Pesticide Notification under Pesticide Registration Notice (PRN) 2007-4 dated May 21, 2010 for:

**EPA Registration 264-263 "FLOREL brand Ethephon"**

The Registration Division (RD) has conducted a review of this request for applicability under PRN 2007-4 and finds that the label change(s) requested falls within the scope of PRN-2007-4. The label has been date-stamped "Notification" and will be placed in our records.

Please be reminded that 40 CFR Part 156.140(a)(4) requires that a batch code, lot number, or other code identifying the batch of the pesticide distributed and sold be placed on nonrefillable containers. The code may appear either on the label (and can be added by non-notification/PR Notice 98-10) or durably marked on the container itself.

If you have any questions, please call me directly at 703-305-5335 or Owen F. Beeder of my staff at 703-308-8899.

Sincerely,

*Richard C. Holloman*  
Paul J. Mastradone, Ph.D., Acting *for*  
Notifications & Minor Formulations Team Leader  
Registration Division (7505P)  
Office of Pesticide Programs

Please read instructions on reverse before completing form.

Form Approved, OMB No. 2070-0060

Print Form



United States  
Environmental Protection Agency  
Washington, DC 20460

<input type="checkbox"/>	Registration
<input checked="" type="checkbox"/>	Amendment
<input type="checkbox"/>	Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 264-263	2. EPA Product Manager Mr. Tony Kish	3. Proposed Classification <input type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) FLOREL brand Ethephon	PM# 22	
5. Name and Address of Applicant (Include ZIP Code) Bayer CropScience LP P. O. Box 12014; 2 T. W. Alexander Dr. Research Triangle Park, NC 27709 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: <input checked="" type="checkbox"/> EPA Reg. No. _____ Product Name _____	

Section - II

<input checked="" type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____	<b>NOTIFICATION</b>  AUG 16 2010
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.	
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.	

**Explanation:** Use additional page(s) if necessary. (For section I and Section II.)

Bayer CropScience would like to add the required container disposal language to the FLOREL brand Ethephon label. Based on the Guidance issued under PR Notice 2007-4 and the product-specific information, we propose the included "Container Disposal" labeling language.

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Metal	<input checked="" type="checkbox"/> Plastic
* Certification must be submitted	If "Yes" Unit Packaging wgt. No. per container	If "Yes" Package wgt. No. per container		<input type="checkbox"/> Glass	<input type="checkbox"/> Paper
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container	4. Size(s) Retail Container 2.5 + 250 gallon		5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product		
6. Manner in Which Label is Affixed to Product				<input type="checkbox"/> Other _____	
				<input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled	

Section - IV

1. Contact Point: (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Laura Phelps	Title Reg. Affairs Specialist	Telephone No. (include Area Code)
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received <b>(Stamped)</b>
2. Signature <i>Laura Phelps</i>	3. Title Regulatory Affairs Specialist	
4. Typed Name Laura Phelps	5. Date May 21, 2010	

# Bayer CropScience



May 20, 2010

Document Processing Desk (AMEND)  
Office of Pesticide Program (H7504P)  
U.S. EPA, Room S4900  
One Potomac Yard  
Arlington, VA 22202 -4525

ATTN: Mr. Tony Kish (PM 22)  
Registration Division (7505P)

Subject: FLOREL brand Ethephon (Reg. No.: 264-263): Submission of the Application of Pesticide Notification under PR Notice 2007-4 (Ref.: the Pesticide Container and Containment Final Rule, August 16, 2006)

Dear Mr. Kish:

Bayer CropScience herein submits this amendment for the FLOREL brand Ethephon (Reg. No.: 264-263), a solution containing ethephon as the active ingredient. The amendment is to comply with the label language required by the regulation in 40 CFR part 156 established by the Final Rule "Pesticide Management and Disposal; Standards for Pesticide Container and Containment" (August 16, 2006). Based on the Guidance issued under the PR Notice 2007-4 and the product-specific information, we propose the following "Container Disposal" labeling (see Section for "Storage and Disposal"):

**CONTAINER DISPOSAL**

**Rigid, Non-refillable containers small enough to shake (i.e., with capacities equal to or less than 5 gallons)**

Non-refillable container. Do not reuse or refill this container. Offer for recycling, if available. 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 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. Once container is rinsed, offer for recycling if available or puncture and dispose of in a sanitary landfill.

**Rigid Non-refillable containers that are too large to shake (i.e., with capacities greater than 5 gallons or 50 lbs)  
Non-refillable Containers**

Non-refillable containers - Do not reuse or refill this container. Refer to Bottom Discharge IBC or Top Discharge IBC, Drums, Kegs information as follows.

**Bottom Discharge IBC (e.g. – Schuetz Caged IBC or Snyder Square Stackable)**

Pressure rinsing the container before final disposal is the responsibility of the person disposing of the container. To pressure rinse the container before final disposal, empty the remaining contents from the IBC into application equipment or mix tank. Raise the bottom of the IBC by 1.5 inches on the side which is opposite of the bottom discharge valve to promote more complete product removal. Completely remove the top lid of the IBC. Use water pressurized to at least 40 PSI to rinse all interior portions. Continuously pump or drain rinsate into application equipment or rinsate collection system while pressure rinsing. Continue pressure rinsing for 2 minutes or until rinsate becomes clear. Replace the lid and close bottom valve.

**Top Discharge IBC, Drums, Kegs (e.g.– Snyder 120 Next Gen, Bonar B120, Drums, Kegs).**

Triple rinsing the container before final disposal is the responsibility of the person disposing of the container. To triple rinse the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container at least 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Rinse all interior surfaces. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this procedure two more times. Once container is rinsed, offer for recycling if available or puncture and dispose of in a sanitary landfill.

**Refillable Containers**

Refillable container – Refer to Bottom Discharge IBC or Top Discharge IBC, Drums, Kegs information as follows. Refill this container with pesticide only. Do not reuse this container for any other purpose. After emptying product from container, either return container to Bayer CropScience per instructions from Bayer CropScience Customer Service Center (1-800-527-4781) or rinse and either recycle or dispose of the container as follows:

**Bottom Discharge IBC (e.g. – Schuetz Caged IBC or Snyder Square Stackable)**

Pressure rinsing 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 pressure rinse the container before final disposal, empty the remaining contents from the IBC into application equipment or mix tank. Raise the bottom of the IBC by 1.5 inches on the side which is opposite of the bottom discharge valve to promote more complete product removal. Completely remove the top lid of the IBC. Use water pressurized to at least 40 PSI to rinse all interior portions. Continuously pump or drain rinsate into application equipment or rinsate collection system while pressure rinsing. Continue pressure rinsing for 2 minutes or until rinsate becomes clear. Replace the lid and close bottom valve.

**Top Discharge IBC, Drums, Kegs (e.g.– Snyder 120 Next Gen, Bonar B120, Drums, Kegs).**

Triple rinsing 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 triple rinse the containers before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container at least 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Rinse all interior surfaces. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this procedure two more times. Once container is rinsed, offer for recycling if available or puncture and dispose of in a sanitary landfill.

---

**Refillable Containers**

End users are authorized to remove tamper evident cables as required to remove the product from the container unless the container is equipped with one way valves and refilling or returning is planned. If this is the case, end users are not authorized to remove tamper evident cables, one way valves or clean container. See Container Disposal instructions under Storage and Disposal.

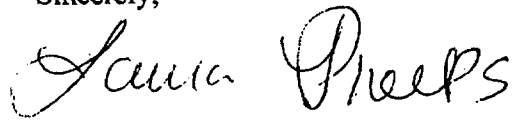
Enclosed is an EPA Form 8570-1, one copy of the revised FLOREL brand Ethephon label for review, and an extra page (with the Container Disposal Section) where the revised/new text is highlighted.

This amendment is consistent with the guidance in PR Notice 2007-4 and EPA's alternative language acceptance letter to Bayer CropScience dated November 10, 2009. No other changes have been made to the labeling or the Confidential Statement of Formula for this product. I understand that it is a violation of 18 U.S.C. Section 1001 to willfully make any false statement to EPA. I further understand that if the amended label is not consistent with the requirements of 40

CFR §§156.10, 156.140, 156.144, 156.146 and 156.156, this product may be in violation of FIFRA and I may be subjected to enforcement action and penalties under Section 12 and 14 of FIFRA”.

Please contact me if you should have further questions:

Sincerely,



Laura Phelps  
Regulatory Affairs, Herbicides & PGRs  
Bayer CropScience  
2 T. W. Alexander Drive  
RTP, NC 27709  
office: 919-549-2302  
mobil:919-352-8075  
email: [laura.phelps@bayercropscience.com](mailto:laura.phelps@bayercropscience.com)

6/12

# FLOREL<sup>®</sup> brand Ethephon PLANT GROWTH REGULATOR

For Use In Production of Cucumber, Squash and Pumpkin Hybrid Seed, For Inducing Flowering of Ornamental Bromeliads, For Reducing Plant Height of Potted Daffodils and Stem Topple of Potted Hyacinths, For Increased Lateral Branching in Ornamentals and For Fruit Elimination In Ornamental Trees and Shrubs

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 Est. No. 264-PA-01

**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

**NOTIFICATION  
AUG 16 2010**

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)

### FIRST AID

<b>IF IN EYES:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<p style="text-align: center;"><b>For MEDICAL Emergencies Call 24 Hours A Day 1-800-334-7577.</b> Have the product container or label with you when calling a poison control center or doctor or going for treatment.</p>	
<p><b>NOTE TO PHYSICIAN:</b> 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.</p>	

### PRECAUTIONARY STATEMENTS

#### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

#### CAUTION

Harmful if absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or 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) and shoes plus socks. 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 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.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's 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.

### 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 FLOREL® brand Ethephon 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 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.

Prolonged exposure to spray deposits can damage acrylic plastics, certain paints, and metals. Remove automobiles and other vehicles from the treatment area prior to application to prevent spray deposits from falling on vehicles and potentially damaging finishes. Rinse acrylic plastic materials and painted surfaces exposed to inadvertent spray deposits using soap and water within an hour after exposure.

### GENERAL INFORMATION

Apply FLOREL® brand Ethephon 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® brand Ethephon 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.

For ground application only.

#### FLOWER INDUCTION OF BROMELIADS

A foliar spray of FLOREL® brand Ethephon initiates flowering of ornamental bromeliads such as ANANAS, AECHMEA, NFOREGELIA, VRIESIA, and BILLBERGIA.

#### HYBRID SEED PRODUCTION

A foliar spray of FLOREL® brand Ethephon 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.

#### DEFOLIATION

A foliar spray of FLOREL® brand Ethephon 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.

#### INCREASING LATERAL BRANCHING (Varieties such as Azalea, Begonia, Chrysanthemum, Geranium, Impatiens, Lantana, Verbena, Vinca)

A foliar spray of FLOREL® brand Ethephon in conjunction with hand pinching, will increase the number of lateral branches on many ornamental plant species. 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. Bougainvillea will be defoliated by applications of FLOREL® but nodes will break a few weeks after treatment.

#### REDUCTION OF PLANT HEIGHT AND STEM TOPPLE

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

#### FRUIT ELIMINATION

A foliar spray of FLOREL® brand Ethephon will reduce or eliminate undesirable fruit on ornamental trees and shrubs such as: Apple, Crabapple, Carob, Cottonwood, Elm, Flowering pear, Horsechestnut (Buckeye), Maple, Oak, Olive, Pine, Sour Orange, Sweetgum, and Sycamore.

### 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 expectations 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 material, such as nitrile, butyl, neoprene, or barrier laminate, chemical resistant footwear plus socks, and protective eyewear. For over head 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.

#### 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

**Rigid, Non-refillable containers small enough to shake (i.e., with capacities equal to or less than 5 gallons)**

Non-refillable 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 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. Once container is rinsed, offer for recycling if available or puncture and dispose of in a sanitary landfill.

**Rigid Non-refillable containers that are too large to shake (i.e., with capacities greater than 5 gallons or 50 lbs)**

#### Non-refillable Containers

Non-refillable containers - Do not reuse or refill this container. Refer to Bottom Discharge IBC or Top Discharge IBC, Drums, Kegs information as follows.

**Bottom Discharge IBC (e.g. - Schuetz Caged IBC or Snyder Square Stackable)**

Pressure rinsing the container before final disposal is the responsibility of the person disposing of the container. To pressure rinse the container before final disposal, empty the remaining contents from the IBC into application equipment or mix tank. Raise the bottom of the IBC by 1.5 inches on the side which is opposite of the bottom discharge valve to promote more complete product removal. Completely remove the top lid of the IBC. Use water pressurized to at least 40 PSI to rinse all interior portions. Continuously pump or drain rinsate into application equipment or rinsate collection system while pressure rinsing. Continue pressure rinsing for 2 minutes or until rinsate becomes clear. Replace the lid and close bottom valve.

**Top Discharge IBC, Drums, Kegs (e.g.- Snyder 120 Next Gen, Bonar B120, Drums, Kegs).**

Triple rinsing the container before final disposal is the responsibility of the person disposing of the container. To triple rinse the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container at least 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Rinse all interior surfaces. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this procedure two more times. Once container is rinsed, offer for recycling if available or puncture and dispose of in a sanitary landfill.

#### Refillable Containers

Refillable container - Refer to Bottom Discharge IBC or Top Discharge IBC, Drums, Kegs information as follows. Refill this container with pesticide only. Do not reuse this container for any other purpose. After emptying product from container, either return container to Bayer CropScience per instructions from Bayer CropScience Customer Service Center (1-800-527-4781) or rinse and either recycle or dispose of the container as follows:

**Bottom Discharge IBC (e.g. - Schuetz Caged IBC or Snyder Square Stackable)**

Pressure rinsing 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 pressure rinse the container before final disposal, empty the remaining contents from the IBC into application equipment or mix tank. Raise the bottom of the IBC by 1.5 inches on the side which is opposite of the bottom discharge valve to promote more complete product removal. Completely remove the top lid of the IBC. Use water pressurized to at least 40 PSI to rinse all interior portions. Continuously pump or drain rinsate into application equipment or rinsate collection system while pressure rinsing. Continue pressure rinsing for 2 minutes or until rinsate becomes clear. Replace the lid and close bottom valve.



**Top Discharge IBC, Drums, Kegs (e.g.- Snyder 120 Next Gen, Bonar B120, Drums, Kegs).**

Triple rinsing 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 triple rinse the containers before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container at least 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Rinse all interior surfaces. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this procedure two more times. Once container is rinsed, offer for recycling if available or puncture and dispose of in a sanitary landfill.

**Refillable Containers**

End users are authorized to remove tamper evident cables as required to remove the product from the container unless the container is equipped with one way valves and refilling or returning is planned. If this is the case, end users are not authorized to remove tamper evident cables, one way valves or clean container. See Container Disposal instructions under Storage and Disposal.

**HYBRID SEED PRODUCTION**

FLOREL® brand Ethephon 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® brand Ethephon 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 per acre of FLOREL® brand Ethephon 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.

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

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 Ethephon per acre in 40 to 100 gallons of water ( 300 to 750 ppm) 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.

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

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

Amounts To Use: Apply up to 3 quarts per acre of FLOREL® brand Ethephon 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.

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

**FLOWER INDUCTION OF BROMELIADS**

FLOREL® brand Ethephon 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 Ethephon 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 Ethephon 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® brand Ethephon 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.

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

## DEFOLIATION

A foliar spray of FLOREL® brand Ethephon 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 Ethephon 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® brand Ethephon 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® brand Ethephon 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.

## INCREASED LATERAL BRANCHING

A foliar spray of FLOREL® brand Ethephon will increase 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 FLOREL® on ornamental varieties or species not specifically listed on the label.

When applied to plants FLOREL® brand Ethephon 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 can cause severe injury such as defoliation or leaf scorching. While injury from FLOREL® usually does not kill the plant, it can render the plant unsightly and unfit for sale. The activity of FLOREL® is linked to plant growth activity and is therefore slower acting when temperatures are below 60F or very high above 95F.

**FOR STOCK PLANTS (EXCEPT AZALEA):** Mix 1 pint (16 fluid ounces) of FLOREL® brand Ethephon in 10 gallons of water (500 ppm) and 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.

**FOR FINISHED PLANTS (EXCEPT AZALEA):** Mix 1 pint (16 fluid ounces) of FLOREL® brand Ethephon in 10 gallons of water (500 ppm) and spray to thoroughly wet foliage, but not to runoff. Make applications at normal pinching time 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 FINISHED PLANTS):** Mix 2.5 to 5 quarts of FLOREL® brand Ethephon in 10 gallons of water (2,500 to 5,000 ppm) and apply to thoroughly wet foliage. The amount of spray will depend upon the size of the plant being treated. Applications should be made at normal pinching times and can be used in conjunction with hand pinching or chemical pinching agents. 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 the vigor of cuttings, do not make applications for 2 weeks prior to harvesting cuttings from stock plants. To ensure full foliage and on finished plants, do not make applications for 6 to 8 weeks prior to bloom or planned sale.

## REDUCTION OF HYACINTH STEM TOPPLE AND DAFFODIL PLANT HEIGHT

To reduce potted hyacinth stem topple at time of full flower, apply a foliar spray of FLOREL® brand Ethephon before florets have opened. Most cultivars will respond to applications of FLOREL® at 1000 to 2000 ppm (1/2 to 1 pint in 2.5 gallons of water) of FLOREL®. Bismarck, Jan Bos, 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® brand Ethephon when the shoots are 3 to 4 inches tall. Most cultivars will respond to 2000 ppm (1 pint in 2.5 gallons) sprays of FLOREL®. 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. Bridal Crown and Geranium require only 1000 ppm (1/2 pint in 2.5 gallons of water). Gold Medal, Van Sion, February Gold, and Tete-a-Tete do not require FLOREL® treatment.

### FRUIT ELIMINATION (Ornamental Use Only)

A foliar spray of FLOREL® brand Ethephon will reduce or eliminate undesirable fruit on ornamental trees and shrubs such as: Apple, Crabapple, Carob, Cottonwood, Elm, Flowering pear, Horsechestnut (Buckeye), Maple, Oak, Olive, Pine, Sour Orange, Sweetgum, and Sycamore. Applications must be made before fruit set for best results.

When applied to plants, FLOREL® brand Ethephon 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 stress conditions. Treating stressed plants can cause severe injury to the plant such as defoliation or leaf scorching. Injury from FLOREL® usually does not kill the plant, but can render it unsightly.

Applications should be made at the mid to full bloom stage, prior to fruit set in spray volumes sufficient to wet, but not to runoff. Failure to wet blooms thoroughly will cause incomplete fruit elimination. Spraying too much (until runoff) may cause some defoliation or other plant injury. Sprays applied too early or too late will be less effective and result in incomplete fruit elimination. The activity of FLOREL® brand Ethephon is linked to plant growth activity and is therefore slower acting when temperatures are low (60F) or very high (95F). Trees or shrubs should not be under stress when treated such as from drought, insect or diseases.

For most species Mix 3/4 to 1 quart of FLOREL® brand Ethephon in 10 gallons of water (750 to 1,000 ppm) and apply to thoroughly wet buds and blooms, but not to runoff. Amount of spray used will depend on tree size. Use the higher rate when temperatures are cool. Fruit elimination may not be satisfactory on small, red fruited varieties of crabapples. Some temporary leaf yellowing and leaf drop of older leaves may occur after treatment.

For sensitive species such as Carob: Mix 1/2 quart FLOREL® brand Ethephon in 10 gallons of water (500 ppm) and apply to thoroughly wet buds and blooms, but not to runoff. Amount of spray used will depend on tree size. Some temporary leaf yellowing and drop of older leaves may occur after treatment.

FLOREL® brand Ethephon has not been tested on all varieties of trees or shrubs which may have undesirable fruit. If it is necessary to treat plant species not listed above, treat only a small portion of the plant using the lower rate of application to determine the effectiveness of the product and to evaluate plant injury.

NOTE: These recommendations are not intended to be used in commercial fruit production as a thinning agent.

**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 must 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.

**DISCLAIMER OF WARRANTIES:** TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BAYER CROPSCIENCE MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE, THAT EXTEND BEYOND THE STATEMENTS MADE ON THIS LABEL. No agent of Bayer CropScience is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BAYER CROPSCIENCE DISCLAIMS ANY LIABILITY WHATSOEVER FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.

**LIMITATIONS OF LIABILITY:** TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, WHETHER IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, SHALL NOT EXCEED THE PURCHASE PRICE PAID, OR AT BAYER CROPSCIENCE'S ELECTION, THE REPLACEMENT OF PRODUCT.

**NET CONTENTS: 2 GALLONS**

FLOREL is a trademark of Bayer.



**Bayer CropScience**

**Bayer CropScience LP  
P.O. Box 12014, 2 T.W. Alexander Drive  
Research Triangle Park, North Carolina 27709  
1-866-99BAYER (1-866-992-2937)**

FLOREL® brand Ethephon Plant Growth Regulator (PENDING) 05/24/10, Resubmitted 06/01/10