



Florida Flower Grower

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POINSETTIA PRODUCTION: PART II

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PROPAGATION:

Terminal cuttings four inches long should be taken between September 1-5 and again between October 5-8. Experienced growers may prefer different dates from past experience. On the first cutting date at least two leaves should be left to provide sufficient leaf surface to produce the next lot of cuttings, but this is not necessary when taking the last lot. Cuttings can be taken any time during the day, but they should not be allowed to wilt. Poinsettia cuttings do not have to be taken at a node, as they will root at or between nodes.

Intermittent mist propagation should be used with misting interval set to maintain a thin film of water on leaf surfaces at all times. Shade is not necessary during rooting and may increase time to root, however, if propagating beds are in a greenhouse some light shade may be necessary to reduce temperatures.

A well-drained rooting medium is essential to poinsettia propagation under mist. A mixture of 50% imported peat moss and 50% perlite by volume has proved best in research. Another method is to root cuttings in peat or plastic pots containing the above medium, or one containing 1/3 peat moss, 1/3 perlite and 1/3 soil by volume. This method allows an easier transition from propagation bench to pots or pans.

Poinsettias will root in 14 to 21 days depending on variety. Plants must then be hardened to survive transition from mist bed to pots by reducing mist intervals during the last week of rooting. Plants should not be allowed to wilt during hardening, or after potting since this may cause scorching of foliage or excess leaf drop.

When rooting poinsettias under mist considerable leaching of nutrients from foliage occurs. A good practice, therefore, is to apply some fertilizer while cuttings are still in the propagation bench. Three applications two days apart

applied during the last week of rooting is satisfactory. Use one ounce of 25-10-10 or 20-20-20 per six gallons of water and apply to 25 square feet of bench area in late afternoon 15 to 30 minutes before mist is turned off.

SOILS:

A soil mixture similar to the one recommended for stock plant production is recommended for potting of cuttings (1/2 peat moss and 1/2 sand by volume). Such a mixture will be well aerated, retentive of water and fertilizer, but will not hold excess water that might cause root-rot problems. Five to 7 pounds of dolomite and 2 to 2½ pounds of superphosphate should be added per cubic yard during mixing to obtain correct calcium, magnesium and phosphorus levels.

Soil must be sterilized to prevent contamination with disease organisms. Sterilize with steam (180 degrees for 30 minutes), or methyl bromide at a rate of 1 to 1½ pounds per 2 cubic yards.

EARLY GROWTH:

Plants from the first cutting date should be potted in 2½ or 3 inch pots and exposed to full light intensity as soon as possible without causing injury. Usually plants will be able to withstand full light intensity 6 to 8 days after potting. Adequate spacing must be provided to prevent stretching and spindly growth (check growth regulator section). These plants should be graded by selecting plants of similar height and planting 3 per 6-inch pan about the 20th of October. Plants from the second cutting date should be panned directly when removed from the propagation bench. Some growers may prefer to pot cuttings in 3-inch pots and transfer to pans between November 10-15 to produce more uniform pans, since directly panned poinsettias are less uniform than those grown in pots and then panned.

FERTILIZATION:

Many fertilization schedules have been presented over the years and can be used with success. The following schedule has consistently produced high quality plants at the university during the last three years. To 100 gallons of water add two pounds of 20-20-20 and 2/3 pound of ammonium nitrate, and apply to 1000 six-inch azalea pans biweekly (every other week). For small pots such as 2¼'s, 2½'s and 3's use 2/3 to 1 ounce of 20-20-20 or 25-10-10 per two gallons of water and apply to 8 square feet of surface area (130 to 200 pots). Fertilization should continue on this schedule until plants are moved to market.

WATERING:

Correct watering is very important in production of a high quality poinsettia crop. Plants must not be allowed to dry out or growth will be checked and quality lost. Neither should a grower indiscriminately water because keeping plants too wet encourages root-rots. Plants should be watered whenever soil begins to dry out, but before plants start to wilt and sufficient water should be applied each time to allow for some drainage to occur. If growers water heavily when they do water leaching will reduce chances of excess soluble salts build-up.

Automatic pot watering systems are gaining acceptance and provide an excellent method of removing guess-work in watering of poinsettias.

USE OF GROWTH REGULATORS:

Growth regulators should be used to reduce height of the first lot of cuttings, but are unnecessary for cuttings taken during October. Cycocel (CCC) has given the most reliable research results under Florida conditions. Solutions should be mixed at the rate of $8\frac{1}{2}$ ounces of 11.5% cycocel per 3 quarts of water, and 7 ounces of this mixture applied per 6-inch pan as a soil drench. One application a week after plants are panned should be sufficient. Growers desiring to treat plants while in 3-inch pots should apply 2 ounces of the cycocel and water mixture per pot 1 to 2 weeks before panning. Information on spray applications of cycocel under Florida conditions is unavailable, but research from other areas indicated that a $\frac{1}{4}\%$ solution sprayed on foliage may be satisfactory.

FLOWERING CONTROL THROUGH DAYLENGTH AND TEMPERATURE:

To prevent early flowering of poinsettias they must be lighted with a minimum of 10 foot candles of light at plant height for two hours during the middle of the night from time of potting until October 5 (ten foot candles of light can be obtained on 4-foot beds by placing 75 watt bulbs three feet above plants and 6 feet apart). Outdoor production is more uncertain since temperatures cannot be controlled, therefore, short days should be started 5 to 7 days earlier to be sure plants will be in bloom by Christmas. Number of days is determined by the grower, by calculating average night temperatures occurring in his area during the three months prior to Christmas.

After October 5, plants must be shaded from 6 PM until 8 AM to initiate uniform flower buds. Shading can be discontinued after 3 to 4 weeks, as daylength will then be short enough to allow flower development to continue. With night temperatures in the range of 60 to 65 degrees F. most varieties will be in flower in 75 days from the start of short days. Night temperatures below 60 degrees will delay flowering and temperatures above 80 degrees will reduce flower size and quality.

FINISHING:

Best quality poinsettias are grown in full light. Reduction in light levels during the time plants are initiating flowering bracts will result in quality reduction.

Spacing is important, since this directly affects light levels and stem length. Space plants so that leaves barely touch for crowding reduces light levels and causes stretching and leaf drop.

Poinsettias are sensitive to rapid changes in temperature and will drop leaves if subject to frequent drafts. Night temperatures must be closely monitored to bring plants into bloom at the proper time. Be sure the temperature control is mounted at the same level of plants in the bench.

If one or more plants in a pan is too tall the grower may resort to folding or bending of stems. Folding should be done in late November while stems are still reasonably soft and will bend without breaking. The stem is squeezed together between thumb and forefinger until flattened for a distance double that wanted in height reduction. Stems are then folded back on themselves and tied to hold the 3 stem sections together. Some experience is needed to determine the best place to flatten a stem so plants will look normal after the procedure is complete.

INSECTS AND THEIR CONTROL:*

Insect control is very important in poinsettia production, since quality of foliage and bracts is directly correlated with selling price. All insects should be controlled before bracts appear on plants to avoid spotting or discoloration from use of chemicals.

Whiteflies -- Cygon and diazinon will control whitefly. Cygon should be used at the rate of one pint cygon 2E per 50 gallons of water or one teaspoon per 1/2 gallon. This rate also will control mites, mealybugs and aphids. Diazinon should be used at the rate of 1 pound of 50% WP per 100 gallons of water.

Mealybugs -- Control is similar to that of whitefly.

Spider Mites -- Mites are usually not a problem with poinsettias, but they can be controlled with tedion, aramite, cygon or kelthane. Use tedion 25% WP at 1 pound per 100 gallons of water, aramite 15% WP at 1 to 1 1/2 pounds, kelthane 18 1/2% WP at 1 to 1 1/2 pounds or cygon as listed under whitefly control.

Aphids -- Control is similar to that of whitefly.

Poinsettia Horn Worm -- Control of this insect can be obtained with 2 pounds of 50% WP sevin or 2 pounds of 50% DDT per 100 gallons of water.

DISEASES AND THEIR CONTROL:*

Disease control is important since poinsettias can be wiped out in a relatively short time by some diseases. Sanitation should be carefully monitored to reduce disease problems. All soil, peat, benches, containers, etc. should be sterilized to prevent contamination with disease organisms.

Stem Rot (Rhizoctonia) -- This disease can be serious in poinsettia production and is best controlled by sanitation, sterilization and use of clean cuttings. The disease attacks stems and roots at or slightly below soil level and produces dark brown lesion on stems. Lower leaves turn yellow and drop and roots may be discolored and reduced in size or unaffected. The specific control for this disease is terraclor (PCNB), and one application during the life of the crop is sufficient. The suggested rate is 8 ounces of 75% WP per 100 gallons applied one quart per square foot. For potted plants use 4 ounces per 100 gallons and apply 8 fluid ounces of this mixture per 6-inch pot.

Root Rot (Pythium) -- Pythium attacks roots, causing a reduction in the root system and stunting of plants. Sometimes this rot may extend part way up the stem. Leaves yellow, roots rot and plants are often killed. Conditions most conducive to this disease are low soil temperatures and high soil moisture. Plants should be drenched at 7 to 10 day intervals with dexon 70% WP at 1 to 2 ounces per 100 gallons water for root-rot control.

Root Rot (Thielaviopsis) -- This disease is usually not a problem in Florida, but can be controlled by keeping soil pH in the range of 4.5 to 5.0 and growing temperatures above 60°F. There are presently no fungicides available that will give satisfactory control of this organism other than soil sterilization and sanitation.

* Material and rates are suggestions only, as research information is incomplete on poinsettias in Florida.

Soft Rot of Cuttings (Erwinia) -- This is most prevalent in cutting beds during propagation. Sterilization of the propagating medium and strict sanitation are the best methods of combatting this disease. Propagation medium must be sterilized prior to sticking each batch of cuttings.

Gray Mold (Botrytis) -- Sometimes attacks poinsettias and appears as a mass of gray-brownish spores. This disease can be controlled with captan or zineb at rates listed on the container.

Bacterial Leaf Spot -- This disease was first reported in Florida in 1960. New infections are dull grey to brown and slightly watery, but spots later become chocolate brown to rust colored, measure 1 to 2 millimeters in diameter and are visible on both leaf surfaces. Lesions vary in shape from circular to angular and on some varieties may be surrounded by a pale green-yellow halo. The lesions are often more numerous along the veins and midribs although not confined to these areas. As disease severity increases, the leaves of some varieties turn yellow and drop prematurely. Highly susceptible varieties may be almost devoid of leaves at time of flowering. The best control is to spray foliage with tribasic copper sulfate at 4 pounds per 100 gallons of water.

Poinsettia Scab -- Rarely are poinsettias affected with scab when grown in greenhouses, but they may be severely affected outdoors. Scab appears as conspicuous, raised lesions or cankers on the stem or cane. The lesions are usually circular but in advanced stages they combine to form large, irregular areas. In severe cases the plant will lose its leaves when the stem is girdled by cankers. Cankers may appear also as spots on the leaf petioles. Control may be obtained with maneb, zineb or tribasic copper sulfate.

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To simplify the information in "Florida Foliage Grower", it is sometimes necessary to use trade names of products, equipment and firms. No endorsements of named products is intended nor is criticism implied of similar products which are not mentioned.