

Compare the Yield of Wheat Varieties Provided under NAIP (National Agricultural Innovation Project) through IARI (Indian Agricultural Research Institute) in Dhar district of Madhya Pradesh, India

Ms. Abhilasha Tiwari & and *Dr. Sandhya Choudhary** Ms. Pooja Manjhi*
Dr. V.K. Swarnakar ***

*M.Sc. Extension Education Final Year Student 2014

** Associate Professor Extension Education, College of Agriculture, Indore

*** Professor & Head Extension Education, College of Agriculture, Indore

Abstract: *In nutshell, it is recognized that the economy of farmers in the district is largely agriculture based where contributing of farming communities has been recognized to be very important. The need of wheat recognized very steady progress in the district Dhar which can be achieved through adoption of improved wheat production technology including the variety of seed. The technological assets include a number of high yielding crop varieties, package of improved agro techniques and management of input use as well as resource management technologies which are still paying much towards enhancing productivity of wheat crop. . 80 respondents were selected randomly from the comprehensive list of beneficiaries under NAIP for wheat production selected by IARI during 2011-12 and 80 non-beneficiaries were selected from the same villages by using proportional method. The data revealed that improved wheat technology given additional yield of 11.70, 13.97 and 14.00 quintal per hectare as yield parameter of the area. As per the frequency higher than average value, the wheat growers confronted that “lack of sufficient resources and capital” was main constraint (ranked Ist) followed by “lack of technical guidance through scientist about improved technology” (ranked IInd), “lack of irrigation water” (ranked IIIrd), “not getting remunerative price” (ranked IVth) and “lack of electricity” (ranked Vth) respectively.*

Keywords: *Yield of wheat varieties, NAIP, IARI, Constraints in adoption*

I. Introduction

India is the second largest wheat growing country of the world after the people's republic of China. There has been a phenomenal increase in wheat production in India after independence, which has gone up from 5.6 million metric tonnes in 1947-48 to 93.89 million metric tonnes in 2011-12. The major progress in wheat production, however, has been achieved after 1966 – 67 when the total wheat production in the country stood at 11.4 million metric tonnes. This spurt in wheat production after 1966-67 may be attributed to the introduction of the short started Mexican wheat developed by Norman E. Borlaug and appropriate technology of wheat culture consequently, the average yield of wheat per hectare which was only 887 kg in 1966-67 rose to 1271 kg in 2004-05 and more than 4000 kg per hectare has been achieved in irrigated areas. Since, then there has been continuous increase in area, production and productivity in the country. Now the country not only become self sufficient in wheat production but also joined the club of wheat exporting country. Currently India produce a historic 93.9 million tonnes of wheat production during 2011-12 owing to the coordinated research efforts, favorable government policy and weather conditions.

The yielding ability and other characteristics of a variety are governed by its genotypes, provided the environment is not limiting. Weather a farmer produce a good crop or a bad one with the help of all the inputs at his command largely depends on the variety he has chosen for cultivation. Pure seed of a superior variety would mean a good crop harvest, while contaminated seed may lead to crop failure. The seed of wheat new variety should reach the farmers in a pure and healthy state. To ensure this, the scientist of Regional Station of Indian Agricultural Research Institute, Indore has been assign to take up the responsibilities. In a programme of National Agricultural Innovation Project (NAIP) led by ICAR through the Indian Agricultural Research Institute, Indore is the component workers of this project. As there were no studies have been made therefore this study was carried out with following objective

Objective-

To compare the yield of recommended wheat varieties between beneficiaries and non-beneficiaries.

II. Significance of Study

This study will suggest the ways and means of how to overcome the above problem of food scarcity in changing climatic conditions and to feed ever-increasing human population of Dhar district of M.P by providing latest improved wheat varieties, which are recommended under NAIP and developed by IARI Regional Station, Indore, such as HI 1500 (Amrita), HI 1531 (Harshita), HI 1544 (Purna) and HI 8627 (Malavkirti). The major role of NAIP is to promote production of wheat as the major crop of India and improve livelihood security of rural people living in disadvantaged regions.

III. Review of Literature

Sharma (1977) in his study on adoption of high yielding varieties of wheat by the small farmers found a positive impact on yield enhancement.

Marothia (1986) reported on the second phase of the constraint analysis project which was sponsored by Madhya Pradesh Council of Science and Technology. It assesses the constraints to high wheat and gram yields in three villages (Barbanda, Nowardi and Tor) of Dharsiwa Block where these two crops are grown under a tank irrigation system. The results show a positive association between adoption rates of improved inputs and profitability of the new wheat and gram technology.

Sanoria et al. (1988) reported that among cereal crops, wheat demonstration gave additional yield and proved comparatively better to provide additional return ratio of 1:3. But the rainfed wheat fetched lowest benefits which were in the ratio of (1:2.7). Thus, additional income motivated families for adoption of improved technology.

Behera et al. (1999) in their study on bridging yield gap of wheat through frontline demonstration observed that 29 per cent higher grain yield was obtained with the same variety LOK-I under improved management practices compared to farmer's conventional practices. This shows the positive impact of improved technology on yield.

Pyasi et al. (2007) observed that more than 50 per cent beneficiaries were reported that enhance of income after the program. It is also reported that the productivity of major crop, which were low before the program now increased after the program.

Alshi et al. (1988) conducted a study on the constraints in adoption of improved technology for commercial crops in Vidharbha area of Maharashtra for the period of 1987-88. They observed that non availability of farm yard manure in the village, lack of funds to purchase the manures, risk due to uncertainty of rain, wrong belief among the farmers about fertilizer and inadequate amount of loan to purchase fertilizer and pesticides, failure to understand the importance of preventive measures and non availability of plant protection equipment were the major constraints in the use of pesticides. Similar finding revealed by Waghmare and Pandit (1982), Singh et al. (1998), Singh and Rajput (2000) and Raghuvanshi (2012).

IV. Method and Material-

Method and procedures, which was followed for present study, are given under the following heads: Dhar district comprises of 13 blocks out of which 4 blocks were selected purposively because they are adopted under NAIP. From these selected blocks Manawar, Badnawar, Sardarpur and Nalchha, 11 villages were selected on the purposive basis by the IARI under NAIP. 80 respondents were selected randomly from the comprehensive list of beneficiaries under NAIP for wheat production selected by IARI during 2011-12 and 80 non-beneficiaries were selected from the same villages by using proportional method.

V. Result & Discussion

Impact of wheat varieties on yield:

The strategy of improved wheat production technology has spectacular economic gains to its credit. With the introduction of high yielding variety of wheat with application of adequate yield attributing inputs like fertilizer, plant protection measure and irrigation and adoption of improved agronomical practices, the production of wheat reached record mark. While, some of the wheat growers are not applying of improved wheat production technology and get the average yield of wheat was very low. That is why that introduction of improved wheat technology, the traditional cultivators is attracted towards adoption of improved technology on their farm. For higher adoption of improved wheat production technology some of the agencies are making their efforts and among them NAIP is one of them. The present objective of the study will show the impact of improved wheat technology on yield enhancement which are presented in given table.

Table:1 Impact of wheat varieties on yield. (q./ha.)

Yield parameters	Beneficiaries	Non Beneficiaries	Additional over non beneficiaries	
			Absolute change	Relative change
Low yield level	40.50	28.80	11.70	40.63
Medium yield level	52.10	38.13	13.97	36.64
High yield level	62.50	48.50	14.00	28.87
Average yield level	52.52	37.75	14.77	39.13

The impact of improved wheat production technology including wheat variety can be judged that data revealed on an overall wheat yield on “beneficiaries” farm was found to 52.52 quintal per hectare, while, on an overall wheat yield on “non beneficiaries” farm was found to 37.75 quintal per hectare. The data also revealed that 39.13 per cent higher yield on “beneficiaries” farms over “non beneficiaries” farms was due to adoption of improved wheat production technology. The above figures revealed that improved wheat production technology including wheat variety has given good result in yield of wheat production.

The impact of wheat production technology also can be judged by enhancement of lower, medium and higher limit of yield which was higher on beneficiaries farm over to non beneficiaries. The data revealed that improved wheat technology given additional yield of 11.70, 13.97 and 14.00 quintal per hectare as yield parameter of the area. The data revealed that improved wheat production technology including wheat variety has given good result in yield of wheat production. This finding is in conformity with the findings as reported by Sharma (1977), Marothia (1986), Sanoria et al. (1988), Behera et al. (1999) and Pyasi et al. (2007)

By the overall study we come to the conclusion that the latest wheat variety HI 1544(Purna) will prove to be the best as high yielding variety if it gets favorable conditions like proper fertilizers dose and 4-5 irrigation. If the farmer has proper irrigation sources, then this can be the most suitable variety providing more yield as compared to the other three recommended varieties HI 1500, HI1531 and HI 8627. From these four recommended varieties HI 8627 is the only Durum wheat variety, whereas the other three are Aestivum or bread wheat. HI 1500 is the only wheat variety grown in rainfed condition. HI 1531 and HI 8627 are the varieties grown in restricted irrigation condition. Farmer can obtain high yield by growing these recommended varieties as per their sources and conditions.

VI. Constraints in adoption of recommended wheat varieties

The data regarding extent of adoption of improved wheat production technology among the “non beneficiaries” wheat growers found to be not satisfactory. It is concluded that in study, most of the “non beneficiaries” were found to overall medium adoption level regarding improved wheat production technology followed by low and high. Due to adoption of medium and low level of wheat production technology the yield of wheat found to marginal and low (37.75 q/ha) which is 39.13 per cent less than beneficiaries. The higher yield at progressive wheat farms showed there existed potential yield which can be achieved with the use of recommended wheat production technology. The wheat growers did not adopted full recommended wheat production technology due to certain reasons. The wheat growers confronted many constraints regarding low and medium adoption of improved wheat production technology these are presented in Table -2

Table: 2 Constraints faced by wheat growers in adoption of improved wheat production technology.

S.No.	Constraints	Frequency (N=80)	Percentage	Rank
1	Unavailability of improved variety seed	40	50.00	VI th
2	Unavailability of fertilizer at time	36	45.00	VII th
3	Lack of irrigation water	56	70.00*	III rd
4	Lack of electricity	42	52.50*	V th
5	Unavailability of labour at time	32	40.00	VIII th
6	Unavailability of medicine at time for control of disease and pest	30	37.50	IX th
7	Lack of technical guidance through scientist about improved technology	58	72.50*	II nd
8	Lack of sufficient resources and capital	60	75.00*	I st
9	Lack of credit	25	31.25	X th
10	Lack of transportation facilities	20	25.00	XI th
11	Not getting remunerative price	45	56.25*	IV th
	Average	40	50.45	

* Higher than average value

The constraints analysis was reported based on the opinion survey of the sample non beneficiaries wheat growers. Thus, the generalizations of result are the feedback through farmers engaged in wheat

production in study area. In constraint study the wheat growers are divided into 2 groups i.e. frequency was higher than average value and the frequency was lower than average value.

As per the frequency higher than average value, the wheat growers confronted that “lack of sufficient resources and capital” was main constraint (ranked Ist) followed by “lack of technical guidance through scientist about improved technology” (ranked IInd), “lack of irrigation water” (ranked IIIrd), “not getting remunerative price” (ranked IVth) and “lack of electricity” (ranked Vth) respectively This finding is in conformity with the findings as reported by Waghmare and Pandit (1982), Alshi et.al. (1988), Singh et al. (1998), Singh and Rajput (2000) and Raghuwanshi (2012).

Reference

- [1]. Alshi,M.R.; Bhole,B.D. and Bidwai,P.N. (1988). Constraints of improved technology for commercial crops: A case study of crops in Vidharbha. Indian.J.Agril.Econ. 43(3):525-26.
- [2]. Behera,C. and Sahoo,M,S. (1975). Impact of national demonstration on adoption of agricultural practices. Indian J. Ext. Edu. 11:32-35.
- [3]. Marothia,D.K. (1986). Farm level constraints to high yields of wheat and gram in Dharsiwa Block of Raipur District, Madhya Pradesh (mimeo). ISAE. Raipur, Madhya Pradesh, India; Jawaharlal Nehru Krishi Vishwa Vidyalaya. pp:41.
- [4]. Pyasi,V.K.; Saxena,K.K.; Agrwal,S.K. and Mawara,Y.S. (2007). Impact of watershed development programme on dynamics of farmers life style. 4th National Ext.Edu. 21(1):36-40.
- [5]. Raghuwanshi, Rajeev (2012). Impact of Farmer Field School (F.F.S.) on knowledge and adoption level of Wheat crop in Sanwer block of Indore district Madhya Pradesh. M.Sc.(Agri) Thesis Submitted to the Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior
- [6]. Singh,R.L and Rajput,A.M. (2000). Constraints in adoption of wheat production technology. Maharashtra J. Extn. Edun. 19(1):37-39.
- [7]. Singh, Sahdev; Tripathi,R.S and Singh,V.B. (1998). Technological gap in adoption of recommended wheat production practices in Jaunsar - Bharwar Tribal Farming system of Uttar Pradesh. Ann. Agri. Res. 19(1):39-43.
- [8]. Sanoria,Y.C.; Sathawane,R.A. and Agrawal,S.K. (1988). Impact of farm technology on small farmers under Lab to Land programme. Maha.J.Extn.Edu. 7:127-132.
- [9]. Sharma,S.N (1977). A study of factors affecting adoption of high yielding varieties of wheat by small farmers in Jabalpur district M.P. MSc. (Ag.) thesis (unpublished). College of Agriculture, Jabalpur. pp:60.