



## Figs - An Overview

### • Introduction

Figs have their origin in Asia Minor. They will however grow well in Mediterranean type climatic regions and also in areas where summers are warm and dry with cool winters. Figs do not require chilling to break dormancy.

Figs can be divided into four distinct categories (there are over 750 varieties):

- **Common:** do not require pollination for fruit set
- **San Pedro:** requires no pollination for the first crop (called the breba crop) but requires pollination of the second crop
- **Caduceus:** requires pollination in order to set fruit
- **Capri or Male:** usually non-edible figs in which the pollinator lives

Figs are a shallow fibrous rooted species, although depending on location; the roots may spread laterally and vertically. Figs can grow in virtually any soil type but prefer a sandy-clay loam within a pH range of 6.0 to 8.0. Figs can tolerate soils with high lime content. A soil depth of 1 - 1.5m is sufficient for growth.

In most Mediterranean countries figs are grown as rain-fed but the most critical of irrigation is early spring before rapid shoot and fruit development. A full root zone can be achieved by applying 150mm during this time and then requires a further 650mm of irrigation. There are distinct differences in irrigation and cultivation practises when growing figs for drying or for the fresh market. There is a further distinction in cultivation practises when producing early or bribe crop figs and summer to autumn figs.

As figs spread from its origins in Asia different cultivars found favour and were grown in different areas along its path of dissemination and this can especially be seen in the countries surrounding the Mediterranean Sea.

Fig tree cultivars have many unique characteristics such as compact to spreading growth habits, colour, shape and size of fruit etc.

From the mid 1990's when fresh figs started gaining popularity in new markets around the world, advanced research relating to its cultivation, storage etc has been conducted at universities and institutions in areas where figs are grown commercially. This has made the transition to higher density plantings and improved quality yields easier.

The sophisticated new fresh fig markets require large black figs, which have a reasonable long shelf life and can be transported over long distances with good taste characteristics.

### • World Production

Turkey is the world's largest producer of dry as well as fresh figs producing about 25% of the world's annual production of 1,200,00 tons. Most of the country's figs produced for export are of the Caduceus type requiring pollination. Sar Lop, also known as Calimyrna in California, is the main variety for dried figs produced mainly in the Meander Valley and the area around Izmer. in Turkey Bursa Siyahi also known as Bursa Black is the main variety produced for fresh consumption and exported all over the world. Yereven is another variety which is grown to produce an early crop of fresh fruit but it does not have the same impact as Bursa Black.

Egypt is the world's second largest producer with about 20% followed by Iran, Greece and Morocco as other major producers but these countries produce focus on dried figs for export.

U.S.A. California is ranked third but is also a net importer of figs. The main varieties shown are Calimyrna (65%), Adriatic, Black Mission and Kadota which are grown for drying although Calimyrna, Black Mission and Kadota are also sold for fresh consumption.

However these varieties do not have the characteristics often sought in other markets for fresh figs. There is about 8,500 hectares planted in the San Joaquin valley around Fresno.

Spain produces over 50,000 tons of dried and fresh figs in the south east of the country. Several varieties like Breva, Neapolitan and Col de Dame are used. For fresh production the focus is more on early figs which can be exported before the arrival of Turkish figs on the market which have a lower price due to labour costs within the European Union.

Brazil is the only southern hemisphere country producing significant amounts of export fruit. The cultivar is called Roxo de Valinhos which is similar if not the same as the Brown Turkey variety. More than 70% of the figs produced in the Valinhos Campinas area are destined for the local market as either fresh or in the form of candies and processed products. About one million 1 kilogram boxes are exported annually to the European Union during the off season in the northern hemisphere.

France, Italy and Portugal all have large commercial plantings of figs sold either as fresh or processed in various forms. Many varieties are localised in the areas of production.

Argentina, Chile, Peru and Australia all have commercial plantings and they are increasing to meet local demand as well as the demand from the northern hemisphere. Chief cultivars grown are Brown Turkey, Black Mission and Kadota.

China has over 1,500 hectares of the Brunswick variety planted and plantings are on the increase because up until the recent past figs were not widely grown but today demand cannot meet supply.

Japan has long had a significant fig industry. The variety grown here is the Masui-Dauphin. The cultural practices are quite different in this country due to weather conditions. Most of the production is consumed fresh.

#### • World Market

Less than 2% of the world's fig production originates from the southern hemisphere which occurs from December to May.

UK & Europe have growing fresh fig markets. Turkey is a major supplier during August to September with exports of over 15,000 tons and Brazil with exports of about 1,000 tons during December to April. Good quality figs achieve prices of between R40.00 to R60.00 per kilogram. Figs from Israel, Italy, Spain, Portugal and France all compete with the Turkish Bursa Black during the northern summer.

Canada and U.S.A. also import from the South American countries but the amounts are insignificant.

Japan, South Korea, Taiwan and China are all significant markets. Although no official figures exist on some of these countries Japan consumes about 20,000 tons of fresh figs per annum. During 2004 prices ranged between \$4.50 and \$9.00 per 500 gram punnet for very large figs. These markets prefer the very large fruit produced by Brunswick and Masui Dauphin which can be up to 200 grams per fruit.



Malaysia, Singapore and India are also growing markets where the fruit are well known.

#### • Agronomic Aspects

##### Propagation:

Figs are generally propagated by cuttings and tissue culture.

##### Orchard Establishment:

Figs are planted in winter and early spring. Spacing depends on the variety chosen. The average planting density is 3 x 4 m or 833 trees per hectare. In Valinhos recent experiments placed 2,666 trees on a hectare. Figs respond well to organic matter and in most countries well rotted farmyard manure is dug into pits before planting. At least 20 litres are added per tree.

##### Caprification:

In orchards requiring Caprification the male trees are grown in an area separate from the orchard. One male tree is required for every 50 female trees. The male figs are hung in stretch poly bags in trees in the orchard when figs reach button size.

##### Irrigation:

Depending on soil types and farmers' preferences, sprinklers and drip are used. The equivalent of 750 mm annual rainfall is sufficient to produce a good crop.



Dried figs are allowed to ripen on the tree and then dried for between 3 to 4 days depending on the area. Trials done in the Orange River Area during the 1970's established that figs could actually dry on the tree as is the case in Turkey, Iran, Greece and the U.S.A. whereafter they fall to the ground and are then vacuumed up.

#### Pests and Diseases:

Fig stem borer, mealy bugs, fruit fly, aphids and scale are all insects which can affect the health of a tree and rust, mosaic virus and endosepsis are the main diseases seen in figs.

These problems are mainly encountered when trees are under stress and good orchard maintenance will prevent most problems.

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#### Soil Cultivation:

Although figs tolerate different soil types they are more productive in soils with a sandy-clay loam profile. A depth of 1,5m is sufficient for root development but water logging will adversely affect growth and productivity. The ideal pH range is between 6 and 8. Testing should be done for root nematodes that are known to affect figs.

#### Fertilization:

Figs can perform well under soil conditions unsuitable for other crops but recent studies prove that nutrients exert an effect on yield and quality. Nutrient requirements differ according to variety but leaf analysis will indicate fertilizer requirements. Drying varieties are more sensitive to nitrogen and adversely affect fruit size and colour. Too much nitrogen also affects the breba crop adversely.

#### Pruning:

Along with fertilization this has become one of the most important tools in the modern orchard. In Japan most orchards are trained for 2 metres, 400 mm from the ground. New shoots train onto a trellis of 2 metres in height which allows for easier picking. To provide for more early or breba crops summer tip pruning is done. Timing of pruning can play an important role in determining later picking/ripening of fruit.

#### Harvest:

Figs are harvested when ripe as ripening does not advance after picking. Breba crop is usually harvested over a 15 day period which will be around the end of November to mid-December in South Africa. Depending on the area summer fruits will start ripening towards the end of January and depending on the cultivar will continue for between 4 to 8 weeks until the end of April. At the start of ripening fruit is picked every 3 days increasing in frequency to every day when the harvest is at its peak and reducing to every 3<sup>rd</sup> day as the harvest tails off. Harvesters can usually pick about 100 fruit per hour. Figs are usually packed in 1 kilogram single layer boxes or in 500 gram punnets. Figs are cold tolerant and significant strides have been made to extend the shelf life and transportation period.



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