Sustainable Sugarcane Initiative, SSI
– A methodology to improve the yields

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What are the options to improve the productivity of Sugarcane while using less water, less inputs and optimum utilisation of land without further degrading the ecosystem…and adapting to the climate induced variability ?

System of Rice Intensification (SRI) showed the way!

- Less seed
- Less water
- Less chemical fertilizers
- Less chemical pesticides

Yet, gives higher yields!!

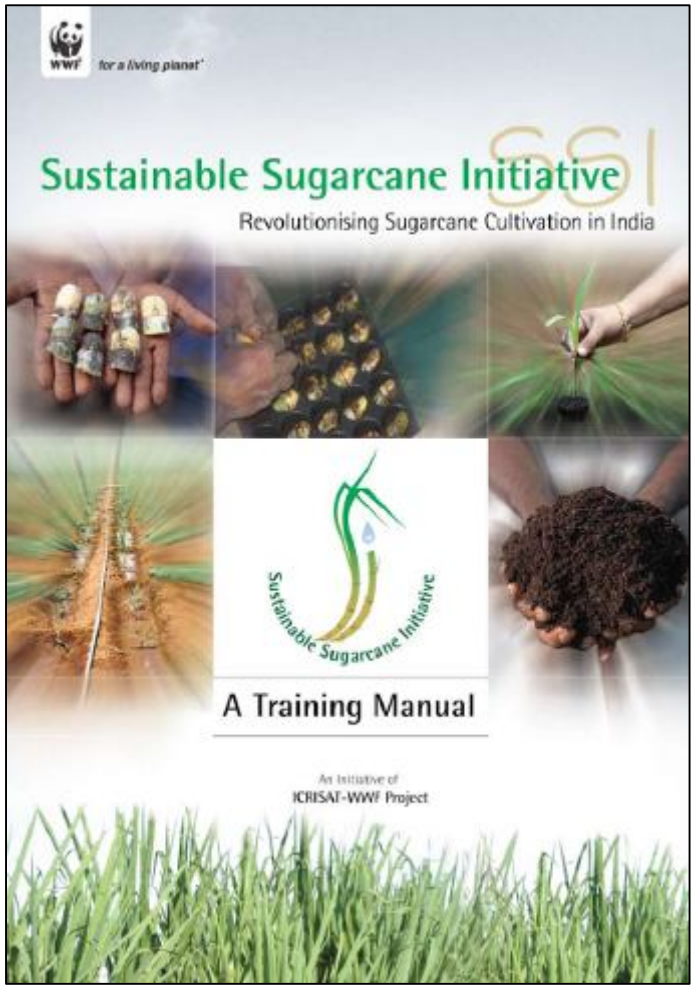
SRI is neither a new variety nor a hybrid…
it is only a new method of rice cultivation

Inspired by SRI, **Sustainable Sugarcane Initiative, SSI** is born to improve productivity in sugarcane…as part of WWF-ICRISAT Project.

SSI is **an innovative agronomic set of best practices** that uses less seeds, less water and optimum utilization of fertilizers and land to achieve more yields.

Introduced a new paradigm of "**More with less**" in sugarcane!

SSI Manual published by WWF-ICRISAT in 2009



Revised edition based on SSI field experiences in tropical and sub-tropical conditions under process

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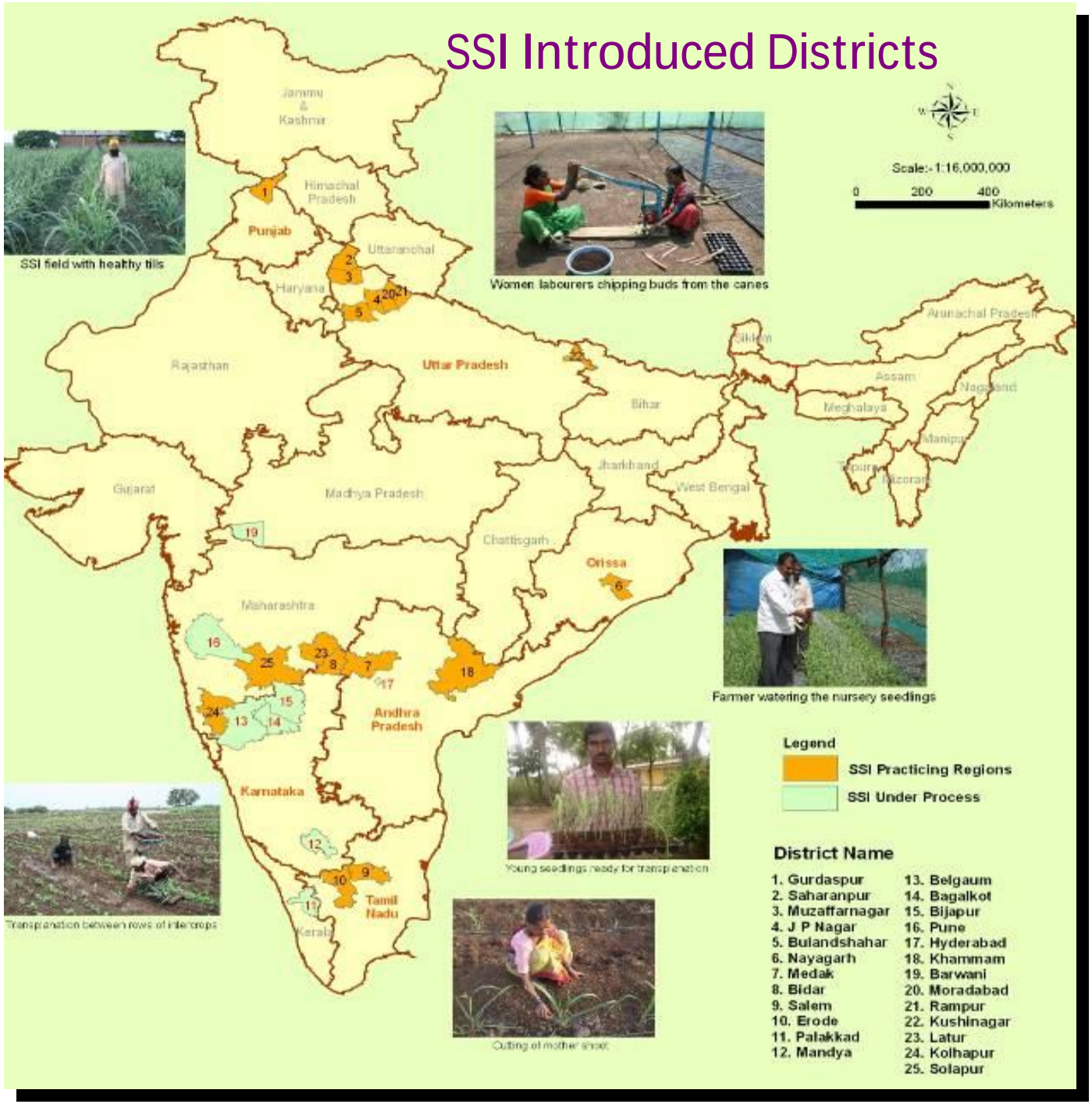
Introduced States:

- Andhra Pradesh
- Punjab
- Uttar Pradesh
- Odisha
- Tamil Nadu
- Karnataka
- Maharashtra



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Basic Principles of SSI

1. Raising nursery using single budded chips
2. Transplanting young seedlings (25-35 days old)
3. Maintaining wider spacing (5X2 ft) in the main field
4. Avoiding inundation of water and providing sufficient moisture
5. Encouraging organic method of nutrient, cultural and plant protection measures
6. Practicing intercropping with effective utilization of land

2-3 Budded setts & Bud chip as seed

- 2-3 budded setts are normally used for propagation

- In SSI, single budded chips from 7-9 months old healthy canes used

Bud selection and chipping



Age of the cane	No. of potential buds per cane	No. of canes required per acre
7-9 months	10-12	450-500

Avoid taking the buds from top 2-3 and bottom 4-5 short internodes.

Different models of Bud chipper

Bud Treatment

- Take a tub preferably made of aluminium or plastic.
- Take 10 litres of water in the tub and dissolve organic components
- Immerse the buds in the solution for 10-15 minutes.
- *Treated buds are to be dried immediately for 2-3 hours.*
- Bud treatment helps in 90 % germination.

Chemical	Organic
Malathion – 20 ml	Trichoderma or Pseodomonas – 500 g
Carbendazim – 5 g	Cow urine – 1 to 2 litres Lime – 100 g

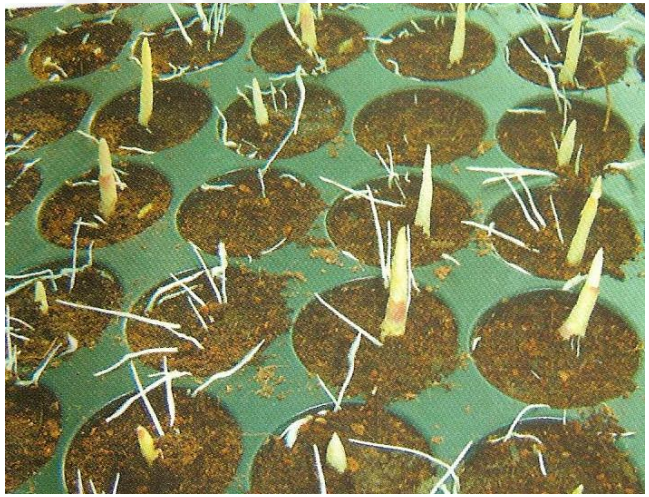
Bud chip Nursery steps

Putting buds in the tray

Covering the buds with cocopith

Placing trays one above another

Covering the trays with polythene sheet



Germinated buds on 5th day

Watering

Young Seedlings

Young (25-35 days old), healthy and robust seedlings are transplanted….

Wider spacing in the main field

- Conventional method - 1.5- 2.5 feet, so high competition for light, moisture, nutrition and space
- SSI, wide spacing of 5-9 X2 feet and great scope for their availability
- Tiller mortality is very low
- Higher number of millable canes per clump
- Long internodes and increase in girth leading to more weight of canes

Water management

- **Emphasis on sufficient moisture, rather than inundating the field with water.**

- **About 40% of water is saved in this method by following measures like raising of nursery, following furrow / alternate furrow irrigation, optimum application of water by reducing quantity of water**

- **In drip system,**
  - **Irrigation efficiency improves up to 90%**
  - **Saves water (>70%)**
  - **Saves electric power in pumping**

Organic methods of cultivation

- In SSI, inorganic practices like application of chemical fertilizers and pesticides are discouraged.

- Farmers are encouraged to practice organic method of cultivation like incorporation of organic manures, application of bio-fertilizers and use of bio-control measures etc.

- Encourages better and timley cultural practices like earthing up, propping, detrashing, etc.

Intercropping

- Intercropping help in optimum land utilization
- crops like wheat, potato, cow pea, french bean, chick pea, water melon, brinjal etc.
- Control weeds up to 60 % in the initial stage
- Act as a live mulch and preserve moisture
- Green manures raised as intercrop improve the soil fertility on incorporation

Intercrops with bean

Intercrops with wheat

Benefits for Factory

- Seed materials reduced from 4 tonnes to ½ quintal per acre, so more cane available for crushing
- Good varieties easy to propagate with less seed cane saving cane and money
- Increased yields enable running factories longer improving revenues
- High sugar recovery
- Wider spacing (about 5 feet) is compatible for mechanical harvester (in future)

Benefits for Farmers

- Less seed requirement
- Easy transplanting and intercultivation practices
- More number of millable canes
- Individual cane height and weight increase
- Water and electricity save
- Nursery -Income generating activity
- Increase in Net profits making cane cultivation viable

Overall benefits

- Better germination percentage
- Increased water use efficiency
- Improvement in accessibility to nutrients with optimum use of fertilizers
- More accessibility to air and sunligh
- Reduction in cost of cultivation and
- Extra income from intercrops

Wide spacing between rows

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Thank You