UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

JUL 28 1998

Mr. Ecb Rohde BASF Corporation P.O. Box 13528 Research Triangle Park, North Carolina 27709-2000

Subject: Pix Plant Regulator

EPA Registration No. 7969-52

Your label amendment application dated May 14, 1998

Dear Mr. Rohde,

The amended labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, is acceptable provided that you:

- 1. Make the following changes to the label:
 - a. Add the Signal Word ("CAUTION") at the beginning of the specific statements under "Hazards to Humans and Domestic Animals".
 - b. In the "Hazards to Humans and Domestic Animals" section, delete "For terrestrial uses", because no aquatic uses occur on the label.
- 2. Submit one copy of your final printed labeling before you release the product for shipment.

If these conditions are not complied with, the registration may be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the product bearing the amended labeling constitutes acceptance of these conditions.

If you have any questions about this letter, please contact John Bazuin at (703)305-7381.

Sincerely yours,

Cynthia L. Giles-Parker
Product Manager (22)
Fungicide Branch
Registration Division (7505C)

Attachment: Label stamped "ACCEPTED with COMMENTS"

BASF

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For use on cotton

EPA Registration Number 7969-52 EPA Establishment Number 34313-TX-01

KEEP OUT OF REACH OF CHILDREN. CAUTION

ACCEPTED with COMMENTS In EPA Letter Dated

Under the Federal Insections. Fundicide, and Indenticide Act as amended, for the pesticine registered under EPA Reg. No.

nder EPA Reg. 19 19- 52

See inside booklet for complete Precautionary Statements, Statement of Practical Treatment, Directions For Use, and Conditions of Sale and Marranty.

Net contents: 1 gallon (3.79 liters)

BASF Corporation P.O. Box 13528, Research Triangle Park, NC 27709

Precautionary Statements

Hazards to Humans and Domestic Animals Avoid contact with eyes, skin, or clothing. In case of contact, immediately flush eyes or skin with plenty of water. Get medical attention if irritation persists.

Statement of Practical Treatment If in eyes: Flush with plenty of water. Get medical attention if irritation persists.

Personal Protective Equipment (PPE) Applicators and other handlers must wear:

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

Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls Statement

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

User Safety Recommendations

Users should:

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

Environmental Hazards

For terrestrial uses, do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not intaminate water when disposing of equipment ashwaters.

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 regulation. All applicable directions, restrictions, precautions, and **Conditions of Sale and Warranty** are to be followed. This labeling must be in the user's possession during application.

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), and restricted-entry interval. 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 **12 hours**.

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
- Waterproof gloves
- Shoes plus socks

Storage and Disposal

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

Storage: Do not store below 32° F or above 100° F. Store in a dry place away from heat or open flame.

Pesticide Disposal: Pesticide wastes are toxic. Wastes resulting from this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide, spray mix, or rinsate is a violation of federal law. If these wastes cannot be disposed of according to label instructions, contact the state agency responsible for pesticide regulation or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal:

• <u>Plastic Containers</u>: 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.

In Case of Emergency

In case of large-scale spillage regarding this product, call:

CHEMTREC BASF Corporation 800-424-9300 800-832-HELP

In case of medical emergency regarding this product, call:

- Your local doctor for immediate treatment.
- Your local poison control center (hospital).
- BASF Corporation (800-832-HELP)

I. General Information

Pix plant regulator is a foliar-applied plant regulator that modifies the cotton plant in several beneficial ways. It is the only such compound that allows the grower to manage the cotton plant for short-season production leading to reduced risk of yield and quality loss due to delayed and prolonged harvest. The use of Pix will also result in several or all of the following:

- height reduction and more open canopy
- better early boll retention and/or larger bolls
- less boll rot
- improved defoliation
- reduced trash and lower ginning costs
- better harvest efficiency
- darker green leaf color.

Most of these effects often favorably influence the yield potential of the cotton plant. The pink color of **Pix** may fade under some conditions; however, effectiveness is not related to color of spray solution or the color of **Pix**.

Spray Coverage

Under most circumstances, water is the recommended diluent, however oil is permitted in the following states for ultra low volume (ULV) aerial applications: Alabama, Arkansas, Florida, Georgia, Louisiana, Missouri, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas. Refer to Air and Ground Application sections for spray volumes.

Regardless of method or gallonage of application, thorough coverage of the cotton foliage is required.

Cleaning Application Equipment

Clean application equipment thoroughly using a strong detergent or commercial sprayer cleaner according to the manufacturer's directions before and after applying this product, particularly if a product with the potential to injure crops was used.

II. Application Instructions

Early Application

On both short-staple and Pima cotton, the grower has the option of low-rate multiple applications (see **Table 1**) or higher, less frequent dosages (see **Table 2**) which greatly facilitates his management flexibility. The multiple application option gives the producer the ability to discontinue usage of **Pix** if any significant stresses occur after an earlier application. In such a case, the total quantity of **Pix** used over a season may be reduced. If stress is relieved, the grower has the option of continuing treatments with **Pix**. In addition, the rate and timing ranges indicated in the

Application Rates and Timings Tables allow the grower to tailor his usage of Pix to the degree of vegetative vigor in a given field. In areas where insecticides, miticides or foliar fertilizers are frequently applied, the timings are such that tank mixing is often possible. (See section VII. General Restrictions and Limitations)

Fields should be carefully scouted and Pix should not be applied if plants are under severe stress from weather factors, mite, insect or nematode damage, disease stress, herbicide injury, or fertility stress. In the absence of these stresses, up to 5 low-rate

multiple applications can be made each season.

After the first application (at matchhead square in the absence of stress), the rate and timing of subsequent applications will depend on vegetative vigor. Under good growing conditions, additional treatments should be made at 7-14 day intervals. However, if new growth at any time is excessive, higher rates of Pix can be used.

If significant loss of squares or young bolls has occurred earlier due to insect pressure or other stresses, but now these stresses have been alleviated, the need for Pix is increased — excess vegetative growth is likely because of poor fruit load.

Late Season Application

Late application of Pix (approximately during the fourth to sixth week of blooming) can provide certain benefits to cotton. However, it should not and coes not substitute for early season use — the time of the greatest benefit from the use of Pix. Late season application can lead to one or more of the following:

- reduction in late season vegetative growth or regrowth after cutout or defoliation
- more complete and manageable cutout
- better defoliation
- · earlier maturity
- reduction in trash
- lower ginning costs.

Some of these effects may favorably influence the yield potential and fiber quality. A late season application of Pix should be applied only if fields are not drought or nutrient stressed; that is, those fields likely to experience additional vegetative growth or regrowth. However, fields that are very rank and extremely vigorous due to a combination of proriod load and excellent growing conditions may not respond as much as desired to late season applications at the suggested rates.

Timing for Late Season Applications
• On fields where cotton cuts out and then starts regrowth: Apply when regrowth begins, as evidenced by new leaves in the terminal and stam elongation. This application time is often, but not

always, 5-6 weeks after the first bloom. On fields where cotton never completely cuts out: Apply Pix when there are 4-6 nodes above the white flower (NAWF). Measure NAWF by counting the number of mainstern nodes from the first position white bloom (the one closest to the mainstern; to the terminal. Count the node with the first position white bloom as zero and the last node in the terminal, which is counted, should have a leaf at least the size of a quarter. Generally, the NAWF first reaches 4-5 nodes during the fourth to sixth week of bloom. During this time, the NAWF should be decreasing about one node every 5-6 days - if its rate cr decrease is less, the plant is not cutting out soon enough (the crop is too vigorous); thing fifth week of bloom arrives and NAWF is still above 5-6, apply Pix.

Use Rate for Late Season Application
Apply 8-24 fluid ounces of Pix per acre. Use the lower rate on cotton with only moderate additional growth potential, and the higher rate on fields likely to continue vigorous yrowth.

Air Application Spray Volume

 Water as Diluent: Use a minimum of 2 gallons of water per acre in all states except California. In California, use a minimum of 5 gallons per acre.

• Oil as Diluent: Use a minimum of 1 quart of oil per acre. When using oil as a diluent, the oil concentrate must contain either a petroleum or vegetable oil base and must meet all of the following criteria:

be nonphytotoxic

contain only EPA-exempt ingredients

provide good mixing quality in the jar test

be successful in local experience.

The exact composition of suitable products will vary; however, vegetable and petroleum oil concentrates should contain emulsifiers to provide good mixing quality. If the oil does not contain an emulsifier, one must be added during mixing at a volume equal to 3% of the final volume of the mixing tank. Do not apply Pix ULV without using emulsifiers. Highly refined vegetable oils have proven more satisfactory than unrefined vegetable oils. For additional information, see Compatibility Test for Mix Components.

`rift Management

voiding spray drift at the application site is the responsibility of the applicator. The applicator should be familiar with and take into account the information covered in the Aerial Drift Reduction Advisory Information. The interaction of many equipment- and weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. The following drift management requirements must be followed to avoid off-target drift 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.

Application Height: Applications should not be made more than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest safe height reduces exposure of droplets to evaporation and wind. **300m Length:** The distance of the outer most nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor. Reducing this length may further reduce drift without reducing swath width. **Swath Adjustment:** When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the up and downwind edges of the field, the applicator must 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. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. Note: Local terrain can influence wind patterns. Every application 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.

Controlling Droplet Size

The most effective way to reduce drift potential is to apply large droplets. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions.

Pressure: Do not exceed the nozzle manufacturer's recommended pressures. For many nozzie 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. 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. Nozzle Type: Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets. Use a nozzle type that is designed for the intended application. With most nozzles, 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.

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).

Ground Application Spray Volume

 Water as Diluent: Use 2 gallons of spray solution per acre in all states except California. In California, use a minimum of 5 gallons per acra.;

Table 1. Application Rates and Timing: Low Rate Multiple Applications
The times and rates of application have been carefully researched and the Directions For Use should be observed as specified below. See section VI. General Restrictions and Limitations.

Geographic Area	Time of Application	Fields with Moderate Vegetative Vigor: Rate Per Acre	Fields with High Vegetative Vigor: Rate Per Acre
AL, AR, AZ, CA, FL, GA,	First application: Optimal results will be achieved when plants are in the matchhead square' stage of growth.	2 fluid ounces	4 fluid ounces
LA, MO, MS, NC,	Second application: 7-14 days later, or when regrowth occurs.	2 fluid ounces	4 fluid ounces
NM, OK, SC, TN,	Third application: 7-14 days later, or when regrowth occurs.	2-4 fluid ounces ²	4-8 fluid ounces*
TX, VA	Fourth application: 7-14 days later, or when regrowth occurs.	2-8 fluid ounces ²	4-12 fluid ounces ^a
	Fifth application (if needed): 7-14 days later, or when regrowth occurs.	4-8 fluid ounces ²	4-12 fluid ounces ^e
	Late season: Refer to Late Season Application of Pix®plant regulator	8-16 fluid ounces ^a	12-24 fluid ounces

¹ Matchhead square is when the first square of a typical cotton plant is ¹/8-¹/4 inches in diameter. The first application should be applied when 50% of the plants have one or more matchhead squares.

Table 2. Application Rates and Timing
The times and rates of application have been carefully researched and section II. Application Instruction should be observed as specified below. See section VI. General Restrictions and Limitations.

Geographic Area				
AL, AR, AZ, CA, FL, GA, LA, MO, MS, NM, NC, SC, TN, VA	First application: Apply Pix to actively grawing cotton that is 20-30" tall, provided cotton is not more than 7 days beyond early bloch stage (5-6 blooms per 25 row feet). If cotton is 24" tall and has no blooms, apply Pix. Use 8-16 fluid ounces per acre on cotton where excessive vegetative growth is not likely to be a problem, and 16 fluid ounces per acre in areas tending to have excessive vegetative growth.			
	Second application for control of excessive vegetative growth: If the cotton field has a history of vigorous growth or if conditions after the first application of Pix favor vigorous growth, make a second application 2-3 weeks after the first application.			
	Third application for control of excessive vegetative growth: If the cotton field has a history of vigorous growth or if conditions continue to favor vigorous growth, make a third application 1-2 weeks after the second application.	8-16 fluid ounces		
	Late season application: Refer to Late Season Application in section II. Application Instructions.	8-24 fluid cunces		
OK, TX (except Rio Grande Valley)	Areas where excessive vegetative growth is not a problem First application: Apply Pix to actively growing cotton in the early bloom stage (5-6 blooms per 25 row feet), if no blooms are present and the cotton is 20" tall and actively growing, apply Pix.			
	Second application: If conditions after the first application of Pix favor vigorous growth, make a second application 2-3 weeks after the first application.			
	Third application: If conditions after the second application of Pix continue to favor vigorous growth, make a third application 1-2 weeks after the second application.	8 fluid ounces		
	Late season application: Refer to Late Season Application in section II. Application Instructions.	8-24 fluid ounces		
OK, TX (including Rio Grande Valley)	Areas where excessive vegetative growth is a problem First application: Apply Pix to actively growing cotton that is 20-30" tall, provided cotton is not more than 7 days beyond early bloom stage (5-6 blooms per 25 row feet). If cottor is 24" (tall and has no blooms, apply Pix.	•		
	Second application for control of excessive vegetative growth: If cotton field has a history of vigorous growth, or conditions after the first application of Pix favor vigorous growth, make a second application 2-3 weeks after the first application.	8-16 fluid ounces		
	Third application: If conditions after the second application of Pix continue to favor vigorous growth, make a third application 1-2 weeks after the second application.	8-16 fluid ounces		
	Late season application: Refer to Late Season Application in section II. Application Instructions.	8-24 fluid ounces		

Use higher rates if previous application was not made or if growing conditions are conducive to vigorous growth.

III. Additives

If rain is expected within 8 hours, use a high-quality, EPA-exempt surfactant to make Pix® plant regulator rain-safe after 4 hours.

Compatibility Test for Mix Components
Add components in the following sequence using 2
teaspoons for each pound or 1 teaspoon for each pint
of recommended label rate per acre.

 Water: — For 20 gallon's per acre spray volume, use 3.3 cups (800 ml) of water. For other spray volumes, adjust rates accordingly. Use only water from the intended source at the source temperature.

 Products in PVA bags: — Cap the jar and invert 10 cycles.

 Water-dispersible products: — (dry flowables, wettable powders, suspension concentrates, or suspo-emulsions) Cap the jar and invert 10 cycles.

 Water-soluble products: — (such as Pix) Cap the jar and invert 10 cycles.

 Emulsifiable concentrates: — oil concentrate Cap the jar and invert 10 cycles.

 Water-soluble additives: — Cap the jar and invert 10 cycles.

7) Let the solution stand for 15 moutes.

8) Evaluate the solution for uniformity and stability. The spray solution should not have free billion the surface, nor fine particles that precipitate to the bottom, nor thick (clabbered) texture. Do not use any spray solution that could dog spray nozzles.

IV. Mixing Order

- Water: Begin by agitating a thoroughly clean sprayer tank half tull of clean water.
- 2) Products in PVA bags: Rinse the tank thoroughly before adding any material in PVA bags as boron residue will prevent adequate mixing. Place the water-soluble PVA bag into the mixing tank. The water-soluble PVA bag will dissolve in water to allow the contents to disperse. Wait until all water-soluble PVA bags have fully dissolved and the plant regulator is evenly mixed in the spray tank before continuing.

 To prepare spray solution for aerial application

To prepare spray solution for aerial application, use a mixing tank or mixing vat first to get the product into suspension before transferring suspension to air application equipment.

- 3: Water-dispersible products: (dry flowables, wettable powders, suspension concentrates, or suspo-emulsions)
- 4) Water-soluble products:
- 5 Emulsifiable concentrates
- Remaining quantity water

Only moderate agitation should be used while mixing and transporting.

V. General Tank Mixing Information

Pix has an aqueous base, and as such, is compatible with most insecticides and miticides. You may combine Pix with foliar fertilizers if prior experience has shown the original liquid formulation of Pix to be compatible and noninjurious under your conditions. Always perform a Compatibility Test for Mix Components before preparing a tank mix application.

Read and follow the applicable **Restrictions and Limitations** and **Directions For Use** on all products involved in tank mixing. The most restrictive labeling applies to tank mixes.

VI. General Restrictions and Limitations

- Maximum seasonal use rate: Do not apply more than a total of 48 fluid ounces (3 pints) of Pix® plant regulator (0.132 pounds a.i.) per acre, per season.
- The sum of all products and formulations containing mepiquat chloride must not exceed 0.132 pounds of mepiquat chloride per acre per season. This maximum equals 48 fluid ounces (3 pints) of standard Pix (0.35 pounds a.i. per gallon) or 8.4 fluid ounces of Pix Concentrate (2.0 pounds a.i. per gallon) or 0.375 pound of Pix DF (35% active) or 1 water-soluble packet of Pix DF per 0.33 acre.
- Preharvest Interval (PHI): Do not apply within 30 days of harvest.
- · Restricted Entry Interval (REI): 12 hours.
- Do not plant another crop within 75 days of last treatment.
- Stress: Do not apply to cotton plants under severe stress due to adverse weather condtions, mite, insect, or nematode damage, disease, herbicide injury, or fertility stress. If using the low-rate multiple option, discontinue use until the stress is alleviated. Do not apply a single application of 8-16 fluid ounces of Pix to cotton that is stressed due to lack of soil moisture.
- Do not graze or feed cotton forage to livestock.
- Do not apply through any type of irrigation equipment.

Table 3. Restrictions and Limitations

Crop	Minimum Time from Application to Harvest (PHI)	Maximum Rate Per Acre Per Application	Maximum Rate Per Acre Per Season	Livestock Grazing or Feeding	Aircraft Application
Cotton	30 days	24 fluid ounces (1.5 pints	48 fluid ounces (3 pints)	No	Yes

Crops:

This product can be used on the following crops:

Cotton

Look inside for complete Restrictions and Limitations and Application Instructions.

Additional Information

For additional information, call BASE's **COMM**SERV* at 1-800-874-0081.

Conditions of Sale and Warranty

The Directions For Use of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with 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 use of the product in a manner inconsistent with its labeling, all of which are beyond the control of BASE CORPORATION ("BASE") or the Seller. All such risks shall be assumed by the Buyer. BASF warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the Directions For **Use**, subject to the inherent risks, referred to above. BASE MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY. IN NO CASE SHALL BASE OR THE SELLER BE LIABLE FOR CONSEQUENTIAL SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT. BASF and the Seller offer this product, and the Buyer and User accept it, subject to the foregoing Conditions of Sale and Warranty which may be varied only by agreement in writing signed by a duly authorized representative of BASF.

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