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## ZINNIA (*Zinnia spp.*)

### Zinnia Species:

*Z. elegans*  
*Z. haageana*  
*Z. hybrida*

Zinnias make a striking statement in bouquets and in a flower bed, and include a wide range of colors, shapes, and sizes. A native of the Americas, Zinnias are relatively heat and drought tolerant. The greatest profusion of blooms occurs when day length is less than 12 hours, but they will flower regardless of photoperiod. Varieties are selected for their vibrant color, sturdy stems, yield, quality, disease resistance, and vase life. They are one of the most popular and easiest-to-grow annual cut flowers.

### SITE SELECTION:

Zinnias perform best in areas that receive full sun, planted in fertile, well-drained soil rich in organic matter with a pH of 6.0–6.5. Before applying fertilizer, test your soil. Generally, Zinnias need 1½–2 pounds of nitrogen per 1,000 square feet of a 1-1-1 fertilizer.

Avoid overhead irrigation as it may damage the flowers by causing spotting, or may splash soil onto the foliage and promote disease. Drip irrigation is recommended to help prevent these issues. Use of black plastic, IRT plastic mulch, or landscape fabric aids in increasing soil temperatures, controlling weeds, and limiting soil splash-up onto foliage, which can cause foliar disease.

Support is not necessary in higher latitude locations as the plant height remains moderate. A layer of horizontal support may be necessary to keep stems upright in long-season areas and areas with high wind and rain.

### SUCCESSION PLANNING:

For an extended harvest and a constant supply of fresh blooms, sow every 2 weeks through early summer.

### DIRECT SEED:

After the last frost when the soil has warmed to at least 70°F/21°C, sow 2 seeds per foot, in rows 9–12 inches on center, and cover lightly but firmly with soil.

Keep the soil surface from drying out until emergence. Thin to 1 plant every 9–12 inches after first true leaves appear.

### TRANSPLANT:

Sow 1–2 seeds per cell into a 50- or 72-cell plug flat 4 weeks before the last frost. Cover seed lightly with vermiculite to help maintain moisture. Keep soil surface moist until emergence. Seeds will germinate in 3–5 days when temperatures are kept at 80–85°F/27–29°C. After germination, maintain temperatures at 70°F/21°C during the day and 60–65°F/16–18°C at night. Do not allow plants to become root bound and do not disturb roots; transplant shock may cause doubles to revert back to singles.



Young Zinnia seedlings in a 50-cell plug flat.

Thin to 1 seedling per cell. In order to acclimate the plants to outdoor conditions, reduce water for a few days prior to transplanting. Place the trays outdoors in a protected area in partial shade during the day, bringing them indoors each night. Gradually increase the plants' exposure to full sun. After approximately 1 week, transplant outside after the last frost-free date, spacing 9–12 inches on center. Tighter spacing can be utilized depending on your planting equipment. Care should be taken to provide plenty of air circulation to prevent conditions that can cause diseases such as powdery mildew.

### **PINCHING:**

Whether or not to pinch plants depends on your final use of the flowers or what your market dictates. Pinching is not necessary if shorter stems are desired. If you prefer a branching habit with stems of a consistently long length, the plants should be pinched when the first center bud develops. Do this by pinching off the bud and stem just above the leaf axil. A clean pair of scissors can also be used to remove the first center bud.

### **PESTS:**

Zinnias can be affected by many common garden pests, including aphids, caterpillars, Japanese beetles, and stem miners. Please refer to the Insect Control Chart in our catalog or on our website.

The most prevalent insect pests are thrips. Thrips damage can cause unsightly foliage and, on rare occasion, cause reduced yields in healthy older plants. Young plants, however, can succumb to thrips damage if populations are not properly controlled. PyGanic<sup>®</sup>, which flushes out and kills thrips, is Johnny's<sup>®</sup> preferred control.

### **DISEASES:**

For any disease, minimize the conditions favoring disease development — high humidity and extended leaf wetness — by improving air flow in protected growing structures, using drip irrigation, and spacing plants farther apart. Proper sanitation and crop rotation are also key factors in preventing the occurrence of disease. To positively identify any disease, please contact your local Cooperative Extension Service office.

The species of powdery mildew is host specific to not only Zinnias, but also begonias, and flowers in the Asteraceae family, which includes sunflowers, among others. A white fungal growth with a powdery appearance develops on leaves and occasionally flowers. Powdery mildew is most likely to occur when there is a combination of 60–80°F/16–27°C temperatures, high humidity, and excess moisture. Some effectiveness has been shown with preventative applications of Oxidate<sup>®</sup> and Actinovate<sup>®</sup>, both OMRI-listed products. Mildew Cure<sup>®</sup> is another effective control.

Another disease that causes blemishes on the leaves is Alternaria leaf blight. These spots appear on the upper leaf surface as reddish-brown circles with gray-white centers that become irregularly shaped as the disease progresses. The conditions that promote the occurrence of Alternaria leaf blight are similar to those of powdery mildew: warm, damp, and high humidity. Apply a fungicide such as Champ<sup>®</sup> WG Copper or Green Cure<sup>®</sup> and MilStop<sup>®</sup> as directed on label.

*Botrytis cinerea* is identified by characteristic brown to gray fungal growth that appears on stems cut for harvest or on plant debris that may be near the growing area. Poor air circulation and high humidity along with moderately cool temperatures create an environment for the disease to spread. It is important to keep the growing area clean to prevent disease. Actinovate<sup>®</sup> will offer some control with a foliar application.

### **HARVEST:**

Cut Zinnias just before the blooms are completely open and when temperatures are cool. The best time is in the morning after the dew has evaporated, but evening harvests are also effective. The stems should be cut as long as possible — ensuring there are enough nodes left on the plant for future production. Strip excess and damaged foliage from the stems and place in cool water. Zinnias dislike the cold that aids in the storage of many other flower species. It is best to store them in a cooler set to a temperature above 45°F/7°C or place them in a cool barn, garage, or an air-conditioned room.

After Zinnias have cooled from the heat of the field, they can last in a vase for 5–7 days. Deadheading and regular harvest is necessary to prolong blooming and encourage branching.

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