



citadel®



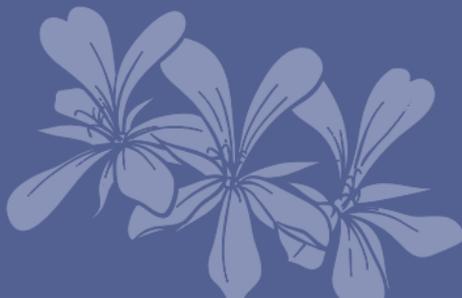
Department of Agriculture
STATE OF HAWAII

LICENSED

PERIOD **2014-2016** LIC. NO.

8464.4

PLANT GROWTH REGULATOR SOLUTION for use on ornamentals



Department of Agriculture
STATE OF HAWAII

LICENSED

PERIOD **2011-2013** LIC. NO.

fine

Distributed by:
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Active Ingredient:		
Chlormequat Chloride*	11.8%	
Other Ingredients:	88.2%	
Total:	100.0%	
*1 gallon contains 1 pound (2-chloroethyl) trimethylammonium chloride		

**KEEP OUT OF REACH
OF CHILDREN
CAUTION**

Net contents:
1 Gallon (3.78 L)

EPA Reg. No. 62097-21-82917
EPA Est. No. 39578-TX-001

[See inside panel for
First Aid Statements]

Citadel® is a
registered trademark of
Fine Agrochemicals Ltd.

CIT/US/1G/11

FIRST AID

IF SWALLOWED

- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to do so by a poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

NOTE TO PHYSICIAN

The use of Atropine is contraindicated. Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-858-7378 (National Pesticide Information Center) for emergency medical treatment information.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if swallowed. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for Category C on an EPA chemical-resistance category selection chart.

All mixers, loaders, applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- 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.
- 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 spray.

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 requirement specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Observe all Precautionary Statements, Limitations, and Application instructions on the CITADEL® plant growth regulator 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, 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 unless wearing appropriate PPE.

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
- Shoes plus socks
- Chemical-resistant gloves made of any waterproof material

PHYSICAL OR CHEMICAL HAZARDS

FOR CHEMICAL EMERGENCY: spill, leak, fire, exposure, or accident call CHEMTREC 1-800-424-9300.

PRODUCT INFORMATION

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

CITADEL is an effective growth retardant for use on a broad variety of ornamental crops grown in containers in commercial or research greenhouses. CITADEL reduces plant height by limiting internode elongation through inhibition of gibberellin biosynthesis. Application produces more desirable compact and marketable plants. These desirable qualities include darker foliage, higher chlorophyll content, greater leaf thickness and stronger stems.

Do not use CITADEL as a replacement for good cultural practices. Only use CITADEL on healthy plants that are grown under proper conditions. Wetting agents are not required with CITADEL. If any adjuvant or other chemicals are applied with CITADEL, treat a small number of plants first to insure that no crop injury will occur. Plants treated with CITADEL may require less water and irrigation schedules may therefore need to be adjusted to prevent over-irrigation.

GROWTH REGULATION WITH CITADEL:

Depending on crop culture, environmental conditions and plant growth habits, CITADEL will normally retard growth for a period of 1 to 3 weeks following spray treatment. Repeat applications may be necessary. CITADEL has the greatest effect on final plant height when applied at the beginning of rapid stem elongation.

CITADEL will have less effect if applied when shoots are not elongating or at the end of an elongation phase. Prior to treating a large number of plants, conduct trials to determine optimum rates, application timing and frequency for individual situations.

SPRAY APPLICATIONS:

As a foliar applied spray, CITADEL is absorbed into the plant through young expanding leaves, mature leaves and stems. CITADEL is most effective when applied at a spray volume that thoroughly covers the plant foliage and stems. Optimum spray volume will vary with the plant size, but generally is between 2 and 3 quarts of spray solution per 100 square feet of bench space. Excessive runoff of solution as a result of heavy spray volumes is disadvantageous. CITADEL applied at a volume of about 1 quart per 100 square feet is considered a light spray. The use of a light spray is advantageous since it will retard the growth of the accessible shoots (upper lateral shoots) and will have little effect on the lower shoots since they receive less spray.

Maximum effect is achieved with CITADEL when spray applications are applied under conditions that support slow drying, thus allowing better penetration into the plant. To maximize the absorption of the spray solution, time CITADEL applications such that overhead irrigation or rain will not occur for at least six hours.

Depending on the crop and individual user's desired results, CITADEL applica-

tion rates range from 600 to 2,000 ppm. Use this range of rates unless specifically stated within the section for that particular crop. The recommended initial CITADEL rate for small-scale trials is 1,250 ppm. All references to ppm are based on total CITADEL product.

CITADEL PHYTOTOXICITY:

Foliar spray applications of CITADEL may result in yellowing around leaf margins or at the tip of leaves. Discoloration is small and rapidly enlarging at time of application and appears about 3 to 5 days after the spray treatment. Leaves that are either mature at the time of spray or formed after application are not affected by foliar spray applications of CITADEL. Discolored areas usually regain most or all green color by the end of the crop cycle. The severity of discoloration is related to the application rate of CITADEL. Lower rates do not generally cause any phytotoxicity or temporary discoloration. Before application rates of 1,500 ppm or greater are used, conduct trials to insure that the amount of leaf spotting is acceptable to the user. CITADEL application rates that are too high may cause brown areas on leaf margins. These necrotic areas may not recover if the degree of injury is too severe. If trial rates demonstrate unacceptable injury, lower CITADEL rates to reduce phytotoxicity and use more frequent applications at lower application rates to achieve the desired level of height control.

Do not apply CITADEL near the end of a crop cycle, except when the user has conducted adequate trials to insure the CITADEL rate is low enough to avoid an undesirable appearance during the sales period.

DRENCH APPLICATIONS:

When applied as a drench treatment to growth medium CITADEL is absorbed by the roots and transported to the stem tips where it is effective. Unlike foliar spray applications, drench applications do not cause leaf yellowing and provide extended and consistent control of stem elongation. When applying CITADEL by drench treatment, the total amount of active ingredient applied to each container determines the amount of reduction in stem elongation. Therefore, users must insure that both the amount of solution applied to each container and the concentration of CITADEL are correct.

When treating multiple plants in a container, ensure potting medium is uniformly wet prior to drench applications of CITADEL, otherwise non-uniform plant heights may result. Apply the CITADEL drench treatment to a moist medium before crops need irrigation. A good procedure is to irrigate crops one day prior to a drench treatment with CITADEL.

Application rates for drench treatments of CITADEL range from 2,000 to 3,000 ppm. Conduct trials to determine the optimum rates under particular conditions. The following table gives suggested volumes of dilute CITADEL solution to be applied to different sized containers. The volumes applied can be altered if the user has established the effect of different volumes through their own small-scaled trials.

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

FACTORS AFFECTING ACTIVITY OF CITADEL

Factors such as environmental conditions, cultural practices, and variety differences affect plant response to CITADEL. These factors also affect the optimum CITADEL rate and frequency of application.

ENVIRONMENTAL CONDITIONS:

Crops grown under low light levels and/or high humidity will have a greater growth habit and will generally require higher rates of CITADEL than the same crop produced at higher light levels and/or low humidity. Likewise, crops produced at higher temperatures or higher DIF (difference between day and night temperatures) will generally have greater stem elongation and thus require increased rates of CITADEL to produce the desired final plant height.

CULTURAL FACTORS:

Crops grown with high levels of irrigation and/or high fertilization rates and primarily using ammonia for a source of nitrogen, will be taller and more vigorous than crops grown with less irrigation, lower fertilizer rates, and predominately nitrate-nitrogen. The more lush crops normally require higher amounts and/or more frequent applications of CITADEL.

Plants that are spaced close together tend to elongate rapidly when leaves begin to overlap. Under these conditions, more CITADEL is needed to produce plants with desired final heights.

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

VARIETAL DIFFERENCES:

The growth habits and amount of CITADEL required for optimum final height will vary among varieties within a species. Color sensitivity will also vary within a bedding plant series treated with CITADEL. In general, more vigorous, taller varieties demand greater amounts and/or additional/extra/supplementary applications than do the less

vigorous, shorter varieties. Growth characteristics for varieties with which the user is unfamiliar can be obtained from their plant suppliers and breeders.

DETERMINING OPTIMUM CITADEL USAGE

The most effective use of CITADEL will vary depending on a number of factors including the type of crop, the individual user's production situation and the desired final plant height and appearance. Prior to treating an entire crop, conduct small-scale trials under varying conditions where CITADEL is to be used. The CITADEL rates recommended in this label are general guidelines to be used by growers in trials to determine the optimum CITADEL rate, timing, and frequency of application under their individual production situations.

PREPARATION OF CITADEL SOLUTIONS

For Spray and Drench Applications

CONCENTRATION (ppm)*	CITADEL (fl. oz./gal water)	CITADEL (ml/gal water)	CITADEL (ml/L water)
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	94.2	25.4
4,000	4.34	128.0	33.9

*ppm calculations based on total CITADEL product.

POINSETTIAS

Apply CITADEL as needed to stock plants, cutting during propagation, and before or after pinching plants grown for flowering to reduce stem elongation of all poinsettia varieties.

Response of poinsettias to CITADEL varies with variety and geographical region of the United States. Use higher rates and more frequent applications in warmer production areas (i.e. sunbelt states) and on more vigorous varieties. For natural-season crops in the northern production areas, do not apply CITADEL at full rates after October 15. Reduced rates, however, can be used until October 21 if conditions are warm and sunny. Do not use CITADEL in southern production areas after November 1. Later applications of CITADEL will delay flowering and reduce bract size. If the crop is being produced for other than natural season, make the last application no later than 6 weeks prior to flower maturity.

Apply spray applications of CITADEL at rates between 800 and 1,500 ppm. A maximum of 4 applications per growing cycle may be made at intervals between 5 and 14 days. Multiple applications may be used as needed between 5 and 14-day spray intervals. Reapplication may be necessary if lower application rates are used. At rates of 1,000 to 1,500 ppm, less frequent applications are needed. Higher rates may result in considerable leaf yellowing and are not frequently used. Higher rates of CITADEL may be applied if they have been adequately evaluated by the user.

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 CITADEL applications to poinsettias. A maximum of 2 applications per growing cycle may be made at intervals of 5 to 14 days.

GERANIUMS

Apply CITADEL spray applications at rates between 800 to 1,500 ppm to control plant size of seed geraniums and vegetative geranium types. CITADEL is also recommended for inducing early flowering of seed geraniums.

Make first applications of CITADEL 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 encourage earlier flowering of seed geraniums make two spray applications at 35 to 42 days after seeding at a rate of 1,500 ppm. Decreased days to flowering, compact growth, and an increase in lateral breaks will be evident in treated plants. Do not exceed 3 applications of CITADEL during any crop production cycle.

BEDDING PLANTS

CITADEL will control the stem elongation of a wide variety of bedding plant crops grown in packs, pots, hanging baskets, and plug trays. Use of CITADEL 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 CITADEL must be altered depending on environmental conditions, grower practices and desired final plant size. Plant growth after transplanting is affected by the amount of growth regulator applied to the plant during the plug stage. The use of CITADEL during the plug stage will reduce the amount needed after transplanting.

Apply CITADEL spray applications at rates from 800 to 1,500 ppm. Do not apply CITADEL sprays until after transplanted plugs begin to grow and the degree of required growth control can be determined. For bedding plants in seedling stage, begin by evaluating CITADEL at one-half the rate used on finished bedding plants. Do not exceed 6 applications of CITADEL during crop production cycle.

CITADEL can be used to reduce stem elongation on these and other bedding plant types:

Ageratum	Jerusalem cherry
Celosia	Marigold
Dahlia	Nasturtium
Dianthus	Salvia

OTHER HERBACEOUS CROPS

CITADEL can be used to reduce growth in other herbaceous crops not specifically listed in the label, including flowering potted plants, tropical and temperate perennials, and foliage plants. CITADEL can be applied to these crops either as a foliar spray or drench to the growing medium. The optimum rate, timing and frequency of CITADEL application will vary for different crops and the desired level of growth control. Application rates of 200 to 1,500 ppm can be made, and not exceed 3 applications. Conduct trials with a small number of plants before CITADEL is used on entire crops.

CITADEL can be used to reduce the growth of these and other herbaceous crops:

Achimenes	Ivy
Aster	Kalanchoe
Astilbe	Lilium spp.
Begonia, hiemalis	Morning glory
Begonia, tuberous	Pachystachys
Calceolaria	Pilea spp.
Carnation	Pentas
Chrysanthemum	Salvia spp.
Columbine	Schefflera
Easter Lily	Sedum spp.
Gynura aurantiaca	Sunflower

HIBISCUS

CITADEL can be used on *Hibiscus* spp. to improve flowering and to produce compact plants with uniform shoot growth. Apply spray application rates between 200 and 600 ppm depending on variety, growth habit and desired level of growth control. Conduct trials using a 460 ppm rate on a small number of plants before treating entire crop. CITADEL can be applied once before the first and second pinches to produce more compact plants before the final pinch. To maximize the production of compact flowering plants (height less than 18" in 6-inch pot), do not exceed 2 applications of CITADEL in a crop production cycle. Make first applications when laterals are 0.5 to 1 inch long. A maximum of 3 growing cycles are permitted per year.

AZALEAS

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

Optimum CITADEL spray rates generally range between 1,000 and 2,000 ppm in most situations. Azalea growth habit and response to CITADEL varies with variety, geographical region and production system. Two to three applications starting when laterals are about 2 inches long (3 to 5 weeks after pinch) may be required. Treated plants may flower a few days later than plants not treated with CITADEL.

OTHER FLOWERING WOODY CROPS

Other woody flowering crops can be treated with CITADEL 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 200-2,000 ppm not to exceed 3 applications in a production cycle. Evaluate CITADEL in small-scale trials to determine how best to apply it under individual situations. A maximum of 3 growing cycles are permitted per year. Do not exceed 3 applications of CITADEL during a crop production cycle.

Examples of flowering woody crops that can be treated with CITADEL:

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

CITADEL AND DAZIDE 85 WSG TANK MIX

Applications of this tank mix can provide a synergistic effect on certain crops that are not very sensitive to CITADEL alone or when an excessive number of applications are required. **Note: the tank mix combination of CITADEL and DAZIDE 85 WSG is more effective than using either chemical alone.** Follow the tank mix guidelines given on the labels of both products. The tank mix is to be applied only as a foliar spray. Optimum rates of each product will vary depending on the type of crop, the user's desired level of height control, and the individual production situation as described for using CITADEL alone. Users must test the tank mix on a small scale before general use.

APPLICATION RATES

The application rates for CITADEL and DAZIDE 85 WSG can be adjusted to achieve the desired level of height control. In general, use the highest CITADEL rate that does not cause excessive leaf yellowing. The DAZIDE 85 WSG rate can then be raised or lowered to adjust the activity of the tank mix application.

The following table gives a range of application rates for CITADEL and DAZIDE 85 WSG to use in established trials.

CITADEL and DAZIDE 85 WSG tank mix spray rates:

Activity	CITADEL (ppm)	DAZIDE 85 WSG (ppm)
Very High	1,500	5,000
High	1,500	2,500
Medium	1,250	1,250
Low	1,000	800

CONSIDERATIONS IN USING THE TANK MIX

1. Bedding Plants and General Crops

The CITADEL and DAZIDE 85 WSG tank mix is active on a wide range of crops. 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. The tank mix can also be used at higher rates on plug crops that require stronger chemical activity, such as salvia, marigold, and dahlia, to produce desired height control.

2. Geraniums

The addition of DAZIDE 85 WSG to CITADEL does not greatly enhance the height control achieved on geraniums.

3. Poinsettias

Poinsettias are more sensitive to the tank mix combination of CITADEL and DAZIDE 85 WSG than are other crops. **Rates that are too high or applied late in the crop cycle may cause a reduction in bract size and/or delay bract coloring. Do not use high rates of CITADEL (1,500 ppm) and DAZIDE 85 WSG (5,000 ppm) on poinsettias.** High CITADEL rates of 1,500 ppm plus DAZIDE 85 WSG at 2,500 ppm can be used on stock plants during the summer or on crops produced in warm regions for flowering. Outside of the warmest regions, use the medium or low activity rates on crops for flowering. In all growing regions, apply CITADEL plus DAZIDE 85 WSG to cutting propagation at the low or medium rates. **Do not apply the CITADEL and DAZIDE 85 WSG tank mix to natural season poinsettias after September 25th or after the start of short-days in photoperiod-controlled crops. After September 25th, use CITADEL alone, as described in the DETERMINING OPTIMUM CITADEL USAGE - POINSETTIAS section of this label.**

STORAGE AND DISPOSAL

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

Pesticide Storage: Keep containers tightly closed when not in use. Store in cool, dry place. Protect from temperatures below 32° F. This product may freeze. If freezing should occur, thaw and shake gently to mix the product. Do not store diluted product. 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 Disposal: 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 flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, if available, or puncture and dispose of in sanitary landfill or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

WARRANTY DISCLAIMER AND LIMITATION OF LIABILITY

Fine Agrochemicals Limited ("FINE") warrants that this Product conforms to the specifications on this label. To the extent consistent with applicable law, FINE makes no other warranties and disclaims all other warranties, express or implied, including but not limited to warranties of merchantability and fitness for a particular purpose. No agent of FINE or any other person is authorized to make any representation or warranty beyond those contained herein.

It is impossible to eliminate all risks associated with this Product. Plant injury, lack of performance, or other unintended consequences may result because of factors such as use of the Product other than in strict accordance with this label's instructions, presence of other materials, the manner of application or other factors, all of which are beyond the control of FINE or the seller. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer.

To the extent consistent with applicable law: 1) FINE disclaims any liability whatsoever for special, incidental or consequential damages resulting from the handling or use of this Product and 2) FINE's liability under this label shall be limited to the amount of the purchase price or, at the election of FINE, the free replacement of the Product.

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DAZIDE® 85 WSG is a registered trademark of Fine Holdings Limited

Distributed by:
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1850 Mt. Diablo Blvd., Suite 405
Walnut Creek, CA 94596
USA



PEEL HERE ↑

**PLANT GROWTH
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SOLUTION
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Active Ingredient:	
Chloromequat Chloride*	11.8%
Other Ingredients:	88.2%
Total:	100.0%

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

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