POINSETTIA PROBLEM AVOIDER

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The 5 most common problems which I have seen in producing a high quality poinsettia crop are 1) scheduling to insure proper size and break number at flower initiation, 2) shoot breakage during shipping, 3) bract edge necrosis, 4) excessively small bracts and 5) root rot in the postharvest environment or late in the production cycle. The basis for each of these problems and the solutions for each are shown below.

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Scheduling To Insure Proper Size and Break Number:

Plants which are pinched late or after flower initiation often have small bracts and leaves and are excessively short due to a reduced node number. In addition, shoot strength is usually weak. Last year this was a common problem because September was unusually cloudy in many areas of the United States. As a result, plant temperatures were somewhat cooler than usual and plants were smaller at the time of flower initiation than what is typical.

Solution: How fast poinsettias unfold leaves depends on the average daily temperature which they are grown. Table 1 shows the predicted pinch and planting dates for poinsettia crops grown at different average daily temperatures prior to pinching and which vary in the final desired break number.

Table 2 shows the length of time required for plants, after pinching, when grown under a variety of different average daily temperatures to produce lateral breaks with 3 leaves. A shoot should have at least 3 leaves on it at the time of flower initiation if it is to be sold as a 5 inch or greater pinched plant.

To figure out your schedule simply back up from September 20th. For instance, if you would like to grow a 5 break crop at 68°F average daily temperature prior to flower initiation you will need to pinch your crop on September 5th and plant a cutting on August 11th. Remember that newer cultivars such as 'Freedom' will initiate flowers earlier than the older cultivars. Anticipate that 'Freedom' plants will probably initiate flowers on 1 week earlier on September 13.

Shoot Breakage During Shipping:

Shoot breakage during shipping is probably related to the temperature and light quality environment that plants are exposed to immediately after pinching. High temperatures will result in rapid axillary bud and shoot development immediately after pinching. Rapid development after pinching seems to result in weak 'stem joints' and long, weak first internodes.

Table 1. *The number of days needed from planting until pinching to produce plants with various break numbers at various average daily temperatures. To generate this table it was assumed that cuttings had 4 leaves when planted, that pinching resulted in the removal of 2 leaves, that 80% of the axillary buds developed into breaks and that flower initiation occurs on September 20. Times are based on leaf unfolding rate functions published in the following reference: Berghage, R., R.D. Heins and J.E. Erwin, Quantifying leaf unfolding in the poinsettia. Acta. Hort., 272:243-247.*

Final Estimated Break Number	Average Daily Temperature (°F)				
	60	63	65	68	71
4 Breaks	21	18	16	15	14
5 Breaks	28	24	22	20	19
6 Breaks	35	30	27	25	23
7 Breaks	42	35	33	30	28
8 Breaks	49	41	38	35	33

Crowding of plants results in low light which is high in far-red light in the canopy. Low light conditions and light high in far-red light results in a thinner more elongated first internode. In addition, axillary shoot development is inhibited so break number will typically be reduced.

Solution: Make sure that plants are not grown at an excessively high temperature environment or are crowded immediately after pinching. Maintain plants at constant 65-70°F if possible after pinching. In addition, space plants if you can. The strongest joint and internode should be the first one! Later, do not give too much space, as horizontal branches will develop which also break when sleeved.

Table 2. *The number of days required to produce a shoot with 3 leaves after pinching when plants are grown in a variety of average daily temperature environments. Times are based on published in the following reference: Berghage, R., R.D. Heins, and J.E. Erwin, Quantifying leaf unfolding in the poinsettia. Acta. Hort., 272:243-247.*

	Average Daily Temperature				
	60	**63**	**65**	**68**	**71**
Number of days	20	18	17	15	14

Bract Edge Necrosis:

Bract edge necrosis is due to calcium deficiency on the edge of the bract leaves late in crop development. Calcium is not taken up readily when sufficient levels of calcium are not in the medium, when plants are grown in an environment which does not result in transportation (evaporation of water out of the leaves) and/or when excessively high levels of magnesium are in the medium. Calcium is taken up more readily when the plant is actively transpiring, or using water. Low light and/or high humidity environments result in reduced transpiration levels. Low levels of calcium or competition with magnesium for entry into the plant can also result in calcium deficiency.

Solution: Fertilize plants adequately to insure recommended calcium levels are attained. Do tissue tests to insure that your calcium levels in the tissue are also in the recommended range. When you do a tissue test, send in the outer edge of the leaf and not the whole leaf. Do not apply excessive amounts of magnesium to the medium. Grow plants in a low humidity environment especially if light levels are low. Select cultivars which are not prone to get bract edge necrosis.

Small Bracts:

Small bracts are due to pinching the plant near or after flower initiation or from growing a crop at cool temperatures when the bracts are expanding. Late applications of growth retardants will also reduce bract size.

Solution: Do not apply growth retardants after October 15. Control stem elongation with temperature if possible. DIF will affect stem elongation more than bract expansion in most cases.

Bract size increases as temperature increases up to 76°F. The warmer you grow a crop when the bract leaves are expanding, the larger the final bract size will be. Therefore, pay attention to temperatures at the end of October to insure good bract size. Grow you crop at constant 68-70°F the last 2 weeks of October, if possible. After bracts have expanded, temperatures can be dropped to 'color' bracts.

Late Root Rot:

Often poinsettia crops develop root rot late in the production cycle, in the store or in the consumers home. The problem is often aggravated when plants are foiled and, therefore, do not have good drainage. As a result, plants appear wilted and loose the lower leaves. Such root rot is usually due to *Pythium* and/or *Rhizoctonia* infestation.

Solution: Apply a preventative fungicide application for both *Pythium* and *Rhizoctonia* as late in the crop production cycle as possible while still following the label. Late root rot is often a result of *Pythium* infestation due to growing crops cool late in development to enhance bract color. The most effective material for *Pythium* control, based on tests on a seed geranium crops, is Subdue.

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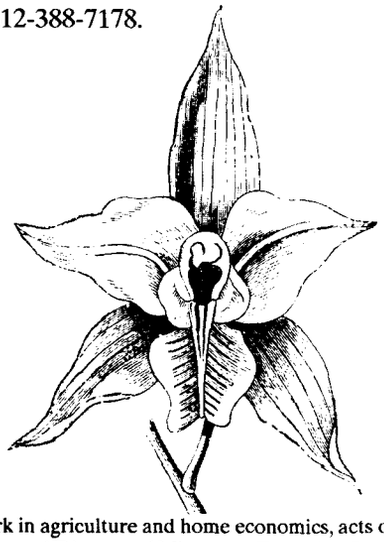

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