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Surrogate of the pigeonpea variety in Tribal Belt through Front Line Demonstration

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ABSTRACT

Privileged yielding and improved varieties is one of the most important component to get higher yield in agriculture crop production machinery, which technology promises higher yield. INM and land configuration also helps in improving yield. Majority of the respondents gained medium level of the overall knowledge and adopted all cultural practices of the tur production, the knowledge level of the farmers regarding scientific cultivation of tur was increased remarkably (Table 3). This may be due to the proper guidance given by KVK scientists, Demonstrations and constant follow up by KVK missionary. The yield was increased to the tune of 33 to 68% and the net profit was increased to the tune of 30.68%.The study acknowledged the knowledge level of the tur growers towards improved technology. This story can be guideline for other extension worker to implement this way of extension technology for their clients. On this groundwork the extension personnel may locate clients for training and also those who can be used as counselors to other farmers. The study is also useful for effective propagation of the improved technology in other regions for eco friendly and sustainable agricultural development. Based on this study we can suggest our other extension workers as well as to the policy makers to take a keen interest in the matter and do needful for great publicity of such technologies in their respective areas of working for successful journey towards next phase of Green Revolution on sustainable basis.

INTRODUCTION

Agriculture is the strength of the country and seed is the back bone of crop production. Among all the agricultural inputs, only seed had inbuilt potential, whereas other inputs like nutrients, irrigation and plant protection chemicals, contribute to the production potential of the seed. If potential of the seed is poor, optimum yield is not possible in spite of judicious use of inputs. Research findings reveal that 10-12 per cent increase in yield is attributed to good quality seed. Pigeon pea (Tur) is the main pulse crop in south Gujarat. Tribal belt is preferring tur as a main leguminous food in their daily diet.

METHODS

The village Gatadi is situated in Songadh block of Tapi district. It is located 24 km from block place, 17 km from district place cum Krishi Vigyan Kendra, Vyara. The total population of village is around 650 with 335 male and 315 female. Considering caste wise distribution, cent per cent population is of Schedule Tribe (650), clearly indicating dominance of ST (Chauhan, 2011).

The total area of village is 230.95 ha, out of which net cultivable area is 194.30 ha (84%). Nearly 40 per cent cultivated land having irrigation facility which is mostly irrigated through tube well, well , water lifted from the river and check dams. The main crops of the village are paddy, sorghum and tur in *Kharif* and sugarcane, vegetables and gram in *Rabi*. A small pocket of the village is covered under groundnut in summer. Only milk co-operative is functioning in the village, helping the farmers for marketing of their livestock products.Tur is an important pulse crop and plays an important role in improvement of the soil through improving soil microbial activities. In Gujarat, tur is grown about 2651 ha with production 2942 in year 2007-08 *Kharif*. Among this Surat district covers 326 ha under tur crop (Chauhan, 2011).

In the year 2007, KVK, Vyara had adopted village Gatadi as a Satellite village for its intensive activities of Transfer of Technologies related to agriculture for increasing agricultural production there by raising standard of living of the farmers.

The entry point visit to the village was made by the team of Subject Matter Specialists. To find out the technological adoption gaps and to identify the thrust areas for the agricultural development, a PRA was made. During PRA, interacting with the farmers it was found that the farmers were unable to harvest the tur crop due to unavailability as well as no knowledge regarding improved varieties of the tur. Sowing of local varieties with high seed rate on flat bed without knowing scientific cultivation practices of tur. One of the major thrust areas identified as to introduce the high yielding early variety of the tur in the village. Even though using higher seed rate, farmers were frustrated with tur cultivation as they were unable to get better yield from the tur. As no extension agency was targeting these farmers, they had to rely on private traders for seed. The traditional cultivation of crops, makes agriculture costly but they did not get the remunerative yield from the pigeon pea crop (Chauhan, 2011).

Considering the situation and dialogues with farmers, Subject Matter Specialists (Agronomy, Horticulture) suggested implementation of land configuration and INM in tur with introduction of the high yielding variety. The training as well as demonstrations on high yielding, early variety of the tur Vaishali was the need of village for profitable cultivation of tur. The interested farmers were given on campus as well as off campus training with special emphasis on identification of insect- pests and diseases of tur, components of INM, economic use of irrigation, ways to produce quality products, etc. through video show and power point presentations. The farmers were also aggravated to visit and interact with the farmers who have adopted this technology.

Horizontal and vertical spread :

Fortunately, with financial assistance of the ICAR under National Pulse Development Scheme, KVK, Vyara was able to give demonstrations of Vaishali variety FLD in 10 ha. [5 ha. in the year 2007-08 and 5 ha. in the year 2008-09] benefiting 19 farmers of the Gadat, Gatadi and Champawadi villages of Songadh block during 2007-08 and 26 farmers of the Gadat, Gatadi, Bhitkhurd and Bhitbudrak villages in year 2008-09. New Pigeon pea variety Vaishali along with INM and land configuration was demonstrated, constant follow up visits, ex-trainee visits, Khedut and Mahila Sammelans, field days, farmer's days and other extension activities have been concentrated. Initially, farmers were vacillating in adopting newly released variety of the pigeon pea and land configuration but with constant encouragement, KVK scientists are successful in building up confidence in them. The major achievement of the demonstrations is that farmers were booming in getting higher production of the tur. The advanced guidance provided by KVK scientists. The farmers from neighbouring villages were also attracted and associated with the KVK for adopting their village under FLD scheme. Based on two main pillars of the extension education Seeing is Believing and Learning by Doing, the idea was spread and the adoption was increased to the remarkable level (Chauhan, 2011).

The farmers of such villages had sold the green pods of the pigeon pea as well as also harvested seed from the demonstrated variety. The farmers were able to get a net profit of Rs.50, 000/ha. The increase in yield was to the tune of 33-68%; the field days were organized at demonstrated plots and got wide publicity of the new variety. The farmers from the neighbouring villages were also attracted towards new variety of the tur and demanded for seed of the Vaishali variety. The spread of the said variety was in surrounding villages and the FLD villages were became seed centres for the same. Next year the same FLD was taken in surrounding villages and the whole cluster had been shifted from conventional variety to the Vaishali variety. The replacement of the seed was-15%. The crop was ready earlier up to the tune of 2-3 months as compared with conventional varieties. Farmers were able to take a next crop after tur on same piece of the land. As, it was matured earlier than traditional varieties by 45-60 days. The feed back from the farmers were collected and the results had been analyzed and presented in the Tables 1, 2 and 3.

OBSERVATIONS AND ANALYSIS

The Gatadi village is now became a model for Vaishali variety in the Block. The surrounding villages of Songadh, Vyara and Uchchhal taluka had also adopted Vaishali to the tune of 22% and many more villages are in a cylinder for adopting Vaishali variety of the tur. The total seed of the said variety was supplied to them on free of cost. The constant follow up and monitoring of the package of practices made them habitant with scientific cultivation of the tur. The whole villagers are flattering conversant regarding better results of the new variety in relation to yield, income, soil, water, environment and health point of view.

Initially, total 6 innovated farmers were trained for the same. Among them , the trained farmers *viz.*, Mr. Maganbhai Gamit, Girishbhai Gamit, Rakeshbhai Gamit, Vineshbhai Chaudhari, Thakorbhai Gamit and Panjibhai Gamit residing at Gatadi village are working as a resource persons for whole village as well as surrounding villages. Last year the seed produced by those villagers were sold to other farmers of the region and they were able to get higher price of the seed as compared with market sale. The same variety was given to 10 selected villages and constant follow up was maintained by KVK scientists and at grand growth period of the crop a big

Table 1 : Training programmes organized on tur production

Subject	Title of the trainings	Duration (days)	No. of participants		
			Male	Female	Total
Crop production	Oil seeds and pulse production technology	2	49	36	85
	Importance of bio fertilizer in oilseeds and pulses crop.	1	18	-	18
	Land preparation for major crops of the area.	1	34	50	84
	Improved production technology for pigeon pea cultivation	2	22	0	22
	FLD training on Tur	1			
	Integrated weed management in Tur	1	34	0	34
	Important post sowing/ plant agro technologies for more return in *Kharif* crop	1	21	17	38
	Package of practices of major *Kharif* crop	2	28	23	52
	Importance of land preparation for *Kharif* crop	1	0	19	19

Table 2 : Comparison of economics of Vaishali demonstration plot and control plot in tur crop

Sr. No.	Name of the village	Yield(q/ha) Demon.	Yield (q/ha) Local cheque	Increase in yield (%)	Net profit (Rs/ha) Demon.	Net profit (Rs/ha) Local cheque
1.	Year *Khari* 2007					
	Gatadi and Champawadi	8.84	6.62	33.5	10609	7332
2.	Year *Kharif* 2008					
	Gatadi	12.48	7.40	68	46538	26600
	Gadat	11.48	8.40	65	47538	27600
	Bhitkhurd	13.48	9.40	67	48538	28600
	Bhitbudrak	13.48	8.24	69	49548	29650

Price-Pigeon pea grain (2007)-Rs.12/kg grain., Pigeonpea grain (2008)-Rs.40/kg grain

farmers day was arranged including dignitaries of the NAU: Hon. Vice Chancellor, Director of Extension Education, State department of the agriculture and all GOs, /NGOs of the region. Simultaneously the big farmer's day on tur was conducted for mass multiplication of the advantages of the Vaishali variety and our sincere efforts will be towards whole block conversion in to seed block for Vaishali variety within 2-3 years.

Farmer's reactions:

– Vaishali variety is better than habitual/local cultivars in the villages.

– Variety is suitable for vegetable as well as for grain/ seeds.

– During the year 2008 only this variety gave substantial yield in this region, all other traditional varieties failed at all.

– Sowing on ridges allowed all plants to stay alive and produce even in high rainfall area successfully.

– Vaishali variety gave good economic returns as compared with traditional varieties grown in the province.

– INM including recommended dose of fertilizers (RDF) +FYM + Rhizobium inoculation) crop was found better than only use chemical fertilizer**.**

– Seed production along with green pod marketing gave higher net homecoming as compared with only grain production.

Table 3 : Adoption of Vaishali variety (n=100)

Characteristics	Number	Percentage
Overall knowledge level		
Low	11	11.00
Medium	74	74.00
High	15	15.00
Total	100	100.00
Head wise knowledge Level Cultural practices		
Low	15	15.00
Medium	61	61.00
High	24	24.00
Total	100	100.00
Fertilizer management		
Low	15	15.00
Medium	70	70.00
High	15	15.00
Total	100	100.00
Irrigation management		
Low	20	20.00
Medium	57	57.00
High	23	23.00
Total	100	100.00
Marketing of green pod		
Low	22	22.00
Medium	55	55.00
High	23	23.00
Total	100	100.00

– No menace against failure of the crop due to early maturing and less pest attacks at maturity stage, due to short duration variety.

Conclusion:

Higher yielding and improved varieties is one of the most important component to get higher yield in agriculture crop production machinery, which technology promises higher yield. INM & land configuration also helps in improving yield. Majority of the respondents gained medium level of the overall knowledge and adopted all cultural practices of the tur production, the knowledge level of the farmers regarding scientific cultivation of tur was increased remarkably. This may be due to the proper guidance given by KVK scientists, Demonstrations and constant follow up by KVK missionary. The yield was increased to the tune of 33-68% and the net profit was increased to the tune of 30.68%.

Implication:

The study has acknowledged the knowledge level of the tur growers towards improved technology. This story can be guideline for other extension worker to implement this way of extension technology for their clients. On this groundwork the extension personnel may locate clients for training and also those who can be used as counselors to other farmers. The study is also useful for effective propagation of the improved technology in other regions for eco friendly and sustainable agricultural development.

Suggestions :

Based on this study we can suggest our other extension workers as well as to the policy makers to take a keen interest in the matter and do needful for great publicity of such technologies in their respective areas of working for successful journey towards next phase of Green Revolution on sustainable basis. This study is also eye opening for the persons working in the field of extension education. This thing looks like diminutive but its impact is of great magnitude.

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