TIPS FOR PRODUCING **PICTURE-PERFECT** POINSETTIAS

This easy-to-use culture guide provides helpful growing info and production tips... so be sure to keep it nearby as you plan – and plant – your perfect poinsettia crop.

MARBELLA

Unrooted Cuttings

Open boxes upon arrival and check the temperature inside the box. Unpack the cuttings in a cooler at 50°F/10°C and monitor temperatures throughout the unpacking, storing and sticking process. If temperature is greater than 70°F/21°C, allow cuttings to cool down before sticking. Keep the cuttings moist and turgid while handling, and avoid letting them get too warm.

Stick cuttings in media-filled liner trays, preferably using a stabilized media such as Ellepot or Oasis.

Note: It's preferable to stick unrooted cuttings right away. But if you must store cuttings, keep them cool (50°F/10°C) for no more than 24 hours. After sticking, keep propagation environment shaded and cool for the first two days to limit stress that can result from the transition to propagation of a cooled cutting.

TIP: A single application of a low-dose Capsil in the first 24 hours can help maximize efficiency of misting and reduce stress on cuttings. High doses and/or repeated applications will cause distortion of new growth. Use Capsil at a rate of 1 to 3 oz./ 100 gal. to break the surface tension of water on the leaf.

Infrared thermometers help you keep a close eye on temperatures


(Left) cool unrooted cuttings; (Right) allowed to warm

Growers should use the information presented in this guide as a starting point. Crop times will vary depending on the climate, location, time of year and greenhouse environmental conditions. Chemical and PGR recommendations are only guidelines. It is the responsibility of the applicator to read and follow all the current label directions for the specific chemical being used in accordance with all regulations.

CULTURE **GUIDE**

PROPAGATION GUIDE

Stage 1: Callus (First 7 Days)

Apply rooting hormone to base of cuttings. Low rates of rooting hormone can be applied overtop, after sticking the cuttings. Rates must be very low for this strategy to avoid phytotoxicity. Stick and mist cuttings ASAP to avoid wilt. Keep humidity up and keep mist levels high, including some at night, from Day 1 through Day 4. Use lower light levels with shading and keep air temperature below 90°F/32°C. *Callus will start to form 5 to 7 days after sticking.*

Broad spectrum fungicide can be applied a few days after sticking as a preventative treatment to reduce disease pressure. Soil temperatures of 72 to 75°F/22 to 24°C are best for callus formation.

POINSETTIA ROOTING HORMONE RECOMMENDATIONS

PRODUCT	RECOMMENDED RATE	APPLICATION METHOD	NOTES
Hortus IBA Water Soluble Salts	500-1,000 ppm IBA	Basal stem dip or spray just prior to sticking cuttings	Mix solution to desired PPM and dip only bottom 1 in. (2.5 cm) of the stem. Be careful not to let solution touch leaves, upper stem or growing point.
Hortus IBA Water Soluble Salts	75-150 ppm IBA	Course spray applied after sticking cuttings	Spray to runoff so that solution drips down stem toward the base of the cutting. Will likely cause some leaf distortion or curling, but plants normally grow out of it. Higher rates = more leaf curl. Trial first.
Rhizopon AA #1	1,000 ppm IBA	Basal stem dip or spray just prior to sticking cuttings	Mix solution to desired PPM and dip only bottom 1 in. (2.5 cm) of the stem. Be careful not to let solution touch leaves, upper stem or growing point.
Dip N Grow	1,000 ppm IBA + 500 ppm NAA	Basal stem dip or spray just prior to sticking cuttings	Mix solution to desired PPM and dip only bottom 1 in. (2.5 cm) of the stem. Be careful not to let solution touch leaves, upper stem or growing point.

Note: These are only recommendations; please read and follow labels carefully. Test plants for sensitivity before wholesale use. Environmental factors may affect efficacy and potential phytotoxicity.

Stage 2: Root Out (Days 8 to 14)

Reduce mist to force root growth. After reducing mist frequency, spray with a broad spectrum fungicide and/or bactericide in the evening, allowing the chemical to adhere to the plant. Avoid saturated media to speed up root initiation. Once rooting has begun, start reducing soil moisture to build root system. Begin fertilizing at this stage with 150 ppm N of balanced fertilizer that contains Ca and Mg. *Visible roots will appear by Day 10. Eliminate mist by Day 14.*

TIP: Watch for fungus gnats and treat preventatively!

TIP: Avoid foliar fertilizers with phosphorus.

A nice white callus 8 days after sticking

Stage 3: Finished Propagation (Days 15 to 28)

Continue feeding every other irrigation with 150 ppm N in a balanced soluble fertilizer. Continue to spray with a broad spectrum fungicide every 7 to 10 days. If plants are growing too quickly, you can apply PGRs around Day 16 and again at Day 22. We recommend Cycocel 750 ppm spray. For more control on fast-growing varieties, you can increase the Cycocel rate to 1,000 ppm and/or decrease the time between applications to 4 days. If you don't get enough control with Cycocel alone, try a tank mix of B-Nine 1,000 ppm/Cycocel 500 ppm. In the last week of propagation, it is recommended to begin to raise light levels and reduce temperatures to harden the liners for planting. *Cuttings are ready to plant by Days 23 to 28.*

Days 23 to 28: All grown out and ready to plant

CULTURE **GUIDE**

FINISHING GUIDE

Finishing Environment

Day temperatures: 68 to 78°F/20 to 25°C
Night temperatures: 65 to 70°F/18 to 21°C

Keep humidity high during early finishing stages by wetting floors and minimizing air movement. We recommend drip irrigation and high-porous potting plant media with pH adjusted with limestone. Be sure media is well-drained, with a maintained pH of 5.7 to 6.2. Avoid pH of 6.6 and higher at finish, as high pH and reduced fertility levels can contribute to bract edge burn and magnesium deficiencies. Negative DIP works well for height control – 1 hour before sunrise until 3 hours after.

Water and Fertilizer

Maintain media moisture, avoiding dramatic swings from wet to dry, as this may damage roots and contribute to *Pythium* root rot.

Good moisture management can reduce or eliminate the need for fungicide drenches to control root diseases, but a preventative soil drench every 4 to 5 weeks after transplant is a good practice. Be sure to avoid Thiophanate-methyl applications when temperatures are high, as this can lead to some phytotoxicity on the lower leaves.

Poinsettias require calcium, as well as an increased level of molybdenum. Maintain a media EC of 1.5 to 2.0. Keep media pH below 6.7, especially late in the crop cycle, and maintain availability of nutrients during bract development. Apply 200 to 250 ppm N constant feed from balanced feed during the active growth phase, reducing to 75 to 125 ppm N as the crop begins to color, and continue feeding through finish.

TIP: Reduce feed to lower levels as the crop finishes in November.

Pinching

Pinching the plants before the breaks form significantly is critical to support even branching. On very early branching varieties like Christmas Feelings, the pinch should be done on day 12 to 14 after planting. On the other varieties, the pinch should be done when the roots reach the edge of the pot. Late pinching will result in uneven branching.

Pinch to leaf count based on finished specs – for example, 6 to 7 leaves below the pinch to produce a plant with 6 primary bracts. Don't leave too many nodes below the pinch! This can lead to excess branching, wider plants and smaller bracts. Removing 1 to 2 leaves just below the pinch will increase light penetration, promoting stronger and more uniform branching.

Before pinching

After pinching

Branch development after 7 days

CULTURE **GUIDE**

FINISHING GUIDE

Early PGR Application

To reduce internode length, encourage even branching and produce a plant better suited for pinching, apply Cycocel 750 to 1,200 ppm spray or B-Nine 1,000 ppm/Cycocel 750 ppm tank mix spray prior to pinch. Start applications in propagation and continue after transplant as needed.

Apply after pinching when new shoots measure at least 0.75 in./2 cm, and repeat. This will even out the branches and reduce apical dominance.

Flower Induction

Most varieties will begin to induce flowers between September 10 and 25. Light pollution and excessive heat can delay flowering. Blackout and long-day lighting can be used to manipulate maturity dates. Avoid warm nights (above 72°F/22°C) from 1 week prior to initiation through October 10.

Growing On PGRs

Use only PGR sprays, no drenches, until shoots are 2 in./5 cm in length. Use Cycocel 750 to 1,200 ppm spray or B-Nine 1,000 ppm/Cycocel 750 ppm tank mix spray early in the crop cycle to reduce stress and even out the branching. Avoid PGR applications within 1 week of initiation.

Stop PGR applications by October 10 (natural season crop), except for micro-drenches of Bonzi. Use only very low rates (1/10 to 1/20 ppm) during the bract expansion period in October and early November (natural season crop).

You may use late applications of Bonzi drench at 0.5 ppm to improve shelf life. This is best done at full bract coloration, just before pollen shed. Do not apply prior to full color.

TIP: **Be sure to stop B-Nine applications by September 14!**

Spacing and Target Height Control

Crop specifications typically include height, width and bract count. A 6-in./15-cm poinsettia is typically spaced 13 to 14 in./33 to 35 cm on center, with a finished height of 14 to 16 in./35 to 40 cm and a primary bract count of 5 to 6. Establish final spacing before the leaf canopy fully closes. Apply shade if possible right after spacing for a few days to avoid stress. Track height progress through the crop cycle to ensure you're meeting your specifications and apply PGRs as needed.

TIP: **For larger finished plant height, transplant earlier, providing a longer crop time from pinch to initiation.**

Time for late applications of Bonzi drench

A 6-in./15-cm poinsettia is typically spaced 13 to 14 in./33 to 35 cm on center

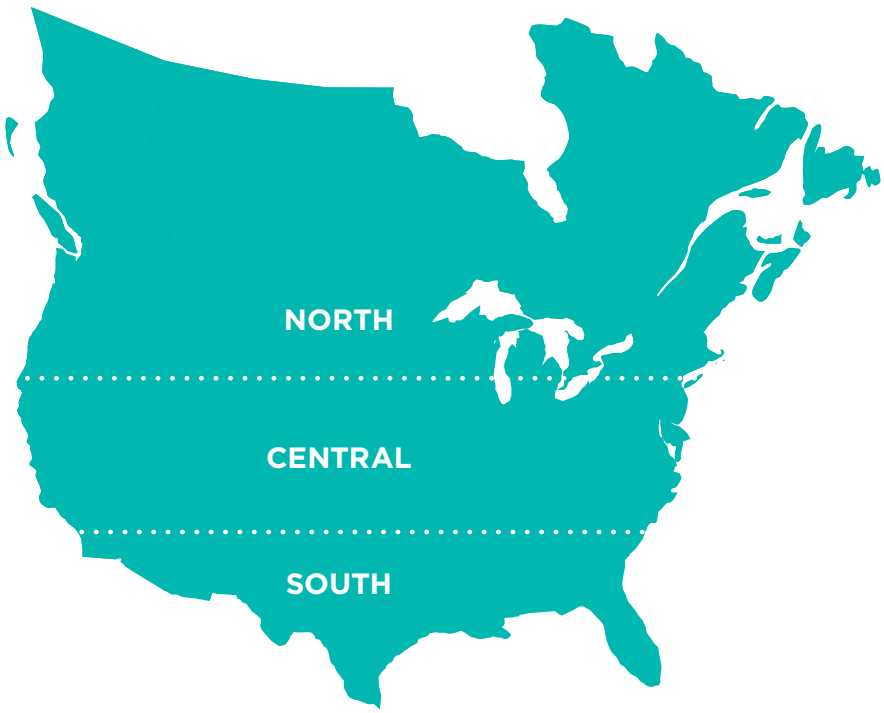
Scheduling Your Poinsettia Crop

Here are two simple steps to help you determine when to order your cuttings.

First, do the math.

Phase 1: Allow 2 weeks from transplant to pinch.

Phase 2: *See the chart below* to determine your weeks from pinch to flower initiation. Note that we've based our timelines on a medium-vigor variety. Varieties with higher or lower vigor may move the pinch dates ahead or behind by 1 week.



AVERAGE WEEKS FROM PINCH TO FLOWER INITIATION			
	NORTH	CENTRAL	SOUTH
0 WEEKS	2″ or Mini (1 plant/pot)	2″ or Mini (1 plant/pot)	2″ or Mini (1 plant/pot)
1 WEEK			4″ pot (1 plant/pot)
2 WEEKS		4″ pot (1 plant/pot)	6″ pot (1 plant/pot)
3 WEEKS	4″ pot (1 plant/pot)	6″ pot (1 plant/pot)	6.5–7″ pot (1–2 plants/pot)
4 WEEKS	6″ pot (1 plant/pot)	6.5–7″ pot (1–2 plants/pot)	8–8.5″ pot (3 plants/pot)
5 WEEKS	6.5–7″ pot (1–2 plants/pot)	8–8.5″ pot (3 plants/pot)	10″ pot (3–5 plants/pot)
6 WEEKS	8–8.5″ pot (3 plants/pot)	10″ pot (3–5 plants/pot)	12″+ pot (4+ plants/pot)
7 WEEKS	10″ pot (3–5 plants/pot)	12″+ pot (4+ plants/pot)	
8 WEEKS	12″+ pot (4+ plants/pot)		

Phase 3: Refer to the charts on pages 22 to 27 to find your weeks from flower initiation to retail-ready crop.

Now, based on your retail-ready date, count backwards to determine at what week you need to order your cuttings.

CULTURE **GUIDE**

FINISHING GUIDE

Insects

Common insects: Whitefly (several species and bio-types), fungus gnats and thrips.

CHEMICAL GUIDE FOR INSECTS

PRODUCT	ACTIVE INGREDIENT	RATE RANGE/100 GAL.	PESTS CONTROLLED	CHEMICAL CLASS	SAFE ON BRACTS	NOTES
Rycar	Pyrifluquinazon	1.6-3.2 oz.	Whitefly	Unknown	Trial First	
Mainspring	Cyantraniliprole	1-8 oz. (foliar); 12 oz. (drench)	Whitefly	28	Trial First	Drench rate is 12 oz./gallon stock solution at 1:100 ratio
Judo	Spiromesifen	2-4 oz.	Whitefly	23	Trial First	
Safari	Dinotefuran	4-8 oz. (spray); 12-24 oz. (drench)	Whitefly	4A	Yes	1-3 weeks after pinch for best control. Drench rate is 12-24 oz./gallon stock solution at 1:100 ratio (Neonicotinoid).
Kontos	Spirotetramat	1.7-3.4 oz.	Whitefly	23	Trial First	
Flagship	Thiamethoxam	2-4 oz.	Whitefly	4A	Trial First	Neonicotinoid
Endeavor	Pymetrozine	2.5-5 oz.	Whitefly	9B	Trial First	
Sanmite	Pyradaben	4-6 oz.	Whitefly	21A	Trial First	
Xxpire	Isoclast Active + Spinetoram	2.75 oz.	Whitefly	4C+5	Trial First	
Avid	Abamectin	8 oz.	Whitefly	6	Trial First	
Avid	Abamectin	4 oz.	Mites	6	Trial First	
Kontos	Spirotetramat	1.7-3.4 oz.	Mites	23	Trial First	
Judo	Spiromesifen	1-4 oz.	Mites	23	Trial First	
Sanmite	Pyradaben	4 oz.	Mites	21A	Trial First	
Overture	Pyridalyl	8 oz.	Thrips	Unknown	Trial First	
Pylon	Chlorfenapyr	5.2-10 oz.	Thrips	13	No	Label states that can cause phyto on poinsettias
Avid	Abamectin	8 oz.	Thrips	6	Trial First	
Conserve	Spinosad	11-22 oz.	Thrips	18	Trial First	
Azatin	Azadiractin	8 oz./gallon at 1:100 ratio	Fungus Gnats	Unknown	Trial First	IGR. Target larvae in top third to half of soil profile
Citation	Cyromazine	2.66 oz./gallon at 1:100 ratio	Fungus Gnats	17	Trial First	IGR. Target larvae in top third to half of soil profile
Safari	Dinotefuran	12-24 oz./gallon at 1:100 ratio	Fungus Gnats	4A	Trial First	Neonicotinoid. Use as curative when larvae causing damage
Parasitic Nematodes			Fungus Gnats			Steinernema feltiae

Note: These are only recommendations; please read and follow labels carefully. Test plants for sensitivity before wholesale use. Environmental factors may affect efficacy and potential phytotoxicity.

Whitefly

Thrip damage

BIOLOGICAL GUIDE FOR INSECTS

CONTROL AGENT	ACTIVE INGREDIENT	RATE RANGE/100 GAL.	PESTS CONTROLLED	SAFE ON BRACTS	NOTES
Botaniguard ES	Beauveria bassiana	16-32 oz.	Whitefly	No	Label states: Do Not Apply after Poinsettia Bract Formation
No Fly WP	Paecilomyces fumosoroseus	28 oz.	Whitefly	Unknown	
Met52 EC	Metarhizium anisopliae	8-32 oz.	Whitefly	Unknown	Do not apply at pressures above 200 psi
Amblyseius swirskii	Predator		Whitefly		
Delphastus pusillus	Predator		Whitefly		
Encarsia formosa	Parasitoid		Whitefly		
Eretmocerus eremicus	Parasitoid		Whitefly		
Eretmocerus mundus	Parasitoid		Whitefly		
Amblyseius andersoni	Predator		Spider Mites		
Amblyseius californicus	Predator		Spider Mites		
Feltiella acarisuga	Predator		Spider Mites		
Phytoseiulus persimilis	Predator		Spider Mites		
Botaniguard ES	Beauveria bassiana	32-64 oz.	Thrips	No	Label states: Do Not Apply after Poinsettia Bract Formation
No Fly WP	Paecilomyces fumosoroseus	28 oz.	Thrips	Unknown	
Met52 EC	Metarhizium anisopliae	8-32 oz.	Thrips	Unknown	Do not apply at pressures above 200 psi
Amblyseius andersoni	Predator		Thrips		
Amblyseius swirskii	Predator		Thrips		
Hypoaspis miles	Predator		Thrips		
Steinernema feltiae	Parasitic Nematode		Thrips		
Orius insidiosis	Predator		Thrips		
Hypoaspis miles	Predator		Fungus Gnats		
Steinernema feltiae	Parasitic Nematode		Fungus Gnats		
Atheta coriaria	Predator		Fungus Gnats		
Gnatrol	Baccilus thuringiensis		Fungus Gnats		

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CULTURE **GUIDE**

FINISHING GUIDE

Poinsettia Diseases and Control

Common diseases: *Pythium* Root Rot, *Rhizoctonia* Stem Rot, *Botrytis* (leaves, bracts, stems), Powdery Mildew (leaves) and Bacterial Leaf Spot

CHEMICAL GUIDE FOR DISEASE CONTROL

PRODUCT	ACTIVE INGREDIENT	RATE RANGE/100 GAL.	PESTS CONTROLLED	CHEMICAL CLASS	SAFE ON BRACTS	NOTES
Daconil	Chlorothalonil	16-22 oz.	Botrytis	5	No	
Chipco 26019	Iprodione	16-32 oz.	Botrytis	2	No	Foliar spray rate listed. Drench rate is different/read label.
26GT	Iprodione	32-80 oz.	Botrytis	2	No	
Pagaent Instrinsic	Pryaclostrobin + Boscalid	12-18 oz.	Botrytis	7 + 11	Yes	Do not combine with organosilicone-based adjuvants (Capsil)
Medallion	Fludioxonil	2-4 oz.	Botrytis	12	Yes	
Milstop	Potassium Biocarbonate	20-80 oz.	Botrytis	NC	Yes	Use lower rates on bracts
Decree	Fenhexamid	12-24 oz.	Botrytis	17	Yes	Will leave some residue on bracts; some sensitivity possible
Veranda O	Polyoxin D	4-8 oz.	Botrytis	19	Unknown	
Pagaent Instrinsic	Pryaclostrobin + Boscalid	12-18 oz.	Rhizoctonia	7 + 11	Yes	Do not combine with organosilicone-based adjuvants (Capsil)
Medallion	Fludioxonil	1 oz.	Rhizoctonia	12	Yes	Sprench/drench rate is 1 oz./100 gallons water
Clearys 3336/OHP 6672	Thiophanate Methyl	16-20 oz.	Rhizoctonia	1	No	
Daconil	Chlorothalonil	16-22 oz.	Rhizoctonia	5	No	
Pagaent Instrinsic	Pryaclostrobin + Boscalid	6-12 oz.	Powdery Mildew	7 + 11	Yes	Do not combine with organosilicone-based adjuvants (Capsil)
Milstop	Potassium Biocarbonate	20-80 oz.	Powdery Mildew	NC	Yes	Use lower rates on bracts
Phyton 35	Copper Sulfate Pentahydrate	15-35 oz.	Powdery Mildew	M1	Yes	Adjust pH to 5.5-6.5
Daconil	Chlorothalonil	16-22 oz.	Powdery Mildew	5	No	
Zyban	Thiophanate Methyl, dithiocarbamate, zinc, manganese	24 oz.	Scab	1 + M3	No	
Spectro 90 WDG	Cholorthalonil/Thiophanate Methyl	16-32 oz.	Scab	1 + M5	No	
Heritage	Azoxystrobin	1-4 oz.	Scab	11	Yes	
Terrazole L	Etradiazole	2.5-7 oz.	Pythium	14	No	Remember to apply appropriate amount of solution based on soil volume of container. The rates listed are oz./gallon of stock solution at a 1:100 ratio.
Fenstop	Fenamidone	7-14 oz.	Pythium	11	No	
Subdue	Mefenoxam	0.5-1 oz.	Pythium	4	No	
Segway	Cyazofamid	1.5-3 oz.	Pythium	21	No	
Phyton 35	Copper Sulfate Pentahydrate	15-35 oz.	Erwinia/Bacteria	M1	Yes	Adjust pH to 5.5-6.5
Junction	Mancozeb + Copper Hydroxide	28 oz.	Erwinia/Bacteria	M1 + M2	No	Be sure spray solution is above pH 6.5 or phytotoxicity is likely
Zerotol	Hydrogen Dioxide + Peroxyacetic Acid	42-128 oz. (1:100-1:300)	Erwinia/Bacteria	NC	Yes	Don't apply in combination with metal-based chemicals

Note: These are only recommendations; please read and follow labels carefully. Test plants for sensitivity before wholesale use. Environmental factors may affect efficacy and potential phytotoxicity.

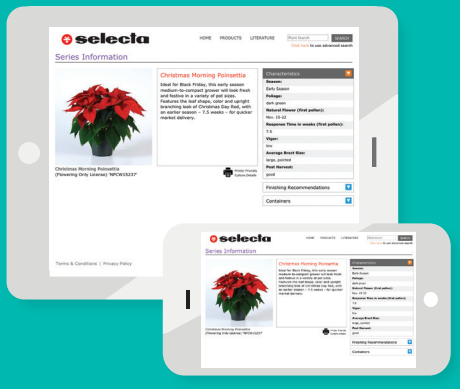
(Left) *Pythium* root rot; (Right) healthy roots

BIOLOGICAL GUIDE FOR DISEASE CONTROL

CONTROL AGENT	ACTIVE INGREDIENT	RATE RANGE/100 GAL.	PESTS CONTROLLED	SAFE ON BRACTS	NOTES
Actinovate SP	Streptomyces lydicus	6-12 oz.	Botrytis	Trial First	Used as a foliar spray
Cease	Bacillus subtilis	64-256 oz. (2-8 qt.)	Botrytis	Trial First	
Milstop	Potassium Bicorbonate	20-80 oz.	Botrytis	Yes	Use lower rates on bracts; trial first
Actinovate SP	Streptomyces lydicus	4-6 oz./100 gal. of finished solution	Rhizoctonia	Trial First	This would be a 4-6 oz. per gallon of stock solution using a 1:100 injector
Rootshield Plus WP	Trichoderma	3-8 oz.	Rhizoctonia	Trial First	Can use granular in place of WP (see label for rates)
Actinovate SP	Streptomyces lydicus	6-12 oz.	Powdery Mildew	Trial First	Used as a foliar spray
Cease	Bacillus subtilis	64-256 oz. (2-8 qt.)	Powdery Mildew	Trial First	
Milstop	Potassium Bicorbonate	20-80 oz.	Powdery Mildew	Yes	Use lower rates on bracts; trial first
Activinovate SP	Streptomyces lydicus	4-6 oz./100 gal. of finished solution	Pythium	Trial First	This would be a 4-6 oz. per gallon of stock solution using a 1:100 injector
Rootshield Plus WP	Trichoderma	3-8 oz.	Pythium	Trial First	Can use granular in place of WP (see label for rates)
Cease	Baccillus subtilis	64-256 oz. (2-8 qt.)	Erwinia/Bacteria	Trial First	
Zerotol	Hydrogen Dioxide + Peroxyacetic Acid	42-128 oz. (1:100-1:300)	Erwinia/Bacteria	Trial First	No residue; many peroxide products to choose from

Note: These are only recommendations; please read and follow labels carefully. Test plants for sensitivity before wholesale use. Environmental factors may affect efficacy and potential phytotoxicity.

MORE CULTURE INFO ONLINE



VISIT

SelectaNorthAmerica.com for more detailed culture information to help you grow your successful poinsettia program.