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# EFFECT OF FARMERS' SOCIOECONOMIC CHARACTERISTICS ON ACCESS TO AGRICULTURAL INFORMATION: EMPIRICAL EVIDENCE FROM PAKISTAN

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## ABSTRACT

In agriculture, the role of information cannot be over emphasized in enhancing the agricultural development. Information is crucial for increasing agricultural production and improving marketing & distribution strategies. Agricultural extension has a strong reliance on information exchange among farmers. The present study intends to identify various agricultural information sources of farmers, their access to agricultural information and its association with the socio-economic characteristics. A proportionate sample of 361 respondents was selected at random from the subscribers of three selected agricultural magazines by using Fitzgibbon table. The data were collected with the help of a pre-tested and validated questionnaire and were analyzed by using computer software Statistical Package for Social Sciences (SPSS). Descriptive statistics such as simple frequency, percentage, mean, and standard deviation were used. On the basis of weighted score the rank order was determined. Also, bivariate analysis was used to test the level of association between the selected variables. The results showed that the print media and fellow farmers were the major information sources of farmers. The results further revealed that education and size of land holding had highly significant positive relationship with access to agricultural information while age and farming experience had non-significant relationship. The results of the study therefore reveal that there is a dire need for the effective implementation of policies on adequate and easy accessibility of agricultural information to the farmers to enhance the agricultural production.

**Key words:** Socio-economic characteristics, access to agricultural information.

## INTRODUCTION

Pakistan is predominantly an agricultural country, having rich natural resources, suitable climatic conditions, deep soils, favorable topography, and water resources, thus the country has huge potential for crop and livestock production (Khan, 2006 and Rehman *et al*., 2011). Agriculture is playing an important role in the economy of Pakistan by contributing about 21.00% to Gross Domestic Product (GDP), employs 45.00% of the total work force, and 60.00% of its rural population depends upon this sector for its livelihood. Agriculture also contributes to the growth by providing raw materials to agro-based industries like textile, food processing, sugar, ghee, dairy, paper, leather, etc (Govt. of Pakistan, 2011). In spite of such a great importance, agriculture is developing at a very low speed in Pakistan. FAO (2008) and Rehman (2010) exposed that our agricultural production is much lower than many other countries of the world. Abbas *et al.* (2008) argue that lack of information adapted to local needs and lack of technical knowledge at farm level are the principal factors for the low yield and static production in Pakistan.

In agriculture, the role of information cannot be over emphasized in enhancing the agricultural development. Information is crucial for increasing agricultural production and improving marketing & distribution strategies (Oladele, 2006). As Bala and Sharma (2008) and Singh *et al*. (2011) argue that to compete the global market today, our farmers should have latest information regarding new techniques of farming, new methods of cultivation, new crops, seeds, pesticides, water management, marketing of the product, government policies regarding agriculture, export potential of their crops and the information about the allied activities like fish farming, apiculture, poultry, dairy, and weather information on local and regional levels.

Today, in the age of information and technology, the dissemination of information becomes much easier nevertheless more complex, this is because of information messages must be disseminated to the farmers in the manners and methods, which are appropriate, and best support its recipient (Cartmell *et al*., 2004). According to Muhammad (2005) the sources of information can be divided into two main categories interpersonal and impersonal. Face-to-face exchange of information between individuals is regarded as interpersonal, whereas mass media sources are known as impersonal methods enabling one or a few persons to reach many addressees at a time. Okunade (2007) found a

variety of sources of information dissemination in agriculture including result demonstration, general meetings, group discussion, lectures, television, radio, cinema, leaflets, bulletins, letters, circulars, etc.

Access to information is very crucial to increase agricultural productivity by farmers. In the Punjab, to enhance the agricultural productivity the Directorate of Agricultural Information has been charged with the responsibility to disseminate information among farmers about latest agricultural techniques (Govt. of Punjab, 2008). In spite of all these efforts by the Directorate of Agricultural Information the farmers have low accessibility to agricultural information. Rehman (2010) argues that socio-economic variables may influence the accessibility to agricultural information of the farmers. Therefore, the focus of this study is to ascertain the challenges of access to agricultural information that farmers are facing, particularly the farmers who are not illiterates, in the Punjab, Pakistan. Specially, this study is aimed at:

i. To ascertain the socio-economic characteristics of the respondents,
ii. To ascertain sources of agricultural information, and
iii. To determine the relationship between the socio economic characteristics of the respondents and their access to agricultural information.

## MATERIALS AND METHODS

The population for the study consisted of the subscribers of the top three agricultural magazines (with respect to their circulation) in the Punjab province. The total sampling frame was 5850 subscribers *(Ziraat Nama* 2750, *Jadeed Ziraat* 2400, and *Kissan Time* 700). So, keeping in view the limitations of time and financial resources, a sample of 361 was drawn from the entire population of 5850 by using Table for determining sample size (Fitz-gibbon and Morris, 1987). On the basis of the list of the subscribers, the researcher proportionately took 170 respondents from *Ziraat Nama*, 148 respondents from *Jadeed Ziraat* and 43 respondents from *Kissan Time*. Thus, a random sample of 361 subscribers of agricultural magazines was selected by using computer-generated list (Best and Kahn, 2006). Data were collected by using mail questionnaire. The total response rate remained 66.00% (240 respondents), which was quite satisfactory. Bias due to non-response was overcome by adopting the procedure suggested by Miller and Smith (1983), by comparing the responses of the early respondents with those of late respondents. The data collected were analyzed by using Statistical Package for Social Sciences (SPSS). Descriptive statistics such as frequency, percentage, mean and standard deviation were used. Ranking of information sources of the respondents was done on the basis of weighted score computed by multiplying score values ranging from 1-5 (Likert scale) with the frequency counts. Also, bivariate analysis was used to test the level of association between the independent and dependent variables.

## RESULTS AND DISCUSSION

**Socio-economic characteristics of the respondents:** Socio-economic characteristics include age, education, farming experience, size of land holding, etc. and these characteristics exert their pressure on the attitude and behavior of an individual (Hassan *et al.*, 2002 and Hassan, 2008). The socio-economic characteristics of the respondents are discussed below.

**Table 1. Socio-economic characteristics of the respondents (N = 240)**

| Demographic characteristics | Frequency | % |
|---|---|---|
| **Age (Years)** | | |
| Young (Up to 35) | 52 | 21.67 |
| Middle (>35-50) | 95 | 39.58 |
| Old (>50) | 93 | 38.75 |
| **Education** | | |
| Up to primary | 1 | 0.42 |
| Primary to middle | 10 | 4.17 |
| Middle to matric | 45 | 18.75 |
| Matric to intermediate | 54 | 22.50 |
| Intermediate to graduation | 56 | 23.33 |
| Above graduation | 74 | 30.83 |
| **Farming experience (Years)** | | |
| Up to 10 | 91 | 37.92 |
| >10-20 | 73 | 30.42 |
| >20 | 76 | 31.67 |
| **Land holding (Acres)** | | |
| Up to 5 | 18 | 7.50 |
| >5-15 | 62 | 25.83 |
| >15 | 160 | 66.67 |

Table 1 shows that most of the respondents belonged to the middle age category and almost the same number of the respondents belonged to the old age category. While slightly more than one-fifth of the respondents belonged to young age group of the respondents. The results of the present study are in accordance with those of Fawole (2006); Demiryurek *et al.* (2008); Ofuoku *et al.* (2008); Omobolanle (2008) who found that most of the respondents belonged to middle age category**.** Table 1 also shows that majority of the respondents had education above graduation and intermediate to graduation. These results are in line with those of Ogboma (2010) who found that the majority of the respondents were graduate and above graduate. Also it appears from the table that approximately thirty eight percent of the respondents had farming experience up

to10 years, while about thirty two percent of the respondents had farming experience of more than 20 years. The above research findings are somewhat in line with those of Edeoghon *et al.* (2008) who found that about thirty two percent of the respondents had farming experience of about 20 years. Results further reveal that the majority of the respondents had the land holding of above 15 acres. About one-fourth of the respondents had land holding above 5-15 acres, while only a small percentage of the respondents were found to be having land holding up to 5 acres.

**Agricultural information sources:** Bala and Sharma (2008) suggest that farmers should have the latest information regarding new farming techniques and innovations, depending upon the kind of information, different people use different sources for seeking information (Okunade, 2007). According to Farooq *et al.* (2007) the most commonly used sources of information were fellow farmers, printed material, television, and private sector.

**Table 2: Rank order, mean and standard deviation of agricultural information sources based on their use**

| Information sources | Rank Order | Score | Mean (X) | S D |
|---|---|---|---|---|
| Print media | 1 | 832 | 3.47 | 1.23 |
| Fellow farmers | 2 | 715 | 3.31 | 1.26 |
| Television | 3 | 630 | 2.93 | 1.26 |
| Extension field staff | 4 | 547 | 2.76 | 1.30 |
| Private sector | 5 | 504 | 2.80 | 1.30 |
| Radio | 6 | 408 | 2.17 | 1.32 |
| NGOs | 7 | 283 | 2.13 | 1.23 |
| Others* | 8 | 92 | 3.29 | 1.51 |

* = Internet, progressive farmers, research institutes, agri. conferences, seminars, growers' associations and exhibition

Table 2 lists the agricultural information sources used by the respondents, which shows that the print media followed by fellow farmers and television were their most frequently used sources of information. Sources of information, like extension field staff, private sector, radio, and NGOs were the least frequent sources of information of the respondents. With respect to print media, the results of the study are in accordance with those of Ngathou *et al.* (2006) and Farooq *et al.* (2007) who found the print media as most preferred and useful sources of information. Similarly the results are also similar to those of Gloy *et al.* (2000); Howell and Habron (2004); Parthaap and Ponnusamy (2006); Clifford and William (2007) who found the print media as the most useful sources of information. These findings are also in accordance with those of Chaudhry *et al.* (2008); Edeoghon *et al.* (2008); Nosheen *et al.* (2010) who found that other farmers, friends and relatives were the most significant sources of information used by the farmers to get information on sustainable agricultural practices.

**Relationship between socio-economic characteristics of respondents and their access to agricultural information:** Farmers' access to agricultural information is an important variable, which may be influenced positively or negatively by the socio-economic characteristics like age, education, farming experience, and the size of land holding. Respondents' access to agricultural information was calculated by having a sum of the scores of various sources of information like print media, radio, television, extension field staff, private sector, NGOs, and fellow farmers. The total score ranged from 7 to 35, the respondents were divided into three categories i.e., low, medium, and high with the group intervals of 7 to 16, 17 to 26, and 27 to 35, respectively. The data in this regard are presented in Tables 3-6.

**Table 3: Relationship between age of respondents and their access to agricultural information**

| Age (Years) | Access to agricultural information | | | Total |
|---|---|---|---|---|
| | Low | Medium | High | |
| Young (Up to 35) | 17 | 28 | 7 | 52 |
| | 32.69% | 53.85% | 13.46% | 21.67% |
| Middle (>35-50) | 29 | 51 | 15 | 95 |
| | 30.53% | 53.68% | 15.79% | 39.58% |
| Old (>50) | 38 | 44 | 11 | 93 |
| | 40.86% | 47.31% | 11.83% | 38.75% |
| **Total** | 84 | 123 | 33 | 240 |
| | 35.00% | 51.25% | 13.75% | 100.00% |
| Chi-Square value = $2.535^{NS}$ | DF = 4 | | Gamma = -0.111 | |

The data in Table 3 show that the age of the respondent had non-significant relationship with their access to agricultural information. The non-significant relationship reveals that access to agricultural information was unlikely to be influenced by respondents' age.

The data in Table 4 indicate that there existed a highly significant relationship between education of the respondents and their access to agricultural information. The Gamma value illustrates a positive relationship; which indicates that with the increase in the educational level of the respondents, there was an increase in their access to information. The results of the present study are in line with those of Katungi (2006) who found in his study "gender, social capital and information exchange in rural Uganda" that more educated farmers had more access to information.

The data in Table 5 explain that there existed a non-significant relationship between the farming experience of the respondents and their access to agricultural information. The non-significant relationship

reveals that farming experience of the respondent had no effect on their access to information.

**Table 4: Relationship between education of respondents and their access to agricultural information**

| Education | Access to agricultural information | | | Total |
|---|---|---|---|---|
| | Low | Medium | High | |
| Up to matric | 40 | 14 | 2 | 56 |
| | 71.43% | 25.00% | 3.57% | 23.33% |
| Matric to intermediate | 20 | 31 | 3 | 54 |
| | 37.04% | 57.41% | 5.56% | 22.50% |
| Intermediate to graduation | 18 | 30 | 8 | 56 |
| | 32.14% | 53.57% | 14.29% | 23.33% |
| Above graduation | 6 | 48 | 20 | 74 |
| | 8.11% | 64.86% | 27.03% | 30.83% |
| **Total** | 84 | 123 | 33 | 240 |
| | 35.00% | 51.25% | 13.75% | 100.00% |

Chi-Square value = 63.73** DF = 6 Gamma = 0.415

**Table 5: Relationship between farming experience of respondents and their access to agricultural information**

| Farming experience (Years) | Access to agricultural information | | | Total |
|---|---|---|---|---|
| | Low | Medium | High | |
| Low (Up to 10) | 36 | 46 | 9 | 91 |
| | 39.56% | 50.55% | 9.89% | 37.92% |
| Medium (>10-20) | 22 | 39 | 12 | 73 |
| | 30.14% | 53.42% | 16.44% | 30.42% |
| High (>20) | 26 | 38 | 12 | 76 |
| | 34.21% | 50.00% | 15.79% | 31.67% |
| **Total** | 84 | 123 | 33 | 240 |
| | 35.00% | 51.25% | 13.75% | 100.00% |

Chi-Square value = 2.746NS DF = 4 Gamma = 0.104

**Table 6: Relationship between land holdings of respondents and their access to agricultural information**

| Land holdings (Acres) | Access to agricultural information | | | Total |
|---|---|---|---|---|
| | Low | Medium | High | |
| Small (Up to 5) | 11 | 5 | 2 | 18 |
| | 61.11% | 27.78% | 11.11% | 7.50% |
| Medium (>5-15) | 34 | 20 | 8 | 62 |
| | 54.84% | 32.26% | 12.90% | 25.83% |
| Large (>15) | 39 | 98 | 23 | 160 |
| | 24.38% | 61.25% | 14.38% | 66.67% |
| **Total** | 84 | 123 | 33 | 240 |
| | 35.00% | 51.25% | 13.75% | 100.00% |

Chi-Square value = 25.22** DF = 4 Gamma = 0.151

The data in Table 6 reveal that there existed a highly significant relationship between size of the land holding of the respondents and their access to agricultural information. The Gamma value illustrates a positive association between the variables; which indicates that with an increase in the size of land holding of the respondents, there was an increase in their access to agricultural information. The results of the present study are in line with those of Saadi *et al.* (2008) who found a highly significant relationship between land holdings of the respondents and their access to information.

**Conclusions:** It can be concluded that most of respondents were middle age, had education above graduation, farming experience up to 10 years, and had land holdings above 15 acres. The print media were the major sources of agricultural information, followed by fellow farmers and television. Farmers' educational levels as well as size of land holding were found to influence their access to agricultural information, while age and farming experience had no influence on their access to agricultural information.

**Recommendations:**

- As the small scale-farmers have low accessibility to the agricultural information, the farm libraries should be established at village level under the supervision of Field Assistants (front line extension workers) for the effective distribution of agricultural information among farmers.
- To disseminate the information through mass media, the government should strengthen the media agencies to disseminate agricultural information among the rural community, particularly among the small-scale farmers.
- There should be close coordination between Department of Agriculture (Extension), Ministry of Information and Broadcasting, private agricultural organizations, media agencies, and regional communities for the effective delivery of agricultural information among farmers.

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