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U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division (H7505C)
401 "M" St., S.W.
Washington, D.C. 20460

EPA Reg. Number:
264-263

Date of Issuance:
JUL 15 1997

Term of Issuance: Unconditional

NOTICE OF PESTICIDE:
Registration
X Reregistration

(under FIFRA, as amended)

Name of Pesticide Product: Florel
brand Ethephon Plant
Growth Regulator

Name and Address of Registrant (include ZIP Code):

Rhone-Poulenc Ag Company
P.O. Box 12014, 2 T.W. Alexander Drive
Research Triangle Park, NC 27709-2014

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

Based on your response to the Reregistration Eligibility Document, EPA has reregistered the product listed above. Enclosed is a copy of your label stamped "Accepted." This action is taken under the authority of section 4(g)(2)(c) of the Federal Insecticide, Rodenticide Act, as amended. Reregistration under this section does not eliminate the need for continual reassessment of pesticides. EPA may require submission of data at any time to maintain the registration of your product.

Signature of Approving Official:

Date:

JUL 15 1997

FLOREL[®] 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

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

FIRST AID

IF IN EYES: Immediately flush eyes with plenty of water. Get medical attention if irritation persists.

IF ON SKIN: Immediately wash with plenty of soap and water. Get medical attention.

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

CAUTION HAZARDS TO HUMANS AND DOMESTIC ANIMALS

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 (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.

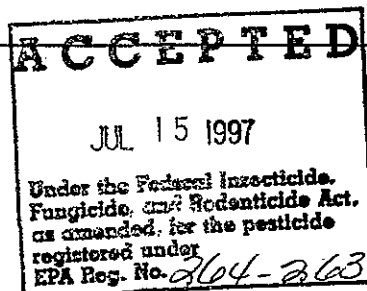
Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this products concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately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

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, NEOREGELIA, 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 such as any waterproof gloves, 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

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.

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 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 stimulate 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 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.

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Applications should be made at the flower bud to full bloom stage, prior to fruit set in spray volumes sufficient to wet, but not to runoff. Failure to wet bud/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.

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.

THIS WARRANTY DOES NOT EXTEND TO, AND THE BUYER SHALL BE SOLELY RESPONSIBLE FOR, ANY AND ALL LOSS OR DAMAGE WHICH RESULTS FROM THE USE OF THIS PRODUCT IN ANY MANNER WHICH IS INCONSISTENT WITH THE LABEL DIRECTIONS, WARNINGS, OR CAUTIONS.

BUYER'S EXCLUSIVE REMEDY AND MANUFACTURER'S OR SELLER'S EXCLUSIVE LIABILITY FOR ANY AND ALL CLAIMS, LOSSES, DAMAGES OR INJURIES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, WHETHER OR NOT BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE, SHALL BE LIMITED, AT THE MANUFACTURER'S OPTION, TO REPLACEMENT OF, OR THE REPAYMENT OF THE PURCHASE PRICE FOR, THE QUANTITY OF PRODUCT WITH RESPECT TO WHICH DAMAGES ARE CLAIMED. IN NO EVENT SHALL MANUFACTURER OR SELLER BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.

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