



## Onions—Bulb and Green Bunching

### Types and climatic requirements

Bulb (or dry) onions are classified into three major groups based on daylength requirements: short-day, medium-day, and long-day. Only the short-day and medium-day types can be grown successfully in Hawaii, and they must be planted at the appropriate time of year. For example, short-day varieties should be seeded from September to March; planting during the summer months will result in premature bulbing and small bulbs. Medium-day varieties should be seeded from March to May.

Varieties requiring long days (13 hours or more) to bulb are not adapted in Hawaii. Short-day, mild-flavored varieties include 'Yellow Granex' hybrid, 'Tropic Ace' hybrid, 'Early Texas Grano 502', 'Excel', and 'Yellow Bermuda'. "Maui" onions include any of these varieties grown under Maui conditions. Short-day, pungent varieties are 'Awahia' and 'Red Creole'. Medium-day varieties include 'Early Harvest' hybrid, 'Amber Express' hybrid, 'Pronto-S' hybrid, and 'San Joaquin'.

Other onion types commonly grown are scallions, 'Rakkyo' ('Rankyo'), green onions, and shallots. Scallions are bulb onions harvested before maturity when the bulbs measure 1–2 inches in diameter and the top growth is still green and upright. The bulb portion is used for green salads and is very mild and sweet at this stage of growth.

'Rakkyo' is grown for its small bulbs, which are used for pickling. Its growth habit is similar to the shallot, but its flavor and odor are quite different. Planting is done from November through February by means of sprouting bulbs (no seeds are available). A single bulb

will divide into several tillers until bulb formation begins in June–July. After bulb formation, the top growth will die down completely, usually between August and September.

Green onions are grown for their white stems and green leaves. Only the multiplying (or dividing) types of onion and shallot are grown in Hawaii for harvest as green onions. There are two types: the small-leaved and the large-leaved (futo negi) strains. Propagation of the local small-leaved green onion strains and local shallot strains is by stem divisions (sets). Propagation of the popular 'Koba' small-leaved strain is by seed. 'Koba' and the local strains of green onion can be planted year-round. Hawaiian shallots should be planted from September to May, as the top growth dries out soon after small-bulb formation in late summer. Futo-negi types are propagated by seed.

### Soil management and fertilizers

Onions thrive in well drained, slightly acid to neutral soils with high organic matter content. Composts or manure can be applied at 10–20 lb per 100 square ft to improve soil condition and fertility. Onions are susceptible to nematodes. If nematodes are present, the soil should be treated before planting with a nematicide<sup>2</sup> that does not contain bromide. Apply a general garden fertilizer, such as 10-30-10, at 2–3 lb per 100 square ft. Apply the fertilizer in two applications, half at planting time and the other half six weeks later. Another application of  $\frac{1}{2}$ –1 lb of sulfate of ammonia can be made 12 weeks later (or before bulb formation) to enhance bulb size.

<sup>2</sup>Read any pesticide's label carefully to ensure that its use on onions is allowed, and follow the label directions.

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**Planting**

Bulb onions can be propagated by planting 1 oz of seed or 400 sets (small bulbs  $\frac{1}{4}$ – $\frac{1}{2}$  inch in diameter) per 100 ft of row. Green onions are planted at 400 sets per 100 ft of row. Seeds should be planted at a depth of  $\frac{1}{2}$ – $\frac{3}{4}$  inch. Spacing between rows should be 12–15 inches. Plants should be thinned to provide a spacing of 3–4 inches between plants.

**Cultivation and irrigation**

Onions are sensitive to weed competition. Cultivate whenever necessary or as soon as weeds begin to emerge. Onions are shallow rooted and require a steady supply of moisture. Insufficient water will cause more damage to onions than an excess of water. Irrigation should stop when bulb formation is complete and when the top growth begins to fall over. This will aid in preventing soft-rot damage to the bulb.

**Insect control**

Common insect pests of onions are thrips, aphids, leaf miners, and the larvae of the leek or onion moth. These insects can be controlled to some degree with insecticides<sup>2</sup> through a regular spray schedule. The use of a spreader-sticker will greatly enhance the effectiveness of the insecticide<sup>2</sup>. However, once the larvae of the leek moth have begun feeding inside the leaf, the only effective control is to remove and destroy infested leaves.

**Disease control**

Rust and purple blotch are common diseases attacking the foliage of onions. Fungicides<sup>2</sup> can provide adequate control of these diseases. Bulb onions are susceptible to soft-rot bacteria. Bulbs should be pulled when mature and allowed to cure in a dry, well aerated place.

**Harvesting**

Green onions can be harvested 50–60 days after planting. It is advisable to harvest the whole plant and then replant rather than remove the top growth and leave the root portion in the soil. The succeeding crops from old roots often are smaller and less productive. Bulb onions require 90–120 days from sets or 150–160 days from seed if short-day varieties are planted. Medium-day varieties require 110–130 days from seeding to harvest. Bulb onions need complete drying and curing for good storage life. ‘Yellow Granex’ and other mild-flavored, short-day onions have poor keeping quality, while the pungent ‘Awahia’ and creole types have good keeping quality.

**Seed availability**

Seeds of ‘Awahia’ and ‘Koba’ are available from the CTAHR Department of Horticulture and some garden shops. Seeds of other bulb onions may be available at garden shops or ordered from seed companies. Sets (sprouting bulbs) of shallots and ‘Rakkyo’ may be available at garden shops. Seeds of the large-leaved type of green onion are available from Mainland or Asian seed companies.

**Kenneth Y. Takeda and Richard T. Sakuoka**  
CTAHR Department of Horticulture

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