



Figs

*For Commercial and Home
Production in Louisiana*

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The fig, *Ficus carica* L., is a native of Asia Minor and was imported into the United States in the 16th century. The fruit is tasty and can be eaten fresh, made into preserves and jams, or used in baking. Figs are commonly grown in all areas of Louisiana. Figs have the potential to produce an early crop, called the breba crop, on last year's wood in the spring, a main crop on the current season wood during the summer and a third crop in the fall. All fig varieties discussed in this publication produce a main crop. Some varieties like LSU Purple and Alma produce a very small or no breba crop.

Proper variety selection is important in Louisiana. Frequent rainfall and high humidity in the Gulf Coast area make many varieties unsuitable because of fruit splitting and souring. Varieties with closed eyes have fewer problems with fruit souring. Winter injury has killed plants of the cold-sensitive varieties in some years. Selecting varieties with cold tolerance is critical in north and central Louisiana.

Varieties

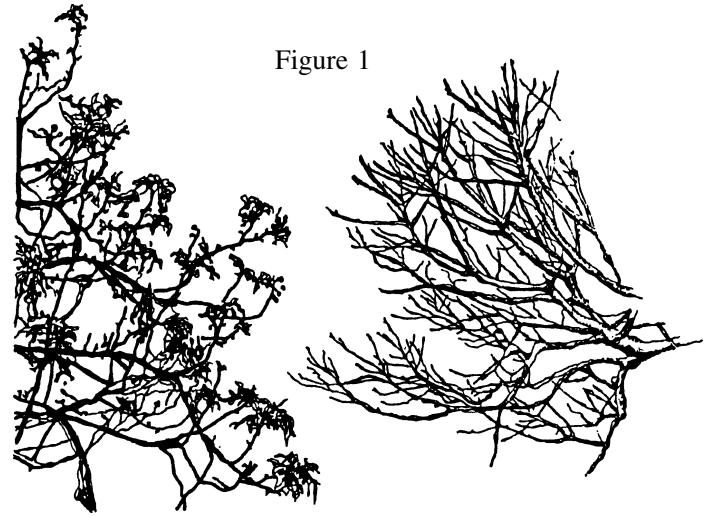
Fig variety names can be confusing. Numerous fig varieties are known by several names. Several varieties may also have the same name. Figs vary widely in size, shape, color, season of ripening and other characteristics. Therefore, it is important to select and plant varieties that will give the most consistent performance in your location. To do this, you need to know varietal characteristics.

Many varieties that will grow and produce consistent crops in drier climates are not suited for Louisiana because of susceptibility to splitting and souring during rainy weather, which is common during their ripening periods. Other varieties don't have sufficient resistance to cold injury for general recommendation. Also, varieties grown in Louisiana must have the ability to set parthenocarpic fruit (without pollination). Varieties suitable for fresh market and home preserves are quite often undesirable for commercial processing as preserved whole fruit, a common use of figs by Louisiana processors.

The varieties described are commonly found in Louisiana. In general, be aware that the fig is susceptible to cold injury, and this can occur even in south Louisiana. Selecting the proper variety will reduce the chance of winter injury, but all varieties are susceptible to such damage, and a number of factors influence a tree's susceptibility to winter injury. These include age of tree, cultural practices, stage of growth when exposed to adverse weather, rapidity of weather change, severity and duration of cold and natural protection.

Untimely freezes are the chief cause of winter injury. A fully dormant tree can withstand temperatures as low as 10 degrees F with only one-year-old wood sustaining injury. The one-year-old wood has relatively little stored material and a rather high freezing point. Young plants are injured by

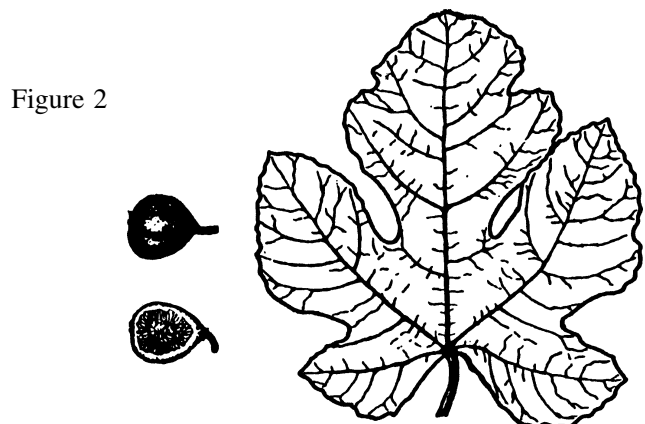
higher freezing temperatures than are older plants, and plants still in leaf are tender. Thus, the same variety can be hardy at one age or time of year and tender at others. Figure 1 shows a Celeste fig on the right that is dormant and is in a cold-resistant stage. The Hunt fig on the left has not gone dormant and is more susceptible to winter injury.



Celeste

This variety (Figure 2) is grown in all areas of Louisiana. The tree becomes dormant early in winter and is then quite resistant to cold injury; however, cold damage may occur from untimely freezes or to young plants of Celeste. The fruit is small (10-15 grams each) and violet to brown with a light strawberry-colored pulp. It is very good in quality as a fresh, canned or preserved product. The fruit droops at maturity and has a closed eye. This makes it highly resistant to splitting and souring. The fruit has a slender stalk and tapering neck. Leaves generally have three lobes but may have three to five lobes. This variety makes a dark preserve and is processed as a specialty item. It is also an excellent home orchard variety for fresh and processed use.

Celeste is known by many other names such as Celestial, Celeste Violette, Sugar, Small Brown, Malta and Blue Celeste. Celeste is the most popular variety in the state and is recommended for north and south Louisiana.

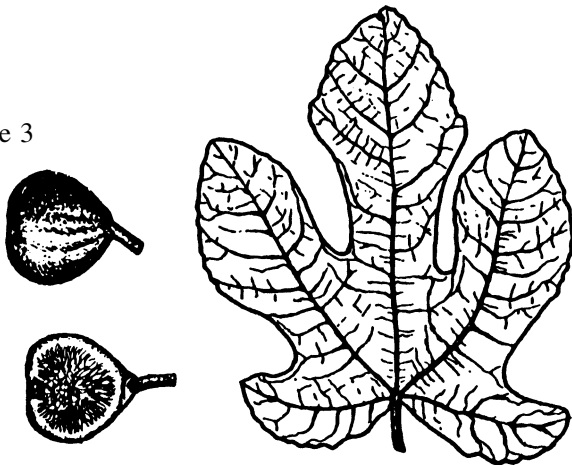


Brown Turkey

This variety (Figure 3) produces small to medium fruit (20–30 grams) with copper or bronze skin and amber to pink pulp. The eye is medium open, so it is more susceptible to splitting and souring than Celeste. Fruits are turbinate and usually without a neck. A small breba or first crop may be produced in the leaf axils about two weeks earlier than Celeste with a main, or second, crop of medium-sized fruits about two to three weeks after Celeste. The first crop fruits are usually larger than those of the second crop and are pyriform. Fresh quality is good, and processed quality is excellent. The tree is very productive, and good yields may be obtained on juvenile or young wood. For this reason, this variety has potential in areas where winters are too severe for normal tree development.

If frozen back, the tree will initiate sprouts that bear a good crop of useable fruit. Under such conditions, the bush system of pruning may be used, whereby several stems are allowed to develop from ground level. Leaves are three to five lobed of the grape leaf type. Brown Turkey is recommended for north and south Louisiana. It is sometimes known as Southeastern Brown Turkey, Eastern Brown Turkey, English Brown Turkey, Everbearing and Texas Everbearing. The Brown Turkey variety should not be confused with the California Brown Turkey, which has an open eye and is not adapted to Louisiana.

Figure 3



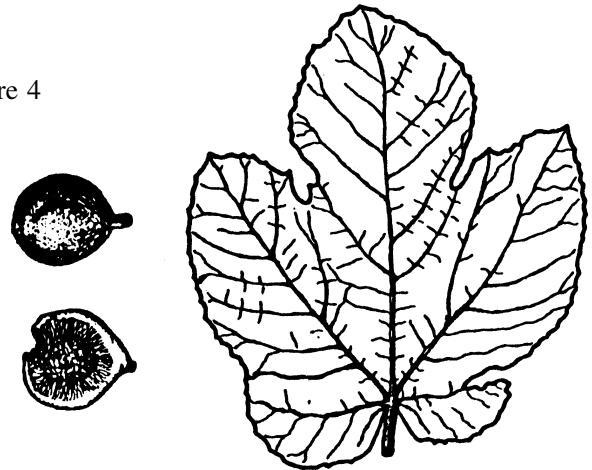
LSU Purple

This variety (Figure 4) was introduced by the Louisiana Agricultural Experiment Station in 1991. The figs are medium in size (1.75-2.5 inches long); weight ranges from 20-30 grams (15-20 fruit per pound). The fruit is long turbinate, with a distinct neck. The stalk on the fruit is about 1/2 inch long and medium in thickness. The skin is glossy, varying from reddish to dark purple, depending on light exposure and ripeness. LSU Purple figs check when ripe, exposing the white flesh beneath. The pulp is light strawberry when ripe. The tree appears to be fully parthenocarpic, and there are few empty seeds, or “kerfs,” in

the pulp. The flavor is good, mild, not “figgy,” and the sugar content, which varies with the weather, is high in ripe fruit.

The tree is vigorous, upright growing and has above-average resistance to leaf diseases. Ripe fruit of good quality may be produced on young trees even in the nursery row, whereas many common figs have a definite juvenile period of four or five years before bearing edible quality figs. Fruit quality will improve on four- and five-year-old trees. Trees of LSU Purple five years or older show a tendency to produce three distinct crops: a light breba crop in early spring, a heavy main crop in the summer and a later crop often lasting into December. LSU Purple has poor cold resistance and is recommended only for south Louisiana. It can be grown in North Louisiana on a trial basis. LSU Purple is sometimes grown in north Louisiana where severe winter injury sometimes occurs. It does rebound well from winter freezing and kill back and will produce a crop on current year's shoots.

Figure 4



LSU Gold

This variety was released by the LSU AgCenter in 2001. LSU Gold is a large yellow fig (35-50 grams) blushed with red and containing light red to pink pulp. The fruit has excellent flavor and good cold resistance. One of the limiting characteristics of LSU Gold is the open eye when mature. This can cause spoilage of fruit during ripening in high moisture periods. This variety is recommended for Louisiana.

Alma

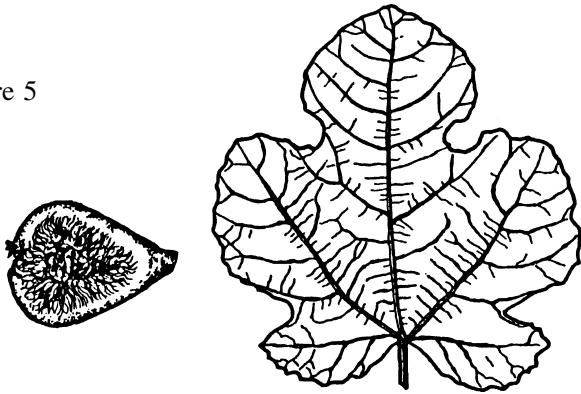
This variety was released by the Texas Agricultural Experiment Station in 1974. The tree is a compact, moderately vigorous growing tree. It is very productive and starts production at an early age. Alma is a late-season fig; the main crop generally ripens over several weeks after Celeste's main crop. Alma does not produce a breba crop. The fruit is medium (20-30 grams) in size. The eye is medium and self-sealing with drops of gum. The fruit skin is yellow to tan and has a thick rubbery texture. The Alma

fig has a thick white flesh with a light tan pulp with pink undertones. The flavor is very sweet, and the seed hulls are few and barely noticeable. Alma is recommended for south and central Louisiana. Cold resistance is poor to moderate; it may have freeze damage in north Louisiana in some years. Alma is recommended in south Louisiana and for trial in north Louisiana.

Kadota

This Italian variety (Figure 5) is widely grown in California. It is also called Florentine, Honey Fig and Dottato. Kadota produces medium, smooth and bright yellow fruits (25-35 grams). Fruits are often flattened at both ends, and the eye is open but sealed with a honey-like substance in dry weather. Fruit quality is excellent for eating fresh and for canning. If peeled, it is an excellent preserving fig. Leaves are usually non-lobed to three-lobed, but may be five-lobed. A moderate breba crop may be produced. The large main crop is two weeks later than Celeste. During rainy weather, the fruits split badly and may sour before becoming ripe enough to eat. The variety has poor cold tolerance and is frequently killed in north Louisiana. Kadota is recommended for trial in south Louisiana.

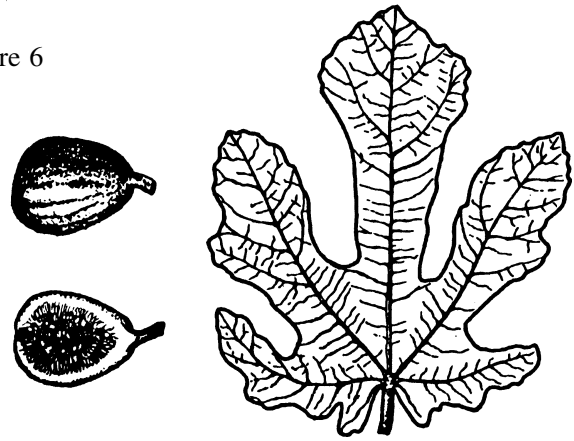
Figure 5



Magnolia

This variety (Figure 6) has distinct deeply lobed okra-type leaves that are pronounced on sucker wood and heavily pruned trees. Magnolia produces medium to large (30-40 grams) lopsided fruit with an open eye, light amber pulp, few small seeds and bronze skin often striped red. The neck is absent, and the stalk is thick and swollen at the base of the fruit. The second crop is large and ripens over a long season if trees are pruned heavily. Magnolia is a weak grower, and fruit splits and sours badly if left on the tree to full maturity. The quality of fresh fruit is fair. It is excellent for canning and preserving when harvested before ripe enough to eat. Magnolia is also known as Brunswick, Dalmatian and Madonna. Magnolia has very poor cold resistance and is recommended for trial only in south Louisiana.

Figure 6



Hardy Chicago

This variety produces medium-sized fruit (20-30 grams) that is brown to purple with strawberry flesh and matures five to seven days after Celeste. Fruit is firm and holds up well during handling and processing. This variety has good cold resistance and is recommended for trial in north and south Louisiana.

Soils

Figs are easily grown and do well on most Louisiana soils if they are well drained and reasonably fertile. Figs normally produce an extensive shallow root system, however, and may suffer from drought conditions in shallow, light soils. They perform best on deep, fertile soils and respond well to mulches of leaves, hay, straw, etc. The ideal soil is one that holds moisture well during dry periods and is well aerated with good native fertility.

Propagation

Figs may be propagated by cuttings, air layering and by grafting. Rooting hardwood cuttings is the most appropriate and widely used method. There are large differences in rooting response of hardwood cuttings among varieties.

Cuttings may be taken at the time of pruning or whenever the tree is fully dormant. They should be 3/8 to 1 inch in diameter and 8 to 10 inches long. Small, late-season growth will produce very few roots on hardwood cuttings. Cuttings should contain several nodes or "joints," since roots develop in these areas. The base of the cutting should be just below a node. Place the cuttings upright in a garden furrow or cutting bed and space 8 to 10 inches apart. Make sure at least one node is above the soil line, since leaf development must occur at this point. Also make sure the basal end of the cutting is placed underground. The scar where a leaf was previously attached is clearly seen below the bud at each node when the cutting is oriented correctly.

Mist propagation of leafy cuttings has become increasingly important. With this technique, even the hardest to root varieties can be grown successfully. Mist increases

the atmospheric humidity surrounding the cutting, thus reducing water loss through transpiration. The cooling effect of mist also reduces the rate of respiration, and photosynthesis continues in the intact leaves.

Constant or intermittent mist may be used. With constant mist, a fine spray is applied continuously during the rooting period. With intermittent mist, water is sprayed on the cuttings periodically. Both types have advantages as well as disadvantages. Factors to consider when choosing the proper technique are air temperature and propagation bed drainage.

Figs root readily under mist, and, where it is feasible, consider this technique. Summer months are best adapted to mist propagation. Cuttings about 6 inches long should be placed in a suitable rooting medium (sand, peat or mixture of both) with about 3 inches of the cutting above the top of the medium. A rooting hormone will encourage root development even though most figs root readily without added hormones.

Cuttings should develop a strong, extensive root system within three to four weeks when mist propagation is done properly.

After cuttings have developed roots, a gradual adjustment period is desirable, and, in most instances, is necessary to increase survival when they are transferred from the propagation bed.

A gradual adjustment can be accomplished by reducing the frequency of misting after root development begins or by moving plants to shaded and partially shaded areas for a couple of weeks before placing in full sun.

If possible, locate the cutting bed in partial shade. Cuttings will root fairly well in full sun but progress more rapidly under half-shaded conditions.

Cuttings may be taken in late fall or early winter when the trees are dormant and stored in moist sand or sawdust under cool conditions until the weather is suitable for setting them out in the late winter or early spring. The cuttings must not be allowed to dry out during storage and must not be taken until the tree is dormant. Deep, well-drained, well-aerated soil is necessary for good results. Cuttings should be watered periodically to prevent drying out. Storing cuttings in inverted position appears to retard shoot development during storage.

Rooted cuttings are grown in the nursery bed for one year, before being transplanted to the orchard. Transplant them during the dormant season, from November to February.

Planting and Spacing

Orchard spacings of fig trees vary, depending on the location and on the method of pruning the trees. If grown in shallow, dry soils or fertile soils where large trees are desired, wider spacing is necessary. Under these conditions, a spacing of 20 feet by 20 feet is recommended. Where the bush plant is desired, spacing may be as close as 10 feet by 10 feet. Do not plant fig trees under large trees that cause

dense shade over the fruit trees and also compete for nutrients and soil moisture. Orchard or individual tree sites should include full sunlight for most of the day. Tall trees can often protect fig trees from severe cold, however, and may be desirable in some locations where this is the only means of protecting trees in severe winters. They will not be as productive as trees in full sun in milder areas. Trees planted to a northern exposure receive more cold late in the winter and do not break dormancy, or leaf out, as early as those on southern exposures, and may not be as vulnerable to late spring frosts.

Do not apply fertilizer at the time of planting. Fig trees survive better if set 2 to 4 inches deeper than they were grown in a nursery. Cut them back at the time of transplanting. This "heading back" helps to promote development of lateral branches and helps to reduce water loss from the above-ground portion. Water uptake may be reduced for a short time at planting, since the root systems may be damaged during transplanting operations.

Fig trees planted at the beginning of the dormant season often develop a root system before leafing out in the spring. This can be advantageous, but young trees are more susceptible to cold injury. In areas where such damage may occur, it's often advisable to delay transplanting until just before dormancy is broken in late winter.

Young trees to be transplanted should be dug with care to prevent root damage. Trees bought from nurseries should be inspected to ensure that roots are healthy and are not damaged. Remove any broken or dried roots. Dig a hole deeper and wider than necessary for the root system. Place the tree upright at the proper depth. Begin filling the hole with topsoil since it works best around the roots. After planting, water the tree to settle the soil firmly around the roots. If conditions are extremely dry, watering before the hole is completely filled will be beneficial.

Pruning and Training

If the tree type of plant is desired, transplant trees about 2 inches deeper than they grew in the nursery. The transplanted tree should be headed back to promote lateral, or side, branches. These side branches that are properly positioned to form wide angles from the main trunk should be left to develop. Undesirable branches of weak growth, and those that form narrow angles to the main trunk, should be removed. Pruning during the second and third dormant seasons should consist of thinning undesirable branches as described above and heading back the main branches to keep them smaller than the leader or main trunk. Avoid multiple trunks. Thick, inward growth should be removed to keep the tree form open. All diseased and dead wood should be removed along with all suckers or water sprouts.

To develop the bush form, transplant the tree about 4 inches deeper than it originally grew in the nursery. This promotes development of several sprouts at the ground level. The young plant should be headed back to one-half of its original height at the time of transplanting. During the

following winter, select four to six well-spaced, upright-growing sprouts. These sprouts are used as fruiting wood and may be kept pruned so that most of the fruits are easily harvested without a ladder. Pruning upward-growing shoots short and outward-growing shoots longer will make a flat-topped tree. This method of pruning is especially adapted to areas where trees are often killed back by cold weather. (See varieties.) If existing sprouts are killed, new ones can be selected that will usually be in production within a year, depending largely on the variety. The Brown Turkey is well suited to this method of pruning, since it produces well on very young growth.

Further pruning of both the tree and bush forms is to maintain vigor and the general shape of the plant and to keep it within bounds. Regular pruning increases fruit size because of its thinning effect. Heading back of main branches and removing dead, weak and undesirable wood will accomplish this purpose. If pruning is done regularly, most cuts can be made with pruning shears.

Cultural Practices and Fertilization

Shallow cultivation is recommended to control weeds and grasses. A thick layer of hay or straw mulch will help to eliminate unwanted vegetation and conserve soil moisture. Nematode damage appears to be less important where trees are mulched. In addition, mulches help maintain desirable soil temperature and aeration. The fig is well suited to this practice, since roots are shallow in most soils. Never cultivate deeply around figs.

A general fertilizer recommendation is 1 pound of 8-8-8 per year of age of the tree up to 10 years old. This maximum of 10 pounds should be continued for trees 10 or more years old. Apply fertilizer in late winter or early spring. A good indication of the need for fertilizer is the amount of shoot growth obtained. A satisfactory amount of shoot growth is 1 to 1 1/2 feet per year. One common cause of fruit not maturing on fig trees is overfertilization using nitrogen fertilizer. Four to 6 inches of mulch and regular watering will often produce adequate growth of trees without sacrificing yield and quality. Do not fertilize trees in late summer, since succulent growth is more susceptible to cold injury. Vigorous late-season growth is not desirable.

Figs are shallow-rooted and often come under stress during dry periods. The Celeste variety, in particular, drops early fruit after spring droughts. Late summer droughts may cause early defoliation and induce dormancy. Regular irrigation is critical in producing quality fruit. Extremely late irrigation promotes succulent growth going into the winter and can cause the tree to be more susceptible to cold weather injury. It should be avoided.

Diseases and Control

Figs in Louisiana are affected by four major problems. Root-knot nematodes are probably the most important, although they are not readily noticed by the average grower.

Root-knot nematodes, *Meloidogyne* sp., are microscopic soil-inhabiting worms that attack the root system. They attack and feed on the plant roots, causing them to swell or form galls, thus interfering with normal uptake of water and nutrients. These galls are easily seen if roots are examined.

Nematode problems may go unnoticed for several years. As a heavy population builds, the tree loses vigor and declines gradually. Nematodes, in some cases, may be responsible for premature fruit drop.

Prevention of root-knot nematodes in figs should consist of obtaining nematode-free plants and planting in nematode-free soil. New planting sites should be fumigated before planting, if soil is infested with root-knot nematodes. Mulching with hay, leaves or pine straw may reduce nematode populations.

Figure 7



Three important fungus diseases that attack the leaves of figs are rust (Figure 7) caused by *Cerotelium fici*, leaf spot caused by *Cercospora fici* and web blight caused by *Rhizoctonia solani*.

Fig rust is first noticed as small, yellowish-orange spots on the leaves. These enlarge slightly and may become numerous as the season progresses.

Rust causes complete defoliation of many trees each year, resulting in trees of ragged appearance. In addition, trees defoliated early in the season may initiate new growth that is often susceptible to cold injury. Defoliation usually does not occur early enough to cause fruit loss except in late-ripening varieties.

Cercospora leaf spots start as reddish-brown angular leaf spots. The spots develop a tan center and a dark brown margin with a slight yellow halo as they enlarge. Severe infection can cause heavy leaf drop.

Web blight can be a very damaging disease on figs in Louisiana. This disease usually occurs under warm, moist conditions. Typical infection starts at the base of the leaves and spreads outward in a fanlike manner. Some infected leaves shrivel, die and cling to the twig. Others may be full of irregular holes. Many leaves may be killed in a few days. If this occurs before the fruit ripens, the figs will become hard and dry up on the tree.

The disease gets its name from the mycelium or strands of the fungus that often remain on the twigs after infections. These tan “threads” form brown resting structures called sclerotia. Sclerotia are about 1/8 inch in diameter and remain attached to the twigs. They carry the disease through the winter and initiate new growth under favorable conditions the following year.

These diseases are controlled with cultural methods since there are no EPA-approved fungicides for figs in Louisiana. Plants should be spaced to allow good air circulation around them. Do not wet leaves during irrigation. Fallen infected leaves should be collected and destroyed during the dormant period.

Insects and Control

The three-lined fig borer, *Neoptychodes trilincatus*, sometimes causes severe damage. The grub bores into the tree and feeds near the surface for several months. It may then bore deep into the wood. The adult is a long narrow beetle with three scalloped white stripes that extend almost the length of its body. Borers usually attack only weak or damaged trees. They are best controlled by maintaining vigorous trees and by using good pruning practices.

Several beetles can damage fruit. The most important of these in Louisiana is probably the strawberry sap beetle, *Lobiopa insularis*. The dried fruit beetle is a serious pest in some areas. These beetles enter the fruit cavity through the eye, carrying micro-organisms that produce souring. A large mottled gray beetle of the scavenger group attacks ripe fruit in late season. These often completely cover the fruit being eaten. Do not allow overripe or damaged fruit to remain on trees or drop on the ground. Beetles are most serious during rainy periods near fruit maturity.

Other Pests

Birds, such as blue jays and mockingbirds, cause fruit losses. There is no suitable method of control, but early morning harvests will prevent loss to some extent. Nettings may also be used to cover the trees during ripening season.

Various bird scaring devices such as rubber snakes, flash tape, artificial owls, etc. may give some fruit protection. Bird scare devices appear to work best if they are used before the figs ripen and the birds begin feeding on them. It will generally be necessary to move the scare devices every few days to prevent the birds from ignoring them.

If wasps and yellow jackets become a nuisance, they can be controlled with pyrethrin sprays. Treat nests in late afternoon after the wasps have settled for the night.

Handling and Processing Fruits

Because figs are extremely perishable, it's hard to ship and handle the fresh fruit commercially. Celeste, a small variety, has been marketed satisfactorily in pint and quart berry containers. Figs should be harvested when fully ripe and can be kept only a short time without spoiling. For this reason, the chief commercial use of figs in Louisiana is as a cooked preserve. They may be candied, canned or frozen, but are not used for drying to any extent in the Southeast.

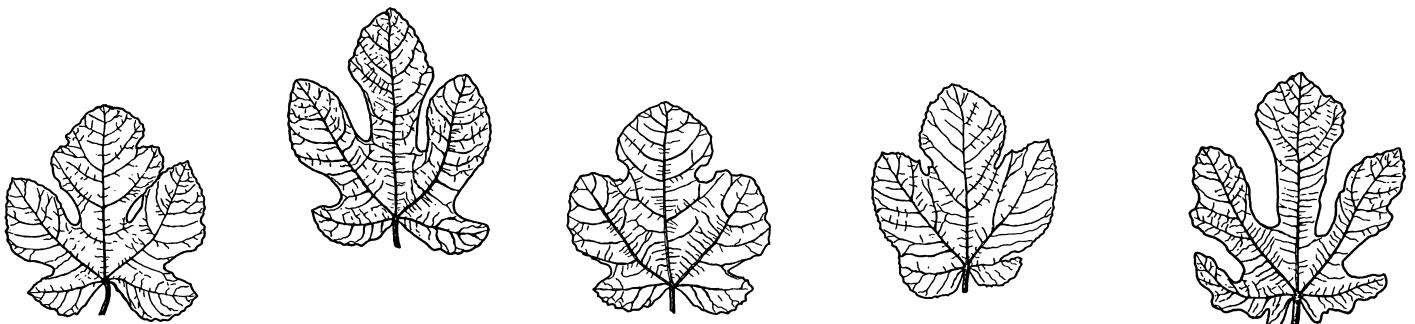
Celeste figs are preserved as a specialty item. Kodata and Brown Turkey may be used for canning and preserving.

Figs are harvested with stems attached. Pickers should use gloves to protect their hands from the irritating fig juice and to prevent damage to the fruit. After harvest, keep the fruits in a cool, shaded area until they are transported to the processing area. To prevent crushing, use small picking baskets and shallow containers to transport the fruit.

In commercial practice, some varieties of figs are peeled by placing them in a 1 percent boiling lye solution for 1 minute or 30 to 40 seconds in a 2 percent solution. Maturity of the fruit influences the time required to peel it. In general, the riper the fig, the shorter the time required for peeling.

Figs may also be peeled by dipping them in a boiling 2 percent solution of sodium bicarbonate for 15 to 25 seconds depending on maturity.

Figs for home use are usually hand peeled because of the caustic nature of lye. Celeste figs processed commercially in Louisiana are not peeled.



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Disease control recommendations – Dr. Kenneth Whitam, Professor, Plant Pathology

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Variety and culture recommendations – Dr. Charles Johnson, Professor, Horticulture

Selected References

Louisiana Figs, LSU mimeograph by J.A. Cox and E.N. O'Rourke, Jr.

U.S.D.A. Handbook No. 196 by A.H. Krezdorn and G.W. Adriance.

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