

Effect of Trench Method of Sowing In Sugarcane Crop in District Lakhimpur-Kheri

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ABSTRACT

Sugarcane is one of the important cash crops in district Lakhimpur Kheri. It occupied more than 3 lakhs hectare with avg. productivity of 818 q/ha. During training programme farmers had discussed about the germination and lodging problem in sugarcane setts in village- Sujaikunda, Block-Ramiabehar, Then during interaction, trench method has been advised to farmers. After that farmer had realized that germination percentage increased 70-80% which was previously 35-40%.It was due to better contact of sugarcane setts with the moist soil. The depth of trench is one feet and one feet wide with interspaces of three feet and it resulted into reduction of lodging with more appropriate support from crop base as well as ample scope for better intercultural operations. The increases in cane yield from 960 q/ha to 1200 q/ha have been recorded (25% increase in yield) with approximate horizontal spread of this technology 122000 hectare in blocks like Ramiabehar, Dhaurhara&Ishanagar.

INTRODUCTION

Trench-Method : This method is usually adopted in coastal areas as well as other areas, where the crop grows very tall and the strong winds during rainy season cause lodging of cane. Trenches are dug at a distance of 90 cm, with the help of ridger or by manual labour. The trenches should be about 30 cm deep. The mixture of fertilizers (NPK) should be spread uniformly in the trenches and mixed thoroughly in the soil. The setts are planted end to end in trenches. Drenching of setts with chlorpyrifos 20 EC (1 kg ai/ha or 5 litres/ha) to protect from the soil borne insects is required. The trenches are filled up with loosened soil after planting.

Ridge and Furrow Method : This method is usually adopted in areas of moderate rainfall having drainage problems. In this method, the furrows are made in 'V' shape about 60-75 cm apart and 20-25 cm deep. The setts are placed in horizontal position, usually with end-to-end system. If the seed stalk is not healthy and internodes are longer, eye-to-eye system of planting may be adopted. As soon as the canes start growing, the furrows are partly filled with soil and inter-row cultivation is carried out. This repeated row cultivation of cane results in levelling of the land by end of May or mid of June, which is known as first earthing-up. Further repetition of inter-row cultivation transforms the furrow into ridges by putting soil around the plants and inter-row space becomes furrow automatically, through which irrigation or drainage is provided for the growth and development of crop. The transformation of furrow into ridges is known as second earthing-up.



Fig-1. Above picture shows Trench method of sowing and after that ridge and furrow method of sowing of sugarcane crop.

SUGARCANE VARIETIES ARE MAINLY CLASSIFIED IN THREE GROUPS

1. Early varieties,
2. Mid-late varieties,
3. Late varieties.

The varieties attend 16.5% sucrose, and 85% purity in 10 months are kept in early category. The varieties accumulate above 16% sucrose level and 85% purity in 12 months are grouped in mid-late category. Those varieties, attend the similar 16% sucrose level and 85% purity in more than 12 months and maintain up to 14 months stage are grouped in late maturing varieties. Nowadays early maturing, high sucrose and higher tonnage varieties are also available and are in higher demand by the sugarcane growers as well as sugar mill owners. These varieties are performing well in the country and accounts for higher sugar production.

MATERIALS AND METHODS

Sowing of Sugarcane crop by the trench method resulted into increased germination percent and cane yield. In this method trenches are open at a depth of 30cm with a spacing of 90 cm and setts are sown in these trenches. KVK, Lakhimpur Kheri-I had aware the farmers regarding trench method through training programmes in year 2010 to 2019 with regular visit in the Block-Ramiabehar. During training programme it has been emphasized that lodging of cane will be less and germination % will be improved. Total 115

farmers were respondent for the same. The data collected on the basis of their experiences were presented in Table-1 and Table -2.

Table 1

Parameters	Before KVK intervention (Ridge & Furrow)	After KVK intervention (Trench)
Germination percentage	35-40%	70-80%
Seed rate	30-35 q/acre	15-18q/acre
Weed infestation	Maximum	Minimum
No. of tillers	8-10	18-20
No. of irrigation	7-8	7-8(40% water saved)
Yield	384q/acre	480q/acre
No. of millable cane	5-7	10-12
Lodging	Maximum	No lodging
Spacing	2.5 feet	3 feet
Intercropping	Very less	Easy
Cost	Rs.55000 /acre	Rs.45000/acre

Table-2

S.No.	Operations	No. of person required		Time taken(in hrs)	
		Persons(Trench)	Persons(R&F)	Trench	R&F
1-	Field preparation	1	2	8	8
2-	Sowing	10	10	8	8
3-	Planking	No	2	No	2
4-	Intercultural operation	1	2	1.5(Tractor)	8-10
5-	Irrigation	2	2	5	8

SUMMARY AND DISCUSSION

Trench method resulted increase in germination percentage due to better contact of setts with soil moisture and the lodging reduced with increasing depth of sowing. Tillers were also found maximum in trench method as compared to ridge and furrow method. It was also realized that saving of irrigation water to the tune of 40% at farmer’s field. Weed infestation was less due to water applied only in the trenches. The data clearly showed that increased in yield due to better germination percentage as compared to ridge and furrow method(Katiyar,2013) ultimately yield was also recorded maximum in trench method(Singh *et al.*2008). This may be attributed to increase in yield resulted into higher net return and B:C ratio also reported by Singh *et al* ,2012 and at site <http://agritech.tnau.ac.in> and <http://iisr.icar.gov.in>>aicrp.



Fig.2 Fully grown sugarcane crop by trench method

CONCLUSIONS

1. The germination percentage were found 70-80% as compared to conventional method (35-40%) due to better contact with moist soil surface.
2. Increase in yield (25%) attributed to increase in tillers and malleable cane leads to monetary advantage to farming community.
3. The farmers have got net return of Rs.111000/acre and BCR to tune of 3.46. (Gross Return (Rs/acre) =Yield 480q/acre x Rs. 325/q=Rs.156000.00, Cost of cultivation Rs. 45000/acre).
4. Lodging of Cane is less as compared to R&F method as the better support from ground level.
5. Varieties which are quick growing habit and profuse tillering ability best fitted in trench method.

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