

Cultural problems with Poinsettias

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Although it is still relatively early in the poinsettia production cycle, with stock plants growing and the first cuttings being harvested, it is a good time to think about the cultural problems growers commonly encounter later in the crop.

Generally classified as physiological disorders, damaged and distorted leaf and bract growth, and premature leaf and flower drop are problems caused by poor cultural practices and/or environmental conditions which stress plants during critical stages of development. Avoiding some disorders requires implementing the correct cultural practices during stock plant production and propagation. Preventing other disorders requires proper environmental and nutritional control later, as the crop approaches maturity.

Sanitation is the number one priority with any crop. Before stock plants arrive or cuttings are propagated and panned, benches, pots, tools etc. must be cleaned and sterilized.

To sanitize surfaces in the greenhouse, first remove loose soil and debris and then treat with a 10% chlorine bleach solution (one part bleach and nine parts water). Although bleach (sodium hypochlorite) is very effective for sanitizing greenhouse surfaces, care must be taken to rinse off residual bleach which will come in contact with poinsettia roots.

Poinsettias which take up sodium hypochlorite will develop black streaks on stem tissue and leaf veins. These symptoms are often accompanied by leaf yellowing or bleaching (chlorosis) and leaf drop. Although chlorine bleach damage is a phytotoxicity problem and not a physiological disorder, it is a condition the grower can easily avoid with proper care.

Stem splitting is the first physiological disorder of concern because it is controlled during the stock plant and propagation stages.

Stem splitting refers to the sudden branching of unpinched plants. If splitting occurs early in the crop, an unpinched plant will produce three branches complete with green leaves, colored bracts and cyathia. Splitting later in the crop will produce a less desirable flower with a wide-open, spread appearance.

Poinsettias split when the stem terminates in a flower bud which aborts and the plant resumes vegetative growth. The tendency to split varies with the cultivar and increases as the plant ages or if a shoot tip is continuously propagated.

Control splitting by lighting stock plants in the spring until May 15. When propagating the fall crop, discard early tip cuttings and only use tip cuttings propagated before July 15 for the production of pinched or multiflowered poinsettias. Tip cuttings on stock plants which are shaded by heavy foliage are more likely to split and should be discarded.

Leaf deformities, including puckering, crippling and distortion, are the next problem of concern in the chronology of the crop.

Deformity symptoms can be highly variable, often occur in mid-September or early October, and appear to be related to a wide range of environmental stresses. Symptoms occur when plants are moved from the propagation area into the production house. Following a pinch the first two to three leaves develop deformities and then normal growth resumes. Often the new growth will cover the deformed leaves and the quality of the finished plant will not be diminished.

Conditions which favor rapid drying, such as a sudden increase in temperature and decrease in humidity, will increase the incidence of leaf deformity. This condition is aggravated by water stress, chemical injury, and both nutrient excesses or deficiencies.

Control leaf deformity by reducing nighttime humidity levels. In the morning, avoid rapid drying by misting or syringing plants recently moved into the production house. Also gradually increase morning temperature to avoid a rapid decrease in humidity.

Bract edge burn, characterized by dead or necrotic tissue beginning at the edges of the transitional bracts and bracts, occurs under cultural and environmental conditions which favor soft, active growth late into the production season. Cultivars which produce large bracts are more susceptible than those with smaller bracts.

Control bract edge burn by reducing the rate of fertilizer applied during the final four weeks of cropping. Also avoid fertilizer formulations which contain 50% or more of the nitrogen in the ammoniacal form. When using slow release fertilizers, use moderate rates (1/4 to 1/2 the maximum recommended rates) and apply the material early enough in the crop to ensure depletion by the final weeks of cropping. Do not use a second applications of slow-release fertilizer. Water thoroughly in the final stages of cropping to help reduce salt build-up.

Botrytis on poinsettias will cause symptoms similar to bract edge burn. Reducing humidity and increasing air circulation late in the crop will help control both bract edge burn and conditions which favor *botrytis*.

Bilateral bract spots or "rabbit tracks" occur in late November or early December as the interveinal tissue on either side of the midrib of

the bracts begin to break down. Bract spots decrease the quality of the crop at a critical stage in development. As with other physiological disorders, there are significant cultivar differences. The incidence of bilateral bract spots appears to increase with high night temperatures (over 70°F), high or changing humidity levels and high fertility at the end of the crop.

Premature cyathia drop, equivalent to flower drop or bud blast in other floricultural crops, occurs when conditions favor high rates of respiration and low photosynthetic activity. The problem increases with increased water stress. Premature cyathia drop causes the plants to appear old and less desirable to the consumer.

The cyathia are the true flower parts (reproductive structures) of the poinsettia. In general, the demand for the products of photosynthesis (i.e. sugars) increases with flowering. Low light levels reduce the amount of sugar produced. High temperatures reduce the available photosynthate even further. Under these conditions the flowers or cyathia abort. Unfortunately the poinsettia flowers during one of the lowest light periods of the year. In addition, as the colored bracts develop, they shade the green leaves of the plant, further reducing the light available for photosynthesis.

Premature cyathia drop can be controlled by scheduling the crop so that most of the growth occurs early in the season before the lowest light conditions occur. To further reduce the conditions which favor cyathia drop, use lower temperatures as light levels decrease and avoid excessive water stress during bract and cyathia development. Remove shade by October and use warmer temperatures early in the crop. High light along with warmer temperatures early in the crop will favor maximum early growth, thus avoiding the need to push growth with warm temperatures later in the cropping cycle.

References:

Ecke, P., Jr., O.A. Matkin and D.E. Hartley. *The Poinsettia Manual*. 3rd edition, 1990. Published by Paul Ecke Poinsettias, Encinitas, Calif.

