Azarian Journal of Agriculture

Investigating the role of technical institute and consultancy in increasing wheat production productivity in Maragheh area

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Article Info	ABSTRACT
	Wheat is the most important crop in the world that plays an important role in rural people's income of Iran. With increasing world population and limitation in arable lands, increase in productivity is main programs to researchers. Therefore modern science and modified technology are the best approach to cover that issue. Active graduates in consulting institutes could be important for enhancing the productivity. For these reasons, 115 farmers and 30 consulting members were randomly selected in order to investigate the effectiveness of the cooperation. The findings indicated that the most important concerns to cooperation were insurance and clear contracts. Also from farmers viewpoints, respect to farmer's experiences; equipment and updated softwares were effective in accepting new graduates cooperation. In conclusion, the cooperation increased wheat productivity in the survey compared to conventional systems.

INTRODUCTION

The most objectives of the agricultural sectors are to improve food security by relying on internal production. The rapid increase in population, especially in developing countries have a negative consequences follow. Food insecurity and malnutrition, energy crisis, environmental problems and numerous other issues facing the international community in this way are the most concerns (Sayedan 2002).

In Iran like other world countries, Wheat is an important food in daily people consumption and is a necessary nutritional element in the world (Baybordi et al. 2001).

Iran country by having rich natural resources, diverse climate, talented labor force and ancient cultural background has strong potential in crop production. Thereby proper utilization of the available resources is important. The main argument in this matter should be raised within the context of obstacles and factors affecting it. According to different hypothesis that are

addresses, development is a complex, accurate and long term process that bode on specific historical transition stage from certain financial, social and cultural structure to the other certain historical stage, that in this way scientific and technical transition stages is changing from pre-industrial to the industrial social situation. This will not be achieved unless with the efficient use of resources and increased productivity (Alvanchi 2001).

Despite shortages and concerns, technical institute and consultancy often by using academic and practical initiatives and help of professional farmers, apply their own scientific and practical opinions and run a big step toward achieving industrial agriculture in line with sustainable agriculture methodology (ILO 2008).

Wheat product development during the period 1981- 1993 was 79 percentages and during the 1994-2005 decreased to 41 percentages. In addition, productivity growth during the both period was negative and indicating more inputs ratio to the product. It seems right combination of inputs is needed to be more emphasized rather given more input for wheat production (Akbari and Ranjkesh 2003).

The productivity is the best and most efficient way to achieve economic growth. By calculating and analysis of productivity indices, functional efficiency of different financial sectors could be investigated in the way of using the productive resources. Among the different financial sectors of

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developing countries, the agricultural sector has considerable importance as supply food of society (Akbari and ranjkesh 2003). Thereby the main aim of this study was investing the productivity of wheat.

MATERIAL AND METHODS

Experimental site

This study discussed several issues of private companies, crop productivity and employment of university graduates. In this case we investigate relevant subjects for finding solutions for these issues. The two separate questionnaires were designed to assess the views of farmers and experts, and the results were analyzed separately. To study the productivity, average of inputs productivity index were used in the three years before and three years after its establishment.

Measuring productivity

To investigate the role of technical institute and consultancy in increasing productivity of wheat, impacts of companies on increasing productivity factors (water, phosphorous and nitrogen fertilizers, labor force, machinery and seed) were measured. Average inputs prices in the three years before and three years after conducting of project, average wheat production and the purchase price for the 115 operators were evaluated (companies activity was began from 2007-2008 year).

In this study, in order to accurately measure the average productivity of factors below equation was used.

$$AP = \sum \frac{Qi}{Xi}$$

In which, X was defined as price of each inputs and factors and Q was defined as yield.

Collecting data

The dominant approach of the study is a survey in which social sampling techniques were used to generalizing the results of research to society of wheat producers of Maragheh. Results of questionnaires asked from 115 farmers and 30 experts who were member of technical institute and consultancy were collected and analyzed. The research population consisted of farmers who cultivated wheat during 2004-2010 in the area of Maragheh. Data were complicated based on a theoretical basis and by determining of the specified time periods then, classification of analysis pattern come formulation. Data collected from a central bank, management and planning organization and ministry of Agriculture. The questionnaire was prepared to cover the required information (consumption, production, consulting, living conditions, income) directly or indirectly. After the preparation of questionnaires, it tested and then resolved potential problems. Information completed by interviews and questionnaires. While the questionnaires, tried to fill the data implied the living conditions of farmers and the information recorded beside the questionnaire. It should be noted that the farmers were randomly selected.

Methods of data analysis:

After identifying of effective factors and completing of questionnaires data were analyzed by Excel and SPSS softwares and effectiveness of them were calculated by regression models.

RESULT AND DISCUSSION

Average productivity of production factors

To investigate the role of advisory members to increase the productivity of wheat, the average cost of labor force, machinery, fertilizers and water in the three years before and three years after collaboration, were studied. At first, the average costs of inputs in three evaluating years were estimated and based on each producer, productivity was calculated for each farmer.

The average product of farmers, average wheat price and average inputs costs was also calculated for three years before the collaboration of companies. To get the Q the average selling price per kilogram of wheat production was estimated at about 300 Toman. Based on the data obtained, average productivity of inputs in the three years before the company collaboration showed in table 1.

Productivity of each input for wheat production showed in table 2. For better comparison of average productivity of inputs before and after companies' collaboration date

Table 1- average productivity of inputs in the three years before the companies collaboration

	seed	Machinery	manpower	N fertilizer	P fertilizer	water
AP	60	23.5	21.2	192	60.5	20

Table 2- Productivity of each input for wheat production

	seed	Machinery	manpower	N fertilizer	P fertilizer	water
AP	79	21	25	228	77.5	18

Table 3- comparison of average productivity of inputs before and after companies' collaboration

	Seed productivity	Machinery	manpower	N fertilizer	P fertilizer	water
Before the collaboration	60	23.5	21	192	60	20
After the collaboration	79	21	25	228	77.5	18

showed in table 3.

Labor force

Labor force divided into manpower and machinery. The findings show that the average productivity of the manpower has increased to 19% in this project. By increasing of under cultivation land, productivity of manpower increased. In the other hand, by increasing of under cultivation land, machinery increased and man number per unit decreased so, productivity increased.

Machinery

Our results showed that average productivity of the machinery services is reduced by 10 percentages. In other words, the efficiency of this factor is reduced by increasing the area under cultivation.

The water

Water is the most important factor in wheat production and the most important limiting factor for cultivation and yield of wheat. It could be suggested that by increasing cultivation lands, waste water and irrigation costs are reduced. Results indicated that average productivity of water decreased by 11 percentages by cultivation under small farming plots.

Fertilizer

In this project the efficiency of nitrogen fertilizer rate increased 18.7 percent. However, lack of experience of farmers and subside nitrogen fertilizer distribution were major concerns in this section. In this project, an increase of 29 percent efficiency of the inputs had seen.

Seed

Average productivity of seed inputs increased to 31 percent after the company collaborations. Study showed that average productivity of inputs increased by increasing of under cultivation area.

Comparison of productivity in the studied years

2004 to 2007 years were specified for three years before the conducting of this project and 2007 to 2010 years as the later years of the project. The average yield before the project was 705 kg/ha and the average yield after the project implementation was 1247 kg/ha.

The opinions of farmers

In the way of finding appropriate solution by the using of science and experience, comments of farmers were valued from 1 to 5 to each question. While 1 represents completely agree, 2 represents agree, number 3 represents the mean value of 4 indicates the opposite, and finally 5 represent is completely opposed. Table 4 shows the views of farmers with respect to each of the questions given.

Some questions were more favorable for farmers so by analyze of them, science could enter to farms and make a new relationship between farmers and graduated engineers.

Regression analysis

According to the results in the regression analysis table, questions (1-2, 1-3, 3-7, 13-14, 33-36, 33-43, 33- 45) had a significant correlations at $p \leq 0.05$. Each of the above questions are welcomed by farmers can indicate the presence and success of cooperative of experts and farmers.

After analyzing of data an equation was prepared which could be a model for comparison and analysis of data.

$Y_{ij} = 92.77 + 100.195\ a + 120.418\ b$

a: coefficient of question of x_i (for each beneficiary).

b: coefficient of question of x_j (for each beneficiary).

This equation is comes from studied data and appropriate yield of farmers.

Means of farmer's production after the project was 772.5 kg while the average farmer's production by above equation should be 609.7kg. Thereby, farmers by using of technical institute and consultancy could promote their yield by better using of inputs, machinery and water which show success of these companies in this field. According to the data, it could be resulted that farmers' opinions are favorable view of the technical and advisory services of companies, however, they want that all of this type of companies should had modern and efficient equipment and machinery to continue their relationship with them.

Table 4- Analysis of variance of the regression function

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	77.36	2	38.68	. **	.000ᵃ
	Residual	.01	47	.000		
	Total	77.35	49			

* & ** significant at 1% and 5% respectively. $R^2 = 0.9409$

Table 5- Stepwise regression to yield

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	92.77	87.72	1.057**	0.00
	6	100.195	91.25	1.098**	0.00
	40	120.418	102.48	1.175**	0.00

* & ** significant at 1% and 5% respectively.

Regard to table 8, question one had significant correlation with questions 2,3 and 7 (p≤0.01) which showed the effectiveness of consulting companies in transition of technical information to farmers, transition of technical knowledge in about cultivation and corporations between farmers and agricultural ministry and reduction of inputs costs by such companies.

Question 2 showed the role of transition of technical knowledge in about cultivation and corporations between farmers and agricultural ministry which had meaningful correlation with ques.18 (Presences of young people with knowledge of the day and sufficient equipment is more effective at increasing agricultural production), ques. 4(Farmers and companies to decide on the cultivation of local culture models are synchronized) and ques. 5 (Coordination between the various stages of production between farmers and companies to reduce production costs).

Question 3 (Good faith is make between suppliers of agricultural inputs and farmers by the companies) had significant correlation with questions 4,7 and 5. So it could be concluded that trust between farmers and suppliers of inputs could reduce agricultural products costs, and increase coordination between operations of them in production of agricultural products.

According to question 37 and 8 (appendix, table 6), the costs of inputs for product will decrease by continuous relationships between farmers and consultancy companies, decrease the irrigation coasts by modern methods.

Questions 13 and 14 indicated that using of modern equipment and adapted seeds with appropriate fertilizers rate application will improve the agricultural products (appendix, table 6). Questions 14 and 17 also indicated that presence of members during the cultivation and production process will promote wheat yield.

Meaningful correlation between 43, 45, 47 and 49 questions revealed that collection of companies in a capital center and establishment of Agro-

Industrial institutes in region caused to farmers will listen more to talk of advisers.

CONCLUSION

By consideration of questions it could be concluded that the most important possible concerns for consulting technical institutes were insurance and clear contracts. The most important possible concerns for farmers to accept new graduates and young engineers were also respecting to farmer's experiences; equipment and updated softwares. Productivity measurement by calculating the average productivity of wheat (Ap) indicated an increase in AP caused by increasing activity of companies compared to the same period of time before they were collaborated.

REFERENCES

Akbari N. Ranjkesh M. (2003) Evaluation of productivity growth of total productive factors in agriculture of Iran. Journal of economy and developing of agriculture, 44:117-142.

Alvanchi M. (2001) productivity growth is wheat production in Iran. Journal of economy and developing of agriculture, 3:84-90.

Bayboordi A. Malakouti M. Salam Zadeh M. (2001) the role of optimized usage of fertilizers on yield quantity and quality and reduction of phytic acid to zinc ratio in wheat field of Myaneh. Journal of soil and water, 14:10-16.

ILO (International Labour Office) (2008) Skills for improved productivity, employment growth and development. International Labour Conference, 97th Session, 1-160.

Seydan M. (2002) analyze of productivity at sugar beet cultivation: studied region: small and large field of Hamedan. Journal of economy and developing of agriculture, 37:107-132.

LIST OF APPENDIX TABLES

Table 6- list of questions

1	Technical information exchange to farmers through companies
2	Exchange of technical cultivation information between farmers and ministry of agriculture done by companies
3	Good faith is make between suppliers of agricultural inputs and farmers by the companies
4	Farmers and companies to decide on the cultivation of local culture models are synchronized
5	Coordination between the various stages of production between farmers and companies to reduce production costs
6	Production change is possible according to market demands with the help and advices of companies
7	Reducing the cost of agricultural inputs by the optimal management of companies regard to farmer's opinion may be considered.
8	Irrigation cost reduction through by modern offered methods is possible.
9	With new methods of agricultural production and farm levels recommended, income by the company has increased more than ever.
10	By combining the power of scientific and traditional farming practices may be taken strong steps through the modern and sustainable agricultural economy.
11	Manufacturing and promoting o farms corporate by companies will be effective at production increasing risk.
12	Research carried out by research institutions through participation in rural areas would be applicable.
13	Promote the use of machinery effectively improve the efficiency of agricultural production.
14	Promotion of appropriate adaptive seeds and fertilizers of region by companies improving production efficiency.
15	Implementation of agricultural insurance companies in the same area would be most welcome by the farmers.
16	Production rate with Consulting of companies has increased.
17	Members participate in various stages of development increase the spirit of farmers
18	Presences of young people with knowledge of the day and sufficient equipment is more effective at increasing agricultural production
19	Rural youth are motivated to increase the participation of young people in rural areas.
20	Youth spent attending college in various stages of production will be effective in increasing agricultural production
21	By the presence of the companies will move towards sustainable agriculture.
22	Member firms are filled with more experience are welcomed by farmers
23	Companies with younger and more energetic members are welcomed by farmers
24	Member companies of Agriculture offices who are mostly retired are welcome by farmers
25	Member firms with higher education are welcomed by farmers
26	Companies with new equipment are welcomed by farmers
27	Companies with native members (even with minimal equipment) are welcomed by farmers
28	Companies with more man members are welcomed by farmers
29	Companies with more women members are welcomed by farmers
30	Companies with a special expertise are most welcomed by farmers
31	Companies with several more fields are welcomed by farmers
32	Companies located in most the rural districts are welcomed by farmers
33	Companies located in city center and near the offices of agriculture, are more welcome by farmers
34	educational publications, television and radio programs produced by the participating companies will be welcomed by companies
35	respect to Experience of farmers by company members in the acceptance of members advices is more welcomed by farmers
36	Rural social culture has progressed by the company's presence
37	Bu using of consulting companies recommends, rural economy indices has improved
38	Holding festivals and fairs promoted by companies welcomed by farmers
39	The continuous presence of companies will increase the trust between companies and farmers
40	The continuous presence of companies in planting and harvesting process will increase the trust between companies and farmers
41	Visit from success production centers by companies will improve affective on agricultural development and improvement.
42	Agricultural operations to be applied by the company itself and see the modern and mechanized planting and harvesting is done by companies will improve the increasing trust of the farmers
43	Members gathering at a referral center for the farmers will be appropriate manner
44	Companies in fields and gardens is the appropriate method
45	Reconnaissance operations and combat pests and diseases of quarantine and presenting the results to farmers welcomed by farmers
46	Companies provide a suitable cropping patterns which can boost the performance of farmers
47	Because the farmer took less time to track their official troubles (in agricultural field), companies can handle interface functions between departments of Agricultural ministry and farmers
48	Renting of agricultural machinery and placing them in the hands of farmers can be effective in increasing trust between farmers and companies
49	If the adviser culture in the same area of (farming and construction industry), farmers will listen more to talk
50	companies by land consolidation will goes to sustainable agriculture

Table 7- list of answers

5	4	3	2	1	question	5	4	3	2	1	question	5	4	3	2	1	question
0	0	9	87	19	41	0	1	11	86	17	21	0	4	24	77	11	1
0	0	10	57	48	42	0	1	13	92	9	22	0	0	15	42	58	2
0	0	42	65	8	43	0	1	13	97	4	23	4	5	76	29	1	3
0	0	9	66	40	44	0	0	41	69	5	24	3	8	58	46	0	4
0	2	42	67	4	45	0	0	11	75	9	25	1	4	40	64	6	5
0	0	18	78	19	46	0	0	3	62	50	26	0	7	70	38	0	6
0	17	73	23	1	47	0	0	10	71	34	27	1	6	60	40	8	7
0	0	16	97	2	48	0	0	33	76	6	28	0	0	1	66	48	8
0	0	5	74	36	49	0	1	48	66	0	29	0	0	22	80	13	9
0	0	11	78	26	50	0	0	52	60	3	30	0	0	2	67	46	10
					51	0	0	16	74	25	31	0	0	26	83	6	11
					52	0	0	8	71	36	32	0	2	41	71	1	12
					53	0	1	53	57	4	33	0	0	14	97	4	13
					54	0	0	17	89	9	34	0	0	20	86	9	14
					55	0	1	4	52	58	35	0	0	1	40	74	15
					56	0	0	44	70	1	36	0	0	32	81	2	16
					57	0	8	49	52	6	37	0	0	38	73	2	17
					58	0	1	28	71	15	38	0	0	12	66	37	18
					59	0	0	15	81	19	39	0	0	26	85	4	19
					60	0	0	8	83	24	40	3	25	75	11	1	20

Table 8- correlation between questions

	1	2	3	4	5	6	7	8	9	10
1	1									
2	0.54**	1								
3	0.53**	0.32**	1							
4	0.44**	0.45**	0.49**	1						
5	0.47**	0.45**	0.46**	0.37**	1					
6	0.25**	0.21*	0.25**	0.41**	0.37**	1				
7	0.38**	0.42**	0.54**	0.44**	0.37**	0.41**	1			
8	0.36**	0.27**	0.32**	0.33**	0.33**	0.38**	0.42**	1		
9	0.35**	0.43**	0.36**	0.37**	0.45**	0.15 ns	0.34**	0.27**	1	
10	0.23*	0.32**	0.32**	0.23*	0.47**	0.25**	0.26**	0.32**	0.44**	1
11	0.11 ns	0.26**	0.08 ns	0.11 ns	0.26**	0.11 ns	0.22*	0.14 ns	0.30**	0.29**
12	0.30**	0.42**	0.31**	0.21*	0.35**	0.29**	0.42**	0.25**	0.28**	0.33**
13	0.07 ns	0.18*	0.01 ns	-0.03	0.16 ns	0.11 ns	0.12 ns	0.04 ns	0.05 ns	0.12 ns
14	0.02 ns	0.25**	0.07 ns	0.15 ns	0.17 ns	0.06 ns	0.20*	0.12 ns	0.16 ns	0.14 ns
15	0.09 ns	0.09 ns	-0.11	-0.08	0.01 ns	0.05 ns	0.01 ns	0.14 ns	0.05 ns	0.13 ns
16	0.29**	0.23*	0.21*	0.19*	0.19*	0.10 ns	0.18*	0.22*	0.32**	0.12 ns
17	0.24**	0.38**	0.29**	0.41**	0.24**	0.31**	0.34**	0.23*	0.11 ns	0.04 ns
18	0.27**	0.49**	0.21*	0.24**	0.34**	0.07 ns	0.35**	0.27**	0.30**	0.33**
19	0.28**	0.18*	0.20*	0.08 ns	0.22*	0.13 ns	0.13 ns	0.18 ns	0.24**	0.19*
20	0.22*	0.26**	0.17 ns	0.18*	0.15 ns	0.14 ns	0.28**	.06 ns	0.25**	0.20*
21	0.25*	0.34**	0.28**	0.27**	0.23*	0.08 ns	0.21*	0.17 ns	0.34*	0.17 ns
22	-0.03	0.16 ns	0.05 ns	0.20*	0.12 ns	0.15 ns	0.16 ns	0.01 ns	0.11 ns	0.15 ns
23	0.32**	0.33**	0.27**	0.26**	0.29**	0.11 ns	0.30**	0.10 ns	0.27**	0.16 ns
24	0.01 ns	0.05 ns	0.11 ns	0.11 ns	0.16 ns	0.22*	0.04 ns	-0.40	0.06 ns	0.05 ns
25	0.14 ns	0.16 ns	0.24**	0.29**	0.07 ns	0.03 ns	0.30**	0.12 ns	0.20*	0.13 ns
26	0.02 ns	0.01 ns	.10ns	0.11 ns	0.05 ns	0.06 ns	0.15 ns	-0.08	0.12 ns	-0.04
27	0.12 ns	0.23*	0.18*	0.11 ns	0.05 ns	0.08 ns	0.16 ns	0.03 ns	0.24**	0.05 ns
28	0.18 ns	0.18*	0.27**	0.22*	0.15 ns	0.10 ns	0.22*	0.09 ns	0.26**	0.10 ns
29	0.34**	0.42**	0.37**	0.23*	0.33**	0.08 ns	0.34**	0.14 ns	0.43**	0.26**
30	0.09 ns	0.06 ns	0.23*	0.15 ns	0.01 ns	-0.05	0.17 ns	0.13 ns	0.17 ns	-0.02
31	0.08 ns	0.26**	0.10 ns	0.07 ns	0.16 ns	0.01 ns	0.26**	0.03 ns	0.23*	0.01 ns
32	0.19*	0.14 ns	0.12 ns	0.07 ns	0.08 ns	0.03 ns	0.15 ns	0.01 ns	0.20*	0.24**
33	0.20*	0.36**	0.24**	0.21*	0.22*	0.03 ns	0.27**	0.11 ns	0.33**	0.18*
34	0.13 ns	0.31**	0.09 ns	0.24**	0.18*	-0.02	0.26**	0.15 ns	0.28**	0.14 ns
35	0.21*	0.21*	0.12 ns	0.17 ns	0.23*	0.01 ns	0.06 ns	-0.03	0.10 ns	0.16 ns
36	0.27**	0.27**	0.25**	0.19*	0.20*	0.09 ns	0.21*	0.15 ns	0.30**	0.28**
37	0.25**	0.28**	0.37**	0.30**	0.36**	0.31**	0.50**	0.19*	0.37**	0.32**
38	0.17 ns	0.28**	0.21*	0.18 ns	0.30**	0.20*	0.38**	0.27**	0.22*	0.28**
39	0.26**	0.21*	0.24**	0.11 ns	0.34**	0.05 ns	0.33**	0.26**	0.27**	0.29**
40	0.13 ns	0.21*	0.16	0.20*	0.23*	0.10 ns	0.14 ns	0.11 ns	0.35**	0.16 ns
41	0.10 ns	0.28**	0.28**	0.10 ns	0.20*	0.22*	0.26**	0.20*	0.35**	0.28**
42	0.17 ns	0.01 ns	0.02 ns	-0.03	0.03 ns	-0.06	-0.01	0.12 ns	0.35**	0.09 ns
43	0.22*	0.41**	0.27**	0.26**	0.23*	0.06 ns	0.22*	0.08 ns	0.27**	0.19*
44	0.19*	0.02 ns	0.11 ns	.01 ns	0.15 ns	-0.11	0.08 ns	0.12 ns	0.19*	0.08 ns
45	0.17 ns	0.42**	0.21*	0.16 ns	0.32**	0.12 ns	0.29**	0.01 ns	0.45**	0.20*
46	0.14 ns	0.27**	0.08 ns	0.10 ns	0.07 ns	0.15 ns	0.15 ns	0.07 ns	0.28**	0.19*
47	-0.06	0.24**	0.10 ns	0.04 ns	0.10 ns	-0.01	0.19*	-0.01	0.13 ns	-0.03
48	0.37**	0.23*	0.24**	0.29**	0.15 ns	0.28**	0.34**	0.16 ns	0.20*	0.14 ns
49	0.04 ns	0.10 ns	0.10 ns	0.03 ns	-0.04	-0.16	0.04 ns	-0.02	0.19*	0.004 ns
50	0.19*	0.14 ns	0.18 ns	0.13 ns	0.22*	-0.06	0.14 ns	-0.004	0.23*	0.09ns

Continue of table 8- correlation between questions

	11	12	13	14	15	16	17	18	19	20
11	1									
12	0.40**	1								
13	0.28**	0.30**	1							
14	0.21*	0.42**	0.55**	1						
15	0.16 ns	0.03ns	0.28**	0.17ns	1					
16	0.24**	0.12ns	0.06ns	-0.03	0.002ns	1				
17	0.19*	0.28**	0.18*	0.26**	0.013ns	0.35**	1			
18	0.35**	0.30**	0.18*	0.21*	0.23*	0.16ns	0.25**	1		
19	0.11 ns	0.12ns	-0.13	-0.15	-0.001	0.12ns	0.11ns	0.20*	1	
20	0.07 ns	0.22*	-0.08	0.008ns	-0.04	0.03ns	0.09ns	0.10ns	0.35**	1
21	0.18*	0.10ns	-0.02	0.01ns	0.08ns	0.34**	0.16ns	0.29**	0.20*	0.09ns
22	0.03 ns	0.09ns	-0.02	-0.17	-0.007	0.05ns	0.16ns	0.03ns	0.03ns	0.002ns
23	0.17ns	0.14ns	-0.16	-0.12	-0.001	0.18ns	0.08ns	0.31**	0.21*	037**
24	0.02ns	0.03ns	0.07ns	-0.01	-0.005	-0.04	0.18*	0.07ns	0.13ns	0.09ns
25	0.05ns	0.16ns	0.004ns	0.18*	0.12ns	-0.02	0.21*	0.29**	0.05ns	0.28**
26	0.01ns	0.02ns	-0.008	0.02ns	-0.02	0.18*	0.17ns	-0.02	-0.17	0.09ns
27	0.12ns	0.17ns	0.003ns	-0.11	0.26**	0.13ns	0.06ns	0.14ns	-0.01	0.17ns
28	0.07ns	0.14ns	-0.099	-0.05	-0.06	0.06ns	0.01ns	0.18ns	0.16ns	0.15ns
29	0.29**	0.21*	-0.05	0.007ns	0.02ns	0.35**	0.20*	0.32**	0.23*	0.37**
30	-0.18	-0.03	-0.05	0.007ns	0.02ns	0.13ns	0.04ns	0.1ns	0.11ns	0.26**
31	0.01ns	0.06ns	-0.08	-0.06	-0.10	0.19*	0.13ns	0.16ns	0.20*	0.27**
32	0.08ns	0.13ns	-0.10	-0.16	0.19*	-0.02	-0.09	0.09ns	0.23*	0.14ns
33	0.12ns	0.23*	-0.09	0.004ns	-0.04	0.14ns	0.14ns	0.24**	0.29**	0.25**
34	0.24**	0.13ns	-0.08	-0.02	0.003ns	0.22*	0.17ns	0.29**	0.13ns	0.16ns
35	0.28**	0.26**	0.01ns	-0.001	0.02ns	0.10ns	-0.02	0.17ns	0.08ns	0.09ns
36	0.12ns	0.27**	0.01ns	0.10ns	0.04ns	0.02ns	0.12ns	0.03ns	0.39**	0.40**
37	0.14ns	0.35**	0.02ns	0.13ns	0.08ns	0.17ns	0.28**	0.21*	0.28**	0.41**
38	0.03ns	0.24**	0.09ns	0.18*	0.04ns	0.06ns	0.14ns	0.23*	0.20*	0.14ns
39	0.18*	0.13ns	0.09ns	0.11ns	0.07ns	0.16ns	0.01ns	0.23*	0.16ns	0.23*
40	0.13ns	0.16ns	0.06ns	0.08ns	0.16ns	0.18*	0.08ns	0.32**	0.14ns	0.11ns
41	0.09ns	0.26**	0.04ns	0.03ns	0.09ns	0.09ns	0.11ns	0.22*	0.22*	0.15ns
42	0.01ns	0.04ns	0.04ns	-0.01	0.16ns	0.25**	-0.12	0.01ns	0.15ns	-0.08
43	0.18ns	0.24**	-0.03	0.05ns	-0.07	0.25**	0.16ns	0.10ns	0.20*	0.39**
44	0.12ns	0.10ns	0.06ns	-0.06	0.21*	0.21*	0.02ns	0.006ns	0.24**	-0.02
45	0.20*	0.27**	0.01ns	0.06ns	-0.07	0.09ns	0.17ns	0.19*	0.34**	0.49**
46	0.06ns	0.15ns	0.003ns	0.09ns	0.13ns	0.07ns	-0.01	0.14ns	0.20*	0.05ns
47	0.02ns	0.15ns	-0.08	-0.01	0.18*	0.04ns	0.07ns	-0.02	0.06ns	0.39**
48	0.16ns	0.20*	0.10ns	-0.01	0.18ns	0.21*	0.17ns	0.11ns	0.01ns	0.09ns
49	0.04ns	-0.06	0.02ns	-0.1	0.14ns	0.42**	-0.007	0.08ns	0.10ns	0.07ns
50	-0.07	0.11ns	0.19*	-0.05	0.04ns	-0.10	-0.05	0.17ns	0.39**	0.17ns

Continue of table 8- correlation between questions

	21	22	23	24	25	26	27	28	29	30
21	1									
22	0.07ns	1								
23	0.06ns	0.06ns	1							
24	0.27*	0.27**	-0.05	1						
25	0.02ns	0.02ns	0.33**	0.06ns	1					
26	0.06ns	0.06ns	0.05ns	-0.05	0.22*	1				
27	0.26**	0.26**	0.22*	0.06ns	0.06ns	0.11ns	1			
28	0.26**	0.26**	0.01ns	0.25**	-0.005	0.05ns	0.21*	1		
29	0.05ns	0.05ns	0.41**	0.16ns	0.25**	0.21*	0.21*	0.48**	1	
30	0.11ns	0.11ns	0.08ns	0.09ns	0.26**	-0.002	0.03ns	0.30**	0.25**	1
31	0.23*	0.23*	0.27**	0.18ns	0.25**	0.12ns	0.20*	0.27**	0.45**	0.21*
32	0.20*	0.20*	0.24**	0.10ns	0.20*	0.12ns	0.34**	0.30**	0.39**	0.08ns
33	0.10ns	0.10ns	0.25**	0.13ns	0.22*	0.19*	0.14ns	0.48**	0.64**	0.13ns
34	0.29**	0.21*	0.18*	0.15ns	.24**	0.07ns	-0.01	0.14ns	0.30**	0.32**
35	0.19*	0.20*	0.24**	-0.01	0.05ns	-0.03	0.22*	0.14ns	0.15ns	-0.11
36	0.08ns	-0.04	0.20*	0.04ns	0.21*	0.03ns	0.11ns	0.29**	0.41**	0.13ns
37	0.33**	0.20*	0.30**	0.19*	0.26**	0.09ns	0.17ns	0.28**	0.46**	0.23*
38	0.19*	0.12ns	0.08ns	0.15ns	0.17ns	-0.09	-0.09	0.19*	0.20*	0.21*
39	0.39**	0.007ns	0.20*	-0.08	0.10ns	0.09ns	0.08ns	0.11ns	0.36**	0.22*
40	0.33**	-0.006	0.22*	0.12ns	0.18*	0.11ns	0.10ns	0.24**	0.36**	0.12ns
41	0.29**	0.09ns	0.25**	0.10ns	0.28**	-0.04	0.21*	0.11ns	0.22*	0.17ns
42	0.14ns	-0.001	0.05ns	-0.02	-0.09	0.11ns	0.09ns	0.07ns	0.12ns	0.16ns
43	0.20*	0.10ns	0.27**	0.03ns	0.17ns	0.19*	0.20*	0.27**	0.49**	0.06ns
44	0.10ns	0.01ns	0.17ns	-0.11	0.10ns	-0.002	0.11ns	0.11ns	0.12ns	0.17ns
45	0.18*	0.28**	0.25**	0.26**	0.02ns	0.05ns	0.12ns	0.37**	0.43**	0.04ns
46	0.29**	0.09ns	0.15ns	0.009ns	0.17ns	0.10ns	0.17ns	0.15ns	0.10ns	0.15ns
47	0.12ns	0.15ns	0.08ns	0.09ns	0.004ns	0.02ns	0.13ns	0.11ns	0.2*	0.11ns
48	0.15ns	0.11ns	0.20*	-0.10	0.26**	0.27**	0.11ns	0.16ns	0.31**	0.33**
49	0.12ns	0.05ns	0.11ns	-0.009	0.11ns	0.110ns	0.04ns	0.03ns	0.17ns	0.10ns
50	0.16ns	0.05ns	0.24**	0.10ns	0.22*	-0.04	0.13ns	0.34**	0.26**	0.24**

Continue of table 8- correlation between questions

	31	32	33	34	35	36	37	38	39	40
31	1									
32	0.25**	1								
33	0.45**	0.30**	1							
34	0.39**	-0.002	0.36**	1						
35	0.14ns	0.43**	0.05ns	0.09ns	1					
36	0.21*	0.35**	0.53**	0.14ns	0.09ns	1				
37	0.38**	0.22*	0.40**	0.26**	0.19*	0.34**	1			
38	0.26**	0.04ns	0.27**	0.32**	-0.005	0.23*	0.26**	1		
39	0.23*	0.22*	0.35**	0.31**	0.16ns	0.24**	0.27**	0.34**	1	
40	0.28**	0.09ns	0.26**	0.22*	0.19*	0.20*	0.22*	0.22*	0.29**	1
41	0.21*	0.20*	0.19*	0.17ns	0.01ns	0.31**	0.30**	0.26**	0.25**	0.12ns
42	0.001ns	0.16ns	0.11ns	0.07ns	0.06ns	0.25**	0.06ns	0.15ns	0.14ns	0.31**
43	0.34**	0.21*	0.50**	0.27**	0.15ns	0.39**	0.36**	0.08ns	0.08ns	0.13ns
44	0.06ns	0.21*	0.09ns	0.03ns	0.26**	0.30**	0.22*	0.16ns	0.18*	0.25**
45	0.28**	0.27**	0.50**	0.19*	0.19*	0.39**	0.39**	0.15ns	0.23*	0.23*
46	0.17ns	0.29**	0.06ns	0.1ns	0.19*	0.22*	0.12ns	0.22*	0.14ns	0.26**
47	0.26**	0.01ns	0.24**	0.12ns	-0.01	0.16ns	0.19*	0.14ns	0.09ns	-0.02
48	0.08ns	0.13ns	0.19*	0.29**	0.08ns	0.22*	0.25**	0.15ns	0.23*	0.27**
49	0.15ns	0.07ns	0.19*	0.14ns	0.05ns	0.11ns	0.18*	-0.02	-0.06	0.18ns
50	0.39**	0.31**	0.34**	0.16ns	0.10ns	0.33**	0.24**	0.25**	0.15ns	0.33**

Continue of table 8- correlation between questions

	41	42	43	44	45	46	47	48	49	50
41	1									
42	0.10ns	1								
43	0.15ns	-0.01	1							
44	0.16ns	0.41**	0.07ns	1						
45	0.26**	0.02ns	0.44**	0.05ns	1					
46	0.25**	0.23*	0.06ns	0.27**	0.16ns	1				
47	0.06ns	-0.17	0.31**	-0.2*	0.42**	-0.04	1			
48	0.01ns	0.13ns	0.23*	0.26**	0.03ns	0.16ns	-0.04	1		
49	0.07ns	0.25**	0.25**	0.32**	0.15ns	0.16ns	0.01ns	0.20*	1	
50	0.15ns	0.05ns	0.09ns	0.13ns	0.33**	0.27**	0.15ns	0.03ns	0.05ns	1