

North Carolina Flower Growers' Bulletin

Volume 40, Number 6
December, 1995



Official Publication of the North Carolina Commercial Flower Growers' Association

GARDEN CHRYSANTHEMUM CULTURE THE EASY WAY

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For the past several years we have been witnessing the experiences and the plants garden chrysanthemum growers have had. Some growers were very successful and scarcely need an article on garden mum culture. Some growers encountered difficulties, often because they didn't do something when it needed doing, or they did it when it shouldn't have been done. Fortunately garden mums are somewhat "forgiving" plants and success is achieved though failure is justified.

During the winter of 1995 we decided to work with garden chrysanthemums in the spring, summer and fall. We wanted to compare two fertilizer rates and manual pinching versus the use of Florel®. We had heard some of the presentations Peter Konjoian, Andovers, Massachusetts, had made on the use of Florel and we had seen many plants treated with the chemical. Florel seemed to overcome a real hurdle encountered by garden mum growers...

the need for a second manual pinch... but most growers we talked to seemed unaware of its benefits, and seemed cautious about anything that involves ethylene. Such misgivings are understandable, as the consequences of ethylene pollution in a greenhouse can be devastating (Figure 1). The controlled release of ethylene

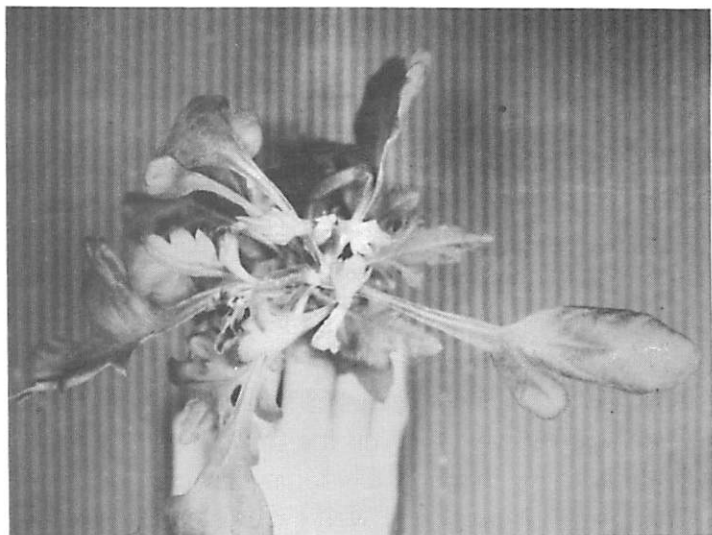


Figure 1. Ethylene injury on a 'Shoesmith' cultivar.

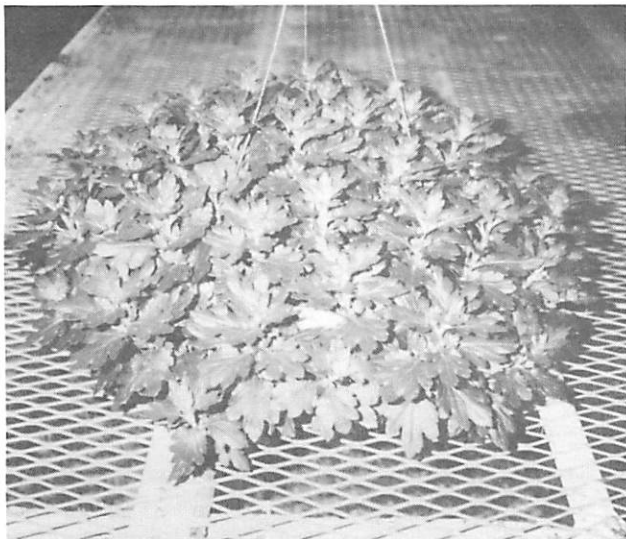


Figure 2. Florel-treated garden mum. Photo taken at C. Merkel and Son, Mentor, Ohio.

from a growth regulator such as Florel (Pistill) can be very helpful, however (Figure 2).

We wanted to make certain that we would use cultivars which were popular so we asked for advice from Ed Higgins, the chrysanthemum project manager at Yoder Brothers, Inc., Barberton, Ohio. We not only asked for advice, we asked for rooted cuttings, and Yoders sent us the following: 'Bravo', 'Debonair', 'Jennifer', 'Jessica', 'Linda', 'Lynn', 'Megan', 'Raquel', 'Tolima' and 'Yellow Triumph'. We planted these cuttings on June 8, one per 8 inch container, in Metro Mix 360. The pots were placed on 18" centers under a saran shade at the Horticultural Field Laboratory. Watering was achieved with a tube connected to a ring in each pot.

We had 100 plants of each cultivar, and 50 received 300 ppm N once a week and the other 50 received 500 ppm N. The fertilizer used was 20-10-20. Osmocote® (14-14-14) was applied as a top dressing two weeks after planting, at a rate of 2 teaspoonfuls per pot. All of the plants in each treatment were given the first pinch on June 26, which was 18 days after planting when root systems were well established. On July 14 half of the plants in each

treatment were manually pinched again, while the other half were sprayed with Florel at 500 ppm.

No insecticides or fungicides were used and the major pest problems were rabbits. They seemed to have a preference for 'Debonair', but that might have been because of the location of that cultivar, which was at one end of the plot. A chicken wire fence corrected that situation. No growth regulators were used other than Florel were used.

Results and Discussion

Plants treated with Florel were delayed in the appearance of flower buds and early development compared to the manually pinched plants (Figure 3), but the differences were not noticeable at the conclusion of the experiment. Plant size was similar for all plants of a given cultivar, and there was very little difference among cultivars. The plants were 16 to 19 inches tall, measuring from the ground to the top of the plant. Flowers were not counted but there seemed to be little difference among treatments (Figure 4). We modestly rated all of the plants as very good, and the plant Ingram McCall is holding (Figure 5), was typical of all of the plants in the experiment.

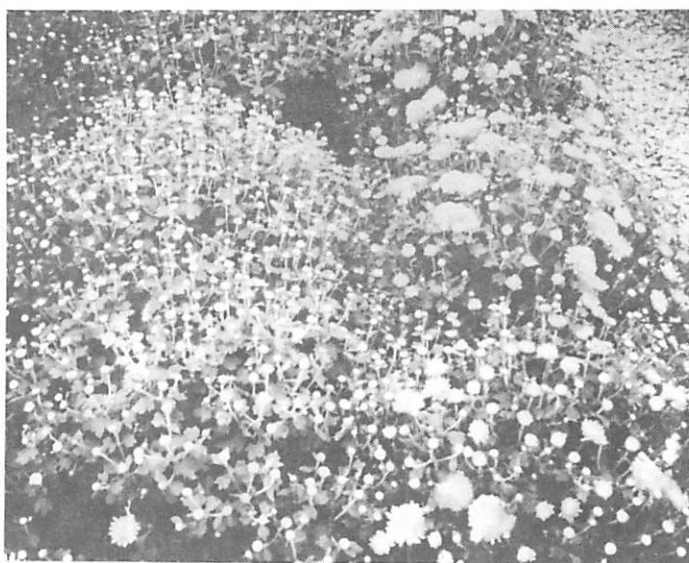


Figure 3. Florel (Left) versus manual pinch (Right). Plants were feed with 300 ppm N. Slide take 25 September 1995..



Figure 4. Although Florel delayed the onset of flower buds and early development, there was no measurable difference in date of flowering between the Florel and manual treatments.

Several applications of Florel have been suggested, to keep the plants vegetative when the grower wants them in that state, and to produce a multitude of breaks. Our plants would have suffered a loss of quality if we had more shoots at the 18" spacing. One application seemed to be very adequate. It also has been suggested that more than cutting be planted in each container, to enable a grower to plant later and still have plants of the desired size and flower number. An early June planting, a mid-June final pinch, and natural daylengths resulted in a flowering period of late September and early October. The Men's Garden Club of Wake County has a large garden mum project for the N.C. State Fair Flower Show, which is held in mid-October.

irrigation system at the Horticultural Field Laboratory.

They planted their cuttings the same week we planted ours, they put three cuttings per pot, and they had to use B-Nine for height control on the same cultivars we grew. Locations of the two garden mum sites are about one mile apart.

There was no advantage in using 500 ppm N, when plants given 300 ppm were of a comparable size and exhibited no deficiency symptoms. There was a definite labor-saving advantage in using Florel.

We wish to acknowledge Yoder Brothers, Inc. for the mum cuttings, Scotts for the donation of substrate and fertilizer, and Dr. Mike Benson, Department of Plant Pathology, NCSU, for letting us use his saran-covered space and his



Figure 5. Ingram McCall with a 'Bravo' chrysanthemum.

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