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# Evaluation of Poinsettia Cultivars at N.C. State University in 1995


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Our poinsettia evaluation trials have been getting bigger every year and 1995 was a high-water mark with 70 cultivars or numbered selections being evaluated. This report will not describe the entries in great detail, as even the most ardent poinsettia enthusiast could get saturated with that approach, but we do hope the text, the data in the tables and the pictures will be helpful to the readers.

First of all we would like to present our philosophy pertaining to the evaluations. Our goal has been to place all the entries under one set of greenhouse conditions, to plant all the rooted cuttings on one date, pinch every plant on the same date, fertilize all the plants the same way, and to irrigate every plant on the date. Since we wanted to show the original plant shape and size we did not use any growth regulators. We had this philosophy because we only had one greenhouse for the trials, and couldn't have one optimum temperature for some cultivars and another optimum temperature for other cultivars. We always have tried to use conditions and procedures which were attainable by just about anyone who had a decent greenhouse.

The first condition we would like to discuss is temperature. We try to maintain a night temperature of 65 °F, with day temperatures 10 to 15 degrees warmer, for as much of the season as we can. A night temperature of 65 °F often is difficult to achieve in September but we haven't encountered any significant heat delay in flower initiation or development in several years. We do have evaporative cooling.

In 1995 some growers were apprehensive that their plants were not as well developed as they should be at a particular time. We suggest that growers take pictures of cultivars during the poinsettia season, as pictures are much more reliable than memories. Pictures and records for several seasons can be compared, once a file has been developed, and growers can be assured or warned with the evidence. On 9 November 1995 we took a picture of the new white cultivar, Pearl, and we took another photograph of the plant on 5 December 1995 (Figures 1 and 2); and these

*Figure 1. 'Pearl', photographed on 9 November 1995.*

pictures should help us in 1996 and in later years. We also have plant heights at two week intervals, and the dates of bract color, appearance of the primary cyathium, and the appearance of pollen.

A second point we would like to emphasize is the location of thermostats and thermometers in poinsettia greenhouses. Many growers have their plants on the floor but their temperature recorders / controllers are at eye level. The Ph.D. thesis research of Dr. Harold Gray, conducted about 50 years ago, showed that the temperature at ground level in a greenhouse could be 3 to 7 °F cooler than at eye level, and that data still is valid. Many growers who think they are growing their plants at 65 °F could be exposing the plants to temperatures of 58 °F to 60 °F instead. Research has shown that 65 °F is a very good temperature for growth, for flower bud initiation and early development; and the same research has shown that temperatures of 58 °F to 60 °F are not optimum (Figure 3).

A second important factor is photoperiod. Most growers are acquainted with the terrible consequences that occur when stray lights at night shine on chrysanthemum or poinsettia plants that are intended to be in flower. Our poinsettia cultivar trials at N.C. State University are conducted under natural daylengths, as the greenhouse at our Horticultural Field Laboratory is not affected by stray lights. We are pleased that we can use natural daylengths, as most of our growers do not pull black cloth unless they are trying to get some plants in flower earlier in the season, or they also have a stray light problem. Readers should be aware that poinsettia researchers at some other institutions must pull black cloth to avoid the damaging effects of light pollution, and their dates of flowering and growth rates could be quite different from ours.

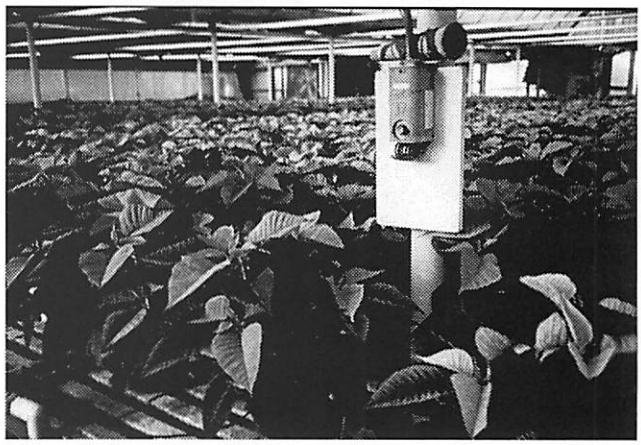

*Figure 3. Thermostats and thermometers should be at plant height.*

*Figure 2. 'Pearl', photographed 5 December 1995.*

There is nothing elaborate about the greenhouse where we do our evaluations, and readers might wonder what the same cultivars would look like if they had been grown in a glass structure. In 1995 we received two shipments of rooted cuttings from the same propagator, so we

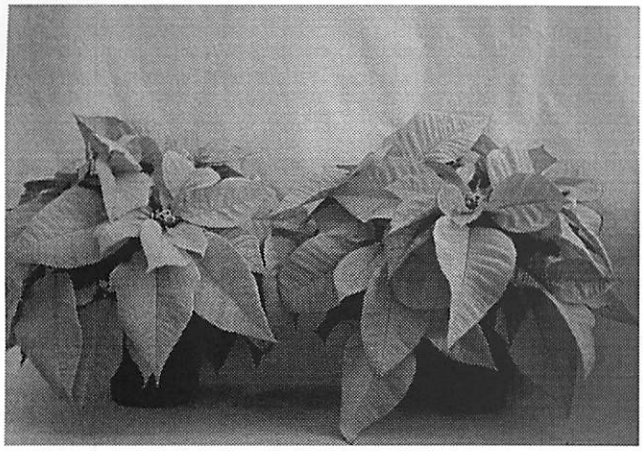

*Figure 4. 'Maren', grown under glass (left) and plastic (right).*

potted the cuttings on the same date and grew the plants under glass and under plastic. Typical results are shown in Figure 4 for the cultivar Maren. The greenhouse covering is important, but there are other factors that probably are even more significant.

Our fertilization program is not at all sophisticated and we do very few of the things that some researchers advocate to avoid bract edge burn or other physiological disorders. We do use more nitrate nitrogen than we do ammoniacal forms, and we use a calcium fertilizer right from the very beginning of the crop; but we never have used a calcium spray to avoid bract edge burn. Experts believe that our fertilization program, coupled with good air movement and good watering practices, have prevented us from being troubled with bract edge burn, but we know that we are not immune to the danger of encountering the problem. We refuse to become complacent or smug. We fertilize once a week with about 600 ppm N, and use calcium nitrate / potassium nitrate for 2 weeks and then use 20-10-20 for one week. We apply an ammonium molybdate drench (2 1/2 ounces per 100 gallons of water) about a month after pinching, and apply an Epsom salts drench (2 pounds per 100 gallons) a few days later. We quit fertilizing around 15 to 20 November, to increase the longevity of the plants after they leave the greenhouse.

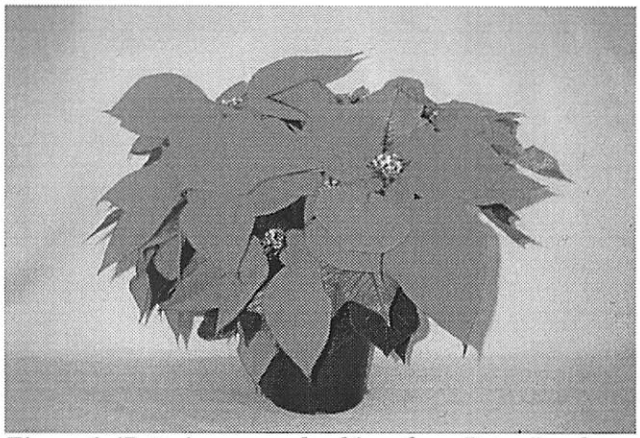

*Figure 6. 'Petoy', a new red cultivar from Peter Jacobsen.*

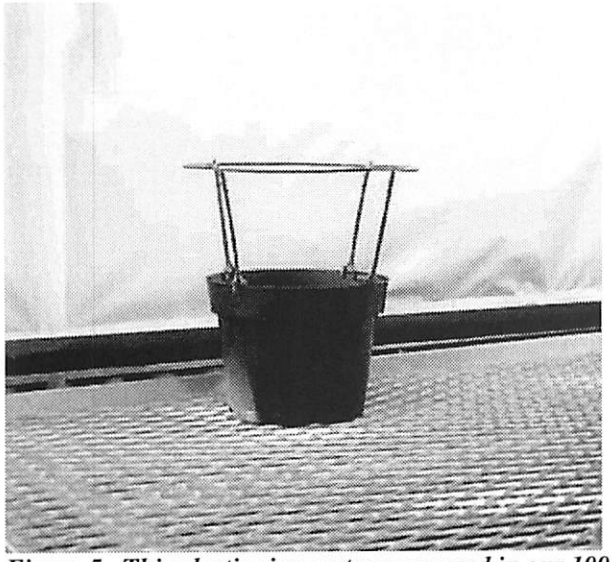

*Figure 5. This plastic ring system was used in our 1995 poinsettia trials.*

For the last two years we have used Fafard 4P and have not encountered any problems. We irrigate almost every day and we prefer that to using a substrate that stays so wet that one doesn't have to water for several days. We want to be in control, rather than have the substrate dictate to us. In 1995 we never used a fungicide drench, and we didn't encounter any root rot problems.

We do not use any chemical growth regulators in our evaluations because we want to know what the natural growth habit is for each cultivar. With the exception of 'Annette Hegg Dark Red' and some numbered selections we did not have excessively tall plants in 1995, even though we did water quite generously.

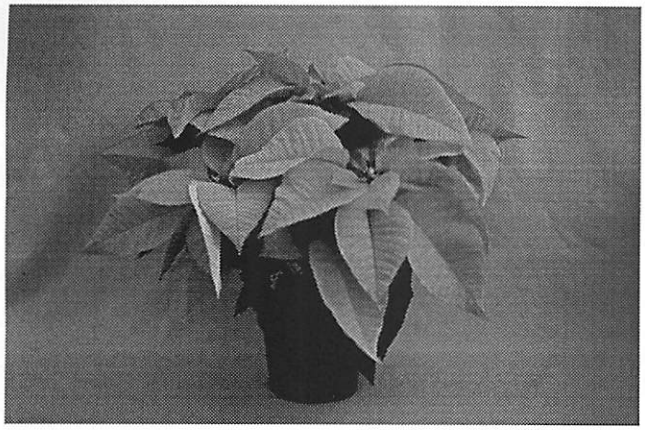

*Figure 7. 'Nutcracker Pink', a new cultivar from Oglevee.*

We believe our longtime established pinch date of 15 September is a primary reason for our growth control. The situation would change if we pinched a week earlier. Shoot breakage can be severe when the shoots are too long, but even shorter ones can break off quite easily on some cultivars. We lessened that problem in 1995 by using the plastic rings which attach to the rims of the pots (Figure 5). We first saw the rings at Homewood Nursery in Raleigh; and Bill and Joe Stoffregen had seen them at Molbaks in Woodinville, Washington. A criticism of the rings has been that the plants look too compact and "squeezed". All the plants shown in the figures in this article had the plastic rings, and readers can decide if the growth habit is satisfactory. We grow our plants on 14" centers so the shoots do have room to spread out, increasing the chances for breakage if some method isn't used to prevent it.

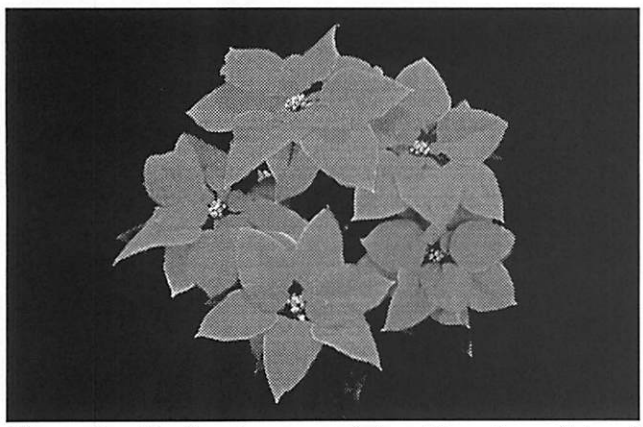

*Figure 8. 'Darlyne', a new pink cultivar from Eduard Gross.*

Once again we used Marathon® for whitefly control and were very pleased with the results. We applied Marathon on 2 October 1995 and never used any other insecticide throughout the season.

In 1995 we evaluated 70 cultivars and numbered selections, but only the named cultivars are listed in the following table. We are not going to describe the different cultivars but we would call the attention of the readers to the article by Jim Barrett and Terril Nell in the February, 1996 issue of GrowerTalks. They have detailed descriptions of many of the cultivars and some of their observations are based on their attendance at our Open House held on 29 November 1995. We have inserted photographs of a few of the latest introductions, and we also have included two pictures taken at our Open House.

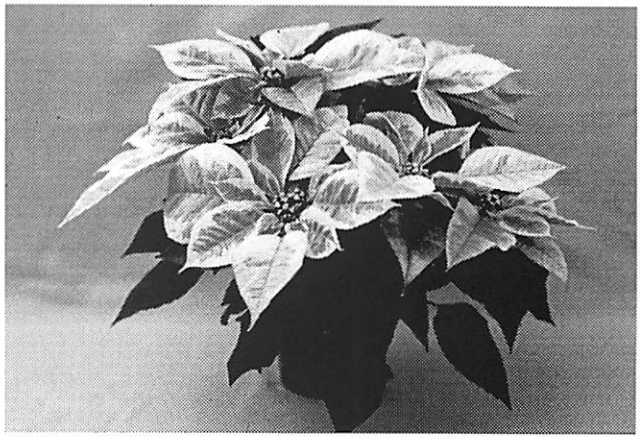

*Figure 9. 'Puebla', a marble cultivar from Fischer.*

*(We would like to take this opportunity to acknowledge the N.C. Commercial Flower Growers' Association and the Poinsettia Growers' Association for their financial support of our Open House. We also express appreciation to the 160 people who attended the event.)*

In Table 1 we have listed the breeders who developed the cultivars, and we also list the

**Table 1. Some poinsettia cultivars as they responded in the NCSU cultivar evaluations in 1995.**

| Cultivar | Breeder | Response group (wks) | Date of first pollen | Final height (inches) |
|---|---|---|---|---|
| **Red Bracts** | | | | |
| Bonita | Fischer | 8.0 | 11/20 | 11.5 |
| Celebrate 2 | Ecke | 9.0 | 11/19 | 13.5 |
| Cortez | Fischer | 8.5 | 11/25 | 12.5 |
| Dynasty Red | Oglevee | 8.0 | 11/30 | 12.5 |
| Freedom | Ecke | 8.0 | 11/14 | 15.5 |
| Jolly Red | Ball Flora Plant | 9.0 | 12/2 | 13.0 |
| Lilo | Ecke | 8.5 | 11/11 | 15.0 |
| Nutcracker Red | Oglevee | 8.0 | 11/25 | 13.5 |
| Peter Star | Peter Jacobsen | 8.5 | 11/18 | 12.0 |
| Petoy | Peter Jacobsen | 8.5 | 11/26 | 14.0 |
| Picacho | Fischer | 7.5-8.0 | 11/18 | 10.5 |
| Red Delight | Mikkelsen | 8.0-9.0 | 11/13 | 14.5 |
| Red Sails | Ecke | 9.0 | 11/28 | 18.5 |
| Red Splendor | Ball Flora Plant | 9.0-9.5 | 12/3 | 16.5 |
| Sonora | Fischer | 9.0 | 11/26 | 11.5 |
| Success | Ecke | 9.5 | 11/28 | 14.5 |
| Supjibi | Eduard Gross | 8.5 | 11/24 | 14.0 |
| V-14 Glory | Gregor Gutbier | 9.5 | 12/3 | 15.5 |
| V-17 Angelika | Gregor Gutbier | 9.0 | 11/25 | 16.0 |
| **Pink Bracts** | | | | |
| Darlyne | Eduard Gross | 8.5 | 11/27 | 13.0 |
| Flirt | Fischer | 8.5-9.0 | 11/19 | 13.5 |
| Freedom Pink | Ecke | 8.0 | 11/18 | 15.0 |
| Nutcracker Pink | Oglevee | 8.0 | 11/24 | 12.5 |
| Pink Peppermint | Ecke | 9.0 | 11/20 | 12.5 |
| Supjibi Pink | Eduard Gross | 8.5 | 11/25 | 14.0 |
| V-14 Hot Pink | Gregor Gutbier | 9.5 | 11/23 | 13.5 |
| V-17 Angelika Pink | Gregor Gutbier | 9.0 | 11/23 | 15.5 |

response group classification for each cultivar. We use the date of the first appearance of pollen to be the date of flowering, and it soon became evident to us that there is great variability among cultivars within the same response group. We used September 25 as a base point and counted the numbers of days from that date to when pollen first appeared for all of the cultivars. Cultivars which were categorized as 8 week cultivars ranged from 50 to 66 days, though according to their 8 week classification they should have flowered on day 56. The other response group cultivars showed similar variability. These ranges are shown graphically in Figure 12. The averages are from 10 plants of each cultivar, and most researchers would have confidence in a mean from such a population. We are not offering any explanations for these ranges within response groups, but we do want readers to know that such ranges existed for us in 1995.

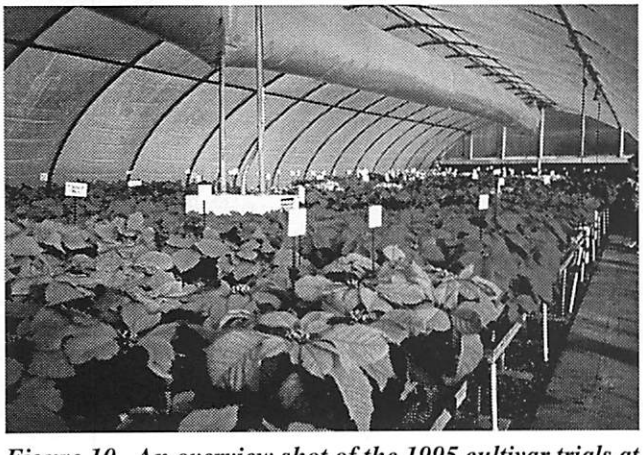

*Figure 10. An overview shot of the 1995 cultivar trials at NCSU.*

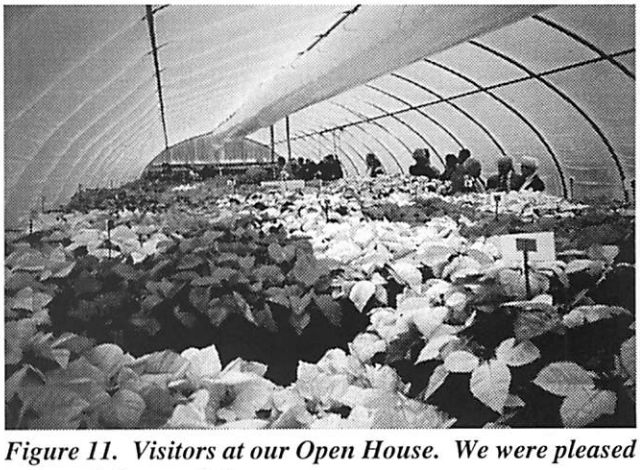

*Figure 11. Visitors at our Open House. We were pleased to have 160 attend the event.*

**Table 1, continued.**

| Cultivar | Breeder | Response group (wks) | Date of first pollen | Final height (inches) |
|---|---|---|---|---|
| **White Bracts** | | | | |
| Freedom White | Ecke | 8.0 | 11/15 | 12.0 |
| Lilo White | Ecke | 8.5 | 11/23 | 17.5 |
| Nutcracker White | Oglevee | 8.0 | 11/26 | 15.0 |
| Pearl | Peter Jacobsen | 8.5 | 11/21 | 11.0 |
| V-14 White | Gregor Gutbier | 9.5 | 12/2 | 13.5 |
| V-17 Angelika White | Gregor Gutbier | 9.0 | 11/24 | 14.0 |
| **Marble Bracts** | | | | |
| Dark Puebla | Fischer | 9.5 | 12/2 | 13.0 |
| Freedom Marble | Ecke | 8.0 | 11/22 | 13.5 |
| Lilo Marble | Ecke | 8.5 | 11/20 | 17.5 |
| Puebla | Fischer | 8.0 | 11/24 | 12.5 |
| V-17 Angelika Marble | Gregor Gutbier | 9.0 | 11/28 | 18.0 |
| **Novelty Colored Bracts** | | | | |
| Freedom Jingle Bells | Ecke | 8.0 | 11/20 | 14.5 |
| Jingle Bells 3 | Ecke | 10.0 | 12/3 | 14.0 |
| Maren | Fischer | 8.0 | 11/19 | 11.5 |
| Monet | Ecke | 9.5 | 11/29 | 14.0 |
| Nobelstar | Fischer | 8.0 | 11/17 | 12.0 |

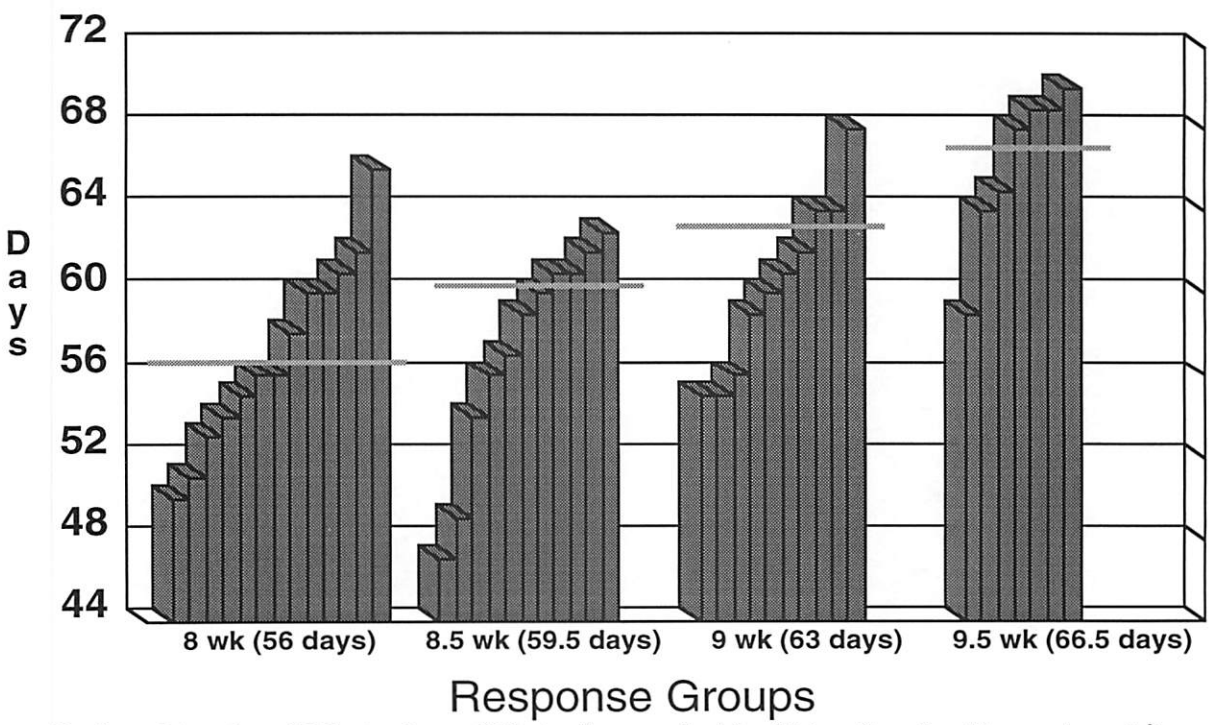


*Figure 12. Actual days from 25 September until first pollen was shed for thirteen 8 week cultivars, eleven 8 ½ week cultivars, ten 9 week cultivars, and seven 9 ½ week cultivars. Timings expected for each response group are indicated by the green bars. Note how cultivars within a response group vary from the expected date for first pollen.*