CULTURE – **FINISHING GUIDE**

Finishing Environment

Day temperatures: 68 to 78°F (20 to 26°C)
Night temperatures: 65 to 70°F (18 to 21°C)

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

PRO TIP
Reduce feed as the crop finishes in November.

Deficiencies

The most common deficiencies are Calcium and Magnesium.

- Lack of Ca causes bract edge burn on poinsettias. Ca moves in water, so high transpiration rates are important.
- Supply Ca in fertilizer; not all "balanced" feeds have Ca. Many growers utilize Calcium Chloride or Calcium Chelate sprays starting in mid-to-late October to help with bract edge burn.
- Elevated pH is associated with higher Calcium feeds and/or water alkalinity. This can result in Mg deficiencies. If pH is above 6.3 in mid-October, supplemental Mg is needed.

Water and Fertilizer

- Maintain even moisture. Dramatic swings from wet to dry can damage roots and contribute to *Pythium* root rot.
- Maintain a media pH of 5.7-6.3. Poinsettia should be grown with a constant liquid feed program of 200-250 ppm N. Cal-Mag feed is recommended, as they need a good source of Ca. Know your water quality to choose correct fertilizer and better manage media pH, as pH above 6.5 can trigger Mg deficiency.
- Maintain a media EC of 1.2-2.0 from a pour-through or 0.8-1.3 for a 1:2. A healthy and active growing poinsettia will consume a lot of fertilizer. If, while consistently fertilizing, you find that media EC is still low — that is okay because modern poinsettias will aggressively uptake nutrition.
- Utilize tissue and analysis to ensure nutrition is adequate. Plus, don't forget the Moly!

Other Deficiencies


Potassium deficiency


Phosphorus deficiency


Calcium deficiency


Calcium deficiency


Nitrogen deficiency


Iron deficiency


Magnesium deficiency


Boron deficiency


Molybdenum deficiency

Where nutrition deficiency symptoms occur on the poinsettia plant

Moisture Management Do's and Don'ts

- Part of a good moisture management program is focusing on building your foundation by creating a consistent language of moisture levels within your growing team. Staying in the middle of the road and quantifying your moisture levels, including knowing when and how much to water, will help keep your crop healthy.
- Avoid growing "dry" in an effort to prevent root diseases, but also be careful of big swings in moisture management or overhead watering late in the day. Providing your team with a planned watering procedure will keep them from having to guess when and how much to water.

Pinching

- Pinching plants before breaks significantly form 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 other varieties, the pinch should be done when the roots reach the edge of the pot. Late pinching will result in uneven branching.
- Pinch according to leaf count, based on finished specs. (For example, leaving 6 to 7 leaves below the pinch will produce a plant with 6 primary 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


Proper water management leads to perfect roots

CULTURE – **FINISHING GUIDE**

Florel Application Prior and Post-Pinch (Florel Sandwich)

- Applications of Florel at rates from 200 to 400 ppm 5 days prior and 5 days after pinch help ensure good branching in varieties and conditions where branching can be inhibited.
- This can cause a "PGR effect" that will continue through the crop cycle. It is not necessary on many new, very free-branching varieties.

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.

Improved habit with proper PGR use

Flower Induction

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

Temperatures

- Ideally, keep day temperatures between 75 and 86°F (24 and 30°C) and night temperatures between 61 and 72°F (16 and 22°C) for optimal plant development.
- Leaves will unfold at the highest rate around 75°F (24°C) average daily temperature (ADT).
- At around 80°F (27°C) ADT, development will slow.
- Keeping the ADT at 68 to 73°F (20 to 23°C) is a good target.
- Providing the correct temperature is especially important after initiation, and high temperatures remain a challenge for poinsettia growth.

Keep ADT at 68 to 73°F (20 to 23°C)

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).
- 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.

PRO TIP

Stop B-Nine applications by September 14.

Spacing and Target Height Control

- Crop specifications usually include height, width and bract count. A 6-in. (15-cm) poinsettia is typically spaced 13 to 14 in. (33 to 36 cm) on center, with a finished height of 14 to 16 in. (36 to 41 cm) and a primary bract count of 5 to 6.
- Establish final spacing before leaf canopy closes.
- Apply shade right after spacing for a few days to avoid stress.
- Track height progress through crop cycle to ensure you're meeting your specifications and apply PGRs as needed.

PRO 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 36 cm) on center

Scheduling Your Poinsettia Crop

Steps to determine when to order your cuttings.

- **Phase 1:** Allow 2 weeks from transplant to pinch.
- **Phase 2:** See the chart below to determine your weeks from pinch to flower initiation. (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.)
- **Phase 3:** Refer to the charts on pages 34 to 39 to find your weeks from flower initiation to retail-ready crop.
- Then, based on your retail-ready date, count backward to determine the week to order your cuttings.

AVERAGE WEEKS FROM PINCH TO FLOWER INITIATION

WEEKS	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)		

CULTURE – **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	Pyridaben	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	Pyridaben	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	Azadirachtin	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 causes 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
BotaniGard ES	Beauveria bassiana	16-32 oz.	Whitefly	No	Label states: Do not apply after poinsettia bract formation
NoFly 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		
BotaniGard ES	Beauveria bassiana	32-64 oz.	Thrips	No	Label states: Do not apply after poinsettia bract formation
NoFly 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 insidiosus	Predator		Thrips		
Hypoaspis miles	Predator		Fungus Gnats		
Steinernema feltiae	Parasitic Nematode		Fungus Gnats		
Atheta coriaria	Predator		Fungus Gnats		
Gnatrol	Bacillus thuringiensis		Fungus Gnats		

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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	
Pageant Intrinsic	Pyraclostrobin + 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 Bicarbonate	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	
Pageant Intrinsic	Pyraclostrobin + 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	
Pageant Intrinsic	Pyraclostrobin + Boscalid	6-12 oz.	Powdery Mildew	7 + 11	Yes	Do not combine with organosilicone-based adjuvants (CapSil)
MilStop	Potassium Bicarbonate	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	Etridiazole	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.

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 bicarbonate	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 bicarbonate	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	Bacillus 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.

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