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### G74-189 Growing Dahlias

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## Growing Dahlias

Propagation, culture, diseases, and insects of dahlias are covered here.

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The dahlia is a versatile flowering plant, providing a wide array of sizes, forms and colors. Flowers range from half-inch pompons to giants. Flower forms vary from daisy-shaped singles to fully double types with intermediate forms, such as anemone.

Dahlia cultivars which flower the first year from seed are referred to as annuals. Many of these annuals form tuberous roots the first year. These tuberous roots can be saved for use next year.

**Figure 1. Some popular dahlia types (clockwise from lower left) are: tiny pompon, double cactus (incurved type), collarette, single, and double formal decorative (center).**



Perennial dahlias generally are purchased as tuberous roots. Like annual dahlias, perennials are over-wintered indoors as tuberous roots.

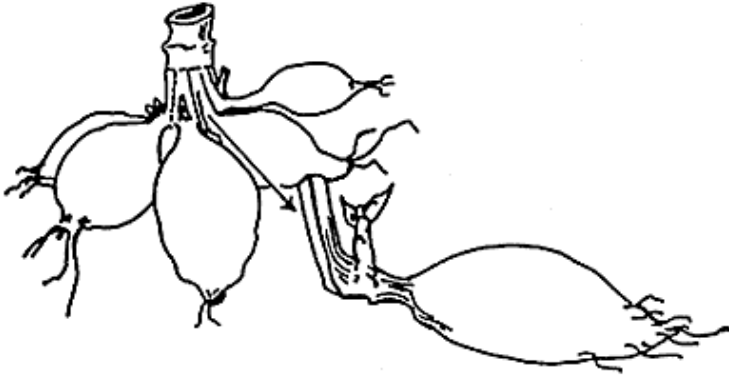
Use dahlias in a mixed perennial border or in your cutting flower bed. They begin flowering in July and continue until frost. Although relatively easy to grow, hot, dry weather and frost hurt dahlias.

### Propagation

There are three ways to propagate, or multiply, dahlias: seed, cuttings, and division. To obtain uniform flowering types from a given dahlia, you usually must propagate them vegetatively, by cutting or tuberous roots.

New cultivars, or varieties, are selected from seed-produced plants. Seeds are produced in large quantities by single-flowered cultivars, but not so freely by the double-flowered types. Seeds can be started indoors or sown directly outdoors.

Plants seeded directly into the garden usually do not blossom the first year. If the seeds are sown early enough indoors or outdoors in a hotbed (March or April) and the seedlings are transplanted to the open as soon as danger of spring frost has passed, they will provide fine masses of color before autumn frosts.



**Figure 2. In dividing the crown of tuberous roots, take care to include a part of the crown that has a bud. Cut as shown by dotted lines.**

Use a well-drained medium that is free from diseases and insects when starting dahlias from seed. Plant seed 1/2 inch deep. After the soil is thoroughly moistened, place a film of polyethylene or a pane of glass over the container. Select a location with indirect light and a temperature between 70-80 degrees

Fahrenheit. When seedlings are first visible, remove the plastic or glass. Transplant them to three-inch pots and plant outdoors when the danger of frost has passed. Save clumps of roots from those plants which you found attractive for next year's planting.

Dahlias are propagated from cuttings to increase the number of plants of a valuable new cultivar. Usually this should be done in a greenhouse.

In January plant clumps in large containers or in a greenhouse bench. Cover the roots with soil so the crown is just below the surface. Provide full sunlight and maintain a 60 degrees Fahrenheit temperature until all danger of spring frost is past; then plant outdoors. Plant with the roots at approximately the same depth as for tuberous types.

Propagation by dividing the clumps of tuberous roots is easiest. Divide the clumps with a sharp knife in March or April. Since the buds or "eyes" from which the shoots emerge are not on the roots, but on the crown to which the roots are attached, care must be taken that each division has at least one bud. Buds will be easier to detect if you place the roots in a warm, moist place for a few days before dividing them.

## Culture

Dahlias should be planted in an airy, sunny place protected from high winds. Dahlias do well in fertile, well-drained garden soil. Improve heavy clay soils by incorporating well-rotted manure, peat, or compost. Work a two to four inch layer of organic material into the soil in the fall or three to four weeks before planting in the spring. When preparing the soil, add two or three pounds of 5-10-5 or 10-10-10 fertilizer to 100 square feet (1/4 pound per 10 square feet). Top dress with this material at the same rate in late July. Avoid getting the fertilizer on the plants. Rake the fertilizer into the soil and then water.

Large tuberous roots may be planted about two weeks before the danger of spring frost is over, since it takes about that much time for the plant to get above ground. Such plants will flower earlier. **Do not** set young plants or small tuberous roots outdoors until danger of the last frost is past.

Tuberous roots should be laid on their sides, with buds facing upward, in holes four to seven inches deep. Cover with about two inches of soil. Use the deeper planting on sandy soils and the shallower one on clay soils.

Insert a four to six foot stake into the ground at the edge of the hole before the tuberous roots are planted. Dahlias are large plants and require support. The tall cultivars cannot support themselves and plant breakage will occur without support.

As growth appears, remove all but the strongest shoot. Soil should be filled in around the plants as they develop until the surface is level.

Spacing of the plants depends on the cultivars grown. Use a three foot by four foot spacing for large types and a two foot by three foot interval for small ones.

To obtain the greatest number of blooms, pinch out the tip of each plant when it reaches a height of one foot. If you wish to delay bloom until the cooler weather of late summer, pinch the new shoots that develop when they reach one foot in length. To obtain exhibition size blooms, prune the plant to one main stem. Remove all side shoots as they develop. In addition, allow only the terminal flower bud to develop. Remove all other buds. Don't disbud pompon flowering types.

Cultivate the soil deeply once a week until the plant reaches one foot in height. After that use shallow cultivation. Mulch the soil in July to control weeds, conserve moisture, and keep the soil cool.

Dahlias require a large amount of water. Keep the soil moist but do not saturate it. Water thoroughly enough to wet the soil to a depth of three inches.

To use dahlias as cut flowers, cut stems in early morning or late afternoon. Blossoms should be almost fully open when they are cut. Remove the lower leaves and place the stem in 110 degrees Fahrenheit water in a cool, dark location for 24 hours. Either recut the stems each day, removing 1/4 inch and placing them in fresh water, or use a floral preservative.

Do not dig dahlia roots until the tops are destroyed by frost. Then cut the stems to within two inches of the soil surface. On a sunny day dig up the clumps.

In lifting be careful not to injure the roots by bruising or by breaking them from the crown. Carefully remove as much soil as possible with a pointed stick, allowing the roots to dry in the air for a few hours, or wash with a hose. Label roots with cultivar name.

Dust all surfaces with captan, ferbam or zineb. Store the tuberous roots in a dry, cool, frost-proof place. An ideal storage temperature is 40 degrees Fahrenheit.

If the atmosphere of the storage room is very dry, either wax the roots with paraffin or pack the clumps in peat, vermiculite or sand. The packing material should be dry when used. It will reduce the likelihood of the roots drying out or shrinking.

## Diseases

Dahlias are subject to attack by a number of disease-causing fungi, bacteria, and viruses.

### Vascular Wilts:

Infection by *Verticillium albo-atrum* or *Fusarium* sp. causes gradual wilting of a single branch or the entire plant from the tip downward. Plants attacked by either of the fungi will recover partially at night for a short time after infection, but eventually the plant is killed. The wilted stems contain dark brown streaks along the water-conducting vessels.

These diseases can be controlled with cultural practices. Plant only healthy roots in soils where the disease has not occurred previously. Soil from infested sites that is to be replanted by dahlias should be pasteurized at 180 degrees Fahrenheit for 30 minutes or treated with Vapam. Remove and destroy all wilted plants.

Do not put wilted dahlia stems into a compost pile. These pathogens are soil-borne and could be reintroduced into the garden through contaminated compost.

### **Botrytis Blight:**

Botrytis blight is a serious problem during periods of cloudy, moist weather, notably on those plants in poorly ventilated areas. The fungus produces masses of gray spores on the surface of infected buds, leaves and stems. Infection causes a fading and browning of petals, a soft rot of other infected parts, and rapid death or distortion of buds. Spores produced on the surface of infected plant parts are carried by air currents and insects to healthy plants.

Destroy all old, above-ground parts in fall or spring. Remove and destroy all infected flowers and leaves during the growing season. During prolonged periods of cloudy, moist weather several applications of benomyl at one tablespoon per two gallons of water are a preventive treatment.

### **Storage Rots:**

Dahlia roots may be destroyed by various fungi during storage. Most tuber rots start in wounds made by digging or handling and develop rapidly under warm, humid conditions.

Avoid injury to the roots during digging and handling. Thoroughly clean and wash storage areas. Dust roots with captan, zineb or ferbam and store in a cool (40 degrees Fahrenheit), dry, frost-proof location, packed as noted earlier.

### **Virus Diseases:**

Symptoms of mosaic virus infection vary, depending upon the dahlia cultivar. Susceptible plants are stunted and develop pale green bands along veins, referred to as "vein-clearing." Often these stunted plants form shortened lateral shoots, causing the plant to appear bushy. More tolerant cultivars will not develop any outward symptoms of infection.

Remove and destroy stunted plants showing vein-clearing symptoms. If there is any question concerning the diagnosis, relocate suspect dahlias away from healthy plants and observe for symptom development. Destroy any relocated dahlias that develop the characteristic symptoms. Since the dahlia mosaic virus is transmitted by an aphid, effective aphid control reduces spread of the disease to healthy plants.

## **Troublesome Insects**

Insect problems vary considerably from garden to garden and from area to area within the state. Examine dahlias weekly for evidence of damaging insects; be sure to inspect the undersides of the leaves. Use insecticides when insects and damage are present, and always follow label directions and precautions. Some of the more common insects you might encounter are:

- **Aphids** -- Aphids are small, soft-bodied, sucking insects that congregate on the undersides of leaves or on the tips of new growth. When abundant they cause yellowing and curling of leaves. The most serious damage occurs when aphids transmit mosaic from infected plants to healthy plants. Foliar applications of malathion or diazinon should adequately control aphids. Applying the granular systemic insecticide, disulfoton (Di-Syston two percent granules), to the soil provides extended control (six to eight weeks) without the necessity of frequent applications. Di-Syston also is effective against other sucking insects.
- **Leafhoppers** -- The potato leafhopper is a frequent pest of dahlias. Leafhoppers, which are usually found on the undersides of the leaves, average about 1/4 inch long, are yellowish-green in both the

adult and immature stages, and have a curious habit of running sideways. Potato leafhopper injury results in severely stunted plants that may not bloom. Early symptoms are pale-colored foliage that curls and browns along the leaf edges. If the leafhoppers are present, malathion or diazinon will control them effectively, or disulfoton (Di-Syston) can be used as a soil systemic.

- **Plant Bugs** -- The four-lined plant bug and the tarnished plant bug occasionally damage dahlias. Of the two, the tarnished plant bug is the more common. This brownish, triangular-shaped insect feeds on the buds, resulting in one-sided flowers. Malathion or rotenone will control them, but frequent applications may be necessary if insects are abundant. Treat only if the insects and their damage are present.
- **Spider Mites** -- Mites are tiny, and difficult to see with the unaided eye. Examine the undersides of leaves with a magnifying lens to detect mites before they reach damaging numbers, or briskly tap foliage over a white piece of paper; mites will drop to the paper and can be seen as small moving specks. When mites are abundant, fine webbing will be visible on the foliage; leaves will stunt, curl and turn bronze. Although seldom a problem, mites can be difficult to control once established. Select a specific miticide such as dicofol (Kelthane) and make two applications seven to 10 days apart, thoroughly covering the undersides of the leaves each time.
- **Stalk Borer** -- Stalk borers overwinter as eggs on weeds and tall common grasses. Upon hatching in spring, the small worms migrate to dahlias and bore into the lower stem. Keep the areas near the garden free of weeds and grasses, and remove or thoroughly cover plant material remaining in the garden in the fall. In severe problem areas it may be necessary to apply an insecticide to the lower stem and around the plant base weekly during June. Carbaryl (Sevin) is relatively effective for stalk borer control.
- **Thrips** -- Thrips are found in open flowers but also may damage opening buds if the insects are abundant. They are likely to be most troublesome if the weather is hot and dry. Injured areas turn white and then dry up. Buds become distorted. If thrips are present in damaging numbers, remove and destroy all open blooms; then treat remaining buds with malathion or diazinon.

Products listed in this publication are for the convenience of the reader, and are not intended as an endorsement. Use all chemicals according to manufacturer's recommendations, and follow all safety precautions to prevent pollution, or damage to humans, plants and animals.

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