

Replicable success cases of technological interventions under Farmer FIRST project in Uttar Pradesh

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The Farmer FIRST programme is implemented with farmer in a centric approach for research problem identification, prioritization and conduct of experiments and its management in farmers' field conditions. The focus is on farmer's Farm, Innovations, Resources, Science and Technology (FIRST). The programme was implemented for five years from 2016–17 to 2021–22 in cluster of five villages in the district Fatehpur of Uttar Pradesh. Farmer participatory technology demonstrations and their evaluation emanated successful expansion of viable technologies like paddy hybrids, improved chickpea and wheat varieties in the popular rice-wheat cropping system thus enhancing the system productivity and profitability.

Keywords: Farmer participatory technology, Fatehpur, rice-wheat cropping system

THE ICAR-IIPR, Kanpur implemented the Farmer FIRST project on integrated approaches for food, nutrition and livelihood security of rural households in Fatehpur district of Uttar Pradesh during 2016–17. This programme is an initiative that moves beyond the production and productivity and focuses privilege the small holder farmers operating in complex, diverse and risk prone realities through enhancing farmer-scientist contact. The programme aims at enhancing farmer-scientist interface for technology development and application. A baseline survey was conducted in the project villages, viz. Karchalpur, Kharouli, Mirai, Khadra, Shahpur, Delemau villages of Devmai block of Fatehpur district. An overview was taken for the existing agricultural situation of the partner farmers before implementing the interventions under Farmer FIRST programme. The findings revealed that rice, wheat, chickpea, pigeonpea, mustard, pearl-millet, summer mungbean and urdbean were major crops grown in these villages. Further, the major problems faced by the farmers were low productivity and low income, unavailability of quality inputs, problem of insect and diseases, lack of improved production technologies and lack of processing infrastructure in the villages. On the basis of identified problems, suitable farm interventions were introduced in the project villages which over period of time led to improvement in the socio-economic status of the partner farmers. Success stories of the partner farmers indicate that the programme has

been persistently improving income of partner farmers in identified project villages. These villages have been slowly and steadily emerging as hubs for improved agricultural technologies in the region.

Replicable Technologies

Paddy hybrid leads to higher economic returns to partner farmers: During rainy (*kharif*) season 2021, as a part of technological interventions, high yielding paddy hybrid named Arize 6444 Gold was introduced first time in Khadra, Karchalpur and Mirai villages of Fatehpur district, Uttar Pradesh. A total 29 farmers were part of this intervention covering about 12 ha. On an average



Farmer in paddy hybrid field



GNG 2207 growing in farmer's field



High yielding varieties of wheat grown by farmers

the introduced hybrid yielded 44.26 q/ha, which was almost double the productivity of popular traditional variety Sarbati (21.27 q/ha) in the area.

Along with higher production, the market price is inevitable factor contributing to higher farm income of the farmers. Though the average market price of produce of Arize 6444 Gold was lesser in farmer participatory technology (₹1350/q) than that of traditional Sarbati variety (₹1750/q), the difference in the productivity led to a higher gross return to partner farmers. The popular Sarbati variety fetched a better market price owing to scent characteristic which was absent in Arize 6444 Gold. The partner farmers received an average gross return of ₹59751/ha by cultivating introduced paddy hybrid which was 61% higher than the traditional variety.

Improved chickpea variety (GNG 2207) yielded 39% higher productivity: Improved desi chickpea variety GNG 2207, also known as Awadh, was introduced in the Khadara, Delemau, Shahpur, Mirai and Karchalpur villages of Fatehpur district under the project during winter (*rabi*) season 2021-22. The introduced chickpea variety is suitable for timely sown condition for north eastern plain zone of the country. The variety has medium seed size and is tolerant to fusarium wilt disease. A total of 60 farmers from the project villages actively participated in the intervention covering 9.10 ha. The introduced chickpea variety was cultivated in paddy-chickpea and maize-chickpea crop sequences. The introduced variety fetched an average yield of 16.76 q/ha against 12.02 q/ha from the local non-descript chickpea varieties available with farmers, registering yield advantage of 39%. The participating farmer of the project villages earned incremental return of more than ₹26000/ha. Besides yield superiority, farmers preferred the variety for bold seeds, seed coat color, plant vigor and resistance to wilt.

New high yielding wheat varieties gave higher return to partner farmers: DBW 187 (Karan Vandana) and DBW 222 (Karan Narendra) are recently released high yielding varieties of wheat that are recommended for cultivation in north eastern plain zone of India. These multiple disease resistant and high yielding varieties were introduced for the first time in Delemau, Khadara, Karchalpur, Merai, Shahpur villages of Fatehpur district

under the project in winter (*rabi*) season 2021-22.

A total of 76 farmers actively participated in these interventions on wheat varieties DBW 187 (56 farmers) and DBW 222 (20 farmers) covering 20 ha area. These varieties were sown in first fortnight of November 2021. To support farmers with the improved production technologies of the introduced wheat varieties, a collaborative online training program was also organized. Participating farmers obtained average grain yield of 46.29 q/ha from wheat variety DBW 187 and 50.74 q/ha from DBW 222, which was about 29.5% and 42% higher than the grain yield from existing wheat variety (35.75 q/ha), respectively. Further, the farmers also gained higher straw yield by 12.3 q/ha (18.2%) from DBW 187 variety and 6.15 q/ha (9.1%) from DBW 222 variety. This resulted in higher gross returns to participating farmers from the introduced wheat varieties at prevailing market price for grain (₹2025/q) and straw (₹417/q). Farmers received gross return of ₹127068/ha and ₹133523/ha from wheat varieties DBW 187 and DBW 222, respectively which was about 26.31% and 32.72% higher as compared to the gross returns from existing wheat variety beyond yield and income farmers preferred DBW 187 for its profuse tillering, and size of grain as well as short duration. Farmers are satisfied with the performance of the introduced wheat varieties and are eager to enhance the area coverage under these varieties in coming years.

SUMMARY

The successful results of the farm interventions demonstrated higher yield potential of the introduced hybrid/varieties in the project area. These results are expected to contribute to significant area enhancement under the introduced technology in the project area in the coming years. Thus, ICAR's one of the most ambitious projects, the farmer FIRST Programme has marked its role in the socio-economic upliftment of the partner farmers in Fatehpur district and paved the way for many more success stories ahead.

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