



# Onions

Onions belong to the genus *Allium* along with garlic, chives, shallots, and leeks. The common onion (*Allium cepa*) is widely grown in Iowa gardens. Onions are grown chiefly as green onions or dry bulbs.

Onions vary in color, shape, and taste. Bulbs can be white, yellow, or red, and round, flattened, or torpedo-shaped. Some bulbs are sweet while others are pungent. Onion bulbs develop in response to hours of daylight. Short-day onion cultivars produce bulbs during periods of short days and long nights. Long-day onions produce bulbs during periods of long days and short nights. Long-day varieties perform best in Iowa and the northern part of the United States. Long-day varieties generally are more pungent and also store better.

Onions are easy to grow and often yield well. A perfectly developed onion will have 13 leaves and 13 rings of scales around the bulb. Each leaf corresponds with a ring in the bulb. Therefore, the larger the leaf above the soil, the larger the ring in the bulb.

## Planting

Onions perform best in full sun and soils that are well-cultivated, well-drained, and slightly acidic (pH 6.2 to 6.8) with a high organic matter content. Avoid heavier soils, such as clay and silt loams, unless modified with organic matter to improve aeration and drainage. Onions can be grown from seed, sets, or transplants.

**Seed** is the least expensive method of growing onions, but it also requires the most work. Seeds can be sown indoors 4 to 8 weeks before planting outside, or they can be sown directly in the garden when the soil is

workable (late March–April). Sow seed  $\frac{1}{2}$  inch deep. If seedlings are germinated indoors, gradually harden the plants outdoors for a week before planting.

**Sets** are small, dormant bulbs that are planted directly into the garden. They should be planted 1 to 2 inches deep and 2 to 3 inches apart. Plants are thinned to 3 or 4 inches apart as they grow. The plants that are removed during thinning can be used as green onions. Onion sets are typically sold as red, white, or yellow types with no distinction as to cultivar. Since the variety is often unknown, the flavor, use, and keeping quality of set-grown onions can vary.

**Transplants** can be purchased from garden centers or mail order catalogs. Specific cultivars are available. To plant, bury the roots and 1 inch of the lower white portion of the plant.

Sets, transplants, and hardened seedlings can be planted outside in early April. They tolerate light frosts but are damaged at temperatures below 20°F. Onions grown for winter storage should be planted by early May.

## Spacing

For green onions, place sets or transplants 1 inch apart. Onions grown for the large mature bulbs should be planted 2 to 3 inches apart. Later, thin the plantings so they are 3 to 4 inches apart. Space rows 12 to 15 inches apart.

Onions will occasionally bolt or produce a flower or seed stalk in response to stress or unfavorable growing conditions such as cold temperatures. Because of their tendency to bolt, larger onion sets are often used for green onions. Once the bolting process has begun, the quality of the bulb deteriorates rapidly. These onions should be harvested at the first sign of bolting and used quickly instead of stored.

## Cultivars

	Color	Storage
Candy	Yellow	Short-term
Copra	Yellow	Excellent long-term
Ebenezer	Yellow	Good long-term
First Edition	Yellow	Excellent long-term
Red Burgermaster	Red	Good long-term
Southport Red Globe	Red	Long-term
Sweet Sandwich	Yellow	Excellent long-term
Sweet Spanish	White or yellow	Short term
Walla Walla	White or yellow	Short-term



## Fertilization

Onions require higher fertility levels than many other vegetables. Apply 1 to 1½ pounds of an all-purpose garden fertilizer (10-10-10) per 100 square feet and till into soil before planting. Approximately 1 month after planting, sprinkle 1 pound of an all-purpose garden fertilizer (10-10-10) per 100 feet of row. Place the fertilizer in a narrow band about 2 to 3 inches from the base of the plants.

## Maintenance

Water once a week during dry weather. Weeds are typically removed by shallow hoeing or hand-pulling. Onions are shallow-rooted and require careful cultivation around the plant to avoid injury to the bulb. One to 2 inches of organic mulch, such as straw, will help control weeds and conserve soil moisture.

## Yield

Average yield with good management practices is approximately 60 pounds per 10-foot row.

## Harvest and storage

Green onions can be harvested within 30 days if grown from sets or plants, or within 40 to 50 days if grown from seed. Storage onions should be harvested when the leaves fall over and begin to dry. Most onion cultivars mature 90 to 120 days after planting. Gently pull or dig the bulbs with the foliage attached.

After harvest, dry or cure the bulbs in a warm, dry, well-ventilated location for 2 to 4 weeks or until the outer scales of the bulb are papery and thin. Remove the tops 1 inch above the bulb and inspect the bulbs. Bulbs that show signs of damage or decay should be discarded. Bulbs with thick necks or stems should be used quickly because they will not store for long periods.

Store onions in a mesh bag, wire basket, or open crate in a cool (32 to 40°F), dry location. Avoid temperatures below freezing because this will damage the bulb and shorten storage life. Onions will sprout if the storage temperatures are too warm. Occasionally inspect and remove any bulbs that are rotting. Cultivars with excellent keeping quality can be stored for several months.

## For more information

Additional information about vegetable gardening and other horticultural topics is available from local extension offices and from these Web sites:

### ISU Extension Distribution Center

[www.extension.iastate.edu/store](http://www.extension.iastate.edu/store)

### ISU Extension Food Preservation Resources

[www.extension.iastate.edu/healthnutrition/food/preservation/resources.htm](http://www.extension.iastate.edu/healthnutrition/food/preservation/resources.htm)

### ISU Extension Horticulture

[www.yardandgarden.extension.iastate.edu](http://www.yardandgarden.extension.iastate.edu)

Questions also may be directed to ISU Extension Hortline by calling 515-294-3108 during business hours (10 a.m.–12 noon, 1 p.m.–4:30 p.m. Monday–Friday).

Prepared by Cindy Haynes, Eldon Everhart, and Richard Jauron, extension horticulturists; Diane Nelson, extension communication specialist; and Jane Lenahan, extension graphic designer.

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