

Temperatures for Poinsettias

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Efficient energy utilization for poinsettias suggests precise temperature manipulation. Our poinsettia bulletin (No. NE-235) suggests three stages for optimum growth with minimum energy usage.

In STAGE ONE, rooted cuttings have been potted and are generally grown at 60°F night temperature. For the first part of the crop this is warm enough. Be prepared to supply heat as the nights become cooler.

Some recommendations suggest 65-67°F for this stage of growth. This is essential for later crops in order to establish a good root system. For most crops, this is not necessary. Calculations from the Connecticut Greenhouse Newsletter Special Issue #106 (7/81) heat cost table show that up to an additional \$.05 per 6" pot may accrue during August and September if 65°F is maintained instead of 60°F. Decreasing the temperature gradually to 50° in late November may save another \$.25 per pot.

A temperature below 65°F is essential for proper bud initiation. If you are running warm with a late crop, decrease the night temperature to 60-64°F on September 23. This is the approximate date of bud initiation which is dependent upon cloudy/sunny days to influence the critical day length.

STAGE TWO begins the second week in October. Bracts are forming. During this stage of growth, warmer night temperatures will result in greater bract expansion. Our poinsettia bulletin suggests 60-68° for many cultivars. This might be interpreted to start at 65° about October 10 and increase gradually to 68° about November 1. Then decrease gradually until about November 20 when bract size should be nearly optimal. If weather conditions have been optimal, the temperature could be as low as 60°F by this time. Or simply raise the temperature to 65° for five weeks beginning in the second week of October.

In STAGE THREE, the bracts are large enough. The temperature is lowered about 1° per day beginning in the third week of November. If the dew point is low enough or temperatures are such that a bit of heat is required each night to keep the plants dry, the temperature may be lowered to 55°F or even 50°F. Some bract expansion will still occur. The color of the bracts will intensify markedly at these low temperatures.

It is important to remember that disease, especially Botrytis, may be a problem when temperatures are reduced. The tops of the plants must be kept dry, not the soil. This does not require a computer. During this stage, listen to the weather forecast. If a fairly warm but wet night is predicted, raise the night temperature to something like 5° above the minimum outdoor temperature or 10° above the dew point. We hope that we will some day be able to give you critical values for these figures for specific types of greenhouses.

A word on day temperatures. Normally, one should heat during the day to 5° F above night temperatures. Without CO_2 enrichment of the greenhouse atmospheres, venting should begin at 10° F above night temperature and full vents should be used at a 15° F increase. However, with CO_2 , day temperatures may be allowed to rise to 80 or 85° F before venting. This allows passive heat storage by the greenhouse contents which more than compensates for the cost of CO_2 .

Remember that if the temperature reaches 85° F and venting begins, the CO_2 is turned off and the temperature regime reverts to the 15° F temperature increase.

Manipulating the temperature for poinsettias is a valuable and necessary tool. Assuming an oil consumption of 1.6 gals./sq. ft./year at 60° F night temperature and a cost of \$1.25/gal., the cost of heating a poinsettia crop is about \$.80/sq. ft. for the higher temperature pattern quoted above and \$.65/sq. ft. for the lower temperatures. (This is \$1.20 and \$.95 for 6" pots on 12" centers with 67% bench space efficiency.) The higher temperatures increase energy usage by one quarter (\$.35 per 6" pot). With careful attention to cultural practices, no difference in crop quality should be experienced.

References

1. Faber, William K. 1983. *Poinsettia points to ponder*. Ohio State Flower Growers Hotline III (9):1-2.
2. Koths, J. S., J. J. Maisano, C. A. Salsedo and R. Adams. 1980. *Producing Poinsettias Commercially*. Univ. of Conn. Bul. NE-235 24 p.
3. Seeley, John G. 1983. *Growing with Seeley*. Grower Talks 47(5):14-18.