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Technological interventions for improving livelihood security

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ABSTRACT

Kupwara district lies in the extreme Northern of Jammu and Kashmir valley and is situated at an average altitude of 5300 feet from the mean sea level. The geographical area of the district is 2379 km^2 which comprises of367 villages and 11 community blocks. The district is divided into three agro- ecological situations, based on soil and topography i.e., high altitude 2000m: mid altitude 1800-2000m and low altitude1500-1800m above mean sea level (amsl). Krishi Vigyan Kendra Kupwara formulated technical action plan based on the priories of the farmers.The study entillted:Technological interventions for improving livelihood security was conductedin KVK Kupwara the two villages of block langatewere selected for its activities like Front Line Demonstration; ON–Farm Testing and trainings. .In this back drop SKUAST-K released varieties with high yield potential were introduced and performed better in terms of quantity as well as quality. Paddy variety Shalimar rice-1 resulted in 36% increase in the yield over the local varieties. Maize particularly composites tried in hilly areas also recorded double yield than the land races. Seeing the performance of variety KS-101, the cultivation of the crop in the district had increased besides improving the cropping intensity.

Keywords : Field Crops, Front line demonstration. Varietal introduction, oilseed

Endowed with unique advantage of environmental resources and wide range of agro-ecological setting, agriculture in Jammu and Kashmir state is faced with a great diversity of needs, opportunities and prospects. Being a core sector of economy, about 33.4 per cent of net state domestic product is contributed by agriculture. Nearly two-third of our work force is employed in agriculture and about 80 per cent of the population of the state is directly or indirectly dependent on this sector (Masoodi 2003). The key challenge confronting agriculture is to produce more for a growing population and yet to do so in a sustainable manner. The problem of food security and management of our natural resources are, therefore, of concern to the state. Further in the changed scenario agricultural development in future would also be guided by profitability, competitiveness and efficiency in our agricultural production as well as exports. Thus agriculture in the state is at crossroads. It has to resolve issues relating to priorities. For techonological intervention theactivity like Front Line Demonstrationplays a vital role for adoption of latest scientic interventions because the Front Line Demonstration is the concept evolved by Indian Council of Agricultural Research with the inception of Technology Mission on oilseed during mid eighties. Under this mission the technologies were demonstrated first time by the scientists themselves before being fed to the main extension system of State Agricultural Department. Demonstration of improved technologies in combination with the existing farmers practices were conducted so as to assess their impact for its viability and large scale adoption. Furthermore, different methods like diagnostic visits, awareness camps, Kissan mela , ghoshties and publication of extension literature were used to demonstrate the technology among the progressive farmers of adopted villages. On-campus,

off-campus trainings, scientist–farmer interactions and field days were also organised. The team of scientists from KVK visited the villages on and off to take the stock of the situation and receive feedback from the involved farmers.

Mathodology

The study was conducted in KVK Kupwara .Two villages namely Unsoo and Ujir of block Langate were selected for its activities like Front Line Demonstration; ON–Farm Testing and trainings.In this study different technological interventions were studies like;Varietal introduction- Shalimar Rice – 1,use of three seedlings per hill, application of potash as basal dose and improved nursery management in paddy cultivation for increasing of yielde etc. The progressive farmers were examined through various approaches like personnel visits, questionnaire and interview method and the overall information relating to farming was collected.The identification of thrust areas in the adopted villages are shown in (Table 1)

Table 1. Identified thrust area in the adopted villages

Name of the block	Major crops and enterprises	Identified thrust areas
Langate	Paddy	Introduction of SKUAST-K released varieties. IPM, INM Nursery Management. Introduction of cold tolerant and blast resistant varieties .
	Oilseed	Double cropping Timely sowing of oilseeds at proper moisture level. Drainage management at the time of maturity.
	Maize	Introduction of high yielding varieties IPM, INM. Irrigation at critical stages

Results and Discussion

In view of limited scope for horizontal expansion, increasing productivity level of cereals can only help in producing the desired quantity of food grains and improving the socio-economic conditions of farmers. Among the principal crops,rice is an important principal crop grown in almost all districts of J&K barring Leh and Kargil where climatic conditions are notsuitable for paddy cultivation. The current production of paddyin Jammu and Kashmir is about 538 thousand tons during2010-2011 and occupies about 38 percent of the total grosscropped area the crop is responsive to human efforts and other inputs, thereby paving the way for higher productivity. Kashmir valley has been known for large number of high quality indigenous rice cultivars for their better cooking quality with a few possessing aroma (Parrey *et al* 2008). KVK has laid demonstrations in paddy over an area of 10.0 ha during the kharif, 2009 and the crop stand was excellent the introduction of SKUAST-K released varieties resulted in great strides vis-a-vis crop production and productivity. As shown in Table-2, the yield of paddy was recorded to the tune of 68q ha^{-1} demonstrating an increase of 36% in the yield as compared to local variety.

In paddy cultivation, the important interventions for increase of yield observed were:

- ❒ Varietal introduction- Shalimar Rice – 1
- ❒ Use of three seedlings per hill
- ❒ Application of potash as basal dose.
- ❒ Improved nursery management

Maize is the major crop of the district in terms of acreage and about 85% of cropped area is rainfed and depends on natural precipitation. It is grown mostly on hilly areas where the soil moisture is too low to stand the crop. The composites released by SKUAST-K have been introduced by KVK which have shown better performance as these varieties on an average yield at par with hybrids and it is not necessary to replace the seed every year (Anonymous, 2011). The composites viz,composite-6, composite-8, composite-15 were recommended for areas up to 1850m amsl. The increase in yield of composite-15 was 50q/ha which shows an increase of 100% over the existing land races (Table 2). The field days conducted resulted in a positive impact on the adopted farmers

which in turn helped in dissemination of composites in the adjoining areas of the district.

Brown Sarson is the most important and the only rabi oilseeds crop cultivated in this district. However, various factors exist that hamper its large scale adoption. The non availability of seed at the sowing time has also limited the area under brown Sarson. It was found that the framers were reluctant to cultivate the oilseed due to low levels of scientific orientation and low risk bearing ability. These finds are in agreement with Jaiswal *et al.* (1987) and Nagraj and Katteppa (2002). The crop is sensitive to water logging and the soils remain usually inundated during the growing season. Many varieties were tried from time to time on pilot basis and the varieties that found promise were the SKUAST –K released KS-101(Gulchin) and Shalimar Brown Sarson -1. The variety KS-101 resulted in 8.5q/ha with oil recovery of 40%. The farmers were advised to prepare their land by ploughing two to three times followed by clod breaking. Moisture deficient fields were irrigated and consequently prepared for sowing. Moreover, Sulphur application to the field has resulted in an increase in oil recovery.

An on –farm testing on paddy blast was undertaken to assess the tolerance/resistance of SKUAST-K released variety SR-1. The farmers were provided with the seed and the necessary inputs and the trainings were imparted. Also the training programme was organised for field level workers of Department of Agriculture in which they are sensitized about the current problems of the crop. Package of practices for the management of disease has been communicated to the officers of Development Department for immediate diffusion of the message at grass root level. Special emphasis has been laid on management of paddy blast starting from seed treatment. Since no incidence of disease was observed in the SR-1 as the variety was found to be tolerant to paddy blast (Table -3). Farmers who have used their own seed and not followed seed treatment and spraying of fungicide at seedling stage faced the problem of diseases (paddy blast, sheath blight). Farmers of the vicinity have been informed through group and mass contact

Table 3. On-Farm testing on "Management of paddy blast"

Crop/ enter-prise	Problem Dia-gnosed	Data on the parameter (Disease control)	Results of assess-ment	Feedback from the farmer
Paddy (SR-1)	Paddy blast	T1: Seed treatment mencozeb @ 3 g/ kg: 100% T2: T1+Foliar app. Hexaconozole @ 0.03% at seedling stage: 100% T3: T2 + Foliar app with tricyclozole @ 0.06% at tillering stage: 100%	Since the variety is tolerant, disease was not observed	Seed treatment controls the disease

Conclusion

Under technologicalintervention, the results showed that yield of paddy was recorded to the tune of

Table 2. Performance of Front Line Demonstration

S.No.	Crop	Technology Demonstrated	Variety	No. of Farmers	Area (ha.)	Demo. Yield Qtl/ha			Yield of local Check Qtl./ha	Increase in yield (%)
						H	L	A		
1	Paddy	Variety, Timely and proper fertilizer, Disease Mgt., water mgt., nursery raising	Shalimar Rice 1	64	10.0	86	62	68	50	36.0
2	Brown Sarson	Variety, Presowing irrigation, Sulphur application, timely sowing, proper fertilizers	KS-101	34	10.0	9.55	6.0	8.5	6.5	30.76
3	Maize	Varirty, Line sowing, mixed cropping	Composite	66	12.0	45	35	40	20	100.0

68q ha-1 demonstrating an increase of 36% in the yield as compared to local variety. The composites viz, composite-6, composite-8, composite-15 were recommended for areas up to 1850m amsl. The increase in yield of composite-15 was 50q/ha which shows an increase of 100% over the existing land races . The field days conducted resulted in a positive impact on the adopted farmers which in turn helped in dissemination of composites in the adjoining areas of the district. The variety KS-101 resulted in 8.5q/ha with oil recovery of 40%. The farmers were advised to prepare their land by ploughing two to three times followed by clod breaking. Special emphasis has been laid on management of paddy blast starting from seed treatment. Since no incidence of disease was observed in the SR-1 as the variety was found to be tolerant to paddy blast

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