

Increasing Productivity of Sugarcane by Ring Pit Method of Cultivation



Sugarcane harvest in the fields using ring pit method of cultivation

Background and Objectives

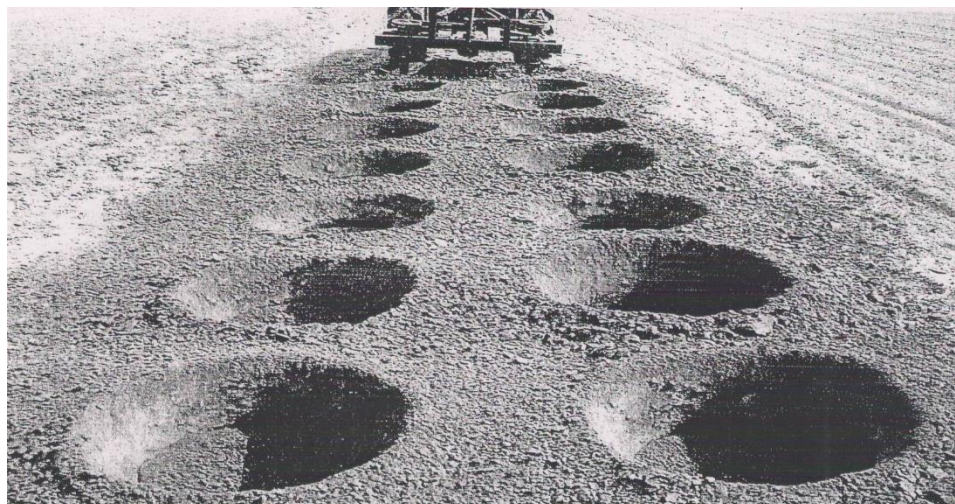
India is world's second largest producer of sugarcane with sugarcane being cultivated in 4.86 million ha in 2010-11 producing 324.91 million tons of sugarcane with an average productivity 66.9 MT/ha. Haryana had relatively small area of about .09 to .14 million ha under sugarcane cultivation in 2007-09 (about 2-2.5% of national area), with yields slightly lower than national average.

Among the various agriculture crops, sugarcane is one of the most remunerative crops. Sugarcane is also an important cash crop of

Haryana and is cultivated in its northern part especially in districts of Ambala, Kurukshetra, Yamuna Nagar, Karnal, Panipat and Sonipat. Sugarcane productivity in Haryana was also, like in other parts of the country, stagnating whereas the cost of cultivation of sugarcane has been increasing. This led the State Government to look for new techniques to raise the productivity of the crop substantially.

The State's search led to a very suitable technique known as '**Ring Pit Method**'. The method, in farm trials, proved not only cost-effective but also demonstrated that the yields can be increased to two or three times compared to the conventional '**Row-to-Row**' planting technique. This technology, thus, has the potential of raising the present average productivity of about 70 MT/ha by three fold. Government of Haryana zeroed on this system of sugarcane cultivation as the best among the presently available techniques of cultivation for promoting the same for adoption in the State.

Under the conventional system, the Setts (Stem cuttings or sections of sugarcane stalks usually having three buds used for planting sugarcane) are grown in rows of 90 cm spacing and are arranged in a series without adequate spacing. This makes germinated Setts very thin in appearance ultimately affecting the number of canes in each Sett and its development. In the 'ring pit' method, sugarcane Setts are planted and raised in round 'pits' at the spacing of 180 cm between rows and 150 cm between individual pits in a row.



The pits are dug using specially designed tractor drawn power tillers. The pits are then filled with top soil, 5 kg of farm yard manure (FYM), 100 Gms gypsum and 125 Gms super phosphate and are watered well before planting. Pit depth is kept at 1.25 ft. to 1.5 ft. Under this 'ring pit' system, around 2700 pits are thus made per acre. After planting Setts in this method, care is taken to see that only thirty mother shoots are allowed to develop which then leads to development of robust and healthy millable canes of 1.25-1.75 kg each. This technology can give a yield of 800-1100 quintals/acre (or around three times of conventional method) if the recommended package of practices is fully adopted.

The ring pit method of sugarcane cultivation is more water and nutrients efficient as well. This method, not only reduces water use, but also enhances nutrient use efficiency. Further, no ploughing and lodging is required, which save labour and machining cost.

Intervention

Haryana has taken up several programmes for sugarcane development in the state, which includes production of sugarcane seed and promotion of sugarcane cultivation. However, this innovative programme of promoting 'ring pit' method of cultivation was taken as a 'demonstration programme' to demonstrate to the farmers the method and also the productivity gains possible by its adoption. The state Government provided assistance of only Rs 6,000 per acre under RKVY for hiring of pit digging machine and paying labour charges etc.



Early development of sugarcane in ring pits

The demonstration project was initiated during the year 2008-09 and continued in 2009-10. The assistance was reduced to Rs 4000 per acre during 2010-11, which continues to be the norm in 2011-12. A total assistance of Rs 48.72 lakhs has been utilised on this project during last 4 years covering an area of 812 ha demonstrating the technology in the fields of 359 farmers.

Technology demonstration of the ring pit method of planting sugarcane has led to many farmers adopting the same.

Outcome

By adopting the Ring Pit Method of sugarcane cultivation, the sugarcane yield has increased from an average of about 700 quintals/hectare to about 2000 quintals/ hectare in farmers' fields, registering an increase of 167 to 195 %. The average net income of farmers has increased by Rs 48000 to Rs. 119637 per acre or Rs. 120000 to Rs. 300000 per hectare. An investment of Rs. 15000 per hectare (later reduced to Rs. 10000 per hectare) by the Government has yielded additional income of 12 to 30 times.



Happy and proud farmer with state officials in his sugarcane field

Shri Amarjit Singh, resident farmer of Jharauli Kalan, a village in the district of Kurukshetra, harvested 850 quintals in an acre of land when sugarcane was cultivated through ring pit method. His income increased by Rs 65000/acre.

Sh. Hem Raj of village Muwana part of Jind had another satisfying experience to recount. After adopting this method in an area of 12 Acres, his sugarcane yield increased from the state average of 288 quintals/acre to 830 quintals /acre registering an increase of 188 %. He earned a net income of Rs 119637 / acre.

Like Kurukshetra and Jind, Shri Rakesh of village Rajlu Garhi part of Sonipat district also harvested record crop by adopting this technology. Area cultivated by him was 2.5 acres. His sugarcane yield increased to 770 quintals / acre registering an increase of 167.36 %. The farmer increased his net income by Rs. 48,000 /acre.