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## Onions in the Garden

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### Summary

The onion is a cool-season vegetable that grows best in full sun and fertile, well-drained soils. Incorporate plenty of organic matter and a complete fertilizer into the soil before planting. Plant seeds  $\frac{1}{4}$ - $\frac{1}{2}$  inch deep in rows 8-16 inches apart. Seeds, sets or transplants should be planted 3-4 inches apart in the row. If planted at closer spacing, thin to the suggested spacing and use the pulled plants as green onions. Side-dress onions with nitrogen in May and June to ensure good growth and high yields. Onions require regular watering, so keep soils moist. Water stress will reduce yields and bulb size. Organic mulches help conserve water, supply extra nutrients and reduce weed growth. Control weeds, insects and diseases throughout the year. Harvest onions when the tops fall over and papery skins have formed. Bulbs store best in cold, dry conditions to maintain best quality. Excellent varieties include Utah Sweet Spanish, Fiesta, Sweet Sandwich, and Walla Walla.

### Varieties

Evergreen White Bunching is a good mild green onion. Utah Sweet Spanish, Candy, Walla Walla, Cabernet (red) and Sweet Sandwich are excellent bulb onions. These will store for 2-4 months. Crystal White Wax is a nice pickling onion. Many of these varieties come as seeds, sets or transplants so check for availability with your local garden center or seed catalog.

### How to Grow

**Soils:** Onions grow in all soil types provided they are rich in organic matter, well drained, moist, and fertile.

**Soil Preparation:** Before planting, determine fertilizer needs with a soil test and then follow the recommendations given with the test report. If fertilizer applications are warranted, work the fertilizer into the top 6 inches of soil. If you fertilize with compost, apply

no more than 1 inch of well-composted organic matter per 100 square feet of garden area.

**Plants:** For early production, use transplants or sets and plant these out in April. Transplants require about 8 weeks of grow time before planting in the garden. Plant onion seeds  $\frac{1}{4}$ - $\frac{1}{2}$  inches deep in late March or early April. Seeds start to emerge in 2-3 weeks after planting.

**Planting and Spacing:** After seeds emerge, thin to 3-4 inches apart in rows 8-16 inches apart. Thin before plants compete with each other or they start to bulb. Transplants and sets should be planted at the same final spacing as seeds. Green onions can be left at closer spacing and the plants thinned as they are used. High-density plantings reduce bulb size unless adequate water and nutrients are supplied. If you plan to store transplants or sets, plant out in late April. Later plantings are less likely to produce seed stalks. Onion seeds can also be planted in mid to late August for over wintering. Overwintered onions (special varieties) should be mulched late in the year to minimize winter damage. Overwintered onions generally mature in June or July.

**Water:** Onions require regular watering for best growth and production. Soils need to be maintained near field capacity. Moisten the soil thoroughly to a depth of 12 inches and use drip irrigation if possible. Water needs are critical since rooting depth in onions is shallow. Drought stress during growth decreases yield, reduces bulb size and affects flavor. Stop watering when the plants start to mature (tops fall over). Excess water as the crop matures delays curing and causes storage problems.

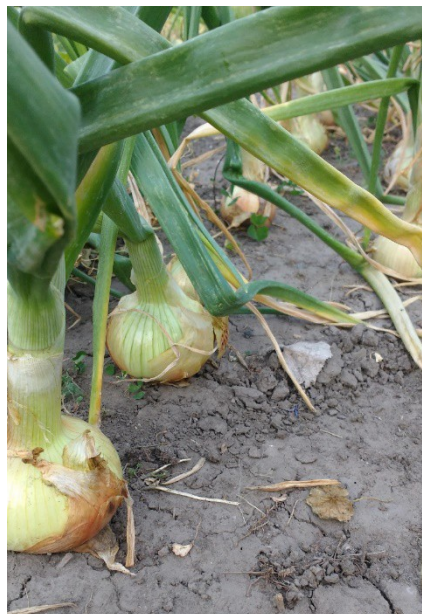
**Fertilization:** In addition to the fertilizer used at planting, onions need additional nitrogen fertilizer to

produce optimum yields. Side-dress onions with ½ pounds of nitrogen fertilizer (21-0-0) per 100 square feet in mid-May and again in late June. Do not fertilize after mid-July as extra nitrogen stimulates late season leaf growth and reduces storage potential of dry onions.

**Mulches:** Organic mulches help conserve water, supply extra nutrients and reduce weeding. Mulches are also used for overwintered onions to minimized winter damage.

## PROBLEMS

**Weeds:** Control weeds by regular shallow cultivation, but avoid root damage that slows plant growth. Weed control is particularly important during the first 2 months of growth when plants are growing slowly. Mulching with compost, grass clippings or leaves will smother weeds.



**Insects and Diseases:** For additional information on insect and diseases visit the Utah Pests website (<http://www.utahpests.usu.edu>).

Insect	Identification	Control
Thrips	Tiny, slender insects that feed on leaves. Leaves turn silver or gray, may twist and die. Thrips hide near where the leaf and bulb meet.	Thrips are best managed with cultural practices and natural biological control. Add compost, use mulches or apply a stiff spray of water to wash thrips from plants.
Onion Maggot	White worm that feeds on seedlings, roots or bulbs.	Use crop rotation, avoid excessive amounts of organic matter, and apply insecticides at planting if maggots have been a problem in the past. Destroy infected plants.
Disease	Symptom	Control
Neck Rot	Fungal disease that occurs during storage. Watery decay inside the bulb.	Avoid excess moisture near harvest. Cure bulbs well before storing.
Basal Rot	Fungal disease that attacks the area where roots and leaves join. The area rots and plant growth is slow and weak.	Use long crop rotations, solarize the soil where onions are planted, and avoid over-watering.
Pink Root	Fungal disease that changes roots to a pink color. Roots eventually die and yields are severely reduced	Use long crop rotation and solarize the soil where onions are planted.

## Harvest and Storage

Onions vary in their maturity times. Green onions may be harvest as early as 50 days after seeding. Bulb onions require 100-120 days to mature. Leave bulb onions in the ground until the tops fall over. Once the tops fall over, lift the bulbs but leave them in the garden to dry for 1-2 weeks. The tops will help protect the bulbs from the sun. When bulbs are cured the onion skin should be papery and the roots dry. Dried bulbs may be braided into onion ropes or topped and stored in meshed sacks.

Cut off the leaves about 1-2 inches above the bulb. Onions store best in cold (32-40°F), dry conditions. Check regularly and use bulbs that are softening or sprouting first.

## Productivity

One set, transplant, or seed will yield one onion. Plant 10-20 feet of row per person.

## Nutrition

One cup of raw chopped onions is very low in saturated fat, cholesterol and sodium. It is also a good source of dietary fiber, Vitamin B6 and Folate, and a very good source of Vitamin C.

## Frequently Asked Questions

***Why can't I get my onions to form a bulb?*** Onions form bulbs under long days and hot weather. If planted too late in the spring, most will grow leaves and never form a bulb.

***Is it best to plant onion seeds, onion transplants or onion sets in the garden?*** Onion sets are easiest to handle and develop quickly for green onions as well as onions for winter storage. Onion transplants are slower to develop but also produce good crops. Seeded onions must be planted early and thinned after they emerge. The thinned plants are suitable for green onions the remaining plants will produce good bulbs for storage in September.

***Is there any way to prevent onions from flowering (bolt)?*** Onion sets and transplants often bolt if planted too early. Also, larger sets or transplants (>5/8 inch in diameter) have a greater tendency to bolt.

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