FESTIVAL OF FRUIT 2007

FIGS

1. Introduction

Good afternoon. My name is Jon, and today I am an expert because I have more fig trees than most people, and I was willing to talk for cheap. I have been gardening since I was in diapers. I joined CRFG nearly 20 years ago, and have been growing figs for more than 20 years. I have started an online nursery, Encanto Farms Nursery, and I have many fig varieties available at the plant sale outside, along with many of the 100 banana varieties which I grow. I am a hobbyist like you. I am not a biologist, not a botanist, and I do not have formal education or a formal background in botany or agriculture. So, I am not doing anything that you can't do. I keep experimenting, and hopefully I can shorten your learning curve by sharing what I have already experienced. I have benefited greatly from the experience of CRFG's Richard Watts, and many collectors who I've have met on the GardenWeb Fig Forum. I grow about 300 varieties of figs, and each has its' own set of characteristics, but the similarities far outweigh the differences.

I want to share a lot of material in less than an hour, so I probably won't take any questions, but I will be available in the plant sale area to answer questions.

The goal today, as it has been classically expressed, is not to give you a fish, but to teach you to fish. I hope to introduce you to the basics of figs, and to help you understand the principles underlying successful fig cultivation, and the information resources available to you, so that you can successfully grow any fig.

We are not going to spend much time on biology, except where it is important to successful growing of figs. Each variety has many similarities, but also its' differences, and you will hear me say many times today that you need to become familiar with your variety and its' specific characteristics and habits.

I am biased. I do not grow organically. That does not mean that I am opposed to that form of plant care, only that I am not qualified to address that form of gardening. So if you grow organically, you will have to adapt what I am saying to your situation, which you are probably already accustomed to doing.

2. Lets begin with taste.

This is an opportunity for me to test a personal theory.

How many people like dark colored figs?
How many people like light colored figs?
How many people like every fig?
How many people love Brown Turkey Figs?
How many people hate Brown Turkey Figs?

So, when you ask someone what is a good tasting fig, make sure you are asking someone who shares your taste profile.

If you like Brown Turkey, you will want to consider these varieties: Blue Giant, Black Spanish. Black Jack, Walker, Beall.

3. Available varieties.

Figs are thought to have originated somewhere in the Middle East, or Central Asia, and have been transported all over the Mediterranean region, most notably to Turkey, Italy, Greece, France and Spain. From there they have made there way to the United States by many routes. Originally they were brought by conquistadors, missionaries, and the early settlers of the Americas. More recently a wide variety arrived with waves of immigrants near the turn of the century. This migration has given us a tremendous heritage and diversity of fig varieties to choose from. Breeding programs at UCR and LSU have also added to that diversity.

There are many nurseries which sell figs, but only a very limited number of varieties are available. Most available are Black Mission, Brown Turkey, White Kadota, Desert King, etc. So, the question that we face is simple. How do we access this wide diversity of figs, when so few are commercially propagated? The simple answer is to buy from me (grin). However, you can "make" our own trees by growing them from scion which is available from a variety of sources. So, access to a wide variety of fig varieties requires us to understand how to successfully propagate our own figs from cuttings.

Scion is available from the USDA collection at U C Davis, international collections and germplasm repositories, through www.seedsaver.org, CRFG scion exchanges, collectors across the country who meet in places such as the GardenWeb Fig Forum, and nurseries around the world.

4. Propagating.

There are as many ways to propagate figs as there are people. They can be air-layered, grown from suckers, grown from seed, etc. Air-layering requires your access to the tree for a long period of time, and the variety you want is often in a different part of the country; suckers are not always readily present; and seeds

do not produce trees which are true to type, and they are often sterile or functionally male capifigs.

That leaves us with propagation from cuttings. They can be rooted in water, rooted in potting soil, rooted directly in the ground, rooted in a variety of media (sand, vermiculite, perlite, etc.), and finally, rooting them in a bag.

5. Principles of rooting.

I am going to walk you through the method I am using to root my cuttings, which will demonstrate ONE OF MANY possible approaches to rooting, and illustrate the principles which are important. I tried many techniques, all of which had some success, but two things greatly improved my success: pre-rooting in a bag, and transplanting to a clear plastic cup with specific media in it.

The most important element of successful rooting is illustrated by the story of Goldilocks. She was looking for porridge that was not too hot and not too cold, but "just right". Similarly, rooting cuttings is about getting the moisture level not too wet, and not too dry, but "just right". If you learn nothing else today, but you remember this one thing, you will have gotten your money's worth: CONTROLLING MOISTURE IS EVERYTHING.

Rooting success is almost entirety dependent on controlling moisture, both in the potting media and in the atmosphere around your cuttings. Soil moisture and humidity are crucial. If they soil is too wet, the cuttings will rot. If it is too dry, the new rots will desiccate and die. If the humidity is too high, mold is the likely outcome, and if it is too low, the cuttings are at risk desiccation before successful rooting occurs. Using a rooting media which maintains a proper air/moisture increases success greatly.

Controlling humidity can be done in a greenhouse, or something simple like a plastic storage box with the lid substantially closed. In dry San Diego, humidity in the rooting environment must be provided artificially. In the muggy Southeast, they can be outdoors and do just fine.

The other factor is heat. Rooting is greatly speeded up when temps are 70+. Providing a warm environment can be as simple as placing your cuttings in a bag on top of the refrigerator, or a shelf above the stove. I helped a friend root cuttings this winter from her neighbor's tree using this method. She had never even grown a fig tree before. Now she is growing new trees for Christmas presents.

I learned "rooting-in-a-bag" from CRFG member Richard Watts. I am sure that I don't do it quite the way he does, because he puts his cuttings in his van, in his driveway, which provides solar heating to obtain warm temps for rooting. I don't own a van, so I can't follow his technique "step by step". But, the point is

not the exact technique, but rather satisfying the principles involved: controlling moisture in the scion and providing proper temperature to stimulate root growth.

The scions are wrapped in lightly damp paper towels or newspaper. The issue is moisture, not paper type. Then they are placed in a warm place. Sometimes that means putting them on my desk, were I can watch them. Usually, for me, it is upstairs because heat rises. In a few weeks (each variety is different and each cutting, even from the same tree, is different), you will see root initials begin to form, and then roots. Then I transfer them from the bags to 40 oz. CLEAR plastic cups (deeper is better). I have used a variety of rooting media. Potting soil holds way too much moisture. Coarse Vermiculite produced very good success. The coarse texture allowed for good air penetration in the media, while the vermiculite holds the moisture well. When I couldn't get the coarse Vermiculite any more, I switched to 60% Perlite and 40% finer Vermiculite. That has also worked well. My cups are placed in plastic storage boxes, on wire racks which I made. I have found that the moisture level of the rooting media can be judged by the condensation on the inside of the cup.\

Condensation is an indication of sufficient moisture. The cups must not stand in water, or they will wick up the water and your cuttings will be too wet and rot.

The second principle, which will be worth your price of admission today, is this: ROOTS AND LEAVES HAVE NO RELATIONSHIP TO EACH OTHER. If you take a dozen cutting from the same tree, and grow them in the same rooting media in the same pot - as close to identical nature and nurture as you can get - some cuttings will grow roots, some leaves, and some will grow some of each. You cannot assess root development from observing leaf development. So that is why I use clear cups. They allow me to actually see whether root development is taking place.

When I see good root development, I transfer the cuttings to 1 gallon pots using a potting mix of 60% Perlite and 40% compost, and acclimate them to the outdoors, usually putting them in shade with augmented humidity for a few days, and gradually introducing them to more sunlight over a period of weeks. At this stage, potting mix moisture control is still critical. Too much moisture will still cause rot and failure.

After the plants are successfully transitioned and evidencing new growth, I water appropriately. Once a week after I water them, I let them stand for an hour and then I re-water them with a HALF strength solution of Miracle-Gro. In many instances, this will produce a 6' tree by the beginning of Autumn. When I see roots in the drain holes, I transfer them to a 2 gallon pot reversing my mix to 40% Perlite and 60% compost, and then, similarly, to a 5 gallon pot, using 100% compost. When they outgrow the 5 gallon pot, they are large enough form planting in the ground, and will no longer require constant care, though they will need more frequent watering than an established tree.

6. Issues and problems.

I will leave you to research appropriate figs for your climate, but I will give you some broad guidelines to help you.

The eye is the opening at the end of the fig opposite the stem. Some are open and some are closed, and some less open than others. Closed eye figs are crucial in humid climates to prevent spoilage. A closed eye is also good for keeping out ants and other insects. If a variety ripens very quickly, such as Brunswick, the openness of the eye is not so much a problem. Slow ripening figs, such as White or Osborn have a longer period of vulnerability.

Rust is a disease problem usually associated with the humid Southeast, affecting the leaves, and can lead to defoliation of the tree. It is not reported as a problem in California and the Southwest.

Pests include ants, beetles (Mexican Fruit Beetle in San Diego), squirrels, rats, opossums, deer, dogs and birds. The most effective bird deterrents are bird nets or newspaper (another technique I learned from Richard Watts).

Humidity and length of season are crucial factors in selecting a variety. Hot, dry, long seasons are always a good, considering where most of the figs originated from: the hot, dry areas of Asia. Shorter, colder seasons, such as the PNW limit the varieties which are successful, and often place a premium on varieties with good breba crops.

More heat and more sunshine are always good for ripening figs (probably even in desert Arizona, but I do not have experience there).

Splitting occurs in some varieties, which usually ruins the fruit. In my orchard the guilty varieties are Panache, Black Madeira, Conadria, Rattlesnake Island, and some Brown Turkey or Brown-Turkey-like figs. The popular theory is that overwatering during ripening is the culprit. However, I like to think that I am pretty consistent in my cultural practices from year to year, and tree to tree, yet some years and some trees are far more prone to splitting. My Vista Mission has never, ever had a split fig, but when grown in New Jersey, it definitely had a problem.

FMV, Fig Mosaic Virus, while widely debated, is a fact of life if you collect many varieties. Plants from venerable nurseries such at Belleclare on Long Island New York were infected as well as locally grown trees sold at Home Depot. USDA/UC Davis trees are all infected, or potentially so. The bottom line is this: it manifests itself in misshapen leaves and splotchy colored leaves, and perhaps in stunted growth in SOME varieties, and perhaps lesser fruit

production. Black Ischia is the poster child for stunted growth, but I know of no uninfected tree which can be used for a growth comparison test. It may be that it is just a variety which lacks vigor, anyway. Rattlesnake Island seems to have similar poor growth, but again, there is no verified uninfected tree to use as a "standard" that I know of.

The bottom line is this: there are few if any sources for uninfected trees, and if you are going to collect more than a very few common varieties, you are going to have FMV. I have received trees form several nurseries that were infected. All cuttings received from USDA/UC Davis are infected or at least exposed and possible carriers.

Root Knot Nematode (RKN) affects the roots of the tree and can stunt growth, sometimes severely. There is extensive literature about it on the internet.

7. Ripening and Harvest.

There are many signs which indicate that a fig is getting ripe. Getting to know your variety is critical, because each variety has different characteristics, and more importantly, progresses through the ripening process at a different rate. Dark Portuguese will need at least 7 days after showing a color change, but Brunswick completes the process in about 36 hours. Generally, most of the flavor and sugars are developed in the last day or two of the process, so picking a day early has a significant impact on the enjoyment of the fruit.

Figs exhibit a significant increase in size when they begin to ripen.

The increase in size usually happens concurrently with a significant color change. The color change is not noticeable in dark colored figs, and least noticeable in figs, such as the Whites, which only exhibit a change to a lighter shade of green or a yellowish green.

As the fig ripens, and increases in size and weight, it will usually get softer, which will cause it to droop or sag.

Some figs, as they increase in size, will exhibit splitting of the skin. This is perhaps notable attribute of the Back Mission fig.

Some varieties will almost dehydrate on the tree, especially in hotter, dryer climates, and will look visibly shriveled and wrinkly when they are ripe. Celeste and Vista are two good examples.

Some varieties exude a drop of "honey" from their eye, when ripe.

8. Growth habits and Pruning.

When we come to the subject of pruning, we need to make a short digression into the arcane world of botany. Breba figs form on wood that grew last season and has been dormant through the winter. Main crop figs form on the new growth that appears this season. Some varieties only have a breba crop; some have both breba and main-crop figs, and many only have main-crop figs. If you prune a breba-only variety, you reduce or eliminate your fruit for that year. If you prune a variety with breba and main-crop figs, you sacrifice the breba crop. If you prune a main-crop-only variety, you lose nothing. In my opinion, breba-crop figs are not very numerous, and mostly of lesser taste, sweetness, and quality.

These factors are important in deciding how to prune your tree. Since I am willing to sacrifice the breba-crop figs, I can take a 10 foot tall tree and prune it to 18 inches, and be quite happy with my fig crop. Since I planted my orchard on hill, severe pruning of my trees into a more bush-like shape allows me to reach my fig crop without using a ladder

Figs can be grown in pots quite successfully. In fact, many figs in the east are grown in pots, so that they can be stored in sheds and garages for the winter, so that they are not damaged by freezing weather.

They can be winterized by wrapping them in carpets and tarp, burying them under piles of leaves, and even burying them in the ground. Generally, we Californians do not need to go to these extremes.

There are some dwarf varieties, or perhaps, more accurately, some varieties which are less vigorous growers. Size control is usually accomplished by pruning. Varieties such as Black Mission and Panache can grow more than 10 feet per year.

Identifying an unknown variety is usually difficult, and often impossible. The only vivid memory of a seminar on figs by Richard Watts many years ago was this statement (paraphrasing): the size, shape, and color of a fig can be dramatically different depending on soil, climate, fertilization, watering, and any other factor. I have experienced this many times since. The picture you see is of Sultane from Paradise Nursery, which closed its' doors this Spring. I sent this picture to Sybil to see if she would recognize it and she did not recognize a fig variety which she had sold to me. When grown in Virginia they look very different.

Often leaf shape is used to classify and identify fig varieties, but fig leaves are extremely variable, even from the same tree. Generally they can be used most effectively to rules out varieties, rather than to make a definitive identification.

9. Resources.

Figs 4 Fun www.figs4fun.com

NAFEX http://nafex.org/figs.htm
CRFG Fruit Fact http://crfg.org/pubs/ff/fig.html
Friends of Figs http://groups.yahoo.com/group/FriendsoftheFigSociety/
USDA / UC Davis http://www.ars.usda.gov/Main/docs.htm?docid=12146
Seedsavers www.seedsavers.org
Adriano http://www.adrianosfigtrees.com/
CRFG Fig Specialist http://www.crfg.org/frtspec.html
Books by Ira Condit, online

NURSERY LIST

Mail Order

Bay Laurel
Belleclare - closed 2007
Burnt Ridge
Clifton's
Cloud Mountain
Dave Wilson
Dinter
Ebay
Edible Landscaping
Encanto Farms Nursery ;-))
Fannick's Nursery - no shipping
Grimo Nut
Hidden Springs
Italian Fig Trees of New Jersey - no shipping
Johnson
Just Fruits and Exotics - no shipping to California
La Verne
One Green World
Paradise Nursery - closed 2007
Parks
Perry's
Raintree
Rolling River
Sanhedrin
Territorial Seed
TyTy - Avoid, period.
Wentworth
Whitman

Local

City Farmers

Clausens
Encanto Farms Nursery
Exotica
Home Depot
Plant World
Tropic World

ROOTING FIGS IN A BAG

Take dormant cuttings approximately 8" long, and wrap in very slightly damp paper towel or newspaper, covering the entire cutting except the bottom 1/2". This allows the bottom end to "callus", which helps to prevent rot, when rooting. If you are doing several cuttings, roll the first one in the damp paper, then add one, and roll, and add, and roll, until you have 5-6 cuttings in a bundle. Place the bundle(s) in a plastic bag (a Ziploc or zipper-bag works well). Place in a warm place, not in the sun, with a temp of 70-80 degrees F. Check frequently for signs of mold, and air out the cuttings is necessary for a few hours. Re-moisten the paper if necessary (this is not usually needed if the bag is tightly sealed). Under the conditions of warmth and humidity, Roots will develop, starting as small white "bumps" called initials, and gradually growing into longer roots.

When there is good development of roots and/or initials, unwrap carefully, and pot up as follows. Use clear plastic picnic glasses, of about 45 ounce capacity. Drill poke 4-5 drain holes in the bottom. Place about 1/2 coarse, well-wetted Vermiculite in the bottom of the cup, insert the cutting, and fill the cup with coarser, well-wetted Vermiculite. Place in a container (I use a plastic storage box), with a wire rack or other suitable arrangement, which will allow the water to drain through the cup and keep the cup from standing in any water. Return the cuttings to your warm place. To maintain humidity, you may want to partly cover the container to simulate a greenhouse environment. Allow for some air circulation to avoid mold. Water as necessary.

The most important element is providing overall humidity, without keeping the root zone overly wet.

The coarseness of the Vermiculite allows air in the root zone, and holds moisture in the root zone. If the Vermiculite is too fine, or packed down too much, it excludes air and holds too much moisture in the root zone. Generally, in a warm environment, if there is condensation on the inside of the cup, there is sufficient moisture, if not, it is too dry.

The clear cup is important to be able to monitor root development. Leaf development is NOT an indicator of root development.

When there is good root development (do not rush this step, or be in a hurry to repot in potting soil) repot in a one gallon pot using a minimum of 60% Perlite in the mix, and the other 40% compost or similar organic component. The vermiculite will shake out of the cup, when pointed down at about a 30 degree angle and rotated and squeezed, followed by the rooted cutting. After potting, place in much filtered shade, with good humidity until plant is stable, and increase sunlight gradually. Water when needed. After about a month, water, and let the plant absorb the water for 1 hour, followed by a one half strength solution of Miracle Gro. This keeps you from "burning" the plant with the fertilizer. Fertilize twice a month. When roots begin to grow out the 1 gallon pot (roots growing out of the drain holes), repot in a 2 gallon, with 40% Perlite and 60% Compost. When roots begin to emerge from the drain holes, move to a 5 gallon pot, using pure compost. When roots are visible in the drain holes of the 5 gallon pot, plant it in the ground. At this point, the plant is sufficiently developed to be stable and durable. Many cuttings will grow to 2-5' tall in their first year, but some varieties are slower growing.