

## Advantages

- Sugarcane planted with ring-pit method can provide 3-4 ratoons without much reduction in cane yield. Therefore on long-term, cost of cane cultivation is minimised.
- Less irrigation water is required in ring-pit method compared to conventional flat method as water is applied only in pits.
- Nutrient use efficiency is also enhanced in ring-pit method as fertilizers are applied locally in pits.
- Sugar recovery increases in ring-pit method compared to conventional flat method because mostly main shoots are harvested in ring-pit method.



# RING - PIT TECHNOLOGY IN SUGARCANE PRODUCTION



सत्यमेव जयते

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## Ring-Pit Technology in Sugarcane Production

The average cane yield in India achieved so far at 71 t/ha is far below the theoretical potential cane yield of 474 t/ha. Increasing yield through varietal improvement in India is now limited as the genetic variability has largely been exploited already since 1920s. Yield improvement through augmenting fertilizer inputs has been possible but a high cost of these, generally, makes them beyond the reach of an average cane grower. Majority of farmers, here, have either small or marginal holdings. The alternative left is to increase yields through non-monetary inputs.

At the time of harvesting, 60% canes are comprised of tillers in subtropical India, whereas in tropical parts, most cane population is formed by the main shoots. This may be one of the reasons of higher yields in tropical climate than in the sub-tropical one, as tillers are short in size and thin in diameter compared to main shoots. Therefore, if population of main shoot is increased and that of tillers decreased, considerable yield improvement can be achieved. Considering this point in view, scientists at the Indian Institute of Sugarcane Research, Lucknow have designed and developed a ring-pit planting method during 1984.

The method could not be popularized at that time in want of mechanical pit digger. Now mechanical pit diggers are available in market. The method can be adopted for doubling cane yields.

### Method of mechanized pit planting

1. Instead of laying ridges and furrows as per existing conventional method, pits of 90 cm (diameter) x 45 cm (deep) are prepared with the help of tractor-mounted pit digger.
2. Mark equal squares of 1.20 x 1.20 metre size on properly leveled field and spare at least 60 cm of space from all outer sides of the field.
3. Dig pit in the centre of these squares with the help of pit digger or manually. Total number of pits are around 6750/hectare.

4. Fill the pit with a mixture of 5 kg farm yard manure, 45 gm DAP and 45 gm Urea and some part of soil which is extracted out during pit formation before sett placement in it.



5. Use phosphorus, potash and other nutrients on the basis of soil testing.

6. Plant 22 setts (2 budded) or 35-40 setts (single budded) per pit horizontally in cyclic manner after treating seed in 100 gm Emisan (6%) or Bavastin 10 gm (a.i) per hectare. Maintain proper moisture in soil at the time of planting.



7. Apply 5 litre Chlorpyrifos 20% E.C. or 5 litre HCH 20% E.C. per hectare at the time of planting to control termites.



8. If moisture is not sufficient for germination, provide light irrigation in pits after sett placement and their soil cover and when moisture



reaches to workable condition, do hoeing to break crust and ensure smooth germination.

9. Connect one pit to another pit to facilitate irrigation and to reduce consumption of water.
10. Maintain depth of connecting channel as low as base of the pits to avoid stagnation of water in pits after planting of cane.
11. Fill each pit by transferring back half extracted out soil laying at the edges of pits with 25 gm Urea in the month of March/April when plants gain the height of around 22 cm. Similarly, the remaining part of soil should be shifted in pits with 25 gm Urea and 4.5 gm Phorate 10 G/Carbofuran 3 G per pit by the end of June.
12. Control weed as recommended for existing conventional method.
13. Do propping 2-3 times. Take care of tiller emergence and suppress its development by removing them in August, September & October.
14. Irrigate the field 5-6 times before rainy season and thereafter as per requirement.
15. In the month of July, earthing-up should be done so as to avoid stagnation of water in pits during rain.
16. Harvest the crop from the ground level.
17. Immediately after harvest, apply 45 gm DAP and 45 gm Urea in each pit and irrigate to get better ratoon crop.

### Precaution

This technique may be adopted carefully in areas where water table is higher. Arrangements be made for drainage of excess water from the field. Take care to reduce flow of water while irrigating the field by distributing main water channel into 3-4 rows at a time. This may help in arresting land sliding & burying of setts under thick soil cover.