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A Note on Sugarcane Cultivation in the South Canara District.

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Introduction. There is an area of about 5000 acres under the sugarcane crop in the four coastal taluks of Coondapoor, Udipi, Mangalore and Kasargod in the South Canara District. This area was under one or two local varieties called "Dasa Kabbu" and Bidru "Kabbu". Red mauritius was introduced two decades ago, and now this variety has almost replaced the old local varieties.

The trial of some of the Co-varieties is in progress in the Kallianpur sugar factory area. The performances of a few of the thick cane varieties like Co. 419, 413, 421 and 408 are really good and there is already an area of about 150 acres under these Co-varieties in the two Taluks of Mangalore and Udipi. The results so far achieved go to show that these improved Co-varieties are much superior to the Red mauritius variety, both in tonnage and juice quality, and we hope that within the course of another 10 years, these Co-varieties will completely replace the Red mauritius variety which is fast deteriorating.

Sugarcane is mainly grown along the river basins, where the soils are well drained. It is regularly rotated with paddy, and heavily manured.

Preparatory cultivation. Soon after the harvest of the 1st crop paddy in October, the preparatory cultivation for sugarcane is started. The land is ploughed twice with the country plough and the levelling board is passed over. Then the land is ploughed at intervals and the bunds trimmed. With about 6 to 8 ploughings, the land is brought to fine tilth and early in December, ridges and furrows are opened with spades and human labour. The furrows will be 9"—10" deep and are opened at regular distances of a yard, the length of the furrows being short, to facilitate lift irrigation. The furrows are left for sun-drying for about a week before planting the setts. No manure is applied to the fields either during the preparatory cultivation or during planting.

Planting. December—January is the main planting season in the Kallianpur Sugar Factory area while the season extends up to February—March in other parts. Only the top setts of the canes are used for planting. During the harvest of the previous crop, healthy top setts are separated and topped with the leaf sheaths intact and bundled. These bundles are soaked in some shallow sweet water for a day and then removed and kept covered in a shady airy place, till the eye-buds begin their activity and start germination under favourable conditions of temperature. The setts can be preserved this way for about 3 weeks, because the development of the buds will be slow under cover of the leaf sheaths. The other method of curing the setts is to pit them in shallow pits and cover them over with some straw and a thin layer of earth.

When the land is ready for planting, the cured setts are taken out, stripped and cut into small setts with 3 to 4 nodes each. They are planted in the dry soil in the furrows and covered over with a thin layer of the fine soil, care being taken to plant the setts with their eye-buds on either sides. Now irrigation water is let in and a good soaking irrigation is given. The practice of trampling in the setts with irrigation, is not practicable in this sandy soil. It takes 12,000—15,000 setts to plant an acre.

The germination in the cured setts starts on the third day and will generally be very satisfactory. On the fourth day after planting, a light irrigation is given, followed by another light irrigation on the eighth day. The field is left dry for about 10 days, when all the buds germinate and then, regular irrigations are given once a week, till the onset of the S. W. Monsoon.

Manuring. Though the crop is manured heavily in this district, the manuring starts only when the crop is about 40 days old. The first manuring is done when the crop is about six weeks old, with 10 cart loads of farm yard manure and 100 lbs. of ammonium sulphate per acre. The manure is applied in the furrows and the crop slightly earthed up with spade and manual labour. This light earthing up serves as a hoeing and weeding to

the whole field. The second manuring will be, when the crop is about two months old, with about 10 cart-loads of either farmyard manure alone or a mixture of farm yard manure and fish manure or with 5 cart-loads of farm yard manure and 100 lb. of ammonium sulphate with a good earthing up. Then there is the final manuring with about 20 cart-loads of 'burnt earth' per acre and earthing up. The burnt earth is prepared by burning the trash and stubbles of the previous sugarcane crop mixed with a good quantity of the top soil of the field with a slow fire. When the manuring is over, the crop is finally earthed up and drainage channels are dug in the fields, soon after the first trashing is given, in the first week of June with the onset of the S. W. monsoon.

Other operations. During the monsoon, trashing the canes is the only operation. Trashing is done once a month and in places where there are attacks from jackals, wrapping also is done simultaneously.

Harvesting. The harvest season extends from October to February. The early planted crops are harvested in October to take advantage of the early market. No irrigation is given to the crop even if they are left in the field till February. Harvesting is done by digging out the clumps with a 'quintany' (pickaxe) to get even the root portion of the canes for milling.

Milling. Iron mills have completely replaced the old wooden mills in the area. Mills are set up near the fields and two boilings of 18 Kerosene tins (72 gallons) of juice each, are taken every day. It requires two pairs of animals and two men per day, to take two boilings. The crushing percentage and the recovery are satisfactory, being about 65% and 10% respectively. Most of the sugarcane cultivators engage their own pairs and labour for the manufacture of jaggery.

Side by side with the harvest, the planting operations of the new area are taken up.

After the harvest of the crop the land is used for the cultivation of the first crop of paddy.

Cost of cultivation :— The following figures give the details of the cost of cultivating an acre of sugarcane.

1. Preparation of land.	...	...	...	Rs. 9 10 0
2. Ridging and furrowing.	...	...	...	Rs. 7 8 0
3. Cost of manures.	...	...	...	Rs. 61 0 0
4. Manuring.	...	...	...	Rs. 11 0 0
5. Cost of seed setts.	...	...	...	Rs. 15 0 0
6. Planting.	...	...	...	Rs. 4 4 0
7. Irrigation.	...	...	...	Rs. 44 0 0
8. Final earthing up	...	...	...	Rs. 7 8 0
9. After cultivation	...	...	...	Cost of trash
10. Harvesting topping, stripping, cleaning, bundling and transporting to the mill.	...	...	...	Rs. 13 10 0
11. Lease or rental on the land.	...	...	...	Rs. 65 0 0
12. Cost of preparing jaggery.	...	...	...	Rs. 81 0 0
13. Transport charges @ 8 as per candy for 13½ candies,	Rs. 6	12	0	
Total expenses.	...	...	...	Rs. 326 4 0

14. Average yield of canes in tons per acre	...	30 tons.
15. Jaggery out-turn in candies of 500 lb.	...	13½ candies.
16. Value of yield at Rs. 42 per candy of jaggery.		Rs. 567 0 0
17. Net gain per acre.		Rs. 240 12 0

The following figures are of interest :—

Cost of production of 1 ton of cane.	...	Rs. 7 15 0
Cost of production of a candy of jaggery.	...	Rs. 23 10 8
Transport charge per candy of jaggery to the market.	... ..	Rs. 0 8 0
Cost price of one candy when taken to the market.		Rs. 24 2 8

With the cultivation of the improved varieties of canes and the use of improved implements, it will be possible to reduce the cost of cultivation and increase the yield and thus it will be easy to increase the net income by about Rs. 50 per acre and Rs. 2,50,000 per year for the District of South Canara.

A Note on Arrow Root in the Salur Agency.

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Indian arrow root, *Curcuma angustifolia* Telugu *Palagunda* is a wild plant growing in several parts of the Vizagapatam District. The starch prepared from the mature rhizomes is used for making milk puddings (Pala Munjalu) and it is usually prescribed as a diet for invalids. It is used as a diet during dysentery for its easily digestible qualities. The Agency taluqs of Pottanghi, Padwa, Jeypore and Nowrangapur of the Old Vizagapatam District are the chief places where it is extensively grown. The cultivation of this crop, in the sense of regular planting, interculturing and subsequent harvesting, is not regularly done in these tracts. It grows more or less wild in several blocks of waste jungle land, specially near hill streams. It thrives usually at an elevation of over 1500 feet where the soils are very rich virgin, red sandy loams. Because of its free natural growth in the hills whose elevation is usually about 1500 feet and where annual rainfall exceeds well over 50 inches and because of its abundance near water courses, one has to conclude that it requires a very rich loamy soil with plentiful water supply and a fairly cool atmosphere. Attempts will have to be made to see whether it grows well in the plains where water supply is abundant and the soil is fertile.

Preparation of the produce for the market:— The hill tribes gather the rhizomes and prepare the stuff for the market. When they are full grown, the rhizomes are dug out in the months of January and February and washed well in the streams to remove the soil. The washed rhizomes are then rubbed against pieces of stone and washed at the same time. The washings are collected in pots, filtered and the filtrate allowed to settle in shallow earthen-ware basins. The starch settles to the bottom leaving some supernatant liquid which is drained off after a while. Water is again added and the precipitate mixed well for a second wash and allowed to settle. The