



Figs

Matt Ernst¹

Introduction

The fig (*Ficus carica* L.) is native to western Asia through the Middle East and to the Mediterranean. Fig cultivation began in Mesopotamia more than 5,000 years ago and is attested by ancient sources, including biblical literature and Egyptian hieroglyphics. The fig's native regions are today's leading production areas. Turkey is the world's leading fig producer, followed by Morocco, Algeria and Egypt. Figs came to Mexico, South Carolina and Florida in the 1500s, and figs came to Virginia from Bermuda around 1620. Today, California accounts for nearly all fig production in North America.

Figs are harvested for both fresh consumption and processing. There are three main types of cultivated *Ficus carica*: Common, San Pedro and Smyrna. Common figs produce fruit parthenocarpically, without any pollination. Smyrna figs require pollen transfer from male trees that produce small caprifigs for fruit growth. Pollen transfer is obtained by the fig wasp (*Blastophaga psenes* L.), a species unable to survive the southern U.S. winter temperatures. San Pedro figs are intermediate between the two; a minor summer "breba" crop will set without fertilization but the later main crop requires pollination by the fig wasp. The common fig is the only type suggested for cultivation in the southern U.S.

Marketing and Market Outlook

California's total fig production is about 30,000 metric tons annually. This volume is similar to the total production in countries like Brazil, Spain and Portugal. Most of California's production is dried; some is used for canning, and about 10 percent is harvested for fresh use. Fresh figs are very per-



'Chicago Hardy'

ishable. The relative scarcity of fresh figs in the U.S. could make niche production feasible in Kentucky. However, producer caution is warranted due to the high probability that cold injury from Kentucky winter temperatures will affect productivity and may kill less hardy trees outright.

Production Considerations

Cultivar selection

Fig trees may grow taller than 40 feet in the southern and western U.S. However, trees will die back to the soil line from winter freeze damage and are often trained as bushes in climates like Kentucky. Select common figs with known cold tolerance and resistance to splitting and souring. 'Celeste' and 'Chicago Hardy' are two common fig cultivars, of-



¹Matt Ernst is an independent contractor with the Center for Crop Diversification.

ten planted in the southern U.S., with cold resistance to zero degrees F and 10 degrees F, respectively. Both are good for fresh use, drying and preserves.

Site selection, planting, and maintenance

Select well-drained soils with at least eight hours of sunlight. Avoid sites with high populations of root knot, lesion and dagger nematodes, as the presence of these species can cause plant decline and crop loss. Fig plantings near the southern side of a building are often recommended in colder climates such as Kentucky. Fig trees develop extensive, relatively shallow fibrous root systems and should not be planted near drainpipes, sewer lines or other underground infrastructure potentially affected by invasive roots.

Obtain disease-free fig trees of verified cultivars from reputable sources. Figs can also be propagated from established trees, either by transplanting suckers or by establishing new plants from dormant cuttings in the late fall and transplanting them after one year. Details for fig propagation are included in the University of Tennessee publication, *Figs in the Home Planting*, listed in the references section. Frequent watering is required during establishment and mature bushes should also be well-watered. Mulching helps soil retain moisture and reduces weed pressure as the fig root system spreads.

Fig trees should be protected as much as possible from severe freezes. Winter protection is advised for figs in Kentucky and other locations in the southern U.S. Figs are also adversely affected by rapidly warming and cooling temperatures during the winter. In addition to locating the planting on the south side of a building, protection by heavily mulching the crowns when dormant may help reduce the impact of winter temperature swings.

Guidelines from Clemson University and Mississippi State University advise adding supplemental nitrogen three times during the year and avoiding over-fertilization. Excessive fertilization can result in later fruit production and lush growth that is less tolerant to winter temperatures.

Pest management

Several pests may impact fig growth and production. Young trees should be guarded against potential dam-



'Celeste'

age from wildlife pests that feed on roots and bark by fencing or other barriers. Wildlife will also feed on fruits and bushes may require bird netting for protection. Insect pests include spotted wing drosophila, fig fly and ants that feed on the fruit. Tanglefoot may be applied to tree trunk bases to prevent ant fruit feeding where there are a few fig plants. However, the plant should be pruned to avoid contact with house walls or other plants where ants might gain access. Some insects may spread yeasts, causing fig fruit to sour. Clemson guidelines advise planting cultivars with a closed eye, which prevents insects from entering the fruit. 'Celeste' has a closed eye and 'Chicago Hardy' has a small eye.

Harvest and storage

Figs develop from a compound flower structure containing numerous internal ovaries. Fruit shapes vary, from round to pear-shaped, lopsided to oblique. Skin of ripe figs can be green, yellow, bronze, violet, dark purple or almost black.

Harvest figs for fresh use at their highest sugar content when the fruit are fully colored, drooping and about to drop from the shoots. Figs for preserving may be picked a few days before full ripening. Unripe figs may exude a milky latex that can irritate sensitive skin; avoid contact by wearing gloves or harvesting when fully ripe.

Labor requirements

Labor needs for small fig plantings will vary considerably based on site preparation and pest control methods. Allocate one to three hours for every three trees during planting and years leading up to fruiting. Tree pruning and maintenance will add another five to 15 minutes per tree.

Economic Considerations

Initial investments include land preparation, trees or seedlings, irrigation and pest control.

Establishment costs per tree will vary depending on the size and scale of planting. Based on per acre costs developed by Mississippi State University (2010), establishment costs over three years may fall in the \$65 range per tree. These costs presume 155 trees costing \$4.50 planted per acre, an irrigation system, and labor valued at \$12.50 per hour. Smaller plantings typically involve higher per-tree costs.

Breakeven prices for niche crops will vary depending on establishment costs, crop yields and marketing costs. Based on the cost data from Mississippi, growers would need a breakeven price of about \$3 per pound for a tree producing 10 pounds, and \$1.50 per pound for 20 pounds. Unfortunately, fig trees in Kentucky rarely produce 10 pounds of marketable fruit because trees frequently die back to the ground in most winters, and only a small number of figs ripen before frost in the fall. Thus figs are recommended for home production by those that highly prize fresh figs. Figs do well grown in large pots wintered over in the coldest part of the garage.

Selected Resources

- Figs in the Home Planting (University of Tennessee Extension, 1997) <https://extension.tennessee.edu/publications/Documents/SP307-I.pdf>
- Fig (Clemson Cooperative Extension, 2012) <http://www.clemson.edu/extension/hgic/plants/pdf/hgic1353.pdf>
- The Fig (University of Florida Extension, 2016) <http://edis.ifas.ufl.edu/pdf/FILES/MG/MG21400.pdf>
- Fruit and Nut Review – Figs (Mississippi State University Extension, 2015) <http://extension.msstate.edu/publications/information-sheets/fruit-and-nut-review-figs>
- Figs (Agricultural Marketing Resource Center, 2018) <https://www.agmrc.org/commodities-products/fruits/figs/>
- Commercial Figs 2010 Fruit and Nut Planning Budgets (Mississippi State University) <http://www.agecon.msstate.edu/whatwedo/budgets/docs/CommercialFig10.pdf>
- Historical Resource - Fig Growing in the South (USDA, 1961) <https://naldc.nal.usda.gov/download/ORC00000280/PDF>

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Reviewed by John Strang, UK Extension Specialist, and Daniel Becker, UK Extension Associate
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