



Ratooning in Sugarcane: An Efficient Way to Sustain Production

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Sugarcane is an important commercial crop that requires substantial expenditure on planting material, land preparation, labour, fertilizers and irrigation. Ratooning offers an economical alternative by producing a subsequent crop from the stubbles left after harvesting. Instead of removing the entire crop and establishing a new crop, buds present on the remaining underground portions of the harvested cane sprout and develop into new shoots. The resulting crop is known as a ratoon crop. Since several crop-establishment operations are avoided, ratooning can reduce production costs and improve the efficiency of sugarcane cultivation (Xu *et al.*, 2021; Shukla *et al.*, 2026).

Importance of Ratooning

Ratooning reduces the requirement for fresh planting material and eliminates several operations associated with crop establishment. The established root system and underground buds of the previous crop facilitate early development of the ratoon crop. Ratoon crops can also reach harvest earlier than newly planted sugarcane, helping maintain a more regular supply of cane to sugar mills (Xu *et al.*, 2021). Despite these advantages, ratoon productivity in India is often lower than that of the plant crop. Poor and uneven sprouting, inadequate plant population, soil compaction, unsuitable varieties, nutrient imbalance, pests and diseases, and unfavourable conditions during ratoon initiation can reduce productivity. Effective management of these constraints is therefore essential for obtaining a profitable ratoon crop (Shukla *et al.*, 2026).

Stubble Management

The condition of the stubbles after harvesting has a major influence on ratoon establishment. Harvesting close to the ground helps retain viable buds, while stubble shaving removes the upper portion of the remaining stalk and promotes more uniform sprouting. Proper soil management around the rows is also important for improving aeration and creating favourable conditions for root development (Shukla *et al.*, 2026). These operations should be completed soon after harvesting the plant crop. Timely initiation of ratoon management promotes uniform emergence and helps establish an adequate plant population.

Plant Population and Gap Filling

A uniform population of healthy shoots is essential for achieving good ratoon yield. Gaps may develop because of poor bud sprouting, damaged stubbles, pest and disease incidence, or unfavourable soil conditions. Large gaps reduce the number of effective and millable canes and ultimately affect yield.

Therefore, fields should be inspected soon after ratoon initiation and necessary gap-filling measures should be adopted. Maintaining an optimum population of healthy tillers is an important step towards improving ratoon productivity (Shukla *et al.*, 2026).

Trash Management

Sugarcane trash can be effectively retained in the field instead of being removed or burned. Trash mulching helps conserve soil moisture, adds organic matter and nutrients to the soil, and can improve soil biological activity. Research conducted at the Indian Institute of Sugarcane Research showed that trash mulching at ratoon initiation improved soil and plant nutrient status and supported better ratoon growth compared with trash burning (Shahi *et al.*, 2003). Thus, retaining sugarcane residues can convert an agricultural waste material into a useful resource for the succeeding ratoon crop while reducing the need for residue burning.

Nutrient Management

A ratoon crop develops in soil that has already supported a plant crop and therefore requires adequate replenishment of nutrients. Balanced fertilization is essential for vigorous tillering, cane development and optimum yield. Nutrient application should be based on soil fertility, crop requirement and locally recommended fertilizer practices (Shukla *et al.*, 2026). The integration of suitable organic sources with mineral fertilizers can also help maintain soil fertility and support the sustainability of repeated ratooning. Therefore, nutrient management should address both the immediate nutrient requirement of the crop and the long-term productivity of the soil.

Water Management

Adequate soil moisture is particularly important during ratoon initiation and early crop growth. Irrigation should be scheduled according to crop demand, soil type and prevailing weather conditions. At the same time, excessive irrigation and waterlogging should be avoided because poor soil aeration can restrict root activity and adversely affect crop growth (Shukla *et al.*, 2026). Efficient irrigation practices can improve water-use efficiency and help sustain ratoon productivity, particularly in areas where water availability is limited.

Weed Management

Weed competition is particularly harmful during the early growth of ratoon sugarcane, when shoot emergence may be slow or uneven. Weeds compete with sugarcane for water, nutrients, light and space, thereby reducing crop growth and yield. An integrated weed management approach combining suitable cultural, mechanical and need-based chemical methods can provide effective weed control. Such an approach also reduces dependence on a single weed-control method and supports more sustainable crop management (Shukla *et al.*, 2026).

Selection of Suitable Varieties

The ratooning ability of sugarcane varies considerably among varieties. A good ratooning variety should possess strong sprouting ability, vigorous tillering, a healthy root system and the capacity to maintain satisfactory productivity over successive ratoon crops. Ratooning performance is influenced by the interaction of genotype, environment, crop management and harvesting practices. Therefore, varieties with proven ratooning ability under the prevailing agro-climatic conditions should be preferred for ratoon cultivation (Xu *et al.*, 2021).

Advantages of Sugarcane Ratooning

1. Ratooning eliminates major operations such as land preparation and planting, thereby reducing overall production costs.
2. The ratoon crop develops from the existing stubbles and viable buds, eliminating the need for fresh seed cane.
3. Operations such as sett preparation, treatment and planting are avoided, saving labour and facilitating timely establishment.
4. Healthy stubbles with viable buds allow quick sprouting and early establishment of the ratoon crop.

5. Ratoon crops generally reach harvestable maturity earlier than newly planted crops, improving land-use efficiency.
6. Lower establishment costs, combined with satisfactory ratoon yield, can enhance the economic returns from sugarcane cultivation.
7. Fewer field operations reduce soil disturbance, fuel consumption and energy requirements.
8. The established root system supports early water and nutrient uptake and facilitates rapid initial growth.
9. Ratooning reduces the requirement for planting material, labour, fuel and other inputs.

Conclusion

Ratooning is an important agronomic practice for improving the economic efficiency of sugarcane cultivation. By utilizing the regenerative ability of the crop, it reduces the need for complete replanting and minimizes expenditure on several crop-establishment operations. However, the productivity and sustainability of ratoon crops depend on proper management. Timely stubble management, maintenance of an adequate plant population, balanced nutrition, efficient irrigation, effective weed control, appropriate trash management and selection of varieties with good ratooning ability are essential for successful ratoon production. With improved varieties and better crop-management practices, ratooning can play an important role in developing economical, resource-efficient and sustainable sugarcane production systems.

References

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