



THE EFFECTS OF EXTENSION- EDUCATION METHODS ON WHEAT SELF-SUFFICIENCY: CASE STUDY IRAN

Assist. Prof. Dr. Homayon Farhadian
Tarbiat Modares University, Tehran, IRAN
farhadianh@yahoo.com

Mohammad Hassan Vakilpoor
PhD. Student in UPM Tehran, IRAN
mhvakilpoor@yahoo.com

Mirahmad Hosseini
Instructor in Tarbiat Modares University
Tehran, IRAN
mirahmadhossein@yahoo.com

Abstract

The main purpose of this study is investigating the effect of extension - education programs in increasing wheat production in Iran. The research design was a descriptive and case study method. The population of study was 29 provinces of Iran. Secondary data was used. The result shows that extension – education classes had high level (Mean= 44522) rank and Farm day program was the least level (Mean = 149) rank in extension- education activities. On the other hand, results of t-test revealed that, the area of irrigation farmland, wheat production in irrigation farm land and total wheat production in Iran had significant difference at 0.05 level after implement “wheat self sufficiency program”. Also wheat productivity per hectare in irrigation farm land was significant at 0.01 level.

Key Words: Extension-education methods, productivity, self-sufficiency.

INTRODUCTION

Nearly 36 % of the total population in the Islamic Republic of Iran (70 million) is living in the rural areas (24 million) under 4.3 million farm units (2003). Iran was divided into 29 provinces, 252 districts, 680 sub districts and more than 70000 villages /settlements. About 50 % of the active rural population with age 10 and above is engaged in the agriculture sector, plus 27% in industrial section and 22% in services section.

However, a large part of about 62% of its cultivable soil resources, amounting to 33 million hectare (ha) has not yet been put to agricultural utilization, and 18.5 million hectare of cultivated land has been utilized at a productivity rate of 50-60 percent. Moreover, 33% of agricultural land area is under irrigation, 28 % for rain fed farming, 27% under fallow and 12% fruit orchards (Anonymous 2007). Approximately, out of 30% of total area of the country (165 million ha), 51 million is characterized by a high or medium degree of cultivability and is considered potentially arable land.

Before the oil discovery in 1908, Iran’s economy was based on agricultural activities. Recorded statistics about Iranian’s economy indexes between two years include first half of twenty century in 1900 and first years of present century in 2008, indicates that Shares of agriculture in GDP reduced from 65 to15 percentages which shows the position of the agricultural sector has been weakened than other sectors. Nowadays, Iran's economy largely thrives on production, extraction and export of oil and its derivatives automatically, causing a result that illustrates the agricultural sector shares reduced in the country’s GDP (Esfahani & Pesaran, 2009).

Historically, collective agricultural surplus had been the main source of the financial self-sufficiency and despotic power of the Iranian provinces (Katouzian, 1979). And it was the largest contributor to Gross National Production (GNP) throughout the period 1900-1970 (Bharier, 1971). In recent years, the agriculture sector realized a considerable part of the country foodstuff requirements as well as raw material needed in industrial fields.

The agriculture sector accounted 15% of Iran's GDP over the period 1991- 2001. The share of agricultural products in the total non-oil export is 26%. Moreover, this sector provides almost a quarter of the employment opportunities.

Rural and Agricultural Development Programs in Iran

In a general view, from 1949 to 1978, through the implementation of five National Development Plans and particularly after conducting 1962 Land Reform program the rural and agricultural structure of Iran was changed with a focus on ownership system in rural areas by the government decree into local utilization of resources and in local management. The program was introduced in three stages from 1962 to 1970.

With the start of the oil boom in 1974, policies moved towards a rapid and centralized industrialization, modernization and urbanization. Now the increasing low attention to the rural life and agriculture sector led to its gradual depletion. The result was a dislocation of rural communities, fractions of which were ultimately attracted to the urban areas, seeking better wages in industry and service sectors. The villages faced serious structural problems, such as migration, lack of employment opportunities, lack of necessary facilities, and weak terms of trade (Emadi 2003).

Accordingly, from a position of relative agricultural self – sufficiency in the mid 1960s, Iran became one of the leading food–importing countries of the world. The contribution of agriculture to the GNP declined from 30.1 percent in 1959 to 9.2 percent in 1976 (Sharbatoghlie 1991).

After the revolution of 1979 as a grassroots movement, infrastructural services including health, education and basic needs, rural infrastructure and agricultural services enhanced. The revolutionary government recognized the need to identify and utilize the potential resources that existed in the villages, through appropriate institutions and participatory mechanism. Generally in the post revolutionary period through implementation the first, second and a part of the 3rd National Development Plans, agricultural and rural development policies have been operated by two separate ministries: Ministry of Agriculture (1960 -2000) and the Ministry of Jihad-e-Sazandegi (1978 – 2000). These two ministries have merged since Jan, 2000 and all the above-mentioned functions have been conducted by the Ministry of Jihad-e-Keshavarzi and it expects to have more impacts and determine pattern for rural and agricultural advancement.

So accordingly, increasing the level of farmers' income and rural population's life quality, sustainable rural development and poverty alleviation, empowering private and cooperative sectors are the most important general policies in the Forth National Plan that will be conducted to fulfill the next 20 years perspective's goals of the country.

In Iran after the Islamic Revolution, working with people was the highest priority of rural development policies. To this end: 1) institutionalization of people participation for creating appropriate structure and organization for work, and 2) training and empowering rural people for encouraging active participation in development process were implemented under the various rural development projects.

Some successful projects implemented by the Ministry of Jihad-e-agriculture during last two decades are: 1) rural Islamic councils; 2) rural co-help houses; 3) construction groups; 4) rural youth clubs; 5) rural extension animators; 6) rural productions cooperatives; 7) cooperatives for natural resource management; and 8) entrusting range lands to animal keepers and range farmers.

Nevertheless, the most important characteristic of the rural and agricultural administration system was the dominant centralized and top-down, local decision making, governmental and service demanding system and

emphasizing on eco-centric approach were the major features of rural development process during the last decades in Iran.

Accordingly, conventional extension system in Iran is governmental, simplified, centralized, standardized/uniformed and top down approach.

Moreover, employing different strategies in agriculture sector affected the agricultural extension system in past five decades in Iran. On the other hand, lack of effective farmers' participation in the process of planning, implementing and evaluating the activities are the most important organizational features of national extension system in Iran. In addition, majority of farmers in Iran are resource poor and small farmers (43% of 4.3 million households), and middle income farmers and relatively rich farmers are among the clientele of extension services.

In this situation the major issues confronting the agricultural development and extension in Iran are: 1) low level of productivity in some of the major agricultural products; 2) inadequacy of access of extension services to poor- resource farmers; 3) insufficient active interaction among the major stakeholders in the process of agricultural knowledge management.

According to the above mentioned challenges, applying participatory approaches like promoting local and grassroots organizations in agriculture sector particularly in extension system for diffusion of useful innovations in agricultural knowledge and information systems is an important strategy of extension system in Iran. Therefore the agricultural extension and education system in Iran is shifting from a supply-driven approach to demand-driven approach to meet the real rural people's and farmers needs.

METHODOLOGY

The main purpose of this study is investigation the effect of extension - education programs in increasing wheat production in Iran. The research design is descriptive with case study method. The population of the study was 29 provinces in Iran. The data used in this study is based on secondary data. Independent variables were: extension-education methods. 31 educational approaches were used in all provinces and it categorized in 13 extension-education methods.

FINDINGS

Table 1: shows the result of ranking extension – education methods in Iran.

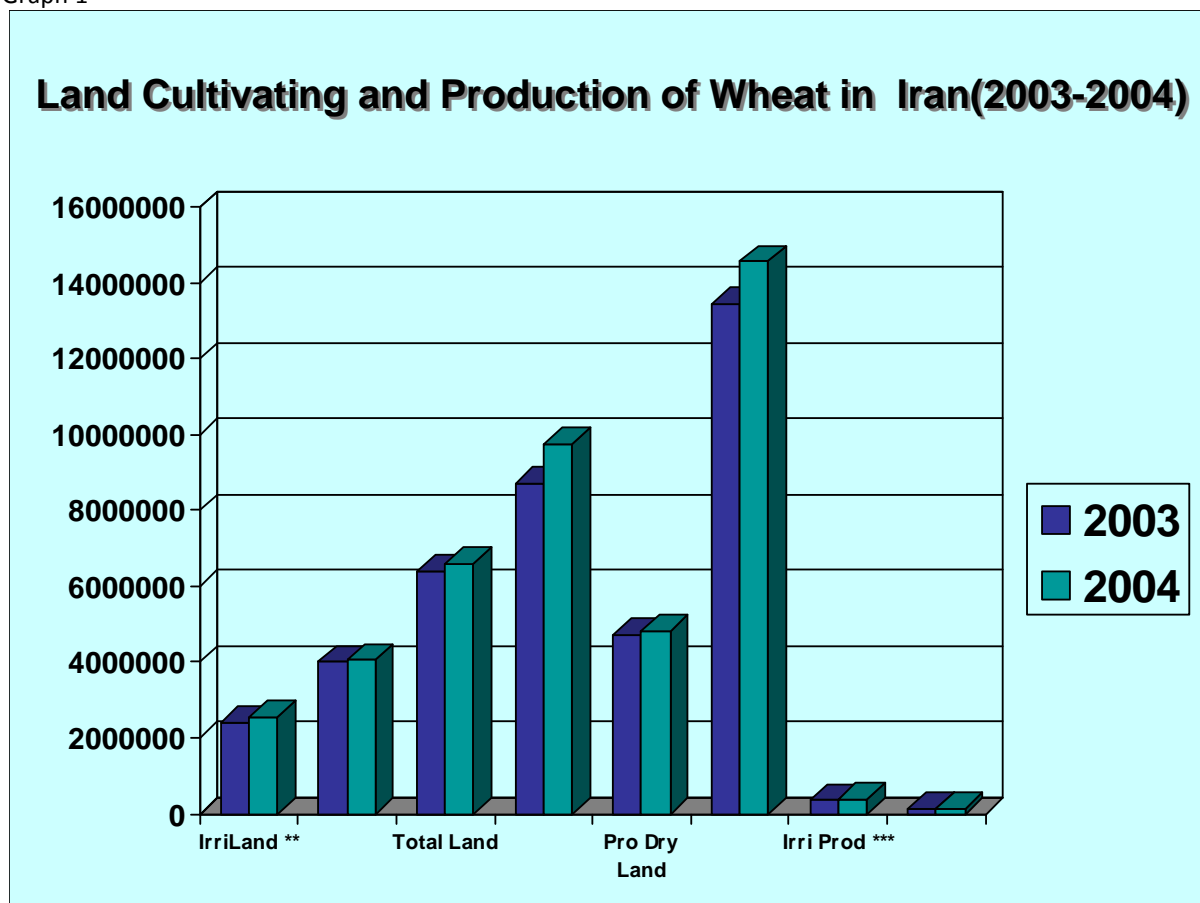
Extension Method	F	S.D	Mean	N(Provinces)	Rank
Extension education class	1,276,031	38353,29	44522,7	29	1
Extension publication	738,461	36702,96	29681,4	26	2
Consulting workshop	139,801	10020,51	5531,1	26	3
Farmer Demonstration	130,428	7408,96	4491,8	26	4
Farmer visits	68,932	3175,09	3139,2	25	5
Radio Farmers	35,857	3457,27	2770,6	17	6
Slides and photos	17,288	752,44	844,00	22	7
T&V(visit extension agents)	1,520	1090,59	843,4	19	8
Technical Meeting	5,630	701,84	643,2	11	9
T.V Farmers Program	11,061	557,11	586,6	19	10
Workshop of founds	4,049	363,39	273,9	15	11
Radio school	1,427	208,16	159	9	12
Farm day Program	3,135	232,92	149,2	21	13

Table .1 Ranking of use of educational methods in extension services in Iran (2003-2004)

The results of the table-1 shows that the extension-education classes (mean = 44522.7), extension publication (mean = 29881.4) and consulting workshop (mean = 5531.1) had high ranks between all extension approaches; and farm day program (mean = 149.2), radio programs (mean = 159) and workshop on the research findings had lowest rank between all programs in extension approaches.

The dependent variables were : area of irrigation farmland , dry farmland, total area farmland, wheat production in irrigation farmland, wheat production in dry farmland and total wheat production ; and the productivity of wheat in irrigation farmland and dry farmland in Iran between 2003 – 2004, it shows in graph(1) .

Graph 1



The result of the paired samples t-test show that in the area of irrigation farmland cultivated for wheat there was a significant difference between 2003 and 2004 in Iran at 0.01 level and there was significant difference in production of wheat in irrigation farmland between 2003 and 2004 at 0.01 level in Iran.

Also, the result of t-tests show that the total production of wheat was significant difference at the 0.01 level in Iran between 2003 and 2004; and there was significant difference in productivity of wheat in irrigation farmland between 2003 and 2004 in Iran at the 0.01 level and there were no significant differences in the area of dry farmland, total wheat farmland. Wheat production in dry farmland and productivity in dry farmland, in table 2 shows them as well as:

Result of multiple Regression enter method shows only one independent variable (workshop on research findings) came into the regression equation and it explain 96.3% of the changes of dependent variable (total



production of wheat) and it also significant difference at 0.05 level. According to regression equation 3.7% of the changes in total production of wheat were related to other variables that it wasn't in this study.

Regression Equation

$$Y' = a + b_1x_1 + b_2x_2 + \dots + b_nx_n$$

$$Y' = -112676 + 5488.95(\text{workshop on research findings})$$

$$Y' = -112676 + 5488.953(.037)$$

CONCLUSION

The results show that the rank of irrigation wheat land, dry wheat land, total production of wheat, and rank of productivity in irrigation land had significant differences between 2004 and 2003_{yr}s and many preceding years, in the past decade of 2004 import of wheat in Iran was about 4,000,000 tones per year. After merging the two involved ministries in agriculture sector in Iran in 2000, one of the important goals of the new agriculture Ministry (Jihad-e- keshavarzi Ministry) was self sufficiency in crop production such as; Wheat, Maize, etc. Thus wheat self-sufficiency happened in 2004_{ver}. The result of regression shows that only one of the extension methods came in to the regression equation and it was significant. Other educational approaches were not significant, so it can be said that, the other policies such as: crop insurance, guaranteed purchase, suitable agricultural loans and other supported policies for farmers which could explain the increase of wheat in Iran during this year.

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Table.2 shows result of t-test for different farm lands and productivity in Iran provinces between 2003 – 2004.

Result of T-test:

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	irrigation lands per hactar in2003 - irrigation land in 2004	-5715.80	7776.34204	1469.591	-8731.15	-2700.45	-3.889	27	.001
Pair 2	dryland per hactar in2003 - dryland in 2004	-1875.52	30122.43019	6024.486	-14309.4	10558.41	-.311	24	.758
Pair 3	total farmland in2003 - total farmland in 2004	-7140.87	25819.73005	4794.604	-16962.2	2680.4276	-1.489	28	.148
Pair 4	production in irrigation land by ton in 2003 - production in irrigation land by ton in 2004	-37996.0	51389.10606	9711.628	-57922.6	-18069.4	-3.912	27	.001
Pair 5	production in dryland by ton in2003 - production in dryland by ton in 2004	-3442.51	57468.64445	11730.74	-27709.4	20824.37	-.293	23	.772
Pair 6	total production of wheat in 2003 - total production by tons in 2004	-39567.5	59732.20871	11091.99	-62288.4	-16846.6	-3.567	28	.001
Pair 7	productivity in irrigation land per hactar by kg in 2003 - productivity of irrigationland by kg in 2004	-269.2225	344.86994	65.17429	-402.9491	-135.4959	-4.131	27	.000
Pair 8	productivity in dryland per hactar by kg in 2003 - productivity Of dryland by kg in 2004	-14.8272	256.79597	51.35919	-120.8274	91.1730	-.289	24	.775