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OF EDUCATION
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Volume 32, 2011
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A GENDER-BASED ANALYSIS OF THE ROLE OF AGRICULTURAL EXTENSION SERVICES AMONG MAASAI AGRO-PASTORALISTS

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Abstract

The Maasai like many pastoralists around the world have in recent years been forced to seek alternative livelihoods as pastoralism becomes untenable due to climate change and population pressures. Agro-pastoralism is one of the alternatives being pursued, but there are associated challenges mainly due to the Maasai people's lack of indigenous technical knowledge on crop farming, and negative cultural attitudes to the practice. Agricultural extension services have a crucial role to play as the major providers of necessary technical knowledge on crop cultivation. The purpose of this gender-based study was to investigate the role of government extension services among Maasai agro-pastoralists as a source of influence and information on crop cultivation. The study also sought to determine the type and frequency of extension contact that the agro-pastoralists receive. The study adopted a survey research design and was carried out in Narok North District of Kenya, using a sample of 153 male and 87 female household heads, who were selected either through multi-stage cluster sampling or systematic sampling. Agricultural extension workers and key informants also provided data for triangulation purposes. The findings indicated the respondents had low contact with agricultural extension service, with 55.6% of male respondents and 66.7% female respondents reporting having had no contact at all. Informal sources comprising of relatives, friends and neighbours were the leading source of influence to grow crops as well as the leading source of technical information on crop farming for most of them, more so for the female respondents. The frequency of extension contact was generally low, with 50% of male respondents and 64.3% of female respondents reporting a frequency of three times or less over the past two years. Fifty-one percent of male respondents and 53% of female respondents rated the information they received as inadequate. For the female respondents, the leading types of extension contact were farm and home visits and seminars as well as seminars. For the male respondents, the leading extension type was a combination of different extension methods including farm and home visits, field days, demonstrations, seminars and office visits. The study findings clearly indicated the inadequacy of the extension services provided for the Maasai agro-pastoralists. The study therefore concluded that there was need to strengthen agricultural extension services among them in order to facilitate successful livelihood diversification and promote food security and livelihoods.

Key words: *agricultural extension, agro-pastoralism, alternative livelihoods, Maasai, pastoralism.*

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Introduction

Pastoralism is the bedrock of livelihoods and culture in the arid and semi-arid lands (ASALs), in East Africa. Livestock perform multiple roles to satisfy economic, social and ecological needs among the pastoralists. They provide cash through sales of milk, live animals and other animal products; subsistence products (milk, blood, and meat); build blocks for social alliances (bride price, stock alliances, and stock patronages) and wealth storage (ILRI, 2006; Rass, 2006).

However, in recent years, pastoralism has been experiencing a lot of pressure, which makes it difficult for many pastoralists to maintain a pure pastoralist lifestyle. This pressure includes the effects of climate change, characterized by increased frequency and intensity of droughts and famine, and associated livestock losses (Homewood et.al, 2006; OXFAM, 2008; Rass, 2006). Successive poor rains lead to insufficient regeneration of grazing land and shrinkage of pastures. In addition, there is increasing pressure on pastoralist grazing lands and water resources as populations have increased and grazing lands have been taken up for cultivation, causing pastoralism to gradually lose the mobility that was one of its adaptive characteristics. Increasing sedentarisation driven by the demand for social amenities as well as fear of land loss is also increasingly exposing the pastoralists to the benefits of a cash economy, education, and opportunities to cultivate or live a sedentary lifestyle. Subsistence pastoralism no longer enjoys stability. It is in a state of transition (Little, 2010) and as Birch and Grahn (2007) have indicated, the consequences of future global climate variability for pastoralists are uncertain.

Many pastoralists are being forced to look beyond pastoralism and to diversify their livelihoods for continued survival. Pastoral diversification, defined as the pursuit of any non-pastoral income-earning activity, is no longer optional for many pastoralists (Birch & Grahn, 2007; Little, 2010). Diversification is the norm, and not only among pastoralists as very few people have one source of income, hold all their wealth in a single asset, or use their assets in just one activity (Barret, Reardon & Webb, 2001). Non-traditional sources of income are therefore, becoming increasingly important for livestock keepers (Rass, 2006).

The Maasai - the largest and most widely-known pastoralist group in East Africa - are also being forced to diversify their livelihoods. They are attempting to craft new sustainable livelihoods in response to increasing population pressure, a fluctuating livestock population, decreasing grazing areas, and a modernization process that - increasingly emphasizes a monetary economy. Agro-pastoralism - the incorporation of significant levels of crop cultivation into pastoralism - is increasingly used as a diversification strategy, where climatic conditions allow.

Crop cultivation among the Maasai is not a totally new phenomenon. As early as the 1930s, it is reported that the Arusha Maasai of Tanzania began to cultivate in order to either supplement their dietary intake or use profits from their harvests to rebuild or expand their herds (Hodgson, 1999). Crop farming however, was not widespread, and for a long time was restricted mainly to the Arusha Maasai. The larger majority of Maasai traditionally considered livestock to be the pinnacle of wealth and looked down upon non-pastoralists as being poor and inferior. Crop cultivation was therefore, for those who had no livestock, who had fallen into poverty (Waller, 1999). This however, is no longer the case in view of recent pressures on pastoralism. Studies, have found increasing involvement of the Maasai in crop cultivation (Lesorogol, 2008; Tangus, 2002; Western & Nightingale, 2003). In a case study of the Maasai in Amboseli, it was found that pastoralists are diversifying their livelihoods and lifestyles out of choice and necessity with diversification into arable agriculture being seen as one way of reducing environmental risk and uncertainty and enjoying new economic and social opportunities (Western & Nightingale, 2003).

Problem of Research

As the Maasai diversify into crop cultivation, one major challenge that they face is lack of indigenous technical information on crop farming due to their pastoralist background, and dependence on external sources of information. The agricultural extension service, which is an informal educational service for farmers, has an important role to play as a source of the much-needed technical information on crop farming. Agricultural extension service providers, who are mainly educators, also have to persuade the Maasai to leave pastoralism in favor of diversified crop production. This especially applies to the Government agricultural extension service, which is the leading service provider among Kenya's small-scale farmers. Few studies have been carried out among Maasai agro-pastoralists to determine the role played by the Government agricultural extension service, and suggest ways of strengthening extension services so as to build capacity among the Maasai to engage in profitable crop cultivation, as a livelihood diversification strategy.

The study sought to determine the role of the agricultural extension service, by gender, among the Maasai of Narok North District, as a source of technical information and influence in crop farming. The specific objectives were to1) describe the crop farming activities, by gender; 2) determine the sources of influence that led the Maasai to engage in crop farming, by gender; 3) determine the major sources of technical information on crop farming and the adequacy of the information by gender, and; 5) determine the amount and type of extension contact among the Maasai agro-pastoralists of Narok North District, by gender.

Research Focus

Agro-pastoralism provides a number of benefits for former pastoralists (Bonfiglioli, 1993). Agro-pastoralism boosts food security by increasing the access to food and/ the ability to access the food. It offers a refuge and a survival choice during times of drought. It also offers an opportunity for former pastoralists to diversify their sources of income in that they can get the income from the sale of livestock as well as from the sale of crops. Thirdly, agro-pastoralism represents a means of risk reduction by optimizing the chances for survival. This is particularly relevant for the ASALs which are occupied by the Maasai, where the environment may be variable and unstable and by choosing to engage in both animal husbandry and crop production, the agro-pastoralist is able to minimize risks.

For the Maasai to effectively engage in crop-cultivation however, they need support of various institutions, key among them being the agricultural extension service. The major function of the agricultural extension service is that of providing technological support to farmers in terms of knowledge, skills and attitudes needed to improve the farmers' activities (Okunade, 2007; Republic of Kenya, 2010;). Farmers require a diverse range of information to support their enterprises (Glendenning, Babu & Asenso-Okyere, 2010) and the Maasai agro-pastoralists are no exception. The agricultural extension service in Kenya plays a vital role in sharing of knowledge, technologies and agricultural information, as well as linking the farmers to other actors in the agricultural sector as well as the general economy (Muyanga & Jayne, 2006; Republic of Kenya, 2010).

However, there are two main challenges for the agricultural extension service, with regard to working with Maasai agro-pastoralists. First is the Maasai culture, whereby they have traditionally looked down upon crop farming, which was traditionally associated with stocklessness and poverty (Waller, 1999). Second, and of great importance, crop cultivation is a fairly new activity for the Maasai who have a largely pastoralist background, and they therefore, have little or no store of indigenous technical knowledge on crop cultivation. They therefore, have to be taught almost everything about crop cultivation, including basics that are

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usually taken for granted when dealing with agricultural communities. By providing adequate and appropriate information to the Maasai, the extension service can help them adopt agro-pastoralism easily and faster. The extension service therefore, has a key role in facilitating the successful transition from pastoralism to agro-pastoralism among the Maasai. In Kenya, the common extension teaching methods include focal area extension, farmer field schools, face-to-face extension, field days, film shows, and adaptive on-farm trials (Republic of Kenya, 2005).

The study adopted a gender-based approach since gender is a cross-cutting issue that affects all aspects of development, including agricultural production. In many developing countries, women play a vital role in household food security and bear most of the responsibility for meeting the basic needs of the family (World Bank, 2007; Hunger Project, 2009). The adoption of agro-pastoralism by the Maasai should therefore, be considered in terms of gender, because men and women differ in terms of their roles, the opportunities and resources available to them as well as the challenges they face. Traditionally the Maasai women have been marginalized both economically and socially, and their role in pastoralism has not been given much recognition. This is is the case in many societies, where women's contribution is generally downplayed (World Bank, 2007). Agro-pastoralism is therefore, significant for the Maasai women as it provides an avenue through which they can be empowered to participate more actively in household food security, through direct contribution to household food supply, and income from the sale of surplus crop produce. Effective extension support in agro-pastoralism is therefore likely to have greater impact for the women than for the men.

Methodology of Research

General Background of Research

The study was carried out in Narok North District, of Narok County in Kenya. The District was originally occupied by the Maasai and used mainly for pastoralism, but has now become an important agricultural area due to its suitable soils and climate. Initially the crop cultivation was done by people from outside the District, who hired the land from the locals. However, more Maasai are increasingly getting involved in crop farming. Crops produced in the area include maize, wheat, barley potatoes and beans (Ministry of Agriculture, 2010). The study adopted a gender-based approach, in order to take into account women's significant role in agriculture, and ensure their situation in terms of extension support is not over-shadowed by the general situation for all farmers.

Sample of Research

The study used a cross-sectional survey research design. This design was considered appropriate since the data was collected at one point in time and variables were studied in retrospect (Gall, Gall & Borg, 2003). The target population consisted of all the ethnic Maasai households in Narok District, in the Rift Valley Province of Kenya. The population in the District was estimated to be 476,253 people, with a total of 76,450 households in 1999 (Republic of Kenya, 2001). The accessible population consisted of the Maasai households in East Mau, Central Mau, and Olokurto divisions (West Mau), which were purposely selected.

A combination of criterion sampling and simple random sampling was used to select eight locations and 15 sub-locations in the selected divisions. The criteria for selection were that the locations and sub-locations had to have significant levels of agro-pastoralism, the households had to be 'pure' Maasai and the households should not be bordering agricultural communities. A total of 240 households were selected through multistage cluster sampling

(Gall et al., 2003), from which 153 male household heads and 87 female household heads were picked as subjects. Most of the male respondents (94%) were married; 53% of the female respondents were married, 38% were widowed, while the rest were single.

Instruments and Procedures

The data were collected through a questionnaire that was administered through personal interviews carried out by carefully selected and trained local enumerators. The interviews were considered appropriate because most of the respondents had little or no formal education, and therefore self-administered questionnaires, written in English could not have been appropriate for them. Local enumerators were able to translate the items on the questionnaires into the local Maa language and translate the responses back into English. The instrument comprised mainly of closed-ended items, but there were also some open-ended items. In addition, a questionnaire was also administered to agricultural extension staff working in the study locale, while interviews were conducted with selected key informants, for purposes of triangulation. Content and construct validation of the instruments was ascertained by subjecting the items to thorough examination by a team of experts in the fields of agricultural extension, rural sociology, statistical and research methods from the Department of Agricultural Education and Extension, Egerton University. To ensure reliability, the interview schedules were pilot-tested in Nkareta Location of Central Division of Narok North District, using 25 Maasai agro-pastoralist household heads. This number represented approximately 10 percent of the study sample and was therefore considered adequate as per some suggested guidelines (Hertzeg, 2008). The researchers also used built-in cross-validating questions. The data were collected between August 2006 and June 2007, as part of a doctoral research study which looked at the socio-cultural and other challenges that were facing the Maasai in the adoption of agro-pastoralism.

Data Analysis

The computer based Statistical Package for Social Sciences (SPSS) was used to analyse the data. Qualitative data such as respondents' education levels, types of crops grown, sources of influence and technical information as well as type of extension contact were placed into categories and analysed using frequencies and percentages. Quantitative data regarding the respondents' age, farm size, number of years of crop farming and frequency of extension contact were also described using frequencies and percentages but further analysed using t-tests and chi-square. All the statistics were described by gender, whereby the statistics for the male and female respondents were analysed separately and also compared.

Results of Research

Characteristics of Respondents

The mean age was 43 years for the male respondents and 38 years for the female respondents. The male respondents were found to be significantly older than the female respondents, as determined through a t-test which yielded a value of 2.95, at 0.00 significance level (df=238; critical t=1.697).

Illiteracy was prevalent, with 48% of male respondents and 47% of female respondents reporting they had never attended formal schooling. However, 16% of the male respondents and 13% of the female respondents had attained post-secondary school training. The education levels of the respondents are summarised in Figure 1.

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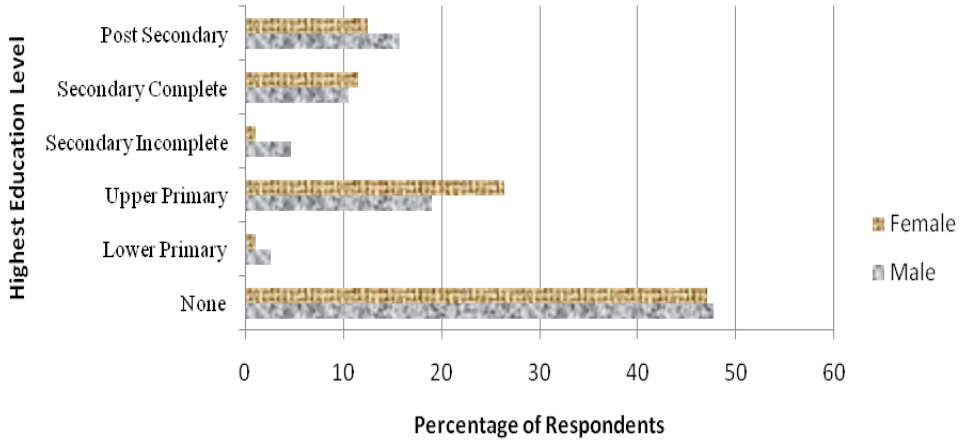

Figure 1: Respondents' highest education by gender of respondents.

Livestock and Crop Farming Activities

The mean farm size was 49 acres for the male respondents and 33 acres for the female respondents. A t-test for difference between the means of the farm sizes for two groups of respondents yielded a t-value of 2.82, with a significance of 0.005 (df=231; critical t=1.697). The male respondents therefore, had significantly larger farms than the female respondents. The most commonly kept livestock were cattle, sheep and goats. The mean number of livestock units was 245 for the male respondents and 195 for the female respondents. A t-test was used to determine the difference between the mean number of livestock units for the male and female respondents, and it yielded a t-value of 1.07, with a significance of 0.28 (df=238; critical t=1.697). The difference was therefore, not statistically significant.

The crops grown were wheat, barley, maize, beans, peas, potatoes and vegetables. Maize was the leading crop (grown by 94% of the males and 93% of the females). Figure 2 indicates the findings about the crops grown.

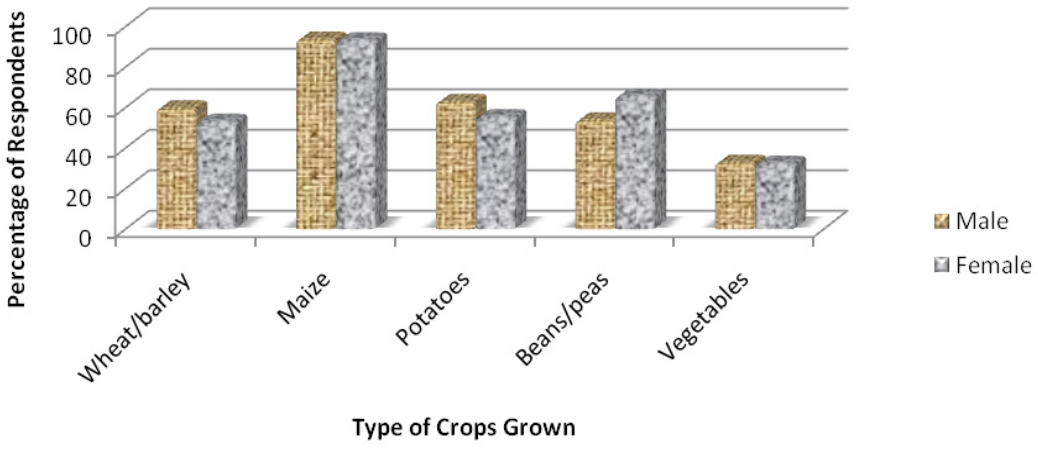

Figure 2: Types of crops grown by percentage and respondents' gender.

Among the male respondents, maize was followed by potatoes (63%), wheat/barley (60%) and beans/peas (54%). For the female respondents, beans/peas were second to maize (66%) followed by potatoes (55%) and then wheat/barley (53%). Vegetables were the least prevalent crop, being grown by 33% of the male respondents and 32% of the female respondents.

The mean crop acreage was 39.4 acres for the male respondents and 27.7 acres for the female respondents. The difference between the means of the crop acreages was tested using t-test, whereby a t-value of 1.30 was obtained, with a significance of 0.195 (df=238; critical t=1.697), indicating that the difference was not statistically significant. The crop acreages were further grouped into categories, and the distribution of the respondents in the various categories was as indicated in Figure 3.

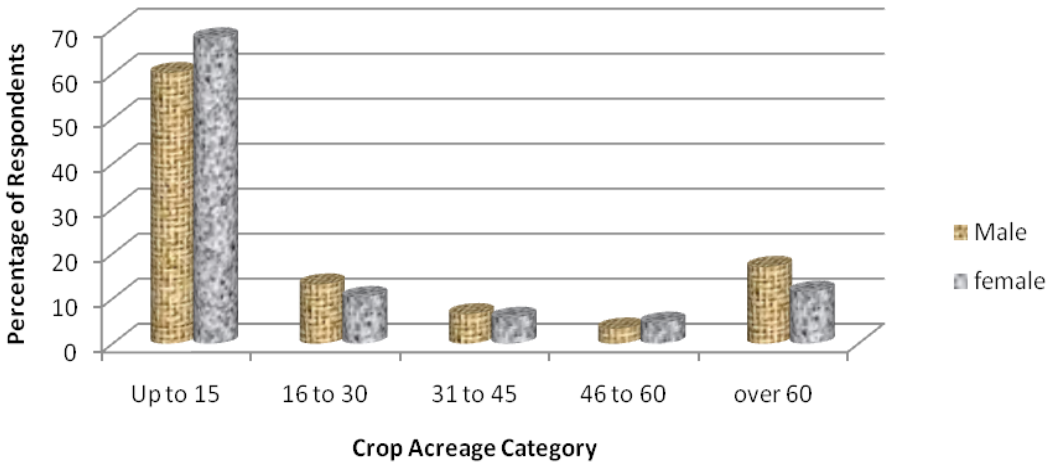

Figure 3: Category of crop acreage by percentage of respondents and gender.

Sources of Influence to Engage in Crop Cultivation

The sources of influence were grouped into three categories, namely, informal sources such as relatives, friends and neighbours; agricultural extension workers and other technical agents such as agri-business dealers, agricultural shows, schools or other institutions. The respondents reported being influenced by these agents either singly or in combination with each other. The findings are summarised in Figure 4.

The second major source of influence was 'agricultural extension agents', indicated by 37% of the male respondents and only 14% of the female respondents. A significantly higher percentage of males were influenced by agricultural extension agents implying their greater access or contact with agricultural extension agents. The third source of influence was the 'other technical agents', but here there was little difference in the percentage of male and female respondents who reported this source of influence. The findings indicated that the agricultural extension service did not play a leading role in influencing the respondents to grow crops, and its influence was especially insignificant among the female respondents.

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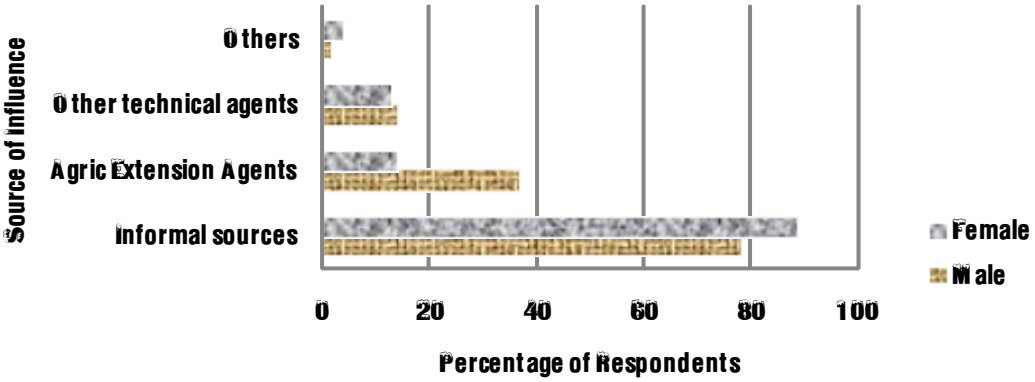

Figure 4: Sources of influence in crop farming by respondents' gender.

Number of Years of Crop Farming

Findings indicated that the mean number of crop farming years was 12.7 years for the male respondents and 10.2 years for the female respondents. A test of the significance of the difference between the mean number of years of crop farming at .05 α level of significance for the male respondents and female respondents was significant (t-value = 2.38; sig = 0.018; df=238; critical t=1.697). Therefore, the male respondents had significantly higher number of years of crop farming as compared to the female respondents.

Further analysis revealed that 64.4% of females and 52.9% of the male respondents had ten years or less of crop farming experience. On the other hand, 13.7% of the males and 3.4% of the females had more than 20 years of crop farming experience.

Sources of Technical Information on Crop Farming

The sources of technical information cited were informal sources such as relatives, friends and neighbours; agricultural extension agents and other technical agents such as East African Breweries, agri-business dealers, agricultural shows and even education institutions. The findings were as indicated in Figure 5.

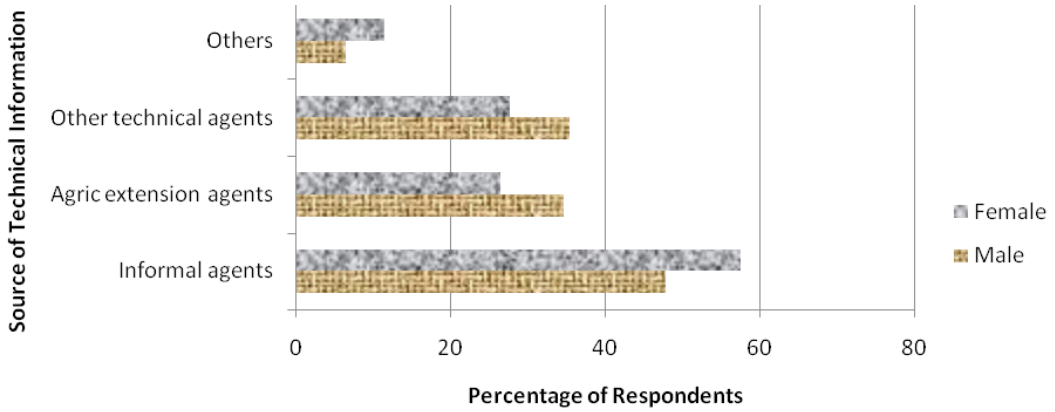

Figure 5: Sources of technical information by percentage and respondents' gender.

The leading source of technical information for both groups separately and jointly were the informal sources comprising of relatives, friends and neighbours. The percentage of female respondents however was notably higher than that of the male respondents (57.5% compared to 47.7%), implying that more of them relied on the informal sources of information. The second position was taken by the other technical agents, with 35.3% of male respondents and 27.6% of female respondents relying on the source. Agricultural extension agents however, were a close third at 34.6% and 26.4% respectively. For both sources of technical information, the percentage of male respondents was notably higher than the percentage of female respondents. Other sources of technical information cited, about from the main ones were mass media, especially radio. Newspapers and other written sources also played a role especially for those who were literate.

The study also sought to determine the adequacy of the information the respondents received. Fifty-one percent of the male respondents and 53% of the female respondents indicated that the technical information they received was not adequate, and they would have desired to receive more.

Contact with the Agricultural Extension Service

Less than half of both groups had contact with extension services or agents. However, the percentage of female respondents was significantly lower at 33.3% compared to male respondents (45.1%) implying their lower participation in agricultural extension programmes. The types of extension contact that were reported by the respondents are summarised in Figure 6.

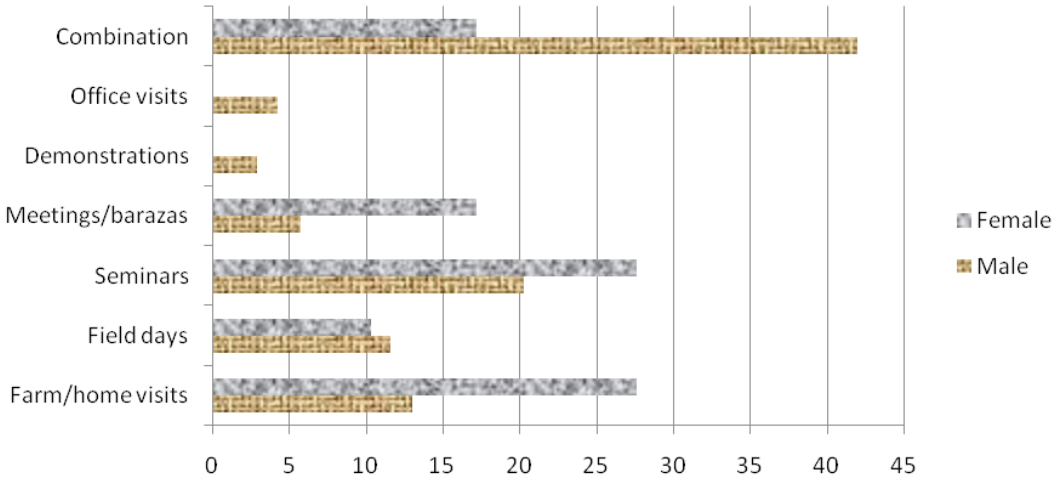

Figure 6: Type of extension contact by percentage and gender of respondents.

For the male respondents, the leading type of extension contact was a combination involving more than one type of extension contact at 42%. This was followed by seminars (20.3%), then farm and home visits (13%), and field days (11.6%). For the female respondents, the leading type of extension contact was farm and home visits and seminars (27.6% each); this was followed by meetings and 'combination at 17.2% while field days were reported by 10.3% of the female respondents. The female respondents therefore relied more on farm and home visits as well as seminars for extension contact, while the male respondents had a greater variety of contacts.

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Frequency of Extension Contact

The respondents were also asked to indicate how many times they had contact with the extension service, over the last two years. Their responses were as summarised in Figure 7.

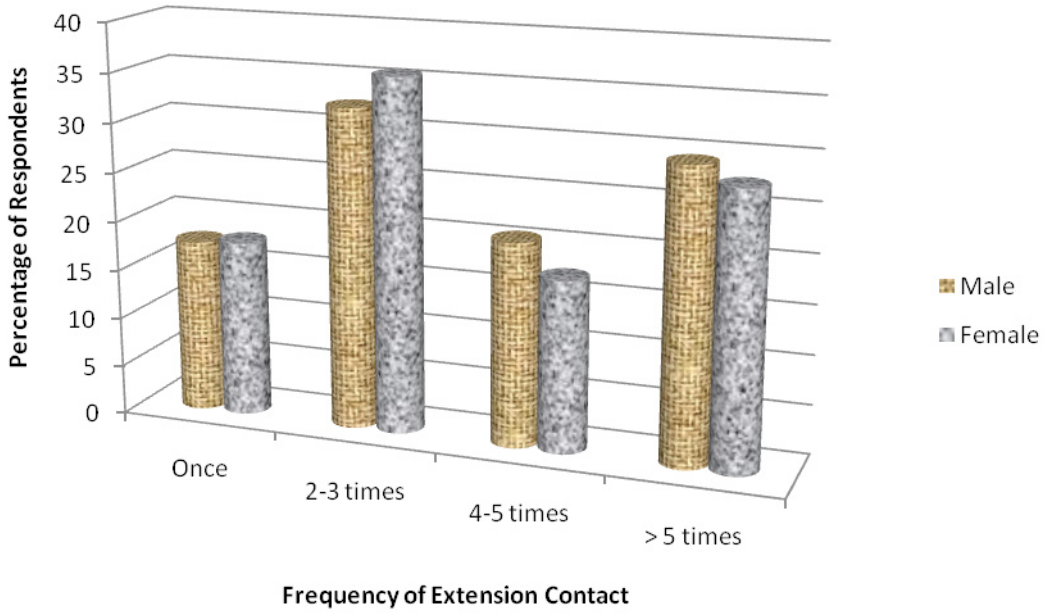

Figure 7: Frequency of extension contact by percentage and gender of respondents.

Most of the respondents (53%) reported an extension contact frequency of three times or less. However, more of the female respondents reported this frequency (64.3%) than the male respondents (50%). The percentage of those who reported having extension contact more than five times was close for the two groups (29.4% male respondents and 25% female respondents). The difference in frequency of extension contact between the male and female respondents was tested using Chi-Square. The Pearson Chi-Square value was 5.54 with a significance value of 0.24. This indicated that there was no statistically significant difference between the two groups in terms of frequency of extension contact.

Discussion

The findings on the characteristics of the respondents indicated they generally had low levels of education, with little difference between male and female respondents. Low literacy levels are characteristic of many pastoralist communities in Kenya, who live under harsh conditions with access to few educational institutions. The education level of an individual is significant because it improves people's ability to take advantage of opportunities that can improve their well being as individuals and be able to participate more effectively in the community and markets (World Bank, 2007). Research findings have also shown a significant positive relationship between the level of education and the adoption of farming technologies. The implication for the Maasai therefore is that their low levels of education put them at a disadvantage when it comes to taking advantage of new farming technologies. This calls for the agricultural extension service to apply appropriate strategies that are suited to their low education levels.

The agricultural extension service did not play a leading role both as a source of influence to grow crops and as a source of technical information on crop cultivation. The leading source of influence and technical information for both male and female respondents was the informal agents such as relatives, friends and neighbours. More of the female respondents reported the informal agents as being sources of influence and technical information than the male respondents. This can be attributed to the fact that many women in the rural areas, including the Maasai do not have as much contact with the outside world as their male counterparts. This is mainly because of the nature of women's reproductive roles which tend to confine them to their homes, especially if they are not educated. As a result, they rely more on informal sources that are more easily available to them. Rural sociologists have also found that informal groups are powerful in influencing individuals towards a certain decision, because of the nature of relationships within the groups (Macionis, 2008). For the male respondents however, although informal sources were leading, the other sources of influence and technical information were also reported by fairly high percentages of the respondents, which could be an indication of their greater access to the outside world.

The findings also indicated that the male respondents had significantly more years of crop farming than the female respondents. Given that the number of years of crop farming is a reflection of the amount of experience that an individual has, it can therefore be deduced that the male respondents had more experience in crop farming than the female respondents. This is evidence that for the Maasai, crop farming is an activity which was not traditionally carried out and was being adopted gradually. This is unlike the case in communities that traditionally cultivate crops, where individuals are born into a crop farming environment and their age can directly be related to the number of years of crop farming. In a study of Nigerian women farmers, Okunade (2007) found a positive relationship between years of experience and adoption of farming technologies. This implies that the male respondents may have had more advantage in the adoption of crop farming technologies.

The frequency of extension contact was found to be generally low. Study findings have identified some factors that are related to likelihood and frequency of extension contacts. In a study of Kenyan farmers by Nambiro, Omiti and Mugunieri (2005), it was found that income and literacy levels of the household head had a significant impact on the likelihood of receiving demand-induced extension services. Nambiro et al. (2005) concluded that income of the household-head positively and significantly increased the probability of accessing extension while illiteracy of the household head was associated with a diminished likelihood of seeking (and receiving) extension advice. Additionally, their study found that for supply-induced extension services, age, education level and sex of the household head (male) were positively and significantly related to the probability of a farmer receiving an extension visit. Therefore, the generally low levels of education among the respondents may have contributed to the low frequencies of extension contact

The failure of the agricultural extension service to play a leading role in influencing the Maasai to grow crops and as a source of technical information can largely be attributed to shortage of agricultural extension staff, which is a problem that affects many parts of Kenya generally, but more so Narok North District. Data obtained from the District Agricultural office at the beginning of 2008- indicate that the District had only 37 extension staff, with sixteen of them deployed to the divisions. This level of staffing did not conform to the policy of the Ministry of Agriculture that requires each location in the division to be manned by a frontline extension worker. In East Mau Division, only four out of the nine divisions were manned by an extension worker. In Central Mau, three locations out of four were manned, and in Olokurto, only two out of the four locations were manned. Agricultural extension staff reported that this shortage was compounded by the expansiveness of the agricultural working units, which could not be effectively covered by only one person. As a result, even those locations that were manned were not adequately covered (Ministry of Agriculture, 2008).

According to a report on Kenya's agricultural extension service by Muyanga and Jayne (2006), the number of extension staff in the country has generally declined since 1994. The decline in extension staff numbers has been brought about mainly by retrenchment and a freeze in government employment within the Ministry of Agriculture due to the structural adjustment programmes (SAPs). Staff losses have also occurred through natural attrition, through retirement and deaths especially related to HIV/AIDS. Understaffing is further highlighted by a report by the Republic of Kenya (2010), which asserts that the supply of extension and support services is generally deficient or limited in the ASAL areas and that past development efforts and programmes did not address this issue adequately.

In addition to shortage of manpower, the extension service faces challenges in delivering information to large numbers of smallholder farmers scattered over wide, sometimes inaccessible, areas. The number of farmers in Narok North District is not very high, but they are scattered over wide areas, making it difficult for extension agents to achieve adequate coverage of the farmers. The Ministry of Agriculture has responded to the staff shortage by allowing extension officers to cover more than one administrative location unlike in the past. In addition, the Ministry has in recent years recruited significant number of agricultural field officers (Muyanga & Jayne, 2006). However, the number of extension staff remains inadequate.

The challenges of providing extension services for the Maasai agro-pastoralists therefore emanate from factors related to the farmers themselves as well as institutional factors related to the agricultural extension service. The bottom line however, is that the agricultural extension support to the Maasai agro-pastoralists is inadequate and there is need to find ways of strengthening it, to meet the needs of these emerging crop cultivators.

Conclusions

The role of the government agricultural extension service among the Maasai agro-pastoralists of Narok North District remains relatively small, despite the high potential for crop production in the District, and the importance of crop farming as a livelihood diversification strategy. The women farmers have much less contact with the extension service than the male farmers and therefore, enjoy fewer benefits of the service. There is need for extension service providers to recognize the Maasai agro-pastoralists as a unique clientele, being emerging crop cultivators, in providing agricultural extension services to them. Assumptions that apply to the traditional crop farming communities should not be applied to the Maasai, given their pastoralist background and lack of indigenous technical knowledge. There is also need for the existing agricultural extension service to emphasize communication strategies that will reach more farmers, such as the use of group methods, and to also bring on board other agricultural extension service providers, to improve extension coverage among the Maasai. A gender analysis approach should be employed in addressing the extension gaps, to ensure that gender bias is not perpetrated, and that Maasai women farmers are able to benefit equally with the male farmers.

Acknowledgements

The researchers' greatest appreciation goes to Egerton University Board of Postgraduate Studies, which, through the Division of Research and Extension provided most of the funds that were used to carry out the study. The researchers also acknowledge the help provided by the members of the Department of Agricultural Education and Extension for the role they played in validating the instruments used in the study, and also providing useful suggestions for improvement of the work. The work would not have been possible without the co-operation of the respondents and the researchers therefore extend a word of gratitude to them. Special

mention also goes to the enumerators, especially Mr. James ole Sopia and Mr. Philip ole Kilesi for their tireless efforts and commitment to the data collection exercise. The researchers are also indebted to the District and Divisional agricultural extension staff in Narok North District, for the role they played in facilitating this work.

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Received: *April 21, 2011* Accepted: *June 14, 2011*

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