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Adoption Level of Sustainable Sugarcane Initiative (SSI) in Tamil Nadu

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Abstarct: ***Sugarcane is the major source in production of sugar it is native to warm temperate to tropical regions of South Asia and other continents, around 80% of sugar in the world is made by sugarcane. According to Food and Agriculture Organization of United States (FAO) sugarcane is cultivated in more than 90 countries with a worldwide harvest of 1.88 billion tons yearly; Brazil is the leading country in production of sugarcane. This plant is not only used for sugar but it is important ingredient for other products like molasses, rum, bagasse and ethanol Brazilian sugarcane industry produce Ethanol on large scale.***

1. Need for Sustainable Sugarcane initiative

The Sustainable Sugarcane Initiative (SSI) is an innovative set of agronomic practices that involves using less seeds, raising seedlings in a nursery, and following new planting methods, with wider plant spacing, and better water and nutrient management to increase the cane yields significantly.

The SSI crop results in robust root system, phenomenal increase in tillering and faster growth in terms of height and girth of individual canes. These factors in turn, not only provide substantially higher cane yields, but also result in higher sugar recovery. Fewer incidences of pests and diseases owing to faster growth and not so dense crop canopy are other advantages.

The other significant benefits are seed cane saving to the tune of 4 t/ ha, water saving upto 90% during the first month due to nursery raising practice, around 30% water saving in the main field, owing to wider spacing and use of water efficient systems like drip irrigation. SSI also gives an excellent ratoon crop.

Very slow adoption of new varieties is a major problem in sugarcane. In SSI, there is a phenomenal increase in seed cane multiplication rate 1:60 to 1:80, as compared to 1:6 to 1:8 in the case of conventional crop. This enables faster spread of varieties.

Major Principles of Sustainable Sugarcane Initiative

- Raising nursery using single budded chips.
- Transplanting young seedlings (25-35 days old).
- Maintaining wide spacing (5X2 feet) in the main field.
- Providing sufficient moisture and avoiding inundation of water.
- Encouraging organic method of nutrient and plant protection measures.
- Practicing intercropping for effective utilization of land.

Overall benefits

In conventional method, the cost of setts occupies a major part of the cost of cultivation. But by practicing SSI, the seed cost can be drastically reduced up to 75%.

- Reduction in plant mortality rate.
- Increase in the length and weight of individual canes.
- Easy to transport the young seedlings to longer distance.
- Easy intercultural operations because of wider spacing.

2. Research Methodology

Selection of district

In Tamil Nadu, sugarcane growing districts are Erode, Cuddalore, Thiruvannamalai, Vellore, Perambalur, Thanjavur, Dharmapuri, Namakkal and Salem districts. Pudukottai district has one of highest area under SSI among the district of Tamil Nadu. The water plays the major role in determining SSI in the district.

Selection of taluk

In Pudukottai district there are 12 taluks which includes Pudukkottai, Gandarvakkottai , Alangudi, Karambakudi , Aranthangi, Avudaiyarkoil, Manamelkudi, Thirumayam, Ponnamaravathy, Illuppur, Viralimalai, Kulathur. Among these taluks Alangudi, Karambakudi, Gandarvakottai and Aranthangi taluks were selected due to the highest area under sugar cane and familiarities of the researcher with the area and also with the local dialect and culture of the people.

Selection of villages

Selected three villages from each taluk with the total of twelve villages from the selected four taluks.

Selection of farmers

Based on purposive sampling method, 120 farmers are selected from the twelve revenue villages.

3. Findings and Discussion

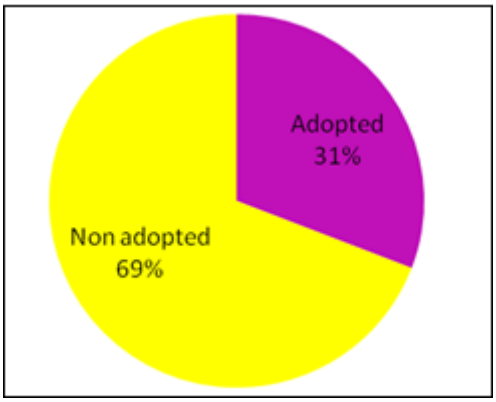
This chapter presents the highlights of the results emerged out of this study. The discussion has also been taken up simultaneously with the results.

1) Level of Adoption of Sustainable Sugarcane Initiatives (SSI) by the Farmers

An attempt has been made to measure the adoption of the respondents towards SSI farming. The results are presented in table

Distribution of respondents according to their adoption on SSI farming (n=120)

S.No	Category	No. of farmers	Per cent
1.	Adopted	37	31.00
2.	Non-Adopted	83	69.00
	Total	120	100.00



From the above inference, it has been studied that increase in profit, increase in yield, more areas under sugarcane cultivation , influence of extension agents from E.I.D. Parry Pvt. Ltd. and the willingness of middle age group farmers to accept new technology has influenced nearly one fourth of the farmers to adopt SSI method of sugarcane cultivation.

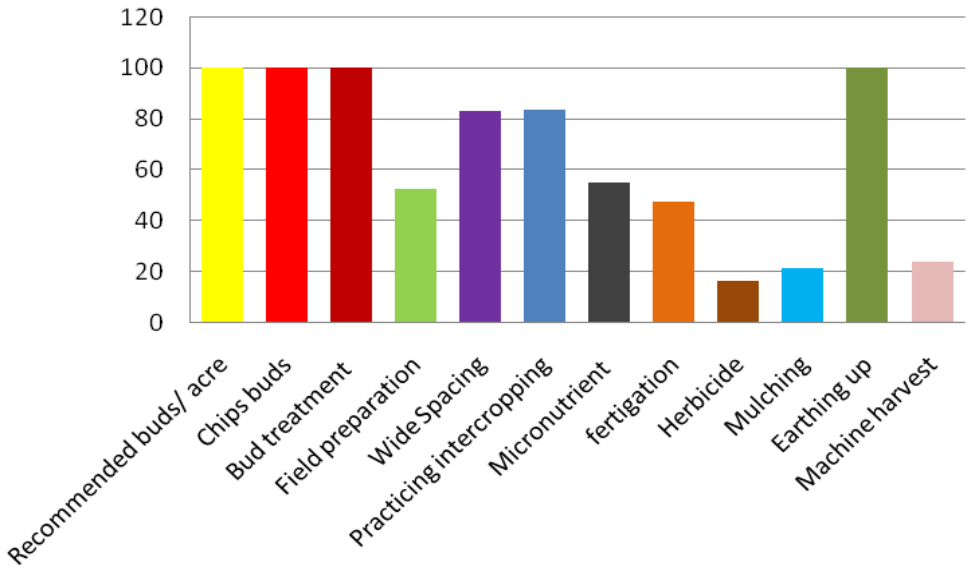
Lack of awareness, initial investment cost, delay in getting subsidy and vagarious monsoon plays a vital role in non adoption of SSI technology in the study area.

2) Extent of Adoption of Sustainable Sugarcane Initiatives (SSI) Technology by the Farmers

An attempt has been made to measure the extent of adoption of the respondents towards SSI farming. The results are presented in table

Extent of adoption of SSI

S.No.	Extent of adoption	Percent
1	Recommended buds/ acre	100.00
2	Chips buds	100.00
3	Bud treatment	100.00
4	Field preparation	52.70
5	Wide Spacing	83.33
6	Practicing intercropping	83.33
7	Micronutrient	55.00
8	fertigation	47.62
9	Herbicide	16.67
10	Mulching	21.67
11	Earthing up	100.00
12	Machine harvest	23.81



The entire SSI farmers are using single budded chips or cuttings including treatment with bio-fertilizer (ie.100 percent adoption). Almost 83 percent of the farmers are adopting wide spacing for easy intercultural operation and crops such as black gram and groundnut has been grown as intercrop since it gives an additional income and no need for weeding. Since 43 percent of the farmers have their own drip irrigation due to the availability of subsidy, fertigation is adopted since it saves times and labor cost when compared to manual fertilizer application. Due to the non availability of sugarcane machine harvester and yield reduction, only 23 percent of the farmers are doing machine harvesting. Only 16 percent of the farmer using herbicide since they do not cultivate black gram or groundnut as intercrop.

This finding will help in formulating appropriate strategies by the policy makers and scientist to develop suitable mechanism to enhance the adoption level of sustainable sugarcane initiatives.

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