

Cooperative Extension Service**CTAHR**College of Tropical Agriculture & Human Resources
University of Hawaii at Manoa**Home Garden Vegetable****April 2000**

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HGV-2

Lettuce for the Home Garden

Lettuce grows best during cool weather. Head types are particularly sensitive to warm weather and rarely grow well when the temperature gets higher than 75°F. Some types of lettuce grow satisfactorily at lower, warmer elevations in Hawaii, but even for those varieties, growth is generally better during cooler seasons. When the temperature is too high for the variety, lettuce plants will have symptoms including leaf tip-burn, early bolting (flowering), and bitterness, and head types will also have loose heads.

Varieties

The most common type of lettuce grown in Hawaii's low-elevation areas is 'Green Mignonette', locally called "Manoa lettuce." A selection of 'Green Mignonette' made by CTAHR horticulturist Richard Hartmann was named 'UH Manoa' and is available through the seed program of the CTAHR Agricultural Diagnostic Service Center.

Manoa lettuce is classified as a semi-head variety, but the size and firmness of the head varies considerably with the temperature under which it is grown. 'UH Manoa' has medium-green to dark green "buttery" leaves. Its heads weigh up to 1 pound but are usually smaller. It is heat-tolerant, slow to bolt, and resistant to tip-burn, and it can be grown year-round in Hawaii, even at low elevations, although it will form larger heads, take longer to bolt, and have less tip-burn during cooler weather or at higher elevations. It should be protected from heavy rains, which will bruise the soft leaves. CTAHR horticulturists consider seedlots of 'UH Manoa' to be more uniform than 'Green Mignonette'.

The variety 'Anuenue', also developed by CTAHR and available from the seed program, is also sometimes grown at low elevations. It has a smoother leaf than 'UH Manoa' and will form a larger head when conditions are suitable.

True head lettuces can be grown with reliable success only at higher elevations, such as in Kula on Maui or Volcano and Kamuela on the island of Hawaii, where the variety grown is usually one of the 'Great Lakes' strains. Some success has been obtained growing head lettuces at low elevations on Molokai between September and March; cultivars such as 'Mesa 659', 'Salinas', and 'Classic' have headed well.

In addition to the 'Green Mignonette' types, many other varieties of leaf lettuce are available that gardeners could test for their particular locations. Three that were slow to develop bitterness in trials at low elevations were 'Buttercrunch', 'Bibb', and 'Parris Island Cos' (a romaine type). 'Summertime' is a crisp head lettuce that has grown well at the CTAHR Urban Garden Center on Oahu and may be suitable for other low-elevation areas. Many lettuce varieties not suitable for commercial purposes may be useful in home gardens if they are harvested when young or if the weather is slightly cooler than normal.

Soil management and fertilizers

Lettuce does best in well drained soil with high organic matter content and soil pH from slightly acid to neutral (pH 6–7). On more acidic soils, lettuce will show a good response to applications of lime and compost mixed with the soil to a depth of 6–8 inches. A general garden fertilizer (such as 14-14-14) applied at a rate of 750–1000 lb/acre (about 1¾–2¼ lb per 100 ft²) should be sufficient on most soils for a crop of lettuce. Apply half the fertilizer at sowing and the other half 3–4 weeks later.

Planting

Lettuce is generally seeded directly into the garden soil, but it is often transplanted. For direct sowing of leaf or semi-head types, plant the seeds ¼–½ inch deep in rows 8–10 inches apart; for head types, make the rows 12–15

inches apart. As the plants grow, they may be harvested for use of the leaves until they have been thinned to 8–10 inches apart in the row. Some lettuces are suited to growing in soil in containers and in hydroponic systems.

Irrigation

Lettuce is very sensitive to inadequate moisture supply, and the soil should never be allowed to dry out. High temperature and low moisture supply cause tip-burn (drying and browning of the tips of the leaves). Irrigate in the morning before the heat of the day to avoid disease establishment and excessive evaporation of water.

Insect and mollusc pests

Slugs and snails can damage lettuce in home gardens. These mollusc pests can be controlled through sanitation, hand-picking, and baits labelled for use in lettuce. Insects such as aphids, cutworms, fleahoppers, garden loopers (caterpillars), leafhoppers, thrips, and leafminers are occasional pests but rarely require insecticidal treatment in the home garden. Insecticidal soaps can be used to control soft-bodied insects such as aphids, fleahoppers, and immature thrips, should the need arise. (Caution: pesticide use is governed by state and federal regulations. Read the pesticide label to ensure that the intended use is included on it, and follow all label directions.)

Plant disease problems

The most common diseases of lettuce are tip-burn, drop, bottom rot, downy mildew, and spotted wilt virus. Tip-burn is a physiological disorder that can be controlled by using resistant varieties and avoiding cultural practices that cause rapid and excessive growth, such as over-application of fertilizers. Increasing the calcium supply in strongly acidic soils by liming, slowing growth by lighter fertilizer applications, and keeping soil moisture at an ample and uniform level help reduce tip-burn.

Drop and bottom rot are caused by soil fungi. The symptoms are slimy rotting of the lower leaves, then the stem, and then the entire plant. Control is difficult, but it helps to keep the foliage dry and to control soil fertility so that growth is not overly succulent. Irrigating in the morning or using furrow or drip irrigation is preferable to overhead irrigation if fungus is a problem. Soil fertility levels can be controlled by moderating pre-plant applications of manures or composts and by applying fertilizers cautiously so as not to overapply.

Cool and moist weather conditions favor the development of downy mildew. The fungus attacks the older leaves first and causes light green or yellow spots. A white powdery growth may be visible on the underside of the leaf. Good air circulation and keeping the foliage dry will help to reduce the disease.

The symptoms of spotted wilt virus are many tiny spots on the younger leaves and stunted plants that fail to develop and then rot. The virus is transmitted by thrips. Control measures are to prevent build-up of thrips and remove infected plants.

Lettuce is also very susceptible to damage by root-knot nematodes. Symptoms appear as poor growth, stunting, wilting during the heat of the day, and bumpy, knot-like growths in the roots. For more information on nematodes, see CTAHR publication PD-15, *Plant-parasitic nematodes and their management*.

Harvesting

Lettuce can be continuously harvested as soon as it is large enough by picking individual leaves or by thinning whole plants. “Manoa” types and ‘Anuenue’ mature in 50–60 days; head lettuces and romaine take about 65–85 days. All types will mature faster when the weather is warm and slower when it is cool. Harvest the entire plant before bolting starts or bitterness develops.

Seed availability

Manoa lettuce seed is available from garden stores and sometimes from U.S. mainland seed companies under the name ‘Green Mignonette’. Seeds of ‘UH Manoa’ and ‘Anuenue’ are sold by the CTAHR Agricultural Diagnostic Service Center and are also sometimes available at local garden stores. Seeds of many head and leaf varieties can be ordered from catalogs.

Additional information

Commercial growers may wish to purchase CTAHR publication RES-164, *Lettuce production guidelines for Hawaii*, a 20-page guide published in 1996 that includes color photographs of lettuce diseases.

Revised, with assistance from Richard Sakuoka, Randall T. Hamasaki, Robin Shimabuku, and Alton Arakaki, from CTAHR’s Home Garden Vegetable Series No. 2, 1978, by Richard Hartmann, Yukio Nakagawa, and Richard Sakuoka.