

Economic Impact of Frontline Demonstrations on Basmati Rice

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ABSTRACT

The low yield of basmati rice and consequently low economic benefit has restricted farmers of the district to grow basmati on a larger scale. Basmati rice varieties, therefore, produced by the farmers only for home consumption and there was a very little marketed surplus available. As a consequence of the changed liberalized trade related policies of the Govt. of India and at State level, basmati rice of Jammu province has got recognition in national and international level. Farmers perceived the importance of cultivating basmati varieties for higher returns. A significant number of farmers approached Krishi Vigyan Kendra (KVK), Kathua for guidance on the issue and KVK helped them to choose the right path. The low yield of basmati rice and consequently low economic benefit has restricted farmers of the district to grow basmati on a larger scale. KVK Kathua serving the farmers of the district by enhancing their farm income identified Pusa 1121 basmati seed as a potential source for increasing the farmers' income, keeping in view the high price of basmati at national and international markets in the recent past. After standardization and refinement of Pusa 1121 rice variety procured from IARI, New Delhi, KVK has engaged in popularisation of variety through FLDs and trainings. The economics of introducing the intervention has resulted in additional income amounting to ₹ 2416.64 lakhs till the year 2015 through enhancement of area under Pusa-1121.

Keywords: Rice, Frontline demonstrations, Pusa Basmati 1121, impact

Frontline demonstrations have been used by the extension agencies as the effective tool for adoption and horizontal expansion of scientific technologies in order to fill the yield gaps which may exist due to the lack of awareness among the farming community regarding improved cultivation practices (Singha and Baruah, 2011). Such technology demonstrations may include high yielding/hybrid varieties, production, protection or management practices in the farmer's field under different agro-climatic regions and farming situations. The assessment of impact of these frontline demonstrations is equally important, as carried out by Sagar & Ganesh (2003)

in case of kharif rice, Yadav *et al.* (2004) in case of sunflower, Singh *et al.* (2007) in case of mustard, Mishra *et al.* (2009) in case of potato, Lathwal (2010) in case of blackgram and Raj *et al.* (2013) in case of pulses. The low yield of basmati rice and consequently low economic benefit has restricted farmers of the district to grow basmati on a larger scale. KVK Kathua serving the farmers of the district by enhancing their farm income identified Pusa 1121 basmati seed as a potential source for increasing the farmers' income, keeping in view the high price of basmati at national and international markets in the recent past. After standardization and refinement

of Pusa 1121 rice variety procured from IARI, New Delhi, KVK has engaged in popularisation of variety through FLDs and trainings. The present study was undertaken to assess the impact of introduction of Pusa Basmati 1121 through frontline demonstrations in adopted villages of Kathua district.

MATERIALS AND METHODS

The present investigation was carried out in the selected villages of Krishi Vigyan Kendra Kathua with the broad objective of assessing the impact of frontline demonstrations conducted on Pusa Basmati 1121 after comparing the results with the yield of local check varieties on farmers' fields. The selected villages lies in Hiranagar, Barnoti and Kathua blocks of the district and mainly located at 32.4634685 latitude and 75.272324 longitude. The total area under rice production in the district in the year 2011-12 was 31.243 lakh hectares (jkenvis, 2011-12). The source of technology was Indian Agriculture Research Institute, New Delhi. The data on yield of rice, cost of production and monetary returns were gathered from sites of demonstrated plots and from the alternate neighbourhood plots to compare the economic impact and to work out the economic feasibility of scientific cultivation of Pusa Basmati 1121 in irrigated plains of Kathua district. The data collected from both demonstrated and alternate neighbourhood plot was processed to draw inferences regarding shifts in productivity.

RESULTS AND DISCUSSION

The cultivation of basmati rice was very limited and was confined only to the Hiranagar tehsil and the variety Basmati-370 was solely under cultivation in the name of fine and basmati rice. The low yield of basmati rice varieties and consequently less economic benefits, restricts their adoption on a larger scale. Basmati rice varieties, therefore, produced by the farmers only for home consumption and there was a very little marketed surplus available. As a consequence of the changed liberalized trade related policies of the Govt. of India and at State level, basmati rice of Jammu province has got recognition in national and international level. Farmers perceived the importance of cultivating basmati varieties for higher returns. A significant number of farmers approached Krishi Vigyan Kendra (KVK), Kathua

for guidance on the issue and KVK helped them to choose the right path. After ascertaining the demands of local farmers, Krishi Vigyan Kendra (KVK), Kathua carried out the following works:

Standardizing, Refinement and extension of technology

Krishi Vigyan Kendra (KVK), Kathua procured seed of high yielding Pusa basmati-1121 from IARI, New Delhi in the year 2009. After conducted several On-farm trials, KVK standardized and refined the recommended technology for farmers of Kathua district. Through well framed annual action plans, KVK Kathua conducted Front Line Demonstrations, imparted specialized farmers training programmes to impart knowledge as well as skills involved in the production of basmati rice with the apparent objective to prepare the farmers of the district to produce quality basmati rice which can compete at international level.

Production of seed of Pusa - 1121 basmati rice

An important factor in restricting the horizontal expansion of agricultural technology, especially of field crops is the non-availability of seed. Therefore, under a systematic plan, KVK, Kathua after the year 2010, concentrated its farm activities towards production of seed of Pusa basmati-1121 in kharif season for distribution to the farmers of the district. To start with, KVK concentrated its activities in Hiranagar, Barnoti and Kathua blocks of the district. The blocks traditionally have maximum area under rice and therefore, were purposely selected, for achieving greater impact of proposed intervention in transforming traditional coarse rice belt to basmati producing belt. Farmer'-Scientist Interaction, field days, film shows, radio talks and frequent print media coverage were also employed to get the maximum impact.

Economics of frontline demonstrations

KVK Kathua has giving major thrust on Pusa-1121 by continuously increasing area under Frontline demonstrations. The activities carried out by KVK under frontline demonstrations are depicted in Fig. 1.

The area for conducting Frontline demonstrations on Pusa-1121 has increased from 8.0 ha in 2010-11 to

**Fig. 1****Table 1:** Economics of Pusa basmati – 1121 in comparison to coarse varieties of rice

Year	Coarse varieties (Jaya, PR-113 and IR-8)				Pusa – 1121			
	Yield (q/ha)	Price (₹/q)	Net income	B:C Ratio	Yield (q/ha)	Price (₹/q)	Net income	B:C Ratio
2013-14	48.6	1300	43265	2.86	39.8	4000	1,35,000	6.58
2014-15	48.1	1160	32648	2.39	41.3	1990	57,687	3.35
2015-16	49.2	1200	37695	2.57	40.5	2240	66,070	3.68
Average of 3 years	48.63	1220.00	34889	2.43	40.53	2743.33	86,252	4.54

40.0 ha in 2013-14. In 2010 only, fifteen farmers' were covered under frontline demonstrations but in the subsequent years their number rose to 49 till 2013-14. This subsequent increase in area as well as farmers' coverage triggered the further dissemination of Pusa basmati-1121 in Kathua district. The performance of Pusa basmati 1121 in comparison to traditional rice varieties over the years is presented in the Table 1.

The field performance of Pusa basmati – 1121 under frontline demonstrations strongly narrate its superiority, in terms of higher net returns and B:C ratio (4.54) over coarse varieties viz., Jaya, PR-113 and IR-8 (B:C ratio of 2.43). This leads to the sharing of farm saved seed of Pusa basmati – 1121 among the farmers and it further lead to the speedy spread of Pusa basmati – 1121 in non-traditional basmati growing pockets of district Kathua. The horizontal expansion of Pusa Basmati 1121 rice in Kathua

district is depicted in Fig. 2, which shows that area under Pusa – 1121 has been increased from mere 40 hectares in the year 2010 to more than 6400 hectares in 2015 and 12600 ha in Kharif 2017. KVK, Kathua is still striving hard by way of regularly organizing extension activities with the strong intention to popularize Pusa basmati – 1121 in the district and to establish its name and recognition at global level.

Simulation of economic benefits of FLDs

The economics of introducing the intervention has resulted in huge monetary benefit for the farming community in the last few years. The additional income generated through enhancement in area under Pusa-1121, as compared to the existing varieties of rice has been depicted in Fig. 3, and it keeps on increasing every year from ₹ 10.24 lakhs to ₹ 3245.2 lakhs in the year 2017.

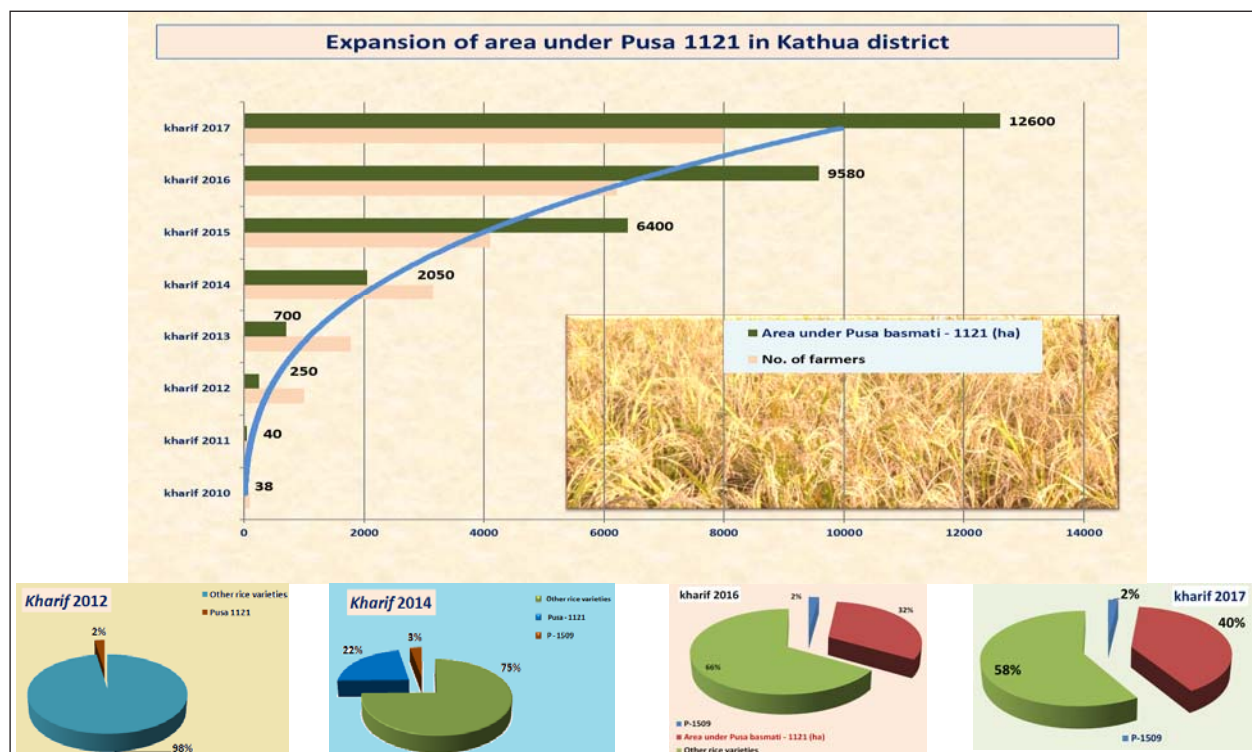


Fig. 2: Horizontal expansion of Pusa Basmati 1121 in Kathua district

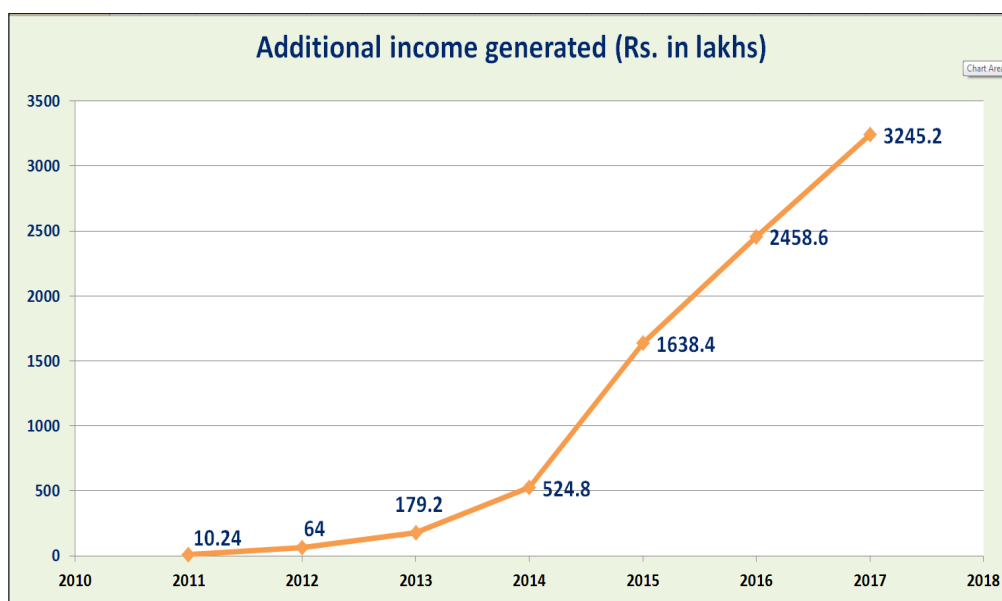


Fig. 3: Simulation of economic benefits of FLDs

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