

## Home Gardening Series

# Onions

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Vegetables

### Environment

**Light** – sunny  
**Soil** – well-drained loam  
**Fertility** – medium-rich  
**pH** – 5.5 to 7.0  
**Temperature** – cool  
**Moisture** – moist

### Culture

**Planting** – transplant in spring  
**Spacing** – 1-6 x 12-24 inches  
**Hardiness** – hardy biennial  
**Fertilizer** – heavy feeder

### Onions – *Allium cepa*

Onions are the chief food plants in which the food is stored in a bulb. Their use goes back over 4,000 years beyond the beginnings of written history. Onions are probably natives of Southern Asia or the Mediterranean region. They have long been valued in China and India for their flavoring. In Egypt they were worshipped before the Christian era, and in Britain onions also played a part in the Druid rites.

Onions are cool-season vegetables and grow successfully in Arkansas gardens. They may be grown from transplants, sets or seeds, but transplants or sets are best suited for Arkansas. In all three methods, the onions are planted as soon as the garden can be tilled in February



through April. Good fertility, adequate moisture and cool temperatures aid development.

Onions start bulb formation when the day length is of the proper duration. Different cultivars of onions require different day lengths to initiate bulbing. Short-day onion cultivars are adapted to the entire state of Arkansas, while intermediate-day cultivars are only adapted to the northern half of the state.

High temperatures and low humidity are advantageous during bulbing and curing. Onions are shallow-rooted and compete poorly with weeds. Timely, shallow hoeing and cultivation are important, especially when the onions are small.

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## Cultivars

Crop	Cultivar	Days to Maturity	Plants Per 100 Feet of Row	Disease Resistance or Tolerance	Day Length	Remarks
Onions From Transplants	Crystal Wax	80	200 plants		SD	White, flat bulb, very mild.
	Super Star	90			ID	AAS winner, globe shaped.
	Texas Grano 1015Y Super Sweet	88		Pink root	SD	Sweet, globe shaped, best adapted Grano type.
	Red Burgundy	90			SD	Red bulb, pungent, will store better than most short-day onions.
	Candy	100			SD, ID	Yellow, globe shaped, adaptable to wide range of latitudes.
Onions From Seed	Evergreen	120	1/2 oz	Pink root		Non-bulbing, long, white stems, slow bolting.

Abbreviations: **AAS**: All-America Selections®; **ID**: Intermediate Day; **SD**: Short Day

## Cultural Practices

### Onions From Transplants

Transplanting young onion plants has become a popular method of growing large, dry onions for slicing. Transplants are purchased in bundles (usually 60 to 80 plants) from garden stores and through seed and nursery catalogs. It is the most common way to plant short-day onions.

**Spacing and Depth of Planting** – Plant in fertile soil in early spring. Space the plants 4 to 5 inches apart in the row to produce large-sized bulbs. (Closer spacing will significantly decrease bulb size.) You may space plants 2 inches apart and pull every other plant for green onions. Where this method is used, pull green plants early to avoid competition with the main crop. Allow 12 to 15 inches between rows. Set the transplants 1 to 1 1/2 inches deep, taking care not to cover the youngest leaf, and apply 1 cup per plant of a starter fertilizer solution per foot of row.

**Care** – Weeds and grass compete with the onion plants for nutrients and moisture during the growing season. Remove all weeds and grass by shallow cultivation and hoeing. Side-dressing fertilizer may be necessary.

**Harvesting** – The bulbs are usually ready for harvest from mid-May to mid-June. When some of the tops have fallen over, the onions may be pulled and dried. Onions from transplants are easily bruised. They have a relatively short storage life and should be used during the summer.

### Onions From Seed

Growing onions from seed is the least popular of the three methods. A longer period of time is required for development, especially for dry onions. Dry onions need to be planted late in the fall and overwintered. Both green bunching and dry onions can be grown directly from seed. The varieties are different from the varieties sold as sets.

**Spacing and Depth of Planting** – Plant seed 1 inch deep (10 to 15 seed per foot). Allow 12 to 15 inches between rows. Plant onion seeds as soon as the garden can be tilled in the spring.

**Care** – Control grasses and weeds with shallow hoeing and cultivation throughout the season. When the seedlings are 3 to 4 inches high, thin to 1/2 to 1 inch between plants for green onions.

To develop long, white stems for green onions, draw as much as 1 inch of loose soil up to the plants when they are 5 to 6 inches high. Do not pull the soil up to the plants for dry bulbs. You will increase the possibility of bulb decay.

**Harvesting** – Harvest green onions whenever the base of the plant is 3/8 inch or larger.

### Onions From Sets

Growing onions from sets is another method for the home gardener. The plants are quickly established and will become vigorous and strong. Onion sets may be used to produce both green onions and dry onion bulbs.

**Spacing and Depth of Planting** – To produce green onions, plant the larger sets 1 1/2 inches deep with 2 inches between sets. Allow 12 to 18 inches between rows.

To produce dry onions, plant the smaller sets 1 inch deep with 2 inches between sets. Allow 12 to 18 inches between rows.

**Care** – Keep free from weeds by shallow cultivation and hoeing. To develop long, white stems for green onions, slightly hill the row with a hoe by pulling the loose soil toward the onions when the tops are 4 inches high. Do not hill onions that will be used as dry onions. Also, do not pull the soil from around the bulb and expose it to the sun. Hilling may cause the necks of the stored bulbs to rot.

**Harvesting Green Onions** – Pull green onions whenever the tops are 6 inches high. Green onions become stronger in flavor with age and increasing size. They may be used for cooking when they are too strong for eating raw.

**Harvesting Bulbs** – Remove any plants that have formed flower stalks and use immediately. They will not produce good bulbs for dry storage. Harvest in late June and early July when some of the tops have fallen over. Allow the plants to mature and the tops to fall over naturally. Breaking over the tops early interrupts growth, and the bulbs will be smaller and will not keep in storage.

Pull the plants in the morning when they are cool. Place them under dry shelter on elevated slats or screens or hang them in small bunches. Full air circulation for two to three weeks is necessary for complete drying and curing.

Cut the tops 1 1/2 to 2 inches long and place the bulbs in dry storage with good air circulation. Do not store bulbs that are bruised, cut or diseased, or that have green tops or necks. Store under cool, dry conditions. Dry onions grown from sets should keep until late winter.

**Cultivars** – Several cultivars are used for onion sets. All of these cultivars are very well adapted to Arkansas conditions. The home gardener has little choice of cultivars, however, because sets are seldom sold under the cultivar name (only red, yellow and white are designated).

Purchase firm, dormant sets early – before they begin growth in heated salesrooms. Divide the sets into two sizes before planting. Large sets (larger than a dime in diameter) are best used for green onions. If allowed to grow, these sets may “bolt” and form flower stalks. The small sets (smaller than a dime in diameter) produce the best bulbs for large, dry onions and usually do not bolt.

Round onion sets produce flat onions; elongated or torpedo sets mature into round onions. Most gardeners prefer white sets for green onions, although red or brown sets are also acceptable.

## Common Problems

**leaf diseases** – Botrytis blast (numerous white specks on foliage); downy mildew (pale green, oval sunken spots on leaves; purplish mold may be in the spots); purple blotch (lesions are purplish and zonate with yellow margins); white rot (a basal root with white fungal growth covering the tissue)

**bulb diseases** – neck or stem rot, bulb rot

**insects** – thrips, onion root maggots

**cultural** – bulb rot from bruising, insufficient drying; split or double bulb from dry soil during bulb formation; very small bulb from too late planting or too dry soil. Sprouting when bulbs are refrigerated.

## Harvesting and Storage

**days to maturity** – 100 to 120 (mature bulbs)

**harvest** – green onions when tops are 6 inches tall; bulbs after one-fourth or more of the tops have fallen over. Do not wait more than a week after this occurs. Allow for thorough drying before storage.

**approximate yields** – 10 to 15 pounds

**amount to raise per person** – 10 to 15 pounds

**storage** – cool (32 degrees F), dry (65 to 70 percent relative humidity) conditions, storage life 6 to 7 months; warm (above 72 degrees F) with 65 to 70 percent relative humidity and good air circulation, storage life 6 weeks.

**preservation** – Onions may be stored dry or pickled and canned. For fresh storage, maintain good air circulation. One effective storage method is to place onion in discarded hosiery, tie a knot and add another onion. When hosiery is filled, suspend from rafters in storage area.

## Frequently Asked Questions

### **Q. I harvest my onions in late summer and they start to rot by fall. Why?**

A. Onions may start to rot at either the base or neck. Rotting at the base may be caused by soilborne fungi or carelessness in harvesting and handling. Onion bulbs that rot at the neck have either been insufficiently cured before storage or the leaves have been severely infected by fungi during the growing season. Sun scald before harvest may also result in rot.

### **Q. What happens when onion tops are broken over?**

A. Onions stop bulb development at that point and may be immature. As a result, they will not cure or dry properly. In some cases, the rings also separate and the bulbs are of poor quality.

### **Q. How deep should my onion transplants be set?**

A. When transplanting, place the onion plants approximately 1 inch deep or deep enough to support the plant and keep it from falling over but not covering the youngest developing leaf with soil.

### **Q. Is it necessary to remove the garden soil from around my onion bulbs in the spring to make large bulbs?**

A. No. Bulbing of onions is controlled by length of day, variety and temperature. The onion will bulb when the required conditions are met. Removing soil around the base of the plant will not increase bulbing, although it appears to because the bulbs are visible. This effort may be more damaging for the white varieties of onions because sunburning turns the top of the bulbs green.

### **Q. What varieties of green onions or scallions grow well in Arkansas?**

A. The term "green onion" describes an immature onion. Even the large bulb onions such as Grano or Granex can be harvested immature and used as green onions. Some gardeners who seed these varieties of onions directly in their gardens selectively thin them as they grow and use the thinnings as green onions. Evergreen Bunching and Beltsville Bunching varieties will not form bulbs but produce clusters of four to eight slender, white onion stalks.

### **Q. What is the difference between a set and a transplant?**

A. An onion set is a small bulb (1/2 to 1 inch in diameter). It is produced under conditions which rapidly produce a small bulb which, when planted, will grow into a larger bulb. An onion transplant is a plant between eight to ten weeks old that has not gone through the bulbing process. If planted at the right time, it will produce large bulbs.

### **Q. What is a bunching onion?**

A. Several types of onions are used as green bunching onions. Evergreen White Bunching and Japanese Bunching are frequently planted varieties of this type. They may be planted from seed, sets or transplants. Bunching onions are generally classed as multipliers because they propagate themselves. They are cold resistant and can be grown during winter. They will not bulb and are harvested as needed, using both the root and the tops.

### **Q. What is a shallot?**

A. A shallot belongs to the onion family and is made up of segments called cloves. It lives for many years and is grown for its mild, onion-flavored roots. The plants grow to about 15 inches tall and often bear white or violet flowers in early summer.

### **Q. Every year I buy onion plants to set out in my garden in the spring. Some years they make nice size bulbs and other years they don't. Why?**

A. First, obtain varieties that will bulb in your particular area. Always buy plants about the size of a lead pencil. Larger plants will not produce earlier or produce larger bulbs. Always set the plants in your garden at the right time for your area.

### **Q. Should I break over the tops of my onion plants to get a larger bulb?**

A. No. Breaking over the tops of onion plants will not increase bulb size; it prevents bulb enlargement. Onion bulbs increase in size as sugar manufactured in the top is translocated to the bulb enlargement.



**Q. What varieties of onions should I plant to produce the large, sweet bulbs?**

A. Plant the varieties Grano, TG1015Y or Burgundy. These onions are considered short-day onions. If planted at the right time for your area, given the proper moisture and fertility, they should produce large, sweet bulbs.

**Q. What causes my bulb onions to send up flower stalks?**

A. Several things can cause flowering of onions, but it is usually temperature fluctuation. An onion is a biennial plant, which means it usually takes two years to go from seed to seed. However, this condition is triggered by temperature. If an onion plant is exposed to alternating cold and warm temperatures resulting in the onion plant going dormant, resuming growth, going dormant and then resuming growth again, the onion bulbs prematurely flower or bolt.

**Q. Should I remove the flower stalks from my onion plants?**

A. No. Once the onion plant has bolted, or sent up a flower stalk, there is nothing you can do to eliminate this problem. The onion bulbs are still edible but probably will be smaller. Use these onions as soon as possible because the green flower stalk which emerges through the center of the bulb will make storage almost impossible.

**Q. The foliage of my onion plants has purple spots which kill the leaves.**

A. This is purple blotch caused by an airborne fungus which infects onions during extended periods of dews and intermittent rain. The loss of foliage from infection by this fungus can result in small bulbs and secondary rots that prevent the bulbs from storing properly. Control purple blotch with fungicides.

**Q. My onion leaves look silver and some are dying. What causes this?**

A. Thrips could be feeding on the leaves. Examine the plants for small yellowish or blackish insects. If they are present, treat with an insecticide. Use as directed on the label.

**Q. Why do my onions always rot when I harvest them and try to store them?**

A. Onions decay in storage as a result of neck rot which is caused by a soilborne fungus *Botrytis*. When harvesting onions, wait until the tops begin to dry and fall over. Then lift the plant and allow to dry. After the drying, clip the tops and dry the cut area for one to two days to eliminate a possible site for infection. Then place the onions in a well-ventilated area and in a container that allows free movement of air around the onions. If the onions are to be stored, a good fungicide program during the growing season is important to prevent diseases such as *Botrytis* and purple blotch from entering the bulbs.

**Q. After harvesting, what is the best way for me to store my onions?**

A. Onions should be stored in a relatively warm, (72 degrees F) dry place. Allow onions to mature in the garden before harvesting. Maturity is indicated by the fall of the top of the onion plant. After 10 to 20 percent of the tops have fallen, pull up and dry the onions in the garden for several days. Some gardeners prefer to partially pull the onions up, which allows the onions to dry while still in the ground. After drying, remove the roots and the top, leaving about 2 inches of the neck to seal and to prevent entrance of decay organisms. Refrigerating onions and exposure to temperatures between 35 and 65 degrees F will stimulate sprouting and root growth.