Bioved, **28**(2) : 299–302, 2017 http://biovedjournal.org/

Participatory quality seed production : An innovative farming technology for rural development and rural entrepreneurship

K.K. Singh and P.K. Singh

Krishi Vigyan Kendra, Directorate of Extension, SVPUA&T, Meerut, U.P.

Received March 21, 2017 and Accepted June 15 2017

ABSTRACT : Agriculture is the lifeline of India and seed is the lifeline of any crop production system. In all agricultural inputs only seed had inbuilt potential, where as other agricultural inputs i.e. nutrients, irrigation, and plant protection chemicals only contributes to the production potential of seed. If potential of seed is poor, optimum yield is not possible of judicious use of inputs. Many research results indicate that the 10-15 per cent increase in yield is attributed to good potential quality seed. The main reasons for low productivity of field crops are unavailability of reliable quality seeds in the local markets at the time of sowing. To increase productivity, seed should be of high quality, which will express full potential yield of the genotype under farmers farming environments. Therefore, there is basic need to establish quality seed sources at village level. For seeing this scenario, the Krishi Vigyan Kendra Saharanpur introduced an innovative farming technology "Participatory Quality Seed Production" at farmer's field during Rabi 2008 in Saharanpur district for production of good quality seeds of Paddy and Wheat. After implementation, this innovative farming technology the average seed replacement rate increased by 38.0 – 58.0 per cent in wheat and 38.0 – 54.0 percent in paddy, in operational area. Yield increased in wheat up to 42.0 – 59.0 qt/ha and in paddy 47.0 – 60.0 qt/ha in operational area . Adoption level of improved varieties by the farmers had increased. Informal seed production programme had emerged as an income generating enterprise.

Key Words: Participatory quality seed production, field crops.

The major field crops of district Saharanpur are wheat and rice. The seed replacement rate (SRR) of these two crops is not better, for example, SRR of rice and wheat is about 11-15% in district. The present level of SRR for field crops in India is just 5-70% (Roy, 2011). Farmers Participatory Seed Production in India is one of the few countries (Chowdhury *et al*., 2010) where the seed sector has advanced in parallel with the agricultural productivity. However, availability of quality seed of improved varieties and hybrids is grossly inadequate and is one of the major constraints for enhancing production. For the supply of such seeds, the informal seed sector (namely, farmer managed seed, seed village programmes, Farmers' Participatory Seed Production and farmer seed distribution system systems) and the formal seed system (seed enterprises) have a great role to play. Farmers can produce quality seeds of some self-pollinated crops, such as, rice, wheat, mustard, and vegetative propagated crops, namely, potato seed tuber, elephant foot yam, Arachis pintoi (Neef *et al*., 2004) etc. at their own farm for 2-3 generations, provided they are trained the package of practices to maintain genetic purity.

Materials and Methods

(A) Innovative farming technology (IFT) disseminated

The KVK initiated Participatory Quality Seed Production programme of Wheat and Paddy in its operational area during 2008-09 to 2012-13, based on the location specific newly released Wheat and Paddy varieties, seeds were provided to selected farmers as major component of Front Line Demonstration. 60-80 farmers were selected each year for Participatory Quality Seed Production in operational area. The identified farmers of different villages were trained on different aspects of seed production.

(B) Farming practice before IFT

The farmers used to grow grain from their own

Table-1 : Net income under Participatory Quality Seed Production v/s Grain Production.

S. No.	Operational areas (Blocks)	Yield (qt/ha)			Net income (Rs/ha)		
		Seed	Grain	Increase	Seed	Grain	Increase
Wheat							
1.	Punwarka	52.0	44.5	7.5	98800	52510	46290
2.	Sarsanwa	48.0	41.0	7.0	91200	48380	42820
3.	Nakur	47.0	40.0	7.0	89300	47200	42100
4.	Balia Kheri	49.5	42.5	7.0	94050	50150	43900
5.	Gangoh	45.0	39.0	6.0	85500	46020	39480
6.	Nagal	45.5	42.0	3.5	86450	49560	36890
7.	Muzaffarabad	48.0	42.0	6.0	92200	49560	42640
8.	S. Kadeem	46.0	38.0	8.0	87500	49000	38500
9.	Rampur	47.0	41.0	6.0	89500	49500	40000
Paddy							
1.	Punwarka	55.0	41.5	13.5	154000	95450	58550
2.	Sarsanwa	52.5	42.0	10.5	147000	96600	50400
3.	Nakur	55.5	42.5	13.0	155400	97750	57650
4.	Balia Kheri	62.0	51.0	17.0	173600	117300	56300
5.	Gangoh	50.0	40.0	10.0	140000	92000	48000
6.	Nagal	48.0	41.0	7.0	134400	94300	40100
7.	S. Kadeem	45.0	40.0	5.0	130500	92800	37700
8.	Rampur	52.0	41.0	11.0	146000	96500	49500

produced of last year which always resulted in poor yield and proved less remunerative. Farmers usually used grain as seed. The seed replacement ratio in the operational area was hardly 11 to 15 per cent.

Results and Discussion

Net income under Participatory Quality Seed Production v/s Grain Production

The farmers have got additional yield and additional income as compare to traditional farming practices. In case of net income farmers gain extra income through distribution of seed another farmers at nominal rate, which is more than market grain rate but it is not maximum as comparison to commercial seeds. The results revealed that the farmers have got net return through Participatory Quality Seed Production from Rs 36890/- to Rs 46290/- per ha in wheat crop and in paddy crop from Rs 37700/- to Rs 58550/- per ha (Table-1).

Impact of quality seed production on Average yield (qt/ha) and Seed Replacement Rate

The use of quality seed produced at village level was able to increase the yield in operational areas. The average yield increased 42.0 – 57.0 qt/ha in wheat and in paddy 47.0 to 60.0 qt/ha. The use of quality seed produced at village level was able to increase the seed replacement in operational areas. The increasing seed replacement rate ranging from 38% to 58% in wheat and in paddy from 38% to 54% (Table-2).

Entrepreneurship Development through

Table-2 : Impact of quality seed production on Average yield (qt/ha) and Seed Replacement Rate (%).

Sl. No.	Operational areas (blocks)	Average yield (qt/ha)	Seed Replacement Rate (%)
Wheat			
1.	Punwarka	57.0	58.0
2.	Sarsanwa	52.0	52.0
3.	Nakur	55.0	48.0
4.	Balia Kheri	59.0	55.0
5.	Gangoh	50.0	53.0
6.	Nagal	48.0	45.0
7.	Muzaffarabad	43.0	42.0
8.	Sadauli Kadeem	42.0	38.0
9.	Rampur	47.0	46.0
Paddy			
1.	Punwarka	60.0	52.0
2.	Sarsanwa	55.0	47.0
3.	Nakur	50.0	49.0
4.	Balia Kheri	58.0	54.0
5.	Gangoh	48.0	45.0
6.	Nagal	52.0	38.0
7.	Sadauli Kadeem	47.0	40.0
8.	Rampur	49.0	42.0

Table-3 : Seed production and seed supply of farmers to farmers by Sri Mahak Singh.

Year	Area (ha.)	Seed Produced (qt.)	Seed Supplied to farmers
2009	0.5	20	85
2010	1.0	55	110
2011	2.5	150	150
2012	2.5	145	115

125 qt. of seed supplied to Seed Company in 2011 and 130 qt of seeds supplied in 2012.

Participatory Quality Seed Production

Sh. Mahak Singh, Vill. & Post - Chaurakhurd, Block - Punwarka, Saharanpur attended training Programmes at Krishi Vigyan Kendra Saharanpur and learnt the skill of growing quality Seed Production technique. Due to high demand of seeds of Pusa Basmati-1401, Sri Mahak Singh has taken land on lease (1.50 ha) for seed production. The seed production activity is supervised by the KVK scientists. Due to this development a private seed company KRBL has joined hands with Sri Mahak Singh for seed production during kharif 2011 (Table-3).

It has been concluded that the average seed replacement rate increased by 38.0 – 58.0 per cent in wheat and 38.0 – 54.0 per cent in paddy and yield increase in wheat up to 42.0 – 59.0 qt/ha and in paddy 47.0 – 60.0 qt/ha in operational area (blocks); Adoption level of improved varieties by the farmers had increased and informal seed production programme had emerged as an income generating enterprise.

References

Chowdhury, A.H.; Odame, H.H. and Hauser, M., 2010. With or without a script? Comparing two style of participatory video on enhancing local seed innovation system in Bangladesh. *J. Agril. Edu Ext.*, **16:** 355-71.

Neef, A.; Schultze-Kraft, R.; Sampet, C.; Saepueng, W. and Suriyong, S., 2004. Seed production potential and participatory vegetative propagation of Arachis pintoi in different environments in northern Thailand. In: 13th Int. Soil Conserv. Org. Conf. Brisbane. July 2004, Conserving Soil and Water for Society: Sharing Solutions : 761-765.

Roy, B., 2011. Farmers' rights: an essential component of IPR under Indian circumstance. In. Farm Sector Development—Emerging Issues. (Das Gupta, D. Ed.). AgroBios, Jodhpur, India : 147-166.