



## Department of Horticulture

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Purdue University Cooperative Extension Service • West Lafayette, IN

# Chrysanthemums

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The garden mum, *Chrysanthemum sp.*, has long been known as the “Queen of Autumn”. It provides flowers of various sizes and shapes and in many shades of yellow, orange, red, purple, bronze, pink, and white.

The chrysanthemum was cultivated in China more than 2,000 years ago. It has been the national flower of Japan for several hundred years. In America, the chrysanthemum has been hybridized extensively. The result has been the popular cultivars of garden and florists type mums of today.

## Types

Chrysanthemums are classified according to shape and arrangement of petals. The following are the major types and their characteristics:

- Single** - Daisy-like flowers with one to five rows of long petals radiating from a flat, central “eye”; nearly all cultivars are hardy.
- Pompon** - Small, stiff, almost globular flowers; some hardy cultivars.
- Cushion** - Often called “azalea” mums; early flowering; grow on low, bushy plants; most cultivars are hardy.
- Anemone** - Flowers like single mums, but with a rounded crest of deeper colored petals; most cultivars hardy.
- Decorative** - Flowers “incurved” (close, regular petals curving toward flower center), “incurving” (loose, irregular petals curving toward flower center) or “reflexed” (all petals curving away from flower center); many hardy cultivars.
- Spoon** - Petals spoon-shaped; some hardy cultivars.
- Spider** - Petals long and tubular with hooked ends; few hardy cultivars.
- Quill** - Petals straight, long, and tubular; few hardy cultivars.

Single, pompon, cushion, and anemone types normally are small flowered garden mums; usually, they are cultivars selected to bloom before killing frost. Mums with blossoms over 3 inches in diameter are large flowered. Often referred as florist’s mums, these are grown under greenhouse conditions and they may be single, anemone, decorative, spoon, spider, or quill types. Florist’s mums may be planted outdoors for rebloom in autumn, but are not likely to survive Indiana winters.

## Propagation: What to Plant

You can start mums from new plants, divisions from old ones, rooted cuttings, or seed. All of these methods will provide big, blooming masses of vivid color by autumn and years of pleasure.

### Cuttings

There are many commercial florists who specialize in the propagation and selling of garden cultivars. Not only can these specialists produce cuttings more economically than most individuals, but the cuttings are more uniform in size and quality and are normally free of insects or diseases. Plants may be obtained as rooted-cuttings or in pots. Rooted cuttings are generally cheaper than potted plants and may be satisfactory for direct planting to the garden. They must be properly watered, shaded, and given special care until they become well established. Potted plants can be transplanted at anytime during the growing season.

### Division

Chrysanthemum plants, unless reset annually, seldom produce as good a crop the second year as they did the first; they become too crowded. This crowding condition is caused by the production of underground suckers. These suckers make excellent divisions for spring propagation. Therefore, the best time to dig, divide, and replant is 3 to 4 weeks after the last killing spring frost or after considerable new growth has been developed. The new shoots, or divisions, should be planted individually in the garden or bed about 18 to 24 inches apart.

### Seeds

Seeds are used only for the production of new cultivars, because seedlings do not come true or bear all the same characteristics as the parents. Seed may be gathered in the fall, stored over winter, and planted in specially prepared, protected seedbeds in early spring and then reset in the garden like other garden perennials. They should bloom the first year.

## Where to Plant

Chrysanthemums are well suited for most garden areas that provide full sunlight and free circulation of air. They are usually grown in formal beds, garden borders, or in rows in the garden for cutting.

## When to Plant

The best planting time is late spring when peonies and iris are in bloom - usually in mid-May. Fall planting has not proven very satisfactory throughout most of Indiana, although some container grown plants may overwinter with adequate winter mulch.

## Soil and Its Preparation

Chrysanthemums will grow very satisfactorily in most well-prepared garden soils, if it is well-drained. A well-drained soil is a must, particularly if the plants are to be retained over winter. They also respond best if the soil is slightly acid (pH 6.5) and if it contains considerable humus in the form of peat, leaf mold, or well-rotted manure.

Chrysanthemums are heavy feeders and normally respond very favorably to the addition of one or two light applications of a complete fertilizer such as 10-10-10, applied at the rate of 5 pounds per 100 square feet of garden area. The first treatment is best applied and incorporated into the soil just before planting. The second application may be applied during midsummer and cultivated into the soil.

## Blooming Time

Chrysanthemum flowering is determined by a combination of day-length and temperature. Most cultivars begin to develop flower buds when days are less than 12 hours long. They flower in a period of weeks (6-8 for most garden cultivars) after flower development begins. Some cultivars are not as responsive to day-length and may begin flower development early in the summer in response to heat. It is a combination of these environmental factors which determines the bloom time for a given mum cultivar. Catalogs usually list cultivars as early, mid-season or late types.

## Watering

Chrysanthemums will usually survive short-term drought, but they are responsive to irrigation during dry weather. For watering to be economical and most effective, it must be thorough and timely. The soil should be completely soaked to a depth of 5 to 6 inches. Frequent, light watering should be avoided, for this causes shallow root formation

and makes conditions more favorable for spread of diseases, such as mildew, Septoria leaf spot, and Verticillium wilt. Water should be applied directly to the soil, keeping the foliage dry.

## Pinching

In order to have sturdy, well-branched plants, it is advisable to remove their terminal shoots once or twice during their early growth. To pinch, simply remove about 1/2-1" of stem back to a leaf. The first pinching should be done when the plants are about 6 inches tall (about mid-June) to induce lateral branches. As soon as these lateral branches become 6 to 8 inches long (about mid-July), they, in turn, should have their tips removed to induce more branching. This procedure may seem drastic, but the results will be bushy, well-shaped, flowering plants.

## Winter Protection

Many garden chrysanthemums are generally referred to as hardy, although high mortality may be experienced following extreme winters. For this reason, plants that are to be carried over winter should have winter protection in the form of a mulch. The purpose of the mulch is to keep the soil uniformly cold after it has become frozen, eliminating alternate freezing and thawing and the resulting soil heaving. The best time to apply a mulch is late November or early December after 2 or 3 episodes of temperatures below 20°F. Winter injury is most common in poorly-drained soils.

## Insect and Disease Control

Chemical control of insects and diseases of mums is often unnecessary when only a few plants are being grown. However, a majority of the insects and diseases that afflict chrysanthemums can be controlled through the regular use of a "general-purpose" spray or dust designed for use on flowers. Such preparations are a combination of several different insecticides and fungicides, each selected for its ability to control a certain pest or disease. General purpose sprays are available at garden supply stores. These materials should be used according to label recommendations.

For more information on garden mums, visit the National Chrysanthemum Society's web page at <http://www.mums.org>.

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For more information on the subject discussed in this publication, consult your local office of the Purdue University Cooperative Extension Service.