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Perception of Agricultural Extension Officers Regarding the Policies Established by Botswana Ministry of Agriculture to Strengthen Agricultural Extension Services in Botswana

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Abstract: A survey was conducted in November 2006 to determine the perception of agricultural extension officers towards the policies established by the Botswana Ministry of Agriculture to strengthen agricultural extension services in the country.. The study was a descriptive study which used questionnaire to solicit information from 52 randomly selected extension officers. The formula developed by Krajcie and Morgan (1970, was used to select the 52 respondents from 60 target population of the study. The instrument for data collection was developed by the researchers using some literature. The instrument was validated, by 3 Lectures from Botswana College of Agriculture. The reliability test was computed and found to be 0.89, indicating that the instrument was reliable enough for use. The data collected were analyzed using frequencies and percentages, means and standard deviations and ranking. Results revealed that the extension officers were generally satisfied with the use of the established policies on objectives, principles, extension teaching methods and teaching materials and equipment that should be used to execute the extension programs of the Ministry of Agriculture in Botswana.

Key words: Perception of agricultural extension, polices, ministry of agriculture, agricultural extention services

INTODUCTION

In Botswana, Agricultural Extension and Community Development programs were viewed by farmers and rural people as the only agencies that create room to link extension staff with the rural poor thus indicating the government commitment in developing the rural people. The programs were meant to bring agricultural services to people and the focus of the programs was to reach as many rural people as possible. Agricultural Extension Service took different forms at different times when it began in Botswana. Initially, it took the form of Agricultural outreach program in the late 1920's and later in the late 1940's it took the form of advisory work championed by the Ministry of Agriculture.

Ever since the inception of the advisory work by the Ministry of Agriculture, The content and methods of the service have considerably changed. Initially the technical extension staff was merely there to demonstrate new improved techniques of crop production in three acre plots at fields of those volunteered farmers. Later on in the process a new scheme was adopted whereby a volunteered farmer was encouraged to practice new techniques in his/her entire field and this was the era the South African and Rhodesian Agricultural Demonstrators were recruited in large numbers to serve in Botswana. Further development surfaced in the Mid 1960's when animal husbandry received direct attention as an extension activity for the first time wit the appointment of a senior officer to take responsibility for this activity. Animal husbandry demonstrators were also trained and paired with agriculture demonstrators to work side by side with pupil farmers and pupil stockmen to improve arable and livestock practices. Pupil farmers and pupil stockmen were collectively called scheme farmers and were to meet some requirements to gain membership in order to and achieve required production level. Several arable farmer categories were set including pupil farmer, Improved farmer, Progressive farmer and Master farmer. With this scheme farmers were helped on individual bases and the exercise later proved costly thus necessitated formation of farmers groups where they got assisted in groups by demonstrators.

Extension officers used channels like kgotla meetings (regular village meetings) individual visits, radio broadcast, farmers days etc to disseminate farming information to farmers. Notices to farmers and some farming lessons were relayed through the above means.

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It is therefore clear that the Botswana Extension Service has come a long way since its beginning in the 1940. The services have since been constantly improving with more programmes introduced to help improve production levels of small scale farmers.

Extension is basically an education function. Its job may vary considerably from one country to another, but without exception, it will be expected to inform, advice and educate in a practical manner. Maunder (1975) concluded that Agricultural extension services are established for the purpose of changing knowledge, skills, practices and attitudes of masses of rural people. Views about extension workers' role vary in different parts of the world. They clearly have an educational role in the United States, where extension education is a branch film, (video) and print (posters, newspapers, leaflets). The attraction of mass media extension services is the high speed and low cost with which information can be used as tools for developing the rural areas. However, mass media cannot do all the jobs of an extension agent. They cannot offer personal advice and support, teach practical skills, or answer questions immediately. Their low cost suggests that they should be used for the tasks to which they are well suited. These include the following: Spreading awareness of new ideas and creating interest in farming innovations, giving timely warnings about possible pest and disease outbreaks and urgent advice on what action to take, multiplying the impact of extension activities, sharing experiences with other individuals and communities, answering questions and advising on problems common to a large number of farmers and reinforcing or repeating information and advice using a variety of sources that are credible to farmers. Instead of seeking advice from the extension agent only, through mass media farmers can be brought into contact with successful farmers from other areas, respected political figures and agricultural specialists (Oakler and Garforth, 1985).

In 1996, some major policies were made to address the objectives, principles and philosophies that should guide the extension system in Botswana. Also the various extension methods to be used in carrying out the educational preferences were reviewed. The problem therefore is does the extension staff who work with the rural people believe that the policies developed are good enough? Are there those that they think should be replaced in the light of development and constant changes to benefit the clientele better.

Purpose and objectives of the study: The purpose of study was to determine the perception of Agricultural extension officers towards the policies established to strengthen agricultural extension in Botswana. Based on the purpose of the study, the following specific objectives were developed:

- To describe the personal characteristics of extension officers in Botswana.
- To find out the perception of agricultural extension workers in selected district of Botswana toward the MoA policy on the objectives of Agricultural extension services in Botswana.
- To find out the perception of agricultural extension workers in selected districts of Botswana toward the policy of some principles governing agricultural extension in Botswana.
- To find out the perception of extension workers in selected districts of Botswana toward the policy on the extension teaching methods used in Botswana.
- To find out the perception of Agricultural extension workers toward the teaching materials used to disseminate farming technologies in Botswana.

MATERIALS AND METHODS

The study is a descriptive survey research. The target population consisted of the filed Level extension officers in Kgatleng, Kweneng North, Kweneng South, Kweneng West and the South East district of Botswana. The target population of the study consisted of all the 60 field level Extension Officers in the Districts used for the study. Out of the 60 target population, the formula developed by Krejcie and Morgan (1970) was used to determine the sample size of 52 field level Extension Officers used for the study.

The instrument for data collection was developed by the researcher using the information on Government policies on Extension services in the country. The policies were developed in 1996. The questionnaire consisted of a five-point likert type scale anchored as follows, in the case of questions relating to perception on objectives and principles of Agricultural Extension Services in MoA:- (1) = Strongly disagree,(2) = disagree, (3) = uncertain, (4) = agree, (5) = strongly agree. In the case of questions relating to extension teaching methods used and the mode of disseminating information, the questions were anchored as follows:- (1) = very seldom, (2) = seldom, (3) = uncertain, (4) = often, (5) = very often. Five Senior Extension Officers were asked to review the instrument for content and face validity. Their suggestions were incorporated in the questionnaire before used. The instrument was also pre-tested with thirty-size Extension Officers from the Morolong extension district. The chrombarch's alpha reliability coefficients were computed

for the statements used to measure the perception of the field level extension officers towards the established objectives, principles, teaching methods and mode of information dissemination in the Ministry of Agriculture (MoA) Extension services department. The result was found to be 0.89 confirming that the statements used in the questionnaire were reliable.

Frame error was controlled by obtaining the list of respondents from the District Extension Officers (DAO). The selection error was also controlled by checking the list obtained thoroughly to avoid duplication of field level extension officers with similar names.

The instruments for data collection were given to the District extension Officer (DAO) who assisted in distributing them to his field level Extension Officers. A follow up visit was conducted 8 days after the delivery of the questionnaires to the 5 field level extension officers who do not initially respond to the questionnaire. This follow up ensured that all the 52 field level extension officers selected participated in the study. The data collected were processed using simple descriptive statistics such as percentages, means and standard deviations.

RESULTS AND DISCUSSION

Table 1 shows the demographic characteristics of the respondents. The demographic characteristics were; gender, age, nationality, highest level of education, work experience, marital status and finally the number of respondents from each selected district. The total number of respondents was 52, out of which, 31 (59.6%) were males and 21 (40.4%) were females. Concerning their ages 35 (67.3%) were between 1-40 years, 6 (30.8%) were 41 years and above while a missing value of 1 (1.9) was recorded. All the (52%) respondents were Batswana. For their educational level, 9 (17.3%) had diploma, 3 (5.8%) had degree and 40 (76.9%) had O'level or its equivalent. Regarding the work experience, 24 (46.2%) of respondents had work experience of between 1-10 years and 28 (53.8%) had 11 years and above of work experience. Concerning their marital status, 26 (50%) were single and 26 (50%) were married.

The perceptions of respondents regarding the objectives of the Agricultural extension services are shown in Table 2. The mean values for each statement were determined by overall responses of the respondents using a rating scale from 1 (strongly disagree) to 5 (strongly agree). The mean scores as per objective gave the following indications on the following statements; Transferring technical subject mater to farmers (4.27), assisting farmers to shift from subsistence to commercial farming (45.33), helping farming to raise quality livestock (4.35), helping farmers locate farm-input services (4.06) and teaching farmers to prioritize their needs (4.27). Using a mean of 3.00 and above to denote agreement with each of the statement and a mean below 3.00 to denote disagreement with the statements, it was obvious from Table 2 and the discussion that all the respondents agreed with all the statements regarding their perception towards the objectives of the agricultural extension services in Botswana. This indicated that the extension workers had a favourable perception towards the objectives of agricultural extension education program. Furthermore, the extension workers seem to believe that the objectives guiding agricultural extension services in Botswana were well articulated.

Table 1: Demographic characteristics of respondents

Charcteristics	Frequency (n)	Percentage
Gender		
Male	31	59.6
Female	21	40.4
Total	52	100
Age		
1-40	35	67.3
41 and above	16	30.8
Missing value	1	1.9
Total	52	100
Nationality		
Local	52	100
Expatriate	0	0
Total	52	100
Highest level of Education		
Diploma	9	17.3
Degree	3	5.8
Others (Specify)	40	76.9
Total	52	100
Work Experience		
1-10 years	24	46.2
11 and above	28	53.8
Total	52	100
Marital status		
Single	26	50
Married	26	50
Total	52	100

The perception of respondents regarding the principles of Agricultural extension education programme are shown in Table 3. The mean scores for the level of agreement to the proposed principles, by the respondents were determined by a rating scale from 1 (strongly disagree) to (5 strongly agree). The mean scores regarding the statements on principle of agricultural extension services gave the following indications: 'Farmers' participation in agricultural extension meetings should be voluntary' (3.02), 'extension should lay emphasis on non-discriminatory services to the farmers' (3.88), 'extension should put reliance on applied research' (4.02), 'extension should encourage team work' (4.48), 'extension should promote the use of opinion leaders' (3.58), 'extension should promote consultation among farmers' (4.66), 'other

Table 2: Perception of respondents regarding the objectives of the Agricultural extension programme

The objectives of Agricultural Extension programme	Mean	SD	Rank	Decision
1. Transfering technical subject matter to farmers	4.27	0.689	10	Agree
2. Assisting farmers to shift from subsistence to commercial farming	4.33	0.585	6	Agree
3. Helping farmers to raise quality livestock	4.35	0.520	4	Agree
4. Helping farmers to raise higher yielding crops	4.42	0.537	2	Agree
5. Teaching farmers to diversify their farming	4.33	0.857	6	Agree
6. Encouraging farmers to form co-operatives	3.63	1.121	16	Agree
7. Improving marketing of farm products	4.31	0.755	8	Agree
8. Teaching farmers how to keep accurate records	4.29	0.750	9	Agree
9. Linking research with farmers	4.23	0.921	12	Agree
10. Helping farmers make intelligent decisions	3.71	0.936	15	Agree
11. Encouraging farmers to use locally available agricultural resources	4.13	0.525	13	Agree
12. Teaching farmers soil conservation by using proper farming methods	4.42	0.537	2	Agree
13. Advising farmers on how to maintain their farm Implements	4.35	0.738	4	Agree
14. Helping farmers locate farm-input services	4.06	0.777	14	Agree
15. Teaching farmers to prioritize their needs	4.27	0.744	10	Agree
Overall mean	4.19	0.734		Agree

5 = strongly agree 4 = agree 3 = uncertain, 2 = disagree 1 = strongly disagree

Table 3: Perception of respondents regarding the principles of Agricultural extension *services set up to promote viable agricultural extension service in Botswana*

The principles of agricultural extension services	Mean	SD	Rank	Decision
1. Farmer's participation in agricultural extension meetings should e voluntary	3.03	1.163	15	Agree
2. Extension should use grassroots approach to farmers' problems	4.23	0.807	7	Agree
3. There should be an emphasis on non-Discriminatory services to the farmers	3.88	0.922	10	Agree
4. Extension should put reliance on applied research	4.02	0.852	9	Agree
5. Extension should encourage team work	4.48	0.542	3	Agree
6. Extension should promote the use of opinion Farmers	3.58	0.893	14	Agree
7. Extension should promote consultation among Farmers	4.56	0.502	1	Agree
8. Other agencies should co-operate with extension staff and vice-versa	4.27	0.689	6	Agree
9. Programs should be presented using suitable extension teaching methods	4.50	0.505	2	Agree
10. Programs should lead farmers towards self-Reliance	4.48	0.610	3	Agree
11. Farmers should develop problem-solving skills	4.23	0.703	7	Agree
12. Formative evaluation procedures should be used	3.88	0.808	10	Agree
14. Meeting farmers needs should be the priority goal	4.37	0.841	5	Agree
15. Farmers' participation in agricultural extension meetings should be compulsory	3.87	1.138	12	Agree
Overall mean	4.08	0.78		Agree

agencies should co-operate with extension staff and vice-versa' (4.27), 'programs should be presented using suitable extension teaching methods' (4.40), 'programs should lead farmers towards self-reliance' (4.48), 'farmers should develop problem solving skills' (4.23), 'formative evaluation procedures should be used in decision making' (3.88), 'appropriate summative evaluations procedures should be used in decision making' (3.77), 'meeting farmers' needs should be the priority goal' (4.37), 'farmers' participation in agricultural extension meetings should be compulsory' (3.87). Using a score mean of 3.00 and above to denote agreement with each of the statement above and mean below 3.00 to denote disagreement with the statements. It was obvious that all the respondents agreed favorably with all the statements regarding their perception toward the principles of Agricultural extension services in Botswana. This indicated in varying degrees that the extension workers had a favourable perception towards the principles of Agricultural extension education programmes of Botswana. Thus the extension workers have approved that the principles governing extension services in Botswana were all well thought of.

The perception of respondents regarding the extension teaching methods used to conduct educational programs are shown in Table 4. The mean scores for the frequent use of each extension teaching methods, were determined using a rating scale of 1 (very seldom), to 5 (very often). The mean scores as per teaching method gave the following indications: Method demonstration (4,75), results demonstration (4.44), farm and home visits (4.56), agricultural shows(3.52), short courses (3.62), field days (3.83), workshops (3.62), seminars (3.71), lectures (3.00), lecture-discussions (2.94), group discussions (3.96), panel discussions (3.12), buzz groups (2.62), role playing (3.10), case studies (3.13), questioning (3.54), problem solving (decision making) (4.12), on-farm trials (4.50), brainstorming (3.40), tours (3.71), focus groups (3.04), nominal group techniques (2.79). Using a score mean of 3.00 and above to denote 'often use' with each of the statements and mean below 3.00 to denote 'seldom use' with the statements, Table 4 revealed that all

Table 4: Perception of respondents regarding the extension teaching methods used to conduct extension education programs

Teaching methods used in agricultural extension education programs	Mean	S.D.	Rank	Decision
1. Method demonstration	4.47	0.43	1	Often
2. Result demonstration	4.44	0.77	4	Often
3. Farm and home visits (individualized instructions)	4.54	0.72	2	Often
4. Agricultural shows	3.52	1.26	13	Often
5. Short course	3.62	0.97	10	Often
6. Field days	3.83	1.02	7	Often
7. Workshops	3.62	1.17	10	Often
8. Seminars	3.71	0.87	8	Often
9. Lectures	3.00	1.22	19	Often
10. Lecture-discussions	2.94	1.44	20	Seldom
11. Group discussions	3.96	0.98	6	Often
12. Panel discussions	3.13	1.22	15	Often
13. Buzz groups	2.62	0.95	22	Seldom
14. Role playing	3.10	1.19	17	Often
15. Case studies	3.13	1.04	15	Often
16. Questioning	3.54	1.09	12	Often
17. Problem solving (decision-making)	4.12	0.58	5	Often
18. On farm trials	4.50	0.54	3	Often
19. Brainstorming	3.40	1.15	14	Often
20. Tours	3.71	1.01	8	Often
21. Focus groups	3.04	1.26	18	Often
22. Nominal group techniques	2.79	1.05	21	Seldom
Overall mean	3.58			Often

5 = very often = often, 3 = uncertain, 2 = seldom, 1 = very seldom

Table 5: Perception of respondents regarding the extension teaching materials used to support information dissemination in agricultural extension services

Teaching methods used in agricultural extension education programs	Mean	S.D.	Rank	Decision
1. Field support guides	4.06	0.938	2	Often
2. Advisory bulletin	3.94	0.752	4	Often
3. Agricultural research reports	4.25	0.789	1	Often
4. Films	2.96	1.313	14	Seldom
5. Exhibits and displays	3.31	1.245	10	Often
6. Red objects	3.50	0.960	8	Often
7. Chalkboard	2.44	1.195	21	Seldom
8. Models	3.29	1.143	11	Often
9. Flip charts	2.75	1.312	15	Seldom
10. Radio	4.00	1.103	3	Seldom
11. Video tapes	3.29	1.273	11	Often
12. Television	3.73	1.157	5	Often
13. Computer aided instructions	2.69	1.197	16	Seldom
14. Bulletin boards	2.69	1.408	16	Seldom
15. Instructional posters	3.21	1.258	13	Often
16. Flannel board	2.54	1.038	19	Seldom
17. Satellite	2.54	0.999	19	Seldom
18. 35mm Slides	2.60	1.107	18	Seldom
19. Tours	3.50	1.213	8	Often
20. Tours	3.62	1.013	7	Often
21. News stories	3.63	1.138	6	Often
Overall mean	3.26	1.18		Often

5 = very often, 4 = often, 3 = uncertain, 2 = seldom, 1 = very seldom

respondents often use majority of the teaching methods involved in agricultural extension programs in Botswana. Only three out of the 22 statements in this domain recorded a mean below 3, indicating that the extension workers seldom use the methods when teaching farmers. However, the extension workers had favourable perception toward 19 out of the 22 teaching methods put in place for use in the extension services of Botswana. The 3 teaching methods that are seldom used, i.e., Nominal group technique (mean = 2.79), Buzz group discussion (mean = 2.62) and Lecture-discussion combined (mean = 2.94) has in common an element of group discussion. The implication of this is that extension workers might want to reduce the use of any discussion method that could probably spark controversy and promote intrigue among their clientele.

The mean scores for the frequent use of extension teaching materials used to support the extension services were determined using a rating scale of 1 (very seldom) to 5 (very often) as shown in Table 5. The mean scores as per teaching material gave the following indications; field support guides (4.06), advisory bulletin (3.94), agricultural research reports (4.25), films (2.96), exhibits and displays (3.31), real objects (3.50), chalkboard (2.44), models (3.29), flip charts (2.75), radio (4.00), television (3.73), video tapes (3.29), computer aided instructions (2.69), bulletin boards

(2.69), instructional posters (3.21), flannel board (2.54), satellite (2.54), 35mm slides (2.60), tours (3.50), newsletter (3.62) and news stories (3.63). Using a score mean of 3.00 and above to denote 'often use' and a mean score of below 3.00 to denote 'seldom use', Table 5 revealed that the extension workers said they often use 12 out of the 21 extension teaching materials approved for use to support information dissemination in Botswana extension services. The remaining 9 extension teaching materials were seldom used by the extension workers as shown in Table 5. 'Agricultural research report' was ranked 1st (mean = 4.25) among the extension teaching materials and equipment used by the extension workers. This was followed by 'field support guides' which was 2nd with a mean of 4.06. The use of Radio was ranked 3rd with a mean of 4.00. This findings support Williams (1978) who found out that radio is among the top teaching equipment that can be used to support information dissemination in Africa. Materials and equipment that tend to involve the ability to read and write such as the use of chalkboard, flannel board, satellite, slides and computer aided instructions were seldom used by the extension workers; indicating that the low level of education of farmers in Botswana, just as in many other African countries might have discouraged the extension workers from using them.

CONCLUSION

Based on the data collection, the following conclusions were reached:

- Majority of respondents were male and are relatively young
- Majority of respondents had diploma as their highest level of education
- Majority of respondents had 11 and above years of working experience in extension services.
- The respondents agreed although in varying degrees, that all the objectives set up by MoA to implement agricultural extension programmes in Botswana were very useful.
- The respondents agreed in varying degrees that the principles of agricultural extension services set up in the Botswana extension system could all promote viable extension services in the country.
- Majority of the respondents agreed that apart from the nominal group technique, buzz session and lecture methods all other teaching methods recommended for use as a matter of policy are often used.
- Majority of respondents agreed that the agricultural research reports and field support guides are the best teaching materials used to support information in agricultural extension services.
- Majority of respondents were satisfied with the use of teaching materials and equipment recommended for use as a matter of policy in Botswana extension services. However, majority disagreed with the use of chalkboard, films, flipcharts, computer aided instructions, bulletin boards, instructional posters and bulletin boards for supporting information in agricultural extension services.

RECOMMENDATIONS

- More females should be recruited into the agricultural extension services.
- The agricultural extension officers should go on with a good work of implementing the objectives of the agricultural extension programs
- Agricultural extension officers should continue doing their best to implement the principles of the agricultural extension services.
- Extension staff should do their best to involve buzz groups and nominal techniques because of the advantage of brainstorming of those concerned which tend to brief about useful information.
- Extension staff should often involve the use of chalkboard, flannel board and instructional posters as teaching materials used to support information in agricultural extension services, considering the fact that they are not too costly and can be used in the absence of electricity with may be absent in most rural areas. However, for this to be more effective, extension workers need to organize adult literacy program to their clientele who are not able to read and write.

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