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Success Story

Reaching new wheat varieties to farmers: Experiences from outreach activities in western Uttar Pradesh region of India

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Abstract

The productivity of wheat at farmer's field in western UP is comparatively low and needs efforts for awareness to increase area under newly released cultivars to create a varietal mosaic for defense against airborne pathogens, and seed production. For this, a strategy was devised involving research institutes, SAUs, seed growers and innovative farmers. The varietal cafeteria of a dozen wheat varieties was demonstrated in western UP for comparison with the existing varieties. The farmers were provided seed of newly released variety DBW 71 so as to get their opinion, multiplication of seed at village level and its popularisation as a high yielding, disease resistant with better quality cultivar in districts of western UP. The yields of DBW 71 at farmer's field ranged from 3.6-7.1 t/ha depending upon the sowing time and production technologies adopted. The feedback was very encouraging and this approach can be replicated in other parts of the country.

Key words: Wheat, outreach activity, varietal cafeteria.

In India wheat is grown in about 31 mha area with an average productivity of 3.2t/ha, out of which around one-third (11.0m ha) lies in the state of Uttar Pradesh alone. The productivity of the state is close to the national average as the major constraints are cultivation of old low yielding and disease susceptible varieties, late sowings and adoption of poor wheat production technologies. Besides, the poor quality of seed, untimely availability and low adoption of newly released varieties, poor mechanisation and lack of technological know-how among the farmers also adversely affects the wheat cultivation in the state. Based on the All India Coordinated Wheat & Barley Improvement Project (AICW&BIP) classification of wheat growing zones in the country, the UP state falls under three agro-climatic zones namely, North Western Plains Zone (NWPZ) covering western UP; North Eastern Plains Zone (NEPZ) covering central and eastern parts and Central Zone (CZ) covering Bundelkhand region. The research output in the form of released varieties, has a major role for increasing the area as well as productivity in the target regions. The technological awareness is comparatively low in the state as a whole and needs attention by the extension agencies, policy makers and other stakeholders. Enhancing the wheat production level is a challenge in the major wheat producing areas of western UP as substantial number of farmers are still growing older varieties. The major crop sequences followed in this area are sugarcane-wheat, vegetable-wheat, potato-wheat, rice-wheat, rice-mentha-wheat, wheat- summer legume- rice, etc. Most of the farmers were growing wheat varieties namely PBW 343, UP 262, PBW 154, PBW 175, PBW 226, HD 2285, RAJ 3765, PBW 502, etc. and some progressive farmers were having DBW 17, PBW 550, HD 2967 but on very limited scale. The realised yield ranges from 2.5 to 5.0 t/ha depending upon sowing time, variety and management practices. The area under wheat is largely planted late (about 60-70%) but many farmers have planted wheat under timely sown condition. Wheat sowings, in general, are delayed under sugarcane-wheat and potato-wheat cropping sequences. For sowing of wheat the farmers mostly use their own saved seed for many years and the main sources of seed supply are cooperative societies, block offices and to a very limited extent the research institutes and universities which has resulted in low adoption, and poor seed replacement by the improved wheat varieties recommended for the region. For efficient and faster seed replacement, popularization of new wheat cultivars among the farmers is must. The scientists of the Crop Improvement division of the Directorate of Wheat Research (DWR), Karnal in collaboration with SVP

University of Agriculture & Technology (SVPUA&T), Modipuram, Meerut, Modipuram, private seed growers and progressive farmers initiated dedicated efforts for popularization of latest wheat varieties.

A three pronged strategy was evolved for popularization programme for new wheat varieties by associating government institutions, seed growers and progressive farmers. A demonstration programme of 12 latest wheat varieties for timely sown irrigated (DBW17, PBW550, HD2967, DPW621-50, WH 1105 & HD 3086) and late sown irrigated conditions (DBW 16, PBW 590, WH 1021, DBW 71, DBW 90 & WH 1124) was formulated for conduction at SVPUA&T, Modipuram alongwith its well spread network of Regional Research Stations (RRS) and 13 Krishi Vigyan Kendras (KVKs) covering the districts of Meerut, Baghpat, Shamli, Ghaziabad, Gautam Budh Nagar, Saharanpur, Muzaffarnagar, Rampur, Bijnore, Moradabad, Badaun, Pilibhit, Bulandshahr and Shahajahanpur. In this regard, cooperation was also received from the Director Research & Director Extension under the leadership of Hon'ble Vice Chancellor, SVBP University of Agriculture & Technology, Modipuram, Meerut. The plot size was 50m^2 area for each variety in the crop cafeteria with a view to demonstrate the new varieties to the farmers and providing them an opportunity to identify the promising ones according to their choices.

DWR Karnal is also playing key role in development of wheat cultivars and a new variety DBW 71 was released and notified by the Central Varietal Release Committee in 2013 for irrigated late sown conditions of the NWPZ. As most of the area in western UP adopts sugarcane-wheat crop rotation. DBW 71 has an average yield of 43.2q/ha with yield potential of 68.9q/ha and disease resistance. The seed of DBW 71 (10 kg each) was also supplied to all these 13 KVKs & 3 RRS for multiplication and demonstration to the nearby farmers and distribution to them for next crop season i.e., 2014-15. Besides, 100kg seed was also provided to Seed Production Centre of the SVBP University of Agriculture & Technology, Modipuram, Meerut for multiplication and distribution in next crop season.

The second approach was to take up seed production of the wheat variety DBW 71 at seed grower's plots in more than one hectare area for multiplication and distribution among the growers as well as farmers. For this purpose, three seed growers were identified who were provided with large quantity of seed (100kg or more). In addition, three seed growers based at Hapur, Bulandshahr and Simbhaoli were also provided with limited quantity of wheat variety DBW 71 to take up seed multiplication and distribution programme in their respective areas. The third component of the approach was to provide a small quantity (10 kg) of seed of DBW 71 to 25 progressive farmers in selected districts for village level demonstrations and promotions in network form. In identification of progressive farmers, cooperation was also received from the Deputy Cane Commissioner, Meerut, Govt. of UP.

Visits for monitoring of outreach activity and survey of wheat crop : As a follow up action of the outreach activity DWR team(s) visited and monitored varietal cafeteria, seed production plots at all the KVKs and Regional Research Stations of the SVBPUA&T, Modipuram during March 26 to April 19, 2014 in six different visits. During the monitoring visits, the team also surveyed the wheat crop, collected disease samples and held discussions with farmers at several places during each trip. The monitoring of varietal cafeteria for both timely and late sown genotypes at most of the places was very useful for assessing the varietal features, adaptability, resistance, preferred traits and ultimately the yield potential. At few places, the team also had discussions with the farmers that brought the views and choice of farmers about different new varieties grown on demonstration plots and allowed them to compare them with their own varieties. The KVKs of the area had good facilities, technical competence and keen desire to take up such novel approaches in their area for the benefit of farmers. It was also observed that the location of KVKs allowed expression of genotypic variation due to climatic variations, soil features, crop rotation which could be used in identification of location specific farmer preferred genotypes in order to create a varietal mosaic at farmers' level.

Wheat crop situation at farmers' field : In general, the wheat crop was very good and the areas surveyed seemed to be very productive. During monitoring of varietal cafeteria and demonstration plots of DBW 71, observations on diseases incidence were taken and samples were collected. Farmers were generally unaware about the diseases affecting wheat crop and their control measures. The disease incidence at farmer's field ranged from 20S-60S probably due to cultivation of old varieties as they were unaware of latest cultivars. The cultivation of old and disease susceptible genotypes (PBW 154, PBW 175, PBW 226, PBW 343, PBW 502, PBW 373, HD 2329 etc.), varietal mixtures and problems of weeds in this area was also observed which required immediate attention so as to improve productivity and checking the incidence of diseases. Interaction with farmers with a view to popularise new wheat genotypes and provide knowledge about production technologies were also held. The farmers indicated that they were very much impressed by the performance of the new variety DBW71 as compared to other popular varieties in the zone primarily due to its plant type, disease resistance, early maturity and grain appearance. The response of neighbouring farmers was also encouraging which needs strengthening for faster dissemination of technology in coming years.

Feedback from progressive farmers: The on-farm performance of this variety indicated the harvest of ranging from 4.8 to

7.1t/ha in December and January sown crop. Even under very late sowing (26.1.2014) the farmer could harvest 3.6t/ha. All the farmers expressed their satisfaction about the performance of DBW 71. Most of the farmers ensured that they will use all the harvested seed either for themselves or will distribute to neighbouring farmers. Some of the farmers also expressed their satisfaction about its grain size, texture and overall appearance. In some cases, the lower ranges of yield realised were attributed to comparatively poor management practices by the farmers.

It may be concluded that such outreach approaches have potential for identifying preferred variety, faster spread and popularization of new cultivars like DBW 71. The propagation of new varieties could be done with greater success rate through combined efforts of researchers, development and extension agencies and progressive farmers. This will also improve the availability of sufficient quantity of quality seed, and the replacement of old varieties ensuring higher productivity of wheat in the target areas. As a future strategy, the large scale implementation of such farmer-friendly interventions from research institutions, state agricultural universities, department of agriculture and their extension network may lead to faster spread of latest wheat varieties among farmers. Such collaborative efforts will also provide an opportunity for all the stake holders to get first hand information about the performance of new varieties and production of some quantity of seed at each location to meet local seed demand.

The success story based on efforts made for popularization, demonstration and seed production programmes in districts of western Uttar Pradesh can be replicated in other parts of the country so that interested seed growers, farmers and NGOs may visit the nearby place for on-the-spot experience about the varieties and also for obtaining the small quantity of seed for their need. The DWR has further plan to facilitate farmer to farmer interaction, distribution of seed and provide technical know-how about varieties and other technologies for enhancing productivity and production of wheat.

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Suggested readings

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