

# Ray's Figs Ray's Figs

## The Weird Sex Life of the Fig

The common fig is a member of the genus *Ficus*. *Ficus* is a large genus with some 2000 tropical and subtropical tree, shrub and vine species distributed around the whole world. The fruit of all *ficus* species is the syconium, an enlarged, fleshy and hollow peduncle bearing closely massed tiny flowers on its inner wall. The true fruits are tiny drupelets which develop from these flowers. The problem is these flowers are borne on the **inside** of the syconium. They never open to the outside world like respectable roses, cabbages and oak trees. How do they get pollinated?

That's their weird sex life. Hold on for this is complicated. *F. carica* and some closely related species come in two basic forms: **edible figs** and **caprifigs**. Caprifigs are the host of the fig pollinator *Blastophages psenes* or fig wasp which lays its eggs in the caprifig's short-styled female flowers. The male fig wasp grows, mates and dies inside the caprifig fruit in which he is born. The female is more adventuresome. She leaves the caprifig fruit through its ostiole or eye (picking up a lot of pollen in the process) and flies off in search of a new fruit at the right stage of development in which to lay her eggs.

The kicker is this: female fig wasps lay so many eggs in each caprifig fruit that very few, if any, of the female flowers ever produce seeds. Not good for *ficus* species survival. Evolution (or God, if you prefer) provided a solution: the **edible fig**. The plant and fruit look just like those of the caprifig, but have two important differences: no male flowers and the female flowers have long styles which prevent the fig wasp from laying her eggs. If she enters the fruit of an edible fig, she searches desperately for, but finds no suitable female flowers. As she does, she scatters the pollen she picked up leaving the caprifig. And, this pollenizes (or caprifigies) the edible fig. When caprifiged, each fruit will produce several hundred to several thousand seeds per fruit, depending on the variety. Not so great for the individual fig wasp, but good for the *ficus* species. Overall, the situation benefits both figs and fig wasps. There are plenty of caprifigs to nourish the fig wasps and plenty of edible figs to produce fig seeds which develop into fig and caprifig plants.

It also benefits humans. Caprifig fruit is usually dry, pithy, and resinous. Not edible. The long styled female flowers of edible figs, however, develop into a juicy mass. With a bit of luck the resinous quality is also missing and one has a tasty treat instead of something to spit out. This did not happen purely by chance for succulent fruit benefits the fig too. Very few critters, aside from goats, will eat the nearly seedless caprifig fruit, but many birds and small mammals will devour the seedy, edible figs. The seeds pass through the digestive tracts of the animals and are dispersed throughout the environment where some of them will fall on favorable ground for germination.

A few other tidbits about the botany of figs: *Ficus carica* is a diploid species with a basic chromosome number of  $x = 13$ . Hybrids are possible with the closely related *F. sycamorus*, *F. palmata*, *F. pseudo-carica*, and *F. pumila*). They are not only possible, but have produced some valuable varieties such as the Hamma caprifig and the Alma edible fig. Caprifigs usually bear three crops a year named *profichi*, *mamme* and *mammoni*. Edible figs bear two crops a year called the *breba* and *main crop*.

**Edible figs** are divided into three classes:

1. **Caducous** (or Smyrna) figs which need pollination to set crops. Examples are Marabout, Calimyrna (or Sari Lop), and Zidi.
2. **Persistent** (or Common) figs which do not need pollination to set crops. These are the kind home gardeners most commonly grow. Examples are Black Mission, Brown Turkey, Celeste, Brunswick and Adriatic.
3. **Intermediate** Group (or San Pedro) figs which do not need pollination to set a breba crop, but do need it for the main crop (in some environments). Examples are King, Lampeira, and (of course) San Pedro.

Which class an edible fig plant belongs in is governed by a pair of genes. One of them causes figs to drop their figs if they are not pollenized; the other allows the fig to ripen unpollinated fruit. Breeding edible figs is fairly complicated because:

- Half of the seeds produced will produce caprifigs, the other half edible figs. There is no way to distinguish caprifigs from edible figs until they ripen fruit. You have to grow off all of the seedlings.
- It takes four to seven years for seedlings to begin fruiting. This can be speeded up considerably by grafting them to mature plants.
- The gene for persistence is a lethal gene if it is from the mother. There is no reason, however, not to use persistent mothers for a given fruit will yield, depending on the variety, from several hundred to several thousand seeds.
- Using a persistent caprifig as the pollen parent will yield a progeny consisting of roughly 25% each of caducous caprifigs, persistent caprifigs, caducous edible figs and persistent edible figs
- Using a caducous caprifig as the pollen parent will yield a progeny of roughly 50% caducous caprifigs, 50% caducous edible figs and 0% persistent caprifigs and edible figs.
- The expression of the persistent gene is, I think, governed by another, unidentified gene or genes. Strongly expressed, it allows both breba and main crop figs to ripen without pollenization; weakly expressed, only the breba crop. This explains the three classes of edible figs.
- This same explanation should apply to caprifigs, but no one, as far as I know, has bothered to check it out. Some varieties bear scarcely any mamme and/ or mammoni crops, however. This is suggestive.
- Very few of the plants produced by fig breeders will produce better than mediocre fruit. Even fewer will produce good fruit equal in quality to existing varieties and still fewer will produce fruit of superior quality.

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