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Effectiveness of the Group Training Methods Used in Education of the Irrigated Wheat Growers of the Golestan Province, Iran

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Abstract: Promoting the technical knowledge of the human factor is not possible by itself and the extensional education is very important indeed. Obviously, in administration of the extensional activities, the training methods function and their efficiency are crucial in line with materializing the desired goals. Continuation of an educational method usage is by far dependent to the effectiveness of that method. This means that to what extent the used method has been successful in materializing the desired goals. Taking into account the effectiveness of the educational methods is important because it enables the extension workers and the programmers to select them realistically, meanwhile consciously, thereby to pave the way for desirable and rapid changes in knowledge, skill level and the insight of the addressees, which in turn results in rapid accessibility to the educational aims, cost saving, time saving and preservation of the facilities, etc. In the present condition, the selection and application of different methods in extension activities does not follow a specific order and fewer extension workers can be found in our country taking notice of indexes such as the program period, type of the education program, personal specifications and skills of the addressees, local conditions, financial resources, scope of the accessible methods, the methods share in the education program, the suitable media configuration and ultimately, the effectiveness. Of course, it seems that existence of a central programming system and communicating annual extension programs based on the recommended educational methods is one of the main obstacles of enjoying the extension workers' creativity and their more authority in selecting a suitable educational method, considering the whole conditions and the mentioned indexes. The research has been of descriptive (non-experimental) and survey type. The statistical population of the research included all the extension workers of the Golestan province, from which all those with extension activities regarding education of the wheat growers (91 extension workers) have been selected as the research sample. The results showed that most of the extension workers despite little use of the lecture and visit, believed very to very much in effectiveness of the said methods in educations before cultivation, crop protection and harvesting of the wheat. The research results showed that there is a positive and significant relationship between the age variable of the extension worker and his/her estimation about the effectiveness level of the group education methods with 95% certainty and between his/her previous record variable and his/her estimation about the effectiveness level of the group education methods with 99% certainty. It can be concluded that serious attention must be paid in holding courses in the fields of familiarity with types, application and evaluation principals of the extension methods, as well as familiarity with new methods of agricultural extension, proportional to each one of the education subjects relating to wheat cultivation, the conditions is provided for encouragement and direction of the extension workers as to broad application of the lecture based active group education methods, education workshops, building presentation farms and visiting the educational farms and exhibitions by the extension workers in other aspects of the wheat cultivation education.

Key words: Effectiveness · Group education method · Extension worker · Agricultural extension

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INTRODUCTION

The wheat role as a strategic crop in food basket of the Iranian families is obvious to all. Hence, the increase in its production and achieving sustainable self-sufficiency in this regard has always been one of the concerns of the Ministry of Jihad-e Agriculture of Islamic Republic of Iran. No doubt, the human factor function is of high importance among all influential factors in production process. It is clear that in case the human factor enjoys high technical knowledge about different cultivation procedures of the crop, it could be expected that the production resources and factors are suitably used, so that the production increase and ultimately self-sufficiency is attained. Promoting the technical knowledge of the human factor is not possible by itself and the extensional education is very important indeed. Obviously, in administration of the extensional activities, the training methods function and their efficiency are crucial in line with materializing the desired goals.

The education methods in agricultural extension are all those techniques used by the extension workers to build a relationship with the farmers [1]. The extensional education methods are the tools and techniques used to create opportunities in which a relationship between the rural people and the extension workers is established. The extensional methods are divided into three individual, group and mass categories, based on the number of addressees and the distance between the resource and the receiver. Employing each one of the methods in extensional activities depends on the subject and the aim of the message and the receivers' information level, experiences and quality. Frequent and diverse experiences show that there is always a most effective educational method for conveying the message content to each individual or group. The trainer attempt must be finding, meanwhile surveying, testing and experiencing, the most effective method for teaching of a certain material to a certain individual or group. This means that a message is better learned and is more conveniently taught by the extension worker using some suitable educational methods. Thirdly, using some kind of educational method justifies accepting a new phenomenon or technique. This is especially true when practical and presentational methods are employed [2]. As a result of the educational methods, the transferred volume of data and the desired skills to the addressees and the target groups of extensional activities is increased. In fact, all the educational methods are aimed at a common target that is simplifying the learning process of the extension addressees.

Continuation of an educational method usage is by far dependent to the effectiveness of that method. This means that to what extent the used method has been successful in materializing the desired goals. Taking into account the effectiveness of the educational methods is important because it enables the extension workers and the programmers to select them realistically, meanwhile consciously, thereby to pave the way for desirable and rapid changes in knowledge, skill level and the insight of the addressees, which in turn results in rapid accessibility to the educational aims, cost saving, time saving and preservation of the facilities, etc. The educational methods in extension can be surveyed and studied in two different levels. In first level, the extensional skills and techniques are considered accompanied by each method. In the second level, a method or a combination of methods is considered for materializing an extensional goal. Nevertheless, the crucial point in selecting and employing the educational methods in educating the farmers and the target groups is taking notice of their success in attaining the desired goals, that is, their effectiveness. This is because in the present condition, the selection and application of different methods in extension activities does not follow a specific order and fewer extension workers can be found in our country taking notice of indexes such as the program period, type of the education program, personal specifications and skills of the addressees, local conditions, financial resources, scope of the accessible methods, the methods share in the education program, the suitable media configuration and ultimately, the effectiveness. Of course, it seems that existence of a central programming system and communicating annual extension programs based on the recommended educational methods is one of the main obstacles of enjoying the extension workers' creativity and their more authority in selecting a suitable educational method, considering the whole conditions and the mentioned indexes.

From the extension educational methods, the group education methods can be mentioned that includes those methods in which the trainer is always engaged in relationship with a group of trainee clients. Using these methods the number of contacts between the extension workers and the farmers is increased. There are numerous and important features distinguishing the group methods from other extension methods, i.e. individual and mass education methods. These features include increase in the number of contacts between extension worker and the farmers [3]. Using the group methods, the possibility of active participation of the farmers in all dimensions of organizing, discussion, talks and presentation of new

thoughts is provided. Also in group method forms, there is the possibility of presenting complicated and comprehensive information by the extension worker which would not be possible in personal visits or using mass communication means [1]. Official meetings and conferences in different kinds like traditional lectures, panels, seminars and symposiums, result demonstration, method demonstration, workshops and visits are among group educational methods [1, 3-5].

Different factors affect the effectiveness of the group educational methods. Some of these factors relate to the goal or goals of the education, some relate to the features of the method itself and some relate to the trainer, addressee, conditions, facilities, etc. The educational methods are affected directly by the educational goals, that is, the changes and revisions made in the educational goals and programs increase its volume and content according to the time and location requirements that in turn necessitates revisions of the education methods, so that the increase in the program volume is compensated by determining and selecting suitable, simple and new methods. The overall educational goal or goals and the behavioral objectives and the kind of the scope of each goal can be considered in determining the suitable educational method. The features of the education method itself, such as being active, engagement of the learners' different senses, persuading the learners, validity and value, efficiency and fruitfulness, flexibility, consistency with other methods, motivating the learner in a continuative learning process, establishing a sincere relationship between the trainer and the learners and among the learners [1, 6-9] and the learners features like their needs and interests, number, education level, age, professional background, readiness and experiences of the learners as well as their spiritual, mental and personal characteristics are among the cases affecting the educational method effectiveness [1, 7-12]. The features and specifications of the trainer such as effectiveness and efficiency, sensitivity, recognition ability, being skillful, inclination, knowledge, capability and his/her experiences is influential on the effectiveness of the education method used by him [1, 12, 7].

Based on the above said issues, it can be said that the effectiveness of the group education methods is considerable from two aspects of materializing the expected behavioral objectives as regards to the subjects of education, resulting from applying the extension method by the trainer (extension worker) and the one hand and the effectiveness resulting from the special features of the extension method in the fields like presenting the information to the addressee, simplicity and speed of learning the education concepts and contents, creation and continuation of the addressee's interest as regards to the subject of the education, establishment of the learned materials in the mind of the addressee, attracting the addressee's senses, provoking more motivation for the addressee for taking part in the education process, creating relationship between the trainer and the trainee, suitability with the possibilities and conditions of the addressee, compatibility with the addressee's requirements, the practical aspects of the education method, the acceptance time of the education material, creating interest in changing and development of the inclusive operation works, the addressees background knowledge and attitudes, suitability with the scheduled time for the education and the decision making process of the farmer.

Derakhshan [13] concluded in his study that the more the extension education tends to the practical methods, the more desirable would be the learning status of the farmers. In the mean time he concludes that the extension workers are more interested in using theoretical methods in extension programs and tend less in using practical methods, while the farmers most welcome the practical education methods than theoretical methods. Roshanaee [14] concludes in his study that among the transferring means of the extension messages, the education classes, the extension worker, the television, magazines, radio and the correspondence have the most important roles respectively.

Izadpanah's study [15] showed that the educational methods like visiting the presentation farms, holding educational classes and method demonstration respectively have been influential most of all on the irrigated wheat performance from the wheat growers' point of view. Also he concludes in his study that the question and response based methods, the group discussions and lectures have been influential most of all on the learning of the farmers. Radhakrishna *et al* [8] found in a study that educational methods like newspaper, publications, farm visits, video, workshops, nightly association, short term courses, official classes and the internet are the most influential methods in dissemination of the extension information of the fir cultivation. King [16] in his study considers the effectiveness of the educational methods of the Pennsylvania state farmers relating to the soil sampling and concludes that the farmers prefer group educational methods and have mentioned some methods like the extension associations and workshops. Odebode [17] in a study with the aim of determining the effectiveness of

the educational methods of technology transfer relating to the sweet potato cultivation in Nigeria concludes that the use of the effective and suitable methods or a combination of the three categories of extension methods (individual, group and mass education) causes improvement and development of the sweet potato industries in Nigeria. The study carried out by Obahayujie and Hilison [12] showed that part time cattle farmers have estimated on farm presentations as very effective educational methods and full time cattle farmers have mentioned the newspapers or written media and visiting the research stations as the most effective methods. Omer and Martin [18] found in their study that the extension workers use methods like lecture together with discussion, overhead projections, slides, lectures, problem solving, chalkboard, group discussion and individual teaching more than other methods. Effectiveness of the methods from the extension workers point of view has been the lecture and discussion, problem solving, individual training, overhead projection, slide, group discussion, summarizing, chalkboard, question and answer, TV programs and video tapes respectively. Creswell and Martin [5] in another research with the aim of evaluating the learning strategies used for teaching the poison application found that the most popular methods used by the extension workers included the slides, overhead projectors, lecture together with discussion, question and answer, lecture, news story, problem solving, self-reading, tape cassette and group discussion respectively. The most effective methods in the field of poison application training have been method demonstration, slides, individual training, problem solving, lecture and discussion, question and answer, group discussion, observing the pest samples, video films, overhead projection, workshop, scientific tours, case study, self-reading, news story, newspaper, lecture, tape cassette, exhibition and TV respectively. The specific objectives of the study were:

- Determining the usage frequency of the group education methods by the extension workers in cultivation, protection and harvesting stages of the wheat.
- Determining the effectiveness level of different group education methods in materializing the education goals relating to each of the cultivation, protection and harvesting stages of the wheat.
- Comparing the extension methods used by the extension workers as regards to the effectiveness level of each method.
- Comparing the two groups of women and men extension workers' views regarding the effectiveness of the group education methods.
- Determining the relationship between the extension workers features and their views in relation with the effectiveness of the group education methods

MATERIALS AND METHODS

The Golestan province in Northern of Iran was selected for this study. The majority of farmers grow wheat in Golestan province. The population of the study consisted of all the extension workers of the Golestan province, from which all those with extension activities regarding education of the wheat growers (91 extension workers) have been selected as the research sample using sensus sampling method. A survey questionnaire was developed matching with the research objectives and used for data collection. The content validity of which has been modified and confirmed through interviews with agronomists and agricultural extension experts. The Cronbach Alfa method has been used for calculating the research tool reliability. So, as a result of a pilot test out of the research sample, the Cronbach Alfa value gained for the questions about the frequency usage of different educational methods by the extension workers was 0.90 and the effectiveness of each of the said methods was 0.92. The raw data from the survey was coded and inserted in to computer data base and finally data analyzed with SPSS/WIN 11.5. software. Effectiveness of the group education methods used in education of the Golestan province wheat growers was the dependent variable of the study and was measured based on the respondent extension workers' perception about the performance of the methods in improving the issues like the cultivation step such as land preparation, adjusting the cultivation tools, equilibrium use of the fertilizers, disinfecting the seeds, sifting the seeds, consumption level of the seeds, correct cultivation date and correct cultivation procedure, the protection step such as using the grain drill, consuming the top dressing, fighting with the wide leaf weeds, fighting with the narrow leaf weeds, correct irrigation of the farm, fighting with the pests, fighting with the crop diseases and the harvesting step such as adjusting the harvesting tools and decreasing the harvesting wastes.

The desired education methods included the lecture, the lecture together with group disscussion, lecture with question and answer, lecture with group disscussion and

question- answer, extension visits from presentation farms, research stations and exhibition, workshops, creating presentation farms and extension conferences.

The extension workers use of any of the education methods has been questioned under the four options form (1-Not using the method, 2-Seldom use of the method, 3-Sometimes use of the method, 4-Always use of the method) and the effectiveness level of any of the education methods has been questioned under the Likert five options form (1-effectless, 2-a little effective, 3-somehow effective, 4-effective, 5-very effective). The descriptive statistical methods included the mean and standard deviation methods used for categorizing the test items regarding different features and describing statistical population specifications. Considering the measurement level of the dependent and independent variables of the research, the Spearman and Cramer's correlative coefficients (V) has been used for determining the correlation among the variables.

RESULTS AND DISCUSSION

Personal and economical specifications of the people under survey: The results gained regarding the personal specifications of the extension workers showed that most of them aged between 31 and 40 years old. Most of them were male and educated in M.A. or higher levels of education. Their major mostly was agronomy (including farming, crop production technology, agricultural extension, agricultural machinery, animal sciences, plant pathology, agrology, food industry, agro-economy and irrigation). Most of them are villagers or have been born in village, but are not directly engaged in farming works. Most of them live in the cities and have no previous record of education activities before starting their profession as extension workers. Most of the have worked between 1 to 10 years as extension worker and do professions other than their main job as well. Their side work mainly does not relate to education or extension works like implementing wheat plans, canola, cotton, crop protection, steep lands, pressured irrigation, supplying the inputs, etc.

The Usage Level of the Lecture Based Education Methods in Training Different Procedures of the Wheat Cultivation: In extension education, when using the lecture based education it is recommended that the mere inactive lecture method is not used. Accordingly, it is necessary to use active methods like group discussion and question-answer together with lecture method in order to increase the participation level of the farmers in educational discussions and better engagement of their senses. Based on this the results showed that on the whole, most of the extension workers seldom to sometimes use the lecture based education methods in training different procedures of the wheat cultivation. Most of the extension workers use of the lecture method has been in trainings relating to the fighting with narrow leaf weeds, fighting with wide leaf weeds and seeds disinfection. Regarding the active lecture method together with group discussion, the results show that the most usage relates to training the use of the grain drill, fighting with the narrow leaf weeds and fighting with crop diseases respectively. Regarding the active lecture method together with question and answer, the results show that the extension workers use the said method for training fighting with crop diseases, equilibrium use of the fertilizers and fighting with the narrow leaf weeds respectively. Meanwhile, most of the extension workers have used active lecture method together with group discussion and question-answer in training fighting with the narrow leaf weeds, fighting with crop diseases and training the top dressing consumption respectively. As it can be seen, the common point of view among most of the extension workers has been the use of active methods relating to fighting with the narrow leaf weeds and fighting with crop diseases, both of them being very important in protection stage of the irrigated wheat. The summary of this analysis are presented in Table 1.

The Usage Level of the Education Methods Based on the Visiting in Educating Different Stages of the Wheat Cultivation: Considering the extension visits providing an objective opportunity for the farmers and speed up acceptance of the new inventions, making use of them has been very much recommended: The results showed that most of the extension workers use very little to sometimes of the visiting based methods. Most frequent use of visiting presentation farms method by the extension workers related to the educations as to fighting with the wide leaf weeds operation, fighting with crop diseases, fighting with the narrow leaf weeds and correct cultivation practice respectively. Regarding research station visiting method, the results show that the most usage by the extension workers related to the educations as to fighting with the narrow leaf weeds, fighting with crop diseases, the correct date of the cultivation, fighting with the wide leaf weeds and land preparation practice respectively.

Table 1: The usage level of the lecture based group methods by the extension workers in different steps of the wheat cultivation

	Lecture, discussion, question-answer		Lecture and question-answer		Lecture and group discussion		Lecture	
Operation	Standard Deviation	Mean Value	Standard Deviation	Mean Value	Standard Deviation	Mean Value	Standard Deviation	Mean Value
Land preparation	1.10	2.73	1.15	2.69	1.13	2.36	1.19	2.38
Adjusting the cultivation tools	1.11	2.50	1.15	2.40	1.15	2.23	1.20	2.24
Equilibrium use of the fertilizers	1.12	2.81	1.20	2.76	1.22	2.43	1.19	2.52
Disinfecting the seeds	1.12	2.80	1.10	2.73	1.22	2.42	1.19	2.59
Sifting the seeds	1.13	2.63	1.14	2.60	1.21	2.40	1.19	2.57
Consumption level of the seeds	1.08	2.89	1.16	2.53	1.16	2.38	1.23	2.53
Correct cultivation date	1.13	2.74	1.20	2.60	1.23	2.53	1.19	2.51
Correct cultivation procedure	1.08	2.80	1.14	2.56	1.18	2.46	1.23	2.45
Using the grain drill	1.03	2.85	1.19	2.62	1.51	2.62	1.20	2.50
Consuming the top dressing	1.02	2.90	1.16	2.67	1.21	2.50	1.22	2.50
Fighting with the wide leaf weeds	1.02	2.89	1.17	2.69	1.21	2.53	1.20	2.61
Fighting with the narrow leaf weeds	o.97	2.97	1.15	2.74	1.18	2.61	1.20	2.62
Correct irrigation of the farm	1.13	2.63	1.20	2.45	1.23	2.40	1.22	2.42
Fighting with the pests	1.o8	2.68	1.14	2.41	1.14	2.32	1.21	2.51
Fighting with the crop diseases	1.03	2.91	1.62	2.86	1.16	2.56	1.17	2.51
Adjusting the harvesting tools	1.14	2.68	1.20	2.41	1.22	2.38	1.22	2.40
Decreasing the harvesting wastes	1.10	2.61	1.14	2.38	1.15	2.21	1.20	2.42

1-No use 2-Seldom use 3-Sometimes use 4-Permanent use

Source: Authors' survey, 2009

Table 2: Usage level of the visit based group education methods by the extension workers in different stages of the wheat cultivation

	Visiting the exhibition		Visiting the research station		Visiting the presentation farms	
Operation	Standard Deviation	Mean Value	Standard Deviation	Mean Value	Standard Deviation	Mean Value
Land preparation	0.87	1.62	1.03	2.11	1.09	2.37
Adjusting the cultivation tools	0.98	1.74	1.11	1.98	1.13	2.30
Equilibrium use of the fertilizers	0.89	1.62	1.02	2.04	1.05	2.51
Disinfecting the seeds	0.92	1.70	1.09	2.06	1.07	2.45
Sifting the seeds	0.91	1.70	1.01	1.92	1.07	2.30
Consumption level of the seeds	0.94	1.72	1.03	1.98	1.08	2.43
Correct cultivation date	0.94	1.71	1.08	2.14	1.08	2.47
Correct cultivation procedure	0.97	1.73	1.09	2.07	1.10	2.54
Using the grain drill	0.97	1.73	1.08	2.07	1.10	2.53
Consuming the top dressing	0.99	1.78	1.08	2.02	1.10	2.54
Fighting with the wide leaf weeds	0.95	1.69	1.09	2.14	1.08	2.60
Fighting with the narrow leaf weeds	0.92	1.73	1.11	2.15	1.11	2.58
Correct irrigation of the farm	0.94	1.70	1.08	2.03	1.10	2.39
Fighting with the pests	1.00	1.76	1.08	2.00	1.11	2.51
Fighting with the crop diseases	0.93	1.69	1.09	2.15	1.10	2.60
Adjusting the harvesting tools	0.94	1.68	1.08	2.00	1.10	2.41
Decreasing the harvesting wastes	0.97	1.69	1.02	1.96	1.08	2.37

1-No use 2-Seldom use 3-Sometimes use 4-Permanent use

Source: Authors' survey, 2009

Regarding the exhibition visiting method, the extension workers have used the said method in educations as to consumption of the top dressing, fighting with the pests and adjustment of the cultivation tools respectively. As it can be seen, the common point of view among most of the extension workers has been the use of visiting based methods in educations relating to fighting with the narrow leaf weeds, fighting with crop diseases and fighting with the wide leaf weeds. The summary of this analysis are presented in Table 2.

Table 3: The usage level of other group education methods in educating different stages of the wheat cultivation

	Extension Conference		Presentation farm		Workshop	
Operation	Standard Deviation	Mean Value	Standard Deviation	Mean Value	Standard Deviation	Mean Value
Land preparation	0.99	1.82	1.19	2.52	1.17	2.37
Adjusting the cultivation tools	0.98	1.70	1.21	2.32	1.14	2.51
Equilibrium use of the fertilizers	1.02	1.85	1.18	2.56	1.15	2.51
Disinfecting the seeds	0.95	1.76	1.19	2.51	1.15	2.51
Sifting the seeds	0.98	1.84	1.20	2.48	1.15	2.51
Consumption level of the seeds	0.95	1.75	1.22	2.48	1.11	2.51
Correct cultivation date	0.98	1.79	1.21	2.54	1.18	2.45
Correct cultivation procedure	1.02	1.81	1.19	2.53	1.14	2.38
Using the grain drill	1.00	1.82	1.18	2.74	1.14	2.46
Consuming the top dressing	0.97	1.75	1.19	2.56	1.10	2.47
Fighting with the wide leaf weeds	1.03	1.90	1.16	2.67	1.11	2.49
Fighting with the narrow leaf weeds	1.03	1.87	1.20	2.67	1.10	2.41
Correct irrigation of the farm	0.97	1.86	1.25	2.63	1.15	2.39
Fighting with the pests	1.02	1.84	1.23	2.57	1.10	2.48
Fighting with the crop diseases	1.00	1.87	1.20	2.61	1.13	2.48
Adjusting the harvesting tools	0.98	1.78	1.23	2.39	1.13	2.43
Decreasing the harvesting wastes	1.01	1.85	1.22	2.39	1.12	2.42

1-No use 2-Seldom use 3-Sometimes use 4-Permanent use

Source: Authors' survey, 2009

The Usage Level of Other Group Education Methods in Training Different Stages of the Wheat Production: Holding educational workshops in fact provides an opportunity for practical performing of the learned skills by the farmers. Presentation farms also provide the farmers with a new learning and comparison environment between the new and traditional production methods and extension conferences provide a suitable environment for interaction among the farmers and between the farmers and the extension workers. The results gained in table 3 indicate that most of the extension workers seldom to sometimes use other group education methods. The most usage of the workshop method by the extension workers is in educations as to training the adjustment of the cultivation tools and the seed consumption. Regarding the presentation farm method, the results show that the most usage relates to training the use of grain drill, fighting with the narrow and wide leaf weeds and correct irrigation of the farm respectively. Regarding the extension conference method, most of the extension workers have used the said method in training fighting with the wide leaf weeds, fighting with the narrow leaf weeds, fighting with crop diseases and correct irrigation of the farm respectively. As it can be seen, the common point of view among most of the extension workers regarding using other education methods relates to educating the irrigated wheat cultivation and harvesting procedures. The summary of this analysis are presented in Table 3.

Effectiveness of the Lecture Based Group Education Methods in Educating Different Stages of the Wheat Cultivation: The results showed that most of the extension workers despite little use of the lecture based methods and especially inactive lecture based methods, believed very to very much in effectiveness of the said methods in educations before cultivation, cultivation, crop protection and harvesting of the wheat. From the extension workers point of view, most of the effectiveness of the lecture method relates to training the grain drill, fighting with the crop diseases, fighting with the narrow leaf weeds and disinfection of the seeds. Regarding the active method of lecture together with group discussion, from the extension workers point of view, most of the effectiveness relates to training the consumption level of the seeds, fighting with the narrow leaf weeds, disinfection of the seeds and correct date of cultivation respectively. Also most of the effectiveness regarding the active method of lecture together with question and answer relates to training fighting with the wide leaf weeds, sifting the seeds and the consumption level of the seeds respectively. Meanwhile most of the extension workers attribute most of the effectiveness of active lecture method together with group discussion and question-answer to training equilibrium use of the fertilizer, preparing the land and consumption level of the seeds respectively. As it can be seen, the common point of view among most of the extension orkers has been higher effectiveness of the said methods in training

Table 4: Effectiveness of the lecture based group education methods in educating different stages of the wheat cultivation

	Lecture, discussion, question-answer		Lecture and question-answer		Lecture and group discussion		Lecture	
Operation	Standard Deviation	Mean Value	Standard Deviation	Mean Value	Standard Deviation	Mean Value	Standard Deviation	Mean Value
Land preparation	0.89	4.16	0.92	3.71	0.91	3.59	0.92	3.26
Adjusting the cultivation tools	1.00	1.92	0.94	3.65	0.94	3.57	0.88	3.15
Equilibrium use of the fertilizers	0.90	4.27	0.95	3.91	0.95	3.65	0.88	3.46
Disinfecting the seeds	1.00	3.18	0.93	4.05	1.01	3.76	0.89	3.54
Sifting the seeds	1.04	3.97	0.97	4.30	1.03	3.64	0.91	3.40
Consumption level of the seeds	0.93	4.14	0.88	4.16	1.03	3.80	0.97	3.50
Correct cultivation date	0.94	4.09	0.91	4.10	1.05	3.76	0.91	3.41
Correct cultivation procedure	0.94	4.10	0.90	4.09	1.01	3.62	0.87	3.45
Using the grain drill	0.98	4.09	1.04	3.96	1.04	3.67	0.90	3.58
Consuming the top dressing	1.00	4.12	0.94	4.06	1.08	3.74	0.93	3.53
Fighting with the wide leaf weeds	1.03	4.13	0.94	4.95	1.06	3.70	0.98	3.52
Fighting with the narrow leaf weeds	1.05	4.08	0.89	4.00	1.00	3.78	0.92	3.57
Correct irrigation of the farm	1.06	3.89	0.99	3.79	1.02	3.54	0.93	3.37
Fighting with the pests	0.98	4.01	0.97	3.86	1.00	3.60	0.95	3.40
Fighting with the crop diseases	0.97	4.19	0.90	3.93	0.94	3.65	0.92	3.57
Adjusting the harvesting tools	0.99	3.93	0.98	3.68	0.99	3.53	0.94	3.42
Decreasing the harvesting wastes	1.00	3.92	0.96	3.70	0.97	3.48	0.96	3.42

1-Non-effective 2-A little effective 3-Somehow effective 4-Effective 5-very effective
Source: Authors' survey, 2009

Table 5: Effectiveness of the visit based group education methods in educating different stages of the wheat cultivation

	Visiting the exhibition		Visiting the research station		Visiting the presentation farms	
Operation	Standard Deviation	Mean Value	Standard Deviation	Mean Value	Standard Deviation	Mean Value
Land preparation	1.04	3.31	1.04	3.95	1.01	4.05
Adjusting the cultivation tools	1.17	3.83	0.92	3.51	0.99	3.92
Equilibrium use of the fertilizers	0.93	3.46	1.03	3.70	1.05	3.75
Disinfecting the seeds	0.96	3.39	1.13	3.87	1.04	3.73
Sifting the seeds	1.03	3.32	1.10	3.61	1.07	3.65
Consumption level of the seeds	1.05	3.38	1.02	3.73	0.99	3.81
Correct cultivation date	1.04	3.39	0.93	3.80	1.08	3.74
Correct cultivation procedure	1.05	3.47	1.00	3.80	1.03	3.72
Using the grain drill	0.98	3.41	0.97	3.74	1.07	3.87
Consuming the top dressing	1.02	3.40	1.02	3.71	1.00	3.78
Fighting with the wide leaf weeds	1.04	3.42	1.06	3.80	1.01	3.95
Fighting with the narrow leaf weeds	1.03	3.37	1.04	3.72	1.02	3.91
Correct irrigation of the farm	1.05	3.29	1.01	3.76	1.07	3.67
Fighting with the pests	1.02	3.29	1.07	3.84	0.97	3.87
Fighting with the crop diseases	1.05	3.57	0.96	3.86	1.02	3.87
Adjusting the harvesting tools	1.07	3.24	0.94	3.72	1.07	3.76
Decreasing the harvesting wastes	1.00	3.36	1.04	3.68	1.09	3.78

1-Non-effective 2-A little effective 3-Somehow effective 4-Effective 5-very effective
Source: Authors' survey, 2009

fighting with the narrow leaf weeds, disinfection of the weeds and consumption level of the wheat seeds. The summary of this analysis are presented in Table 4.

Effectiveness of the Visit Based Group Education Methods in Educating Different Stages of the Wheat Cultivation: The results showed that most of the extension workers despite little use of the visit based methods, believed very to very much in effectiveness of the said methods in educations before cultivation, cultivation, crop protection and harvesting of the wheat. From the extension workers point of view, most of the effectiveness of the visiting presentation farms method relates to training land preparation, training fighting with the wide leaf weeds and adjusting the cultivation tools respectively. Regarding visiting the research station,

from the extension workers point of view, most of the effectiveness relates to training the land preparation, disinfection of the seeds and fighting with the crop diseases respectively. Also most of the effectiveness regarding exhibition visiting method relates to training adjustment of the cultivation tools, fighting with the wheat crop diseases and observing the correct cultivation practice respectively. As it can be seen, the common point of view among most of the extension workers has been higher effectiveness of the said methods in training land preparation, adjustment of the cultivation tools and fighting with the wheat crop diseases. The summary of this analysis are presented in Table 5.

Effectiveness of the Other Group Education Methods in Educating Different Stages of the Wheat Cultivation: The results showed that most of the extension workers despite little use of other education methods, believed in the said methods in educations before cultivation, cultivation, crop protection and harvesting of the wheat as being averagely to close to effective. Hence, from the extension workers point of view, most of the effectiveness of the education workshop method relates to training fighting with the narrow leaf weeds, adjusting the cultivation tools, equilibrium consumption of the fertilizer, fighting with the crop diseases and adjustment of the harvesting tools respectively. Regarding visiting the presentation farms, from the extension workers point of view, most of the effectiveness relates to training the land preparation, adjusting the cultivation tools, fighting with the wheat crop diseases and fighting with the narrow leaf weeds respectively. Regarding the extension conference education method, most of the effectiveness relates to training the land preparation, adjusting the harvesting tools, decreasing the harvesting wastes, correct consumption of the seeds and adjusting the cultivation tools. These results indicate the common point of view among most of the extension workers regarding effectiveness of most of the said methods in educations relating to the procedures before cultivation, cultivation and protection of the irrigated wheat crop, like adjusting the cultivation tools, training land preparation and fighting with the narrow leaf weeds. The summary of this analysis are presented in Table 6.

Comparison of the Mean Values: The significance test of the differences between the views of two independent groups of women and men extension workers regarding the effectiveness of the group education methods has been done using the Mann Whitney non-parametric test. Considering the gained significance level, it can be said that there is no significant difference between the views of the two women and men extension workers regarding the effectiveness of the group education methods in different stages of irrigated wheat cultivation. The summary of this analysis are presented in Table 7.

Table 6: Effectiveness of other group education methods in educating different stages of the wheat cultivation

	Extension Conference		Presentation farm		Workshop	
Operation	Standard Deviation	Mean Value	Standard Deviation	Mean Value	Standard Deviation	Mean Value
Land preparation	0.86	3.38	1.07	3.80	0.99	3.74
Adjusting the cultivation tools	0.97	3.30	1.02	3.80	1.13	3.83
Equilibrium use of the fertilizers	0.91	3.25	0.93	3.57	1.05	3.83
Disinfecting the seeds	0.89	3.19	1.01	3.52	1.08	3.78
Sifting the seeds	0.95	3.23	1.00	3.49	1.12	3.74
Consumption level of the seeds	0.91	3.30	1.04	3.68	1.10	3.74
Correct cultivation date	0.87	3.21	1.05	3.58	1.11	3.69
Correct cultivation procedure	0.95	3.21	1.01	3.59	1.09	3.75
Using the grain drill	0.91	3.29	0.98	3.58	1.07	3.76
Consuming the top dressing	0.93	3.25	1.00	3.56	1.07	3.74
Fighting with the wide leaf weeds	0.88	3.27	1.01	3.71	1.10	3.78
Fighting with the narrow leaf weeds	0.87	3.21	1.02	3.72	1.09	3.87
Correct irrigation of the farm	0.95	3.12	1.09	3.65	1.05	3.59
Fighting with the pests	0.92	3.29	1.04	3.65	1.02	3.74
Fighting with the crop diseases	0.98	3.28	1.03	3.72	1.01	3.79
Adjusting the harvesting tools	0.98	3.31	1.07	3.53	1.02	3.79
Decreasing the harvesting wastes	0.99	3.30	1.07	3.61	1.01	3.63

1-Non-effective 2-A little effective 3-Somehow effective 4-Effective 5-very effective

Source: Authors' survey, 2009

Table 7: The significance test of the difference between the views of the two women and men extension workers regarding group education methods

Effectiveness of the group educational methods	Significance level	Mann Whitney (U) test	Sum of the ranks		Mean rank	
			Female	Male	Female	Male
	0.77	572.50	708.50	3477.50	44.28	46.37

Source: Authors' survey, 2009

Table 8: Significance test of independent variables effect on the dependent variable of the research

Independent variable	Dependent variable	Correlation Coefficient	Significance level
Age	Effectiveness of the group educational methods	0.23*	0.02
Previous activity record	Effectiveness of the group educational methods	0.35**	0.00
Education level	Effectiveness of the group educational methods	-0.17	0.09
Gender	Effectiveness of the group educational methods	0.98	0.34
Major	Effectiveness of the group educational methods	0.95	0.57
Place of birth	Effectiveness of the group educational methods	0.96	0.42

** Significance in 1% Level * Significance in 5% Level

Source: Authors' survey, 2009

Correlation Between the Independent and Dependent Variables: The results gained from the correlation test between the research independent and dependent variables had significant relationship as to the following cases:

- There is a positive and significant relationship between the age variable of the extension worker and his/her evaluation about the effectiveness level of the group education methods with 95% certainty. This means that by increasing the age of the extension workers, they attach more effectiveness to the group education methods in educating different stages of the wheat cultivation.
- There is a positive and significant relationship between the previous activity records of the extension worker and his evaluation about the effectiveness level of the group education methods with 90% certainty. This means that by increasing the previous activity records of the extension workers, they attach more effectiveness to the group education methods in educating different stages of the wheat cultivation. The summary of this analysis are presented in Table 8.

CONCLUSION

The results showed that most of the extension workers despite little use of the lecture based methods and especially inactive lecture based methods, believed very to very much in effectiveness of the said methods in educations before cultivation, cultivation, crop protection and harvesting of the wheat. In any case, the said methods play an important role in increasing the participation level of the farmers in educational discussions and better engagement of their senses in education process, hence rapid, deep and sustainable learning of the education subject. Also most of the extension workers despite little use of the visit based education methods, believed very to very much in effectiveness of the said methods in educations before cultivation, cultivation, crop protection and harvesting of the wheat. This is while the extension visits provide an objective opportunity for the farmers and speed up acceptance of the new inventions. The results showed that most of the extension workers despite little use of other education methods, believed in the said methods in educations before cultivation, cultivation, crop protection and harvesting of the wheat as being averagely to close to effective. On the other hand, holding educational workshops in fact provides an opportunity for practical performing of the learned skills by the farmers and the presentation farm provides the farmers with a new environment for learning new methods of production and comparing them with traditional methods. Also extension conferences are considered a suitable environment for interaction among the farmers and with the extension worker. Taking into notice the findings of the research, the following suggestions are recommended:

- Considering the fact that most of the extension workers active in the field of educating the irrigated wheat growers are male and as many women actively take part in various production procedures of this product shoulder to shoulder with the men, it is recommended that for making better and deeper relationship with this group and consequently

increasing the effectiveness of the extension methods, serious attention is paid to employing the women extension workers.

- In initial stages and during service period of the young extension workers who are active in the field of the irrigated wheat extension education, serious attention must be paid in holding courses in the fields of familiarity with types, application and evaluation principals of the extension methods, as well as familiarity with new methods of agricultural extension and the like.
- Meanwhile using the experienced extension workers' experiences in the field of training the irrigated wheat cultivation, the ground is paved for enhancing the knowledge and skills of the young extension workers regarding the education methods. From the suitable solutions for this purpose, the solutions like educational needs assessment of the young extension workers and constituting extension teams from the experienced extension workers besides the young ones can be mentioned, so that the young extension workers can teach themselves based on a coach and pupil method.
- Considering little use of the lecture based active group education methods by the extension workers and their opinion about the effectiveness of the said methods in educating different stages of the irrigated wheat production, it is recommended that proportional to each one of the education subjects relating to wheat cultivation, the conditions is provided for encouragement and direction of the extension workers as to broad application of the said methods in other aspects of the wheat cultivation education.
- Considering little use of the objective and practical group education methods such as education workshops, building presentation farms and visiting the educational farms and exhibitions by the extension workers it is recommended that proportional to each one of the education subjects relating to wheat cultivation, the conditions is provided for encouragement and direction of the extension workers as to application of the said methods in the wheat cultivation education.
- It is recommended that the extension management of the Golestan province provides the appropriate bedding for effective application of the extension methods through supplying the required budget, man power and vehicles, as well as suitably equipping the agricultural services and extension centers.

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