CHAPTER – VII

FINDINGS, PROBLEMS, RECOMMENDATIONS,
POLICY IMPLICATION AND CONCLUSION

The sample farmers reported that the period involved in conversion from conventional farming to organic farming is the most difficult one. This is mainly because (a) lack of knowledge about the principles of organic farming, (b) shift to organic farming brings in several significant changes in agricultural practices, (c) at least it takes three years to complete the conversion successfully, (d) decrease in sugarcane yield with the beginning of the conversion period, (e) no premium prices, (f) due to (d) and (e) there is reduction in farmers income during the conversion period, and (g) non-cooperation from neighbouring farmers who practice conventional agriculture. These factors form the major hurdle in the adoption and spread of organic farming. Therefore, it is recommended that the beginners should receive not only the training but also the support in organic production methods certification and marketing during this period. If feasible, the beginners should shift to organic in stages rather than trying to convert all the landholding at once. It is suggested that the beginners themselves should also prepare for transition period in terms of time required, crops to be taken,
inputs management, financial provision, etc. to pass the period of transition rather smoothly. Moreover, all the farmers having contiguous fields should be encouraged to shift to organic methods to avoid problems related to leaching and or contamination of chemical fertilizers and pesticides.

**FINDINGS**

1. The average family size of OS households was found to be smaller (4.32) than IS households (4.96) in both the Blocks (Table1). The heads of Organic Sugar households are younger and better educated than their counterparts from Inorganic Sugar households.

2. The average size of land holding was found to be 4.48 ha on Organic Sugar farms as compared to 3.72 ha on Inorganic Sugar farms.

3. The sugarcane crop accounted for 17.19 and 16.90 per cent on OS farms and 15.72 and 28.27 per cent of GCA on IS farms, respectively.

4. The sugarcane crop dominated the cropping pattern in Kulithalai taluk. It occupied 39.72 and 44.47 per cent of Gross Cropped Area (GCA) on OS and IS farms, respectively.

5. It is important to note that the OS crop occupied largest coverage at 17.19 and 39.72 per cent of Gross Cropped Area (GCA) on sample farms in Krishnarayapuram and Kulithalai, respectively.
6. Use of sugarcane seed ranged between 2.85 and 2.97 tonnes per ha for OS crop and 3.26 to 3.35 tonnes per ha for IS crop in study districts. On an average, 11.44 per cent less seed was used by OS farmers.

7. Inorganic Sugar farmers used 355.86 kg N, 127.54 Kg P, and 80.87 kg K per ha for their sugarcane crop. This is quite high when compared with the levels of 110.10 kg N, 44.70 kg P and 30.10 kg K per hectare for irrigated sugarcane crop in the country.

8. The average number of irrigations given were 21.31 for OS crop and 25.81 for IS crop reflecting that OS crop needs 17.45 per cent less number of irrigations than the IS crop.

9. As the requirement of irrigation water is less in OS cultivation, the use of electricity is also expected to be less in OS farming. This is also reflected in lower irrigation cost by Rs. 1367.50 per ha on OS farms than IS farms.

10. This analysis shows that average cost of cultivation of OS crop was Rs. 37,017.38 per ha as against Rs. 43,163.81 per ha for IS crop, reflecting 14.24 per cent lower cost on OS farms than the IS farms.

11. The OS farmers spent Rs. 10,021.41 per ha on manures and manuring mostly produced by themselves, and additional Rs. 1,883.17 per ha on bio-fertilizers, etc. These two together, on an average, cost Rs.
11,904.58 per ha which is quite less than the cost of Rs. 16,397.56 per ha incurred by IS farmers on fertilizers and manures put together.

12. The irrigation cost was found to be 18.48 per cent less on OS farms. Thirdly, OS farmers spent about Rs. 1,100 per ha less for seed and planting as compared to IS farmers. Fourthly, the average per ha cost on plant protection was lower on OS sample farms, as most of this material was prepared by OS farmers.

13. The Gross Value of Production (GVP) and profits were higher on OS farms than the IS farms. For example, the GVP from OS farm amounted to Rs. 116,711.38 per ha as against Rs. 112,087.84 per ha from IS farm showing more than 4 percent higher GVP on OS farms than the IS farms.

14. The output-input ratio (GVP/GCC) was found to be 3.15 on OS farm as compared to 2.60 on IS farm. The higher output-input ratio is the reflection of both the higher cost efficiency achieved and higher price fetched by sugarcane produced on OS farms.

15. Higher profitability is another feature of OS farming. The OS farming gives 15.63 per cent higher profits per ha than IS farming thereby enhancing farmers income.
16. Cost of production of sugarcane per acre reveals that manures and fertilizers accounted for the maximum share in cost of production [32 per cent] followed by human labour [26 per cent] in Kulithalai taluk. In Karur taluk also, manures and fertilizers accounted for the maximum share in cost of production [28 per cent].

17. Transportation of sugarcane to the factory [26 per cent] and human labour [22 per cent]. On an average, the cost of production of sugarcane per acre in Tamil Nadu worked out to Rs.33882 and Rs.27623 in the case of planted and ratoon sugarcane respectively, the average being Rs.32,409.

18. In Kulithalai taluk, the yield per acre of sugarcane varied from 40.62 tonnes in the case of planted sugarcane to 41.69 tonnes in the case of ratoon sugarcane, the average being 40.83 tonnes. Similarly, in Karur taluk, the yield per acre of sugarcane varied from 39.88 tonnes in the case of planted sugarcane to 41.80 tonnes in the case of ratoon sugarcane, the average being 40.42 tonnes.

19. In Kulithalai taluk, the gross income from sugarcane per acre amounted to Rs.50,782 in the case of planted sugarcane as against Rs.52,110 in the case of ratoon sugarcane, the average being Rs.51,040. However, in Karur taluk, the gross income from sugarcane per acre amounted to
Rs.39,880 in the case of planted sugarcane as against Rs.41,800 in the case of ratoon sugarcane, the average being Rs.40,420.

20. Higher gross income generation from sugarcane in Kulithalai taluk could be attributed to higher price per tonne secured being Rs.1250 as against Rs.1,000 in Karur taluk. On an average, the gross income from sugarcane production per acre amounted to Rs.46,031 and Rs.46,363 in the case of planted and ratoon sugarcane respectively, the average being Rs.46,109.

21. In Kulithalai taluk net income from sugarcane production per acre, after accounting for the imputed value of family labour varied from Rs.19,091 in the case of planted sugarcane to Rs.31,795 in the case of ratoon sugarcane, the average being Rs.21,565. When compared with Kulithalai taluk, the net income from sugarcane production after accounting for the imputed value of family labour in Karur taluk was substantially lower, being Rs.3,160 and Rs. 8,374 in the case of planted and ratoon sugarcane respectively, the average being Rs. 4,630. This reveals the possibility of securing substantially higher net income even from ratoon sugarcane production.

22. Higher yield and lower cost of production. Further, higher net income generation from sugarcane production per acre in Kulithalai taluk
[Rs.21,565] vis-a-vis Karur taluk [Rs.4,630] could be attributed mainly to higher price realisation and lower cost of production.

23. The net income per acre without imputed value of family labour was higher in the case of ratoon sugarcane [Rs.21,270] than in the case of planted sugarcane [Rs.13,230] and the net income per acre with the imputed value of family labour was also higher in the case of ratoon sugarcane [Rs.18,740] than in the case of planted sugarcane [Rs.12,149]. On an average, the net income from sugarcane production per acre, without and with the imputed value of family labour amounted to Rs.15,122 and Rs.13,700 respectively.

24. Net income from jaggery production per quintal from own sugarcane, bought sugarcane and sugarcane crushed on rent amounted to Rs.557, Rs.126 and Rs.53 respectively. Considering the jaggery production from own and bought sugarcane together, the net income from jaggery production per quintal in Karur taluk amounted to Rs.241, the gross income and the cost per quintal of jaggery production being Rs. 1,571 and Rs. 1,330 respectively.

25. That annual net income generated from an average jaggery production unit in Karur taluk amounted to Rs.4.99 lakh, including Rs.1.66 lakh from jaggery production from bought sugarcane, Rs.2.67 lakh from
jaggery production from own sugarcane and Rs.0.66 lakh from jaggery production from sugarcane crushed on rent.

26. Higher net income generation from an average jaggery production unit per annum in Karur taluk [Rs.4.99 lakh] vis-a-vis Kulithali taluk [Rs.0.84 lakh], which could be attributed to higher jaggery production from own plus bought sugarcane [1794.85 quintals] and higher jaggery production from sugarcane crushed on rent [1247.13 quintals] as against 606.50 quintals from own sugarcane and 239.50 quintals from sugarcane crushed on rent in Kulithalai taluk.

27. The total annual cost of jaggery production per unit was also substantially higher in Karur taluk [Rs.27.78 lakh] when compared with that of Kulithali taluk [Rs.8.84 lakh]. The price per quintal of jaggery production worked out to Rs.1, 571 in Karur taluk as against Rs.1429 in Kulithalai taluk. Jaggery produced from sugarcane crushed on rent per unit per annum was also substantially higher in Karur taluk [1247.13 quintals] as against 239.50 quintals in Kulithalai taluk.

Problems and Suggestions

In this chapter, an attempt has been made to identify the constraints in the supply chain and suggest measures to overcome them. In India, the productivity of sugarcane measured in terms of yield per hectare increased
substantially from 30.9 tonnes in 1930-31 to 66.8 tonnes in 2008-09. However, the productivity of sugarcane in India is still lower, when compared with that in several other countries. In terms of productivity per hectare of sugarcane during 2005, India [61.98 tonnes] stood tenth, the first nine countries being Colombia [92.29 tonnes], Australia [91.06 tonnes], Philippines [81.58 tonnes], Indonesia [72.86 tonnes], Brazil [72.85 tonnes], Mexico [70.61 tonnes], South Africa [69.63 tonnes], United States of America [66.63 tonnes] and China [65.16 tonnes]. Further, the productivity level has stagnated during the nineties. Lower productivity of sugarcane in India could be attributed to raising of sugarcane under diverse growing conditions by millions of farmers. This points out to the need for intensifying research, extension and development efforts towards increasing the productivity of sugarcane in India.

The area under sugarcane cultivation in this district decreased from 50.43 hectares in 2007-08 to 44.08 hectares in 2008-09. This led to a decline in sugarcane production from 3481 lakh tonnes in 2007-08 to 2892 tonnes in 2008-09. There was, therefore a substantial fall in sugar production from about 264 tonnes in 2007-08 to 150 to 155 tonnes in 2008-09.
Unremunerative price for sugarcane is a disincentive for sugarcane farmers to put higher area under sugarcane and increase sugarcane production. Because of surplus sugar production in India during 2006-07 [283.64 lakh tonnes], sugar prices had become unremunerative [i.e., sugar prices had gone below cost of production]. The government had also imposed a ban on sugar export. Consequently, there were huge cane price arrears. The sugarcane farmers, therefore, shifted to cultivation of other crops, resulting in reduced area under sugarcane cultivation, reduced sugarcane production and reduced sugar production during 2008-09 seasons.

There is a need for ensuring that the sugar price remains remunerative for ensuring self sufficiency in sugar and for making India an exporter of sugar. Only remunerative sugar price enables sugar factories to make timely remunerative price payment for sugarcane, meet the cost of sugar production and have a balance to increase the capacities of the factories, modernize and set up by-product industries.

Pests and diseases as also natural calamities such as droughts and floods and inadequate and ill distributed rainfall adversely affect the production of sugarcane. During 2003-05, there was a major fall in sugarcane production.
The constraints in the supply chain and the recommendations emerging from the study through discussion with the respondents, experts/officers from the Agricultural Research Institutes, Sugar Institutes, State Agricultural Marketing Boards, sugar factories, etc., including the actions to be taken at different levels such as institutional financing agencies, factories, government, etc., towards development of sugar sector.

The study in this district observed cases of under-financing of sugarcane. The crop loan for sugarcane was being extended by two PACS to the farmers at Rs. 12,000 per acre as against the revised scale of finance effective from 20th December 2005 at Rs. 16,800 and Rs. 14,500 per acre for planted and ratoon sugarcane respectively.

Inadequacy of water supply affects the productivity of sugarcane adversely. There is a need to take suitable steps towards provision of adequate financial facility for securing adequate irrigation facility through canals, bore wells, lift irrigation systems from rivers and intensification of micro-irrigation system in terms of promotion of drip irrigation programme particularly in the tail-end region of canal irrigated area.

Replacement of outdated machinery and technology by modern machinery and technology in sugar factories and jaggery production units
may be encouraged by financing agencies. Discussion with the District Industries Centre, Mandya revealed that Hi-tech Jaggery Manufacturers' Association had been formed. Hi-tech jaggery units require financial assistance for securing increased production of better quality jaggery.

There is a need to encourage better utilization of by-products by sugar factories. Apart from production of sugar, there is immense scope for production of rectified spirit, ethanol and electric power by sugar factories. Hence, such activities must be encouraged as measures towards increasing the profitability of sugar industry.

**Encouraging Value - addition Measures**

In Coimbatore, sugarcane juice is being packed and sold. Such a value-addition measure may be encouraged in Karur District through extending necessary financial assistance.

Using sugarcane juice or jaggery as raw material, chikki and other products such as jaggery syrup, which could be a substitute for jam are being prepared. Since there would be value addition through such measures, they may be encouraged.
There is a need on the part of the Office of the Lead District Manage (LDM), to maintain the following data.

i. Year-wise, taluk-wise, bank branch-wise and crop-wise area financed;

ii. Year-wise, taluk-wise and bank branch-wise data on number of jaggery and khandsari units financed and loan amount disbursed thereof.

iii. Financing of sugar factories

Since the data on number of physical units of sugarcane financed [maintained in the Office of the LDM] actually indicated the number of sugarcane growers financed, there is a need on the part of the Office of the LDM to replace the term 'number of physical units financed' by the 'number of farmers financed'.

Delay in making payment towards supply of sugarcane to factories to an extent of one to two years was a serious problem faced by farmers in earlier years. Generally, payment is being made by sugar factories to farmers within two to three weeks after supply of sugarcane. Since delay in payment towards supply of cane is a disincentive leading to diversion of land use from sugarcane to other crops, which would adversely affect the availability
of sugarcane to sugar factories, there is a need to ensure timely payment towards supply of sugarcane.

Harvesting gangs from Neighbouring Districts, who are professional, are being employed for harvesting sugarcane. These harvesting gangs are generally arranged by sugar factories. But, sometimes, they are arranged by sugarcane growers. Since proper harvesting involving cutting of sugarcane up to the ground level and proper removal of tops and trashes is very important in securing maximum sugar recovery, sugar factories may arrange for suitable harvesting and transportation gangs.

Tie-up arrangement among the sugarcane growers, sugar factory and the bank has been quite helpful in ensuring better loan recovery. There is a need to encourage adoption of such a system.

Contract farming is working well in the case of sugarcane. After planting of sugarcane, the grower registers with the factory. The farmer knows the price to be realized by him / her at the time of planting itself. Normally, sugarcane is delivered to the factory as per contract. Facilities extended by the sugar factories to the sugarcane growers include crop loan arrangement, arrangement for loan repayment, dissemination of technical know-how, arrangement for supply of quality seed material for planting at
subsided rates, supply of fertilizers, pesticides and weedicides, arrangement for biological control of pests and arrangement for harvesting and transportation of sugarcane from the farm to the factory. There is a need for further encouraging promotion of contract farming in sugarcane.

Adoption of sound technology is lacking particularly in cooperative and public sector sugar factories. Efforts may, therefore, be made towards recruitment of required number of qualified persons in such factories. Recruitment of agricultural graduates may be encouraged in sugar factories and banks. Arrangement for training of staff of sugar factories to make them more professional may also be ensured.

There is a need on the part of sugar factories to maintain the following data in respect of each sugarcane grower who supplied sugarcane to the factory during the crushing period of the sugar year.

I. Name of the village where sugarcane was grown
II. Name of the taluk
III. Name of the farmer
IV. Variety
V. Area under sugarcane
VI. Whether the crop was planted or ratoon
VII. Date of planting or date of commencement of the first or subsequent ratoon crop.

VIII. Date of harvesting Quantity of sugarcane supplied to the factory and date of supply.

IX. Any other relevant details of the sugarcane grower such as payment made towards sugarcane procurement, deduction made by the factory towards harvesting, transportation and other items, distance from the sugar factory to the farm, whether the sugarcane grower was a member farmer or a non-member farmer, whether any tie-up arrangement existed among the sugar factory, the financing bank and the sugarcane grower, etc.
CONCLUSION

Sugar factories may be allowed to acquire sufficient agricultural land, either on lease or purchase basis, for seed multiplication in order to supply the required quantity of desired variety of seed to the farmers registered with them. The co-operative sugar mills in Uttar Pradesh generally operate through sugarcane societies in procuring sugarcane. Many members of sugarcane societies do not grow sugarcane. But, they are registered as cane growers and sell their sugarcane quota to other influential members. The co-operative mills give preference to the large and influential farmers in giving crop cutting orders and the small farmers are forced to wait for a longer time to supply sugarcane to the sugar mills. The small farmers like to grow sugarcane in between two crops of sugarcane and hence sell their sugarcane crop to khandsari / gur units at a lower price. There is, therefore, a need to ensure transparency in the distribution of cutting orders of sugarcane. There is a vast scope for improving the productive efficiency of sugarcane in this area, because of the natural endowments and the Government of Tamil Nadu is keenly interested in establishing many research oriented programmes to boost up its cultivation.