

Extension Brochure : FPARP No. 1

Ring-pit Method of Sugarcane Planting for Saving Irrigation Water



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Sugarcane is planted in pits of circular shape, so the method is called 'Ring-pit Planting'

Sugarcane crop comprises of mother shoots and tillers. Since tillers start emerging about 45 to 60 days after emergence of the mother shoots, so these are comparatively weak and finally result in millable canes of lesser length, girth and weight. Therefore, to accommodate more numbers of mother shoots in the same space, tillers of sugarcane need to be suppressed. To achieve this, more numbers of setts are planted in circular pits at a relatively greater depth. Thus, mother shoots at large are allowed to grow with very less or no tillers. That is why this technology is also called '**No Tiller Technology**'.

Operational Steps

Pit Digging

- Leave 65 centimeter (cm) space around the boundary of the field.
- Mark the field at a regular distance of 105 cm both length and width wise.
- At each crossing point of these lines, dig pits each of 75 cm diameter and 30 cm depth with a pit digger, if available or manually. Keep the dug out soil on the periphery of each pit.
- In one hectare area, about 9000 pits are made.

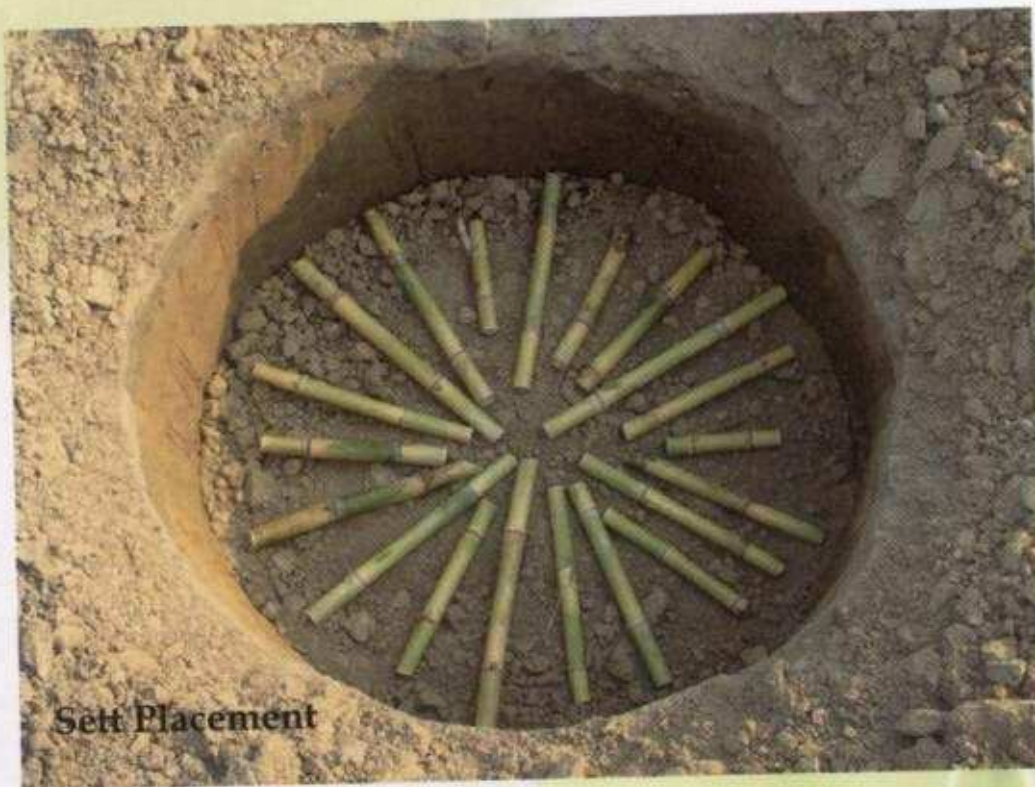


Sett Cutting and Treatment

- Select the seed cane of a recommended variety.
- Select the cane having healthy buds free from insect-pests as well as disease infestation.
- Cut the cane stalks in 2 budded setts.
- Prepare a solution by dissolving 200 gram bavistin in 100 liters water.
- Dip the cut setts in bavistin solution for 10-15 minutes to control the sett born diseases.

Planting

- Apply 3 kilogram FYM, 8 gram urea, 20 gram DAP, 16 gram Muriate of Potash (MoP), 2 gram Zinc Sulphate in each pit. Mix it well with soil.
- Place 20 two-budded treated setts in each pit in a similar pattern as of spokes in a cycle wheel.
- Spray the solution of 5 liters Chlorpyrifos 20 EC dissolved in 1500-1600 liters of water on setts for one ha area to control termite and army worm.



- Apply 20 kilogram *Trichoderma* mixed with 200 kilogram FYM or Press Mud per hectare over the setts.
- Interconnect each pit with narrow channel manually for irrigating the pits.
- Now cover the setts with 3-4 cm of soil layer.
- If soil moisture is not sufficient for germination, provide light irrigation just after planting through interconnected channel.

Intercultural Operations

- Break the soil crust, if any, when soil moisture reaches to workable condition.
- Fill the pits with the dug out soil up to 5 to 7 cm depth at 4th leaf stage (50-55 days after planting in autumn and 40-45 days after planting in spring).
- Provide light irrigation. Apply 16 gram urea per pit at workable soil moisture condition.

- Depending on soil and weather conditions, provide light irrigations (5-6 hectare-cm) at an interval of 20-25 days.
- Carry out weeding in pits as and when required.
- Apply 16 gram urea per pit in third week of June.
- In the last week of June, apply 33 kg Furadan 3G per hectare to control top borer.
- Keep the gap of at least 3-4 days between applications of Urea and Furadan.
- Fill the pits completely with dug out soil by the last week of June.
- Do earthing -up before onset of monsoon.
- Tie canes of each pit together with lower dry leaves in the first fortnight of August.
- Tie the clumps of opposite rows together in September.
- Remove lower dry leaves during the months of August - September.
- Harvest the cane close to the ground level to take a good succeeding ratoon crop and to avoid yield loss.

Advantages

- **Higher yield** : By this method, cane yield is increased by 1.5 -2.0 times as compared to the conventional methods.
- **Water saving** : Irrigation water is saved up to 30-40 per cent as only pits are irrigated and inter-row space is not irrigated.

- **Higher input use efficiency** : Water use efficiency is increased by 30-40 per cent and nutrient use efficiency by 30-35 per cent due to their localized application in pits only.
- **Higher sugar recovery** : Increment in sugar recovery is up to 0.5 unit due to mother shoots. The millable canes from mother shoots give higher sugar recovery in comparison to those from tillers.
- **Higher profitability** : The profit of farmers and mill owners is increased due to having higher cane yield and more ratoons, and higher sugar recovery, respectively.
- **Better ratoonability** : Farmers can take 3-4 ratoons successfully.
- **Reduced lodging** : Lodging and uprooting of clumps is reduced due to deeper planting.



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