

## JASMINE CULTIVATION AND MARKETING IN COIMBATORE

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**Introduction.** From time immemorial the jasmine has been under cultivation all over India for its sweet scented flowers. Watt (1890) records a number of uses that the plant is put to. *Jasminum grandiflorum* is reported to be extensively cultivated in Europe for extraction of the scent from its flowers. In South India, *Jasminum grandiflorum* and *J. sambaca* are very widely grown. *J. flexile* is also common. Its flowers are almost like those of *J. grandiflorum*. They are not, however, sold in the market as it is considered that they are inferior to *J. grandiflorum* in the matter of their scent.

**Cultivation.** *Soil.*—In Coimbatore, loamy garden soils are best suited for the cultivation of all varieties of jasmine, while clay soils are unsuited since the luxuriant vegetative growth that results reduces the yield of flowers. In gravelly soils, though the plants present a stunted growth, flowers are plentiful. It should, however, be added that the cultivation of jasmine in gravelly soils is much more difficult than it is in loamy or clay soils.

**Planting**—For planting jasmine, round or square pits about 2 or 3 feet deep and  $1\frac{1}{2}$  feet wide are dug at a distance of at least about 12 feet from one another. Pits are filled with fresh earth stored for the purpose. *Jasminum sambaca* (Tamil: *malligai*) is propagated by cuttings while *J. grandiflorum* (Tamil: *mullai*) is grown by layering, as cuttings are found to be unsuccessful. Vines of *J. sambaca* about 3 or 4 feet long cut from a fairly mature plant and rolled in coils about a foot in diameter are planted upright in the pits dug, with the cut ends buried about 6 inches under the soil. Where propagation is by layering, the planting is done at a depth of about a foot. Rainy season is best suited for the purpose. In about two months fresh shoots begin to grow. Young plants are watered every alternate day.

**Propping.**—Jasmine is a straggler by habit. As the shoots of the young plant spread out, they are supported by tying them loosely to sticks fixed close to the plant. When they have come about three feet high, they have to be properly trained on what is known in Tamil as a *Pandal*—a scaffolding arrangement made from bamboos for the creeper to spread. The trouble with high *pandal* is that the picking of flowers has to be done by climbing over them which is very inconvenient. There is also a belief that during the hottest part of the day, the exposed stone pillars which are usually used as standards, get heated and injure the vines encircling them. In some gardens drumstick (*Moringa*) plants are grown (for live supports) just when the



jasmine is planted so that by the time the standards have to be provided, these *Moringa* plants are tall enough to serve as verticals for the scaffold work. With a view to avoid shade, the branches of the drumstick trees are often lopped off. This appears to be a very easy and cheap method.

*Flowering.* In three or four years, jasmine plants begin to flower and the yield increases year after year. Each plant spreads to a radius of about six feet all round. Especially during the flowering season, shade should be strictly avoided. Flowering season varies with different varieties. *Jasminum grandiflorum* which is most profitable, commences to flower in March and continues to be in bloom till October or November. This period roughly covers both the monsoon rains. *J. sambaca* which is less paying, flowers between March and June or July. The flowering period is usually divided into three well-defined stages. Each phase of flowering covers a period of a week during which flowers are produced profusely. Then there is an interval of about a month between one flush and the commencement of the next.

*After Cultivation and Manuring.* Reviewing briefly the annual cultural operations, it may be stated that soon after the cessation of flowering in October-November, all watering is completely stopped. With the advancement of the cold weather, the plants begin to shed leaves. Early in January the leaves in *Jasminum sambaca* plants are completely removed and the branches are also lightly pruned. During this season no water is supplied. The plants are also dug round so as to expose the roots. They are left in this condition for about a month. Horse or donkey manure with about a fourth of tank silt, if possible, is applied at the rate of about 20 lb. per plant, and covered by replacing the earth removed from round each plant. Pan shaped beds are then made round the plants to hold irrigation water. These operations will go on till about the middle of February. At the commencement, watering is done very moderately, and the dormant vegetative buds start growing very quickly. At this stage of vegetative growth, water is supplied sparingly so as to avoid luxuriant growth lest the crop of flowers should decrease. In a fortnight or three weeks flower buds appear. This indicates the time for profuse watering till the close of the first stage of flowering. With the close of each such stage, watering is stopped completely for about a month till the appearance of fresh flower buds indicating the time when watering is to commence.

In *Jasminum grandiflorum*, the main operations outlined above are almost the same. As in *J. sambaca*, withered leaves are removed and useless and weak branches are also trimmed. To effect complete exposure of all parts of the branches to bright sunlight is the chief object in thinning out branches. Digging and manuring are done as detailed above except that equal parts of tank silt and horse manure at the rate of 25 lb. of the mixture per plant are applied. Watering is



also done in a manner similar to *J. sambaca*. Flowering, however, is continuous in *Jasminum grandiflorum*.

*Details of economic returns from a garden with special notes of its management.*—In a garden which is about  $2\frac{1}{2}$  miles from Coimbatore, there are 31 bushes of *Jasminum grandiflorum* planted in an area of about 3700 sq. ft. (about  $8\frac{1}{2}$  cents) in two blocks. Out of the 31 plants, 3 are about two years old, 3 more are over ten years, and the rest between six and ten years. The arrangement for watering these plants deserves special mention. A masonry cistern about  $4' \times 3' \times 2\frac{1}{2}'$  and capable of holding about 185 gallons of water is situated very near a deep well in the garden. This cistern is filled by two women coolies drawing water by means of a pulley. The cistern is filled thrice within a working day of 8 hours, and the women are paid at the rate of two annas for each fill. The nearest jasmine plant is about 100 feet from the cistern and water is led through masonry channels. After each fill, water is released from the cistern by means of a plug at its bottom. It is reported that on an average about three cisterns per day during the season will irrigate all these 31 bushes which are more than two years old, once in four days.

The following is the summary of the record of yield obtained in that garden.

*Yield of flowers*  
(in Madras Measures).

				1934	1935	1936
January	...	...	...	...	...	...
February	...	...	...	...	...	...
March	...	...	...	7	26	4
April	...	...	...	4	11	15
May	...	...	...	39	21	89
June	...	...	...	109	28	110
July	...	...	...	180	45	110
August	...	...	...	56	40	77
September	...	...	...	44	119	12
October	...	...	...	18	22	5
November	...	...	...	32	...	12
December	...	...	...	3	...	...
Total.	...	...	...	492	312	434
Gross income	Rs.	118		82	115	
Expenditure on watering, manuring, gathering flowers, spraying etc.	Rs.	79		67	73	
Net income	Rs.	39		15	42	
Calculated income per acre (approximate)	Rs.	460		180	500	

The price during all these three years was the same. In this garden extensive damage due to jasmine bug was observed during the flowering season of 1935. It was only when the flowering season had far advanced that the existence of the pest was first noticed. The fact



was immediately reported to the Agricultural Demonstrator in the first instance, who arranged with the Government Entomologist for spraying with fish oil resin soap, and the pest was effectively brought under control, though late, after sustaining a heavy loss. During February 1936 the pest was again noticed and by the timely application of the same remedial measures, it was quickly brought under control. The owner of the garden in question fears that his neighbouring gardens are also infested and his efforts to influence his neighbours have met with little success.

A few remarks are necessary in regard to the method of picking flowers. Boys less than 14 years are employed for picking flowers. Each boy gathers, on an average, about one Madras Measure within two hours. The wages paid to boys are calculated at the rate of one pie ( $\frac{1}{12}$  anna) per ollock ( $\frac{1}{8}$  Madras Measure).

**Marketing and Prices.** As in all other agricultural crops, the question of marketing jasmine flowers is becoming more and more difficult. Unlike commodities like grains, these flowers being perishable, their maximum utility has to be achieved in a very short time. Hence the dealer should make the maximum amount of profit in the minimum time with the minimum of merchandize. He keeps his shop open from 8 A. M. till about 10 P. M. Either he sends his boy servant to the gardens, or the gardeners themselves deliver the flowers by about 10 A. M. In the localities around Coimbatore, the gardener usually takes up the responsibility of gathering the flowers and delivering them to the salesman. The gardener starts picking flowers by about 6 A. M., and finishes by about 9 A. M. so as to enable him to deliver the produce at the shop by about 10 A. M. At that time the buds are unopened and it is said that there is an increase in the volume by about 10 per cent before they are sold in the evening. Ordinarily purchasers go to flower bazaars only after 3 P. M.

**Trade at Coimbatore.** Peculiarly enough, almost all the dozen florist shops in Coimbatore are in the hands of Muhammadans and they appear to be experts in this line of trade. Besides, during the past four years, large scale street vending which till then was almost totally unknown, has come into vogue.

Some of the local florists who also own gardens have now found new competitors from Dharapuram side which is about 50 miles from Coimbatore. It is reported that in and around Dharapuram very large gardens have been established. With the aid of petromax lights, picking of buds is commenced at about 3 A. M. or 4 A. M. and the buds are packed in baskets and transported to Coimbatore by means of motor bus. This produce reaches Coimbatore market by about 10-30 A. M. It is said that these consignments are delivered in Coimbatore at 5 or 6 Madras Measures per rupee.



As for the total quantity of flowers available for Coimbatore market during each jasmine season, one of the flower merchants estimates it at about 400 Madras measures of Dharapuram flowers and about 1200 Madras measures of Coimbatore flowers. No details are available to check up these data, and they have to be taken with reserve.

*Price and Trade Aspect.* No exact figures are readily forthcoming regarding the cost price of flowers paid by the dealer. It is believed that at present he pays at the rate of a rupee for 3 to 4 Madras measures. Prior to 1932, the price was only a rupee for 2 Madras measures, but the competition of Dharapuram and the economic depression have brought down the prices to nearly half the original rates. It is definitely known that the cost price has nothing to do with the ability of the trader to sell all the quantity purchased by him. He generally purchases all the produce grown in a particular garden at a flat rate. Prior to 1930, when there was a dearth of flowers, the trader used to visit gardens in the neighbourhood of Coimbatore and contract with the gardener for the sale of the whole produce of the garden during a particular season. But now, the cost is calculated by the trader on the basis of the total quantity of flowers actually purchased by him day to day.

The sale price of flowers varies with the time of purchase on one and the same day. During early evenings prices are very high. A rate of Rs. 3 per Madras measure is very often quoted. But late at night, say at 9 P. M. or 10 P. M., the trader is anxious to dispose off as much as he could and the price falls to 4 annas per Madras measure which is perhaps just his cost price. During marriage and festive seasons, the prices range from as. 8 to Rs. 3 per Madras measure depending on the time of purchase.

The trader has usually an assistant who is paid a daily wage of 6 to 9 annas. Flowers are tied up sparsely along a piece of plantain fibre. It may be taken that one Madras measure will yield a length of 12 yards. The length of course depends upon the closeness of the arrangement of flower. When there is a keen demand for tied flowers accompanied by a dearth of flowers, the assistant manages to get more than 16 yards from one Madras Measure of flowers. The cheapest rate for tied flowers is six pies ( $\frac{1}{2}$  anna) per yard. Here also the sale price has no relationship to the cost price, as the object is merely to make as much profit as possible in a short time.

Garlands for ceremonial occasions cost not less than 12 annas each. There are several varieties of such garlands with more or less amount of ornamental work and lace tuckings. From one Madras measure of flowers not more than six garlands can be made.

The jasmine trade is characterized by its uncertainty. Late at night all unsold flowers are tightly rolled and packed in plantain leaves.



The next morning the buds remain half open and a portion may be sold till fresh flowers arrive in the market. No pains are spared to scrape every copper that can possibly be obtained. It is perhaps the uncertainty of the trade that accounts for large variations in the prices. False accounting, dilatory tactics, wrong measures and breach of contract are of very common occurrence among these petty dealers.

*The Future.*—The economics of cultivation given elsewhere would indicate that jasmine cultivation should prove profitable; but the demand for flowers appears to be limited. There is therefore very little prospect of any large expansion taking place in the area under jasmine cultivation in Coimbatore, unless extraction of scent is carried out. No information is, however, available as to whether scent extraction can be profitably undertaken.

**Summary.** Details of planting jasmine and cultural operations that have to be carried out are given. Data from actual records from one of the gardens at Coimbatore are furnished with particular reference to its management. The state of the local market is then outlined. It is concluded that any large expansion in the area under jasmine cultivation in Coimbatore is not likely to be profitable under the existing conditions.

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#### References.

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## SOME ASPECTS OF MALNUTRITION IN DAIRY COWS

(By J. C. J. MAUNDER, B. V. Sc.)

In dealing with this subject, I do not propose to describe any diseases caused by or attributable to malnutrition. I shall give you no details of rations to be fed to avoid malnutrition, but will endeavour to awaken you to the realities of malnutrition, for as soon as the dairy farmer begins to realise that malnutrition is a live and real thing, then shall the time be ripe to deal with the problem in greater detail.

Malnutrition can be defined as the inability of the animal to derive the raw materials necessary for maintenance of health and milk production from the available food supply.

The majority of holdings on which dairying is practised in Queensland do not satisfy the complete requirements of the dairy cow, and it is therefore necessary to supplement the grazing with hand feeding, or, on the better class of country, grazing on supplementary fodder crops such as oats, lucerne, cultivated grasses, &c.

Dairying "off grass" can only be successfully practised on the very best of our scrub lands, and to attempt it elsewhere is merely to court disaster, or, at best, a life of hard work and stagnation.