

**RESEARCH ARTICLE :**

Constraints encountered by the NAIP beneficiaries in adoption of recommended wheat interventions

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SUMMARY : National Agricultural Innovation Project (NAIP) focuses on four components which aimed at ICAR as the catalyzing agent for the management of change in the Indian National Agricultural Research System; Research on Sustainable Rural Livelihood Security; and Basic and Strategic Research in Frontier Areas of Agricultural Sciences, multiple technology options in holistic and integrated manner in order to increase their productivity and profitability. In Rajasthan, consortia NAIP were in operation in four tribal populated districts namely, Udaipur, Banswara, Dungarpur and Sirohi. Total size of sample was of 152 respondents, combining beneficiaries and non – beneficiaries. Conclusion can be drawn that “shattering with over maturity” and “susceptible to diseases” were the most severe constraints expressed by farmers which were assigned first and second rank with 86.12 and 85.01 MPS, respectively. “Lack of knowledge about use of *Azotobacter* /*Rhizobium* culture” and “lack of knowledge about right proportion of seed rate for mixed cropping” were the most severe constraints expressed by farmers of area which were assigned first and second rank with MPS 88.31 and 85.80, respectively with X, XI and XII ranks with 64.00, 61.40 and 60.72 MPS, respectively. “Lack of FYM/ vermin-compost and other organic sources”, “acidic /saline /alkaline soil”, “lack of knowledge about use of quantity of NPK fertilizers”, “lack of knowledge about combination of organic and inorganic source”, “expenditure on fertilizers are more risky” and “high cost” were expressed as the most severe constraints expressed by the respondents which were placed at 1, 2, 3, 4, 5 and 6 ranks with 82.33, 81.05, 80.10, 79.50, 77.62 and 75.00 MPS, respectively, in the rank hierarchy of technical constraints.

KEY WORDS :NAIP, HYVs,
Beneficiary, Non
beneficiary

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BACKGROUND AND OBJECTIVES

Shri Sharad Pawar, Union Agriculture Minister, on July 2006, launched a 6 year ambitious agricultural research programme, National Agricultural Innovation Project (NAIP), which focuses on innovations in agricultural technology. It would facilitate an accelerated and sustainable transformation of

the Indian agriculture so that it can support poverty alleviation and income generation.

The total budget of NAIP was of US \$ 250 million; the World Bank has funded US \$ 200 million as credit, mostly interest free and a part with negligible interest, and US \$ 50 million was borne by the Government of India. The recently concluded National Agricultural

Technology Project (NATP) led by the ICAR, aimed to implement the shared understanding of the Government of India and the World Bank on technology-led pro-poor growth, and it facilitated the public sector reform process for accelerating the flow of agricultural technologies. Under component 3 of NAIP, Maharana Pratap University of Agriculture and Technology, Udaipur had also been sanctioned a consortia project entitled "Livelihood and nutritional security of tribal dominated areas through integrated farming system and technology modules". Good efforts under the project are being made to replace local seeds of wheat with high yielding varieties, along with important interventions, such as integrated nutrient management (INM), integrated pest management (IPM) and integrated water management (IWM). So far no evaluation study in the operational area of the project has been conducted regarding the response of farmers about IPM interventions in wheat under NAIP. With this background, present study was conducted with the objective to determine the knowledge level of beneficiaries and non-beneficiaries with regards to IPM in wheat crop. The comparison between two sets of respondents depicts the impact of NAIP with special reference to IPM.

RESOURCES AND METHODS

The investigation was conducted in Talwara Panchayat Samiti of Banswara district of southern Rajasthan. With the specific objective to evaluate the NAIP with special reference to IPM interventions in wheat cultivation. It was performed based on comparison of beneficiaries with those of non-beneficiaries with regard to their knowledge of IPM in wheat cultivation. Out of total 52 Gram Panchayats under Talwara Panchayat Samiti, four Gram Panchayats *viz.*, Masotiya, Devlia, Sageta and Jhalo ka Gada (Nokla) were covered under NAIP. Therefore, as such, these four Gram Panchayats were included in the present investigation. Two sets of villages were selected for the present study. These were (a) Beneficiary villages and (b) Non-Beneficiary villages. Headquarters (villages) of Gram Panchayats were treated as selected villages for the study. Hence, Masotiya, Devlia, Sageta and Jhalo ka Gada (Nokla) were the villages where from required sample size of respondents (beneficiaries) was drawn. Since the knowledge of IPM practices in wheat crop had to be compared between beneficiaries and non-beneficiaries

of NAIP, a controlled sample of villages was also drawn. Therefore, four villages nearer to the beneficiary villages were selected; where from non-beneficiary farmers were interviewed. Seventy six beneficiaries and non-beneficiaries (19 from each village) were selected for the present study. Total size of sample was of 152 respondents, combining beneficiaries and non-beneficiaries. Relevant data were collected from the selected respondents with the help of constructed interview schedule. Face-to-face interview technique was employed for collecting the data from the respondents. Thereafter, data were analyzed and results were interpreted in the light of the objective of study.

OBSERVATIONS AND ANALYSIS

The results obtained from the present study as well as discussions have been summarized under following heads:

Constraints encountered by the NAIP beneficiaries in adoption of recommended wheat interventions :

Adoption of technology depends on various factors, which may either accelerate or retard its adoption it is important on the part of extension functionaries to identify such factors so as to make the dissemination of technologies in line with the farmers' perception and need. Considering the crucial importance of constraints which hinder the adoption of wheat interventions among the farmers in the study area, the researcher made an efforts to collect data in this regard. Various constraints with their respective intensities have been presented under the following tables.

Aspects wise constraints perceived by beneficiaries regarding HYVs practices of wheat:

The data incorporated in Table 1 reveals that "shattering with over maturity" and "susceptible to diseases" were the most severe constraints expressed by farmers which were assigned first and second rank with 86.12 and 85.01 MPS, respectively.

People and regular were the somewhat severe constraints expressed by beneficiaries farmers and assigned VII, VIII and IX ranks with 75.33, 70.05 and 69.10 MPS, respectively. Table also shows that "less wheat show production" was perceived to be less severe constraint among the farmers, as it was placed at the last rank with MPS 68.23. The most severe constraints

viz., shattering with over maturity in wheat susceptible of wheat diseases, unavailability of HYVs and improper education of farmers regarding profitability must be minimized so as to enable the Bs for adoption of HYVs of wheat in the study area.

Aspects wise constraint perceived by beneficiaries regarding of IPM practices of wheat :

The data incorporated in Table 2 reveal that “lack of knowledge about use of *Azotobacter* /*Rhizobium* culture” and “lack of knowledge about right proportion of seed rate for mixed cropping” were the most severe constraints expressed by farmers of areas which were assigned first and second rank with MPS 88.31 and 85.80, respectively with X, XI and XII ranks with 64.00, 61.40 and 60.72 MPS, respectively.

Table also shows that “non-availability of culture in proper time” was perceived to be less severe constraint

perceived by farmers, as it was placed at the last rank with its total MPS 59.10. The study recommended that educating the farmer about *Azotobacter*, right proportion of seed rate for mixed cropping, suitable implements of sowing, and availability of subsidized and cheap inputs, IPM are imparting overall technical knowledge are the most severe constraints which needs to be tracked under NAIP so that the Bs of the project may use constraints to adopt the IPM interventions.

Aspects wise constraint perceived by beneficiaries regarding of INM practices of wheat :

A perusal of data incorporated in Table 3 reveal that “lack of FYM/ vermicompost and other organic sources”, “acidic /saline /alkaline soil”, “lack of knowledge about use of quantity of NPK fertilizers”, “lack of knowledge about combination of organic and inorganic source”, “expenditure on fertilizers are more

Table 1: Aspects wise constraints perceived by beneficiaries regarding HYVs practices of wheat (n=76)

Sr. No	Aspect	MPS	Rank
1.	Timely unavailability of HYVs' seed at local level	82.24	III
2.	Lack of knowledge about production and productivity of HYVs.	70.05	VIII
3.	Costly (high rate) HYVs seed	75.33	VII
4.	Lack of knowledge about profit of HYVs	80.45	IV
5.	Higher requirement of manure and fertilizers	76.51	VI
6.	Less wheat show production	68.23	X
7.	Low market value	69.10	IX
8.	Poor quality of HYVs' seed	77.51	V
9.	Susceptible to diseases	85.01	II
10.	Shattering with over maturity	86.12	I

MPS=Mean per cent score, n=Size of sample for beneficiaries

Table 2 : Aspects wise constraints perceived by beneficiaries regarding of IPM practices of wheat (n=76)

Sr. No.	Aspect	MPS	Rank
1.	Costly	80.30	IV
2.	Lack of suitable implements of sowing	81.61	III
3.	Lack of technical knowledge	78.41	V
4.	Lack of confidence in soil treatment method	65.23	IX
5.	High cost of insecticides /fungicides	75.10	VI
6.	Improved seed are more susceptible to insect - pests and diseases.	60.72	XII
7.	Timely unavailability of chemicals	61.40	XI
8.	Unawareness of utility of seed treatment	72.31	VII
9.	Lack of information about seed treatment	70.72	VIII
10.	Lack of knowledge about right proportion of seed rate for mixed cropping	85.80	II
11.	Lack of knowledge about use of <i>Azotobacter</i> / <i>Rhizobium</i> culture	88.31	I
12.	Lack of storage facilities to store culture	64.00	X
13.	Non-availability of culture in proper time	59.10	XIII

MPS=Mean per cent score, n=Size of sample for beneficiaries

Table 3 : Aspects wise constraints perceived by beneficiaries regarding of IWM practices of wheat (n=76)

Sr. No.	Aspect	MPS	Rank
1.	High cost	75.00	VI
2.	Lack of knowledge about use of quantity of NPK fertilizers	80.10	III
3.	Expenditures on fertilizers are more risky	77.62	V
4.	Lack of micronutrients in soil	71.40	VIII
5.	Acidic /Saline /Alkaline soil	81.05	II
6.	No effect on crop production	65.85	IX
7.	Un-availability of fertilizers at appropriate proper time	61.06	X
8.	Lack of knowledge about combination of organic and inorganic sources	79.50	IV
9.	Lack of FYM/ vermicompost and other organic sources	82.33	I
10.	Adoption of intensive cropping system	72.25	VII
11.	Lack of knowledge about <i>in situ</i> and <i>ex situ</i> green manuring	55.45	XI

MPS=Mean per cent score, n=Size of sample for beneficiaries

Table 4 : Aspects wise constraints perceived by beneficiaries regarding of IWM practices of wheat (n=76)

Sr. No.	Aspect	MPS	Rank
1.	Lack of irrigation	79.50	III
2.	Timely unavailability of irrigation water	65.73	X
3.	Critical stages of irrigation are not known	69.66	VIII
4.	Timely unavailability of electricity	75.05	V
5.	Costly infrastructure	80.11	II
6.	Lack of knowledge	77.51	IV
7.	Poor quality equipment	72.33	VII
8.	Lack of irrigation schedule	66.01	IX
9.	Shifting from one season to next season is problematic	81.10	I
10.	Severe damage through rodents	55.50	XII
11.	More logging in saline and alkaline water	58.33	XI
12.	Crop lodging	74.77	VI

MPS=Mean per cent score, n=Size of sample for beneficiaries

risky” and “high cost” were expressed as the most severe constraints expressed by the respondents which were placed at 1, 2, 3, 4, 5 and 6 ranks with 82.33, 81.05, 80.10, 79.50, 77.62 and 75.00 MPS, respectively, in the rank hierarchy of technical constraints.

“Non-availability of fertilizers at appropriate proper time”, and “lack of knowledge about *in-situ* and *ex-situ* green manuring” were less severe constraints perceived by the respondents and ranked 10, and 11 with 61.06 and 55.45 MPS, respectively by them.

It is strongly recommended that availability of FYM/ vermi-compost and other organic sources are to be made availability first to the beneficiaries of NAIP followed by reclamation of acidic /saline /alkaline soil. Farmers should be educated regarding use of NPK fertilizers, combined use of organic and inorganic sources of fertilizers.

Aspects wise constraint of the beneficiaries regarding of IWM practices of wheat :

A perusal of data incorporated in Table 4 recommended that the following most severe constraints in the adoption of IWM interventions by the beneficiaries under a NAIP must be looked in to severely and remembered imaging to excite in NAIP project unsurely I, shifting from one season to next season is problematic, II costly infrastructure, III lack of irrigation, IV lack of knowledge, V timely unavailability of electricity, VI crop lodging.

“More logging in saline and alkaline water”, and “severe damage through rodents” were less severe constraints perceived by the respondents and ranked 11, and 12 with 58.33 and 55.50 MPS, respectively by them. Similar work related to the present investigation was also conducted by Brar (2001); Choudhary and Sharma (2008) and Sharma and Sharma (2001).

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