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BONZI

Ornamental Growth Regulator For
Use On Container-Grown Flower
And Bedding Plants
in Greenhouses and Shadehouses

ACTIVE INGREDIENT:

Paclobutrazol
(±)-(R*,R*)-beta-((4-Chlorophenyl)methyl)-alpha-(1,1-
dimethylethyl)-1H-1,2,4-triazole-1-ethanol 0.4%
INERT INGREDIENTS 99.6%
Total 100.0%

BONZI contains 0.12 g active ingredient per fluid ounce (4000 ppm).

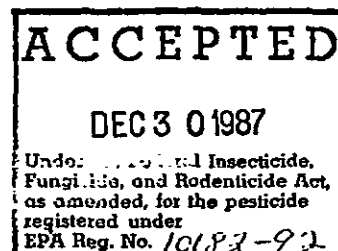
KEEP OUT OF REACH OF CHILDREN

CAUTION

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION



HARMFUL IF ABSORBED THROUGH SKIN. AVOID CONTACT WITH SKIN OR CLOTHING. Wear protective clothing, long-sleeved shirt, and rubber gloves. Remove contaminated clothing and wash before reuse. Wash thoroughly with soap and water after handling.

STATEMENT OF PRACTICAL TREATMENT: IF ON SKIN, wash with plenty of soap and water.

For 24-hour emergency assistance call ICI Americas Medical Emergency Information Center 1-800-327-8633.

ENVIRONMENTAL HAZARDS: Do not contaminate water by cleaning of equipment or disposal of wastes.

PHYSICAL AND CHEMICAL HAZARDS: Do not use or store near heat or open flame.

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Agricultural Products
Wilmington, DE 19897

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EPA Est. No.: 10182-NC-01
EPA Reg. No.: 10182-92

Net Contents: 1 quart

STORAGE AND DISPOSAL

PROHIBITIONS: Do not reuse empty containers. Do not contaminate water, food, or feed by storage or disposal.

STORAGE: Keep container closed when not in use. In case of spill or leak on floor or paved surfaces, soak up with sand, earth, or synthetic absorbent. Remove to chemical waste area.

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: Plastic containers - Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

DIRECTIONS FOR USE

Read all label directions carefully before use.

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

GENERAL INFORMATION

BONZI is a plant growth regulator for use on container-grown flower and bedding plants. Use of BONZI effectively reduces internode elongation, resulting in more desirable compact plants. When used as directed, BONZI produces no phytotoxic effects. Desired height control may be obtained with a single BONZI spray or drench application. However, sequential applications may be desirable under certain conditions (See Sections I & V).

Users should note that different species and cultivars vary in their rate response to BONZI. Short, slow growing cultivars require a lower rate than tall, fast growing types. Overly stunted plants can result from rates that are too high, improper application techniques or improper timing.

I. SPRAY APPLICATIONS

In spray applications, BONZI penetrates into plant stems and is translocated to the terminal where it reduces internode elongation. It is important that adequate spray volume is used to thoroughly wet plant stems. The spray technique should provide consistent, uniform coverage of all plants. Otherwise, nonuniform height control may result. Addition of a wetting agent for spray applications is not necessary.

The misting technique used for some other growth retardants, where only upper leaves are covered with a light spray, will not produce desired results with BONZI.

Overhead irrigation or rain 30 minutes after spray applications does not reduce the effectiveness of BONZI.

BONZI may be applied at any time of the day without danger of burning leaves or causing chlorosis.

BENCH SPRAY METHOD - Mix the spray solution with proper amounts of BONZI and water to obtain desired concentration. Spray this solution uniformly over the plants at a rate of 1 gallon per 200 square feet of bench space. This method is commonly used for plants in small containers and plants at a close spacing.

Individual Plant Method - Mix the spray solution to obtain the desired concentration of BONZI in ppm. Apply the spray to individual plants, insuring that plants are treated with a uniform amount of spray to achieve good coverage of stems. If plants are not treated with equivalent volumes of spray, nonuniform height can result. Spray volume requirements vary with plant size and type; this volume is about 0.7 fluid ounces (20 ml) per plant for poinsettias in 6-inch pots with laterals from 1 1/2 to 2 inches. Caution: Applying too high a volume of spray can result in excessive runoff into potting medium, giving a drench effect which may lead to overly stunted plants.

Sequential Applications: Using sequential applications at the lower recommended rates may provide more uniform growth regulation and safety against overly stunted plants.

In some cases (particularly chrysanthemums and hibiscus), individual lateral shoots will out-grow the other laterals causing a nonuniform plant appearance. This results when individual small laterals do not receive enough chemical when spray is applied. Sequential applications reduce this problem.

PLEASE NOTE:

- o Thorough and uniform coverage of stems is essential for effective results from spray applications. However, high spray volumes leading to excessive runoff into potting medium should be avoided.
- o Be sure of your calculations, volume measurements, and sprayer calibration. When in doubt, recalculate.
- o Frequent agitation of the spray mixture is essential.

II. DRENCH APPLICATIONS

Application of BONZI to the growing medium will provide good control of plant height. BONZI is readily absorbed by plant roots and translocated to the stems and foliage. Drench solutions should be prepared as described in Table 3 to deliver a desired number of milligrams per pot. For 6-inch pot, it is recommended that BONZI be applied in volume of 4 fluid ounces (120 ml) of solution per pot. One gallon of solution will then treat about 32 pots.

PLEASE NOTE

- o Media containing pine bark will reduce the effectiveness of BONZI applied as a drench, and amounts applied will need to be increased where pine bark is used.
- o Drench applications should be made to moist potting media. This may be achieved by watering plants the day before treatments.
- o Extrapolating the recommendation for 6-inch pots to smaller or larger containers may not be correct for total drench solution applied to achieve total run through of no more than 10%, providing that the potting medium is properly moist before treatment.
- o Be sure of your calculations and volume measurements. When in doubt, recalculate.
- o Frequent agitation of mixture is essential.

III. FACTORS AFFECTING PLANT HEIGHT

SEVERAL ENVIRONMENTAL FACTORS AND CULTURAL PRACTICES AFFECT PLANT GROWTH. This causes variation in the amount of BONZI need to provided desired plant height under different growing situation.

Cultural practices which increase the amount of BONZI needed include growing at close spacing, and using high water and fertilizer levels. For a given plant species, the more vigorous varieties may require more chemical than do naturally short varieties. Growers should consult with plant and seed suppliers for vigor and other growth characteristics of newly released varieties.

Temperature can be the overriding factor in determining amount of BONZI needed. Stem elongation increases with increases in temperatures. Therefore, growers in warm climates need to use higher rates or more applications compared to those in cooler climates, and growers in cooler climates should use lower use rates. Also, optimum rates can change with time of year with higher rates needed during warmer months.

IV. OPTIMUM RATES

Optimum BONZI rates will vary with different growers and will depend in their individual desired final plant height, growing conditions, and applications techniques. Different varieties or cultivars of the same species may respond differently to BONZI. Growers should conduct trials with small numbers of plants using the recommended rates to determine the optimum rates for their situations.

V. USE DIRECTIONS BY CROP

A. POINSETTIAS

SPRAY APPLICATIONS (For All Areas)

Poinsettia height control can be achieved using single applications of BONZI at the higher recommended rates given in Table 1. However, sequential applications initially using the lower rates in Table 1 provides better safety against overly retarded plants. For the second and third application use 50-100% of the initial rate depending on plant vigor at the time of reapplication. Growers in cooler climates should use lower rates.

Apply to poinsettias when laterals are 1 1/2 to 2 inches long. Sequential applications should be applied at 7-14 day intervals. Timing of reapplications will be determined by plant vigor/growth.

Seasonably late applications of BONZI will reduce plant height, but, like most PGRs, may also reduce bract size. For growers scheduling early December flowering, BONZI should not be applied after October 15 in areas outside Florida. In Florida, BONZI should not be applied after November 1. See Section I for more spray application information.

DRENCH APPLICATION (For Florida Only)

Drench applications can be applied at 0.125 to 0.25 mg/6-inch pot. See Section II and Table 3.

TABLE 1
Spray Application Use Rates*
for Poinsettias
1 gal/200 Square Feet of Bench Space

<u>Minimum Nighttime Temperature (°F)</u>	<u>Fl. Oz. BONZI Per Gal. Water</u>	<u>PPM (Rounded)</u>
60-62	.25-.5	8-16
63-65	.5-1.0	16-31
66-68	1.0-1.5	31-47
Above 68	1.5-2.0	47-63

- * These rates may be applied 1-3 times depending on plant growth (see Label Section V-A).
- * For spray application, BONZI should be mixed with water to produce a final spray volume of 1 gallon/200 square feet on bench space and sprayed uniformly across the area.
- * These rates are for BONZI only when used on poinsettias in accordance with this label. Degree of plant response to BONZI is not predictable when BONZI is used after other growth retardants.

B. BEDDING PLANTS

Spray applications at 1.5-2 fl. oz./gallon (16-53 ppm) will provide height control on the following bedding plants:

Petunia	Snapdragon	New Guinea
Impatiens	Pansy ¹	Impatiens
Dianthus	Marigold	Celosia
Coleus	Ageratum	
	Periwinkle ¹	

¹ Use rates for Pansy and Periwinkle should not exceed 1.5 fl. oz./gallon (31 ppm).

BONZI can be applied when transplants begin to grow to control early stretch or when plants reach desired size to hold them at a marketable stage.

WARNING

- Fibrous begonias are very sensitive to BONZI, and overly stunted plants can result if they receive spray drift when applications are made to other species.
- Late application timings or excessive-application rates may slow the growth of plants when transplanted.
- High rates of BONZI may delay flowering of impatiens.
- BONZI may cause spotting of Periwinkle foliage at high temperatures.

C. GERANIUMS

Spray applications of BONZI at 1.2-1.5 fl. oz./gallon (6-16 ppm) will effectively control growth of geraniums. Early applications should be at the lowest rates to avoid over stunting. BONZI will reduce late stretch when applied as the flower stems begin to elongate.

D. POT CHRYSANTHEMUMS**SPRAY APPLICATIONS**

Apply BONZI at 1-4 fl. oz./gallon (31-125 ppm) when laterals are 1 1/2 to 2 inches long. BONZI can be applied earlier to vigorous varieties if additional control is desired. Sequential applications of lower use rates generally provide more uniformly shaped plants than single spray applications.

BONZI may be applied at time of disbud to reduce late stretch without reducing lower size or delaying flowering.

DRENCH APPLICATIONS

BONZI should be applied at \$.125 to \$.5 mg. per pot as described in Section II. Apply when laterals are 1 1/2 to 2 inches long.

E. HIBISCUS (In Florida Only)

BONZI sprays at 1-2 fl. oz./gallon effectively reduce shoot elongation. Application should be made when laterals are 1 to 4 inches long depending on desired final plant size. Single applications control lateral growth for 3-6 weeks. Sequential applications provide more uniform plant shape. BONZI can be applied 1 to 2 weeks prior to flowering to prevent late stretch.

F. POT FREESIAS

Height control is achieved with a bulb-dip in BONZI solution of 3.2-9.6 fl. oz./gallon (100-300 ppm). Prepare solutions as given in Table 2 and dip bulbs in the solution for four hours.

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TABLE 2
BONZI Spray Dilutions

<u>ppm</u> (rounded)	<u>fl. oz. per</u> <u>gallon</u>	<u>ml per</u> <u>gallon</u>	<u>ml per</u> <u>liter</u>
6	0.2	6.0	1.6
8	0.25	7.5	2.0
10	0.32	9.5	2.5
16	0.5	15.0	3.9
25	0.8	24.0	6.3
31	1.0	30.0	7.8
47	1.5	44.0	11.7
50	1.6	47.0	12.5
63	2.0	59.0	15.5
75	2.4	71.0	18.8
94	3.0	89.0	23.4
100	3.2	95.0	25.0
109	3.5	105.0	27.3
125	4.0	120.0	31.2
200	6.4	190.0	50.0
300	9.6	285.0	75.0

TABLE 3

BONZI Drench Dilutions*

<u>mg/6" pot</u>	<u>fl. oz. per</u> <u>gallon</u>	<u>ml per</u> <u>gallon</u>	<u>ml per</u> <u>liter</u>
0.125	0.03	1.0	0.26
0.188	0.05	1.5	0.39
0.25	0.07	2.0	0.52
0.5	0.14	4.0	1.04

* 4 fl. oz (120 ml) of final solution should be applied per 6-inch pot. One gallon of solution will treat about 32 pots.

NOTICE TO BUYER: Seller warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal use conditions, or under conditions not reasonably foreseeable to Seller and Buyer assumes the risk of any such use. SELLER DISCLAIMS ALL OTHER WARRANTIES EXPRESSED OR IMPLIED INCLUDING ANY WARRANTY OF FITNESS OR MERCHANTABILITY. SELLER SHALL NOT BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT AND SELLER'S SOLE LIABILITY AND BUYER'S EXCLUSIVE REMEDY SHALL BE LIMITED TO THE REFUND OF THE PURCHASE PRICE.