Bananas can be successfully grown in most areas of Hawaii. Banana plants thrive in areas with 7 to 8 inches of monthly rainfall, 70 to 85 degrees of temperature, and good air circulation.

Adversely affected when temperatures fall below 50°F, banana plants show delayed vegetative growth, fruiting, and ripening. When temperatures are above 80°F, the fruit ripens improperly with a greenish-yellow color and soft fruit. Bananas should be planted in areas protected from strong winds. Severe splitting and drying of leaves caused by wind result in decline in growth and fruit production.

Recommended Cultivars

1) "Chinese" ("Dwarf Cavendish") is a popular home garden cultivar. It is resistant to Panama wilt. It is more suitable in windy areas because of its short height, rarely becoming more than 10 feet high.

2) "Williams" ("Williams Hybrid") is slightly taller than the "Chinese" variety and produces larger bunches.

3) "Valery" ("Taiwan") is a cultivar similar to "Williams Hybrid" but much taller in height. The fingers are also longer than the "Williams Hybrid" and the fruits are quite firm. The pseudostem is relatively weak and in most cases need to be supported for each fruiting plant.

4) "Brazilian", erroneously called "Apple" in Hawaii, has a somewhat more pronounced flavor but is tolerant to Panama wilt as well as to the burrowing nematode. Stalks reach about 20 feet in height. It also withstands winds.

5) "Dwarf Brazilian" is a cultivar similar to "Brazilian" except that the plant is about 8 to 10 feet in height.

Among the cooking or planting types of bananas, the "Maoli" group grows to about 20 to 25 feet in height. "Popoulu" grows to 15 feet in height with bunches of fruit compactly arranged and generally weighed from 20 to 40 pounds. Other cooking cultivars include "Iholena", "Red", and "Ice Cream". The "Red" and "Ice Cream" cultivars are delicious both as a dessert and as a cooking fruit. (For further information on banana cultivars, refer to Horticulture—Oahu County Leaflet No. 21, Banana Cultivars and Their Characteristics.)
Soil Preparation and Planting

Bananas do well in most Hawaii soils. They can be grown on soil types ranging from "aa", to sandy, to loam, to clay type soils. There must be soil with good drainage and aeration, moderate water holding capacity, and with a pH of from 5.0 to 6.5. Crushed coral, or lime, may be applied to properly adjust the pH has become more acid than 5.0. Good land preparation and the addition of compost to the soil, and preplant fertilizer such as 10-30-10 or trebel superphosphate to improve tilth and good root development is important for optimum growth.

Plant spacing depends upon the cultivar grown. "Chinese" and "Williams Hybrid" cultivars require 8 to 10 feet spacing within the rows and further between rows. They should be planted in holes that are 2 to 3-1/2 feet across and 1 to 1-1/2 feet deep. With "Brazilian" and cooking cultivars, plant 10 to 15 feet apart in the rows and between rows.

Also, bananas should be planted deep. Place the corm, or underground root zone, at about 12 inches below soil level. Cover corms with soil to its original soil level. Good anchorage is provided by deep planting of bananas. Also, premature emergence of suckers is prevented by deep planting.

Suckers, or side shoots, are generally used as planting material. Remove these from the older trunk.

Pruning, or thinning, banana suckers to obtain two fruiting plants per mat per year is recommended procedure (two older plants and two younger plants which serve as fruiting plants and replacement plants, respectively.) Suckers are then removed by cutting into the base of the sucker to sever it from the mat.

Propping of large bunches of fruit of "Valery" and "Williams Hybrid" cultivars is required. This prevents the tree from falling. Forked guava branches or "two-legged" wooden props bolted or fastened together about one foot from the end are used to support the weight of the banana fruiting bunch.

Irrigation and Fertilization

As long as annual rainfall is distributed at the rate of 7 to 8 inches per month, supplemental irrigation is not required. During dry periods when the rainfall amounts fall below 7 to 8 inches, supplemental irrigation should be applied each week. When necessary, irrigation can be supplied by furrow, drip, flood, or sprinkler methods. When banana plants have insufficient water, wilting and yellowing follow, resulting in growth retardation.

Bananas do well when given proper amounts of nitrogen and potash. One month after planting, an application of fertilizer such as 10-5-20 or 15-5-25 or 12-6-18 is recommended. Fertilizer should be applied 3 to 4 times a year. Since soil type and other environmental factors may vary the requirement for particular fertilizers, you should be alert to plant responses to such variations. In general, fertilize each mat, or clump of plants, with about 2 to 3 pounds of commercial fertilizer per application.
Insects and Diseases

Oriental fruit fly damages fruits left on the tree to ripen. Fruits should be harvested when the fruit is in the mature green stage. Fruits should be removed before the fruit fly deposits its eggs.

The red banded thrip, a tiny insect, causes a russetting appearance on banana fingers. This pest is very hard to detect because of its small size and its habit of hiding in the flowers and between fingers.

A relatively new insect—the banana skipper—curls banana leaves. Biological control measures have successfully controlled this pest.

Panama wilt, a fungal disease, mainly affects the "Bluefield" cultivar. There currently is no control for this disease. Using clean stock on virgin fields may be effective for some time. The "Cavendish" cultivars are resistant to Panama wilt.

Black Leaf Streak is another disease which attacks the leaves by yellowing the leaves and producing necrotic leaf lesions. An oil-fungicide combination spray helps to control the disease as well as clean culture will prevent disease from spreading.

Another disease called Freckle is commonly found on "Chinese", "Williams Hybrid", and "Brazilian" cultivars of banana. It occurs as black spots on the leaf or fruit and can be controlled with a fungicide. Cigar-end or finger tip rot is also controlled by a fungicide such as manczeb.

Burrowing nematode is another problem especially of "Cavendish" types. Planting clean rhizomes by trimming roots or suckers and immersing in hot water at 122°F. for 10 to 15 minutes is quite helpful. A 10 to 15 minute dip into solution made up of one part of clorox and five parts of water may also be beneficial.

Harvesting

Harvest the fruit when the bunch has reached full maturity but is still green. Physical characteristics such as color (fingers are light green) and plumpness (corner of finger is rounded rather than angular) are used to determine when to harvest. Another method of determining the time to harvest banana is when the top (oldest) hand begins to turn a tinge of yellow.

Harvesting the short cultivars such as "Dwarf Cavendish" is relatively simple. Using a sharp machete, sickle, or knife, cut the stem above the uppermost or the most mature hand.

The taller varieties may require more skill and an additional individual to assist, especially if the bunch is heavy. Make several cuts perpendicular or at a slight angle to the trunk about 1/2 to 2/3 of the way up the trunk. Never make cuts completely around the trunk. Always make cuts on the side of the trunk where you expect the trunk to buckle towards and fall. Cut the trunk enough so that the bunch does not hit the ground when the top begins to buckle.
Keep the bunches upright or lay it on its side to prevent from crushing or bruising. A plastic sleeve may be put over the bunch or use of a foam rubber or banana leaves will further prevent the bananas from bruising.

The harvested banana bunches should then be kept in a cool, shady, and well ventilated place that is protected from fruit flies.

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"Use pesticide safely. Read and follow label. Consult Cooperative Extension Service or Department of Agriculture personnel for authorized special local need registrations or additional information. The user is responsible for proper use and application of pesticides as well as storage and disposal."