

Annexure - 10

Sustainable Sugarcane Initiative (SSI)

The sustainable Sugarcane Initiative (SSI) is yet another viable, feasible and economic approach in sugarcane production, based on the principles of 'more with less' in Agriculture like System of Rice Intensification (SRI). Sustainable Sugarcane Initiative improves the productivity of water, land, labour and cane productivity, one in the same time, besides reducing the overall pressure on water resources.

Sustainable Sugarcane Initiative (SSI)

Sustainable sugarcane initiative is a method of sugarcane production which involves usage of less seeds, less water and optimum utilization of fertilizers and land to achieve higher cane yields. Driven by farmers, SSI is an alternate to conventional seed, water and space intensive sugarcane cultivation.



Sprouted chip buds

The major principles that govern SSI can be stated as below

- Raising nursery using single budded chips, which ultimately declines total cane requirement
- Transplanting young seedlings (25-35 days old)
- Maintaining wider spacing (5 x 2 feet) in main field
- Providing sufficient moisture through water saving technologies viz., skip furrow (or) alternate furrow and subsurface drip irrigation
- Practicing of intercropping with effective utilization of land.



Root development of SSI seedlings with coco pit

Major Benefits of SSI

- Produce more per mm of water and all other inputs
- Possibilities of raising cane crop even under marginal lands
- Provides raising of cane crop in problem soils and water
- Offers minimum tillage practices
- Creates micro catchments for water harvesting
- Possibilities of Multi-ratooning



Protray seedling production under shade net

Fertigation scheduling

RDF 300:100:200 NPK kg/ha once in 10 days

Stage (Day After Planting)	(kg/ha)		
	N	P	K
0-30	44.5	29.00	9.5
31-60	50.6	26.25	14.5
61-90	55.5	20.50	36.5
91-120	60.4	16.25	44.5
121-180	58.5	8.0	47.5
181-210	30.5	0	49.5

Other benefits of SSI

- In conventional method, cost of setts occupies the major part of cultivation by practicing SSI, this seed cost can be reduced up to 75%
- Reduction in the plant mortality rate
- Increases in the length and weight of individual canes
- It is easy to transport the young seedlings for longer distances
- Intercultural operations can be carried out easily due to wider spacing

Opportunities offered by SSI

- Advance late planting by raising seedlings and their transplantation process.
- Successful exploitation of sunlight and air due to wider spacing in the main field.

- It curtails the problem of improper method of irrigation, like flooding.
- Significant reduction in seed requirement, as only the bud is used as seed material

Comparison between conventional and SSI methods

Particulars	Conventional method	SSI method
Seeds/Setts	60,000 buds per acre (30000 two budded setts)	5000 single budded chips (5,000 buds per acre)
Nursery preparation	No	Yes
Planting	Direct planting of setts in the main field	Transplanting of 25-35 days old young seedlings raised from bud chips
Spacing	80 cm between rows 15 cm between plants	150 cm between rows 60 cm between plants
Water requirement	2500 mm for one year More (flooding of field)	40 to 60 % less (maintenance of moisture in the furrows and adoption of drip irrigation)
Mortality rate among plants	High	Low
No. of tillers per plant	Less (10-15)	More (15-20)
Accessibility to air and sunlight	Low	High
Scope for intercrop	Less	More

Scope of SSI in Tamil Nadu

The following are some of the reasons to be foresee the beneficial impact of SSI in Tamil Nadu sugarcane sector.

- Farmers are very much innovative, eager to take up any new technologies with great enthusiasm and support.
- SSI will be a suitable option to solve the present problems of increasing seed cost, labour cost and other soil fertility and productivity related issues.
- Due to wider spacing, intercultural operation becomes easy, thus reducing the drudgery for the labourers.
- The wider spacing suggested in SSI are ideal in case of introducing Mechanical harvesting



SSI seedling ready for planting



Single seedling produced more than 25 tillers



Matured cane of SSI with drip irrigation

Conclusion

By practicing SSI the following overall benefits can be realized

- Better germination percentage
- High number of millable canes
- Reduction in the duration of crop to some extent
- Increased water use efficiency
- Improvement in accessibility to nutrients with optimum use of fertilizers
- More accessibility to air and sunlight
- Reduction in cost of cultivation and
- Extra income from intercrops

On the whole, by practicing SSI, farmers can very well increase their productivity by reducing the use of inputs like fertilizers and saving the vital resources like water simultaneously. Hence, it is very useful for the sugarcane farmers to reap greater economical benefits altogether with maintain ecological sustain.