

## DAY NEUTRAL CHRYSANTHEMUM DEVELOPED

### AT THE UNIVERSITY OF MINNESOTA

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A day neutral chrysanthemum, MN Sel. 83-267-3, was recently developed at the University of Minnesota, Department of Horticultural Science by Drs. Neil O. Anderson, Peter D. Ascher and Richard E. Widmer. It was determined to be a three week short day response group plant. Under increasingly stringent long day photoperiods it was superior to standard greenhouse and garden short day cultivars. This new cultivar can be used as a pot mum, a garden mum or (with night lighting, incandescent or HID, as a cut flower.

MN Sel. 83-167-3 has a semi-double decorative flower type, white flowers, short plant height and is insensitive to heat-delay in flower bud initiation and development. It should be noted that when plants are grown during December through February, with low light levels, the flowers will be uniformly purple under any of the following conditions:

1. 62°F night temperatures (N); long day (LD) photoperiod--natural day length plus four-hour night interruption (NI) with incandescent light (2200-0200 hours).
2. 62°F N, short day (SD) photoperiod (0800-1600 hours).
3. 62°F N, LS photoperiod: natural daylength plus 18 hours of 400 watt HID-HPS light (0300-2100 hours).
4. 55°F N, LD photoperiod: natural daylength plus four-hour NI with incandescent light (2200-0200 hours).

A day neutral and heat delay insensitive cultivar will allow the commercial grower to produce a high quality crop under any daylength and high

temperatures normally encountered in a greenhouse (86° - 102°F). Thus, this cultivar can be grown under a wide range of temperatures and photoperiods inherent with seasonal and latitudinal changes. MN Sel. 83-267-3 should be adaptable to a wider latitudinal (geographical) and seasonal production range than currently available heat-delay insensitive cultivars.

The day neutral character of this cultivar will eliminate the need for greenhouse growers to manipulate the environment to induce flowering. Thus, there will no longer be a need for the use of black cloth to induce flowering. This will eliminate the costs of initial investments in a black cloth system, maintenance and depreciation of this system, and the labor involved in operating the system twice daily. Furthermore, the commercial practices of 2-3 weeks of vegetative growth, followed by 8 or more weeks of short days for flower bud initiation and development would be unnecessary. A day neutral cultivar does not need to be moved into long and then short days for flowering. It could be flowered under naturally occurring long days (spring to fall) and supplemental long day lighting could be added during winter months (low light conditions and short days) or they could be flowered using current production practices until growers phase out investments in existing black cloth systems.

When plants were grown at a constant temperature of 83°F under a 24 hours photoperiod, with 1 cutting in a 4" pot, a commercially salable flowering plant could be reduced in 8 weeks (from the time the unrooted

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cuttings were stuck). The plant did not require pinching or the application to plant growth regulators to control height. Final plant height was approximately 10.5".

Some preliminary results indicate that a Florel application at sticking (when flower buds have been initiated) acts as a chemical pinch. This may eliminate the need for hand pinching in pot mum production. MN 83-267-3 does not require disbudding which eliminates another labor intensive practice of pot mum production.

This new day neutral, heat delay insensitive plant and those which may subsequently arise from crosses made using this plant as a parent should lead to reduced production cost for pot mum growers which may mean higher profits in the future.