

- Benefit : cost ratio increased up to 12.6 %.
- Water productivity increased up to 39 %.
- Fertilizer-nitrogen uptake efficiency improved up to 13 %.
- Improved root growth helps in mitigating the adverse effects of short-term water stress.
- Environmental friendly (reduced the loss of ammonia volatilization due to placement of nitrogenous fertilizers in soil, and pollution due to trash burning can also be avoided).



Demonstration of SORF Machine
at Farmer's Field

ICAR-NIASM/ Technical folder No.: 11 (2017)

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SORF

**A Multi-purpose Machine
for Ratoon Sugarcane**



**Consortia Research Platform on
Conservation Agriculture**



**ICAR-National Institute of
Abiotic Stress Management**

(Deemed to be University)

Indian Council of Agricultural Research
Department of Agricultural Research & Education
Ministry of Agriculture & Farmers Welfare,
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Ratoon Crop Managed by
SORF Machine

Introduction

- Sugarcane being a major cash crop plays an important role in Indian economy.
- In India, it is cultivated over an area of 5.0 million hectare with average productivity of about 70 tonnes per hectare.
- Almost 50 million sugarcane growers and their relations have dependence on sugar industry for their livelihood security.
- To meet the sugar demands of the country, the major targets should be to enhance its productivity especially the ratoon crop since the latter occupies around half of the sugarcane area but its yields 20–25 % less than the main crop.
- Higher mortality of tillers, lower nutrient-use efficiency and trash burning are the major constraints in achieving the higher production in ratoon crop. Therefore, to address these issues a machine developed by ICAR-Indian Institute of Sugarcane Research, Lucknow has been upgraded and nicknamed as “SORF”.

Important Features of SORF Machine

The SORF Machine is suitable to perform four major operations in a single run which are as follows:

- 1. Placement of fertilizers :** A fertilizer drill attachment is utilized for band placement of fertilizer near the root zone of ratoon sugarcane while retaining the trash at the surface.
- 2. Stubble shaving :** Un-even stubbles which are left in the field after manual harvesting of sugarcane are cut very sharply at a uniform height close to the soil surface with a stubble shaver.
- 3. Off-barring :** Adjustable vertical off-barring discs cut the raised bed partially from outer sides and spread the cut soil over the chopped trash to accelerate its decomposition.
- 4. Root pruning :** The side older roots of ratoon sugarcane are pruned to stimulate in fresh root growth. The slush of newly developed roots promotes the uptake of water and nutrients for boosting initial growth of ratoon sugarcane.

Benefits of using SORF Machine

- Timely completion of important ratoon management operations.
- Band placement of fertilizers is possible even under surface retention of trash conditions.
- Healthier and more numbers of millable canes and least tiller mortality rate.
- Ratoon cane yield increased up to 30 %.
- Net profit increased up to ₹ 50, 000 per hectare.



Ratoon Management by
SORF Machine