

## **EFFECTIVENESS OF DEMONSTRATION PLOTS AS EXTENSION METHOD ADOPTED BY AKRSP FOR AGRICULTURAL TECHNOLOGY DISSEMINATION IN DISTRICT CHITRAL**

AYESHA KHAN\*, UROOBA PERVAIZ\*, NOOR MAULA KHAN\*,  
SOHAIL AHMAD\*\* and SHAHEEN NIGAR\*\*\*

\* *Department of Extension Education & Communication, NWFP Agricultural University, Peshawar, Pakistan*

\*\* *Faculty of Animal Husbandry and Veterinary Sciences, NWFP Agricultural University, Peshawar, Pakistan*

\*\*\* *Institute of Development Studies, NWFP Agricultural University, Peshawar, Pakistan*

### **ABSTRACT**

*This research paper attempts to determine effectiveness of different demonstration plots adopted by Aga Khan Rural Support Programme (AKRSP) for agricultural technology transfer in district Chitral. The research was carried out in district Chitral during 2005 in three Field Management Units (FMUs) of the programme with focus on the farmers' awareness, rate of adoption, and opinion about usefulness of demonstration plots; and impact of the demonstration plots on productivity and income. AKRSP has used demonstration plots of different crops for extension purposes. The data reveal that demonstration plots were not only successful in creating awareness among farmers about modern technologies but also motivated them to apply these in their farming practices. Moreover, farmers participated in these activities to gain practical know-how about improved farming practices. These have resulted in increased productivity and income of the farmers. The rate of adoption of chemical fertilizers, farmyard manure and improved seeds increased more compared to that of insecticides and weedicides. However, the low rate of adoption of the inputs was due to non-availability, lack of farmers' awareness, and also AKRSP personnel's concern about environmental hazards. Varying number of the sampled farmers still lagged behind in adoption of the practices demonstrated. Overall the demonstration plots were successful because of their practical nature, which made the practices easy to understand.*

**Key Words:** *Demonstration Plots, Aga Khan Rural Support Programme, Agricultural Technology Dissemination*

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### **INTRODUCTION**

Agriculture is the main occupation of the people of Pakistan. About 60 percent of the population is directly or indirectly involved in agriculture and its related occupations for earning livelihood. Agriculture contributes a major share (22%) to gross domestic product and is a good source of export earnings i.e. 45%. (Economic Survey of Pakistan, 2005-2006). Agricultural activities can be observed throughout the country. Development of agriculture can be attributed to the efficient system of irrigation in addition to other inputs in optimum amounts. Our country has one of the largest man-made irrigation networks in the world. The Indus plain is famous for its fertility and agricultural production. Hence, the national planning strategy has rightly emphasized the importance of agricultural production for the economic development of the country. Improvement in agriculture is possible with the adoption of new and modern farming agro-techniques. Governmental as well as non-governmental organizations have realized this to boost up agricultural production (Hassan, 2000).

Extension methods like demonstration plots, seed multiplication programme and field days etc., are some of the major weapons for introducing the findings of modern research in agricultural practices to increase agricultural production in particular and uplift of the rural masses in general (Afzal 1995). Extension methods are effective means of communication to transmit knowledge and skills, and the interested may easily see, hear, and learn the things conveyed by extension worker. Moreover, extension methods stimulate adult youth, both male and female, for action.

Demonstration plots and seed multiplication are one of the best methods to improve yield. These methods are used as tools by the extension worker to effect desirable changes in the behavior of rural masses, arrange the best learning situations, and provide opportunities in which useful communication and interaction take place between extension workers and farmers.

There is a dire need to educate the farmers on the importance of improved farming practices, adaptation of proven and tested production technologies and better utilization of the land holding through well coordinated efforts of agricultural research and extension with allied developmental organizations. AKRSP has rightly realized this felt-need and for that purpose it has ensured mobilization of the farming communities in its areas of operation. To make sure, and realize 'seeing is believing', AKRSP Natural Resource Management Section laid demonstration plots of Wheat, Maize and Vegetables on the farmers land (Annual Report of AKRSP, 2003).

Agriculture is the major economic activity in the project area. About 90% of the region's population makes its living from subsistence farming. Until recent past, the local inhabitants were dependent mainly on local production of food and shelter needs. Even now, majority of population depends heavily on agriculture and other natural resources for their survival (Census Report Chitral, 1998).

During 1980s with the establishment of AKRSP and other non-governmental organizations (NGOs), rapid socio-economic changes have been effected. The socio economic conditions have been improved considerably. Farming practices have also been improved specially due to AKRSP, which has done a marvelous job regarding natural resource management and skill enhancement. AKRSP interventions have resulted in increased production and productivity through improvements in the cropping system, introduction of high yielding varieties and new breeds, and through up gradation of farmers know-how and do-how skills. In agricultural sector AKRSP effects have resulted in: development of fruit, vegetable and vegetable seed; increase in production of fodder and cereals and greater use of commercial inputs and technological advancement. AKRSP has undertaken major steps for agricultural technological enhancement and innovations by demonstrating and successfully implementing these in farming sector (Annual Reports of AKRSP 2000).

The present study aims to find out the effectiveness of demonstration plots of different crops laid out by AKRSP for dissemination of latest agricultural technology to grassroots level in Chitral,

### ***Objectives***

The objectives of the study are as under;

- i. To find out the effectiveness of different demonstration plots.
- ii. To examine the dissemination of improved agriculture technology.
- iii. To evaluate the progress made by the adoption of demonstration plots.
- iv. To suggest recommendations for further improvement.

### **MATERIALS AND METHODS**

AKRSP has used demonstration plots for different crops to transfer new agricultural technology in the three Field Management Units in district Chitral during 2005. A list of farmers involved in extension activities of AKRSP was obtained from FMUs Manager. The list was comprised of a total of 200 farmers in the three FMUs. From each FMU a total of 22 respondents were randomly selected. An interview schedule was prepared for collection of required data. It was pre-tested, irrelevant questions were deleted while relevant questions were modified and added. The interview schedule was written in English. For smooth communication and conversation the questions were asked in local Khowar dialect (Chitrali). The responses, however, were recorded in English. The respondents were interviewed personally by the researcher, mostly at their respective village organizations for the purpose of convenience. Selected plots were visited as well for on spot observations and assessment. The data collected were edited and transferred to tally sheets to facilitate its processing, tabulation and percentages. Simple statistical techniques like averages and percentages have been used for the discussion and interpretation of data.

## RESULTS AND DISCUSSION

The data have been analyzed and presented as under:

- i. Profile of Respondents
- ii. Extension methods by AKRSP
- iii. Effects of Demonstration Plots
- iv. Conclusions
- v. Recommendations

### *Respondents Profile*

Profile of respondents include age, education and source of income. Details are analyzed and displayed in frequency distribution Tables below:

#### *Age*

Age of the respondents plays an important role in learning and adopting new technologies. Data collected regarding age of the respondents have been depicted in Table I:

**Table I** *Age group of respondents*

Age Groups	No. of Respondents	Percentage
21 – 30	24	37
31 – 40	22	33
Above 41	20	30
Total	66	100

Source: Field Survey.

Data in Table I show that the respondents include almost equal number from the three age groups, though slightly more of younger age. Hence AKRSP has transferred/disseminated agricultural technology more to relatively younger farmers with prospective potentials.

#### *Education Level*

Level of education and efficiency of farmers are positively correlated. Higher the level of education greater will be the efficiency of the farmers. Education motivates and creates awareness amongst farmers to adopt new agricultural technologies. Ali (1972) concluded that education has been found to play a vital role in the adoption of improved agricultural practices. He further suggested that higher the education level more would be the adoption of improved practices. Data regarding the education of the respondents is given below in Table II.

**Table II** *Educational level of the respondents*

Educational Level	No. of Respondents	Percentage
a. Illiterate	11	17
b. Literate	55	83
i. Primary	14	21
ii. Middle	8	12
iii. Matric	14	21
iv. Above matric	19	29
Total	66	100

Source: Field Survey.

Table II shows that one-sixth of the respondents were illiterate while a majority (83%) were literate with varying numbers having attained different educational levels- half (50%) were matric (21%) and above matric (29%). The higher education of greater number of respondents augurs well for better understanding, application and utilization of extension education as well as for maximization of accruing benefits.

### Source of Income

Information on source of income was ascertained from the respondents to know about their income status. The details are given in Table III below:

**Table III** *Source of Income*

Sources	No. of Respondents	Percentage
Agriculture	37	56
Agriculture + Private Job.	18	27
Agriculture + Business	11	17
Total	66	100

Source: Field Survey.

The data depicted in Table III show that agriculture was the source of income of each and every respondent while 27% and 17% had respectively private job and business as additional source. It is, thus, evident that the respondents were mainly dependent on agriculture for their income and livelihood. The sampled farmers, thus, included a majority of younger age group (21-40), literate with primary to above matric education, and having agriculture as the main source of income and livelihood.

### Extension Methods Adopted By AKRSP

Extension methods are some of the tools, which are used to introduce and disseminate inter alia improved and latest technology in the farming communities. AKRSP has used different extension methods in order to familiarize the farming community with modern agricultural technology.

All the respondents were involved in AKRSP extension activities namely Trainings, Field Days, Demonstration Plots, Workshops and Individual Contacts.

This research article covers only the Demonstration Method adopted by AKRSP.

### Demonstration Plots

Demonstration Method is one of the most important group techniques used for extension purposes. The purpose of using demonstration method is to prove that new practice is superior to the one being used currently, to convince and motivate extension clientele to try a new practice, and to set up long-term teaching-learning situation. Table IV below shows crop-wise demonstration plots laid on farmers' fields by AKRSP.

**Table IV.** *Crop-wise demonstration plots*

Name of Crops	No. of Respondents	Percentage
Wheat	38	57
Maize	16	25
Vegetable	12	18
Total	66	100

Source: Field Survey

Table IV shows demonstration plots of three crops acquired by varying number of respondents. More than half (57%) of the respondents have acquired wheat demonstration plots followed by maize plots (25%) and vegetable plots (18%).

### Usefulness of Demonstration Plots

Demonstration, due to its practical nature, is a useful method to introduce a new technology and practice for a large group of interested people. It needs fewer resources. The respondents' views were ascertained about usefulness of demonstration plots of AKRSP in the project area. These are stated in the Table V.

**Table V. Demonstration plots usefulness**

Respondents Views	No. of Respondents	Percentage
Easy to understand	24	36
Learn practically	17	26
Personally involved in practice	25	38
Total	66	100

Source: Field Survey

Table V reveals that the respondents considered the demonstration plots useful as these practically involved the farmers who easily understood and learnt the practices demonstrated.

### **Adoption of Cultural Practices**

Adoption is a process in which a farmer passes through different stages in adopting a new or improved technology. These stages include awareness, interest, trial, evaluation and adoption. If the technology or input performs well the farmers will adopt the demonstrated practices. Table VI below depicts the number of farmers who applied the recommended inputs before and after their demonstration.

**Table VI. Adoption of improved practices before and after demonstration**

Cultural Practices	Before		After		Laggards
	Yes	Percentage	Yes	Percentage	
Fertilizers	34	52	63	96	3
FYM	50	75	64	98	2
Insecticide	4	6	20	30	46
Weedicide	0	0	3	4	63
Imp. Seed	8	12	45	68	21
Machinery	28	43	59	90	7

Source: Field Survey

Table VI shows that the users/adopters of each input/practice have increased, in varying numbers, after post-demonstration compared to pre-demonstration period. Only 3 farmers, though few, became early adopters in respect of weedicide. Improved seed, machinery and fertilizers lead the post demonstration numbers of new users/adopters respectively 68%, 90% and 96%. Effects of demonstration, bring positive, indicate prospect of increased income and better livelihood for most farmers. However, varying numbers of sample farmers were still lagging behind and needed assimilation among the progressives.

The number of users/adopters of weedicide and insecticide, compared to other inputs, is small because these inputs were either not available or the farmers did not know their appropriate use. Moreover the farmers of the study area used the weeds as a source of feed for Livestock. Resultantly the weeding was done manually and hence little, if any, application of weedicides and insecticides. Reasons for the other laggards need to be ascertained for the desired rectification.

### **Effect of Demonstration Plots on Yield**

Demonstration plots being more practical and easy to understand have to be more lucrative than other extension methods in its good effects on yields of the farms. The results of the demonstration plots of AKRSP in terms of crops yield are presented below in Table VII.

**Table VII Effect of demonstration plots on yield**

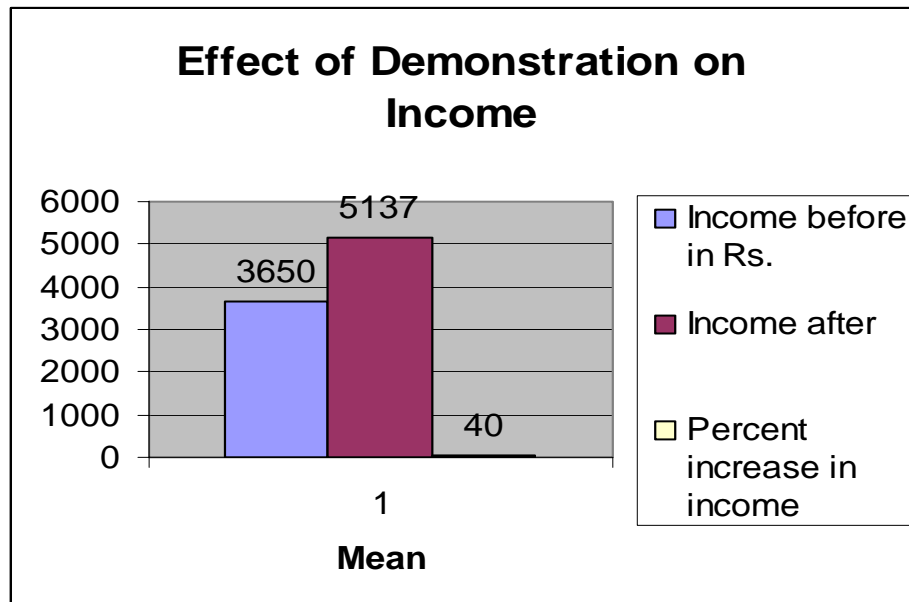
Crops	Before		After		% increase
	Number	Mean	Number	Mean	
Wheat	38	103	38	134	30
Maize	16	56	16	87	30
Vegetable	12	69	12	100	40

Source: Field Survey

It is evident from Table VII above that the post-demonstration yields are higher compared to pre-demonstration yields of the three crops of the respondent farmers. Again increase in productivity of vegetables is more significant (40%) than wheat and maize (30% each).

### **Demonstration Plots and Income**

The effect of demonstration on the income of the respondents has also been evaluated in the study. The diagrammatic representation of the income data is given below.



**Fig. 1. Effect of Demonstration on Income**

The above diagram shows that the average income of the respondents after adopting the improved methods of production, as demonstrated, has increased from Rs.3650 to Rs.5137, showing 40 percent increase on an average. The post-demonstration impacts include increased numbers of users/adopters of improved practices, yields and income of the sampled farmers indicating betterment of their livelihood.

### **CONCLUSION AND RECOMMENDATIONS**

Results of the study show that most farmers in the research area belonged to the relatively younger age and better educated group with agriculture as the main source of income and livelihood. Demonstration plots proved the extension well known proverb 'seeing is believing' in effectively transferring improved technology, know-how and do-how to the respondent farmers. Greater number of respondent farmers was using more and increased quantity of improved inputs leading to higher productivity and increased production of the three crops resulting in enhanced income indicative of better livelihood. Non-availability and farmers ignorance coupled with farmers' use of weeds as feed kept adoption of weedicides/insecticides very low. Varying numbers of sampled farmers still lagged behind in adopting the different inputs and practices.

This research work endorses the effectiveness of demonstration method, therefore its continuation is recommended for assimilation of the late adopters and laggards in the AKRSP project area as well as proliferation of improved practices and their benefits to larger number of farmers across the region. Research studies are needed on the improvement of results and impacts of demonstration plots method for development of agriculture and uplift of the farming community.

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