

## Garden Chrysanthemums

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Site selection, soil preparation, planting and care of chrysanthemums are covered here.

Chrysanthemums (*Dendranthema x grandiflorum*) are one of the most popular plants for late summer and fall flower gardens (Figure 1). They come in a range of plant sizes, flower types and flower colors. The chrysanthemum flower is technically a composite of many individual flowers (florets). The central florets, called disk flowers, have no petals. The outer or peripheral florets, called ray flowers, have a single petal. A composite flower may be composed of all ray florets, a single outer row of ray florets, or any combination of ray and disk florets. Daisy-like chrysanthemums have disk flowers present with a row or two of ray florets on the outer edge. Chrysanthemum plants are extensively sold as flowering potted plants in the fall for landscape beds or outdoor containers. They can add quick color to a fall landscape. They also can be purchased as potted plants for special occasions. However, these plants usually require special pre-flower treatments to promote flowering. Many chrysanthemum cultivars are not reliably winter hardy in Nebraska and, therefore, are used more as fall flowering annuals. Flower colors include white, yellow, orange, bronze, red, purple and pink. Terms used to describe chrysanthemum flower forms include:

- *Incurved* — ray florets tend to turn upward and inward
- *Reflexed* — ray florets turn outward and downward from the center of the flower
- *Anemone-Centered* — having a prominent center of disk florets which can be described as having a central “pincushion” effect
- *Single* — daisy-like flowers, with a flat, central “eye”
- *Pompon* — small, stiff, almost globular flowers
- *Decorative* — large showy flowers
- *Spoon* — ray florets are spoon shaped
- *Spider* — ray florets are long and tubular with hooked ends
- *Quill* — ray florets straight, long and tubular
- *Novelty* — feathery or plume-like ray florets



Figure 1. A single-type mum displays a daisy-like central eye. Its petals resemble quills — long, straight, and tubular.

Plant size can vary from just a few inches to 3 to 4 feet tall. Many of the taller varieties have large flowers and work well in floral arrangements. Almost all chrysanthemums keep well as cut flowers, either as single flowers or as sprays. Floral preservatives also may be used to further extend the life of cut chrysanthemum flowers.

Hundreds of cultivars of garden chrysanthemums are available to choose from, but, because of various climatic and soil conditions across Nebraska, not all cultivars perform equally well in all locations. Plants tend to bloom earlier and generally are smaller in western than in eastern Nebraska. Visiting garden centers and gardens in your vicinity will give you good information on cultivar selection.

### Site Selection

Chrysanthemums develop best where they receive at least six hours of full sun per day. Plants grown in shade or semi-shady locations tend to grow taller (be leggy), have weaker and fewer stems and smaller flowers. Avoid planting

**Figure 2.** “Lord Harrington.” A decorative mum suitable for cutting.

in areas where there will be competition with trees for light and water.

Chrysanthemums require well-drained soils because of their relatively shallow root system. In poorly drained soils, soil-borne diseases may injure plants during wet summer periods, while winter-kill is likely if water stands around crowns during occasional winter thaws. Depressions that might collect water should be leveled. Make sure planting beds have adequate soil drainage.

### Soil Preparation

Spading soil to a depth of 8 to 12 inches before planting chrysanthemums provides favorable conditions for chrysanthemum growth by improving soil aeration and reducing soil compaction. Adding organic materials such as well-rotted manure, leaf mold or peat moss improves soil structure and water holding capacity of the soil. It may be necessary to add fertilizers prior to planting when a particular soil is deficient in some element. Nitrogen is the element most likely to be lacking in Nebraska soils. Some soils may need additional phosphorus. A soil test may be helpful if a nutrient deficiency is suspected.

Plants can be fertilized with a complete garden fertilizer four weeks after planting and again just prior to floral bud opening if they are not growing vigorously. Excessive fertilizer causes elongated, leggy growth, more lodging and fewer flowers.

### Planting

The most common method of acquiring chrysanthemums is by purchasing potted plants. When purchasing plants, select those with unopened buds or plants just starting to flower. Avoid plants with discolored foliage, fading flowers or damaged stems. Plants also can be started by cuttings or from divisions.

Potted plants should be set with the upper surface of the soil ball slightly below ground level. Rooted cuttings should be planted 2 to 3 inches deep. Larger plants in various stages of development may be planted anytime from early

spring to early fall. However, later planted plants generally have fewer flowers. Plants should be spaced 15 to 24 inches apart. Mulching can help reduce soil water evaporation and also reduce weeds. However, chrysanthemums do not like “wet feet” so avoid over-mulching, which can retain too much moisture around the plants.

Established plants can be divided in spring when early growth has started and after the danger of a hard freeze is past. To divide a plant, lift the clump out of the soil. The clump will consist of one to many rhizomes or “suckers,” each connected to the old plant by a fleshy stem. Select the best rooted, most vigorous “suckers” and cut them away from the rest of the clump. Replant the rooted “suckers” at the recommended spacing in newly prepared soil. Discard the rest of the clump.

Some varieties grow well year after year without resetting. Others should be divided and reset every year to maintain vigor. On average, resetting plants every other year is a good practice. Most chrysanthemums are commercially propagated from cuttings (*Figure 2*).

### Culture

Newly set chrysanthemum plants should be kept uniformly moist, not wet, during establishment. Do not let established plants suffer from lack of water, but over-watering also should be avoided. One good watering or rain per week, the equivalent of 1 inch of water, usually is adequate.

Shallow cultivation to keep weeds down is desirable. A light cultivation, at least every two weeks, is advisable. Deep cultivation close to the plants is not recommended, since considerable root and rhizome damage may occur.

Pinching or removing the top 1/2 to 1 inch of terminal growth helps develop well-branched, strong-stemmed, vigorous chrysanthemum plants (*Figure 3*). Pinching also improves spray formation of the flowers. Pinching should be started when plants are 5 to 6 inches high and continue as new shoots reach 4 to 5 inches long. Pinching after approximately June 20 can delay flowering.



**Figure 3.** A button mum with sprays of flowers on branched stems.



Figure 4. "Stadium Queen." A decorative football mum benefits from "disbudding" to produce one large terminal flower.

Disbudding (*Figure 4*) is a practice that produces one large terminal flower. One terminal bud is allowed to mature on each stem and others are removed. Disbudding works best on large standard and exhibition-type chrysanthemums. Disbudding is different from pinching in that one bud is left on each stem, whereas pinching removes all the buds.

Some chrysanthemums (such as those grown in shade and certain tall cultivars) need support to keep them from lodging, or falling over. Plants can be supported by driving a stake into the ground several inches from the plant and loosely tying the plant to the stake with soft twine or similar material. Stakes should be put in place early in the season so that new foliage growth can hide the stake.

Late flowering of chrysanthemums may be caused by using an inappropriate cultivar, insufficient sunlight, too much artificial light, excess fertilizer, too much or too little water, late pinching or late planting. Root competition from nearby trees, unusually hot weather in August, or insect and/or disease injury also may delay flowering.

Winter hardiness of chrysanthemums can vary from extremely hardy to non-hardy. Several methods are available

to winterize non-hardy chrysanthemum cultivars. Non-hardy chrysanthemums can be dug in the fall after flowering is complete and planted in a cold frame. Mulch these plants with leaves or straw when temperatures drop below freezing, cover the cold frame with boards or plastic, and then cover the entire storage unit with 6 or more inches of mulch. Another method is to remove some rooted "suckers," or rhizomes, from around the base of the plant, place them in pots, and carry them through the winter as houseplants. Pinch occasionally to maintain plant shape.

Even the so-called "hardy" chrysanthemums may not consistently over-winter in Nebraska. Loose mulches, such as leaves, may increase winter survival. Plants should be mulched in late fall and removed in early spring. Mulches applied and used improperly can damage new rhizomes as they emerge. Studies also have indicated that leaving on the tops of the chrysanthemum plants over winter can increase winter survival.

Chrysanthemums usually have few insect/mite problems. Aphids, leafhoppers, spider mites, grasshoppers and leafminers occasionally injure plants. Correctly identify any insect before insecticides are applied. Small numbers of insects and/or mites may not cause enough injury to warrant chemical control.

Chrysanthemums are generally not susceptible to diseases if they are vigorous and well cared for. Proper cultural practices help prevent diseases. Stake tall plants to keep branches off the ground, plant disease-free stock, control aphids and leafhoppers which may transmit viral diseases and mycoplasmas such as aster yellows, and avoid handling diseased plants. Resetting beds yearly or every other year will help reduce diseases.

Remove dead or diseased leaves, stem and flowers, plant in well-drained sunny locations, space plants properly and water in the morning or afternoon so leaves dry before dark.

Chrysanthemums can add pleasing, bright colors to the fall landscape. Their versatility and variety make them valuable in many settings, both outdoors and indoors.

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