

SELF-SUFFICIENCY IN SUGAR PRODUCTION—THE ROLE OF RESEARCH

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The Government in its attempts to achieve self-sufficiency in sugar production has allowed the private sector to open sugar factories and they have achieved considerable success. Sugar is one of the most essential consumer items in Sri Lanka. The consumption of sugar is approximately 250,000 metric tonnes. Only 10% of this quantity is produced at the Government owned sugar factories at Kantalai and Hingurana. The rest is imported at an annual cost ranging from Rs. 1,000 to 2,000 Million. This is a major drain on Sri Lanka's hard-earned foreign exchange earnings. However, the country earns foreign exchange from one of the by-products of sugar — potable alcohol. Some 500,000 gallons are exported annually.

The methods of technology used play a vital role in sugar production. In terms of process technology, sugar can be manufactured in open or vacuum pan factories. The open vacuum pan factories are cheap and easy to install. But, one of the main disadvantages according to experts the quantity of sugar extracted from this process is less. Although the vacuum pan system is more complex and sophisticated it is capital intensive. The authorities have especially mentioned that after more than two decades of operation, the two state owned sugar factories are working at 50% capacity due to inadequate cane production and frequent breakdown because of poor factory maintenance. According to the latest surveys made, although cost-intensive, the vacuum pan factories are capable of crushing 5000 tons of sugar cane per day corresponding to about 30,000 to 35,000 acres of cane under local conditions.

The Government of Sri Lanka has realised that the employment of new technology and research has to play a vital role in local sugar production industry. For this purpose, the sugar cane research institute was established by an act of Parliament — No. 75 of 1981. However, it became an autonomous institute only in 1984. The sugar cane research institute needed the latest sophisticated equipment and other infrastructure facilities for its research programmes. The required laboratory equipment, field instruments and agricultural machinery were obtained through grant aid from Japan. The main sugar cane research station was constructed in a 350 acre block of land on the right bank of the Uda Walawe river. Sugar cane research will largely depend on the research and infrastructure facilities provided by the Japanese grant aid.

Modern methods of research will be used to produce various sugar cane varieties. The Sugar Cane Research Institute has been able to release six locally bred varieties of sugar cane suitable for the areas in which they are grown. The performance of the recently introduced varieties CO 1287 and Q 101 have been highly recommended by research workers. The locally bred variety CO 1163 has not performed so well, but, it might be used in the local sugar cane industry. The sugar cane varieties suitable for local conditions are bred from imported varieties. So far ten varieties obtained from Mauritius and India had been used for breeding and another twenty varieties are expected from Canal Point. The latest techniques for tissue culture plays a vital role in breeding high-yielding sugar cane suitable for local conditions. The scientists at the Sugar Cane Research Institute have

been able to perfect the technique of growing slices of young, unexpanded leaf tissues and undifferentiated floral tissues in modified murashige and Skoog medium to obtain Vigorous Callus within two weeks. After root induction and hardening, the shoots could be transferred to first ground nursery within a month. The progress achieved by Sugar Cane Research Institute is significant at 200 Caliclones obtained by above technique are now being fed to the intensive care selection stage of the breeding programme.

Although new varieties have been bred by using tissue culture techniques, diseases pose a serious threat to sugar cane cultivation. Intensive surveys on the various diseases have been carried out at the plantations of Pelwatta Sugar Company and Monaragala Sugar Company. An unidentified strain of sugar cane mosaic disease has been found and measures have been taken to prevent its spread to other plantations. Intensive pest surveys had been carried out during the last few years. But, fortunately no serious pests have been found.

As I have mentioned before, the Government alone is incapable of developing the sugar industry to reach the target of self-sufficiency. Private Sugar Companies have invested large amounts of money to develop the sugar industry. The Government has assured them that their entire production will be purchased within a specified time at an agreed price. Most of the factories have begun production and when all the factories are in operation, monthly sugar production will be in excess of consumption thus attaining the target of self-sufficiency. However, the Government should somehow try to bring down the cost of production. The cost of maintaining the factories will contribute significantly to higher prices.

Recently a number of internationally reputed manufacturers of sugar cane processing equipment have attempted to develop economically viable small plants suited for the developing countries in Asia. The manufacturers have redesigned the vacuum pan factories to bring down the cost of operation. Some of the designs are still in the experimental stage. Some of the interesting data on the economically viable plants are given below:

MODIFIED VACUUM PAN FACTORIES FOR DEVELOPING COUNTRIES

Category	Capacity	Total Cane require for Season (Tons)	Crop Area Intermediate Zone (Acres)	Dry Zone (Acres)	Capital Cost (Rs.Mn) 1982
(a) Vacuum Pan Process	5,000	900,000	41,100	30,000	n.a.
1. Large Scale	2,500 1,200	450,000 216,000	21,000 10,000	15,000 7,200	570 420
2. Medium Scale	600	108,000	4,900	3,600	200
3. Small Scale	300 150	54,000 27,000	2,450 1,700	1,300 900	100 n.a.
(b) Open Pan Process					
1. Small Scale	200 100	n.a. 18,000	n.a. 820	n.a. 600	9.5 5.6

Source: Crop Agriculture Development Strategy

