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Research Article

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Study the extension field staff perceptions paradigm about Sustainable Agriculture practices (SAPs) in Balochistan, Pakistan

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Abstract

Present research was sought to record the extension field staff perceptions about sustainable agriculture practices in Balochistan. Research design used in this study was a descriptive survey. The target population for this study consisted of public EFS of the two purposively selected districts Namely, Quetta and Nasirabad. Sample sizes of 100 respondents were selected through the Krejcie and Morgan (1970) at the 0.05 percent error rate. Systematic sampling technique was used. T-test was applied by using SPSS. The results show that the highest number of the respondents fell in the age category of 31 to 40. Highest number of the respondents received a graduate degree that is 35%. Most respondents belonged to the rural areas that were 60%. The finding further shows that both the respondents did not agree that the sustainable agriculture practices were the imperative tool. The important aspect of the study was to explore the teaching learning process as perceived by the respondents. Highest numbers of the respondents were of the opinion that the problem solving approach is very effective in teaching. The significance was observed at 0.05 alpha level by using t-test. The extension field staff were inquired to rate their perceptions concerning sources of information. Seminar, home visits, and demonstrations were ranked 1st, 2nd, and 3rd respectively as perceived by the EFS in Quetta district. On the other hand, home visits, demonstrations and seminars were ranked 1st, 2nd, and 3rd rank respectively as these sources of information perceived as effective. Based on acquired findings the following recommendations were designed. Well-designed farmer's educational programs should be grounded in order to speed-up the sustainable agricultural practices and motives at farm level. Extension field staff should be trained for dissemination and diffusion of sustainable agriculture practices effectively so that they present the sustainable agriculture practices to farmer's front in effective mode.

Keywords: Balochistan, extension field staff, perceptions paradigm, sustainable agriculture practices.

1.1 Overview

Globally, agriculture technology, agriculture development, diffusion and adoption process (Ehiakpor et al., 2021; and Ma et al., 2022) has contributed the imperative aspects for sustainable food security (Czyżewski et al., 2022). Nevertheless, this improved food and fiber development having severe sundry environmental and social snags. Ironically, traditional agricultural practices are widely criticized based on its confrontational socio-economic and environmental degradation effects (Pimentel & Levitan, 1986; and Bultena, 1991).

Purely put, that the sustainable agricultural practices (Yang et al., 2022) based on the vivid philosophy dynamics including economically feasibility, environmental sustainable, culturally acceptable, and social appropriateness. Therefore, it was a dire need to use the sustainable agriculture practices for long-term viability sustainability for ecological realities (Marshall & Herring, 1991).

However, the future of agriculture is bleak and drab. Consequently, forthcoming agriculture practices required to curtail the present difficulties like shortage of irrigation at province level, pest infestation surveillance, soil erosion control, adoptability of latest agriculture technology and the like. In this regard it was worthwhile to mention that to utilize the latest technology/ practices may be developing the agricultural direction (Keeney, 1990; Duffy, 1999; Francis et al., 1998).

Farmers faced the various problems and they did not use and adopt the new sustainable agriculture practices (Ahmed, 2022). At a greater level, the overwhelming majority of the farmers did not use the viable agricultural technologies and their adaptability at a significant level (Agunga, 1995; and Duffy, 1994).Agricultural extension education has significant and imperative obligations for educating agricultural practices and scientific research for farmers regarding the sustainable agriculture practices at a greater extent (Hess, 1991; and Yang et al., 2022).

1.2 Study problem

Extension Field Staff (EFS) was faced with various problems at field level about dissemination of sustainable agriculture practices as indicated by the various research (Minarovic, 1995; Agunga, 1995; Paulson, 1995; and Sisk, 1995). In this regard little work has been carried out at province level. On the other hand, little attention has been paid for agriculture development by the public sector and the job of extension field staff regarding technology-learning processes related to sustainable agriculture practices (Yang et al., 2022) was very limited/ restricted at province level. Therefore, current research was designed so as to assess the extension field staff perceptions paradigm towards sustainable agriculture practices or EFS perceptions and their motivational tool dynamics measurement in selected districts of Balochistan province.

1.3 Implications and educational significance

This study aimed to assess the EFS perceptions regarding sustainable agriculture and identify the handicaps regarding the teaching-learning process related to sustainable agriculture practices at province level. This knowledge can be used to address EFS concerns, and agriculture problems associated with technology-transfer and learning sustainable agricultural practices. Outcomes of present research could be used for the development of sustainable agriculture direction.

1.4 Specific objectives

The specific objectives of the study were as follows:

I. To identify the demographic information of the EFS in study areas.
II. To determine EFS perceptions regarding the principles related to the extension

teaching-learning process focused on sustainable agricultural practices.

III. To assess the sources of agricultural information regarding sustainable agriculture practices.

IV. To develop the need-based recommendation for the future implications.

1.5 Limitations of the study

The findings of this study may have been limited by the following reasons: a) the sampling frame was made by using three sources, the EFS list provided by the state agricultural extension wing Rani Bagh Quetta Balochistan. In this regard, FES who may not have been listed in any of these sources were not in the sample. b) this is a perceptional-based study, however, in this regard the farmer's perception changes with time or by passage of time. Therefore, the findings of current research were reflecting only the situation at the time of data collection. c) current study population was limited to the agricultural department EFS at province level Therefore, the findings of the study were limited.

1.6 Methodology

The purpose of this study was to determine EFS perceptions regarding the use of sustainable agricultural practices by using the descriptive survey design. The target population for this study consisted of public EFS of the two purposively selected districts Namely, Quetta and Nasirabadbecause these districts were agriculturally important districts. This was the appropriate design for the study since the objectives of this study were descriptive (Trochim, 2000). A self-administered structured questionnaire was developed (Tuckman, 1978). Sample sizes of 100 respondents were selected through the Krejcie and Morgan (1970) at the 0.05 percent error rate by using the systematic sampling technique. Five point Likert scaling was used ((Likert, 1932; and Ary et al., 1996). Research Instrument was pre-tested for the validity and reliability (Ary et al., 1996; and Thomson, 1970). Therefore, in this study, extension field staff perception was measured by using different traits of perception about sustainable agriculture (Ary et al., 1996). Reliability of the survey instrument was verified by establishing the Cronbach's reliability coefficient from the pilot-test data (Nachmias & Nachmias, 1992). The reliability coefficients ranged from .767 to .793 indicating that the interval consistency of the instrument was better (Best & Kahn, 1986). Face to face interaction was carried out at field level so that to record the perceived perception of the EFS regarding the sustainable agriculture practices at field level. (Miller & Smith, 1983). Inferential statistics in this study such as means, standard deviations, and percentages of the variables of interest was used (Creswell, 1998). T-test was applied. Before t-test application total recommendations regarding sustainable agriculture practices was computed, questionnaire items were coded and entered into the Statistical Package for Social Science for further data analyses based on $p \leq 0.05$ (Barzun and Graff, 1990).

1.7 Results and findings

First, demographic data related to the study sample was presented in order to describe the characteristics of the respondents. Then the findings will be presented and described in the following order of the study objectives.

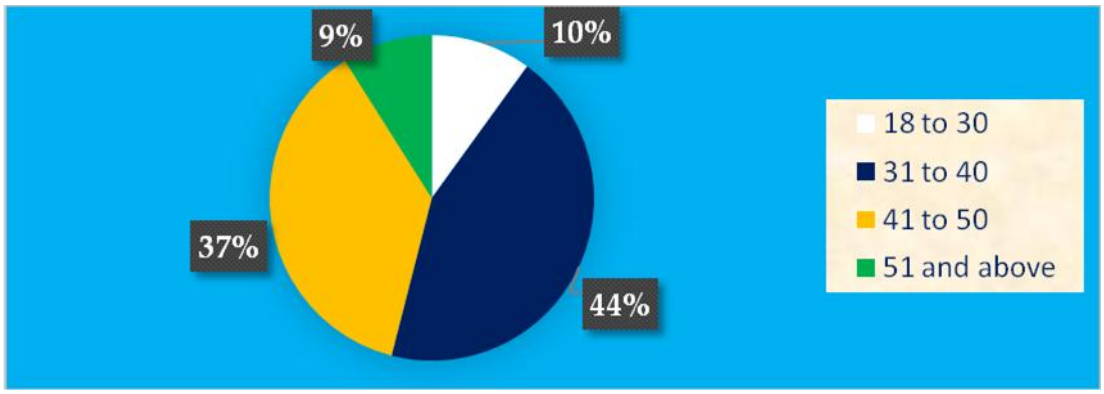
➢ *Objectives-1, to identify the demographic information of the EFS in study areas.*

1.7.1 Demographic Characteristics of respondents

Demographic characteristics of respondents were contained the following independent variables such as

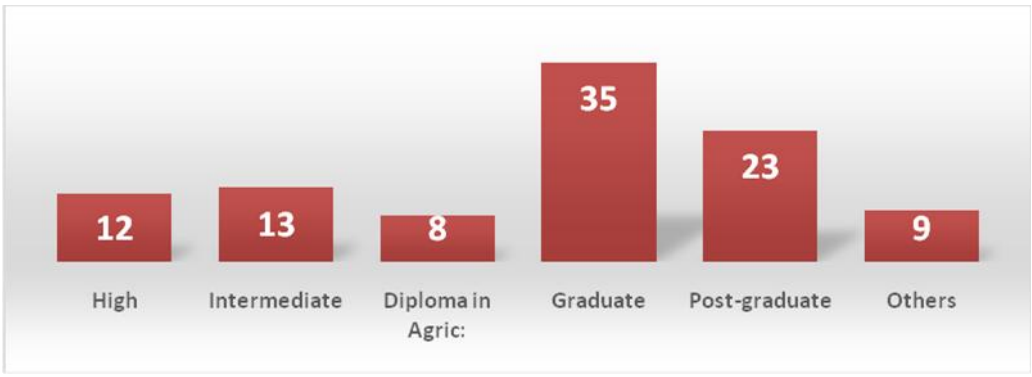
- ❑ Age;
- ❑ Educational level
- ❑ Background; and,
- ❑ Experiences

Fig-1: Distribution of sample regarding respondents age group



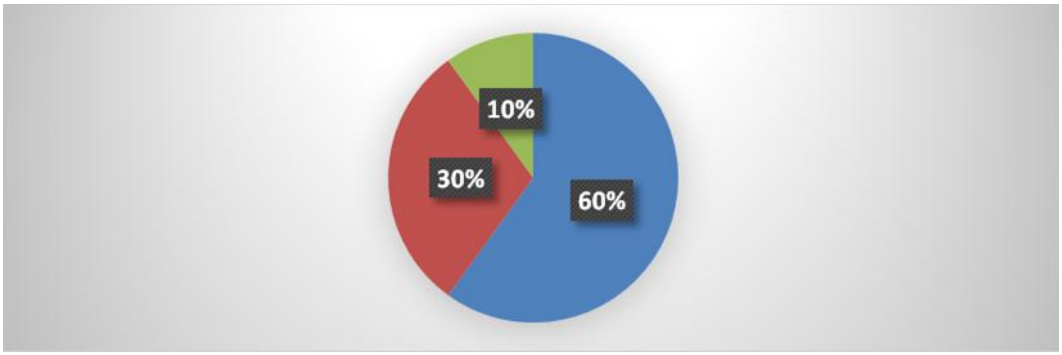
The results of **Fig: 1.,** shows that the highest number of the farmers fall in the age category of 31 to 40 followed by the age group of 41 to 50.

Fig-2: Distribution of sample regarding respondents educational level



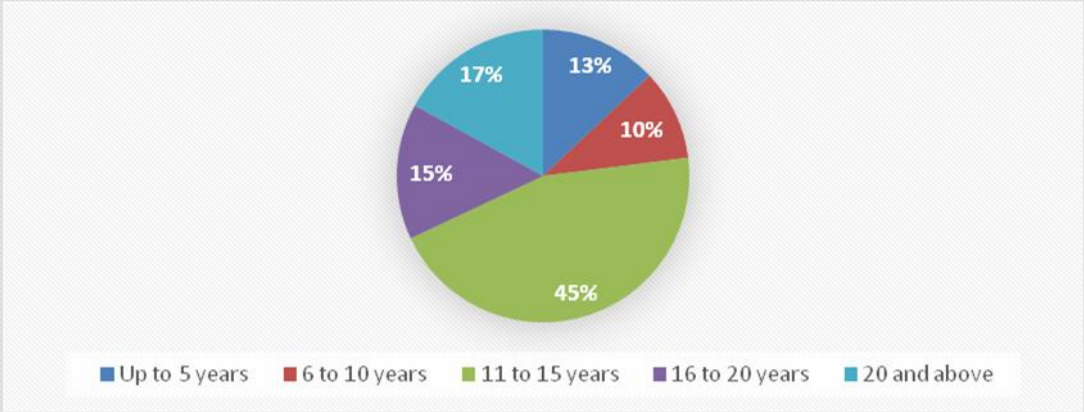
The results of **Fig: 2.,** shows that the highest number of the respondents received the graduate level of education that is 35%.

Fig-3: Distribution of sample regarding respondents background information



The results of **Fig: 3**., shows that the highest number of the respondents belonged to the rural areas that was 60% followed by 30% of the respondents who belonged to the urban areas and only 10 were living in pre-urban areas.

Fig-4: Distribution of sample regarding respondent experiences



The results of **Fig: 4.,** shows that the highest number of the respondents had 11 to 20 years of experiences (45%) followed by 15% of respondents having 16 to 20 years of experiences.

Objective-2, determine EFS perceptions regarding the principles related to the teaching-learning process focused on sustainable agricultural practices.

➢ *Objective-2, To determine EFS perceptions regarding the principles related to the extension teaching-learning process focused on sustainable agricultural practices.*

1.7.2 General information

T-test was used in this research in order to test, check and verified the dependent variables. However, in this regard the general information was preliminary.

Table:1, Comparative analysis of EFS regarding sustainable agriculture practices

Categories	Quetta		Nasirabad		t-value	Sig*
	Mean	SD	Mean	SD		
For the long-term sustainable agriculture productivity is useful in farming systems	3.88	.895	3.12	1.335	3.344	.000**
In-formal education for farmer was preliminary to promote the sustainable agriculture practices	3.14	1.030	3.02	1.186	.540	.141NS
For the environmental protection the sustainable agriculture was beneficial	2.24	1.041	2.38	.923	-.711	.767 NS
Sustainable agriculture practices (SAPs) were not applied at field level easily	2.84	1.037	2.62	1.159	1.000	.360 NS
Sustainable agriculture practices can be used only marginal farmers	2.70	1.055	2.84	1.184	-.624	.075 NS
Sustainable agriculture practices was useful for entire farming communities.	2.72	1.089	2.78	1.093	-.275	.901 NS

The sustainable agriculture practices were the imperative tools for agricultural development as shown in **table-1.** In this regard, the raw data was gathered, the finding shows that both the respondents did not agreed that the sustainable agriculture practices were the imperative developmental tools.

Table:2, Comparative analysis of EFS regarding teaching learning process

Categories	Quetta		Nasirabad		t-value	Sig*
	Mean	SD	Mean	SD		
Need-based training and capacity building programs arranged for farmers	2.88	.982	2.76	1.135	.565	.118NS
Problem solving approach was effective in extension teaching	2.38	.780	3.02	1.286	-3.010	.000**
Extensionteaching programs are necessary to help farmers to resolve their agricultural issues	3.54	.908	3.26	.986	1.477	.159 NS

The important aspect of this study was to explore the teaching learning process as perceived by the respondents. The result **table-2.** shows that the highest numbers of the respondents were of the opinion that the problem solving approach is very effective in extension teaching. The significance was observed at 0.05 alpha level by using t-test.

➢ *Objective-3, to assess the sources of agricultural information regarding sustainable agriculture practices.*

Table:3, Comparative analysis of EFS regarding sources of agricultural information

Categories	Quetta		Nasirabad		t-value	Sig*
	Mean	SD	Mean	SD		
Group discussions	2.54	1.216	2.12	1.003	1.884	.001**
Lectures	3.22	.996	2.62	1.193	2.730	.270 NS
Seminars	3.84	.681	3.66	.982	1.065	.007*
Demonstrations	3.60	.904	3.70	.909	-.552	.512 NS
Field days	2.76	1.041	2.66	1.099	.467	.764 NS
Home visits	3.74	.633	3.90	.814	-1.097	.772 NS
Workshops	3.20	1.107	2.82	1.304	1.571	.057*
Printed materials	2.86	.990	2.82	1.190	.183	.055*

The extension field staff were further inquired to rate their perceptions frequency concerning with sources of information of each category. In this regard, seminar, home visits, and demonstrations were ranked 1st, 2nd, and 3rd respectively as perceived by the EFS in Quetta district. On the other hand, home visits, demonstrations and seminars were ranked 1st, 2nd, and 3rd rank respectively in Nasirabad district as shown in **table-3**.

1.8 Summary and recommendations

This research was carried out in a selected district of Balochistan so as to assess extension field staff perceptions about sustainable agriculture practices in Balochistan because conventional agriculture was criticized for their negative and outmoded mode. However, at the provincial level, none of studies has been carried out regarding teaching learning processes related to sustainable agriculture.

Following recommendations were developed based on study findings. Well-designed farmer's educational programs should be grounded in order to speed-up the sustainable agricultural practices and motives at farm level. In-service agricultural educational programs should be arranged for farmers that may fulfill their present day needs and interests. Special emphasis should be made during educational programs in order to facilitate a change of attitude regarding sustainable agriculture. In order to develop the EFS competency level and their extension work it was necessary to appreciate their work and incentives should be given to them. Extension field staff should be trained for dissemination and diffusion of sustainable agriculture practices effectively so that they present the sustainable agriculture practices to farmer's front in effective mode.

Conflict of interest

The authors declare that they have no competing interests.

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