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ICT Capabilities in Improving Marketing of Agricultural Productions of Garmsar Township, Iran

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ABSTRACT

Today, farmers for improving the quality and quantity of the agricultural products marketing need access to updated and exact information. This study is aimed to identify ICT capabilities in marketing the agricultural products of Garmsar city in 2011. This is applied study and the main research tool is questionnaire. The statistical population of the study is 109 agricultural experts and extension agent working in agricultural services centers. Descriptive results showed that the situation of agricultural products marketing is fairly desirable. Also ICT have a moderate role in improving of agricultural products marketing. Regression analysis results indicated that new methods of agricultural products advertising, delivering information about selling products, improving prices of agricultural products, increasing yield of agricultural products, improvement interactions between research, extension and farmers, developing local and national markets and identifying needs of consumers determined 57% variance of agricultural products marketing.

Keywords: Information and communication technology (ICT), ICT Capabilities, Marketing, Agricultural products marketing.

INTRODUCTION

Agriculture, in most developing countries is the major industry. More than 50 percent of the labour is working in this sector and its industrial and commercial branches. In these countries, also more than 50 percent of the households` incomes are spent for low quality and value foods. Inefficiency of the agricultural products marketing system is the starting place of these problems. Today, in most developing countries, more producing is only a part of the agricultural sector's mission and the other mission is agricultural products marketing because distributing the agricultural products is the marketing system`s duty. Agricultural products marketing system, by having more abilities, in one hand, can increase the producer and consumer welfare and, in the

other hand, can make new job opportunities. According to the ICT capabilities in the economical, social, and cultural development of the rural societies, it is considered by the global organizations as one the most important tools for reducing poverty in villages, increasing the services, and expanding the rural industries [12].

Different strategies exist for improving agricultural marketing; the use of information and communications technology is one of these strategies. ICT consist of various collections of resources and technical tools that are used for connecting, spreading, storing and managing information. In other words, ICT represents the collection of hardware and software that is used for producing, preparing, transferring and storing data via devices such as computers, radios, televisions, etc., and it includes an extensive scope of traditional and modern media [8].

Using ICT causes fast accessibility to the market, rising selection power, improving communication, identifying markets, saving in time and energy, improving marketing, and business costs reduction [7].

Generally, according to the given definitions for agricultural products marketing, there are two clear viewpoints. The first one, which is done on between the producers centers to the consumption. The second one indicates that the agricultural products marketing starts at the time in which farmers plan for their products. Agricultural products marketing, in this study, is a set of services from producers to consumers including produce design, crop products and harvest, packing, transportation, processing, distribution, sale, and transferring data from the products area to the market and visa versa [1].

The main agricultural products of Garmsar are wheat, barley, melon, olive, and cucumber. Raising the productivity of smallholders is a necessary condition for increasing incomes and improving livelihoods among the rural poor in most developing countries. This increased productivity is essential to both household food security and to agriculture-based growth and poverty reduction in the larger economy. Smallholder productivity is limited by lack of information about market prices, available crop varieties, production techniques, and methods of disease management— information that pertains specifically to local conditions. Smallholders also lack timely information sources such as news reports or early warning communications about weather, pest outbreaks, and other seasonal risks, and about services that could help address them. The appropriate deployment and use of information and communication technologies (ICT) is central to this improvement [11].

Smallholders require information to make informed decisions at each stage of the production cycle, from crop selection, to planting, to harvesting, to selling. Timely information about prices and consumer preferences not only informs production decisions about crop mix and the need for inputs, but enables farmers to balance their investment of family labor in farm and non-farm activities during the growing season. ICT can play an important role in enabling smallholders to produce high-value commodities and to capitalize on opportunities to participate in these markets. ICT can be instrumental in improving smallholders' access to information about these markets and what is required to produce for them. It can also greatly facilitate networking among smallholders, and provide new ways to communicate with institutions that are involved in carrying out transactions in these markets [11].

The importance of the role of market information in terms of economic efficiency and performance as well as equity is widely acknowledged. Helmberger, Campbell and Dobson (1981), observed that accurate and timely market information enhances market performance by improving the knowledge of market actors. Access to ICT can help farmers in a number of ways. Traditional media and new ICT have played a major role in diffusing information to rural communities and now have much more potential. The availability of market information also enables farmers to check on the prices they receive vis-à-vis the prevailing market prices. ICT can accelerate agricultural development by facilitating knowledge management. Farmers can take full advantage of ICT to enhance productivity and generate more income by adopting new technologies, including new varieties, adding value and marketing their products. Timely access to market information via communication networks also helps farmers make well informed decisions about what crops to plant and where to sell their produce and buy inputs [13].

According to the study by Habibi (2009) titled “evaluating the effective factors on ICT adoption and utilization in the villages (case study of Fars province villages)”, variables of age, knowledge, attitude to the infrastructures, how to providing services, motivation, training, agents` skills, insight on the government objectives, job, educational level, advertisement, familiarly to English language, and controlling and supervising the ICT centers have a significant relationship with ICT adoption and utilization.

Based on a study by Hamedanlo (2009) titled “barriers and challenges of developing Iran`s rural ICT”, lack of content and for rural society is the most important factor and human resources capacity, coordination weakness, strategic coordination, poor infrastructures, risk of investment, rural institutions` weakness, and the available policies` weakness are barriers and problems of developing the rural ICT centers.

Rsoli Azar (2004) in his study titled” evaluating the rate of IT application and usage in the Iran`s farmers system”, signified that the educational level and the weekly mean number of hours spent for using the computer have a positive and significant relationship with the professional information. Moreover, there is a significant relationship between the above mentioned variables and IT usage. The most important problem for experts to use the internet are their lack of full awareness of IT concepts, lack of tools and equipments for having access to the computer, electronic lines low speed, high costs, managers lack of attention, and etc [15].

According to the study by Gholamrezae et al (2003) titled “evaluating ICT`s economical effect on the Kermanshah farmers` agricultural products marketing”, 59.63% of the samples believed that the profitability of the ICT economical factors are very much and 5.51% believed that the economical factor limitations are very much, too [4].

Based on a study by Sabori et al (2006) titled “evaluating and analyzing Garmsar`s experts and farmers about role of extension in melon marketing”, the possibility of the products` quality improvement, market orientation, and familiarity with market have a positive and direct relationship with the possibility of extension performance [16].

Partovifar (2010) stated that the most important problem of marketing is lack of sufficient access to ICT [14].

The findings of Lashgarara et al (2011) regarding role of ICT in improving food security of Iran's rural households showed that agricultural products marketing is perceived a key factor in improving food security [9].

In summary, the results of others studies such as Blommesten et al. (2006), Matani (2007), Sadeghi and Noori (2009) and Hashemi Nejad and Ghanji (2009), indicates that ICT through develop markets, increasing incomes, accessibility to update policies related to market, reducing waste, accelerate flow of information, increasing knowledge of producers about opportunities and improving their skills about farming operation help to agricultural products marketing [3], [10], [17], [6].

The main factor of the marketing success is market analysis which depends on the market information's reality, objectivity, and inclusively; it can be said that information is the core of marketing success and, the best way for information access is applying ICT.

Knowledge is becoming an increasingly significant factor in production and marketing for small scale agriculture. Timely, knowledge about who is buying the farm products, how much is being offered, who the potential buyers are and what the expected costs including transport, is important for the decision making of rural farmers.

According to Iran's agricultural actual and potential capabilities such as having about 37 million acres cultivatable lands, 118 billion m² accessible water resources, 14 various climates, providing 26 percent GDP, 25 percent employment (in this sector), and 26 percent nonoil export, it has an important and critical role in the country's economy (Anonymous 2005). Thus, evaluating the deficiencies of the agricultural sector like agriculture products marketing system is necessary so that problems would be solved through this evaluation. This study is aimed to at detecting the ICT role in agricultural products marketing.

The main research question including:

What is the situation of agricultural products marketing in this city?

Which ICT capabilities determine agricultural marketing?

MATERIALS AND METHODS

This is an applied study. The analysis used in this study involved a combination of descriptive and quantitative research and the main methodology is descriptive (non-experimental) and correlation. The total population for this study was 105 agricultural experts of Garmsar who were studied by census. The main tool of study is questionnaire. Content and face validity were established by a panel of experts consisting of faculty members and some specialists in the inistry of Agriculture. Minor wording and structuring of the instrument were made based on the recommendation of the panel of experts. A pilot study was conducted with 30 persons who had not been interviewed before the earlier exercise of determining the reliability of the questionnaire for the study. Computed Cronbach's Alpha score was 87.0%.

The dependent variable of this study is agricultural products marketing which were measured by perception of respondents about 66 statements. The independent variables in this research study

are ICT capabilities. Using descriptive statistics, measures of central tendencies (Mean, median, mode) and variability tendencies (variance and standard deviation) were calculated. For measuring the study hypotheses and relationship between independent and dependent variables, correlation coefficients and stepwise multiple regression analysis were used; after data extraction, statistical analysis was done by SPSS version 16.

RESULTS

Results shows that 70.5 % of the respondents are male, 69.6 % of the experts have Email, 63.8 % have the ICDL skills and 34.3 %, 68.6 % are bachelors and 22.9 % of them have MS degree and 37.1 % of the respondents have 7-12 years work experience.

Based on the collected information; most of the respondents 38.1 % believed that the current situation of the agricultural products marketing is relatively favorable. Table 1 illustrates the agricultural experts` point of view about the situation of agricultural products marketing.

Table 1: agricultural experts` point of view about agricultural products marketing (n= 105)

Situation	Frequency	Percent	Valid percent
Undesirable	17	16.2	28.3
Fairly desirable	40	38.1	66.7
Desirable	3	2.9	5.00
Non respond	45	42.9	100
Total	105	100	100

Mode: Fairly desirable

Table 2: Role of ICT in improvement of agricultural products marketing (n= 105)

Role	Frequency	Percent	Valid percent
Low	9	8.3	12.3
Moderate	27	25.0	37.0
Much	20	18.5	27.4
Very much	17	15.7	23.3
Non respond	32	30.5	100
Total	105	100	

Mode: Moderate

Table 3: Stepwise regression of agricultural products marketing

Variables	B	Beta	R Square	Sig
Constant	0.254	-----	-----	0.000
Methods of products advertising (X ₁)	0.653	0.273	0.266	0.016
Delivering information about selling products (X ₂)	0.240	0.591	0.318	0.000
Improving prices of products (X ₃)	0.699	0.273	0.380	0.017
Increasing yield of agricultural products (X ₄)	0.701	0.208	0.417	0.03
Improving interactions & communications (X ₅)	0.156	0.424	0.471	0.000
Developing local and national markets (X ₆)	0.212	0.403	0.526	0.002
Identifying needs of consumers (X ₈)	0.121	0.214	0.566	0.021

R² adj: 0.57

Table 2 illustrates the role of ICT in agricultural products marketing from the agriculture experts' point of view. In according to Table 2 most of the respondents 25% believed that ICT have a moderate role in improvement of agricultural products marketing.

For identifying ICT capabilities in agricultural marketing multiple regression analysis was used (Table 3).

According to the results shown in Table 3, the regression equation according to B and β quantities were, respectively:

$$Y = 0.254 + 0.653 x_1 + 0.240x_2 + 0.699x_3 + 0.701 x_4 + 0.156 x_5 + 0.212 x_6 + 0.121 x_7$$

$$Y = 0.273 x_1 + 0.591x_2 + 0.273x_3 + 0.208 x_4 + 0.424 x_5 + 0.403 x_6 + 0.214 x_7$$

These variables determined about 57% variance of agricultural marketing.

Figure 1 shows collections of determining and effective factors in improving agricultural products marketing.

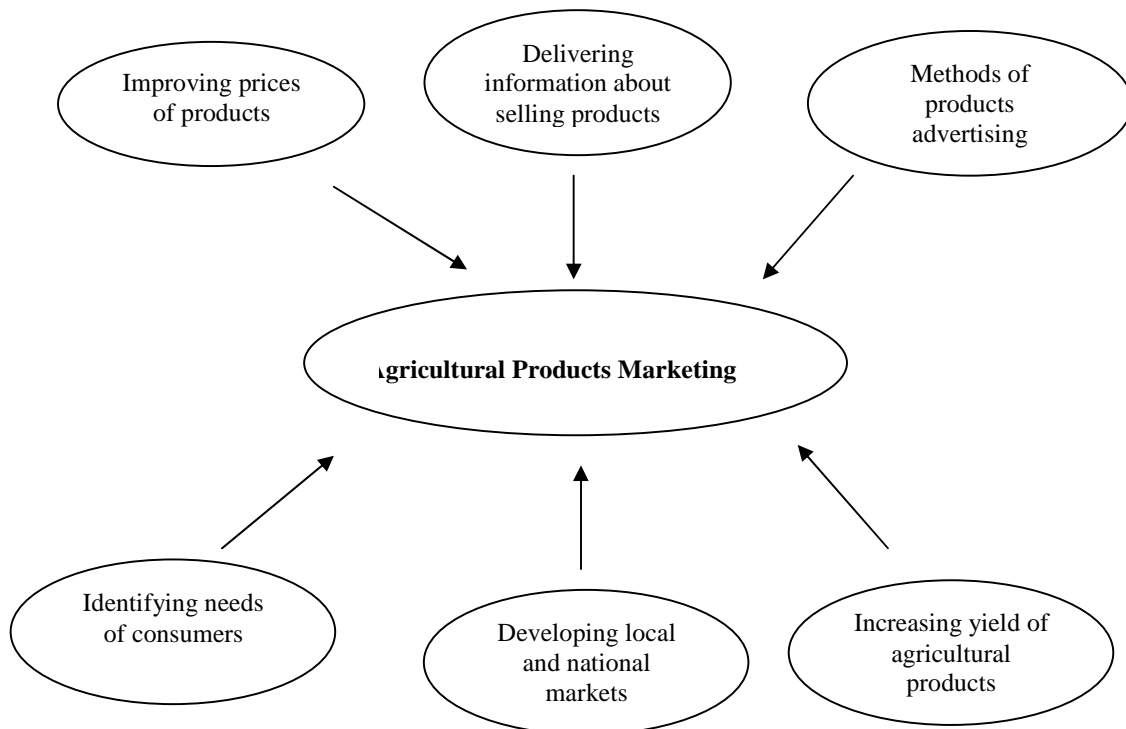


Fig 1: Influencing Factors on Agricultural Products Marketing

DISCUSSION

The studies of Gholamrezaee et al (2003), Sabori et al (2006), FAO (2000), Blommesten et al. (2006), Matani (2007), Sadeghi and Noori (2009), Hashemi Nejad and Ghanji (2009), Lashgarara (2011) and Partovifar (2010) have approved the findings of this study.

ICT can verify the methods of agricultural products advertising and improve distribution network of selling agricultural products. Farmers could be informed of inputs prices, similar production in others areas by ICT. ICT by facilitating flow of information to the farmers help to increasing yield of products. Different tools of ICT such as email, SMS, website improve interaction and communication between researchers, extension agents and farmers. ICT develop the markets and help to producers to more inform about needs of consumers.

For developing agricultural products marketing, more using of ICT for advertising agricultural products, introduction of distribution networks, delivering information and notifying rural people about new methods of production, inputs consumptions, methods of combating with disease, establishing websites of agricultural products transaction for developing markets and informing producers about needs and satisfaction of consumers from delivered services is suggested.

The development of ICT use for market access in Iran is still in its infancy but the future is promising. Rural marketing in Iran has still a long way to go, rural marketers have to understand the fact that rural marketing in Iran has a tremendous potential in our country. Rural marketers should understand this fact and try to tap the huge untapped potential in our country.

CONCLUSION

This study showed that the situation of Garmsar marketing is fairly desirable. ICT have a moderate role in improving agricultural products marketing. Improving in agricultural marketing in Gramsar township is mainly pertained to new methods of agricultural products advertising (e.g. advertising via email and mobile phone), delivering information about selling of products (farmers find which products to grow in the following years), improving prices of agricultural products (farmers can find the good markets to sell their products with the best price), increasing yield of agricultural products (attention to new principles of marketing can lead to yield increasing), improvement interactions between research, extension and farmers (this process help to the improving interactions amongst actors), developing local and national markets (prepare the contexts to connect to the global markets) and identifying needs of consumers (in regarding that the main core of marketing are consumers need), so that delivering information about selling products is the most important factor in marketing improvement.

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