Sustainable Agricultural Practices as Perceived by Farmers in Sindh Province of Pakistan

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Abstract: The study was conducted in Sindh Province of Pakistan. 180 respondents were selected from six district namely Badin, Mirpurkhas, Sanghar Khairpur, Larkana and Jacobabad. From each district 30 respondents were selected by using simple random sampling techniques. This study used a descriptive research design and the target population was farmers. A representative sample of 180 farmers was proposed from six districts of Sindh, namely, 1. Larkana 2. Naushehro Feroze 3. Shaheed Benazirabad 4. Sanghar 5. Mirpurkhas 6. Badin representing the agro-ecological zones of Sindh province producing Cotton, Wheat, Rice, Vegetables, Orchards and Sugar Cane crops. Multistage plan was used to collect the data. A survey questionnaire was designed to collect data for this study. A likert type scale ranging from (1) not familiar (2) to somewhat (3) for very much. This scale was used to asses the level of perceptions of the respondents. The respondents were interviewed personally by well structured and pre-tested direct interview schedule. Questionnaire items were coded and entered into the SPSS computer program. Suitable statistical techniques such as percentage analysis, mean and standard deviation were used to analyze and interpreted the data. The results revealed that out of total growers, majority (54.44%) had medium socio-economic status, whereas 28.89 percent and 16.67 percent had low and high socio-economic status respectively. Extent of knowledge of farmers: Majority of the respondents (52%) were observed in medium category of knowledge followed by high (26.67%) and low (20.56%) levels of knowledge, respectively. It was observed that the farmers were familiar to some what, familiar with sustainable agriculture practices selection of pure seed variety, maintenance and Integrated Soil Fertility, Integrated Weed Management and efficient Use of irrigation water. However the majority of farmers were not familiar with the use of genetically modified Crop, Fish farming, Mulch Technology, EM Technology and IPNMS. However, none of the farmers were found in high category of adoption levels. The respondents suggested adoption of sustainable agriculture practices should be promoted through extension services.

Keywords: Sustainable Agriculture, Farmers Perception, Technology.

INTRODUCTION

Agriculture is the main stay of Pakistan's economy in terms of providing food and employment and foreign exchange earning. The importance of agriculture is apparent from the fact that more than 70 percent of Pakistan's population lives in rural area and agriculture is their main source of livelihood. It contributes 22 percent to the gross domestic product (GDP), [1] provides 45 percent of labor force and engage more than 70 percent population directly or indirectly in agriculture.

The sustainability of agriculture, seldom considered a national concern a few decades ago, is now an important policy issue. For years now, visionaries, scholars and writers have articulated the rationale for a sustainable agriculture. They have inspired the public to realize that modern agriculture is not moving down a sustainable path, and outlined what might be done to guide it there.

Sustainable agriculture has many definitions: [2] defines sustainability in agriculture as "the ability of an agro-ecosystem to maintain productivity when subjected to a major disturbing force" over time. According to Wise [3], sufficient conditions to achieving sustainable agricultural development include correct economic valuations, appropriate legal and social framework, and environmental accounting or monitoring.

Environmentally sustainable agriculture movement is very strong in most of the developed countries but it is a new concept in Pakistan. The challenge is whether or not it is possible to maintain resources such as soil and simultaneously minimize environmental damages without decreasing gross output and net farm returns. If it is possible, then what extension strategies should be adopted and what extension education programs should be framed in order to achieve the objective of environmentally sustainable agriculture. Therefore, this study was designed to determine the perception of farmers regarding sustainable practices and the implications of their perception towards the dissemination of sustainable agriculture practices at Farm Level. The success of sustainable agriculture needs to improve the capacity of the farmers for the

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adoption of sustainable agriculture practices at farm level. The purpose of this study was to identify the perception of the farmers regarding sustainable agriculture practices in Sindh province of Pakistan. This study was therefore, planned to identify the level of the knowledge of the farming community regarding sustainable agricultural practices.

PURPOSE AND OBJECTIVES

The purpose of this study was to identify the farmers perceptions regarding Sustainable Agricultural Practices, The study aimed to address the following objectives.

1.   To know the demographic characteristics of the respondents such as age, education level and years of experiences.

2.   To determine the level of knowledge of the farmers regarding sustainable agriculture practices.

3.   To identify the farmers perception towards sustainable agriculture practices.

METHODOLOGY

Population and Sample

This study used a descriptive research design and the target population was farmers. A representative sample of 180 farmers was proposed from six districts of Sindh, namely, 1. Larkana 2. Naushehro Feroze 3. Shaheed Benazirabad 4. Sanghar 5. Mirpurkhas 6. Badin representing the agro-ecological zones of Sindh province producing Cotton, Wheat, Rice, Vegetables, Orchards and Sugar Cane crops. Multistage plan was used to collect the data.

Instrumentation

A survey questionnaire was designed to collect data for this study. A likert type scale ranging from (1) not familiar (2) to somewhat (3) for very much. This scale was used to asses the level of perceptions of the respondents. The content validity of the instrument was established by receiving the critical view, of Faculty members. Face validity of the survey. Instrument was established by incorporating the feedback received from the experts.

Data Collection

The respondents were interviewed personally by well structured and pre-tested direct interview

schedule. Questionnaire items were coded and entered into the SPSS computer program. Suitable statistical techniques such as percentage analysis, mean and standard deviation were used to analyze and interpreted the data.

RESULTS AND DISCUSSION

Socio-economic status of the farmers. The data in Table **1** revealed that out of total growers, majority (54.44%) had medium socio-economic status, whereas 28.89 percent and 16.67 percent had low and high socio-economic status respectively.

Table 1:   Distribution of Farmers According to their Socio-Economic Status (N-180)

Category	N	%
Low	52	28.89
Medium	98	54.44
High	30	16.67
Total	180	100

Extent of knowledge of farmers: Majority of the respondents (52%) were observed in medium category of knowledge followed by high (26.67%) and low (20.56%) levels of knowledge, respectively (Table **2**).

Table 2:   Distribution of Farmers According to their Knowledge Extent About Sustainable Practices

Category	N	%
Low	37	20.56
Medium	95	52.78
High	48	26.67
Total	180	100

Farmers were asked to rate their familiarity with a set of 19 sustainable agriculture practices. A 1 to 3 likert-type scale was used where I stands for not familiar, 2 stands for to some what and 3 stands for very much. Results are presented in Table **3** which indicate that majority of extension personnel were to some what familiar with sustainable agriculture practices including selection of pure seed of superior variety (M=1.9m, SD=0.055), Maintenance and integrated soil fertility (M=1.27, SD=0.044) and organic matter in crop production (M= 1.56, SD=0.054), while the practices that the majority of extension personnel were familiar with include conservation of moisture (M=1.19, SD=0.30), Crop Rotation for integrated soil fertility Management (M=1.27, SD=0.044), Integrated

Table 3:   Perception of the Respondents Regarding Sustainable Agriculture Practices

Sustainable agriculture practices	Number	Percentage	Sdev
Selection of pure Seed of Superior	180	1.97	0.055
Maintenance and Integrated Soil Futility	180	1.75	0.051
Conservation of moisture	180	1.19	0.030
Efficient use of Irrigation water	180	1.57	0.054
Integrated Weed Management	180	1.54	0.054
Crop Rotation for Integrated Soil Fertility Management	180	1.27	0.044
Integrated Insect Pest Management System (IPNMS)	173	1.04	0.015
Integrated Plant Nutrition Management system (IPNMS)	173	1.08	0.021
Organic matter in Crop Production	180	1.56	0.054
Waste Management Practices	180	1.12	0.024
Compost Farming	180	1.12	0.00
Mulch Technology	166	1.00	0.00
Effective Microorganism Technology	180	1.04	0.014
Use of Modern Machinery	174	1.24	0.039
Use of Genetically Modified Crop (Gm Crops)	174	1.00	0.000
Livestock Management	174	1.36	0.052
Mixed Cropping/Intercropping	174	1.27	0.34
Fish Farming	162	1.00	0.000
Any other please specify	7	1.00	0.00

Insect pests Management Practices (IPM) (M-1.04, SD-0.15), Integrated Plant Nutrition Management System (IPNMS) (M=1.08, SD=-0.021), Waste Management Practices (M-1.12, SD-0.024), Compost Farming (M=1.00, SD-00.000), mulch Technology (M=1.00, SD=0.000), Effective Microorganism Technology (M=1.04, SD=0.014), Use of Modern Machinery (M-=1.24, SD=0-.39), Use of Genetically Modified Crop (GM Crops) (M=1.00, SD=0.00), Livestock Management (M=1.36, SD=0.052), Mixed Cropping/Intercropping (M=1.24, SD-0.34) and Fish Farming (M=1.00, SD=0.000).

CONCLUSIONS

Based upon the findings of this study, the following conclusions were made:

It was observed that the farmers were familiar to somewhat, with sustainable agriculture practices selection of pure seed variety, maintenance and Integrated Soil Fertility, Integrated Weed Management and efficient Use of irrigation water. However the majority of farmers were not familiar with the use of genetically modified Crop, Fish farming, Mulch Technology, EM Technology and IPNMS. It was concluded that higher percentage of the farmers and higher knowledge in sustainable agriculture practices. However, none of the farmers were found in high category of adoption levels. The respondents suggested adoption of sustainable agriculture practices should be promoted through extension services.

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