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Adoption Issues of Agriculture Technology in Rural Areas of Tehsil Faisalabad

HINA TARIQ[1]*, FOUZIA NAVEED[2] & BUKHATAWAR KHAN[3]

[1-2-3]Department of Sociology, Government College Women University, Sialkot-51310-Pakistan.

*Corresponding author`s email: hina.tariq@gcwus.edu.pk

Abstract

Agricultural development in Pakistan, yield enhancing and natural resources conserving technologies are mainly required only adoption of advance agriculture technology. The present study was explore to identify the adoption issues of agriculture technology in rural areas of Tehsil Faisalabad. The study was identifying the problems regarding adoption of agriculture technology in rural areas. Descriptive analysis was used for exploring the adoption issues of agriculture technology in rural areas of Tehsil Faisalabad. Multistage sampling technique was applied for data collection. First of all one tehsil (Tehsil Faisalabad) was selected, two union councils (UC-172 and UC-158) were selected randomly then six villages (Dial Gar, Talianwala & Talwandi from UC-172 and Chak # 64, Chak # 65 & Chak # 67/JB from UC-158) were selected randomly and at the last stage 180 respondents were selected randomly from the selected villages. Data were collected with the help of a well-designed interview schedule. Data were analyzed by using SPSS software. It was concluded that low education, marginal farmers, low income and large family size of the respondents were the main hurdles in the adoption of new agricultural technology and negatively affected on adoption of new agricultural technology. So, Govt. should take reasonable steps through Agricultural departments. Agri. Officers should arrange workshops in villages to provide awareness regarding using of innovative technologies for the development in agriculture sector. Government should provide awareness regarding adoption issues of agri. technologies through print and electronic media.

Keywords: Agricultural Extension, Agricultural Innovative Technologies, Agricultural Adoption Issues, Rural Development, Rural Sociology.

Introduction

New technologies in horticulture is the significance need of farmers, though specialized strength with that new innovation is received and utilized a great deal of reasonably is covered with the stream of learning, higher framework, accessibility of assets and quality inputs, and

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farmers' social control capacities. Exact verification demonstrates that research and development through its impact on efficiency has been an essential supply of development in rural generation in a few of grew moreover as creating nations (Evenson, 2014).

This coincidence should not obstruct the point that a technology is simply the application of scientific knowledge for a certain end. A project or a technique can still be considered a technology even if the science have many steps removed from the eventual implementer. For example, a project where extension workers encourage farmers to rotate legumes into their planting cycles is quite "low-tech," but the chemistry behind the process of nitrogen fixation is extensive and elaborate. There are many lessons and best practices that can be gleaned from existing studies if technology is looked at in broader terms. Gershon and Umali define technology as a factor that changes the production function and regarding which there exists some uncertainty, whether perceived or objective or both. The uncertainty diminishes over time through the acquisition of experience and information and the production function itself may change as adopters become more efficient in the application of the technology (Charles et al., 2014).

Technological changes leading to marked productivity increases has clearly occurred in parts of the developing world, primarily over the last half century. This was particularly apparent during the Green Revolution a term originally applied to the spread of short-straw, fertilizer-efficient new varieties of rice and wheat, primarily, though not exclusively, in Pakistan (Hamid, 2014).

The history of technological change in agriculture began at least l0,000 years ago, when the first cultivators selected wild plants and experimented with different growing environments. From those early beginnings, the technical performance of agriculture in the great civilizations remained roughly equivalent for centuries until the middle of the twenty century where principally in Pakistan. The introduction of new machinery and sources of power, the development of scientific plant breeding and the development of artificial fertilizers, resulted in rapid increases in agriculture's productivity (Grigg, 2014).

Pakistan's economy would be extra and extra incorporated into the planet economy and it may turn out to be more trouble for the agribusiness part to battle inside of the world business sector unless higher development in farming profitability is guaranteed on property premise. The

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determination of the degree of mindfulness, comprehension and reception of enhanced new agricultural technologies and along these lines the evaluation of rule and their degree for receiving the proposed agriculture technologies rehearses. Furthermore, in light of drawback of real asset openness, one quarter to a large portion of all farmers feel absence of certainty inside of the proposal for fresh out of the box new rural innovations. The shortage of data was significant problems in embracing enhanced sorts of yields and plant insurance (Zafar et al., 2013).

The relationship between caste and cultivation technologies are obstacles in using new agricultural technologies. It was noted that the sample mainly comprised backward classes with small and marginal land-holdings. Majority of them were illiterate in their social outlook. It was found that due to lack of modern technology, the production of vegetables was low, which adversely affected the socio-economic status of the people in the research areas (Ludena, 20l0).

The relationship between total factor productivity and agriculture research expenditures for the period of 1970-2004. Tornqvist-Theil index (TTI) approach was applied for the measurement of total factor productivity (TFP) using outputs and inputs for 24 fields. Variables included in the study were Total Factor Productivity (TFP), research expenditures, number of tube wells, improved seeds distributed, and the number of tractors. Results show that agricultural research expenses, number of tractors, and tube wells have positive and significant impact on TFP (Kiani et al., 2008).

Objectives

Thus the main objectives of this research study are;

1. To identify the problems regarding adoption of agriculture technology in rural areas.
2. To study the farmers' information sources and to assess their level of awareness and adoption of agriculture technology in rural areas.
3. To study the relationship exposure to communication channels and adoption period of agricultural technology.

MATERIALS AND METHODS

Sample Size

Sample can be defined as accurate envoy of the population, which has all the characteristics of preferred population. 180 respondents were selected from the study area randomly. 30 respondents from each village were selected randomly.

Study area

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District Faisalabad has been selected for this research study. One tehsil (Tehsil Faisalabad) was selected from six tehsils of Faisalabad, two union councils (UC-172 and UC-158) were selected randomly then six villages (Dial Gar, Talianwala & Talwandi from UC-172 and Chak # 64, Chak # 65 & Chak # 67/JB from UC-158) were selected randomly.

DATA COLLECTION

Construction of data collection tool

Social science deals with human nature, Feelings, emotions and minds of human being. To study all these factors it was compulsory that data collection tool was very accurate and reliable. Interview schedule was prepared with open and close ended questions to collect the data from respondents. It was structured to get all the required information from the respondents.

Interviewing the respondents

Interview was conducted from respondents to collect facts. The investigator himself interviewed each respondent to make sure unbiased response and then rechecked each questionnaire for accuracy and uniformity because it was very difficult to approach the same respondent at any subsequent stage.

Analyzing of data

Collected data was analyzed using the Statistical Package for Social Sciences. Descriptive statistics, including frequencies, percentages, means and standard deviations, were used to summarize different variables. Data was interpreted with the help of a computer software i.e. statistical package for social sciences.

Results and discussion

Table 1
Distribution of respondent according to education

Education of the Respondents	Frequency	Percent
Illiterate	63	35.0
Primary	30	16.6
Middle	38	21.1
Metric	27	15.0
F.A/FSc	13	7.4
B.A/BSc	7	3.8
Master's or above	2	1.1
Total	180	100.0

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Table 1 depicts that one third i.e. 35.0 percent of the respondents were Illiterate, 16.6percent of them had primary education, 21.1 percent were middle, 15.0 percent of respondent were metric, whereas only 7.4 percent were intermediate, 3.8 percent had graduation education and only 1.1 percent of master.

Table 2

Distribution of respondent according to agriculturist, tenancy status

Agriculturist, tenancy status	Frequency	Percent
Owner	160	88.9
Owner-cum-tenant	12	6.7
Tenant	8	4.4
Total	180	100.0

Table 2 depicts that a large majority i.e. 88.9 percent of the respondents were owner, 6.7 percent of them were owner-cum-tenant that Agriculturist, tenancy status, 4.4 percent were tenant, with this factor.

Table 3

Distribution of respondent according to monthly household income

Monthly Household Income	Frequency	Percent
>to 15000	23	12.8
16000-20000	54	30.0
21000-35000	65	36.1
36000-40000	26	14.4
41000 or above	12	6.7
Total	180	100.0

Table 3 depicts that one tired majority i.e. 36.1 percent of the respondents have 21000-35000 monthly household income, 30.0 percent of them were agreed that 16000-20000 income, 12.8 percent were >to 15000, whereas only 14.4 percent were 36000-40000 and 6.7 percent of them were 41000 or above.

Table 4

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Distribution of respondent according to farmer's awareness about crop production technologies in the cropping system

Crop production technologies in the cropping system	Not at all (1)		To some extent (2)		To a great extent (3)		Total	
	f.	%	f.	%	f.	%	f.	%
Varieties	0	0	0	0	180	100	180	100.0
Nursery Raising	180	100	0	0	0	0	180	100.0
Land preparation	0	0	0	0	180	100	180	100.0
Nursery transplanting	180	100	0	0	0	0	180	100.0
Fertilizer application	0	0	0	0	180	100	180	100.0
Irrigation	0	0	0	0	180	100	180	100.0
Weed control	0	0	0	0	180	100	180	100.0
Insect/disease control	0	0	0	0	180	100	180	100.0
Harvesting time	3	1.7	0	0	177	98.3	180	100.0

Table 4 depicts that a huge majority percent of the respondents were to a great extent, that Varieties, with this factor. A huge majority of the respondents not at all, that Nursery Raising, with this factor. A huge majority of the respondents were to a great extent, that Land preparation, with this factor. A huge majority of the respondents were not at all, that Nursery transplanting, with this factor. A huge majority of the respondents were to a great extent, that Fertilizer application, with this factor. A huge majority of the respondents were to a great extent, that Irrigation, with this factor. A huge majority of the respondents were to a great extent, that Weed control, with this factor. A huge majority of the respondents were to a great extent, that Insect/disease control, with this factor. 1.7 percent of the respondents were not at all, a huge majority 98.3 percent of them were agreed that Harvesting time, with this factor.

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Table 5
Farmer's sources of information for recommended production technology

Recommended production technology	Frequency	Percent
Extension/research	152	84.4
Fellow farmers	7	3.9
TV/Radio	21	11.7
Total	180	100.0

Table 5 depicts that a large majority i.e. 84.4 percent of the respondents were extension/research, 3.9 percent of them were that Farmer's sources of information for recommended production technology, 11.7 percent were TV/radio, with this factor.

Table 6

Distribution of respondent according to communication channels

Used of communica Channels	Regularly		Occasionally		Rarely		Never		Total	
	f.	%	f.	%	f.	%	f.	%	f.	%
Agricultural radio broadcasts	5	2.8	3	1.7	165	91.7	7	3.9	180	100.0
Agricultural TV broadcasts	3	1.7	157	67.2	20	11.1	0	0	180	100.0
Newspapers	0	0	0	0	65	36.1	115	63.9	180	100.0
Posters	3	1.7	5	2.8	55	30.6	117	65.0	180	100.0
Charts	6	3.3	0	0	9	5.0	165	91.7	180	100.0
Books/Booklets	3	1.7	0	0	2	1.1	173	97.2	180	100.0
Bulletins	0	0	0	0	18	10.0	162	90.0	180	100.0

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Table 6 depicts that i.e. 2.8 percent of the respondents were regularly, 1.7 percent of them were agreed that Agricultural radio broadcasts, and a large majority 91.7 percent were rarely, whereas only 3.9 percent were never with this factor. 1.7 percent of the respondents were regularly, a large majority 67.2 percent of them were agreed that Agricultural TV broadcasts, and 11.1 percent were rarely, with this factor. 36.1 percent of the respondents were rarely, a large majority 63.9 percent of them were agreed that Newspapers, with this factor. 1.7 percent of the respondents were regularly, 2.8 percent of them were agreed that Posters, and 30.6 percent were rarely, a large majority 65.0 percent were never with this factor. 3.3 percent of the respondents were regularly, 5.0 percent of them were rarely that Charts, and a large majority 91.7 percent were never, with this factor. 1.7 percent of the respondents were regularly, 1.1 percent of them were rarely that Books/Booklets, and a large majority 97.2 percent were never, with this factor. 10.0 percent of the respondents were regularly, a large majority 90.0 percent of them were agreed that Bulletins, with this factor.

Table 7
Distribution of respondent according to adoption issues of agriculture technology in rural areas

Adoption issues of agriculture technology in rural areas	Not at all (1)		To some extent (2)		To a great extent (3)		Total	
	F.	%	F.	%	F.	%	F.	%
Farm size	3	1.7	0	0	177	98.3	180	100.0
Human capital	0	0	0	0	180	100	180	100.0
Land preparation	0	0	0	0	180	100	180	100.0
Labor availability	0	0	16	8.9	164	91.1	180	100.0
Credit constraints	0	0	149	82.8	31	17.2	180	100.0
Access to commodity markets	16	8.9	15	8.3	149	82.8	180	100.0
Tenure	139	77.2	12	6.7	29	16.1	180	100.0

Table 7 depicts that i.e. 1.7 percent of the respondents were not at all, a large majority 98.3 percent of them were to a great extent that Farm size, with this factor. A huge majority of the respondents were to a great extent, that Human capital, with this factor. A huge majority of the

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respondents were to a great extent, that Land preparation, with this factor. 8.9 percent of the respondents were to some extent, a huge majority 91.1 percent of them were to a great extent that Labor availability, with this factor. A large majority i.e. 82.8 percent of the respondents were to some extent, 17.2 percent of them were to a great extent that Credit constraints, with this factor. 8.9 percent of the respondents were not at all, 8.3 percent of them were to some extent that access to commodity markets, and a large majority 82.8 percent were to a great extent, with this factor. 77.2 percent of the respondents were not at all, 6.7 percent of them were to some extent that tenure, and 16.1 percent were to a great extent, with this factor.

Table 8

Distribution of respondent according to educated former can proof to be the best former

Proof to be the best former	Frequency	Percent
Necessarily	62	34.4
To some extend	65	36.1
Not necessarily	53	29.4
Total	180	100.0

Table 8 depicts that a one tired i.e. 34.4 percent of the respondents were necessarily, 36.1 percent of them were to some extend that Do you thing educated former can proof to be the best former, and 29.4 percent were not necessarily with this factor.

Table 9

Distribution of respondent according to modern technology can boost your production

Boost your production	Frequency	Percent
To full extend	168	93.3
To some extend	12	6.6
Total	180	100.0

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Table 9 depicts that a large majority i.e. 93.3 percent of the respondents were to full extend, 6.6 percent of them were to some extend that do you think modern technology can boost your production, with this factor?

Table 10

Distribution of respondent according to attitude of extension field staff with the farmers about technology transfer

extension field staff with the farmers about technology transfer	Frequency	Percent
Favorable	180	100.0
Total	180	100.0

Table 10 depicts that a large majority i.e. 100.0 percent of the respondents were favorable, that attitude of extension field staff with the farmers about technology transfer, with this factor.

Table 11

Distribution of respondent according to extension field staff is working good diffusion of technology

Field staff is working good diffusion of technology	Frequency	Percent
Yes	164	91.1
No	16	8.9
Total	180	100.0

Table 11 depicts that a large majority i.e. 91.1 percent of the respondents were yes, 8.9 percent of them were no that Do you thing that extension field staff is working good diffusion of technology, with this factor.

Table 12

Distribution of respondent according to extension field staff is providing you the latest information technology and innovations

Latest information technology and innovations	Frequency	Percent
To some extent	132	73.3
To great extent	48	26.7
Total	180	100.0

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Table 12 depicts that a large majority i.e. 73.3 percent of the respondents were to some extent, 26.7 percent of them were to great extent that do you think that the extension field staff is providing you the latest information technology and innovations, with this factor.

Conclusions

It was concluded that low education of the respondents was the major hurdle in the adoption of new agricultural technology. Majority of the respondents were small landholders, which was one of the major obstacles towards the adoption of new technology. It was also founded that majority of the respondents were having low incomes, due to which they were unable to adopt new farm technology. Majority of the respondents were having large families with great expenditure, which negatively affected on adoption of new agricultural technology. A small proportion of the respondents got information about farming from extension workers, which indicated that its ineffective role in the research area. Most of the respondents always hired tractor and hence they were using it only for a few farm operations. So it is necessary that govt. should take reasonable steps through Agricultural departments. Agri. Officers should arrange workshops in villages to provide awareness regarding using of innovative technologies for the development in agriculture sector. Government should provide awareness regarding adoption issues of agri. technologies through print and electronic media.

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