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Research Note

Farmer Participatory Evaluation of Groundnut Varieties

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Groundnut is a major oilseed crop of Orissa, which accounts for 57% of total oil seed production of the state of identifying. The total area under groundnut in the state was 0.90 lakh ha of which 0.52 lakh ha was grown during rabi season. The rabi season sowing starts from October and ends in February depending on the time of harvesting of rice crop. The rabi groundnut is grown mostly in coastal districts where rice based cropping system is the most predominant system and groundnut is grown entirely on residual soil moisture without irrigation. Growing groundnut, a legume, in the rice based cropping system sustains crop production and even improves soil health provides better nutritional and financial security. The major constraint for rabi groundnut cultivation was lack of awareness on improved varieties and non-availability of quality seed. Farmers grow traditional varieties. Hence, the present study was conducted with the following objectives the suitable groundnut variety for Coastal Orissa for rabi season-1 and to demonstrate the potential of seed storage method, improved agro-techniques and other production techniques suitable for different agro-climatic zones in the country. But there are wide gaps between the available technologies and their adoption.

METHODOLOGY

The districts of a Cuttack and Puri from Orissa were selected. One block from district (Ersama and Astaranga) was selected based on the maximum extent of damage caused due to the cyclone. Eight villages from each block were selected. The farmers were selected by two-stage sampling method. The lists of all the farmers with potential area of groundnut in these villages were prepared. From these lists, farmers were selected by proportionate random sampling method based on the farm size, making a sample size of one hundred and ninety two. The on-farm trails (OFTs) were conducted in these farmers fields for two years during 2002-03 and 2003-04. Thus, a total of three hundred and ninety-two trials were conducted. Each farmer conducted the trials in an area of 500–1000 m² depending upon his farm size and resources. The farmers were provided four varieties of groundnut viz., Srnruti, GG-2, TAG 24 and K134. The idea was to provide them with an opportunity to observe, evaluate and choose the best variety using their own judgement. These varieties were compared with the farmers traditional variety AK 12-24. The data were collected through a semi-structured interview schedule by personal interview of the farmers. The descriptive statistics such as frequency and percentages were used to analyse the data. The yield (YG) and yield gap index (YGI) were estimated by the following formulae:

YG = OSY-OFTY

YGI = YG / OSY x 100.

Where, OSY = On- station yield and OFTY = On-farm trial yield.

The variety may have high OSY (yield potential), but if the OFTY, which truly represents the farmers conditions is low, then the variety may not be suitable to farmers of that region. The YGI gives the feasibility of the variety under farmer's conditions, lower the values of the YGl highly suitable is the variety for the farmers of that particular region.

RESULTS AND DISCUSSION

Performance of groundnut varieties and storage method

The results of the OFT{(Table 1) showed that the Groundnut variety namly Smruti had performed

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consistently well with an average pod yield of 1456 kg/ha, followed by GG 2 (1263 kg/ha), TAG 24 (1000 kg/ha), K 134 (902 kg/ha) and AK 12-24 (725 kg/ha). All the varieties performed better than the local variety and the increase in yield ranged from 24- 100%. There was an increase in pod yield of 100%, 74%, 38% and 24% over local variety AK 12-24 with Smruti, GG 2, TAG 24 and K 134 variety , respectively. The highest increase in pod yield was observed in Smruthi, which also recorded the lowest YG of 526 kg/ha and YGI of 26.5 indicating the suitability of the variety for the farmers of the region. The highest YG of 1837 kg/ha was observed for GG 2, which indicated the unsuitability of the variety, in spite of its high yield potential of 3100 kg/ha. An YG of 825 kg/ha, 775 kg/ha and 683 kg/ha was observed for AK – 12-24, K 134 and TAG 24, respectively. The highest YGI of 66 was observed for AK – 12-24, in spite of this, the farmers were growing the variety due to easy availability of seed. The YGI for other varieties were 59.2 (GG 2), 46.2 (K 134) and 40.5 (TAG 24).The various methods such as group discussions, visit by the scientists, farmer's meetings and focussed group discussions were used to elucidated the farmer's opinion agreed on these trials. Almost all the farmers agreed that Smruti was the best variety.

The National Research Centre for Groundnut (NRCG) pod storage method was demonstrated at ten farmer's fields. These demonstrations were managed by the farmers where groundnut pods were stored in polythene lined gunny bags along with calcium chloride @ 250 g/30 kg pods. The non-participated farmers were shown these demonstrations and were willing to adopt the same. It was observed that the NRCG pod storage method maintained the seed viability and more than 80 % of the seed was fit for sowing during the succeeding rabi season. Thus, the problem of seed availability can be addressed by adopting this method of storage by the farmers.

The merits and importance of farmer's participation in agricultural research have long been established, what is debatable are the methods of carrying out FPR. The present study clearly demonstrated the usefulness of FPR as an extension research tool. The farmers were provided with a basket of options to choose from based on their wisdom and experimentation they preferred Smruti, GG 2 and TAG 24. Apart, from increased pod yield, farmers considered the fodder yield, early maturity and suitability to their specific situation as the criteria for their decision .

Constraints in groundnut production as perceived by the farmers

The important constraints perceived by all the farmers were non- availability of quality seed for rabi groundnut cultivation and occurrence of natural calamities. The other constraints perceived by farmers (Table 2) were lack of marketing infrastructure at the village level for groundnuts (98.5%) followed by occurrence of diseases such as collar rot (93.3%), lack of irrigation facilities (85.6%), and soil salinity (85%) due to heavy ingression of sea water after the cyclone. Almost 48 % of the farmers perceived that lack of technical information; non-availability of inputs on time, lack of knowledge on improved practices of groundnut production and lack of sufficient credit facilities for investment during the crop season were the constraints limiting in realizing higher yields of groundnut. Labour shortages during critical stages of the crop and lack of short duration rice varieties for early sowing of groundnut were perceived as important constraints by 22 % and 11% of farmers respectively.

Table 1. Performance of selected groundnut varieties under On- farm trials

Sl. No.	Variety	OSY	OFTY	YG	YGI	% increase over local variety
1.	Smruti	1982	1456	526	26.5	100.8
2.	GG 2	3100	1263	1837	59.2	74.2
3.	TAG 24	1683	1000	683	40.5	37.9
4.	K 134	1677	902	775	46.2	24.4
5.	AK 12-24	1250	725	825	66.0	---

Table 2. Constraints in groundnut production as perceived by the farmers

Sl.No.	Constraints	Frequency	Percentage (%)	Rank
1.	Non availability of quality seed	194	100.00	I
2.	Occurrence of natural calamities	194	100.00	I
3.	Lack of marketing facilities	191	98.45	III
4.	Incidence of soil borne diseases	181	93.29	IV
5.	Lack of irrigationfacilities	166	85.56	N
6.	Soil salinity	165	85.05	V
7.	Lack of technical information	93	47.93	VII
8.	Non- availabilityof inputs on time	93	47.93	VII
9.	Lack of knowledge on improved practices	93	47.93	VII
10.	Inadequate credit availability	93	47.93	VII
11.	Labour shortage during critical stages	43	22.16	XI
12.	Lack of short duration rice varieties	22	11.34	XII

CONCLUSION

The farmer participatory evaluation has helped in identification at suitable Groundnut varieties with the NRCG storage method may also be popularized in the region to make- up for the non- availability of quality seed. Training programmes may be conducted for the farmers on improved groundnut production technologies such as integrated pest management and management of saline soils. Apart from this, the infrastructural facilities for marketing and credit facilities may be improved. Further, the short duration varieties of rice (to facilitate early sowing of groundnut during rabi) may be popularized in the region. Thus, FPR is of particular use in the identification of relevant research issue and in the adaptation of technologies to specific local circumstances. Farmer's participation is a key element to successful FPR, but it takes the unwavering commitment of the researches to make it an effective extension research tool.