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

May 31, 1996

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Robert Rohde
BASF Corporation
Agricultural Products
P.O. Box 13528
Research Triangle Park, NC 27709-3528

Subject: Labeling Amendment - Increase in Maximum Seasonal Rate
Pix® Plant Regulator
EPA Reg. No. 7969-52 ✓
Pix® Concentrate Plant Regulator
EPA Reg. No. 7969-97
Your Letter Dated September 21, 1994

Dear Mr. Rohde:

The Agency has completed its review of your request for an increase in the maximum seasonal rate for mepiquat chloride from 0.066 lb active ingredient(a.i.)/acre to 0.088 lb. a.i./acre for Pix Plant Regulator and to 0.132 lb a.i./ for Pix Concentrate Plant Regulator (or 3 ppm to 4 ppm) as part of the reregistration process. The Chemistry Branch II - Reregistration Support (CBRS) determined that the food additive tolerance (currently 3 ppm) for the processed food commodity, cottonseed meal, should be revoked.

In consideration of the new procedures for determining the need for food/feed additive tolerances, the subject cottonseed processing study has been reevaluated. The CBRS now concludes that a Section 409 tolerance or a Section 701 MRL is not needed for cottonseed meal. The expected level of mepiquat chloride residue in cottonseed meal [HAFT (0.9 ppm) x maximum concentration factor (2X) = 1.8 ppm] is less than the reassessed RAC tolerance (2 ppm). Any residue that may result in cottonseed meal as a result of processing will be covered by the RAC tolerance. Therefore, the established feed additive tolerance of 3.0 ppm for cottonseed will be revoked as part of the reregistration process. However, you must submit a letter in writing requesting that the feed additive petition (FAP), 4H5684, be withdrawn without prejudice based on the current reassessment by CBRS.

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is accepted subject to the comments listed below.

1. Submit and/or cite all data required for registration/reregistration of your products under FIFRA Section 3(c)(5) when the Agency requires all registrants of similar products to submit such data.
2. Modify the Pix® Plant Regulator labeling by adding the statement "Do not apply more than 3 pints of Pix per acre per season to the Time and Rate of Application: Short-Staple and Long-Staple (Pima) Cotton section to reemphasize the application rate limit per season.
3. Modify the Pix® Concentrate Plant Regulator labeling by adding the statement "Do not apply more than 8.4 fluid ounces of Pix Concentrate per acre per season to the Time and Rate of Application: Short-Staple and Long-Staple (Pima) Cotton section to reemphasize the application rate limit per season.

If these conditions are not complied with after acceptance, the registrations will be subject to cancellation in accordance with Section 6(e) of the Act. A stamped copy of each product label is enclosed for your records. Submit one (1) copy of the final printed labeling for each product before you release the products for shipment.

If you have any questions, then please call Terri Stowe at (703) 305-6117.

Sincerely yours,

John B. Bayliss, Jr.
For

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

Enclosures

BASF

RT 9-15-94
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ACCEPTED
with COMMENTS
In EPA Letter Dated
MAY 31 1996

Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.
7969-52

Pix[®]

plant regulator

Active ingredient*

Mepiquat Chloride:

N,N-dimethylpiperidinium chloride4.2%

Inert ingredients 95.8%

Total100.0%

*Equivalent to 0.35 pounds active ingredient per gallon.

EPA Reg. No. 7969-52

KEEP OUT OF REACH OF CHILDREN.

CAUTION

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.

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 contaminate water when disposing of equipment washwaters.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the **Directions For Use** for information about this standard.

Net contents 1 gallon

BASF Corporation

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

Specimen Label

Personal Protective Equipment: Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- 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.

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 handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations User 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.

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.

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.

Pesticide Disposal: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal: Triple rinse container (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: CHEMTREC800-424-9300 BASF Corporation ..800-832-HELP

In case of medical emergency regarding this product, call:

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

General Information

Pix® plant regulator is a foliar applied plant regulator which modifies the cotton plant in several beneficial ways. It is the only such compound which 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; and darker green leaf color. Most of these effects often favorably influence the yield potential of the cotton plant.

Early Application of Pix

On both short-staple and Pima cotton, the grower has the option of low-rate multiple applications, or in higher, less frequent dosages 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 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 timing are such that tank-mixing is often possible. (See **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 five low-rate multiple applications could be made each season.

After the first application. (match-head square in the absence of stress), the rate and timing of subsequent applications will depend on vegetative vigor; under good growing conditions, additional treatments ($1/8$ - $1/4$ pint per acre) should be made at 7-14 day intervals. However, if new growth at any time is excessive, higher rates of **Pix® plant regulator** ($1/4$ - $3/4$ pint per acre) can be used.

Do not exceed a total seasonal use of 3 pints per acre. If significant loss of squares and/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 of Pix

Late application of **Pix** (approximately during the fourth to sixth week of blooming) can provide certain benefits to cotton. However, it should not and does 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 and reduction in trash and 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 poor boll 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

- A. On fields where cotton cuts out and then starts regrowth: apply when regrowth begins, as evidenced by new leaves in the terminal and stem elongation. This would often, but not always, be in the period of 5-6 weeks after the first bloom.
- B. 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 number of mainstem nodes from the first position white bloom (the one closest to the mainstem) 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 4-6 during the fourth to sixth week of bloom. During this time period, the NAWF should be decreasing about one node every 5-6 days - if its rate of decrease is less, this means that the plant is not cutting out soon enough (the crop is too vigorous). If the fifth week of bloom arrives and NAWF is still above 5-6, apply **Pix**.

Use Rate for Late Season Application

Pix should be applied at a rate between $1/2$ pint to $1 1/2$ pints per acre. Use the lower rate range on cotton with only moderate additional growth potential, and the higher rate range on fields likely to continue vigorous growth. Total seasonal use per season (early plus late application) must not exceed 3 pints per acre.

Spray Volume

Water as Diluent

Ground and aerial application:

When applying **Pix** with ground equipment, in all states but California, use a minimum of 2 gallons of water per acre; in California, use a minimum of 5 gallons per acre.

For aerial application in all states but California, use a minimum of 2 gallons of water per acre; in California, use a minimum of 5 gallons per acre. Regardless of method or gallonage of application, thorough coverage of the cotton foliage is required.

Oil as Diluent

Ultra low volume (ULV aerial application)

Only permitted in the following states: AL, AR, FL, GA, LA, MO, MS, NC, OK, SC, TN, TX. A nonphytotoxic oil concentrate (commonly referred to as oil concentrate) should always be added to the spray tank as recommended. The oil concentrate must contain either a petroleum or vegetable oil base and must meet the following criteria: 1) be nonphytotoxic, 2) contain only EPA-exempt ingredients,

3) provide good mixing quality in the jar test (see page 6), and 4) be successful in local experience. The exact composition of suitable oil concentrates will vary, however, vegetable and petroleum oil concentrates should contain emulsifiers that 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. It is recommended that vegetable oils be highly refined.

Mixing Directions

Oil as Diluent

While agitating, pour approximately one-half of the required volume of oil (total final spray solution at least 2 pints per acre) into the mixing tank, followed by the emulsifier (if the oil does not already contain one) at approximately 3% of the final spray tank volume, and then simultaneously pour in the **Pix** and the remainder of the oil. Only moderate agitation should be employed while mixing and transporting.

Rain-safe Period and Compatibility

Rain-safe period

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

Compatibility

Pix has an aqueous base, and as such, is compatible with most insecticides and miticides. If in doubt, test compatibility by adding a teaspoon of the insecticide or miticide to a pint of ready-to-use spray solution of **Pix**. You may combine **Pix** with foliar fertilizers if your prior experience has shown the original liquid formulation of **Pix** to be compatible and noninjurious under your conditions.

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Time and Rate of Application: Short-Staple and Long-Staple (Pima) Cotton

The times and rates of application have been carefully researched and the **Directions For Use** should be observed as specified below.

High Rate Single or Multiple Applications

Geographic Area	Time of Application	Rate Per Acre
AL, AR, AZ, CA, FL, GA, LA, MO, MS, NM, NC, SC, TN, VA	First application: Apply when cotton is actively growing and is 20-30" tall, provided cotton is not more than 7 days beyond early bloom stage (5-6 blooms per 25 row feet). If cotton is 24" tall and has no blooms, apply Pix . Use 1/2 pint per acre on cotton where excessive vegetative growth is not likely to be a problem, and 1 pint per acre in areas tending to have excessive vegetative growth. See Restrictions and Limitations .	1/2-1 pint
	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, apply a second application 2-3 weeks after the first application.	1/2-1 pint
	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, apply a third application 1-2 weeks after the second application.	1/2-1 pint
	Late season application: See section titled Late Season Application of Pix .	1/2-1 1/2 pint
OK, TX (except Rio Grande Valley)	Areas where excessive vegetative growth is not a problem First application: Apply when cotton is in early bloom stage (5-6 blooms per 25 row feet) and actively growing. If no blooms are present and the cotton is 20" tall and actively growing, apply Pix . See Restrictions and Limitations .	1/2 pint
	Second application: If conditions after the first application of Pix favor vigorous growth, apply a second application 2-3 weeks after the first application.	1/2 pint
	Third application: If conditions after the second application of Pix continue to favor vigorous growth, apply a third application 1-2 weeks after the first application.	1/2 pint
	Late season application: See section titled Late Season Application of Pix .	1/2-1 1/2 pint
OK, TX	Areas where excessive vegetative growth is a problem First application: Apply when cotton is actively growing and 20-30" tall, provided cotton is not more than 7 days beyond early bloom stage (5-6 blooms per 25 row feet). If cotton is 24" tall and has no blooms, apply Pix .	1 pint
	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, apply a second application 2-3 weeks after the first application.	1/2-1 pint
	Third application: If conditions after the second application of Pix continue to favor vigorous growth, apply a third application 1-2 weeks after the first application.	1/2-1 pint
	Late season application: See section titled Late Season Application of Pix .	1/2-1 1/2 pint

Low-Rate Multiple Applications

Geographic Area (States)	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, LA, MO, MS, NC, NM, OK, SC, TN, TX, VA	First application: Optimal results will be achieved when plants are in the matchhead square* stage of growth.	1/8 pint	1/4 pint
	Second application: 7-14 days later, or when regrowth occurs.	1/8 pint	1/4 pint
	Third application: 7-14 days later, or when regrowth occurs.	1/8-1/4 pint*	1/4-1/2 pint*
	Fourth application: 7-14 days later, or when regrowth occurs.	1/8-1/2 pint*	1/4-3/4 pint*
	Fifth application: (If needed) — 7-14 days later, or when regrowth occurs.	1/4-1/2 pint*	1/4-3/4 pint*
	Late season: See section titled Late Season Application of Pix	1/2-1 pint*	3/4-1 1/2 pint*
* Use higher rates if previous application was not made or if growing conditions are conducive to vigorous growth. * 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.			

Restrictions and Limitations

Significant insect or mite damage after application(s) of **Pix® plant regulator** is likely to eliminate or greatly reduce the benefits derived from **Pix**.

Do not apply a single application of 1/2-1 pint of **Pix** to cotton that is drought stressed; i.e., stressed due to lack of soil moisture. If using the low-rate multiple option, discontinue use until the moisture stress is alleviated.

Do not apply more than 3 pints of **Pix** per acre per season.

The sum of all products and formulations containing mepiquat chloride must not exceed 0.132 pounds (60 grams) of mepiquat chloride per acre per season. This maximum equals 3 pints of standard **Pix** (0.35 pounds per gallon) or 8.4 ounces of **Pix Concentrate** (2.0 pounds per gallon) or 3/8 pounds of **Pix DF** (35%) or 1 PVA packet of **Pix DF** per 0.67 acre.

Do not apply **Pix** within 30 days of harvest.

Do not graze or feed cotton forage to livestock.

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**.

Do not tank mix with other products other than those mentioned under **Compatibility**.

Do not apply this product through any type of irrigation system.

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 BASF CORPORATION ("BASF") 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. BASF MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY. IN NO CASE SHALL BASF 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.

Pix is a registered trademark of BASF AG. Low Rate Multiple is a trademark of BASF Corporation.

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Additional Information

For additional information concerning this label and the use of **Pix**, call **COMM SERV** at 1-800-874-0081.

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

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