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Training Needs of Agricultural Extension Workers, Ministry of Production and Economic Resources, Sinnar State, Sudan

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Abstract

This study assessed the competency and training needs of agricultural extension workers in Sinnar State, aiming to enhance their performance in delivering timely extension work and expert-recommended messages. The entire population of extension workers in the Ministry of Production and Economic Resources was surveyed (N=48). Data were analyzed using the Statistical Package for Social Sciences (SPSS), calculating frequencies, percentages, and weighted means to identify specific training requirements. Key findings revealed that while 72.1% of the workers held a bachelor's degree, significant skill gaps existed in communication and administrative tasks. Only 62.5% of extension workers demonstrated proficiency in executing agricultural programs and writing reports. Furthermore, a minority were skilled in media preparation, with only 35.4% capable of preparing agricultural radio programs and 33.3% able to write newspaper articles. Based on these results, it is recommended that the agricultural extension directorate implement targeted training programs in coordination with experts and media directorates. Training should focus on improving skills in formal meetings, using instructional aids, writing detailed reports, and preparing content suitable for various mass media channels, including pamphlets, magazines, radio, and television programs.

Keywords: *Agricultural Extension Workers, Training Needs, Performance Enhancement*

احتياجات العاملين بالارشاد الزراعي التدريبية بوزارة الانتاج والموارد الاقتصادية بولاية سنار، السودان

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المستخلص

قيّمت هذه الدراسة كفاءة واحتياجات التدريب للعاملين في الإرشاد الزراعي بولاية سنار، بهدف تحسين أدائهم في تقديم أعمال الإرشاد في الوقت المناسب وإيصال الرسائل التي يوصي بها الخبراء. استُطلعت آراء جميع العاملين في الإرشاد الزراعي بوزارة الإنتاج والموارد الاقتصادية (عددهم 48). وحُلّلت البيانات باستخدام الحزمة الإحصائية للعلوم الاجتماعية (SPSS)، مع حساب التكرارات والنسب المئوية والمتوسطات المرجحة لتحديد متطلبات التدريب المحددة. أظهرت النتائج الرئيسية أنه على الرغم من حصول 72.1% من العاملين على درجة البكالوريوس، إلا أن هناك فجوات كبيرة في مهارات التواصل والمهام الإدارية. أظهر 62.5% فقط من العاملين في الإرشاد الزراعي كفاءة في تنفيذ البرامج الزراعية وكتابة التقارير. علاوة على ذلك، كانت أقلية منهم ماهرة في إعداد المواد الإعلامية، حيث بلغت نسبة القادرين على إعداد البرامج الإذاعية الزراعية 35.4% فقط، بينما بلغت نسبة القادرين على كتابة المقالات الصحفية 33.3%. وبناءً على هذه النتائج، يُوصى بأن تنفذ مديرية الإرشاد الزراعي برامج تدريبية مُستهدفة بالتنسيق مع الخبراء ومديريات الإعلام. ويجب أن يركز التدريب على تحسين المهارات في الاجتماعات الرسمية، واستخدام الوسائل التعليمية، وكتابة التقارير التفصيلية، وإعداد المحتوى المناسب لقنوات الإعلام المختلفة، بما في ذلك الكتيبات والمجلات والبرامج الإذاعية والتلفزيونية.

الكلمات المفتاحية: *العاملين بالارشاد الزراعي، احتياجات التدريب، تحسين الاداء*

Introduction

Agricultural extension training is one of the major undertaking which a government, non-agricultural Groups, as well as other stakeholders with in the agricultural sector to educate worker, disseminates information, provide logistical inputs and organized training programs and workshops. Such aims will enhance and support the livelihoods of farmers. Extension teaches farmers about improved technologies so that they can increase agricultural production and productivity, thereby improving their living standard (Abibatu and T.Kromah 2016).

Agricultural extension aims to help rural people acquire new ideas, sound practices, and desirable attitudes to use their available resources wisely to raise their production, raise their economic level, and hence improve their living standards, (Elfaki, 2000; Swanson *et al*., 1997). To achieve this aim, extension workers use many agricultural approaches and utilize many educational means to make farmers aware of the new technologies and farm management systems. A good linkage between research centres and extension department keep extension workers up-to-date with discoveries and problem-solving procedures. The extension agents in the field should also reflect on the farmers' needs and problems associated with the agricultural research station and government bodies. Eltayeb (2005) stated that no one is perfectly fit at the time of hiring. Training is necessary to bridge the gap between what he is and what the job demands. In the absence of a systematic and planned training, employees learn their job by the trial-and-error method or observation, (Flippo, 2001). These methods consume more time and energy, thereby increasing the cost of training. Even then, there is no guarantee that the employee will learn the best method of doing the job. To have effective training at a reduced cost, planned training is a must. For any extension organization to improve its performance, continuous and systematic training of its staff is necessary. Training is not a luxury but a necessity; it is a kind of investment. Training has been recognized as an important input for improving the professional competence of extension personnel for effective transfer of technology to the farming community, so every organization seeks to raise the level of performance of their employees to do a better job through in-service training, (McDermott, 2003). The goal of this work is to assess the training needs of the agricultural extension workers in Sinnar State.

Material and methods:

This study is conducted in Sinnar state during 2021 which is represent the heart of Sudan and one of the 18 states of Sudan. It has an area of 37,844 km² and an estimated population of approximately 1,402,265 Persons. Sinnar state is composed of (7) seven localities, Sinnar, Sinja, Abuhugar, Aldinder, East Sinnar, Alsuki and Aldali Mazmom, People in Sinnar state is a mix of Arab and African tribes and some tribes of western Sudan. The people of Sinnar State depends mainly on agriculture and pastorals and trade in crops in their livelihood. Sinja is the capital and largest city in the state. The main economic activity is agriculture. All extension workers in the study area are 48, representing the total number of extension working in the Ministry of Agriculture Animal Wealth and Natural Resources is considered as the study population. The data for this study was collected through an interview using a structured Questionnaire, which contains questions about the assessment of agricultural extension worker's training needs in Sinnar State. While the secondary data were collected from theses, reports, scientific papers, books related to studies, and references. The data were coded and

emptied, and a code plan was made accordingly. The extracted data were analyzed using SPSS program. Descriptive analysis was used for calculating frequencies and percentages and weighted mean according to the Likert scale to reveal the actual training needs that extension workers in the study area lack on each issue regarding their daily activities.

Result and Discussion:

Table (1) shows that more than half of the agricultural extension workers (58.4%) are in the age group ranging from 30 to 40 years old, this means that about half the extension workers are young which encourages the administration to train them to better their jobs.

Table (2) reveals that most agricultural extension workers (72.9%) have a bachelor's degree, and 27.1% have a master's degree. This reflected in their high ability to acquire new technical knowledge.

Table (1) Frequency distribution of extension workers by age (N = 48).

Age	Frequency	Percent
30 years	7	14.6
31-40 years	21	43.8
41-50 years	16	33.3
51-60 years	4	8.3
Total	**48**	**100**

Table (2) Frequency Distribution of extension workers by educational level (N = 48).

Educational level	Frequency	Percent
B.Sc	35	72.9
Master	13	27.1
Total	**48**	**100**

Table (3) reflects that only 47.9% half of the agricultural extension workers are specialized in agricultural extension education. Therefor that is a need to train those how haven't agricultural degree in agricultural extension methods. Table (4) reveals that only 52.1% more than half of the agricultural extension workers attended training courses five times, 16.7% of them engaged in training courses once times, 12.5% of them attended never and three times, 4.2% of them attended only four times, 2.1% of them attend only times. This result shows that the agricultural extension workers do not received enough training as it is ought to be.

Table (5) denotes that only 62.5% of the agricultural extension workers received enough training on how at a weighted mean of (2.6) to write reports, which shows there is a need a train extension workers to write reports It is the role of the agricultural extension worker to write reports on the real extension of farmers. Reports about the problems that farmers face at the end of every season in specific areas, and urges the authorities to find solutions to these problems. Paul, (1998) and Laonard, (1997) stated that one of the specific objectives of agricultural extension is to relay the problems and needs of farmers back to the government agencies for research, study, and solution. Without being well skilled at writing reports, this objective cannot be accomplished.

Table (3) Frequency Distribution of Extension Workers by Academic Specialization (N = 48).

Academic specialization	Frequency	Percent
Agric. Extension	23	47.9
Agric. economic	9	18.8
Crop production	2	4.2
Agric. engineer	14	29.2
Total	**48**	**100**

Table (4) Frequency Distribution of extension workers by training duration (N = 48).

Attending Training courses	Frequency	Percent
Never	6	12.5
Once	8	16.7
Twice	1	2.1
Three times	6	12.5
Four times	2	4.2
Five times	25	52.1
Total	**48**	**100**

Table (6) reveals that 56.2% more than half of the agricultural extension workers are skilled at conducting formal meetings. The result shows there a need to train extension workers on conduct formal meetings at a weighted mean of (3.8). Through conducting formal meetings extension workers can reach more persons at one time.

Table (7) reflects that only 70.9% of the agricultural extension workers are skilled at using instructional audio aids, Result shows there is a need to train extension workers on instructional audio aids at a weighted mean of (3.8). Instructional audio aids are anything used in an instructional situation to help the learner reach the instructional objectives through the involvement of the sense of hearing. Dubay (2008) argued that audio aids are easy to use and have the advantage of making teaching more stimulating and dynamic, and they can be adapted to various topics and each type of audience.

Table (5) Frequency Distribution of extension workers by training in extension writing report (N = 48).

Writing report skills	Frequency	Percent	Weighted mean
Skilled enough	30	62.5	2.6
To some extent	18	37.5	
Not skilled at all	00	00	
Total	**48**	**100**	

*Weighted mean=3 no training need
*Weighted means less than 3 there is a training need

Table (8) shows that only 58.3% more than half of the agricultural extension workers

Table (6) Frequency distribution of extension workers by training in formal meeting (N = 48).

Formal meeting	Frequency	Percent	Weighted mean
Very skilled	17	35.4	3.8
Skilled	10	20.8	
Moderate	16	33.3	
Weak	5	10.4	
Not skilled at all	00	00	
Total	**48**	**100**	

*Weighted mean ≥ 4 no training need.
*Weighted mean= 3-3.9 there is a training need.
*Weighted mean= less than 3 there is an urgent training need.

are skilled at using instructional visual aids; The result shows there is a need to train extension workers on instructional visual aids at a weighted mean of (2.8). Instructional visual aids are anything used in an instructional situation to help the learners reach the instructional objectives through the involvement of both the sense of sight. Hawkings, (1999) stated that visual aids help step-by-step presentations and preset complicated facts in a simple manner.

Table (7) Frequency distribution of extension workers by training in audio aids(N= 48).			
Instructional audio aids	**Frequency**	**Percent**	**weighted mean**
Very skilled	13	27.1	3.8
Skilled	21	43.8	
Moderate	8	16.7	
Weak	5	10.4	
Not skilled at all	1	2.1	
Total	**48**	**100**	
*Weighted mean ≥ 4 no training need *Weighted mean= 3-3.9 there is a training need *Weighted mean= less than 3 there is an urgent training need			

Table (8) Frequency distribution of extension workers by training in Instructional visual aids (N = 48).			
Instructional visual aids	**Frequency**	**Percent**	**weighted mean**
Very skilled	12	25.0	2.8
Skilled	16	33.3	
Moderate	10	20.8	
Weak	6	12.5	
Not skilled at all	4	8.3	
Total	**48**	**100**	
*Weighted mean ≥ 4 no training need *Weighted mean= 3-3.9 there is a training need *Weighted mean= less than 3 there is an urgent training need			

Table (9) shows that only 45.8% half of the agricultural extension workers are skilled at using instructional audio-visual aids; The result shows there a need to train extension workers on use instructional audio-visual aids at a weighted mean of (3.0). Audiovisual aids are anything used in an instructional situation to help the learners to reach the instructional objectives through the involvement of both the sense of sight and the sense of hearing. Hawkings in (1999) argued that one of the main advantages of audio-visual aids over others is that they can show motion. On the other hand color, motion, and sound add realism and hold the learner's interest.

Table (9) Frequency distribution of extension workers by training in audio visual aids (N = 48).			
Instructional audio-visual aids	**Frequency**	**Percent**	**weighted mean**
Very skilled	6	12.5	3.0
Skilled	16	33.3	
Moderate	9	18.8	
Weak	6	12.5	
Not skilled at all	11	22.9	
Total	**48**	**100**	
*Weighted mean ≥ 4 no training need *Weighted mean= 3-3.9 there is a training need *Weighted mean= less than 3 there is an urgent training need			

Table (10) Frequency distribution by experience in writing extension pamphlets (N = 48).			
Preparing Pamphlets	**Frequency**	**Percent**	**weight mean**
Very skilled	14	29.2	3.7
Skilled	17	35.4	
Moderate	12	25.0	
Weak	3	6.3	
Not skilled at all	2	4.2	
Total	**48**	**100**	
*Weighted mean ≥ 4 no training need *Weighted mean= 3-3.9 there is a training need *Weighted mean= less than 3 there is an urgent training need			

Table (10) denotes that only 64.6% of the agricultural extension workers are skilled at preparing pamphlets; The result shows there is a need to train extension workers to prepare pamphlets at a weight mean of (3.7). Pamphlets are printed material often supported by appropriate illustrations, they give accurate or specific information on a particular topic in simple language. Sanders (1997) stated that pamphlets provide reliable scientific information, and can reach a large section of literate people simultaneously. Also, can be preserved and used by the readers for reference purposes.

Table (11) illustrates that only 56.2% more than half of the agricultural extension workers are adept at writing agricultural newspaper articles; The result shows there is a need to train extension workers to write agricultural newspaper articles at a weighted mean of (3.4). The newspaper article is an accurate, unbiased account of the main facts of a current event that is of interest to the readers of a newspaper. Hodgson (1996); Maaloouf, and Contado, (2005) reported that newspaper article gives information to many people quickly which would be of service to the leaders and people and highlight the important activities of individuals and groups.

Table (11) Frequency distribution by experience in writing journal articles (N = 48).

Writing newspaper article	Frequency	Percent	weighted mean
Very skilled	11	22.9	3.4
Skilled	16	33.3	
Moderate	10	20.8	
Weak	5	10.4	
Not skilled at all	6	12.5	
Total	**48**	**100**	

*Weighted mean ≥ 4 no training need
*Weighted mean= 3-3.9 there is a training need
*Weighted mean= less than 3 there is an urgent training need

Table (12) shows that only 52.1% more than half of the agricultural extension workers rely on agricultural radio programs to gain new information; The result shows there is a need to train extension radio programs as a source of information a weighted mean of (3.6). In Sudan, many radio stations compete to broadcast the most modern and useful information. They broadcast so many programs that can increase extension workers' awareness in many areas to make them cope with new advances in agriculture, (Omer, 2005). Klapper, (1990) and Hilland, (2000) reported that radio programs represent one of the most important information sources for farmers. Radio messages reach people instantly as the broadcaster speaks, the listeners hear him on their radio sets. Thus, urgent information can reach all parts of the country without delay.

Table No. (13) reflects that only 33.4% half of the agricultural extension workers rely on agriculture, the result shows there is a need to train to TV. program as a source of information with a weighted mean of (3.5). As is the case in radio programs, there are many TV. channels in Sudan that contribute to disseminating innovations and technology tailored to farming. Klapper (1990) stated that TV. the program has the advantage of displaying objects, pictures, and movies. It can represent a good source of information for extension workers.

Table (12) Frequency distribution by following radio program as a source of information:			
Radio Program as a Source of Information	**Frequency**	**Percent**	**Weighted Mean**
Always	10	20.8	3.6
Often	15	31.3	
Sometime	21	43.8	
Rarely	1	2.1	
Never	1	2.1	
Total	**48**	**100**	
*Weighted mean ≥ 4 no training need *Weighted mean= 3-3.9 there is a training need *Weighted mean= less than 3 there is an urgent training need			

Table (13) Frequency distribution by following T.V program as a source of information (N = 48).			
T.V program as a source of information	**Frequency**	**Percent**	**weighted mean**
Always	9	18.8	3.5
Often	7	14.6	
Sometime	26	54.2	
Rarely	4	8.3	
Never	2	4.2	
Total	**48**	**100**	
*Weighted mean ≥ 4 no training need *Weighted mean= 3-3.9 there is a training need *Weighted mean= less than 3 there is an urgent training need			

Conclusion:

It can be concluded that agricultural extension workers are in need to be trained in writing reports, instructional audio-visual aids, writing newspaper articles, preparing T.V programs, journals as a source of information, T.V programs as a source of information and Scientific books as a source of information.

Recommendations:

To Agricultural Extension Workers Directorate:

- To design training course according to training need for agricultural extension staff.
- More training course should be prepared to fulfill the trainee gap.

References

Abibatu, A; Kromah, T. (2016). Extension Approaches, (pp. 1-2). Retrieved on Thursday, 30 March, 2023 from, Kromah-Abibatu-2016-Extension-Approaches-in-Agricultural-Extension.
Dubay, V.K.; Indira Bishnoi (2008). Extension Education and Communication. New Age International Publishers, New Delhi, India. pp 485

Elfaki, M.H. (2000). Agricultural Extension and Agricultural Research Linkages in The Sudan With Special Reference to Gezira. Ph.D. Thesis Agricultural extension. University of Gezira, Sudan.

Eltayeb, M.E (2005). Agricultural Extension in Sudan, Policies and Reality, The Case of Khartoum State. Swedish University of Agricultural Science, Department of Rural Development and Agro ecology, Master s thesis No.27. Englewood cliff, New Jersey extension linkages, 3rd ed., Croom Helm, London.Englewood cliff, New Jersey.

Flippo, E.B. (2001). Principles of Personal Management, McGraw Hill, New York.pp 620

Hawkings, H.S. (1999). Visual Communication of Science and Technology (2nd ed.). Pitman, Melbourne.

Hilland, Robert (2000). Writing For Radio and TV (3rd ed.). Publisher, Wadsworth. ISBN: 9780534564179. Length: 447.
Hodgson, F. W. (1996). Modern Newspaper Practice: a primer on the press. (4th ed.). Focal Press; Routledge. pp238
Klapper,J.T.(1990). The Effect of Mass Communication (3rd ed.). Free press. pp 302

Laonard, D.K. (1997). Reaching the Peasant Farmer (2 ed.). University of Chicago press. pp 297

Maaloouf, W.D.; Contado ,T. E.(2005). Basic in Service Training for Agricultural Extension.1-20 https://repositorio.iica.int/server/api/core/bitstreams/d48ef798-1f67-4b02-93cb-ecb8f44898f7/content

McDermott, J.K. (2003). Making Extension Effective: The Role of Research. In Agricultural Extension Worldwide. Routledge.
Omer, M.H. (2005). The role of Marketing Extension in Raising Awareness of Ground Nut Farmers about Aflatoxin Contamination Emphasis on Rain Fed area in *kordofan*. Ph.D. in Agricultural Economic, University of Khartoum.

Paul, N. Williams (1998). Investigating, Reporting and Editing. Hall practice Inc. New Jersey USA. pp 294

Sanders, H.C. (1997). The co-operative extension service, Prentice Hall Englewood cliff , New Jersey. pp 436
Swanson, B.E.; Bentz, R.P.; Sofranko, J.A. (1997). Agricultural Extension, a reference Manual, (2 ed.). Food and Agriculture Organization (FAO).pp 303