

RESEARCH ARTICLE :

Boosting of groundnut productivity through front line demonstration in the South Tripura district

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SUMMARY : In South Tripura district groundnut is grown in very small pocket using local varieties. In general, farmers do not follow scientific package of practices and not using the improved variety due to which the productivity of groundnut is only 1200 kg/ha. With a view to increase the productivity level of groundnut in the district total 80 numbers of demonstration has been taken covering 17 ha area in six selected villages during *Kharif* and *Rabi* season of 2011 and 2012 by KVK, South Tripura. The objective of the FLD on groundnut was to demonstrate the potential of improved varieties and technologies to the farmers. Awareness programme and training on scientific cultivation practices of groundnut was conducted before starting the demonstration programme. Besides imparting training, printed leaflets on groundnut were distributed among the farmers for their ready reference. Field day programme was also conducted in the farmer's field in standing crop. Improved variety of groundnut viz., GG-7 and GG-20 were demonstrated for obtaining higher yield as compared to local varieties and traditional method of cultivation. Increase in yield percentage varies from 26.83 to 50.43 per cent for both the varieties over the local check. Farmers earned upto Rs. 38550/- for both the varieties by selling the groundnut in the local market.

KEY WORDS:

Groundnut, Front line demonstration, South Tripura, Economics

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BACKGROUND AND OBJECTIVES

The cropping system, in South Tripura, revolves around rice and vegetables. Productivity of rice under upland terrace and 'tilla' land is very low owing light texture and low P content in soils. Moreover, in most of the tribal areas shifting cultivation, is still dominant. The upland rice crop in the South Tripura district is not remunerative because of low and erratic yield (650- 934 kg/ha). Moreover, 77 per cent of farmers are marginal

(less than one hectare) in nature and holds 23,492 hectares of land which is about 38 per cent of the total holding. About 19 per cent are small farmers (more than one but less than two hectares of land) holding an area of 25,469 hectares of land. Only 4 per cent of the farmers in the district are considered as semi-medium farmers having agriculture land more than of two hectares but less than 4 hectares of land. Changeover to groundnut, a more tolerant crop to mineral stresses, with

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Sr. No.	Operations	Existing practices	Improved practices demonstrated
1.	Use of seed	Seeds of local varieties from local source	Seeds of improved varieties like GG-7 and GG-20
2.	Sowing method	Broadcasting	Line sowing
3.	Fertilizer application	Fertilizer is applied without following the correct doses of NPK required for the groundnut	20:60:40 kg NPK/ha
4.	Earthing up	Earthing up is done once or twice	Earthing up is done thrice
5.	Irrigation	Not as per critical stage	During the critical stages

modern agricultural technologies may bring substantial yield increase and provide additional income to marginal farmers in the district. The productivity of groundnut continues to be quite low (12q/ha) on account of several biotic and abiotic stresses besides unavailability of quality seeds of improved varieties in time and poor crop management due to unawareness and non adoption of recommended production technologies. Therefore, it is very essential to demonstrate the high yielding varieties and other scientific production technologies which the farmers generally do not adopt. With this view, KVK South Tripura has organized front line demonstration with improved varieties of groundnut along with scientific package of practices. The main objectives of the study were as follows:

- To exhibit the performance of recommended high yielding varieties of groundnut
- To compare yield level of local check and demonstrated variety.
- To enhance productivity level of groundnut which inturn will increase the income of the farmer and transfer the latest production technologies in the district.

RESOURCES AND METHODS

The present study was carried out by the KVK, South Tripura during *Kharif* and *Rabi* season of 2011, 2012. Front line demonstration (FLD) on groundnut was carried out in six selected villages *viz.*, Takmacherra, Dudhpushkarini, Hrishyamukh, Satchand, Rupaichari and Indiranagar village after discussion with the farmers during the training programme on oilseed crops. Based on the trails conducted by ICAR and KVK, in Tripura improved varieties of groundnut (GG-20, GG-7) selected for demonstration in the farmer's field. Altogether there were 80 numbers of FLD covering an area of 16 ha in six selected villages were conducted. Demonstration was conducted through a number of extension activities like group meetings, awareness programme, training, filed

demonstration etc. Awareness programme on importance of oilseed was conducted by the Subject Matter Specialist of KVK. Several group meetings were also conducted in each villages. Training programme on the topics like improved cultivation practices of groundnut, integrated nutrient management, integrated pest management were conducted before starting the FLD in the selected villages. Besides imparting training printed leaflets on groundnut were distributed among the FLD farmers. Materials for the present study with respect to FLDs and farmer practices are given in Table A. In case of local check, existing practices being used by the farmers were followed. In general soils of the area under study was sandy loam in nature and medium to low in fertility status. In demonstration plots, a few critical inputs in the form of quality seed, balanced fertilizer, agrochemical etc. were provided. The demonstration farmers were facilitated by KVK scientist in performing field operations like sowing, spraying, weeding, harvesting etc. during course of training and visit. The technologies demonstrated to the FLD farmers are mentioned in Table A.

OBSERVATIONS AND ANALYSIS

The results obtained from the present study as well as discussions have been summarized under following heads:

Performance of improved varieties of groundnut :

Results of FLDs conducted during *Kharif* and *Rabi* 2011, 2012 on groundnut exhibit the performance of recommended high yielding varieties *i.e.* GG-7, GG-20 is presented in Table 1.

Data in Table 1 revealed that in *Kharif* and *Rabi* 2011, 2012 total 80 numbers of demonstration were taken covering an area of 16 ha in six selected villages. Two varieties of groundnut *viz.*, namely GG-7 and GG-20 were taken as test variety. The yield data (Table 1)

Table 1 : Performance of groundnut varieties (GG-7, GG-20)

Varieties	Season	No. of demonstration	Area (ha)	Yield(q/ha)		Increase in yield percentage (%)
				Test variety	Farmers practice	
GG-7	<i>Kharif</i> 2011	10	2	17.3	11.5	50.43
GG-7	<i>Rabi</i> 2011	10	2	16.5	11.4	44.74
GG-7	<i>Kharif</i> 2012	10	2	16.0	11.0	45.45
GG-7	<i>Rabi</i> 2012	10	2	17.5	12.0	45.83
GG-20	<i>Kharif</i> 2011	10	2	15.0	11.6	29.31
GG-20	<i>Rabi</i> 2011	10	2	16.4	12.0	26.83
GG-20	<i>Kharif</i> 2012	10	2	15.75	11.0	43.18
GG-20	<i>Rabi</i> 2012	10	2	16.5	12.0	37.5

Table 2 : Economic analysis of groundnut cultivation during *Kharif* and *Rabi* season of 2011 and 2012

Varieties	Season	Cost of cultivation(Rs.)		Gross return		Net return		BC ratio
		Test variety	Local variety	Test variety	Local variety	Test variety	Local variety	
GG-7	<i>Kharif</i> 2011	23000	22000	60550	40250	38550	18250	1:2.63
GG-7	<i>Rabi</i> 2011	23500	22250	57750	39900	34250	17650	1:2.46
GG-7	<i>Kharif</i> 2012	23200	22000	56000	38500	32800	16500	1:2.41
GG-7	<i>Rabi</i> 2012	23600	22300	61250	42000	37650	19700	1:2.59
GG-20	<i>Kharif</i> 2011	23200	22150	52500	40600	29300	18450	1:2.26
GG-20	<i>Rabi</i> 2011	23500	22300	57400	42000	31875	19700	1:2.44
GG-20	<i>Kharif</i> 2012	23250	22200	55125	38500	31875	16300	1:2.37
GG-20	<i>Rabi</i> 2012	23500	22350	57750	42000	34250	19650	1:2.46

indicated that the varieties GG-7 and GG-20 were superior than the local check both in *Kharif* and *Rabi* season of 2011 and 2012. The groundnut variety GG-7 with improved package of practices yielded 17.3 q/ha and 16.0 q/ha during *Kharif* season of 2011, 2012, respectively where as yield obtained from the local check was 11.5 q/ha and 11.0 q/ha in the same season of 2011, 2012. In the *Rabi* season also test variety GG-7 yielded (16.5 q/ha, 17.5 q/ha) higher than the local variety (11.4 q/ha, 12.0 q/ha). The test variety GG-7 with improved package of practices gave 44.74 per cent to 50.43 per cent increase in yield over local variety.

Yield obtained from test variety GG-20 in *Kharif* 2011 and 2012 was 15q/ha and 15.75q/ha, respectively which was much more higher than the yield obtained from local variety (11.6 q/ha and 11.0 q/ha) in the same season. In the *Rabi* season also test variety out yielded the local variety (Table 1). The test variety (GG-20) gave 29.31 per cent to 43.18 per cent increase in yield percentage over the local variety.

Economic analysis of groundnut cultivar during *Kharif* and *Rabi* season of 2011, 2012 was done and presented in Table 2.

Data presented in Table 2 revealed that net return

obtained by the farmer with the variety GG-7 ranged from Rs. 32800/- to 38550/- both in *Kharif* and *Rabi* season of 2011-12 which is much more higher than the net return obtained from the local variety. The cost benefit ratio for the variety (GG-7) during different seasons of 2011 and 2012 ranges from 2.41 to 2.63.

The net return obtained from the variety GG-20 ranged from Rs. 29300/- to Rs.34250/- in both *Kharif* and *Rabi* season of 2011 and 2012 which was also much more higher than the local variety practiced by the farmers. The cost benefit ratio for the variety GG-20 during different season of 2011 and 2012 ranged from 2.26 to 2.46 (Waris and Reddy, 1999 and Sumathi, 2014).

Conclusion :

The findings of above front line demonstration indicated that by improved varieties and improved package of practices, the productivity level of groundnut could be enhanced considerably. It is envisaged that the production of groundnut in the district could be raised by 45 per cent by adopting the improved varieties and management. This will substantially increase the income as well as the livelihood security of the farming community of South Tripura.

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