7969-191 03/17/2005 1/8

BASF
The Chemical Company

PENTIA™
plant regulator

Active Ingredient:
Mepiquat Pentaborate:
N,N-dimethylpiperidinium pentaborate 9.6%
Other ingredients 90.4%
Total 100.0%
* Equivalent to 0.82 pounds active ingredient per gallon.

EPA Reg. No. 7969-191 **EPA Est. No.**

KEEP OUT OF REACH OF CHILDREN
CAUTION/PRECAUCIÓN

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

See inside booklet for complete **First Aid, Precautionary Statements, Directions for Use** and **Conditions of Sale and Warranty**.

Net Contents:

BASF Corporation
Agricultural Products
26 Davis Drive
Research Triangle Park, NC 27709

ACCEPTED
MAR 17 2005
Under the Federal Insecticide, ... Act, ... for the pesticide
7969-191

FIRST AID	
If swallowed	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center. • Do not give anything by mouth to an unconscious person.
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 - 20 minutes. • Call a poison control center or doctor for treatment advice.
If inhaled :	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
If in eyes	• Hold eye open and rinse slowly and gently with water for 15 - 20 minutes. • Remove contact lenses, if present, after first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact BASF Corporation for emergency medical treatment information: 1-800-832-HELP (4357).	

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. Harmful if absorbed through skin. Wash thoroughly with soap and water after handling.

Personal Protective Equipment (PPE)

Some materials that are chemically resistant to this product are listed below. For more options, refer to category **A** on an EPA chemical resistance category selection chart.

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)
- 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 handler 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

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 cleaning equipment or disposing of equipment washwaters.

Directions For Use

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

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.

Pentia™ plant regulator

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
- Chemical-resistant gloves made of any waterproof material (such as nitrile, butyl, neoprene, and/or barrier laminate)
- Shoes plus socks

Storage and Disposal

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

Do not freeze.

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 Spill

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

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

Steps to be taken in case material is released or spilled:

Wear the personal protective equipment specified on the label. Prevent the spill from entering sewers and open bodies of water. Whenever possible, recover the material for re-use according to label.

Cover the liquid with an absorbent material (such as pet litter). Sweep up and place in an appropriate container for disposal. Remove and wash clothing and personal protective equipment prior to re-use.

I. General Information

Pentia is a foliar-applied plant regulator which modifies the cotton plant in several beneficial ways. **Pentia** 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 **Pentia** 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.

The blue color of **Pentia** may fade under some conditions; however, effectiveness is not related to color of spray solution or the color of **Pentia**.

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 of Pentia

General Application Information: (All growing areas)

The rate and timing ranges indicated allow the grower to tailor his usage of **Pentia** to the specific needs of each cotton field (**Table 1**) based on cotton variety, soil moisture conditions, fertility program, future weather forecast, etc. In areas where insecticides/miticides or foliar fertilizers are frequently applied, the timings are such that tank-mixing is often possible (see **Compatibility**).

Fields should be carefully scouted and **Pentia** should not be applied if plants are under stress from weather factors, mite, insect or nematode damage, disease stress, herbicide injury or fertility stress. Significant insect or mite damage after application(s) of **Pentia** is likely to eliminate or greatly reduce the benefits derived from **Pentia**.

The first application should be initiated once the cotton has reached the pinhead square stage of development. Additional treatments should be applied approximately two weeks after the previous application as long as the cotton is not under stress and has not reached cutout (defined as 4 nodes or less above white flower).

Do not exceed a total seasonal use of 48 fluid ounces (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 **Pentia** is increased (excess vegetative growth is likely because of poor fruit load).

Early season applications with herbicides, insecticides or fertilizers (prior to the pinhead square stage - all growing areas)

Pentia may be applied to cotton as a tank-mix partner prior to the pinhead square stage of growth at a rate of 4-8 fluid ounces per acre. Once the cotton has reached the pinhead square stage of growth, refer to **Table 1** for rate and timing information.

Table 1. Time and Rate of Application for 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. **Do not apply more than 48 fluid ounces (3 pints) of Pentia per acre, per season.**

Geographic Area	Time of Application	Rate per Acre
AL, AR, CA, FL, GA, LA, MO, MS, NC, SC, TN & VA	**First application**:* Begin applications once cotton has reached the pinhead square stage and is actively growing.	8-24 fl. oz./A
	Second Application: Make a second **Pentia** application approximately 2 weeks after the first application for vigorous cotton growth with more than 5 nodes above white flower.	8-24 fl. oz./A
	Additonal applications: Continue applications on an as-needed basis.	8-24 fl. oz./A
	Late season application: See section titled **Late Season Application of Pentia**.	8-24 fl. oz./A
AZ, KS, NM, OK & TX	**First application**:* Begin applications once cotton has reached the pinhead square stage and is actively growing.	4-24 fl. oz./A
	Second Application: Make a second **Pentia** application approximately 2 weeks after the first application for vigorous cotton growth with more than 5 nodes above white flower.	4-24 fl. oz./A
	Additonal applications: Continue applications on an as-needed basis.	4-24 fl. oz./A
	Late season application: See section titled **Late Season Application of Pentia**.	8-24 fl. oz./A

Notes:

*Apply to actively growing cotton that is not under stress (stress induced by weather factors, mite, insect or nematode damage, disease, herbicide injury or fertility stress).

Recommended use rates vary by application timing, vegetative vigor and soil type.

Use higher rates on cotton where excessive vegetative growth is likely to be a problem.

Late Season Application of Pentia

Late application of **Pentia** (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 **Pentia**. 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 **Pentia** 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

- **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 bloom.
- **On fields where cotton never completely cuts out**: Apply **Pentia** when there are 4-6 nodes above the white flower (NAWF). Measure NAWF by counting the 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 perod, 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 **Pentia**.

Use Rate for Late Season Application

Pentia should be applied at a rate between 8-24 fluid ounces 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 48 fluid ounces (3 pints) per acre.

Air Application

Spray Volume

Use a minimum of 2 gallons of water per acre.

Aerial Application Methods and Equipment

Spray Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. 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.

1) The distance of the outermost nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
2) Nozzles must always point backward parallel with the air stream and never be pointed downward more than 45 degrees. Where states have more stringent regulations, they should be observed.

The applicator should be familiar with and take into account the information covered in the publication titled A Summary of Aerial Application Studies by the Spray Drift Task Force.

Importance of Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see **Wind**, **Temperature and Humidity**, and **Temperature Inversion** section of this label).

Controlling Droplet Size

Volume - Use high flow rate nozzles to apply the highest practical spay volume. Nozzles with higher rated flows produce larger droplets. Use a minimum of 2 gallons of water per acre. Increase water volume to at least 10 gallons of water per acre if grass foliage or crop canopy is dense.

Pressure - Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure. Use up to 40 psi.

Number of nozzles - Use the minimum number of nozzles that provide uniform coverage.

Nozzle Orientation - Orienting nozzles so that the spray is released backward, parallel to the airstream, will produce larger droplets than other orientations. Significant deflection from the horizontal will reduce droplet size and increase drift potential.

Nozzle Type - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce larger droplets than other nozzle types. Use only diaphragm-type nozzles that produce fan spray patterns.

Boom Length - For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

Application - Applications should be made at a height greater than 10 feet above the top of the largest plants. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment

When applications are made with a cross-wind, the swath will be displaced downwind. 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. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. Do not apply **Pentia** by aircraft when wind is blowing more than 10 mph. **Note**: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect drift.

Temperature and Humidity

When making applications in low relative humidity, set equipment up to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

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 connected 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, nontarget crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

Ground Application

Spray Volume

- **Water as Diluent**: Use a minimum of 10 gallons of spray solution per acre.

III. Additives

Rain-safe Period

Pentia is rain-safe two (2) hours after application when applied alone, and is rain-safe one (1) hour after application when tank-mixed with a high quality EPA-exempt adjuvant.

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.

1) **Water**: For 20 gallons 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.

2) **Products in PVA bags**: Cap the jar and invert 10 cycles.

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

4) **Water-soluble products** (such as **Pentia**): Cap the jar and invert 10 cycles.

5) **Emulsifiable concentrates**: Cap the jar and invert 10 cycles.

6) **Water-soluble additives**: Cap the jar and invert 10 cycles.

7) Let the solution stand for 15 minutes.

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

IV. Mixing Order

1) **Water**: Begin by agitating a thoroughly clean sprayer tank half full 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, 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**

6) **Water-soluble additives**

7) **Remaining quantity water**

Only moderate agitation should be used while mixing and transporting.

V. General Tank Mixing Information

Pentia has an aqueous base, and as such is compatible with most insecticides and miticides. You may combine **Pentia** with foliar fertilizers if prior experience has shown the original liquid formulation of **Pentia** to be compatible and non-injurious 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. Restrictions and Limitations

- **Maximum Seasonal Use Rate**: **Do not apply more than 48 fluid ounces (3 pints) of Pentia per acre per season**.
- The sum of all products and formulations containing mepiquat must not exceed 48 fluid ounces (3 pints) per acre per season (**Pix® Plus plant regulator** or **Pix Ultra plant regulator** or **Pentia**).
- **Preharvest Interval (PHI)**: Do not apply **Pentia** within 30 days of harvest.
- **Restricted Entry Interval (REI)**: **12 hours**.
- **Rotational Crop Restriction**: Do not plant another crop within 75 days of last treatment.
- **Stress**: Do not apply **Pentia** to cotton that is drought-stressed, i.e. stressed due to lack of soil moisture.
- **Livestock Feeding**: Do not graze or feed cotton forage to livestock.
- **Tank Mixing Compatibility**: Do not tank mix with other products without performing a compatibility test (see sections **III** and **V** for details.)
- **Chemigation**: Do not apply this product through any type of **irrigation** system.

Table 2. 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

Pentia™ plant regulator

Crop

This product can be used on the following crop:

Cotton

Look inside for complete **Restrictions and Limitations** and **Application Instructions**.

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. TO THE EXTENT PERMITTED BY LAW BASF AND THE SELLER DISCLAIM ANY LIABILITY 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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