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Fig as a Fast to Fruit Tree

Ficus carica, commonly known as fig is a small, bushy fruit tree new to Guam markets. Fig is a very fast to fruit tree, bearing fruit within one year of planting. For many new farmers establishing agroforestry or fruit tree plantings, fast to fruit trees provide rapid economic returns and local market impact. Chefs on Guam have expressed the desire for more variety in fruits that convey local ambience, during both monthly Micronesian Chefs' Association meetings and in focus groups (L. Barber, personal communications, 2013-2018). Fig offers the potential of commercial quantities of fruit in only a few years.

Culture at a Glance

Fig: *Ficus carica* L., edible fig, or fig (English)
Size: 10 feet or more depending on variety
Flowering and fruit production: Year-round (with irrigation) in flushes 2-3 times a year
Light: Full sunlight (6 to 8 hours to ripen fruit), but tolerates partial shade
Soil: Well-drained soils (pH 6 – 6.5), can tolerate pH level greater than 7
Propagation: Softwood and hardwood cuttings
Spacing: 12-20 ft.
Watering: Keep soil moist, but not saturated as fig requires frequent watering during dry periods
Pruning: Advisable to keep trees short and to facilitate harvest. Fig fruits develop on new growth.
Common diseases: Fig rust *Cerotelium fici* (syn. *Physopella fici*)
Pests: Chickens, fruit flies, and rose beetles
Cautions: Fig contains a significant amount of latex which can be a skin irritant; gloves and long-sleeved shirts should be worn when harvesting and pruning.

Fig with its low bushy growth habit makes an excellent barrier plant for property perimeters, both

on the farm and in urban settings. Fig is also a good choice for shading the walls of buildings but, figs should not be planted near septic drain fields because the roots will aggressively seek water and can clog the drain field.

Plant Appearance and Growth

Description of Tree

Fig is a fast-growing, low branching, bushy tree with numerous spreading branches. Depending on the variety, fig trees can grow up to 10 feet or more. Fig is grown throughout the world in warm temperate to tropical climates. Fig prefers full sunlight but can tolerate some shade. There are many varieties of fig. Current varieties on Guam include Brown Turkey and White Kadota.

Description of Fruit

Fig fruits have a range of shapes from an egg-, top-, or pear-shaped and are usually 1 - 4 inches long. They vary in color from yellowish green to brown or violet. Mature fig fruits are soft fleshy with a somewhat tough exterior skin and a whitish to pink interior rind. Fig contains a sweet pulp. Fruits of the 'Brown Turkey' variety are medium to large size and appear as a violet brown when ripe. Fruits of the 'White Kadota' variety are medium sized and go through a color change from a darker green to a light green. Fresh figs are very perishable when mature so harvest must be done carefully by hand to prevent bruising and damage to the fruits.

Propagation

Asexual

Fig varieties on Guam are commonly propagated by cuttings or air layering. Of these two methods cuttings are the easiest. Both hardwood and softwood cuttings readily root in a moist, partially shaded environment. Survival rates of cuttings are increased with the use of rooting hormones. Growers should only use rooting hormones which the label indicates are approved for use with fruit trees.

Planting Establishment and Maintenance

Soil

The fig tree can be grown on a wide range of soils. It can tolerate drought and some soil salinity. It is not tolerant of highly acidic soils. Fig trees grow best in well-drained soils with a pH of 6 – 6.5 but are tolerant of higher pH levels.

Spacing & Pruning

Appropriate spacing for fig trees is 12-20 feet apart (McEachern, 1996). In a barrier planting that is regularly pruned figs may be spaced closer together. Consider spacing orchard rows 20-25 feet apart to allow equipment to pass.

Pruning increases air circulation in the plant canopy and allows for faster drying of leaves after periods of rain (helps to prevent fungal growth). Prune roughly every three to five months. It is advisable to keep trees short to facilitate harvest. So, it is ideal to keep fig short and let it grow outward rather than upward. Fig fruits on new growth so regular pruning can assist in the timing of flushes of fruit for harvest.

Planting

The recommended time to plant fig trees on Guam is at the beginning of the rainy season. But if watered regularly fig can be planted year-round. A hole should be dug at least twice the diameter of the root ball and deep enough to accommodate the existing root system. The hole should be large enough to accommodate the fig's first-year root growth. To provide a more fertile soil, mix amendments such as compost, manure, or fertilizer with the existing soil and refill around the root ball.

An old farmer saying from South Georgia that should be considered when planting a tree:

“It is better to plant a \$1 plant in a \$10 hole than a \$10 plant in a \$1 hole.”

Sheet Mulching

Sheet mulching is a low maintenance practice for weed suppression and erosion control that simultaneously builds soil organic matter. Sheet mulching is a three-layered mulch system used for crops and trees. Waste materials such as cardboard, shredded paper, grass clippings, green waste, etc. can be used. Sheet mulching around a newly planted tree

is recommended to reduce weeds, improve soil fertility, and conserve water.

To sheet mulch after planting add compost, manure, or other amendments to the soil around the tree. Next, place a weed barrier (layer of overlapping cardboard or newspaper) around the tree in the shape of a ring. The materials used for the weed barrier, such as cardboard, should overlap one another, so weeds will not emerge. Soak this weed barrier layer thoroughly with water. Finally, spread a layer of mulch material over the weed barrier. It is important to leave a gap of several inches (2”- 6”) between the sheet mulch materials and the tree trunk for good air circulation.

Nutrients and Fertilizers

Fig like many fruit trees can survive in Guam's soil types without additional fertilization. However, supplemental nutrition can improve the health of the tree, enhance growth, increase yields, and reduce pest problems.

Application of fertilizer varies with the age and size of the tree and the type and condition of the soil. A “complete” fertilizer is one that has all three primary plant nutrients nitrogen (N), phosphorous (P), and potassium (K). Young non-bearing and fruit-bearing trees respond well to applications of complete fertilizers, such as 16-16-16, 10-20-20, or 10-30-10 on a regular basis.

Do not use a complete fertilizer that has a higher percentage of nitrogen than phosphorous and potassium for fruit trees because nitrogen encourages leaf growth at the expense of fruit and root production.

Fertilizer application

Optimum fertilizer application rates are those based on soil tests. Tables 1 and 2 provide general fertilizer recommendations that may be used in the absence of recommendations based on soil tests. Table 1 provides frequency and fertilizer rates to apply to young, non-bearing fig trees. Table 2 provides frequency and fertilizers rates of two complete fertilizers for application to mature fruit-bearing fig trees. For instructions on how to take a soil sample see UOG CE&O's “Soil Sampling” brochure (Motavalli, 1998).

Table 1. Fertilizer program for young trees.

Year	Times/Year	Amount per Tree Application (lbs) 10-20-20	Amount per Tree Application (lbs) 16-16-16
1	6	0.50 lbs 3.0 lbs/year	0.25 lbs 1.5 lbs/year
2	6	1.0 lbs 6.0 lbs/year	0.50 lbs 3.0 lbs/year
3	6	1.50 lbs 9.0 lbs/year	0.75 lbs 4.5 lbs/year

Table 2. Fertilizer program for fruit-bearing trees.

Apply ½ pound of (10-20-20) or ¼ pound of (16-16-16) complete fertilizer per foot of the diameter of the tree canopy per year		
Time of application	Amount per 12' Tree Canopy 10-20-20	Amount per 12' Tree Canopy 16-16-16
After harvesting all fruit apply ½ the amount of fertilizer for the year	3.0 lbs	1.5 lbs
Apply ¼ of the amount of fertilizer two months later	1.5 lbs	.75 lbs
Apply ¼ of the amount of fertilizer two months later	1.5 lbs	.75 lbs
Total	6.0 lbs yearly	3.0 lbs yearly

Irrigation

Proper irrigation is important especially during the fig tree's early years. If fig trees are planted during Guam's dry season (January to June), and/or for year-round fruiting, irrigation is recommended. Drip irrigation is recommended for water conservation and economic efficiency. Funding assistance, for Guam producers, for drip irrigation is available through the Natural Resource Conservation Service's (NRCS) Environmental Quality Incentive Program (EQIP) program. For more detailed information on design and installation of drip irrigation systems see Cooperative Extension & Outreach's publication, "Drip Irrigation Basics" (Tuquero, et. al., 2019).

Incentive Programs

On Guam, incentives for farmers are possible through participation in the USDA Natural Resource Conservation Service's (NRCS) Environmental Quality Incentive Program (EQIP). Participating farmers may receive cash reimbursements for establishment costs of recommended conservation practices. Drip irrigation is one of the many sound environmental practices recommended under the EQIP program. Incentives for implementing conservation plans make this an attractive farm program. Under EQIP, farmers have the ability to both increase the environmental sustainability of their operations and improve their bottom line.

For participation in government programs, it is important to verify that the program requirements are met, and plans are in place prior to implementing a practice. For more information on EQIP program, contact your local NRCS field office on Guam. NRCS offices can be reached at (671) 300-8591. For EQIP on the web visit:

<https://www.nrcs.usda.gov/wps/pertal/nrcs/main/national/programs/financial/eqip/>

Diseases and Pests

The most common disease of figs in the tropics and subtropics is the fig rust, *Cerotelium fici* (syn. *Physopella fici*). Figs are also a fruit fly host with the 'Brown Turkey' variety being less susceptible than 'White Kadota'. Common rose beetles (*Cetonia spp.*) frequently cause severe leaf damage. On Guam feral chickens are a significant pest. For more information on pest and disease control, please contact your local Extension agent.

Harvest and Handling

Maturity & Shelf Life

Caution should be taken when harvesting figs as they contain a significant amount of latex and can be a skin irritant. Gloves and long-sleeved shirts should be worn when harvesting and pruning figs to prevent skin damage.

Skin color and flesh firmness are dependable maturity/ripeness indicators. Fully ripe figs are soft to the touch and easily bruised. Protective packaging should be used to keep the fruits from rolling around

and damaging the skin to prolong shelf life and postharvest quality. Because they are tender and ripen quickly, figs should be checked to be free of broken skin and damage from insects or birds during harvest.

Fresh fruits of ‘White Kadota’ are green colored and can be tough to tell when they are ripe. A slight color change from a darker to a lighter shade of green would be the first sign of ripening. The next sign would be the firmness of the fruit. Unripe figs are hard while ripe fruits will feel soft and are easily bruised if held too tightly. Mature fruits of ‘Brown Turkey’ are easier to detect as the fruit will become a darker purple/brownish color and are soft. After washing and packaging, figs can last on the shelf from 3 to 7 days.

Packaging Preferences

Fresh fig is not yet commercially sold on Guam and is rarely available in farmers’ markets. Dried fig can be bought in supermarkets. Ripe figs are delicate so to maintain quality, figs are placed side by side in shallow flat containers, often in egg cartons.

Food Uses and Nutrition

Figs can be eaten fresh or dried, and processed to produce jams, jellies, or pastes. Figs are harvested depending on market demand. “Commercial ripe” figs are for chefs who will use the fruit to cook and preserve as sauces. These can be harvested earlier in the ripening process. “Tree ripe” figs are eaten fresh and can be harvested when the fruit becomes softer.

Nutritional Value

Figs are low in calories and high in dietary fiber. It is a good source of potassium and vitamins K and B6 (Love, 2007). See Nutrition Facts Insert

For more information, please contact your local Cooperative Extension Service office, on Guam at (671) 735-2080.

References and Additional Readings

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Nutrition Facts	
1 servings per container	
Serving size	1 medium (50g)
Amount per serving	
Calories	35
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 10g	4%
Dietary Fiber 1g	4%
Total Sugars 8g	
Includes 0g Added Sugars	0%
Protein 0g	
Vitamin D 0mcg	0%
Calcium 18mg	2%
Iron 0mg	0%
Potassium 116mg	2%

*The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Source: USDA