

# CONTAINERIZED FALL GARDEN MUM PRODUCTION

(draft copy)

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Chrysanthemums (mums) produced to be planted outdoors in the garden are often referred to as "hardy" mums. The difference in hardiness between different mums is slight. A better term is *garden* mum, since these mums are bred for characteristics which make them useful in the garden, including early flowering and compact plant habit.

According to statistics from the Tennessee Department of Agriculture, the value of garden mums is increasing. In 1987 the value of the crop statewide was \$428,000. In 1990, the value was \$888,000. The average wholesale price per plant was \$1.76.

At one time, garden mums were grown almost entirely in the field, then dug in the fall and sold with a small root ball wrapped in burlap. Some mums are still produced this way, but most are grown in containers. Container grown plants are easier to ship and are preferred by customers because they are less messy. Containers range from 4 inch pots to 2 gallon pots. Regardless of size, be sure the container has adequate drainage holes in the bottom to allow water to drain away quickly.

## **CULTURE**

Rooted mum cuttings for field container production can be planted any time after the first frost up to the third week of July. The earlier the planting the larger the plant will be at sale. Early plantings should be spaced on 18 inch centers or wider. Late plantings are spaced on one foot centers, usually in 6 inch pots.

Plant cuttings as soon as they are received into a well drained potting medium. Do not grow mums in containers in unamended field soil. Any potting medium is acceptable as long as it is well aerated and free of diseases and weed seed. Peat-lite and bark mixes are commonly used. Adjust the pH to around 6.0. Be sure to test the medium before you plant in it. It is much easier to make changes before planting than after.

Plant the cuttings shallow. Some cuttings may tip over after the first irrigation, but development is faster with shallow planting. Most growers plant one cutting per container, but late plantings of two or more cuttings in a large container will make excellent plants.

Begin fertilization immediately after potting. Either top-dress with a slow release fertilizer such as 14-14-14 or use a liquid fertilizer at 250 ppm of nitrogen from a balanced fertilizer. Test the medium frequently to determine if fertilizer requirements are being met. Early planted mums may need a second application of slow release fertilizer if that option is chosen. Stop fertilization 2-3 weeks before sale of the crop.

Water the plants before they wilt. Wilting will reduce plant size and the number of branches. Automatic irrigation systems will reduce labor requirements. Overhead irrigation is acceptable, but tube or drip irrigation uses the least amount of water, and are less likely to promote disease since the foliage stays dry. Water thoroughly when needed, then not again until the medium begins to dry.

Mums are pinched to increase the number of branches and the number of flowers. Premature buds ("crown buds") often form which should be pinched out to get the maximum growth. The first pinch should be made about 2 weeks after planting. Pinch far enough down the stem to remove any flower buds which have formed. Often the first pinch is the hardest pinch.

Mums are pinched as often as practical after the first pinch. The best plants are pinched as they need it, not by an arbitrary schedule. If labor is available, pinch whenever new shoots have grown 1 to 2 inches. If a bud is seen on the new shoot, make a hard pinch. Otherwise, make a soft pinch. To stay on schedule, the last pinch must be made before the last week of July.

A fast crop schedule is also possible which does not require pinching the plants. Simply plant the cuttings in the last half of July, fertilize heavily and allow all growth to develop. These plants are smaller than others but require less labor. See your cutting supplier for more information and cultivars suitable for this schedule.

Be sure to space the plants adequately. Plants which grow into each other will have poor form and may develop diseases.

## **FLOWERING**

Mums form flower buds when the days are short and the nights are long. This is why these plants bloom in the fall but not in the summer. It is important to remember that the length of the night determines if the plants will bloom. Any light reaching the crop during the night will be sensed by the mums as shortening the night. It is for this reason that flowering of mums will be delayed if light from street lights, car lights, store lights or other lights reach the crop at night.

Garden mum cultivars are classified according to the length of time it takes the plants to bloom after short days are begun (response time). Some cultivars flower six weeks after short days begin. Others require seven or eight weeks. Growers should consider the response time when scheduling. When all plants are grown under the same daylength, six, seven and eight week cultivars will flower approximately one week apart. Exact flowering date is also determined by weather conditions.

## **SCHEDULING**

The date of flowering is determined by the cultivar (response time), environmental conditions, pinching dates and many other factors. Sales representatives from companies supplying cuttings will customize a production schedule for your needs. Without modifying the daylength, mums flower in Tennessee beginning the second week of September.

Earlier flowering is possible by pulling a light-tight cloth over the plants to prevent light from reaching the plants. This creates an artificially short day. High temperatures under the cloth can prevent flower bud formation.

Early season mums are almost always produced in the greenhouse to allow better environmental control. By drawing air through cooling pads over the crop under the black cloth, it is possible to avoid heat delay. Another technique is to pull the cloth late in the day (8:00 pm) then not reopen the cloth until 9:00 the next morning. This avoids pulling the cloth during the hottest part of the day.

## **CULTIVARS**

Garden chrysanthemum cultivar trials are conducted at the University of Tennessee every few years. Forty eight cultivars were trialed in 1987-88; 89 in 1988-89 and 30 in 1995. Height, width, flower date and rating were recorded. Copies of the reports may be requested through your local UT Extension office.

## **PROBLEMS**

**premature flower buds:** Garden mums will form flower buds prematurely if the plants are not growing vigorously, regardless of the length of the day. When a flower bud is formed prematurely, no further vegetative growth takes place at the shoot tip and new growth will begin at a lower node. It is best to avoid premature bud formation. If mums are kept growing vigorously they are less likely to set bud prematurely. Be sure the plants always receive adequate water and fertilizer.

**wind damage:** Container-grown plants are subject to tipping in the wind. If not placed upright immediately the plant will bend upward and become misshapen. There are several approaches to avoiding this problem. Some growers add a handful of gravel to the bottom of the pot before planting to increase the weight. This can reduce the drainage however. Another approach is to reduce the wind velocity by placing snow fencing or similar materials at regular distances as windbreaks. A third approach is to anchor the pots in some way. Some growers make a framework of wood or wire to keep the containers from blowing over. Others have used stakes with a hook at the top to pin the pot to the ground.

**insects:** A variety of insects can feed on mums. Aphids, mites, caterpillars ("worms"), leafminers and thrips can cause problems. The most important control measure is frequent observation of the crop to watch for developing outbreaks. Call your local UT Extension Service office for control recommendations.

**diseases:** Cultural control of diseases is the best approach. Use well drained medium to reduce the possibility of root rot. Space the plants far enough apart to get good air movement around the plants to avoid foliage diseases. Do not irrigate late in the day for the same reason. Be sure the growing area drains well so the plants do not stand in water. Start with disease-free cuttings from a reputable propagator.

**weeds:** One of the most difficult parts of field production of mums is control of weeds. The best approach is to clear the area to be used for production well in advance, using a systemic herbicide such as Round-up. After the weeds have been killed a mulch will limit the number which regrow. Gravel and fabric weed barrier mats are popular since

they also limit splashing of mud and allow working in the field sooner after a rain. Some mechanical control of weeds is inevitable. A frequent walk of the field with a hoe will control most weeds which escape other control methods. As a last resort, herbicides can be used. Surflan, Fusilade, Dacthal, Devrinol and Treflan have been used by growers. Always follow label recommendations. Do not use these herbicides in greenhouses.

### **CUTTING SOURCES**

Ball 1-800-879-2255; CASSCO 1-800-933-5888; Gloeckner 1-914-698-2300; Hummert's 1-800-325-3055; Michell's 1-215-265-4200; Vaughan's 1-800-323-7253; Yoder's 1-800-321-9573

Mum Prod. crop file