

HORTICULTURAL CROP PRODUCTION COMPETENCIES AND TRAINING NEEDS OF AGRICULTURAL EXTENSION WORKERS IN GOMBE STATE

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Abstract

Agriculture is considered as a back bone in the development of any nation. The most effective means of transforming Nigeria's Agriculture for sustainable Agricultural development is through an effective extension system. This study was to find out the horticultural crop production competencies and training needs of the Agricultural extension workers in Gombe State. Descriptive survey research Design was adopted in this study. The population of the study comprises of 150 Agricultural extension workers in the state under the Ministry of Agriculture. Simple random sampling technique was used to select 90 Agricultural extension workers from the entire population as the respondents of the study. A structured questionnaire was developed by the researcher as the instrument for data collection. The instrument was validated by 3 experts in Agricultural extension. Data collected was analysed using descriptive statistics of frequency distribution, percentage and mean. The results of the study indicated among others that 78.8% of the Agricultural extension workers in the study area are male and 21.2% are female and the training needs of the respondents includes among others the use of information and communication technology (I C T) to source new horticultural innovations and technology. The study recommended among others that the Ministry of Agriculture should provide the different training needed by the AEWs in order to improve their performances.

Keywords: Agricultural Extension, Competencies, Horticulture, Innovation

Introduction

Agricultural extension is an educational service aim at assisting farmers to boost their production through providing important information regarding what they produce in their locality. Saville (2010) defines agricultural extension as a service or system which assists farmers through educational procedures in improving methods and techniques, increase production efficiency and income, as well as improving their level of living standard and also lifting the

social and educational standard of the rural people. Agricultural extension workers (AEWs) are those that have effective training in agriculture that provides farmers with necessary skills, education and technological information from subject specialist to enable them take effective decisions to enhance their farm practices (Okori, 2007). Agricultural extension workers are therefore personnel who disseminate useful and practical information to farmers that are related to agriculture,

including improved seeds, fertilizer, implement, pesticides, improved cultural practices and livestock etc.

Abdulhamid (2013) opined that the impacts of extension program on standard of living of farmers could be largely indirect rather than direct, for example providing farmers with agricultural innovation has led to wide spread adoption and increased productivity which in turns might have led to higher family income and ability to purchase more materials that indicate high level of living. It is an avenue of conveying to the farmers the results of agricultural research and other methods of better farming through demonstrations and other medium and also assisting them in the adoption of better farming practices.

Competency is a skill, a personal characteristic or a motive demonstrated by various behaviours which contribute to outstanding performance in a job. Generally, competency is the quality of being adequately or well qualified, having the ability to perform a job (Cochran, 2009). Competencies possess and perceived by AEWs determine the performance of both the extension worker and the farmers but when these competencies are lacking, there is need for regular training either pre-service or in-service or both to be given to the extension workers.

The competencies required of extension workers are a critically important matter in development of agriculture. These competencies are behaviours that an individual needs to demonstrate in his duty or work environment. Boyatzis (1982) also defines competency broadly as an underlying characteristic of a person. It could be motive, trait, and

skill, aspect of one's self-image or social role, or body of knowledge which he or she uses. In an effective extension service, there is a need for some high-level competencies which the extension worker must possess.

Gladden (2011) stated that generally, growing horticultural plants is not a modern-day invention but one that continues to be transformed as society advances technologically. The advance came not only in the areas of new and improved technology and an increase in knowledge but also in the introduction of new crops and improvement in trade. When considered from both science and business perspective, horticulture can be more broadly defined as the science and art of cultivating, processing, and marketing of fruits, vegetables, nuts, and ornamental plants (Sawi and Hormann, 2006). According to Scot (2005) Horticultural crops play a significant role in developing countries like Nigeria, both in income and social spheres for improving income and nutrition status. Gombe state has a variety of fruits, leafy vegetables, flowers, roots and tubers adaptable to specific locations and altitudes. Their production is mainly rain fed and few under irrigation where irrigation water is available.

According to Gladden (2011) Agricultural extension workers should possess some horticultural competencies which include basic knowledge, skills and abilities regarding the science and the field application of landscape horticulture and related discipline. The competencies required of the extension workers regarding horticulture includes knowledge, the skills, and the abilities needed to perform in the at the

developmental and full performance levels.

According to Gladen (2011) the professional discipline of AEWs in relation to horticulture is their ability to apply understandable practical horticulture and allied fields such as landscape architecture, plant pathology, entomology, soil science and botany to assist with projects reviews and provide technical assistance and information to farmers. AEW should also be able to manage and delivers training related to preservation horticulture and cultural landscape maintenance to the farmers. Proficiency in initiating, managing, and delivering training programmes. According to Davis (2011) AEWs should possess the following competencies and professionalism in order to help farmers improve their productivity.

1. Ability to communicate, interpret and present critical horticultural and landscape preservation maintenance issues associated with cultural landscape.
2. Ability to prepare articles, present programmes and develops other interpretive projects on horticultural and landscape preservation topics for professional conferences.
3. Skills in articulating complex landscape management issues verbally and in writing.
4. Skill in delivering formal presentations and preparing papers regarding cultural landscape preservation maintenance.
5. Skill in developing and prioritizing programme goals, objectives and initiatives.

6. Skills in conducting long-range planning and budget formation based on the knowledge of the agencies' budget process.

7. Ability to facilitate ongoing strategic planning including developing and prioritizing programme goals, objectives and initiatives.

In Nigeria agricultural sector for example, the production of the trained manpower remains a major bottleneck to the development of the sector. Williams (2003) also viewed extension through education and training where he emphasized the need to constantly train extension workers for them to perform well.

According to Khan (2012) Agriculture Extension Officers should be trained in the horticultural related activities as the demand for fruits, vegetables and flowers are increasing and there is an increasing pressure on horticulturist to produce more fruits, vegetable and flowers with the changing lifestyle and eating habits. Madukwe (2004) reported that the major trend that needs to be employed in shaping the future of agricultural extension in developing countries is the need for re-training of the extension staff to meet up with the trend in knowledge and the drive for effectiveness. He further stated that most of the extension staff may be employed for long but could not have access to training to update their performance in the field more especially on recent technological discoveries such as improve varieties in increasing the productivity and surplus value of their clients in rural areas. Hence, they need to be trained constantly.

Statement of the Problem

According to Urooba (2004) previous failure in achieving self-sufficiency in major agricultural product has always been ascribed to inefficiency of our agricultural extension service. Despite the increasing demand for food and the need to introduce new technology to farmers, the task of extension is often entrusted to less qualified staff (Ejemobil, Omoregbe & Robert, 2006). There are differences between the existing expected technical competencies in horticulture since productivity in horticultural products has been declining during the recent years (Scot, 2005). If extension personnel are not properly educated regarding horticultural crop production, the expected ambitious targets of high Agricultural production might not be achieved. Despite an enormous potential and a favourable environmental and socio-economic advantage, horticulture is relatively under developed. The margin of the current achievements, in terms of area and output is a small development compared to the possible level that can be attained (Semeret, 2009).

Purpose of the Study

The study has the following specific objectives are as follows: -

1. To determine the demographic characteristics of the Agricultural extension workers in Gombe state
2. To find out the perceived level of Horticultural crop production competencies of the Agricultural extension workers in Gombe state.
3. To determine the Horticultural crop production training needs of the

Agricultural extension workers in Gombe state.

Research Questions

The following research questions guided the study

1. What is the demographic characteristic of the Agricultural extension workers in Gombe state?
2. What are the perceived levels of Horticultural crop production competencies of the Agricultural extension workers in Gombe state?
3. What are the Horticultural crop production training needs of the Agricultural extension workers in Gombe state?

Methodology

The design adopted for this research was descriptive survey. The area of the study was Gombe State located in the North Eastern Nigeria. The population of this study includes all Agricultural extension workers that are working with the rural farmers in Gombe state. A stratified random sampling technique was used in selecting 90 Agricultural extension workers in the state as respondents. A five-point Likert-scale structured questionnaire was used as the instrument for data collection. The instrument was validated (both content and face validity) by three (3) experts in Agricultural extension and their observations were considered. The instrument was administered to the respondents for data collection. The data collected was analysed using frequency distribution, percentage and mean statistics. Mean rating scale was employed. The decision rule was that, an item with the mean score

from 3.0 and above was accepted while the mean score of less than 3.0 were rejected when answering the research questions.

Results and Discussions

Research Question 1: What are the demographic characteristics of the

Agricultural extension workers in Gombe state.

The result to answer this research question is presented in table I.

Table 1: Demographic characteristics of Agricultural Extension Workers in Gombe state

Working Experience	Age	Male					Female					TOTAL
		CERT.	NCE	ND	HND	D	CERT	NCE	ND	HND	D	
>5yrs	20-30yrs	0	0	0	0	0	1	0	1	0	0	2
	31-40yrs	0	2	3	0	0	0	1	1	0	0	7
	41-50yrs	0	1	1	0	0	0	0	0	0	0	2
	Above 50yrs	0	0	0	0	0	0	0	0	0	0	0
5-9yrs	20-30yrs	0	0	0	0	0	0	0	0	0	0	0
	31-40yrs	0	3	2	1	0	0	2	2	0	0	10
	41-50yrs	2	3	0	0	0	0	0	0	0	0	5
	Above 50yrs	0	0	0	0	0	0	0	0	0	0	0
10-14yrs	20-30yrs	0	0	0	0	0	0	0	0	0	0	0
	31-40yrs	1	2	5	0	0	2	1	1	0	0	12
	41-50yrs	0	1	3	0	0	0	0	1	0	0	5
	Above 50yrs	0	0	0	0	0	0	0	0	0	0	0
15-20yrs	20-30yrs	0	0	0	0	0	0	0	0	0	0	0
	31-40yrs	0	2	3	0	0	0	1	1	0	0	7
	41-50yrs	0	3	7	4	0	1	1	2	0	0	18
	Above 50yrs	0	0	1	0	0	0	0	0	0	0	1
Above 20yrs	20-30yrs	0	0	0	0	0	0	0	0	0	0	0
	31-40yrs	0	0	0	0	0	0	0	0	0	0	0
	41-50yrs	0	3	5	1	2	0	0	0	0	0	11
	Above 50yrs	0	2	3	4	1	0	0	0	0	0	10
TOTAL		1	21	36	10	3	4	6	9	0	0	90

From table 1 below, it shows that 79% of the agricultural Extension Workers (AEWs) in Gombe state (respondents) area male while 21% of them were female. This shows that majority of the AEWs are male with very few females.

This is line with what Airemen (2005) stated that extension job was reserved for men only in the past believing that it was only that were farmers and that men needed to reach them. However, presently accepting the fact that women

are also farmers and need to be reach in order to achieve increased productivity has necessitate the employment of female AEWs who are believed to be in a better position to do the job of reaching women. The result also shows that 85% of the respondents are within their youthful age and hence will be more productive in their service. In working experience, 12% of the AEWs have less than 5years experience in extension service, 16% of the respondents have between 5-9years of experience in the service, 18% of them have between 10-14years of experience, 28% have between 15-19years of experience, while 23% (all male) have above 20years of experience in the service. The length of service is probably an indicator of a person's commitment to the chosen career (Ejembi, 2006).

Research Question 3: What are the Perceived levels of Horticultural Crop Production Competencies of the AEWs in Gombe State

In order to answer research question 3, the result in table 3 below shows the mean score of the items where the AEWs have agreed that all the 12 items in the questionnaire identified are Horticultural crop production competencies because they all have a means score of above three points (3.00) which range from 3.03 to 3.86. There should be attention to the competencies of extension workers; identification of competencies levels perceived and possessed, mechanisms for improving extension service delivery; and the reinforcement of competencies possessed by extension staff. Scot (2005) revealed that agricultural extension workers truly need to be very competent technically and professionally in-so-far-as their line of duties and functions are

concerned. Based on the area of specialization, each extension worker should be aware of the competencies expected of him/her. It is also in line with the report of McCaslin and Mwangi (2003) who emphasized that continuous and accurate staff evaluation is essential in improving agricultural extension workers' performance and productivity. As a result, it is necessary to investigate competencies of extension staff and how that leads to better delivery of extension services for a sustainable rural development excellently.

Research Question 4: What are the Horticultural crop production training needs of the AEWs in Gombe state.

The result of research question 4. in the table below shows that the AEWs needs training in (8) Eight out of the twelve (12) areas identified in the questionnaire which have a mean score of above 3.00 and they do not need training in four 4 out of the twelve (12) areas identified because they have a mean score of less than 3.00 each. The study revealed that the areas in which the respondents express training needs are very relevant to knowledge and skills required for executing extension programmes as well as responding to farmer's need. Agricultural extension staff needs to be trained and retrained to respond well to their functions of communication and assisting farmers to make decisions on new technology. This result goes in line with what Russell (2011) stated that extension agent's competencies should be in accordance with the task areas in which they will be assigned to operate in order to perform successfully hence the importance of in-service training.

Table 2. Perceived level of Horticultural crop production competencies of AEWs in Gombe State

.	HC(5)	MC(4)	C(3)	FC(2)	NC(1)	Total	Mean	Remark
1. Diffuse horticultural crop production Innovations to farmers regularly	25	32	15	10	08	326	3.62	competent
2. Describe plant protection measures regarding vegetables	28	27	26	06	03	341	3.79	competent
3. Explain latest technology regarding production of vegetables	24	20	25	16	05	312	3.47	competent
4. Involving farmers in planning and designing of extension services	18	30	20	16	06	308	3.42	competent
5. Provides extension service in a language preferred by the farmers	21	30	20	14	05	318	3.53	competent
6. Describe Agric recommend-ation regarding fruit crops and storage procedure	25	22	20	16	07	312	3.47	competent
7. Plan and conduct programmes according to requirement of new technology	27	23	22	14	04	325	3.61	competent
8. Teach farmers research recommendations regarding appropriate irrigation schedule for horticultural crops	30	20	17	17	06	321	3.57	competent
9. Applying appropriate plant management activities involving pruning, trimming and plant growth regulators	24	20	19	20	07	304	3.38	competent
10. Complete routine horticultural Crop production assistance to farmers	25	38	16	11	-	347	3.86	competent
11. Perform propagation techniques like grafting, layering etc to farmers	20	12	24	26	08	280	3.11	competent
12. Describe agricultural recommendation regarding floriculture and management of commercial flowers.	13	21	24	20	12	273	3.03	competent

Table 3 Horticultural crop production training needs of the AEWs in Gombe state

	HN(5)	MN(4)	N(3)	FN(2)	NN(1)	Total	Mean	Remark
1. Production of quality planting materials of horticultural crops	28	33	10	15	04	336	3.73	Needed
2. Advance production technology of fruits like banana and pineapple	39	15	16	19	11	352	3.91	Needed
3. Advance production technology of vegetables e.g. Tomatoe and onions	10	20	10	30	20	240	2.67	N/Needed
4. Plant management activities involving pruning	09	21	04	36	20	233	2.59	N/Needed
5. Plant protection measures regarding vegetables e.g. Pepper, Amaranthus	12	10	18	30	20	234	2.60	N/Needed
6. Post-harvest management of fruits vegetables and cut flowers	24	25	20	15	06	310	3.44	N/Needed
7. Rodents and pest control of Horticultural crops	21	28	20	11	09	316	3.51	N/Needed
8. Establishment of Small Plot Adoption Technique (SPAT)	30	23	12	15	10	318	3.53	N/Needed
9. Agro-chemical Application skills	12	20	10	45	03	263	2.92	N/Needed
10. Use of ICT to source and translate horticultural researches/innovations	40	20	15	10	05	325	3.61	N/Needed
11. Demonstration, organization and conducting extension campaign	27	22	20	13	08	317	3.17	N/needed
12. Advance production and management of commercial flowers	24	30	17	10	09	320	3.56	N/Needed
N/Needed = Not Needed								

4.7 Discussion of Findings

The finding of this study revealed that majority of the agricultural extension workers (respondents) in the study area which constitute 79% are male and only 21% are female. This indicates that females were not given chance to work in the ministry of Agriculture to work as extension workers. This is in line with the assertion made by Aireman (2005) that extension job was reserved for men only in the past believing that it was only men that were farmers and that men needed to reach them. However presently, accepting the fact that women are also farmers and need to be reached in order to achieve increased productivity has

necessitate the employment of female extension workers who are believe to be in a better position to do the job.

The findings also revealed that very few of the Agricultural extension workers have higher qualification of Higher National Diploma and Degree. Therefore, they lack more experience and may not likely perform as expected. This is in line with what was reported by Abdulhamid (2013) that knowledge is an imperative factor in exploring opportunities unknown to people, thereby improving productivity and condition of service or living. The study revealed that the areas in which the respondents express training needs are very relevant

to knowledge and skills required for executing extension programmes as well as responding to farmer's need. Their expectation to improve their skills in Horticultural crop production is very high. Gladen (2011) stated that extension agent's competencies should be in accordance with the task areas in which they will be assigned to operate in order to perform successfully hence the importance of in-service training.

The result of this study also revealed that the agricultural extension workers perceived that involving farmers in planning and designing the extension service delivered to them and using language preferred by the farmers when disseminating new innovations or new technology are competencies require of any extension worker which have mean scores of 3.42 and 3.53 respectively. The study revealed that the respondent highly needs training in the areas of production of quality planting materials of horticultural crops to farmers with a mean score of 3.73. they also need training in the area of advance production technology of vegetables like tomatoes and pineapple because the commodities are required on daily bases. The respondents also need training in postharvest management of fruit and vegetables because they are perishable in nature and therefore need to be preserved to avoid deterioration with the mean score of 3.44. The study has also shown that the agricultural extension worker's needs training in rodents and pest control of horticultural crop which have a mean core of 3.51.

Conclusion

Agricultural extension covers all areas of agriculture and beyond including techniques of production, farm decision-making, marketing, processing, storage, socio-economic as well as cooperative matters. These technologies are disseminated to farmers to help them improve their production as well as their living standard. The present findings also revealed that the agricultural extension workers in the study area should be trained in the horticultural related activities as demand for fruits, vegetables and flowers are increasing and there is an increasing pressure on horticulturalist to produce more fruits, vegetables and flowers with the changing lifestyle and eating habits. Training is geared towards orienting the AEWs to the agencies' organization and mission. Training would technically be achieved by specific developmental activities including formal instruction, on-the job experiences, apprenticeship, special work assignment and close monitoring.

Recommendation

The following recommendation were made

1. Men should not dominate the workforce in the extension service hence more female Agricultural extension workers should be employed to help in reaching women farmers, since there is an increased participation of women in farming
2. Agricultural extension workers with high qualification should be employed in order to have effective extension programme implementation

3. Computers and other ICT materials should be provided by the state ministry of Agriculture to help AEWs accessed latest and modern technology regarding horticultural crop production for the purpose of disseminating to farmers.
4. Training need analysis should be carried out periodically for old and new recruit graduates to determine the training needs of the extension workers.

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