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A Survey of Guava Cultivation in the Circars

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Introduction When "Grow More Fruit" has become the slogan of the day, a survey of a fruit crop such as guava, which is easily adaptable to a very wide range of climate and soil conditions and whose cost of culture and maintenance is cheap, is expected to be useful. Besides, such a survey was felt essential for making the guava varietial collection at the Agricultural Research Station, Anakapalle, comprehensive and exhaustive. Accordingly a survey of guava-producing regions in the Circars was undertaken in 1942, and the present paper embodies an account of the same.

Situation and nature of the tract The Circars lie to the north-east of the Madras province. The tract has a long period of dry weather, quite congenial to guava. With an annual rainfall of 50 to 60 in. in the hilly north and 30 to 35 in. in the plains of the south, the guava plantations enjoy the optimum precipitation range. Plantations of guavas are found mostly in well drained loamy soils. Guavas are also found to grow extensively in rich alluvial soil of the Kistna delta and red loamy soils of the Vizagapatam District. Extensive cultivation of this fruit can also be seen along the river Sarada in the Vizagapatam District, the river Kistna in the Kistna and Guntur Districts and the river Nalla Mada in the Guntur District.

Cultivation in the tract As the present survey's main object was the varietal study and collection, details regarding the area are not complete. However, figures got from the District Agricultural Officers of the concerned districts and in the course of the survey are given below:—

District	Area in acres
Vizagapatam	600
East Godavari	250
West Godavari	50
Kistna	350
Guntur	1,150
	2,400

Varieties and types No systematic classification of the varieties of guava has been done so far. Two distinct groups can be made out with the colour of the flesh as basis, namely—the white and the red fleshed types. The majority of the guavas belong to the white-fleshed group. Except one type known as the White Paria the rest of the whites are of good quality and go by the popular name of Calcutta guava. There is only one red type poor in quality and is known by the name of Red Paria. The White and the Red Parias resemble alike but for the colour of the flesh. A brief description of the guava types is attempted in this paper so as to enable the *ryot* to choose the right economic types or varieties for his tract.

A. *Calcutta types*

a) *Smooth peel types* i. *Meeranjee* This is a good commercial variety, the plant is a moderate sized shrub with pale green leaves. The fruit is big, round, smooth; peel light yellow coloured when ripe; flesh white, sweet, soft as butter, with few seeds and a strong flavour and weighs about 2 to 6 oz. Both the depressions at the stalk end and calyx end are of the same size. This variety bears in all the three seasons of the year. Fruits keep for 3 to 5 days.

ii. *Kurupum* This is a very good commercial variety; the plant is a moderate sized shrub with dark green leaves. The fruit is bigger than Meerangee, oval, smooth; peel golden yellow coloured when ripe; flesh white, medium sweet, soft as butter, with few seeds and weighs about 3 to 8 oz. The depression at the calyx end is 2 to 3 times bigger than at the stalk end. This variety bears in all the three seasons of the year and is a better yielder than Meerangee. Fruits ripen slowly and keep for 5 to 8 days.

iii. *Lakaram* Resembles in all respects Meerangee but for the medium size of the fruit with hard pulp inside which is sweet both when the fruit is ripe and unripe. The fruits keep for 5 to 10 days.

b) *Warted peel types—Kafri* A moderate sized shrub with green leaves and acute apex. The fruit is large, irregularly formed, warted and furrowed; peel golden yellow coloured when ripe; white fleshed with few seeds, moderately sweet, with little flavour. This variety stands transport best.

B. *Red Paria or Red Desi or Red Natu Jami* The shrub of this type is small with very small and dark leaves and is distinguished also by its habit of bearing more than one flower on the pedicel. The pulp is red with little flavour and is densely packed with seeds. This type is not economical to grow on a large scale.

C. *White Paria or White Desi or White jami* It resembles the Red Paria in all respects except for the white flesh inside.

The 'Calcutta types' seem to fit in the group of Pear-guava, the Red Paria in the Apple guava and the White Paria in the *Pisidium pumilum* as described by Firminger in his *Manual of Gardening for India*. There are also some other types like Neeradu jami, Seedless guava and Kasi jami which are seen as stray plants in some gardens.

Propagation and planting Propagation by seed is the common practice. Seeds are extracted from ripe fruits and are sown in the months of July and August in small raised seed-beds at a distance of one to two inches. Seeds take about 15 to 25 days for germination. The seedlings are not transplanted in nursery beds for hardening as in the case of other fruit trees but are directly lifted and planted out in small pits in the orchard, when they are 12 to 18 months old, at a distance of 15 to 25 feet from each other. Immediately after planting pot watering is done. Another watering

given the next day and thereafter every alternate day for three months. arely manuring is done at the time of planting.

Later operations Watering is done in early stages on non-rainy days. he basins are small with no slope inside to keep off water from the trunk f the tree. A light pruning to remove the low-hanging and crossing branches is given whenever necessary. When the trees are young, inter-crops like *ragi*, *cumbu* and horsegram are grown in the Vizagapatam and Kistna Districts.

Bearing seasons The seedlings come to bearing in about the fourth year. If irrigated the trees bear throughout the year. But the chief bearing seasons in the Circars are as follows :—

1. *Tolakari Kapu or Mrigasira Kapu* (June-July) This season holds good in the Vizagapatam District only. Even there, a poor yield of about 100 to 300 fruits only per tree is obtained in this season. Owing to floods, this crop is not taken in the Kistna delta. The fruit of this season is not very sweet, but commands a good price due to the scarcity of the fruits in the market.

2. *Pedda Kapu or Sivarathri Kapu* (October-December) This is the main season and may extend up to February in the Kistna and the Guntur Districts. The yield may vary from 300 to 500 fruits per tree, but due to the glut in the markets the price secured is very low.

3. *Kotha Amovasya Kapu* (February-April) Because of the severe summer heat and poor yields, no special care is taken of this crop in the Kistna and the Guntur Districts. In the Vizagapatam District only, a small crop of the size obtained in Tolakari Kapu is got. Fruits fetch good price in this season also.

Harvesting and Marketing Fruits are harvested when they are half ripe. Harvesting is done by hand-picking from the lower branches and with an iron hook attached to a bamboo stick from the higher branches. In places where the market is near, the fruits are carried in *Kavadi* (two baskets tied one at each end of a small bamboo stick), and for long distances in carts and boats. Watching, harvesting and marketing are done by tenants. When fruits have to be sent to distant places like Calcutta, Puri, and Madras, middlemen intervene and snatch away a good profit. No systematic grading is done but rough sorting of big, medium and small fruits is often resorted to when the fruits are intended for export to distant places. The price of the fruit at the chief markets of Anakapalle, Rajamundry, Bezwada, Masulipatam and Guntur varies according to the availability of fruits in the market and the season. Generally, a basket containing about 50 big fruits, 100 medium sized fruits and 50 small fruits, is bought from the grower by the dealer or hawker at Rs. 0-8-0 to Rs. 2-0-0. The dealer sells the fruits after sorting at Rs. 3-0-0 for 100 big fruits and 0-8-0 for 100 small fruits.

Financial Return This differs widely from place to place. In the red soil areas of the Vizagapatam District and the dry sandy areas of

Masulipatam, where the Paria type is grown mostly, the annual income may be about Rs. 20 to Rs 30 per acre of 70 to 100 trees. In Anakapalle gardens along the Sarada river, in the deltaic areas of the Kistna and in gardens along the Nalla Mada river the income may be about Rs. 100 to 150 per annum per acre of 50 to 80 trees which usually belong to the Calcutta variety.

Pests There are not many serious pests and diseases of guavas. The pests that do most damage are the birds, fruit sucking moths and scale insects. Birds are driven off by regular whatchmen or by the family members and sometimes by protecting the half-ripe fruits with dried leaves Neither preventive nor control measures are adopted against fruit moths and scales.

Suggested improvements. It is evident from the survey that improvement is needed over a wide range, from selection down to the marketing of the produce.

Selection The first and the foremost attempt should be to replace the Paria type by the Calcutta guava types in order to improve the quality and increase the yields.

Propagation The *ryots* must be induced to grow vegetatively propagated plants, as such plants remain true to the parent in respect of quality and yield, besides bearing early.

Cultural practices Proper spacing and planting trees in lines by adopting the square or the quincunux method will enable one to have more plants in an acre. Root pruning is undesirable in open loamy soils as this is more or less a weakening process. 'Bending of branches' to bear more fruits is not a bad operation, provided it is done properly.

Irrigation and manuring From the experience gathered at the Agricultural Research Station, Anakapalle, it can be safely stated that manuring and irrigation induce more yields and increase the size of fruits.

Pests and diseases The importance of clean culture in the control of insect pests and diseases should not be overlooked. Infected branches should be promptly pruned out. Spraying with contact poison will check the scales and fruit moths.

Marketing Facilities for quick and easy marketing should be made through the agency of co-operative organisations. A system of grading of fruits has to be adopted so that the market value of fruits may been hanced.

Preservation and canning The surplus fruit may be profitably utilised for the manufacture of such well-known products like guava jelly and dehydrated guava. The development of these industries is bound to improve the economic condition of guava culture. It is reported that excellent guava jelly and canned guavas have been prepared by the India Fruits Ltd., Kadiam, and at the Fruit Research Station, Kodur.

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