

Assessing the use of agricultural information sources by the extension agents in the United Arab Emirates

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Abstract

This research was conducted during March-May 2007 to identify demographic characteristics of the UAE extension agents, and determine extension agents' levels of need and frequency of use for the different types and specific forms of agricultural information sources used in their daily practices. Survey forms were mailed to 100 agricultural extension agents. The study showed the need of extension agents for written, specialized and personal information sources. Also, the results exhibited higher levels of use for written forms of information sources, and lower levels of use for electronic, personal, specialized, and audio and visual information sources. Those results are of interest to policy makers and agricultural decision makers for identifying the need of agricultural extension.

Key Words: Agricultural information exchange, Extension agent, Information source, Frequency and level of use.

Introduction:

Developing effective in-service educational and training programs was an important method for addressing extension agents' lack of awareness and understanding of integrated pest management by IPM farmers in sub-Saharan Africa (Erbaugh *et al.*, 2007). They assessed extension agent knowledge of IPM to determine their priority pest management educational and training needs. In his book, *Communication for Rural Innovation: Rethinking Agricultural Extension (3rd edition)*, 2004, Cees Leeuwis draws our attention to a different way of thinking about the meaning of extension in the 21st century, changing the pattern from mere technology transfer into technology coalition building. Leeuwis (2004), stated that "Improving food production and fostering economic development is not just a matter of individuals receiving messages and adopting the right technologies, but has much to do with altering interdependencies and co-ordination between various sectors". The need for coalition building is true in the UAE agriculture extensions as well. The need for interdependence and co-ordination among various agricultural and technology founders and governmental organizations is more urgent than before. Such co-ordination for technology diffusion needs an effective communication system to link practitioners with professionals. Many studies

tackled farmers' perceptions regarding information sources, but few studies examined the perception of extension agents regarding information sources that produced by different agricultural organizations.

Farmers' information sources, their awareness and adoption of recommended sugarcane production technologies in the Central Punjab were identified and assessed by Abbas *et al.*, (2003). They stated that "A significant proportion of small farmers (70% and above) gathered information about sugarcane production technologies through their fellow farmers and progressive farmers. Large farmers (20% and above) got information about sugarcane production technologies through Agriculture Department (Extension Wing) and Research Institutes, while 10 to 20% large farmers gathered information about sugarcane productions technologies through mass media (radio/television and printed material). Swanson *et al.*, (2003) stated that "several studies document a shift away from traditional sources of information, and a recognition that new types of information are needed for making better farming decisions". The communication revolution forced extension professionals to reshape and redesign their information by using new technological innovations, such as DVD.

Dollisso and Martin (2001), noted that farmers are still depending on traditional information sources, such as magazines, neighbors, and extension services. They emphasized that extension is not the main source of agricultural information. They implied that "creativity in packaging, communication skills, and effective use of traditional and new delivery methods will continue to be the keys to successful Extension programs". Radhakrishnah and Thomson (1996), conclude that "agents should not only be fairly knowledgeable in subject-matter areas, they should also be aware of where, from whom, and how to find information to answer a client's inquiry". They found that extension agents differ in frequency of use across their own demographic characteristics, such as age, type of clients served, and gender. According to Shih and Evans (1991), the most challenging task for extension agents is information-gathering due to the broad range of subjects covered, the wide scattering and ephemeral nature of the literature, and the broad range of treatment and presentation. This view argues for the importance of packaging and redesigning extension messages not only for farmers, but for extension agents as well.

The main purpose of this study was to identify the perception of extension agents regarding the need for and frequency of use of selected types and forms of information sources. The specific objectives of the study were (1) to identify demographic characteristics of the UAE extension agents, and (2) to determine extension agents' levels of need and frequency of use for the different types and specific forms of agricultural information sources used in their daily practices.

Materials and methods:

Population:

This research was conducted during March–May 2007. One hundred agricultural extension agents, working at several municipalities in the United Arab Emirates (50 agents from Abu Dhabi Municipality, 35 agents from Al Ain Municipality, and 15 agents from Western Region Municipality) were the target population for this study.

Research design and data analysis:

The research design used for this study was a descriptive survey. A questionnaire was developed from the review of the literature. The questionnaire consisted of three sections based on the study objectives. Likert-type scales were used to quantify all responses. Likert scales are a common ratings format for surveys, and respondents rank quality from high to low or best to worst using five

or seven levels. Content and face validity was established by a panel of experts in agriculture at the College of Food and Agriculture. Reliability for the overall instrument was .83 Cronbach's alpha. Data were collected through questionnaires mailed to the 100 agents in the UAE. The response rate was 100% after many contact and follow-up attempts. Data collected were analyzed using SPSS software. Appropriate statistical procedures for description (i.e., to measure most frequent response, percent, means, and standard deviations) were also used.

Results:

Characteristics of the UAE extension agents:

Fifteen respondents had a Bachelor of Science in an agricultural-related degree. Four respondents had a Masters of Science in an agricultural-related degree. One respondent had a Ph. D. degree in agriculture. The remaining respondents had a degree below a B.Sc. in agriculture. All respondents were males. Forty-two percent of the respondents were between the ages of 25 – 45 years, while the remaining respondents were older. All the respondents had more than five years' experience working for Extension.

Levels of need and frequency of use for the different types of sources:

Participants were given a set of statements representing different types of information sources. The statements were not classified into categories on the original instrument, but they were classified into five types of information sources afterwards. For the sake of statistical analysis. Information sources were classified into personal, written, audio and visual, specialized, and electronic information sources. Respondents were instructed to rate the level of need for each. Information source in a Likert-type scale is shown in Tables (1 and 2). This section was guided by the question, "Do I need this information source to perform my daily tasks?" As shown in Table (1), 85% of the extension agents perceived a moderate level of need for using more written and electronic information sources. Further, 82 % of the extension agents perceived moderate levels of need for specialized, personal, and audio and visual information sources.

Table (2) shows that 85% of the extension agents use written information sources sometimes while 85% of the extension agents do not or use little electronic information sources. Also, 82% of the extension agents expressed little use of personal or specialized or audio and visual information sources.

Table 1. Extension agents' Mean perceptions of levels of need and frequency of use for different types of information sources

Type of information source	Levels of need *			Frequency of use **		
	Percent	M*	SD	Percent	M**	SD
Written information sources	85	3.5	1.02	85	3.1	1.27
Specialized information sources	82	3.2	1.25	82	2.6	1.07
Personal information sources	82	3.2	1.03	82	2.7	1.27
Electronic information sources	85	3.1	1.37	85	1.7	1.28
Audio & visual information sources	82	2.8	1.53	82	2.4	1.15

* Scale: 1= There is no need; 2= There is low need; 3= There is moderate need; 4= There is strong need; 5= There is a very strong need.

** Scale: 1= Do not use at all; 2= Use a little; 3= Use sometimes; 4= Use many times; 5= Use always.

Levels of need and frequency of use for specific information sources:

Table (2) shows five major types or categories of agricultural information sources. Each type has its own format. For example, written information sources can take the form of extension bulletins or brochures or guides or reports or magazines or journals, etc. Personal information sources include

colleagues, friends in the same profession, supervisors, experts, and personal visits to research centers. Specialized information sources include agricultural training workshops, agricultural exhibitions, conference proceedings, experiment stations reports, and extension lectures. Audio and visual agricultural information sources include videotapes, DVDs, TV, and radio. Electronic information sources include DVDs, CDs the Internet, electronic newsletters, e-mails, and newsgroups. Respondents were asked to rate their perceptions of the levels of need and frequency of use for each type of information sources or all the specific forms of information sources.

Table (2) illustrates the perception of extension agents regarding the levels of need for each form of information sources. Agents perceived a strong level of need for agricultural scientific magazines (4.2), agricultural journals (4), agricultural experiment stations' research reports (4.1), and moderate levels of need for other forms of Written Information Sources as shown in Table (3). Extension agents perceived strong levels of need to cooperate with their supervisors and chairs (4) and moderate levels of need (< 4) for other forms of personal information sources. Also, they perceived moderate levels of need for different forms of specialized information sources, such as practical agricultural workshops (3.6) and short training workshops (3.2) as shown in Table (3). Further, they perceived moderate levels of need (< 4) for different forms of audio, visual, and electronic information sources except the Internet for which they perceived a strong need (4) for it.

Table (2) also indicates extension agents' perceptions regarding frequency of use for specific information sources in their daily tasks. Extension agents indicated that they use agricultural scientific magazines (4) and brochures issued by specialized agricultural organizations (3.9) many times to perform their daily tasks. Agents reported that they use written information sources, such as agricultural books sold in bookstores (2), agricultural books available through public libraries (2), College of Food and Agriculture' publications (2.4), and agricultural guides published by agricultural firms (2.5) a little use.

Extension agents reported that they use their colleagues and friends in the same profession (3.5) and supervisors and chairs (3.9) to get help to perform their daily tasks. However, they indicated little use of faxes (1.9) and scholars working at the College of Food and Agriculture (1.9) as personal information sources to perform their daily tasks. Furthermore, extension agents reported little use of specialized information sources, such as agricultural lectures that require attendance only (2.4), long training workshops (8 am – 5 pm) (2.2), extension short lectures (one hour per week) (2.2), short training workshops (8 am – 1 Pm) (mean = 2.6), and agricultural lectures that require attendance only (2.4). They did sometimes use information introduced in agricultural training workshops that required hands-on activities (3). Agents indicated a little use for audio and visual forms of information sources, such as agricultural programs aired on radio (2), agricultural programs broadcast on TV (2.7), agricultural exhibitions (2.6), and agricultural extension videotapes (2.3). Also, extension agents reported a little use of electronic forms of information sources, such as exchanging e-mails with local and international experts (1.7), agricultural extension CDs (1.8), and the Internet (2.1). However, they sometimes use e-mails to interact with international agricultural organizations (3.3).

Table 2. Extension agents' perceptions of levels of need and frequency of use for specific information sources.

Form of Information Sources	Levels of need *			Frequency of use **		
	Percent	M*	SD	Percent	M**	SD
Written information sources:						
• Brochures published by specialized agricultural organizations.	87	3.7	1.07	85	3.9	0.98
• Extension bulletins produced by agricultural organizations.	87	3.7	1.04	87	3.8	1.13
• Agricultural reports published in daily newspapers	82	3.0	1.18	85	2.7	1.17
• Specialized newsletters.	85	3.9	1.05	87	3.6	1.05
• Agricultural scientific magazines.	85	4.2	0.91	85	4.0	0.93
• Agricultural professional journals.	82	4.0	1.14	85	2.8	1.27
• Agricultural conference proceedings.	85	3.4	1.14	87	3.1	1.16
• Workshop reports and manuals.	85	3.1	1.24	87	3.0	1.14
• Agricultural guides published by agricultural firms.	85	2.9	1.28	82	2.5	1.13
• College of Food and Agriculture' publications.	82	3.3	1.10	82	2.4	1.23
• Agricultural experiment stations' research results.	85	4.1	0.95	85	3.7	1.11
• Agricultural publications of town municipalities.	85	3.3	1.05	85	2.9	1.09
• Library of the Ministry of Agriculture.	82	2.7	1.32	85	2.1	1.16
• Agricultural books in public library.	82	3.0	1.23	85	2.0	0.95
• Leaflets and publications of inter. Agric. organizations.	82	3.4	1.37	82	2.7	1.31
• Agricultural books from bookstores.	82	2.7	1.28	82	2.0	1.16
• Technical and scientific books.	85	3.9	1.09	85	3.4	1.12
• Extension posters illustrating specific problems.	85	3.5	1.12	85	3.4	1.16
Specialized information sources:						
• Agricultural lectures that require attendance only.	78	3.0	1.40	82	3.5	1.16
• Agricultural training workshops that require hands-on activities.	85	3.6	1.23	80	1.9	1.24
• Short training workshops (one day).	82	3.2	1.30	87	3.9	1.05
• Long training workshops (more than two days).	80	3.1	1.31	85	3.0	1.47
• Extension short lectures (one hour per week).	82	3.0	1.40	82	1.9	1.38
• Short training workshops (8 am – 1 Pm).	85	3.3	1.20	82	2.7	1.16
• Long training workshops (8 am – 5 Pm).	80	3.0	1.18	78	1.8	1.27
Personal information sources:						
• Colleagues & friends in the same profession.	80	3.5	1.09	80	2.4	1.17
• Scholars working at the College of Food and Agriculture.	78	3.0	1.23	85	3.0	1.23
• Cooperation with supervisors & chairs.	82	4.0	0.98	82	2.6	1.36
• Telephone calls with experts in agricultural centers.	87	3.3	1.35	80	2.5	1.37
• Sending faxes to different agricultural organizations.	80	2.4	1.32	82	2.2	1.14
• Personal visits to specific agricultural research centers.	82	3.6	1.28	85	2.6	1.25
• Membership at international agricultural associations	78	2.6	1.46	80	2.2	1.12
Audio and visual information sources:						
• Agricultural programs aired on radio.	80	2.8	1.30	82	2.0	1.16
• Agricultural programs broadcasted on TV.	82	2.8	1.34	85	2.7	1.12
• Agricultural exhibitions.	82	3.0	1.12	82	2.6	1.09
• Agricultural extension videotapes.	85	3.0	1.23	85	2.3	1.23
Electronic information sources:						
• Exchanging e-mails with international agric. organizations.	80	2.8	1.57	85	3.3	1.65
• Exchanging e-mails with local and international experts.	82	2.6	1.45	82	1.7	0.94
• Agricultural extension CDs.	85	2.9	1.31	85	1.8	1.22
• Internet.	80	4.0	1.17	87	2.1	1.34

* Scale: 1= There is no need; 2= There is low need; 3= there is moderate need; 4= There is strong need; 5= There is a very strong need.

** Scale: 1= Do not use at all; 2= Use a little; 3= Use sometimes; 4= Use many times; 5= Use always.

Discussion:

Many studies pointed to the fact that extension audiences are no longer the same audiences, and extension information sources are no longer the same sources (Abbas *et al.*, 2003; Swanson *et al.*, 2003; Erbaugh *et al.*, 2007). There is a new need for creative forms of communication as well cutting edge methods of delivery that will meet the next generation of farmers' demands for accurate and valuable extension information. This study classifies information sources into five types (written, personal, electronic, audio and visual, and specialized). Each type of information sources has its own form. For example, written type of information sources may take the form of books, reports, articles, and extension guides.

There is a need to improve the quality of agricultural information sources in the UAE. It seems that extension agents are using heavily written information sources more than any other form of information source. Also, they expressed a higher level of need to intensify the use of different forms of written, personal, and specialized types of information sources. If one compares extension agents' perceptions of current use of information sources with their perceptions of levels of need for the same information sources, one can conclude that there is a need gap between current practices and the perceived need. The research implied that there is a lack of comprehensive information sources existent in the UAE or at least for the study population. One can conclude from examination of the survey results that extension agents are utilizing information given in practical workshops, agricultural scientific magazines, agricultural journals, cooperation with supervisors and chairs, interaction with colleagues and friends, and exchange of e-mails with international agricultural organizations. Also, this research concluded that extension agents are not utilizing some important forms of information sources, such as agricultural books sold in bookstores, researchers and scholars working at the College of Food and Agriculture, personal visits to research centers, extension lectures and long workshops, TV and radio agricultural programs, agricultural videotapes, agricultural exhibitions, the Internet, and e-mail.

Conclusion:

This study recommends that extension agents should be trained on how to use different information sources to perform their daily tasks. Agricultural organizations should pay attention to different forms of information sources and start to rethink and redesign their messages and information packaging practices so as to reach higher levels of creativity and accuracy in informing the public; and extension agents should try new and different communication models. Leeuwis (2004) stated that "extension is an activity that is geared towards bringing about cognitive changes, used as a trigger for other forms of change. At the same time, the emphasis on communication marks a shift away from a focus on education to a focus on learning" (p. 27). A focus on learning as shown in this study does not mean using a single type of information sources (written information sources), but requires a comprehensive utilization of as much as possible of all types and forms of information sources. Constructing a meaning of reality in the field of extension needs full utilization of all available forms and packages of information, no polarity in learning.

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تقييم استخدام المرشدين الزراعيين لمصادر المعلومات الزراعية في الإمارات العربية المتحدة

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الملخص

أجريت هذه الدراسة خلال الفترة من آذار-أيار 2007 لتحديد الخصائص الديموغرافية للمرشدين الزراعيين في الإمارات العربية المتحدة، وتحديد مستويات احتياجات المرشدين، ووتيرة استخدامهم لأنواع مختلفة وأشكال محددة من مصادر المعلومات الزراعية المستخدمة في ممارساتهم اليومية. أرسلت استمارات استقصاء إلى 100 من المرشدين الزراعيين العاملين في دولة الإمارات العربية المتحدة عن طريق البريد. بينت الدراسة حاجة المرشدين الزراعيين إلى مصادر المعلومات المكتوبة والمتخصصة والشخصية. كما أوضحت النتائج استخدام المرشدين للأشكال الخطية من مصادر المعلومات بشكل أكبر، وانخفاض مستويات استخدام مصادر المعلومات الإلكترونية والشخصية والمتخصصة، والصوتية والبصرية. تعتبر هذه النتائج هامة لكل من واضعي السياسات وصناع القرار في المجال الزراعي من أجل تحديد احتياجات عملية الإرشاد الزراعي.

الكلمات المفتاحية: تبادل المعلومات الزراعية، المرشد الزراعي، مصدر المعلومات، تواتر ومستوى الاستخدام.