

Producing *Dianthus**

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Are you looking for a new crop to grow? Perhaps you should consider the *Dianthus* genus. In recent years plant breeders have introduced to the trade many natural dwarf cultivars. Some of these are suitable for pot plant culture.

Cultural suggestions as outlined by Dr. Jay Holcomb and Nancy Messinger follow:

Common Species

- A. *Dianthus barbatus* (Sweet William) grows to two feet in height. Flowers are single or double on flat-topped cymes.
- B. *Dianthus caryophyllus* grows one to three feet in height. Flowers are one to four inches across, often double, and frequently fragrant.
- C. *Dianthus Chinensis* grows to two and one-half feet in height. Internodes shorter than leaves. Flowers are one-half to one inch across often with a darker eye. These flowers are generally not fragrant.
- D. *Dianthus plumarius* grows to 16 inches in height. Foliage is glaucous and extremely narrow. Flowers are fragrant with a calyx up to one inch in length.

Propagation

- A. *Dianthus* are generally propagated by seed although they can be propagated by cuttings or divisions.
- B. Sow the seeds on a seeding medium and cover lightly. Deep sowing will delay germination.
- C. HID lighting will accelerate growth.

* Adapted from: Holcomb, E. J. and N. L. Messinger. 1986. Producing *Dianthus*. PA Flower Growers, Bull 365, p. 5-6.

- D. Temperature for germination should be 60 to 70^oF. At 70^oF, the seedlings should be able to be transplanted in about 14 days.
- E. Transplant to a porous, well-drained medium such as 1:1:1 soil mix or a 1:1:1 (peat:perlite:vermiculite) soilless mix when the seedlings are about one inch in height.
- F. If it is not possible to transplant as soon as the first true leaves are expanding (12 to 14 days), move the seedlings to a bright cool greenhouse until transplanting.

Growing Media

- A. Use a porous well-drained growing medium. Sand or perlite may be used to increase drainage. Overwatering can be detrimental to Dianthus.
- B. The pH should be 6.0-7.0.
- C. Have growing media tested for nutrient levels prior to planting.

Fertilization

- A. Use a complete fertilizer at 100 ppm N soon after transplanting. Fertilize with each irrigation.
- B. Monitor soluble salts so that levels do not reach the toxic range.
- C. If growing Dianthus in pots, fertilizers high in nitrate nitrogen will result in harder, firmer growth.

Temperature

- A. After transplanting, the night temperature should be 60-62^oF with the day temperature 5-10^o higher.
- B. Dianthus can grow at cooler temperatures such as 40-45^oF; however, at that temperature growth is very slow.
- C. Grow at cooler temperatures prior to sale to slow growth and harden off.

Light

- A. Grow in full light.
- B. Shade will tend to encourage soft, stretched growth and delay flowering.

Watering

- A. Water Dianthus only on the basis of demand. Let plants become slightly dry between irrigations.
- B. Overwatering tends to encourage root rots.

Flower Initiaton

- A. Dianthus flower more rapidly during the long, bright days of summer than during the winter.
- B. It is assumed that most Dianthus are quantitative long-day plants.

Growth Retardants

- A. There are no growth retardants labelled specifically for Dianthus.
- B. Cycocel has been used on carnations and it has restricted height by 30% on some Dianthus cultivars at a concentration of 6,000 ppm (1:20).
- C. A-Rest is registered for bedding plants, and trials of A-Rest on several Dianthus cultivars showed that A-Rest at 144 ppm restricted plant height.

Problems

- A. Red spider mites are a major problem with Dianthus. Mild infestations appear as tan dots on the leaves. If the problem becomes severe, the webs become visible.
- B. Aphids, thrips and whitefly will also attack Dianthus. These insects can be discouraged in the spring with a short-crop cycle and a clean greenhouse.
- C. There are many diseases that will infest Dianthus:

Stem rot caused by Rhizoctonia
Branch rots caused by Fusarium
Bacterial wilt caused by Pseudomonas
Carnation rust caused by Uromyces
Several viruses

- D. Prevention is the key successful disease control. Begin with a pasteurized growing medium and use clean tools and containers. Use seed from a reliable dealer. When possible, do not water from overhead.

Potted Plant Production

- A. Single Dianthus plants are most appropriate for 3- to 4-inch pots. Three to four plants may be planted in a 5- to 6-inch pot.
- B. Best and most rapid production times are during the spring, summer and early fall. Attempting to flower Dianthus between November 1 and March 15 will mean slow growth and a long crop time. In the northeast, crop time is unusually slow at that time of year because of the low light levels.
- C. Transplant Dianthus seedlings directly into the finish pot, and provide full sun, 60°F temperature, and fertilize as needed.
- D. As soon as 5 or 6 pairs of leaves are visible, pinch to 4 pairs of leaves.
- E. When branches are one-half inch long, apply growth retardants if necessary. There are some cultivars that do not need a growth retardant.
- F. Dianthus are ready for sale when the first flowers begin to open.

Marketing

- A. Dianthus are usually sold green in market packs for planting into the garden.
- B. Dianthus in pots are usually sold as the first flowers begin to open. Silver thiosulfate (STS) may be beneficial in prolonging the flowering of Dianthus.
- C. With the numerous Dianthus cultivars currently available, Dianthus may continue to gain popularity as both a bedding and potted plant.

If you are a plug specialist, you may be interested in a Plug Conference to be held at Iowa State University, Ames, Iowa, on November 5 & 6, 1986. For more information, call Dave Koranski on (515) 294-1916.