

Assessing the Competencies and Training Needs of Agricultural Extension Workers in Saudi Arabia

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ABSTRACT

Agriculture in the Kingdom of Saudi Arabia has witnessed many phases, from ancient small-scale Bedouin nomadic subsistence agriculture to mass-scale farming to ensure food security and self-sufficiency, to the present-day desire for sustainability. These transitions have made the work of extension staff very challenging. Effective extension work depends upon competent and well-trained agricultural extension staff. This study assessed the competencies of extension workers and identified the training needed to improve their work in the Saudi Agricultural Extension Service (SAES). Demographic information (age, length of service, and education level) was also collected. The study mailed a pre-tested questionnaire to all 250 extension professionals actively involved in extension work, and 181 responses were received. Most agricultural extension workers had qualifications in plant protection, plant production, and general agriculture before entering the Extension Service (19.3, 17.6, and 16.8%, respectively). Only 7.7% had specialized in agricultural extension and agricultural engineering. The study established the need for extensive training programs to enable extension workers to work efficiently and effectively in the changing farming scenario in the Kingdom. Results showed that training needs are correlated with the length of service and educational qualifications. Respondents wanted to have sufficient competency and skill to understand the relationships between the Extension Service and other agriculture related organizations; to understand how mass communication has influenced society; and to enhance their competencies in the area of the teaching-learning process. The primary areas of training needs identified in the survey are in the techniques of research and evaluation, and the teaching-learning process.

Keywords: Agricultural practices, Job performance, Mass communication, Teaching-learning process.

INTRODUCTION

The Kingdom of Saudi Arabia extends to about 80 percent of the Arabian Peninsula, and covers 2.25 million square kilometers (United Nations, 2015). The Kingdom sustains a population of approximately 30.89 million (World Bank, 2014; CISD, 2014). The agricultural area is about 173.29 million hectares (M ha), which is almost 80% of the total area (FAO, 2013). Reclaimable areas are about 3.8 million hectares (MOA, 2012). Arable crops cover 3.08 M ha, which is 1.43% of the land area (World Bank, 2015). The agricultural sector is as important as the

industrial sector in terms of job creation, with the exception of the oil and petrochemical industries. The Saudi farming sector has grown significantly from an economic perspective, and now employs nearly 7.2% of the productive sector workforce (MOA, 2012). Historically, nomads (Bedouin) along with the rural population practiced small-scale agriculture in rural areas. They raised livestock nomadically due to limited arable lands with sparse vegetation. Serious efforts to ensure food security through agricultural development began in the 1970s. The first development plan of the Kingdom (1970-1975) placed an emphasis on agriculture achieving sustainable yields (Royal Embassy

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of Saudi Arabia, USA, 2010; Al-Shayaa *et al.*, 2012; Baig and Straquadine, 2014).

The Kingdom has adopted many farmer-friendly policies and initiatives to assist farmers to succeed in raising crops, vegetables, and fruit. The introduction of modern agricultural technologies, the provision of “soft” and interest-free loans, the distribution of free lands, and an efficient agricultural extension service have been important measures to help achieve self-sufficiency in various commodities. By 1984, Saudi Arabia after attaining self-sufficiency in wheat production, started exporting it to several countries, including China (Al-Shayaa *et al.*, 2012; Baig and Straquadine, 2014). However, exports are currently not allowed to conserve the depleting water resources (Strategic Media, 2009), resulting in a decline in volume of wheat production and the area under its cultivation. However, there is an emphasis on fruit and vegetable production (SAMIRAD, 2005; Al-Shayaa *et al.*, 2012; Baig and Straquadine, 2014).

The Kingdom has been successfully meeting about 85% of the vegetable and 65% of the fruit requirements of its citizens (MOA, 2012). It attained self-sufficiency in many agricultural crops and food commodities, but self-sufficiency and over-production severely damaged natural resources such as water. The Kingdom also faces numerous other environmental challenges, including a reduction in arable land, desertification, creeping sands, and high temperatures as part of climate variation (US Department of Energy, 2002). These make agriculture a challenging enterprise. The status of natural resources and current environmental issues require scientists to evolve sustainable farming practices to move the country towards sustainable agriculture. Scientists believe there is a need to make radical changes to farming, and Saudi policy-makers also endorse and advocate more sustainable agriculture (Al-Subaiee *et al.*, 2005).

The roll back of the export policy and the adoption of sustainable agriculture has completely changed the role of extension

agents. They are entrusted with guiding farmers in the practice of sustainable agriculture to achieve reasonable production levels on their farms. They simultaneously encourage and educate farmers to adopt conservation measures to protect the Kingdom’s natural resources. The changes in priorities and crop preferences have increased the extension agents’ responsibilities significantly (Al-Shayaa *et al.*, 2011; Baig and Straquadine, 2014).

It is evident that there is a dire need to create awareness among farmers and extension agents about the concepts and practices of sustainable agriculture. Sustainable agriculture is capable of addressing many of the problems faced by Saudi agriculture such as low soil fertility, the conservation of natural resources, the selection of water-efficient drought resistant crop varieties, and environmental protection (Al-Subaiee *et al.*, 2005). However, launching successful sustainable agriculture programs without support from the extension service and its workers remains impossible.

Before initiating any extension program, it is extremely important to evaluate the current perceptions and knowledge of the extension agents about the focus of potential training. Effective extension and efficient technology transfer require an improvement in the efficiency of institutions involved in technology transfer and an upgrade in the technical and scientific knowledge of the field and extension staff (Al-Subaiee *et al.*, 2005). Also, Xayavong *et al.* (2014) placed great emphasis on training to improve the skills, knowledge, and capability of farm managers. Training is meant to equip agricultural extension workers with skills and competencies (Rad *et al.*, 2011) that include teamwork, communication, and leadership (the ability to understand the diverse views of farmers and farming issues) which are not addressed in detail in university classrooms (Movahedi and Nagel, 2012). According to Seevers *et al.* (1997), extension agents need to be increasingly skillful and innovative to serve the needs of their diverse audience. Scheer *et al.* (2011) believe that successful

extension agents must be competent in areas such as program planning, management, communication, human relations, and leadership, as well as in technical matters. The Kingdom of Saudi Arabia, with the help of the FAO, has recently planned a revision of its extension service. The group, working on the issue, wish to upgrade the skills and enhance the competencies of extension workers. Ahmadpour *et al.* (2016) believe that knowledge, learners' access to technical support, and learners' motivation influence extension workers' attitudes toward learning. A positive attitude will make them better students during their on-the-job training.

Keeping in mind the important role of extension workers in technology transfer, it is important to assess their competencies and existing training needs to enhance their performance. The present study has been conducted to meet this need.

The primary objective of this study was to determine the current level of extension workers' perceived competencies and to design training programs to enhance their competencies based on the study's results.

Specifically, the study aimed to achieve the following objectives:

To gather data on the demographic characteristics of the extension workers working in the Saudi Agricultural Extension Service (SAES);

To gauge the weaknesses and strengths (competencies) of the extension workers;

To identify the areas where competency is important in delivering extension advice and,

To identify the competencies gaps that need to be filled to strengthen the extension staff through future in-service training programs.

MATERIALS AND METHODS

The study was conducted during 2014 in the Kingdom of Saudi Arabia. An ex post facto research design was used in the investigation to determine the current knowledge levels of the extension workers and their ability to respond to farmers and

their various queries. The population for the descriptive study was all the extension workers (n= 250) of the Saudi Agricultural Extension Service (SAES).

Instrument

The survey instrument (a questionnaire) was developed to determine the current competencies of extension agents in the Kingdom, and the new competencies they needed to be successful extension professionals. The questionnaire contained questions to assist in determining their training needs. It contained two major sections: (1) Demographic information and, (2) Areas of the competencies. The competency of the workers was assessed against the items and parameters related to the competencies. Demographic information covered age, education level, years of experience in the extension service, and major areas of specialization. The data were collected through a survey questionnaire with the assistance of the faculty of the College of Food and Agriculture Sciences at King Saud University, Saudi Arabia. The questionnaire was mailed to participants.

Validity and Reliability

Content validity was established with the assistance of comments and suggestions from experts, which were incorporated into the final instrument. The questionnaire was piloted with 20 extension agents. Data from the pilot were analyzed to assess the reliability of the instrument (Cronbach's $\alpha = 0.95$) using the Statistical Package for the Social Sciences (SPSS 17). Changes were made to the questionnaire as a result of the suggestions from the pilot study's participants and experts from the College of Food and Agriculture at King Saud University, to ensure the questions were clear and meaningful to the extension workers.

Population, Sampling, and Data



Collection

The study population consisted of extension agents working in the Saudi Agricultural Extension Service (NES) employed by the Ministry Of Agriculture Extension (MOA) in the Kingdom of Saudi Arabia. The population frame included the total number of 250 professionals involved in extension work in the Directorates of the Kingdom. The questionnaires were mailed to all the 250 extension professionals and 181 respondents returned the questionnaires, which were analyzed and interpreted.

Data Analysis

The data were coded into a Microsoft Excel file and analyzed using SPSS ver. 17. Descriptive statistics summarize the findings about demographic characteristics.

RESULTS AND DISCUSSIONS

Demographic Characteristics

Respondents' demographic characteristics are presented in Table 1. Slightly more than one third (33.7%) of the respondents were aged from 31-40 years; they were in their early career and would possibly improve. Less than one-eighth (16.1%) were more than 50 years of age. This latter group might resist change and be less willing to improve their competences to accommodate emerging changes. The study recorded that 37.1% of the respondents had been employed in the NES for 6-10 years, 28.1% for 10-15 years, and 11% for more than 15 years. Nearly one half (45.3%) had completed secondary school, and 35.4% of respondents held Bachelor degrees. Less than a fifth (19.3%) held higher degrees and might have higher scientific and technical competencies. Most

Table 1. Demographic characteristics of respondents.

| Age (Years) | Frequency | Percentage |
|----------------------------------|-----------|------------|
| 20-30 | 44 | 24.3 |
| 31-40 | 61 | 33.7 |
| 41-50 | 47 | 25.9 |
| 51-60 | 29 | 16.1 |
| Length of service (Years) | | |
| 1-5 | 43 | 23.8 |
| 6-10 | 67 | 37.1 |
| 10-15 | 51 | 28.1 |
| > 15 | 20 | 11.0 |
| Total | 181 | |
| Mean | 35.2 | |
| SD | 7.2 | |
| Level of education (Degree) | | |
| Secondary school (Agriculture) | 82 | 45.3 |
| Bachelor (Agriculture) | 64 | 35.4 |
| Master (Agriculture) | 35 | 19.3 |
| Areas of pre-service education | | |
| Plant Production | 32 | 17.6 |
| Plant Production | 35 | 19.3 |
| Soil Science | 16 | 08.8 |
| Animal Production | 21 | 11.0 |
| Agricultural Extension Education | 14 | 07.7 |
| Agricultural Engineering | 14 | 07.7 |
| Food Science | 20 | 11.1 |
| General Agriculture | 30 | 16.8 |

of the respondents had been educated in the disciplines of plant protection, plant production, and general agriculture (19.3, 17.6, and 16.8%, respectively) before joining the NES. As few as 7.7% of the respondents specialized in agricultural extension and in agricultural engineering.

The study's findings suggest that since more extension workers had graduated in crop production and protection so they had higher competencies for helping farmers to enhance food production and protect their crops from insects, pests, and diseases, but they may be weak in the delivery of extension messages. The findings are in agreement with the outcomes of studies by Hussain *et al.* (2004) and Okwoche *et al.* (2011). The results recorded by Okwoche *et al.* (2011) show that it was important for farmers to increase their agricultural productivity. However, this depends primarily on the competence and influence of the change agents to ensure a steady flow of appropriate information to farmers.

Training Needs: Extension Philosophy, Organization, and Administration

With an average mean of 2.93 and *SD* of 0.95, the training needs of extension workers

regarding Extension Philosophy, Organization, and Administration are presented in Table 2. Respondents expressed their needs to gain competence and upgrade their skills to understand the relationship between extension and other agriculture-related organizations (Mean: 3.99; *SD*: 0.82). The Extension Service has weak relationships and professional links with other agricultural research and development organizations (Baig and Aldosari, 2013). If the extension workers were familiar with other organizations and staff working in agriculture, it would be easier for them to obtain information and assistance and make it available to their clients (Chae *et al.*, 2014). The present study also indicated that agricultural extension workers had low competency and little knowledge of how central office operated establishing their training needs in this particular area (Mean: 3.60; *SD*: 1.02). They wished to improve their knowledge of the organization and management of the NES. The statement "Knowledge and understanding of extension policies in Saudi Arabia" was ranked third among the statements with the mean of 3.38 and *SD* of 0.98. The statements about enhancing respondents' understanding of the history of the NES and upgrading their knowledge of office management ranked at

Table 2. Training needs: Extension education, organization, and administration.

| Training needs to enhance competence | Frequency | Percent | Mean | <i>SD</i> | Rank |
|--|-----------|---------|------|-----------|------|
| Understanding the relationship between the extension service and other agriculture-related organizations | 52 | 28.7 | 3.99 | 0.82 | 1 |
| Knowledge of the extension service's central office | 51 | 28.2 | 3.60 | 1.02 | 2 |
| Knowledge and understanding of extension policies in Saudi Arabia | 46 | 25.4 | 3.38 | 0.98 | 3 |
| Understanding the extension workers' role at the regional level | 42 | 23.2 | 3.31 | 0.83 | 4 |
| Understanding the objectives of extension service in Saudi Arabia | 33 | 18.2 | 3.22 | 0.88 | 5 |
| Knowledge of the extension organization at the regional level | 28 | 15.5 | 3.00 | 1.00 | 6 |
| Understanding the role of extension in community development | 22 | 12.2 | 2.96 | 1.01 | 7 |
| Understanding extension history in Saudi Arabia | 19 | 10.5 | 2.26 | 0.91 | 8 |
| Knowledge of office management | 18 | 10.0 | 2.24 | 0.95 | 9 |



the bottom of their training needs with the lowest means of 2.24 and 2.26; *SDs* of 0.95 and 0.91, respectively, indicating their highest competencies and the least training needs.

The Teaching-learning Process

An average mean of 3.74 and *SD* of 0.92 were obtained for training needs in the area of the teaching-learning process. However, with a mean of 4.22 and *SD* of 0.89, they considered that their lowest competency and the greatest weakness were in motivating farmers, as it ranked first among their training needs. Similarly (with a mean of 4.00 and *SD* of 0.87), the statement "Knowledge of problem solving approaches" ranked second. Respondents also cited the need to enhance their skills and competence in employing problem-solving approaches. The data in Table 3 demonstrate that respondents were equipped with sufficient skills on teaching adults (Mean: 3.01; *SD*: 0.92) and had a broad knowledge base about employing the principles and procedures of adult education.

Human Development and Social Knowledge

With an average mean of 3.30 and *SD* of 0.94, training needs of the extension workers to enhance their competencies in the areas of the human resources development and social knowledge are presented in the Table 4. The statement "Understanding the influences of mass communication on society" was ranked

first in the area of human development and social knowledge (Mean: 3.95; *SD*: 0.96), establishing the highest training needs of the extension workers. The statement "Knowledge of the different kinds of adopters in the community," with a mean of 3.94 and *SD* of 0.99, ranked second. Extension workers have a need to broaden their knowledge about the different kinds of adopters in their respective communities. The high ranking of training needs in mass communications suggests that respondents' ability to perform their extension work satisfactorily depends largely on their ability to communicate with farmers. The results mirror those obtained by Cho and Boland (2003). However, the lowest training needs were expressed for the statements "Ability to use the local leadership" (Mean: 2.33; *SD*: 1.01) and "Understanding why people join groups and organizations" (Mean: 2.40; *SD*: 0.88).

Program Planning and Development

Data on the training needs in the area of program planning and development are presented in Table 5 (Mean: 3.35; *SD*: 0.92).

Table 3. Training needs: The teaching-learning process.

| Training Statements | Frequency | Percent | Mean | <i>SD</i> | Rank |
|--|-----------|---------|------|-----------|------|
| Ability to motivate farmers | 35 | 19.3 | 4.22 | 0.89 | 1 |
| Knowledge of problem-solving approaches | 52 | 28.7 | 4.00 | 0.87 | 2 |
| Understanding the principles of teaching and learning | 47 | 26.0 | 3.92 | 1.01 | 3 |
| Knowledge of the different teaching methods | 28 | 15.5 | 3.72 | 0.63 | 4 |
| Knowledge of principles and procedures of adult education adults | 19 | 10.5 | 3.01 | 0.92 | 5 |

Table 4. Training needs: human development and social knowledge.

| Training Statements | Frequency | Percent | Mean | SD | Rank |
|--|-----------|---------|------|------|------|
| Understanding the influence of mass communication on the society | 51 | 28.2 | 3.95 | 0.96 | 1 |
| Knowledge about the different kinds of adopters in the community | 42 | 23.2 | 3.94 | 0.99 | 2 |
| Knowledge of the stages of the adoption process | 22 | 12.2 | 3.92 | 0.94 | 3 |
| Social consequences of changing the type of farming | 22 | 12.2 | 3.92 | 0.91 | 3 |
| Knowledge of the factors affecting adoption | 33 | 18.2 | 3.71 | 0.88 | 4 |
| Understanding the influence of technology on farm families | 11 | 6.0 | 3.62 | 1.02 | 5 |
| Knowledge of factors affecting the way of life and family relationships | 32 | 17.7 | 3.50 | 0.91 | 6 |
| Knowledge about identifying local and informal leadership | 46 | 25.4 | 3.11 | 0.88 | 7 |
| Understanding community development needs | 18 | 10.0 | 3.00 | 1.03 | 8 |
| Knowledge of factors that contribute to rural migration and its consequences | 21 | 11.6 | 2.95 | 0.94 | 9 |
| Ability to identify the problems of the community | 37 | 20.4 | 2.50 | 0.92 | 10 |
| Understanding why people join groups and organizations | 12 | 6.6 | 2.40 | 0.88 | 11 |
| Ability to use local leadership | 24 | 13.3 | 2.33 | 1.01 | 12 |

Table 5. Training needs: Program planning and development.

| Areas of the training needed by the extension workers to enhance their abilities and skills | Frequency | Percent | Mean | SD | Rank |
|---|-----------|---------|------|------|------|
| Ability to develop short and long duration extension programs | 66 | 36.5 | 4.25 | 0.96 | 1 |
| Organizing and working with program planning committees | 52 | 28.7 | 4.00 | 0.92 | 2 |
| Ability to analyze the current situation | 44 | 24.3 | 3.96 | 0.60 | 3 |
| Skills and ability to develop an action plan | 45 | 24.8 | 3.95 | 1.81 | 4 |
| Gaining the participation of opinion leaders and professional groups in program planning | 37 | 20.4 | 3.79 | 0.91 | 5 |
| Ability to identify specific and general objectives | 36 | 19.9 | 3.75 | 0.85 | 6 |
| Ability to use census data and other resources | 28 | 15.5 | 3.60 | 1.02 | 7 |
| Knowledge about involving people in the program planning process | 22 | 12.2 | 3.24 | 0.88 | 8 |
| Using personnel resources in program planning and extension programs | 16 | 8.8 | 3.00 | 0.91 | 9 |
| Identifying people's needs, interests and priorities | 15 | 8.2 | 2.45 | 0.85 | 10 |
| Giving people satisfaction from the extension program | 10 | 5.5 | 2.40 | 0.92 | 11 |

Respondents ranked enhancing their abilities to develop short and long duration extension programs as the greatest training need, with a mean score of 4.25 and *SD* of 0.96. They also

wanted to upgrade their skills in organizing and working with program planning committees, which ranked the second. The lowest ranked training needs were in “Giving people satisfaction from the extension program” and



“Identifying people's needs, interests, and priorities” with the means of 2.40 and 2.45 and *SDs* of 0.92 and 0.85, respectively.

Research and Evaluation

Training needs in the area of research and evaluation are displayed in Table 6 (Mean: 3.86; *SD*: 0.92). The extension workers, due to their lowest competencies, ranked advancing their abilities in the evaluation of extension programs as their greatest need (Mean: 4.35; *SD*: 0.94). They wanted a deeper understanding of the terminologies used in research (Mean: 4.30; *SD*: 0.87). However, based on the competencies of the extension workers, the study revealed that they had a good knowledge of the criteria used for the evaluation of extension personnel and were well conversant with devising and designing survey studies, with these two topics having the lowest means of

2.95 and 3.65 and *SDs* of 0.91 and 0.92, respectively. It implies that extension workers were usually involved in conducting survey studies to collect data on various issues from time to time, therefore, they were familiar with conducting such studies.

Communications

With an average of 3.27 and *SD* of 0.90, the training needs of extension workers in the area of communications are reported in Table 7. Due to the lowest competencies, the highest training need reported by respondents was advancing their understanding of the basic principles of communication (Mean: 4.27; *SD*: 1.01), followed by enhancing their abilities and skill in demonstrating farming techniques (Mean: 3.96; *SD*: 0.97). The results reported by Okwachae and Asogwa (2012) indicated that communication competency has a significant and positive

Table 6. Training needs: research and evaluation.

| Statements about the training needs of the extension workers | Frequency | Percent | Mean | <i>SD</i> | Rank |
|--|-----------|---------|------|-----------|------|
| Ability to evaluate extension programs | 71 | 39.2 | 4.35 | 0.94 | 1 |
| Understanding research terminology | 56 | 30.9 | 4.30 | 0.87 | 2 |
| Knowledge of the agriculture extension research area | 51 | 28.2 | 4.26 | .95 | 3 |
| Understanding ways of designing evaluation projects | 44 | 24.3 | 3.81 | 0.92 | 4 |
| Ability to use research publications | 35 | 19.3 | 3.75 | 0.89 | 5 |
| Ability to devise and conduct surveys | 28 | 15.5 | 3.65 | 0.92 | 6 |
| Knowledge of the criteria for evaluating the work of extension personnel | 22 | 12.2 | 2.95 | 0.91 | 7 |

Table 7. Training needs: communications.

| Training Statements | Frequency | Percent | Mean | <i>SD</i> | Rank |
|--|-----------|---------|------|-----------|------|
| Understanding the basic principles of communication | 56 | 30.9 | 4.27 | 1.01 | 1 |
| Ability and skill to demonstration | 52 | 28.7 | 3.96 | 0.97 | 2 |
| Ability to present radio or television programs related to agriculture | 47 | 26.0 | 3.88 | 0.97 | 3 |
| Skills and ability to use visual aids | 33 | 18.2 | 3.86 | 0.88 | 4 |
| Making public speaking more effective | 28 | 15.5 | 3.50 | 0.91 | 5 |
| Ability to use exhibits, slides, pictures in extension | 22 | 12.2 | 3.21 | 0.86 | 6 |
| Ability and skill to organize tours, field trips, farm and home visits | 21 | 11.6 | 3.12 | 0.83 | 7 |
| Ability to lead meetings and discussions | 24 | 13.3 | 2.92 | 0.95 | 8 |

influence on agricultural extension workers' job performance. Their study revealed that agricultural extension workers could perform better on their jobs if measures were taken to enhance their communication competence. The results of the investigation conducted by Payne (2005) indicated that employees with higher output and better performance were equipped with better communication skills than employees with lower performance, and they were superior in managing their interactions with others. It could be inferred from this finding that agricultural extension workers often use communication methods that they perceive are useful to increase their expected job performance.

The implication of this type of competence could be that an appropriate communication method is a critical factor that enables the agricultural extension workers to enhance their capacity to perform well in their work. Respondents displayed moderate competence in their skills and abilities to use visual aids (Mean: 3.86; SD: 0.88), and possessed reasonable skills to speak to farmers effectively (Mean: 3.50; SD: 0.91). Their lowest training needs were for improving their skills and abilities to organize tours, field trips, and farm and home visits. They also appeared to be quite capable of leading professional meetings and technical discussions. In his enunciation of the characteristics of a successful extension agent at the time of his research, Cochran (2009) maintains that one must be competent in areas such as program planning, management, communication, human relationships and leadership, as well as technical matters.

Critical Areas of Training for Extension Workers

The most important areas in which extension workers wanted training to improve their competencies, with an average of 3.46 and *SD* of 0.93, are presented in Table 8. The extension workers had the lowest competencies in the areas of research and evaluation (especially how to evaluate extension projects), and the teaching-learning process (especially the ability to motivate farmers), with the means of 3.86 and 3.72 and *SD*s of 0.92 and 0.91, respectively. The areas where the extension workers possessed moderate levels of competence were communication (Mean: 3.62; *SD*: 0.90), followed by program planning and development (Mean: 3.42; *SD*: 0.92). The extension workers also had a good working knowledge of human development and social knowledge (Mean: 3.31; *SD*: 0.95), followed by extension philosophy, organization, and administration (Mean: 3.91; *SD*: 0.96). Communication is known to be a major component of agricultural extension activities, and extension workers employ various methods to deliver messages to their clients. Extension field staff adopt different methods for the delivery of information to achieve maximum program efficiency and effectiveness (Jones *et al.*, 2007) and to meet the needs of the farming communities (Jones *et al.*, 2010). Faramarzi and Langerodi (2013) believe that communication has a positive and significant relationship with farmers' attitude towards the extension service, and Elias *et al.* (2015) are of the opinion that the

Table 8. Training areas: Order of importance.

| Area of training | Frequency | Percent | Mean | <i>SD</i> | Rank |
|---|-----------|---------|------|-----------|------|
| Research and evaluation | 66 | 36.5 | 3.86 | 0.92 | 1 |
| Teaching-learning process | 55 | 30.4 | 3.72 | 0.91 | 2 |
| Communication | 44 | 24.3 | 3.62 | 0.90 | 3 |
| Program planning and development | 45 | 24.8 | 3.42 | 0.92 | 4 |
| Human development and social knowledge | 28 | 15.5 | 3.31 | 0.95 | 5 |
| Extension philosophy, organization and administration | 22 | 12.2 | 2.91 | 0.96 | 6 |



frequent use of different communication methods influences farmers' satisfaction positively. The findings of the study also indicated that extension workers exhibited the least interest in receiving trainings in the areas of human development and social systems (Mean: 3.31; SD: 0.95). Similar findings have been reported by Okwachae and Asogwa (2012). They believe that competency in human development could enhance the performance of the agricultural extension workers. Based on our research on the most critical areas requiring the trainings of the extension workers, the statement "Extension Philosophy, organization and its administration" (Mean: 2.91; SD: 0.96) ranked sixth.

Critical Training Areas

Relationships between Training Needs and Demographic Characteristics

Table 9 shows the relationship between demographic characteristics and extension agents' training needs. The age of respondents was significantly correlated ($P \leq 0.05$) with many areas of training needs: extension philosophy, organization, and administration ($r = 0.31$), communication ($r = 0.29$), research and evaluation ($r = 0.92$), program planning ($r = 0.21$), and the teaching-learning process ($r = 3.05$). Similarly, training needs for research and evaluation ($r =$

0.31), and teaching and learning had significant correlations ($P \leq 0.05$) with the length of service. Length of service is likely to be an indication of a person's commitment to her/his chosen career (Ejembi *et al.*, 2006).

The findings of the study are in agreement with those of Ejembi *et al.* (2006), who established that age is a determining factor in the need for training. The findings of the study reveal that, as an extension worker grows older, experience on-the-job creates more avenues for specialization. This implies that the longer the extension staff are in the service, the greater their training needs will be, as innovations and new technologies are constantly introduced and old farming practices become obsolete. In a similar vein, Okeowo (2015) maintained that agricultural extension workers had contact with farmers scattered around the country and delivered useful and practical information to achieve increased agricultural production. Extension programs delivered by extension agents today are more varied than ever and will continue to change to meet the needs of the clients they serve. Therefore, the training of agricultural extension workers is an integral part of the overall agricultural production process. Age is positively correlated with extension organization, communication, research and evaluation, and program planning, indicating that older people want to keep themselves up to date and abreast of the daily developments in scientific knowledge

Table 9. Relationship between training needs and demographic characteristics.

| Areas of training required to improve competencies | Demographic characteristics | | | |
|---|-----------------------------|-------------------|-----------|--------------------|
| | Age | Length of service | Education | Major ^a |
| Extension philosophy, organization and administration | .31* | .01 | .13 | .02 |
| Communication | .29* | .15 | .12 | .08 |
| Human development and social knowledge | .10 | .63 | .56 | .03 |
| Research and evaluation | .92* | .31* | .02 | .09 |
| Program planning | .21* | .18 | .01 | .07 |
| Teaching and learning | 3.5* | .49* | .09 | .11 |

^a Pearson correlation coefficient.* Significant at $P \leq 0.05$.

to meet the changing needs of the farming communities they serve.

CONCLUSIONS

The socio-economic characteristics of the respondents indicate that 33.7% of respondents were aged between 31-40 years, so, they were in their early career. Early career extension workers are perhaps more malleable than the older, well-entrenched extension workers. Only 16.1% of the respondents were above 50 years, and they may resist change and could be less willing to improve their competences to accommodate emerging changes. The study revealed that 65.2% of the respondents had been employed by the Saudi Agricultural Extension Service (SAES) for 6-15 years. Respondents wanted to have adequate competencies and skills to understand the relationships between the SAES and other agriculture related organizations (52%); to understand how mass communication influenced society (51%); to enhance their abilities to organize short and long duration extension programs (66%), and to enhance their competencies in the area of motivating the farmers (35%). Respondents showed lower competence in the area of short and long duration extension program planning. They also wanted to increase their competence on how to organize and work with program planning committees. The study revealed that, with the present level of skills and competencies, staff may not be able to educate and advise the farmers about the practice of sustainable agriculture in the changing environment and in the context of roll back policies. Based on the findings of the study, it is recommended that good quality training programs be launched that could target the weaknesses, make improvements, enhance the competence and upgrade the skills of extension workers. This will enable extension professionals to be more confident, knowledgeable, and sufficiently productive to serve the diverse needs of the farmers while realizing sustainable agriculture.

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ارزیابی شایستگی حرفه ای و نیازهای آموزشی مروج های کشاورزی در عربستان سعودی

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چکیده

کشاورزی در عربستان سعودی مراحل مختلفی را از بادیه نشینی قبیله ای با کشاورزی معیشتی تا کشاورزی تولید انبوه در مقیاس بزرگ و امنیت غذایی و خود کفایی شاهد بوده، و امروزه در مرحله آرمانی کشاورزی پایدار است. این دگرگونی های مرحله ای منجر به چالش های زیادی برای کار ترویج کشاورزی شده است. موثر بودن ترویج کشاورزی به مروج هایی که به خوبی آموزش دیده اند وابسته است. در پژوهش حاضر، شایستگی حرفه ای مروجان ارزیابی شد و نیازهای آموزشی برای بهبود کار آنها در اداره خدمات ترویج کشاورزی عربستان شناسایی شد. اطلاعات جمعیتی (سن، طول دوره کار ترویجی، و سطح آموزشی) نیز جمع آوری گردید. برای انجام پژوهش، پرسشنامه ای که قبلاً آزموده شده بود به ۲۵۰ مروج حرفه ای که در کار ترویجی فعال بودند با پست ارسال شد که از ۱۸۱ نفر آنها پاسخ دریافت شد. بیشتر این مروج ها قبل از ورود به خدمات ترویجی دارای مدرک در حفظ نباتات، تولیدات زراعی، و کشاورزی عمومی بودند (به ترتیب: ۱۹/۳٪، ۱۷/۶٪، و ۱۶/۸٪). فقط ۷/۷٪ آنها در رشته



ترویج کشاورزی و مهندسی کشاورزی تخصص داشتند. نتایج این مطالعه روی نیاز به برنامه آموزشی گسترده به منظور توانمند سازی مروجین برای کار موثر با کار آیی بالا در سناریو های مختلف کشت و کار که در این کشور در حال تغییر است تاکید داشت. نتایج نشان داد که نیازهای آموزشی با طول دوره خدمت و سطح آموزشی مروجین رابطه دارد. بر اساس پاسخنامه ها، مروجان مایل بودند که شایستگی فنی کافی و مهارت در درک روابط بین خدمات سازمان ترویج و سازمان های وابسته به کشاورزی داشته باشند. نیز، آنها می خواستند بدانند که چگونه ارتباط جمعی (توده ای) جامعه را تحت تاثیر قرار می دهد. همچنین، درخواست داشتند که توانایی حرفه ای آنها در فرایند آموزش دادن - درس آموختن افزایش یابد. زمینه های اصلی نیازهای آموزشی که در این پژوهش شناسایی شد شامل تکنیک ها و روش های تحقیقاتی و ارزیابی و فرایند آموزش دادن - درس آموختن بود.