https://doi.org/10.29321/MAJ.10.A04035

Cotton cultivation in Lower Bhavani Project Area in the Madras State.

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Introduction: The Lower Bhavani Project commands an area of 2·07 lakhs acres of land situated in the Taluks of Gobichettipalayam, Erode, Bhavani and Dharapuram of Coimbatore District and a portion of Karur Taluk in Tiruchirapalli District. Before the advent of the Project, most of the lands were cultivated with inferior varieties of cotton like Nadam and Bourbon along with other dry crops and Cambodia was cultivated only in certain garden-lands. Under the project, the ryots were allowed to cultivate half their holding with Cambodia. Thus irrigated Cambodia cotton occupies every year one lakh of acres in this area. This sudden switchover from dryland farming to intensive cultivation under the project condition brought to the cultivators of the tract new problems to solve, viz. building up of soil fertility, shortage of manure, choosing suitable crops and varieties and adopting new agronomic practices to the changed conditions. The present paper deals with these problems offering suggestions to overcome the difficulties.

Building up soil fertility: Two types of soils are present in the Lower Bhavani Project area — (1) the shallow red dryland soil constituting the major portion of the tract and (2) the deep garden-land soil. The former is laterite and is highly porous with low water holding capacity. Both are poor in essential nutrients. Raising the fertility of the soil by adding organic matter like farm yard manure and compost has its limitations due to the non availability of such enormous quantities required for the vast area. So the simple method of growing a leguminous green manure crop with phosphatic fertilizer and ploughing it *in situ* is suggested to enrich the soil in all essential plant nutrients-nitrogen, phosphoric acid, potash etc. and to improve its tilth. The phosphate should be applied to the legume at 30 lb. of P_2O_5 per acre in the form of superphosphate. Application of green manure should be continued every year as the loss of organic matter is considerable in tropical soils with open texture.

In addition, application of 200 lb. of Ammonuim sulphate in two split doses of 100 lb. each on the fourth and eighth week after sowing of the Cambodia cotton is recommended for realising profitable yields.

Strain of cotton recommended: MCU-1 is the present recommended strain for cultivation in the Lower Bhavani Project Area In the Agricultural Research station at Bhavanisagar, which represents the Lower Bhavani Project area, experiments are in progress under a scheme financed by the Indian Central Cotton Committee for the evolution of a Cambodia strain superior to the present cultivated strain MCU-1 and adaptable for the entire irrigated winter Cambodia tract of Madras State including the Lower Bhavani Project area. The experiments conducted for the past 3 seasons in the Agricultural Research Station, Bhavanisagar and on the cultivators' holdings of the Project area have shown the superiority and adaptability of the new strain 9030-G over the present cultivated strain MCU-1.

It was found that the cultivation of the new strain 9030-G in the place of the present cultivated strain MCU-1 in the Lower Bhavani Project area would yield, on an average Rs. 44/- more per acre, due to 22% higher yield of Kapas, 1% higher ginning outturn and better quality attributes fetching a premium of Rs. 38/- over MCU-1, per Candy of lint of 784 lb. Arrangements are under way to multiply and distribute the seeds of the new strain.

Time of sowing cotton: Sowing Cambodia cotton early in September increases the yield of kapas and ginning out-turn. Experiments were conducted at the Agricultural Research Station, Bhavanisagar to assess the optimum time of raising Cambodia cotton in the Lower Bhavani Project area. The experiment included three dates of sowings viz. 10th September, 25th September and 10th October. Uniformly higher values were obtained for all the economic characters in the early sown crop. The early September sown crop yielded 30% more seed-cotton, 34% more lint, 1·2% higher ginning out-turn and 2 mm. extra halo-length than the October sown crop. Thus, the sowings of Cambodia cotton early in September in Lower Bhavani Project area yields an extra profit of Rs. 39=50 per acre based on the extra yield of 79 lb. of lint realised per acre on an average.

Seed Treatment: Since Lower Bhavani Project area is reported to be liable to the infection of Black-arm disease in Cotton, it is highly desirable that the Cotton seeds prior to sowing are treated with mercuric compound like Agrosan G. N. at 1 oz. for 20 lb. of seeds.

Spacing for Cambodia cotton: Closer spacing increases the yield of seed-Cotton. Experiments were conducted at Agricultural Research Station, Bhavanisagar to determine the optimum spacing

required for irrigated Cambodia cotton in the Lower Bhavani Project area to obtain the maximum yield. The spacings tried were $1\frac{1}{2}'$, 2' and $2\frac{1}{2}'$ between rows and 6" and 9" between plants in the row with single and double plants per hole. It was observed that a spacing of 2' X 9" with double plants per hole gives the maximum yield under the project conditions.

Labour Problem: With the switch over from dry farming to the intensive system of cultivation due to the letting in of water in the Lower Bhavani Project canal, labour problem is keenly felt in the project area. Labour saving implements are therefore recommended. This will not only solve the labour problem but also will reduce the cost of cultivation and thereby contribute to the increased monetary return. The cotton seeds may be dibbled on the slopes of the ridges. For ridging up and forming cross channels, the ridge plough and bund former are very useful. Planet Junior Bullock hoe may be used for inter-cultivation operations. At the end of the crop period, instead of pulling the cotton stalks by hand with hired labour, the crop may be ploughed with Victory plough, the plants collected and composted. This will mitigate the shortage of manures.

Net return per acre: The cost of cultivation for an acre of Cambodia cotton in the Lower Bhavani Project area amounts to about Rs. 260/- per acre inclusive of water-cess charges.

The cost of 903 lb. of kapas (mean yield per acre) in the case of MCU-1 at Rs. 130/- per pothi of 280 lb. is Rs. 419/- and the value of 4 cartloads of cotton stalks from an acre at Rs. 4/- per cartload is Rs. 16/-. Thus the net profit per acre, after deducting the cost of cultivation amounts to Rs. 175/-.

In the case of 9030-G, for which the mean yield of kapas per acre is 925 lb. the value of kapas at Rs. 140/- per pothi is Rs. 463/-. The total receipts including this and the value of cotton stalks (Rs. 16/-) is Rs. 479/-. The net profit after deducting the cultivation charges is Rs. 219/-.

Thus a higher return of Rs. 44/- can be realised per acre by the cultivation of the new strain 9030-G in the place of existing strain MCU-1 in this area.

Summary: The completion of Lower Bhavani Dam in the Coimbatore District and the construction of a channel 130 miles long has enabled an area of one lakh acres to be sown with irrigated