INTRODUCTION

The Indian Council of Agricultural Research started Farmer FIRST Programme (FFP) and a project on “Integrated Resource Management in agriculture and allied fields for Stakeholders” was taken up by JAU is an ICAR initiative to move beyond the production and productivity, to privilege the smallholder agriculture and complex, diverse and risk prone realities of majority of the farmers through enhancing farmers-scientists interface. This project also involves organizing extension programmes for disseminating the new agricultural technologies to the farmer’s.

Wheat is the second most important food crop after rice in terms of both area and production. India contributes 12 per cent to the World wheat pool. In India, during 2016-17 area under wheat cultivation was 30.23 million ha with the annual production of 98.38 million tonnes with an average productivity of 3.25 metric tonnes/ha. In Gujarat, it occupied an area of 0.85 million ha with production of 2.48 million tonnes with an average productivity of 0.29 metric tonnes /ha (Anon., 2017).

Wheat is an important food crop of Amreli district of Gujarat state. Amreli district has been considered as productively potential region of wheat crop due to assured irrigation facilities and favourable soil and climate conditions. However, there is still a wide extension gap between the productions on research station and farmers’ fields. This may be due to partial adoption of recommended package of practices by the wheat growers. Extension gap is a major problem in increasing wheat production in Amreli district of Gujarat State. So far, no systematic effort was made to study the extension gap existing in various components of wheat cultivation. Therefore, it was through worthwhile to demonstrate wheat technological interventions on farmers’ fields.

OBJECTIVE

To know an effective adoption approach of improved wheat varieties and minimise the extension gap among farmers.

METHODOLOGY

Field experiments were conducted on 100 farmers’ fields at Hadala, Mav Jinjava, Nava Vaghaniya and Deri Pipaliya villages of Bagasara taluka of Amreli district during 2017-18 and 2018-19 as crop based module of wheat under the Farmer FIRST Programme (FFP). The region falls under North Saurashtra Agro-climatic Zone–VI. It is an agriculture oriented taluka having medium black calcareous soils with 600-700 mm rainfall. The crop based module of FFP was determined based on problems and need of farming community. The farmers were selected on the basis of bench mark survey and campaigning meetings carried out in the villages. The technological intervention consisting of

ABSTRACT

Field experiments were conducted on 100 farmers’ fields at four villages of Bagasara taluka of Amreli district during 2017-18 and 2018-19 under the Farmer FIRST Programme. The technological intervention consisting of improved wheat varieties with application of fungicide at milking stage was compared with farmers’ practices i.e. old varieties without application of fungicide. The results revealed that the yield of improved varieties was significantly higher (9.01 and 9.41 per cent) over the farmer’s practice varieties during 2017-18 and 2018-19, respectively. The black point decreased over farmer’s practice was 27.81 and 32.07 per cent in year of 2017-18 and 2018-19 which was significantly decreased in improved varieties. The technology intervention registered additional net return of Rs. 4699 and 2291/ha with B: C of 4.92 and 1.46 during 2017-18 and 2018-19, respectively. Farmers’ feedbacks were positive towards the technological interventions and about 200 farmers have adopted this technology.

Keywords: extension gap, wheat varieties, adoption
improved wheat varieties with application of fungicide at milking stage was compared with farmers’ practice i.e. old varieties without application of fungicide. The technology was demonstrated in 0.5 acre in 2017-18 and 2018-19 per farm family. The critical inputs viz., seed of improved variety of wheat 20 kg/ 0.5 acre, pendimethaline 500 ml/ 0.5 acre and carbandazim 50 gm/ 0.5 acre in 2017-18, while in 2018-19, improved variety seed of wheat 20 kg/0.5 acre, enriched compost 500 kg/0.5 acre and propiconazole 50 ml/0.5 acre were supplied to the selected farmers. Enriched compost was applied in furrow before sowing of wheat and fungicide was applied at milking stage of crop. The farmers were trained enough through group and personal discussions and more information was given through literature, meetings, personal contact and on-campus trainings and exposure visits. The grain samples were collected after harvest of the crop for count of black point incidence. The crop condition was monitored regularly and yield data were recorded as per maturity of the crops. The field days were organized to spread the technology among the other farmers. Farmers’ feedback were collected after the completion of the demonstrations.

The data output were collected from both FLD plots as well as control plot and finally the yield gap with the benefit-cost ratio were calculated as per following. (Samui et al., 2000)

\[ \text{Yield Gap} = \text{Yield of demonstration plots} - \text{Yield of farmers practices} \]

Table : Yield and economics of Wheat crop

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Year 2017-18</th>
<th>Year 2018-19</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Farmer’s practice (Old varieties)</td>
<td>Experiment (improved varieties + Weedicde + Fungicides spray)</td>
</tr>
<tr>
<td>Average grain yield (kg/ha)</td>
<td>3852</td>
<td>4199**</td>
</tr>
<tr>
<td>Average yield increase (kg/ha)</td>
<td>347</td>
<td>396</td>
</tr>
<tr>
<td>(%) yield increase</td>
<td>9.01</td>
<td>9.41</td>
</tr>
<tr>
<td>Gross return (₹/ha)</td>
<td>65476</td>
<td>71375**</td>
</tr>
<tr>
<td>Additional return (₹/ha)</td>
<td>5899</td>
<td>7291</td>
</tr>
<tr>
<td>Additional cost (₹/ha)</td>
<td>1200</td>
<td>5000</td>
</tr>
<tr>
<td>Additional net return (₹/ha)</td>
<td>4699</td>
<td>2291</td>
</tr>
<tr>
<td>B:C</td>
<td>4.92</td>
<td>1.46</td>
</tr>
<tr>
<td>Average (%)incidence of black point</td>
<td>0.37</td>
<td>0.27**</td>
</tr>
<tr>
<td>(%) black point decreased over FP</td>
<td>27.81</td>
<td>32.07</td>
</tr>
</tbody>
</table>

** indicates z-test significant at 1% level of significance

** Prevailing local market price was taken for calculation for year of 2017-18
For Wheat ₹ 17.0/kg
Pendimethaline ₹ 170/500 ml
Carbandazim ₹ 60/100 gm

** Prevailing local market price was taken for calculation for year of 2018-19
For Wheat ₹ 18.4/kg as per MSP 2018-19
Enrich Compost ₹ 190/50 kg
Propiconazole ₹ 100/100 ml

The data presented in Table indicated that improved varieties of wheat with application of fungicide at milking stage recorded significantly higher average grain yield 4199 kg/ha (9.01%) and 4608 kg/ha (9.41%) over the farmer’s practice during 2017-18 and 2018-19, respectively. The technology intervention registered total income ₹ 5899 and ₹ 7291 per ha with cost of ₹ 1200 and Rs. 5000 per ha over the farmer’s practice, which resulted in additional net return of ₹ 4699 and ₹ 2291/ha with B:C of 4.92 and 1.46 during 2017-18 and 2018-19, respectively. Moreover, application of weedicde during 2017-18 which found useful to manage different weeds germination and indirectly...
supported to the crop yield. During 2018-19 application of enriched compost might have improved physical, chemical and biological properties of soil and thus provided congenial soil environment which regulate good uptake of nutrients and moisture needed for growth and development of the crop.

The yield gap was ranging between 347 to 396 kg/ha. The results are in conformity with those reported by Joshi et al. (2014) and Kalpana Kumari et al. (2017).

CONCLUSION

- Field experiments were conducted on 100 farmers’ fields at Hadala, Mav Jinjava, Nava Vaghaniya and Deri Pipaliya villages of Bagasara taluka of Amreli district during 2017-18 and 2018-19 under the Farmer FIRST Programme.

- Improved wheat varieties with application of fungicide at milking stage was compared with farmers’ practice i.e. old varieties without application of fungicide.

- There was significantly increase (9.01 and 9.41 per cent) in grain yield of improved varieties with minimum black point incidence during 2017-18 and 2018-19, respectively.

- The technology intervention registered additional net return of ₹4699 and ₹2291/ha with B:C of 4.92 and 1.46 during 2017-18 and 2018-19, respectively.

From the two-year field demonstrations on 100 farmers’ fields under FFP, it to be concluded that higher grain production with good quality of seeds can be obtained by adopting improved wheat varieties with application of fungicide at milking stage under North Saurashtra Agro-climatic Zone of Gujarat.

REFERENCES


