



# Colorado Flower Growers Association

IN COOPERATION WITH COLORADO STATE UNIVERSITY

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*Mark your Calendar*

*College Day 1957—Wednesday, October 9*

## **Lighting and Shading Chrysanthemums during the Fall and Spring Critical Period**

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There are two critical periods during the year when the nights are neither short enough to cause vegetative growth on chrysanthemums nor long enough to induce flower initiation. The former problem can be solved at little expense by lighting to make certain the darkness period is shortened. However, the use of black cloth at any time when it may not be needed adds to costs of growing.

Various recommendations can be found for lighting and shading during these two critical periods. The extreme, of course, is to light year around plants which are desired vegetative, and shade year around those plants desired reproductive. To find the approximate first shading date for spring and last shading date for fall as well as lighting information, these lighting and shading tests were designed.

### **Fall Critical Period**

Twenty rooted cuttings per variety of Improved Indianapolis, Yellow Shasta

and Blue Chip were planted August 4, 1956 in 10 plots. The plants were not pinched. Plots 1 to 5 were covered with black cloth from 5 p.m. to 8 a.m. beginning August 23. On August 28 the shading was stopped on plot 5 and each week thereafter the shading was discontinued on another plot until September 25. As shading was stopped, the plants received normal daylength.

Plots 6 to 10 were lighted from 10 p.m. to 2 a.m. starting with plot 10 on August 7 and adding a plot each week until September 4. All the lighted plots were given normal daylength after September 18.

The average flowering date was calculated numerically by assigning all flowers cut the first week the number 1, those cut the second week 2, and so on. The lower the average flowering date, the less was the delay by lighting or not shading.

Since the lighted plants did not develop flower buds until after September 18, they were tall and much later than the shaded

of plants. All plants which were lighted produced crown buds followed by vegetative growth. All shaded plants produced terminal sprays. The average flowering times on the ten treatments follow:

SHADED	Mean timing
Aug. 23-Aug. 28	3.47
Aug. 23-Sept. 4	3.47
Aug. 23-Sept. 11	2.68
Aug. 23-Sept. 18	2.37
Aug. 23-Sept. 25	2.31

#### LIGHTED

Aug. 7-Sept. 18	6.18
Aug. 14-Sept. 18	5.79
Aug. 21-Sept. 18	5.57
Aug. 28-Sept. 18	4.79
Sept. 4-Sept. 18	5.36

#### Conclusions

If chrysanthemums are lighted, those planted August 1 should be lighted from the start and lighting continued through the vegetative period, otherwise crown buds will form.

The nights were of sufficient length after September 18 that black cloth treatment could be stopped without delaying the flowering. When black cloth was stopped September 11, the delay was only 2 days (0.3 of a week).

#### Spring Critical Period

Five plots were planted with rooted cuttings of the six varieties Mary Hall, Bonnie, Shasta, Yellow Beauregard, Rubicon, and Indianapolis Yellow on March 10, 1957. Black cloth was pulled over plot 1 on March 18, and an additional plot was shaded each week thereafter. Shading was stopped on all plots May 10, four days before the first flowers were cut. The average weight per stem, the mean length and mean flowering time follow.

There was no significant difference in timing between these shading treatments. Shading 54 days (plot 1), 47 days (plot 2) and 40 days (plot 3) produced identical timing results. Plot 5 which was shaded only 20 days (April 15 to May 10) was delayed in average timing by  $1\frac{1}{2}$  days. All sprays from this test were even flowered.

Shaded	Mean wt.in grams	Mean length stem-inches	Mean flowering time
March 18-May 10	47	20	1.61
March 25-May 10	51	21	1.62
April 1-May 10	51	22	1.61
April 8-May 10	49	22	1.71
April 15-May 10	58	24	1.93

#### Other Observations

Some varieties are troublesome during these critical periods and probably should not be grown at these times. To give an example, Pandora was planted January 20, lighted to February 27 then given normal day length for flowering the first week in May. A number of other popular varieties cut off evenly and on time, but Pandora produced few saleable sprays because of its unevenness of flowering.



Yellow Delaware scheduled to flower May 30. At normal day length, nights are too short in April and May for terminal flower bud development.

The pot plant varieties Yellow Delaware, Oregon, Personality and Blue Ribbon were propagated steadily through the winter and spring of 1956-57. They were lighted one week then given normal day-length and pinched one week later. All propagations made up to mid-February flowered normally. The February 23 propagation (for late May flowering) was the first one in which uneven flowering was a problem.

### *Recommendations*

For varieties in the 9 - 11 week response groups.

#### **Spring--**

No shading should be required in Colorado on crops that are scheduled to flower by mid-May. If plants are to flower after this time, start shading April 8 to 15. Stop lighting after May 30 on plants that are desired vegetative.

#### **Fall--**

Start lighting August 1 or even earlier and light from planting date to avoid crowning.

Stop shading September 11, or 18 if you want to be on the safe side.

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