



U.S. ENVIRONMENTAL PROTECTION AGENCY

Office of Pesticide Programs  
Registration Division (7505P)  
1200 Pennsylvania Ave., N.W.  
Washington, D.C. 20460

EPA Reg. Number:

91234-225

Date of Issuance:

11/10/21

NOTICE OF PESTICIDE:

Registration  
 Reregistration  
(under FIFRA, as amended)

Term of Issuance:

Unconditional

Name of Pesticide Product:

A589.01<sup>TM</sup>

Name and Address of Registrant (include ZIP Code):

Beth Anderson  
Senior Regulatory Manager  
Atticus LLC  
5000 CentreGreen Way, Suite 100  
Cary, NC 27513

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

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

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

This product is unconditionally registered in accordance with FIFRA section 3(c)(5) provided that you:

1. Submit and/or cite all data required for registration/reregistration/registration review of your product when the Agency requires all registrants of similar products to submit such data.
2. Make the following label changes before you release the product for shipment:
  - Revise the EPA Registration Number to read, "EPA Reg. No. 91234-225."

Signature of Approving Official:

Carmen J. Rodia Jr., Acting Product Manager 22  
Fungicide Branch, Registration Division (7505P)

Date:

11/10/21

3. Submit one copy of the revised final printed label for the record before you release the product for shipment.

Note that the Alternate Brand Name “Berati” has been added to the EPA database.

Should you wish to add/retain a reference to the company’s website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product’s label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA’s Office of Enforcement and Compliance.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6. Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records. Please also note that the record for this product currently contains the following CSFs:

- Basic CSF dated 8/24/20
- Alternate CSF #1 dated 8/24/20
- Alternate CSF #2 dated 8/24/20

If you have any questions, please contact Carmen Rodia by phone at (703) 306-0327, or via email at [Rodia.Carmen@epa.gov](mailto:Rodia.Carmen@epa.gov); or Craig Reeves by phone at (703) 347-0486, or via email at [Reeves.Craig@epa.gov](mailto:Reeves.Craig@epa.gov).

Enclosure

{Note to reviewer: [Text] in brackets denotes optional or explanatory language}  
{Note to reviewer: {Text} in braces denotes where in the final label text will appear}  
{BOOKLET FRONT PANEL LANGUAGE}

# A589.01<sup>[TM]</sup>

[Alternate Brand Name: Berati]

Contains paclobutrazol, the active ingredient used in [Bonzi®].

ACTIVE INGREDIENT:	(% by weight)
Paclobutrazol	
(±)-(R*,R*)-β-[(4-Chlorophenyl)methyl]-α-(1,1-dimethylethyl)-1H-1,2,4-triazole-1-ethanol.....	00.4%
OTHER INGREDIENTS: .....	99.6%
TOTAL .....	100.0%

A589.01 is formulated as an aqueous solution.

A589.01 contains 0.12 gram active ingredient per fluid ounce (4000 ppm).

## KEEP OUT OF REACH OF CHILDREN CAUTION

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 [below] [inside label booklet] for [additional] [First Aid,] [and] [Precautionary Statements] [and] [Directions for Use].

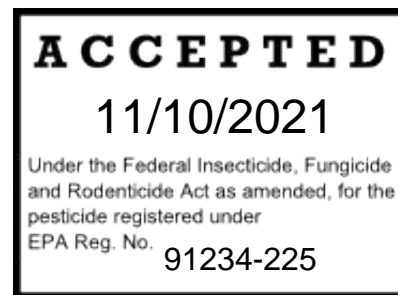
[A589.01] is not manufactured, or distributed by Syngenta Professional Products, seller of [Bonzi®].

EPA Reg. No.: 91234-XX

EPA Est. No.:

Net Contents:

Manufactured for:  
**Atticus, LLC**  
5000 CentreGreen Way, Suite 100  
Cary, NC 27513



## {LANGUAGE INSIDE BOOKLET}

<b>FIRST AID</b>	
<b>If swallowed:</b>	<ul style="list-style-type: none"><li>• Call a poison control center or doctor immediately for treatment advice.</li><li>• Have person sip a glass of water if able to swallow.</li><li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li><li>• Do not give anything by mouth to an unconscious person.</li></ul>
<b>If on skin or clothing:</b>	<ul style="list-style-type: none"><li>• Take off contaminated clothing.</li><li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>HOT LINE NUMBER</b>	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact SafetyCall 24/7 at <b>1-844-685-9173</b> for emergency medical treatment information.	

**For Chemical Emergency:  
Spill, Leak, Fire, Exposure, or Accident,  
Call CHEMTREC Day or Night  
Within USA and Canada: 1-800-424-9300 or +1 703-527-3887 (collect calls accepted)**

## **PRECAUTIONARY STATEMENTS** **HAZARDS TO HUMANS AND DOMESTIC ANIMALS** **CAUTION**

Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Wear a long-sleeved shirt and long pants, chemical resistant gloves made of (such as barrier laminate or butyl rubber or nitrile rubber or neoprene rubber or polyvinyl chloride or Viton®), and shoes plus socks. Remove and wash contaminated clothing before reuse.

### **Personal Protective Equipment (PPE)**

Some materials that are chemical-resistant to this product are listed below.

### **Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of barrier laminate or butyl rubber or nitrile rubber or neoprene rubber or polyvinyl chloride or Viton®
- Shoes plus socks

### **User Safety Requirements**

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

### **User Safety Recommendations**

#### **Users should:**

- Wash hands before eating, drinking; chewing gum, using tobacco or using the toilet.

- Remove clothing/PPE 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, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinseate.

#### **Physical and Chemical Hazards**

Do not use or store near heat or open flame.

## **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.

Read all label directions carefully before use.

#### **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 barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride or viton.
- Shoes plus socks.

#### **PRODUCT INFORMATION**

**A589.01** is a plant growth regulator (PGR) for use on ornamental plants grown in containers in nurseries, greenhouses, shadehouses, and interiorscapes. Use of **A589.01** effectively reduces internode elongation, resulting in more desirable compact plants. When used as directed, **A589.01** produces no phytotoxic effects. **DO NOT REUSE POTS, TRAYS, OR OTHER CONTAINERS THAT PREVIOUSLY WERE USED IN THE PRODUCTION OF A CROP WHICH WAS TREATED WITH A589.01.**

#### **MIXING INSTRUCTIONS**

Be sure the mix tank is clean and not contaminated with any material. Fill the spray tank with half the required amount of water. Using the dilution table (Table 1), determine the amount of **A589.01** needed for the required concentration. Measure the desired volume accurately and add it to the tank.

Fill tank with the remaining amount of required water.

Agitate the mixture of **A589.01** and water frequently to assure uniform distribution during application.

**TABLE 1**  
**A589.01 Dilution Table**

ppm A589.01 Desired	Fl Oz Per Gallon	mL/Cc. Per Gallon
0.05	0.0016	0.05
0.1	0.0032	0.1
0.2	0.0064	0.2
0.5	0.016	0.5
1	0.032	1.0
2	0.064	1.9
3	0.096	2.8
4	0.13	3.8
5	0.16	4.7
10	0.32	9.5
20	0.64	19.0
25	0.8	24.0
30	1.0	28.0
40	1.3	38.0
50	1.6	47.0
100	3.2	95.0
200	6.4	190.0

### APPLICATION TECHNIQUES

Desired height control with **A589.01** can be obtained with three different types of applications: sprays, drenches or bulb soaks.

Under certain conditions, sequential spray applications may be desirable.

Frequent agitation of the **A589.01** solution and proper application techniques are critical in order to achieve desired results. Be sure of your calculations, volume measurements and sprayer calibration. When in doubt, recalculate.

#### 1. Spray Applications

In spray applications, **A589.01** penetrates into plant stems and is translocated to the terminal where it reduces internode elongation.

When applying a spray application, it is important that:

- Adequate spray volume is used to thoroughly wet plant stems. The misting technique used for some other growth regulators, where only upper leaves are covered with a light spray, will not produce desired results with **A589.01**;
- Sprays are not applied to the point of excessive runoff into the potting media. The spray volume which drips down into the media may be desirable as it will be taken up by the roots and increase the effectiveness of **A589.01**. However, too much runoff into the media may result in excessive height control;

- The spray technique provides thorough, consistent, uniform coverage of all plants. Failure to do so may result in non-uniform height control.

**A589.01** may be applied at any time of the day without danger of burning leaves or causing chlorosis.

Overhead irrigation or rain 30 minutes after spray applications does not reduce the effectiveness of **A589.01**.

Addition of wetting agents for spray applications is not necessary.

The recommended spray volume for small plants in small containers or plug trays which are closely spaced is 1-2 qt/100 sq ft of bench space. For larger plants with a well-developed canopy, a spray volume of 3 qt/100 sq ft of bench space is recommended.

Using up to 4 sequential applications at 2-week intervals may provide more uniform growth regulation and safety against over application. In general, sequential spray applications are to be applied using 50-100% of the lowest listed rate. Growers in cooler climates may have to use lower rates.

With some plant species, particularly chrysanthemums, hibiscus and azaleas, individual lateral shoots will outgrow the other laterals, causing non-uniform plant appearance. This results when individual laterals do not receive enough chemical when spray is applied. The use of sequential applications will reduce this problem.

## 2. Drench Applications

Application of **A589.01** to the growing media will provide good control of plant height. **A589.01** is readily absorbed by plant roots and translocated to the terminals.

Drench applications generally provide a longer-lasting, more uniform height control than spray applications, having little effect on flower size. Drench applications are very useful when applied late in the production cycle when plants have reached, or are near, the desired marketing size. Late drench applications are particularly useful on poinsettias, chrysanthemums and bulb crops.

Drench applications should be made to moist potting media. This may be achieved by watering plants the day before treatments. Drench applications to dry media will result in poor distribution.

Multiple plants growing in the same pot require a more uniform distribution of drench solution to achieve uniform height control.

**Drench Rates and Volumes:** The rates recommended for soil drench applications are based on a drench volume of 4 fl oz of final solution for an average 6-inch azalea pot. Based on this recommendation, one gallon of solution will treat 32 6-inch pots. For smaller or larger pots, a suitable drench volume is enough final solution applied to achieve total run through of no more than 10%, providing that the potting media is properly moist before treatment. Table 2 may be used as a guide in determining appropriate drench volume needed for the specified pot sizes. For the grower who likes to apply **A589.01** as a known amount of active ingredient per pot, Table 2 also shows the amount of active ingredient found in a specific volume at a known concentration.

**TABLE 2**  
**Guidelines and Conversions for Commonly Used Drench Volumes**

Pot Diameter (inches)	Drench Volume (fl oz/pot)	Mg ai A589.01/Pot			
		1 ppm	2 ppm	3 ppm	4 ppm
4"	2	0.063	0.125	0.188	0.25

5"	3	0.094	0.188	0.282	0.375
6"	4	0.125	0.25	0.375	0.5
8"	10	0.313	0.625	0.938	1.25
10"	25	0.783	1.56	2.35	3.125
10" hanging basket	15	0.470	0.939	1.41	1.878
12"	40	1.25	2.5	3.75	5.0

**Note:** The recommended drench volumes are based on the soil capacity of a common 6-inch 'azalea' type pot. Extrapolating the recommendation for this 6-inch 'azalea' type pot to smaller or larger containers may not be correct for total drench volume but should only be used as a guideline. The user must determine the appropriate rate and drench volume needed to achieve the desired result, based on both pot size and potting media used.

**A589.01** can also be applied as a "drench" through sub-irrigation in saucers, benches or flooded floors. Using this method, the solution is applied to the media through the bottom of the container. Because most plant roots grow in the lower half of the container, this sub-application of **A589.01** delivers the chemical to the plant more efficiently than the typical drench application, and therefore requires the use of lower rates than the typical drench. The optimum rates for a one-time sub-application is typically about 50-75% of the rate used in a typical drench. The optimum rate for continuous application in the irrigation water is about 10-33% of the rate needed for a one-time sub-irrigation application.

### 3. Preplant Bulb Soaks

Soaking of bulbs in solutions of **A589.01** is also a very effective way to attain height control. The rates used and length of soaking time will vary, depending on the species. See the section on BULB CROPS for specific recommendations.

#### FACTORS AFFECTING PLANT RESPONSE TO A589.01

IN ADDITION TO PROPER APPLICATION TECHNIQUE, THERE ARE SEVERAL ENVIRONMENTAL AND CULTURAL FACTORS WHICH CAN AFFECT A PLANT'S RESPONSE TO TREATMENT WITH **A589.01**. These factors may cause a variation in the amount of **A589.01** needed to provide desired plant height.

**Cultural practices** may affect the plant's response to **A589.01**. Plants which are grown at close spacing or in smaller pots and using high water and fertilizer levels may require an increase in the amount of **A589.01** needed.

For drench applications, plants grown in media with pine bark or a high organic content may require higher rates of **A589.01** than those grown in media without pine bark or with a low organic content.

**Different varieties or cultivars** within a given plant species may require a higher or lower rate of **A589.01**. The taller, more vigorous varieties generally require more chemical than do the naturally short, less vigorous varieties.

Growers should consult with plant and seed suppliers for vigor and other growth characteristics for newly released varieties.

**Temperature** can be the overriding factor in determining the amount of **A589.01** needed. Stem elongation increases with increased temperatures. Growers in warm climates need to use higher rates and/or more applications compared to those in cooler climates.



The amount of **A589.01** needed and number of applications may also vary depending on the time of year, with higher rates and/or more applications needed during warmer months.

**DETERMINING OPTIMUM RATES**

Optimum **A589.01** rates will vary with different growers and will depend on their individual desired final plant height, growing conditions, and applications techniques. Different varieties or cultivars of the same species may respond differently to **A589.01**. *Before **A589.01** is applied to a large number of plants, growers should conduct trials with small numbers of plants using the recommended rates to determine the optimum rates for their situations.*

**The rates recommended on this label are rate ranges and should be used only as guidelines. However, DO NOT exceed the maximum recommended rates.**

The user should conduct trials on a small number of plants, adjusting the rate of **A589.01** to achieve the desired height and length of control. For preplant bulk soak trials, it may be necessary to adjust both the rate and length of soak time in order to achieve desired results.

For plant species listed on the label, the user should run initial trials using the lowest recommended rates.

For plant species not specifically listed on the label, the user should run initial trials using the rates recommended in Table 3.

**TABLE 3**  
**Recommended Trial Rates (ppm) by General Plant Type\***

<b>Plant Type</b>	<b>Spray</b>	<b>Drench</b>	<b>Bulb Soak</b>
Bedding Plants	30	1	N/A
Bedding Plant Plugs	5	NR	N/A
Flowering/Foliage Plants (Annual or Perennial)			
- Herbaceous Species	30	1	N/A
- Woody Species	50	2	N/A
Woody Landscape Plants	100	4	N/A
Bulb Crops	100	10	20 (@ 15 min.)

NR = Use is not recommended  
N/A = Use is not applicable .

\*The recommended trial rates are based on information developed primarily in the Sunbelt Region. Growers in regions north of the Sunbelt should run initial tests using half the recommended trial rates listed in Table 3.

**USE AND RATE RECOMMENDATIONS BY CROP**

**A589.01** is effective in controlling the height of most ornamental crops. Be sure to read and fully understand the section on DETERMINING OPTIMUM RATES before applying to large numbers of plants.

**A. Azaleas (Florist)**

**A589.01** can be used to control plant height, reduce bypass shoot elongation and promote flower bud initiation.

**Spray applications** are effective in the rate range of 100 to 200 ppm.

**Drench Applications** are effective in the rate range of 5 to 15 ppm. To control plant height and promote flower bud initiation, applications should begin when new growth, following final shaping, is 1-1/2 to 2 inches long.

To reduce bypass shoot development, applications should be made after bud set when bypass shoots are barely visible, or about 5 to 7 weeks prior to cooling.

**B. Bedding Plants**

**Spray applications of A589.01** will provide height control of most bedding plants at a wide rate range of 5 to 90 ppm. The rate ranges for some specific bedding plants are:

Plant	Rate Range (ppm)	Plant	Rate Range (ppm)
Ageratum	15 – 45	Marigold (African)*	30 – 60
Alyssum[**]	40 – 60	Marigold (French)	15 – 30
Celosia	15 – 45	Pansy	5 – 15
Coleus	15 – 30	Petunia	15 – 45
Dahlia	15 – 45	Salvia	20 – 60
Dianthus	20 – 60	Snapdragon*	30 – 90
Impatiens (standard)	10 – 45	Verbena	15 – 30
Impatiens (New Guinea)[**]	2.5 – 15	Zinnia	15 – 45

\*Apply at an early stage of plant growth with good stem coverage, especially for vigorous varieties.

[\*\*Not for Use in California]

- Do not use on fibrous begonias as they are very sensitive to **A589.01**. Overly stunted plants can result if they receive spray drift from applications made to surrounding species.
- Do not use on annual Vinca (periwinkle) as **A589.01** may cause spotting of foliage, especially at high temperatures.

For bedding plants not specifically listed above, the user should determine optimum rates starting with a rate of 30 ppm in the Sunbelt Region and 15 ppm in the Northern Belt Region. Time of application should begin when new growth in height or width reaches 2 inches or when plants reach desired size to hold them at a marketable stage.

**Media sprays** can be used to control the height of vigorous plugs, such as impatiens and salvia, that show excessive elongation soon after transplant. Rate recommendations for applications made just prior to transplant are in the range of 20 - 60 ppm, applied in a volume of 2 qt/100 sq ft. [Do not use this application method in California.]

Late application timings and/or excessive rates may slow the growth of plants when transplanted. To avoid this, apply multiple applications at 1/4 to 1/2 the optimum rate.

High rates of **A589.01** may delay flowering, especially of impatiens and petunias.

**Drench applications** are effective on bedding plants but are recommended only for those plants in containers 6 inches or larger. The user should determine optimum rates, starting at 1 ppm.

**C. Bedding Plant Plugs**

Spray applications of **A589.01** can also be used to effectively control height of bedding plant plugs. The recommended rate range of 1 to 20 ppm is much lower than the rate range for older bedding plants.

Plant	Rate Range (ppm)	Plant	Rate Range (ppm)
Ageratum	5 – 10	Marigold (African)	10 – 20
Alyssum[*]	10 – 20	Marigold (French)	5 – 10
Celosia	5 – 10	Pansy	1 – 5
Coleus	5 – 10	Petunia	5 – 10
Dahlia	5 – 10	Salvia	5 – 10
Dianthus	10 – 20	Snapdragon	10 – 20
Impatiens (standard)	0.5 – 10	Verbena	5 – 10
Impatiens (New Guinea)[*]	0.25 – 5	Zinnia	5 – 10

[\*Not for Use in California]

For bedding plant plugs not specifically listed above, the user should determine optimum rates starting with a rate of 5 ppm. Timing of application should normally begin at the 1 to 2 true leaf stage.

**Media sprays** can be used to control the height of vigorous plugs, such as marigold and snapdragon, that show excessive elongation soon after emergence. Rate recommendations for applications made at the time of, or within one week after seeding, are in the range of 5 - 30 ppm, applied in a volume of 2 qt/100 sq ft. [Do not use this application method in California.]

**Drench applications** are not recommended for bedding plant plugs due to the sensitivity and extremely low rates needed.

For all uses of **A589.01** on plugs, determining optimum rates should include an evaluation of the crop performance after transplanting to insure that treatment does not excessively reduce growth during the finished stage or in the landscape.

#### D. Bulb Crops

Height control can be achieved on a variety of bulb crops by any of the three application types.

**Spray applications**, although moderately effective, are the least desirable method for controlling height. Sequential applications are recommended in order to achieve desired uniformity. Applications should begin when plants are 2 to 4 inches tall.

**Drench applications** are very effective in the rate range of 8 to 160 ppm. Optimum rates vary widely, depending on species. Timing of application will also vary, depending on species. For bulbs which require a cold period, **A589.01** is generally applied 1 to 5 days after removal from the cooler. For most other bulb types, application should be made when newly emerged shoots are 1 to 2 inches tall.

**Preplant bulb soaks** are also very effective. Effective rates for most species are in the range of 5 to 25 ppm, with a soaking time of 5-15 minutes. In general, lower use rates will require longer soaking times.

The following table gives recommended rate ranges and length of soaking time for a variety of bulb species:

Bulb Type	Spray Rate (ppm)	Drench Rate (ppm)	Preplant Bulb Soak Rate (ppm) / Soak Time
Amaryllis	ND	200	100 1 hr.
Caladium	100 – 200	2 – 16	60 / 30 min.
Calla Lily	ND	5 – 15	20 / 15 min.

Daffodil[*]	ND	20 – 40	80 / 1 hr.
Dahlia	ND	10 – 40	>40 / 20 min.
Freesia	ND	2 – 4	100 – 300 / 1 hr.
Hybrid Lily (Asiatic, Oriental, LA)	200 – 500	4 – 30	5 – 30 / 15 min.
Montbretia	ND	ND	20 – 30 / 15 min.
Tulip	ND	5 – 40	2 – 5 / 1 hr.

[\*Not for Use in California]

> = Greater than.

ND = Rates for this particular use have not been determined. For these applications the user should run trials using the rates recommended in Table 3.

For species not specifically listed, trials should be conducted using rates outlined in the section on DETERMINING OPTIMUM RATES.

#### E. Chrysanthemums (POT)

**A589.01** is effective in controlling the height of pot chrysanthemums when applied as either a spray or drench.

**Spray applications** are effective at rates of 50 to 200 ppm. Applications should begin when axillary shoots are 2 to 3 inches long. **A589.01** can be applied earlier to vigorous varieties if additional control is desired.

Sequential applications of lower rates generally provide more uniformly shaped plants than single-spray applications.

**Drench applications** of **A589.01** are effective at recommended rates of 1 to 4 ppm.

Application timing during early production is when axillary shoots are 2 to 3 inches long.

Seasonably late applications are sometimes required at the time of disbud to prevent late stretch. Unlike spray applications, the drench can be safely applied with little to no effect on flowering.

Because pot chrysanthemums are usually planted with multiple cuttings per pot, uniform application is critical to achieving desired results.

#### F. Flowering Plants/Foliage Plants (not specifically listed)

**A589.01** is effective as a spray or drench application in controlling height on a wide variety of other flowering plants and foliage plants. It can be used as either a holding agent to stop growth (e.g., interiorscape) or a toning agent to slow growth (i.e., when pot crops or hanging baskets are at or near marketable size). In general, herbaceous species will require lower rates than woody species. Trials should be conducted using rates outlined in the section on DETERMINING OPTIMUM RATES.

#### G. Geraniums

Geraniums are particularly sensitive to **A589.01**. The user must determine optimum rates before applying to large numbers of plants.

**Spray applications** of **A589.01** at recommended rates of 10 to 30 ppm will effectively control growth of geraniums. Early applications may require lower rates to avoid overstunting. Time of application for zonal geraniums is when growth is 1-1/2 to 2 inches long; for seed geraniums, 2 to 4 weeks after transplanting or when needed.

**A589.01** will reduce late stretch when applied as the flower stems begin to elongate.

**Drench applications**, although effective, should be made with caution due to the extreme sensitivity of geraniums to **A589.01**. Trials should be conducted to determine optimum rates.

**H. Hibiscus**

**Spray applications** at 30 to 150 ppm will effectively reduce shoot elongation. Application should be made when laterals are 1 to 4 inches long, depending on desired final plant size.

Single applications will control lateral growth for 3 to 6 weeks. Sequential applications may provide more uniform plant shape. **A589.01** can be applied 1 to 2 weeks prior to flowering to prevent late stretch.

**Drench applications** will also effectively reduce shoot elongation. Trials should be conducted using recommended rates outlined in the section on DETERMINING OPTIMUM RATES.

**I. Perennials[\*]**

**[\*Not for Use in California]**

Perennial plants make up a wide variety of plant forms, many of which grow very tall. Others, which may have naturally low growing foliage, will develop flowers on tall spikes which, when in flower, may be difficult to ship or display. The use of **A589.01** to control height of large, unruly perennial species has become an effective strategy to increase their attractiveness and marketability.

**Spray applications** of **A589.01** are effective on a wide variety of perennial plants in the rate range of 30 - 200 ppm.

Drench applications are effective in the 1-30 ppm range and are useful to hold or tone plants when they are at or near marketable size.

Recommended rates for some perennial plants are:

Plant	Spray Rate (ppm)	Drench Rate (ppm)
Alcea rosea	30 – 50	1 – 2
Asclepias	30 – 60	ND
Chrysanthemum	50 – 200	1 – 4
Coreopsis	80 – 100	5 – 10
Delphinium	30 – 60	ND
Digitalis	80 – 160	2 – 4
Eupatorium	240 - 260	8 – 10
Gaura	30 - 80	30
Jacobinia (Pink)	.5 – 10	0.5 – 1
Monarda	60 – 160	2 - 8
Salvia	40 – 60	ND
Stokesia	40 – 80	ND
Verbena	120 – 160	2 - 8
Veronica	20 – 40	ND

ND = Rates for this particular use have not been determined. For these applications, the user should run trials using the rates recommended in Table 3.

For species not specifically listed, trials should be conducted using rates outlined in the section on DETERMINING OPTIMUM RATES.

**J. Poinsettias**

**Spray applications of A589.01** will effectively control height of poinsettias. Recommended rates are 10 to 30 ppm for most areas of the U.S. In Southern Florida, higher rates of 15 to 45 ppm are recommended.

Single applications may be made using the higher recommended rates. However, sequential applications initially using lower rates will provide better safety against overly retarded plants. For subsequent applications use 50 to 100% of the initial rate, depending on plant vigor at the time of reapplication.

Applications to slower growing varieties in cool climates should begin when axillary shoots are 2 to 3 inches long. For vigorous growing varieties in warm climates, applications should begin when axillary shoots are 1-1/2 to 2 inches long. Sequential applications may be applied 1 to 3 times, at 7- to 14-day intervals, depending on plant vigor/growth.

Seasonably late applications of **A589.01** will reduce plant height, but, like most PGR's they may also reduce bract size. To prevent this, **A589.01** should not be applied as a spray after initiation of short days. As a guide, do not apply **A589.01** sprays after October 1 for areas outside of Florida, or after October 25 in Florida.

**Drench applications** are also an effective means of height control, and are most commonly used for late season application to plants which have initiated bracts or have reached or are near their desired marketing size.

Recommended rates are in the range of 0.25 to 3 ppm, based on a drench volume of 4 fl oz diluted solution per 6-inch pot. See MIXING INSTRUCTIONS section for directions on making the diluted solution.

Application during early production should be made when axillary shoots are 1-1/2 to 3 inches long. Early drenches of **A589.01** may be made prior to or sequential to other PGR applications. As a guide, apply **A589.01** at 0.05 ppm to 0.20 ppm. Vigorous Poinsettia varieties may require higher concentrations. When **A589.01** is applied at low rates, bract formation and size are less affected. Subsequent growth may require additional drench applications every 10 to 21 days.

Seasonably late applications are sometimes required after initiation of short, days to prevent late stretch and, unlike spray applications, can be safely applied with little to no effect on bract size.

**NOTE:** Optimum **A589.01** rates and timings for both spray and drench applications to poinsettias will vary depending on the variety.

**K. Woody Plants**

**A589.01** is effective in controlling height and initiating flower bud formation on a wide variety of woody plants using both spray or drench applications. Rate ranges for different species vary greatly. Trials should be conducted using rates outlined in the section on DETERMINING OPTIMUM RATES.

Examples of woody plants on which the product can be applied are:

Azalea	Euonymus	Juniper	Photinia
Bougainvillea	Hibiscus	Kalmia[*]	Pine
Camellia	Hydrangea	Ligustrum	Rhododendron
Cotoneaster[*]	Ilex (Holly)	Magnolia	Rose[*]

[\*Not for Use in California]

## USE DIRECTIONS FOR CHEMIGATION

In addition to the above use rates and recommendations, the following precautions must be observed when using this product in any type of irrigation system:

Apply this product only through the following systems:

- 1) Overhead sprinklers such as impact, micro-sprinklers, or booms.
- 2) Microirrigation such as spaghetti-tube or drip emitters.
- 3) Mist-type irrigation such as fog systems.
- 4) Hand-held calibrated equipment such as the hand-held wand with injector.
- 5) Sub-irrigation, such as ebb and flow and flooded floor systems, or through individual saucers.

Do not apply this product through any other type of irrigation system. Crop injury or lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water. If you have any questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label prescribed safety devices for public water systems are in place. A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Fill the supply tank with the desired amount of water. Then add the amount of **A589.01** required in order to achieve the final solution rate recommended for the specific crop to be treated. Agitate the mixture of **A589.01** and water frequently during the chemigation period to assure a uniform distribution throughout the system. Apply **A589.01** continuously for the duration of the water application but do not exceed recommended rates and volumes as outlined on the product label. For overhead applications to the foliage and stems, apply at a volume of 1 to 2 qt per 100 sq ft for plugs and plants with small canopies. Volumes of 2 to 3 qt per 100 sq ft may be necessary for plants with large canopies. For applications to the soil, apply at a volume of 4 fl oz diluted solution per 6- inch pot. See MIXING INSTRUCTIONS section for directions on making the diluted solution.

### SPRINKLER CHEMIGATION

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

### CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days of the year.

Chemigation systems connected to public water systems must contain a functional, reduced pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water systems should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where the pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.



## STORAGE AND DISPOSAL

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

**PESTICIDE STORAGE:** Store in a tightly closed container in a cool, dry place. Store in original container and out of reach of children, preferably in a locked storage area.

**PESTICIDE DISPOSAL:** Pesticide spray mixture or rinsate that cannot be used should be disposed of in a landfill approved for pesticides. Improper disposal of excess pesticide spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed of by the 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 HANDLING:

**[For containers ≤ 5 gallons: Nonrefillable Container:** Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple Rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by other procedures allowed by state and local authorities.]

**[For containers > 5 gallons: Nonrefillable container.** Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple Rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Recap and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by other procedures allowed by state and local authorities.]

## LIMITATION OF WARRANTY AND LIABILITY

**IMPORTANT: READ BEFORE USE.** Read the entire Directions for Use, Conditions of Warranties and Limitations of Liability before using this product. If these terms and conditions are not acceptable, return the unopened product container at once. By using this product, user or buyer accepts the following Disclaimer of Warranties and Limitations of Liability. **CONDITIONS:** The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Ineffectiveness, injury, and other unintended consequences may result because of such factors as manner of use or application (including misuse), the presence of other materials, weather conditions, and other unknown factors, all of which are beyond the control of ATTICUS, LLC. To the extent consistent with applicable law, all such risks shall be assumed by the user or buyer.

**DISCLAIMER OF WARRANTIES:** To the extent consistent with applicable law, ATTICUS, LLC makes no other warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise, that extend beyond statements on this label. **LIMITATIONS OF LIABILITY:** To the extent consistent with applicable law, neither ATTICUS, LLC the manufacturer, nor the Seller shall be liable for any indirect, special, incidental or consequential damages resulting from the use, handling, application, storage, or disposal of this product. To the extent consistent with applicable law, the exclusive remedy of the user or buyer for any and all losses, injuries or damages resulting from the use, handling, application, or storage of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid.

[A589.01] is a trademark of Atticus, LLC

[Bonzi®] is a registered trademark of Syngenta Group Company.



**{LANGUAGE ON LABEL AFFIXED TO CONTAINER}**

**A589.01<sup>[TM]</sup>**

[Alternate Brand Name: Berati]

Contains paclobutrazol, the active ingredient used in [Bonzi®].

**ACTIVE INGREDIENT: (% by weight)**

Paclobutrazol (±)-(R*,R*)-β-[(4-Chlorophenyl)methyl]-α-(1,1-dimethylethyl)-1H-1,2,4-triazole-1-ethanol.....	00.4%
<b>OTHER INGREDIENTS:</b> .....	<b>99.6%</b>
<b>TOTAL</b> .....	<b>100.0%</b>

A589.01 is formulated as an aqueous solution.  
A589.01 contains 0.12 gram active ingredient per fluid ounce (4,000 ppm).

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION**

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.)

FIRST AID	
<b>If swallowed:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>If on skin or clothing:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
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 SafetyCall at <b>1-844-685-9173</b> for emergency medical treatment information.	

**For Chemical Emergency:**

**Spill, Leak, Fire, Exposure, or Accident, Call CHEMTREC Day or Night**  
**Within USA and Canada: 1-800-424-9300 or +1 703-527-3887 (collect calls accepted)**

**PRECAUTIONARY STATEMENTS**  
**HAZARDS TO HUMANS AND DOMESTIC ANIMALS**  
**CAUTION**

Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Wear a long-sleeved shirt and long pants, chemical resistant gloves made of barrier laminate or butyl rubber or nitrile rubber or neoprene rubber or polyvinyl chloride or Viton®, and shoes plus socks. Remove and wash contaminated clothing before reuse.

**ENVIRONMENTAL HAZARDS:** For terrestrial uses: Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

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

**STORAGE AND DISPOSAL**

Do not contaminate water, food or feed by storage or disposal.  
**PESTICIDE STORAGE:** Store in a tightly closed container in a cool, dry place. Store in original container and out of reach of children, preferably in a locked storage area.

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See inside label booklet for additional Precautionary Statements and Directions for Use.

[A589.01] is not manufactured, or distributed by Syngenta Professional Products, seller of [Bonzi®].

Manufactured for:  
**Atticus, LLC**  
5000 CentreGreen Way, Suite 100  
Cary, NC 27513

**EPA Reg. No.: 91234-XX**  
**EPA Est. No.:** \_\_\_\_\_  
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