

241-74

10/02/2012

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**U.S. ENVIRONMENTAL PROTECTION AGENCY**

Office of Pesticide Programs  
Registration Division (7504P)  
1200 Pennsylvania Ave., N.W.  
Washington, D.C. 20460

EPA Reg. Number:

241-74

Date of Issuance:

OCT 02 2012

Terms of Issuance:  
**Unconditional**

Name of Pesticide Product:  
**Cycocel Plant Growth Regulant**

**NOTICE OF PESTICIDE:**

XX Registration  
XX Reregistration  
(under FIFRA, as amended)

**Name and Address of Registrant (include ZIP Code):**

**BASF Corporation, Agricultural Products**  
P.O. Box 13528  
26 Davis Drive  
Research Triangle, NC 27709

**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/reregistered 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.

EPA received a label amendment request submitted by email on May 29, 2012. EPA grants this request under the authority of section 3(c)(5) of the Federal Insecticide, Fungicide and Rodenticide Act, as amended. With this accepted labeling, all requirements set forth in the Reregistration Eligibility Decision for **Chloromequat Chloride** have been satisfied. Therefore, EPA reregisters the product listed above. This action is taken under the authority of section 4(g)(2)(c) of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended. Reregistration under this section does not eliminate the need for continual reassessment of pesticides. EPA may require submission of data at any time to maintain the registration of your product.

Submit one (1) copy of final printed labeling. Amended labeling will supersede all previously accepted labels. A copy of your label stamped "Accepted" is enclosed for your records. Products shipped after 12 months from the date of this Notice or the next printing of your label, whichever occurs first, must bear the new revised label.

If you have any questions or comments regarding this letter, please contact Heather Garvie at (703) 308-0034 or via e-mail at [garvie.heather@epa.gov](mailto:garvie.heather@epa.gov).

Signature of Approving Official:

Cynthia Giles-Parker  
Acting Product Manager (Team 20)  
Fungicide Branch  
Registration Division

Date:

OCT 02 2012

# CYCOCEL®

plant growth regulant

For use on ornamentals

**Active Ingredient:**

chlormequat (2-chloroethyl)trimethylammonium chloride

**Other Ingredients:**

**Total:**

1 gallon contains 1 pound (2-chloroethyl)trimethylammonium chloride

11.8%  
88.2%  
100.0%

EPA Reg. No. 241-74

EPA Est. No.

**KEEP OUT OF REACH OF CHILDREN**  
**CAUTION/PRECAUCION**

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.)

In case of an emergency endangering life or property involving this product, call day or night 1-800-832-HELP (4357).

See inside for complete **First Aid, Precautionary Statements, Directions For Use and Conditions of Sale and Warranty**, and state-specific crop and/or use site restrictions.

Net Contents:

**ACCEPTED**  
OCT 02 2012  
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 241-74

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

 **BASF**  
The Chemical Company

<b>FIRST AID</b>	
<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 to 20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>• Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes.</li> <li>• Remove contact lenses, if present, after first 5 minutes; then continue rinsing eyes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<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>• <b>DO NOT</b> induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• <b>DO NOT</b> give anything to an unconscious person.</li> </ul>
<b>HOTLINE NUMBER</b>	
<p>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 at 1-800-832-HELP (4357).</p>	
<p><b>Note to Physician:</b> The use of Atropine is contraindicated.</p>	

### **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. Remove and wash contaminated clothing before reuse. Wear long-sleeved shirt and long pants, chemical-resistant gloves, and shoes plus socks.

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

**Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants
- Chemical-resistant gloves, such as butyl rubber ≥14 mils, or natural rubber ≥14 mils, or neoprene rubber ≥14 mils, or nitrile rubber ≥14 mils
- Shoes plus socks

Follow 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.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. **DO NOT** reuse them.

### **USER SAFETY RECOMMENDATIONS**

**Users should:**

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Users should 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**

This product is toxic to wildlife. **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. Keep out of lakes, streams and ponds. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas.

**DO NOT** discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. **DO NOT** discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

### **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.

Observe all **Precautionary Statements, Restrictions and Limitations, and Application Instructions** on the **Cycocel® plant growth regulant** package label.

**DO NOT** apply this product through any type of irrigation system.

Application with motorized groundboom equipment in outdoor sites is prohibited.

Apply using handheld nozzles or handheld equipment, such as low-pressure handwand equipment.

### AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard (WPS), 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
- shoes plus socks

### STORAGE AND DISPOSAL

**DO NOT** contaminate water, food or feed by storage or disposal.

#### Pesticide Storage

Store in original container. **DO NOT** store below freezing temperatures.

#### Pesticide Disposal

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

#### Container Handling

**Nonrefillable Container. DO NOT reuse or refill this container.** Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

**Triple rinse containers small enough to shake (capacity ≤ 5 gallons) 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 1/4 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.

(continued)

### STORAGE AND DISPOSAL (continued)

**Triple rinse containers too large to shake (capacity > 5 gallons) as follows.** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace 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.

**Pressure rinse as follows:** Empty the remaining contents into application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank, or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

### Product Information

Read all sections of this label before using **Cycocel® plant growth regulator**.

**Cycocel** is a plant growth regulator for use on bedding plants and containerized ornamentals in greenhouses, shadehouses, and nurseries. **For use only on ornamentals grown in commercial or research greenhouses, shadehouses, and nurseries. In production areas not under cover, use is restricted to containerized ornamentals. DO NOT** apply to field-grown ornamentals\*.

**Cycocel** enhances the crops' aesthetic appeal and improves durability during postproduction shipping and handling. Treated crops are more compact with shorter internodes, stronger stems and greener leaves.

Use **Cycocel** on healthy plants grown under proper conditions and is not a replacement for good cultural practices.

**Cycocel** contains a wetting agent; therefore, additional wetting agents are not needed. An additional wetting agent can be added if desired. If any adjuvants or other chemicals are applied with **Cycocel**, treat small test areas first to ensure that no crop injury will occur. Plants treated with **Cycocel** may use less water, and irrigation schedules may need to be adjusted to prevent over irrigation.

\*Use on containerized ornamentals without impervious floors not permitted by the Arizona Department of Environmental Quality.

#### Growth Regulation with Cycocel

**Cycocel** will normally reduce internode elongation for a period of 1 to 3 weeks following spray treatment, depending on crop culture, environmental conditions and plant growth habit. Multiple applications can be applied as needed. **Cycocel** has greatest effect on final plant height when applied at the beginning of rapid stem elongation

and will have less effect if applied when shoots are not elongating or at the end of an elongation phase. **Cycocel**® **plant growth regulant** application rate, timing and frequency can be adjusted depending on individual grower preferences for crop development.

### Cycocel Phytotoxicity

Foliar spray applications of **Cycocel** often will cause slight yellowing near leaf margins or at the tip of leaves that are small and rapidly enlarging at time of application. The discoloration appears about 3 to 5 days after the spray treatment. Mature leaves at time of spray and leaves formed after application are not affected. Discolored areas usually regain most or all green color by the end of the crop cycle. The degree of yellowing is related to **Cycocel** application rate. The lowest rates **DO NOT** cause any phytotoxicity or temporary discoloration. Before application rates of 1,500 ppm or greater are used, conduct trials to ensure that the amount of leaf spotting is not unacceptable to the user. **Cycocel** application rates that are too high may cause brown necrotic areas on leaf margins, which will not recover green color. If the amount of yellowing is too great, **Cycocel** application rates can be lowered to reduce phytotoxicity or temporary discoloration and more frequent applications at lower rates can be made to achieve desired height control.

**DO NOT** apply **Cycocel** near the end of a crop unless adequate trials have been conducted to ensure the **Cycocel** rate is low enough to avoid an undesirable appearance during the sales period.

### Factors Affecting Activity of Cycocel

Plant growth and response to **Cycocel** is altered by several factors. The optimum **Cycocel** rate and frequency of application will vary depending on how the crop is grown.

### Environmental Factors

- Crops produced under low light levels and/or high humidity conditions will have a less compact growth habit and will generally require more **Cycocel** than the same crop produced at higher light levels and/or low humidities.
- Likewise, crops produced at higher temperatures or higher DIF (difference between day and night temperatures) will generally have greater stem elongation and require more **Cycocel** to produce the desired final plant height.

### Cultural Factors

- Crops grown with greater amounts of irrigation, higher fertilization rates, or high amounts of ammoniacal nitrogen will be more lush and taller than crops grown "harder" with less irrigation, lower fertilizer, and predominately nitrate-nitrogen. The more lush crops normally require higher amounts of **Cycocel** or more frequent applications.
- Plants that are spaced close together will elongate rapidly when leaves begin to overlap, and more **Cycocel** is needed under these conditions to produce plants with

the desired final heights.

- The production schedule for photoperiodic crops and varieties, such as poinsettias and chrysanthemums, influences final plant size, and the amount of chemical needed to achieve the desired final plant height will vary with the production schedule. Crops that are grown under long schedules with more time between planting and start of flower initiation or between final pinch and flower initiation will be taller than crops grown using short production schedules.

### Variety Differences

- Varieties within a species often vary greatly in their growth habits and the amount of **Cycocel** required for optimum final height.
- Also, colors within a bedding plant series will vary in sensitivity to **Cycocel**.
- Generally, more vigorous, taller varieties require greater amounts of **Cycocel** than do less vigorous, shorter varieties.

Consult with plant and seed suppliers and breeder companies for information on the growth habit of unfamiliar varieties.

### Determining Optimum Cycocel Usage

The optimum usage of **Cycocel** varies depending on the crop, the individual user's production situation and the desired final plant height and appearance. Users must determine the optimum **Cycocel** rate, timing, and frequency under their individual production situations. Users must obtain experience in small-scale trials under the different conditions where **Cycocel** is to be used before **Cycocel** is used on an entire crop. The **Cycocel** rates recommended in this label are general guidelines to be used by growers in trials to determine specific, optimum usage appropriate for their operations.

### Application Instructions

In spray applications, **Cycocel** enters the plant through young expanding leaves, mature leaves and stems. Maximum effect occurs when **Cycocel** is applied to thoroughly cover plant leaves and stems. The spray volume providing thorough plant coverage will vary with plant size and foliage cover.

- For spray applications in shadehouses and container nursery production, apply **Cycocel** at a rate of 1 gallon of spray per 200 sq ft of growing area, regardless of plant spacing. Use 0.5 to 1 gallon of spray per 200 sq ft of growing area for small plants in small containers or plug trays that are closely spaced. A maximum spray volume of 1.5 gallons per 200 sq ft of growing area is recommended for larger plants with well-developed canopies.
- For spray applications in shadehouses and container nursery production, **DO NOT** exceed the maximum recommended application rate of 3.7 lbs ai/A for single applications and not more than 33.3 lbs/A/year total. Single rates (lbs ai/A) must determine the maximum number of seasonal applications allowed but not to

exceed 33.3 lbs ai/A/year.

- Interval between repeat applications to the same crop can range from 5 to 21 days, if required.

**Cycocel® plant growth regulant** penetrates into the plant to provide maximum effect while the spray solution stays wet. Therefore, greater effect is obtained if sprays are applied under conditions that support slow drying of spray solutions. It is desirable to time **Cycocel** applications so that overhead irrigation or rain will not occur for a period of 6 hours after sprays are applied.

Unless otherwise directed, **Cycocel** spray application rates range from 600 to 2,000 ppm depending on the crop and individual user's desired results. The suggested initial **Cycocel** rate for small-scale trials is 1,250 ppm. All references to ppm are based on total **Cycocel** product.

### Drench Applications

**Cycocel** can be applied as a drench to the growing medium. It is taken up by the plant through the roots and transported to the stem tips where it is active. Drench applications **DO NOT** cause leaf yellowing and provide longer and more uniform control of stem elongation. In a drench treatment, it is the total amount of **Cycocel** active ingredient applied to each container that determines the reduction in stem elongation. Therefore, users must ensure that both the amount of solution applied to each container and the concentration of **Cycocel** in ppm are correct.

Apply drenches so that the potting medium is uniformly saturated or nonuniform heights will result when there are multiple plants in a container. Apply the drench to a moist medium and not when crops need irrigation. A good procedure is to irrigate crops one day and apply the **Cycocel** drench the next day.

**Cycocel** application rates for drench treatments range from 2,000 to 3,000 ppm of **Cycocel**. Conduct trials to determine the optimum rates under particular conditions. **Table 2** gives suggested volumes of dilute **Cycocel** solution to be applied to different size containers. Volumes listed in **Table 2** are considered adequate for container production media.

### Mixing Instructions

**Table 1. Preparation of Cycocel solutions for spray and drench applications**

Concentration (ppm)*	Cycocel (fl oz/gal)	Cycocel (mL/gal)	Cycocel (mL/L)
200	0.22	6.4	1.7
460	0.50	14.7	3.9
800	0.87	25.7	6.8
1,000	1.08	32.1	8.4
1,250	1.36	40.1	10.6
1,500	1.63	48.1	12.7
2,000	2.17	64.2	16.9
3,000	3.25	96.3	25.4

\*ppm calculations based on total **Cycocel**.

**Table 2. Cycocel plant growth regulant - dilute solution per container size for drench applications**

Pot diameter (inches)	Fluid ounces of dilute solution per pot	Number of pots treated with 1 gal of solution
2-1/4 to 3	2	64.0
4	3	42.5
5	4	32.0
6	6	21.5
8	8	16.0

### Cycocel/B-Nine® WSG Tank Mix

#### Spray Instructions

A tank mix combination of **B-Nine** plus **Cycocel** has been shown to provide optimum retardation with minimizing marginal chlorosis. The tank mix can be targeted to those plants less responsive to **Cycocel** alone. Users must recognize that this tank mix of **Cycocel** and **B-Nine** is more active than using either chemical alone.

- Users of the tank mix must follow the guidelines given on the labels of both products. Users must test the use of the tank mix on a small scale before general use.
- The tank mix is to be applied only as a foliar spray.
- Optimum rates of each product will vary depending on the crop, and the individual production situation as described for using **Cycocel** alone.
- The application rate for **Cycocel** and **B-Nine** can be altered to adjust the degree of height reduction desired resulting from a spray treatment of the tank mix.
- In general, the highest **Cycocel** rate that does not cause excessive leaf yellowing can be used, and then the **B-Nine** rate can be raised or lowered to adjust the activity of the tank mix application.

**Table 3. Guidelines for rates based on the desired level of activity of the tank mix**

Activity Level	Cycocel (PPM)	B-Nine (PPM)
Very High	1,500	5,000
High	1,200	2,500
Medium	1,000	1,200
Low	600	800

### Restrictions and Limitations

#### Greenhouse Use

- **DO NOT** apply more than 6 applications of **Cycocel** per production crop cycle (including any **B-Nine** tank mix combinations).
- **DO NOT** exceed 3,000 ppm in a single spray and 3,000 ppm in a single drench application.
- Restricted-Entry Interval (REI): **12 hours**.
- **DO NOT** apply to plants that are experiencing stress or other production limitations or undesirable plant injury may occur.
- **DO NOT** apply through any type of irrigation equipment.
- **DO NOT** apply to plants grown for feed or food purposes.

## Shadehouse or Container Nursery Use

- **DO NOT** apply more than 3 applications of **Cycocel® plant growth regulant** per production crop cycle (including any **B-Nine® WSG** tank mix combinations).
- Apply only as a foliar spray. **DO NOT** apply as a drench application.
- Restricted-Entry Interval (REI): **12 hours**.
- Mechanical (tractor) groundboom, multi-nozzle sprayer applications are not allowed.
- Hand-wand applications to container nursery pots on gravel or landscape barrier fabric production beds cannot exceed one (1) acre of plants per day, per mixer/loader/applicator.
- **DO NOT** apply to plants that are experiencing stress or other production limitations or undesirable plant injury may occur.
- **DO NOT** apply through any type of irrigation equipment.
- **DO NOT** apply to plants grown for feed or food purposes.

### Cycocel Use in Production

#### Greenhouse-grown Production

##### Poinsettias

**Cycocel** can be used to reduce stem elongation of all poinsettia varieties. It can be applied, as needed, to stock plants, cuttings during propagation, and before or after pinching plants grown for flowering.

Use of **Cycocel** on poinsettias is limited to one growing cycle per year.

Response of poinsettias to **Cycocel** varies with variety and geographical region of the United States. Higher rates and more frequent applications are needed in warmer production areas. For natural-season crops in the North, **DO NOT** use **Cycocel** after October 15, except that reduced rates can be used until October 21 if conditions are warm and sunny. In the South, **DO NOT** use **Cycocel** after November 1. Late application times or excessive rates can cause reduced bract size and/or delayed flowering. If the crop is being produced for other than natural-season, the last application must be no later than 6 weeks prior to flower maturity.

Spray applications can be made at rates between 800 and 3,000 ppm. A maximum of 4 applications per growing cycle may be made at intervals between 5 and 14 days. Frequent reapplication may be needed if lowest application rates are used. At rates of 1,000 to 1,500 ppm, less frequent reapplication is needed. Higher **Cycocel** rates often result in considerable leaf yellowing and are not frequently used, but may be applied if the user has adequately evaluated these rates.

Drench applications can be made to poinsettias using the procedures given in the **Drench Applications** section of this label. Drench application rates are 2,000 to 3,000 ppm. **DO NOT** make drench treatments after the critical cut-off dates given above for **Cycocel** applications to poinsettias. A maximum of 2 applications per growing

cycle may be made at intervals of 5 to 14 days.

##### Cycocel/B-Nine Tank Mix Consideration

Poinsettias are more sensitive to the combination of **Cycocel** and **B-Nine** than are other plant species. Use of tank mix application rates that are too high or application too late in the crop may cause reduced bract size and/or delayed bract coloring.

- The very high activity rates of **Cycocel** at 1,500 ppm and **B-Nine** at 5,000 ppm must not be used on poinsettias.
- The high rates of 1,500 ppm **Cycocel** and 2,500 ppm **B-Nine** can be used on stock plants during the summer or on crops for flowering in the warmest regions.
- Outside of the warmest regions, growers must use the medium or low activity rates on crops for flowering.
- In all regions, applications to cuttings in propagation must be at the low or medium rates.
- The **Cycocel** and **B-Nine** tank mix must not be applied to natural-season poinsettias after September 25th or after start of short-days in photoperiod-controlled crops. After that date, the **B-Nine** must be omitted and **Cycocel** used alone as described earlier in this section.
- **DO NOT** exceed 4 applications of **Cycocel** (including any **B-Nine** tank mix combinations) during any production crop cycle.

##### Geraniums

**Cycocel** is recommended for controlling plant size of seed geraniums and vegetatively propagated geranium types.

**Cycocel** is also recommended for inducing early flowering of seed geraniums. Use of **Cycocel** on geraniums is limited to 3 growing cycles per year.

**Cycocel** spray application rates on geraniums are from 800 to 1,500 ppm. Generally, first applications are made 2 to 4 weeks after planting plugs or rooted cuttings, after stems have started elongating. A maximum of 3 applications can be made as needed.

To promote earlier flowering of seed geraniums, use 1,500 ppm. Make two spray applications at 35 and 42 days after seeding per growing cycle. Treated plants show decreased days to flowering, compact growth and more lateral breaks. **DO NOT** exceed 3 applications of **Cycocel** (including any **B-Nine** tank mix combinations) during any production crop cycle.

##### Bedding Plants

**Cycocel** will effectively control the stem elongation of a wide variety of bedding plant crops grown in packs, pots, hanging baskets, and plug trays. Use of **Cycocel** on bedding plants is limited to 3 growing cycles per year.

The growth rate of bedding plant crops varies greatly depending on growers' cultural practices. The use of **Cycocel** must be altered depending on grower practices and desired final plant size. Plant growth after transplanting is affected by the amount of **Cycocel** or other growth regulator applied to the plant during the plug stage. Therefore, use of **Cycocel** during the plug stage will reduce the amount needed after transplanting.

**Cycocel® plant growth regulant** spray application rates on bedding plants are 800 to 1,500 ppm but may be increased up to 3,000 ppm after extensive trials to evaluate the effects of higher rates. **DO NOT** apply the first **Cycocel** sprays until after transplanted plugs begin to grow and amount of growth control needed can be determined. For bedding plants in seedling stage, users must start evaluating **Cycocel** at 1/2 the rate used on finished bedding plants. **DO NOT** exceed 6 applications of **Cycocel** (including **B-Nine® WSG** tank mix combinations) during crop production cycle.

**Cycocel/B-Nine** tank mix application is active on a wide range of plant species. Users must evaluate its use under their individual production situations. The tank mix can be used on bedding plant plugs such as pansy and vinca with low risk of excessive reduction in size. It can be used at higher rates on plug crops such as salvia, marigold, and dahlia that require stronger chemical activity to produce desired height control.

**Cycocel will reduce the stem elongation on these and other bedding plant crops**

Ageratum	Jerusalem cherry
Celosia	Marigold
Cleome	Nasturtium
Coleus	Salvia
Dahlia	Sunflower
Dianthus	Verbena
Gomphrena	Vinca
Hypoestes	Zinnia

**Greenhouse, Shadehouse or Container Nursery Production**

**Other Herbaceous Plants**

**Cycocel** can be used to reduce stem elongation in other herbaceous crops not specifically listed, such as flowering potted plants, tropical and temperate perennials, and foliage plants. **Cycocel** can be applied to these crops either as a foliar spray or drench to the growing medium. A maximum of 3 growing cycles are permitted per year. The optimum **Cycocel** rate, timing of application and frequency will vary for different crops and amount of height control desired by individual users. Application rates of 200 to 1,500 ppm can be made, not to exceed 3 applications. Conduct trials with a small number of plants before **Cycocel** is used on entire crops, and follow the recommended maximum application limits listed in **Table 2** for drench application and pot size. **DO NOT** exceed 3 applications of **Cycocel** (including **B-Nine** tank mix combinations) during production crop cycle.

**Examples of other herbaceous crops that can be treated with Cycocel**

Achimenes	Ivy
Aster	Kalanchoe
Astilbe	Lilium spp.
Begonia, hiemalis	Morningglory
Begonia, tuberous	Pachystachys
Calceolaria	Pentas
Carnation	Pilea spp.
Chrysanthemum	Salvia spp.
Columbine	Scheffera
Easter lily	Sedum spp.
Gynura aurantiaca	Sunflower

**Hibiscus**

**Cycocel** is recommended to improve flowering and to produce compact plants with uniform shoot growth of *Hibiscus* spp. The **Cycocel** spray application rate range is between 200 and 600 ppm depending on variety growth habit and amount of control desired. Start with 460 ppm in trials, then apply in multiple applications to produce the most uniform growth. **Cycocel** can be applied once before first and second pinches to produce more compact plants before final pinch. To produce the most compact flowering plants (height less than 18 inches in 6-inch pot), applications may be needed after the final pinch, and first application can be made when laterals are 0.5- to 1-inch long. **DO NOT** exceed 2 applications of **Cycocel** in a crop production cycle. A maximum of 3 growing cycles are permitted per year.

**Azaleas**

**Cycocel** produces earlier budded plants with multiple buds per shoot. Treated azaleas also have more compact, symmetrical heads. For crops produced out of season in a year-round production system, **Cycocel** can be used to induce flower bud set.

Azalea growth habit and response to **Cycocel** varies with variety, geographical region and production system. Optimum **Cycocel** spray rates generally range between 1,000 and 2,000 ppm in most situations but may range to 3,000 ppm in some cases. Two to three multiple applications may be needed starting 3 to 5 weeks after last pinch (when laterals are about 2 inches long). Treated plants may flower a few days later than nontreated plants. A maximum of 3 growing cycles are permitted per year. **DO NOT** exceed 3 applications in a crop production cycle.

**Other Woody Flowering Plants**

Other woody flowering crops can be treated with **Cycocel** to produce more compact growth and earlier flower bud initiation. Plants can be treated prior to pinching or after the last pinch, as needed. Optimum application rates, timing, and frequency will be different for different crops using rate range of 200 to 2,000 ppm, not to exceed 3 applications (including any **B-Nine** combinations) in a production cycle. Evaluate **Cycocel** in small-scale trials to determine how best to apply it under their individual situa-



tions. Tank mix applications with **B-Nine® WSG** may be made on a specific species if the grower has determined in small-scale trial that rates produced desirable activity level and not plant phytotoxicity. A maximum of 3 growing cycles are permitted per year. **DO NOT** exceed 3 applications of **Cycocel® plant growth regulant** (including **B-Nine** tank mix combinations) during a production crop cycle.

**Examples of flowering woody crops that can be treated with Cycocel**

Baleria cristata	Hydrangea
Bougainvillea	Lantana
Camellia	Potted rose
Fuchsia	Pseuderanthemum lactifolia
Gardenia	Rhododendron
Hollies	

**Table 4. Use rate range of Cycocel® plant growth regulant and B-Nine® WSG recommendations for specific herbaceous plants**

This is a guideline to help you determine the proper control in your geographic area and under your growing conditions. When referencing labels of two products make sure you understand and follow each label for optimum effectiveness and application techniques. It is strongly recommended to perform limited trials on a few plants before applying to large numbers of plants. When a tank mix of **Cycocel** and **B-Nine** is recommended, consult the rate column for appropriate ppm of each product. The rate of **Cycocel** in ppm is listed first followed by the rate of **B-Nine** in ppm times (x) the number of applications recommended for a desirable plant response. **DO NOT** exceed 6 applications of **Cycocel** (including any **B-Nine** tank mix combinations) during a production crop cycle.

Botanical Name	Cultivar	Common Name	Product	Spray Rate (ppm) x No. Applications*	Precautions/Remarks
<i>Pseuderanthemum lactifolia</i>			<b>Cycocel/B-Nine</b>	1500/2500 x 1	
<i>Asclepias tuberosa</i>	'Royal Red'	Butterfly weed	<b>Cycocel/B-Nine</b>	1500/2500 x 1	
<i>Baleria cristata</i>		Phillipine Violet	<b>Cycocel/B-Nine</b>	1000/1000 x 2	
<i>Achillea</i>	'Paprika'	Yarrow	<b>Cycocel/B-Nine</b>	1500/5000 x 1	
<i>Chrysanthemum parthenium</i>		Feverfew	<b>Cycocel</b>	750 x 1	
<i>Coreopsis grandiflora</i>	Baby Sun	Tickseed	<b>Cycocel/B-Nine</b>	1500/>2500 x 1	
<i>Coreopsis grandiflora</i>	'Sunray'	Tickseed	<b>Cycocel/B-Nine</b>	1500/>2500 x 1	
<i>Coreopsis verticillata</i>	'Zagreb'	Thread Leaf Coreopsis	<b>Cycocel/B-Nine</b>	1500/>2500 x 2	
<i>Coreopsis verticillata</i>	Golden Gain	Thread Leaf Coreopsis	<b>Cycocel/B-Nine</b>	1500/>2500 x 1	Southern rates listed
<i>Dendranthema zawadskii</i>	Clara Curtis	Garden Mum	<b>Cycocel</b>	1500/>2500 x 1	Multiple applications required (Maximum of 3)
<i>Echinacea purpurea</i>	'Bravado'	Purple Coneflower	<b>Cycocel</b>	1500 x 3	Discolored leaves
<i>Echinacea purpurea</i>	'Magnus'	Purple Coneflower	<b>Cycocel/B-Nine</b>	1500/ <b>B-Nine</b> x 1	May require multiple applications at 10 to 14 day intervals (Maximum of 3)
<i>Gaillardia x grandiflora</i>	'Burgundy'	Blanket flower	<b>Cycocel/B-Nine</b>	1500/5000 x 1	
<i>Heliopsis helianthoides</i>	'Summer Sun'	False sunflower, Sunflower	<b>Cycocel/B-Nine</b>	1500/5000 x 1	
<i>Leucanthemum x superbum</i>	'Becky'	Shasta Daisy	<b>Cycocel/B-Nine</b>	1500/>5000 x 1	
<i>Rudbeckia triloba</i>		Three-lobed Coneflower	<b>Cycocel/B-Nine</b>	1500/5000 x 1	
<i>Rudbeckia triloba</i>		Three-lobed Coneflower	<b>Cycocel</b>	1500 x 1	No phytotoxicity; multiple application may be required (Maximum of 3)
<i>Stokesia laevis</i>	'Purple Parasols'	Stoke's Aster	<b>Cycocel/B-Nine</b>	1500/5000 x 1	

\* Rates listed are in the order of **Cycocel** ppm/**B-Nine** ppm respectively for each product.

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**Table 4. Use rate range of Cycocel® plant growth regulant and B-Nine® WSG recommendations for specific herbaceous plants (continued)**

Botanical Name	Cultivar	Common Name	Product	Spray Rate (ppm) x No. Applications*	Precautions/Remarks
<i>Stokesia laevis</i>	'Klaus Jelitto'	Stoke's Aster	<b>Cycocel/B-Nine</b>	1500/5000 x 1	Moderate control. Apply at 10 to 14 day intervals.
<i>Heliotropium arborescens</i>	Fragrant Blue	Heliotrope	<b>Cycocel/B-Nine</b>	1500/<5000 x 1	
<i>Erysimum linifolium</i>		Wallflower	<b>Cycocel/B-Nine</b>	1500/5000 x 1	May require multiple applications (Maximum of 3).
<i>Campanula carpatica</i>	'Blue Chips'	Carpathian Harebell	<b>Cycocel</b>	Less than 1500 x 3	Excessive height reduction. Reduce rate or frequency.
<i>Lobelia x speciosa</i>	'Compliment Scarlet', 'Queen Victoria'	Hybrid Lobelia	<b>Cycocel</b>	1500 x 3	
<i>Sedum x telephium</i>	'Autumn Joy'	Autumn Joy Sedum	<b>Cycocel/B-Nine</b>	1500/5000 x 1	Moderate control. Multiple applications may be required (Maximum of 3).
<i>Scabiosa caucasica</i>	Butterfly Blue	Pincushion Flower	<b>Cycocel/B-Nine</b>	1500/5000 x 1	Multiple applications may be effective (Maximum of 3).
<i>Scabiosa columbaria</i>	Pink Mist	Pincushion Flower	<b>Cycocel/B-Nine</b>	1500/5000 x 1	Moderate control; multiple applications may be required. Southern rates listed (Maximum of 3).
<i>Coleus</i>	'Solar Storm'	Coleus	<b>Cycocel/B-Nine</b>	1500/2500 x 1	
<i>Agastache x</i>	Blue Fortune	Anise Hyssop	<b>Cycocel/B-Nine</b>	1500/5000 x 1	Note: PGRs are not labeled for use on edible herbs. Specify for ornamental use only.
<i>Perovskia atriplicifolia</i>		Russian Sage	<b>Cycocel/B-Nine</b>	1500/5000 x 1	
<i>Salvia greggii</i>		Texas Sage, Cherry Sage	<b>Cycocel/B-Nine</b>	1500/5000 x 1	
<i>Salvia leucantha</i>		Velvet Sage; Mexican Sage	<b>Cycocel/B-Nine</b>	1500/5000 x 1	
<i>Salvia leucantha</i>		Velvet Sage; Mexican Sage	<b>Cycocel</b>	1500 x 1	
<i>Hibiscus moscheutos</i>	Disco Belle Mixed	Rose Mallow	<b>Cycocel</b>	1000 x 3	Multiple applications necessary (Maximum of 3).
<i>Gaura lindheimeri</i>	Corrie's Gold	White gaura	<b>Cycocel/B-Nine</b>	1500/5000 x 1	
<i>Gaura lindheimeri</i>	Whirling Butterflies	White gaura	<b>Cycocel/B-Nine</b>	1500/5000 x 1	Moderate control; multiple applications may be required.
<i>Phlox paniculata</i>	'Blue Boy', 'Charles Curtis'	Garden Phlox	<b>Cycocel/B-Nine</b>	1500/5000 x 1	Multiple applications required (Maximum of 3).

\* Rates listed are in the order of **Cycocel** ppm/**B-Nine** ppm respectively for each product.

**Table 4. Use rate range of Cycocel® plant growth regulant and B-Nine® WSG recommendations for specific herbaceous plants (continued)**

Botanical Name	Cultivar	Common Name	Product	Spray Rate (ppm) x No. Applications*	Precautions/Remarks
<i>Polemonium caeruleum</i>		Jacob's Ladder	<b>Cycocel/B-Nine</b>	1500/2500 x 1	
<i>Pentas lanceolata</i>	Lavender	Pentas	<b>Cycocel/B-Nine</b>	1500/1500 x 1	
<i>Pentas lanceolata</i>	Orchid Illusion	Pentas	<b>Cycocel/B-Nine</b>	1500/1500 x 1	
<i>Pentas lanceolata</i>	Red	Pentas	<b>Cycocel/B-Nine</b>	1500/1500 x 1	
<i>Astilbe chinensis</i>	Purpurkerze	Chinese Astilbe	<b>Cycocel/B-Nine</b>	1500/<5000 x 1	Reduce both <b>Cycocel</b> and <b>B-Nine</b> rates. Southern rates listed.
<i>Astilbe chinensis</i>	Purpurkerze	Chinese Astilbe	<b>Cycocel</b>	1500 x 1	Moderate control. Southern rates listed.
<i>Penstemon digitalis</i>	Huskers Red	Smooth White Penstemon	<b>Cycocel/B-Nine</b>	1500/5000 x 1	
<i>Veronica alpine</i>	'Goodness Grows'	Alpine Speedwell	<b>Cycocel/B-Nine</b>	1500/5000 x 1	
<i>Veronica spicata</i>	'Red Fox'	Spike Speedwell	<b>Cycocel/B-Nine</b>	1500/5000 x 2	
<i>Veronica x</i>	'Sunny Border Blue'	Hybrid Speedwell	<b>Cycocel/B-Nine</b>	1500/5000 x 1	
<i>Veronica x</i>	'Sunny Border Blue'	Hybrid Speedwell	<b>Cycocel</b>	750 to 1500 x 1	
<i>Verbena canadensis</i>	'Homestead Purple'	Clump Verbena	<b>Cycocel/B-Nine</b>	1500/5000 x 1	Multiple applications may be required (Maximum of 3).

\* Rates listed are in the order of **Cycocel** ppm/**B-Nine** ppm respectively for each product.

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