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Assessment of the Adoption of Livestock Health Technologies by Smallholder Livestock Keepers: The Case of Strategic Helminth Control in Kericho County

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ABSTRACT

A study to investigate the adoption of strategic helminth control in smallholder farms in Kericho County that was carried out from July to October 2009. Out of 202 farmers interviewed, 91 were part of an epidemiological study on helminth control 9 years earlier who had been given advice on strategic helminth control. The rest were control farmers. The results indicate most of the farmers knew how to control worms but very few actually practiced it correctly. Only 1.4% dewormed their animals at the onset of the rains in April and July as recommended by the researchers. Another group (37.5%) dewormed every three months irrespective of the time of the year while a small proportion dewormed only clinical cases of helminthoses. This study concluded that adoption of strategic worm control was low and the reasons are largely due to financial constraints. It is recommended that in addition to knowledge dissemination mechanisms for making livestock health services affordable to farmers are needed.

Key words: Livestock diseases, worm control and technology adoption.

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INTRODUCTION

The only viable option left for meeting increasing livestock products demand is to increase productivity per individual animal. The potential for improvement of livestock productivity has yet to be fully realized because of the major constraints the industry faces. Some of the major challenges have been identified as appropriate genetic material of livestock, feed resources, management skills, marketing of products and animal health (Mgheni et al., 1992). A survey of the constraints to livestock productivity in Nakuru, Trans-Nzoia, Kericho, Nyeri, Kakamega and Embu-Mbeere (Emong'or et al., 2000) identified lack of information as a major constraint to the development of the livestock industry. Wanyangu et al. (1999) showed that while the use of acaricides was widespread they were used haphazardly and farmers had no clear information on when, how or at what strength they were to be used. In another study Wanyangu et al. (2000) showed that a large proportion of farmers relied on the Agro vet shops for most of their disease control information. Unfortunately the level of education for most Agro-vet owners was found to be low and the information given was often incorrect. To address these constraints the NARP II project conducted a detailed epidemiological study of ruminant helminthosis in Kericho County between 1997 and 1998. After the epidemiological study an intervention study followed.

The epidemiological study found peak helminth infestations to occur between April and June and again between September and December. A workshop was held with farmers and extension staff of the Ministry of Agriculture and Livestock development where the results of the intervention study were discussed and recommendations for helminth control were given based on the findings. In order to make the recommendations to farmers as simple as possible, farmers were advised to deworm their livestock three times a year; the 1st

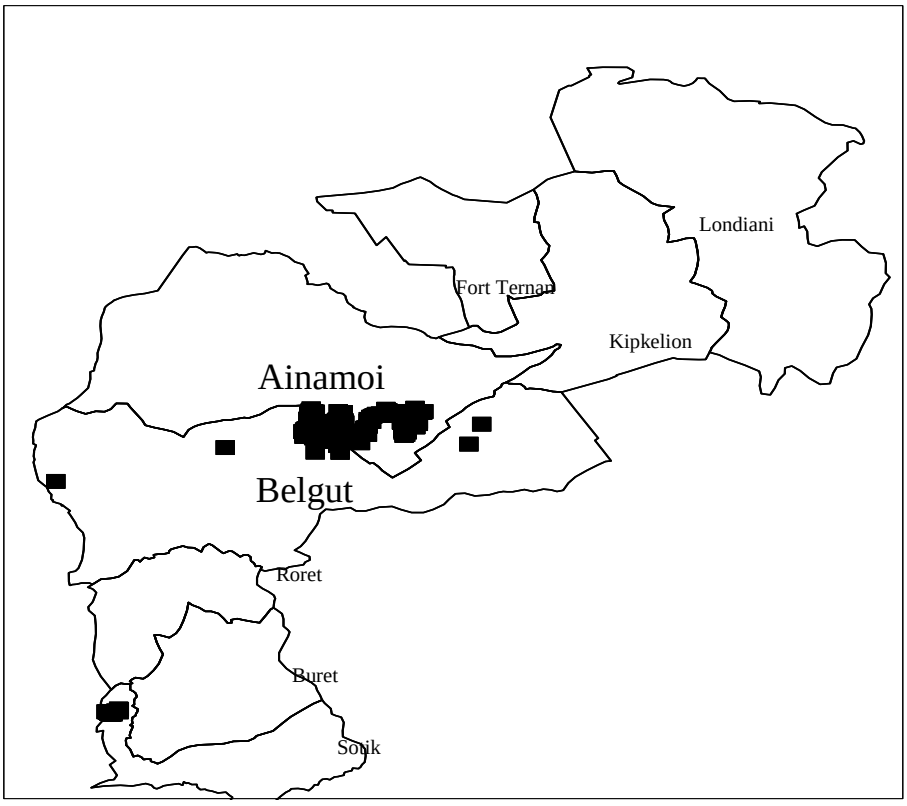

Figure 1. Map of Kericho County showing the study sites.

treatment by 15th of May, the 2nd by 15th of August and the last by 15th of November. The objective of this study was to assess the level of adoption of these recommendations, evaluate factors that have enhanced or constrained adoption and find solutions to the constraints.

MATERIALS AND METHODS

Two administrative divisions, Ainamoi and Belgut in Kericho County where the NARP II project was carried out were purposively selected (Figure 1). Ninety one farmers who had participated in the NARP II study were identified. Another 111 farmers next to participating farmers were randomly selected as controls. As a general rule, the farmer nearest to the participating farmer was selected and if for any reason this farmer was not able to participate, a replacement with the next farmer was selected. A structured questionnaire was developed and pre-tested before it was used to collect data between July and October 2005. Data on farmer characteristics, livelihood activities, constraints in livestock production, use of livestock health technologies, knowledge of helminthosis and control strategies was collected. An assessment of the awareness of the information given by the NARP II project and the level of adoption and the reasons for adoption or non-adoption were also collected. Data were entered into a database using Microsoft Access 2003 (Microsoft Corporation). Statistical analyses were conducted using Statistical Analysis Systems software (SAS institute Inc. Cary, NC, USA).

RESULTS

General Description of the Farms

Of all the 202 farmers who were interviewed, 53.5 and 46.3% of the respondents were female and male, respectively. The relationships of the respondents to the household owner are shown in Figure 2. About one third of the respondents were either the farm owners themselves or their wives.

This is a typical mixed crop/livestock production system with 99.5% of the farmers growing crops and keeping livestock on average 5.7±0.5 acres of land. The main species of livestock kept include cattle sheep, goats and poultry.

Disease Constraints

Table 1 summarises farmers ranking of the various diseases. The main livestock diseases reported were

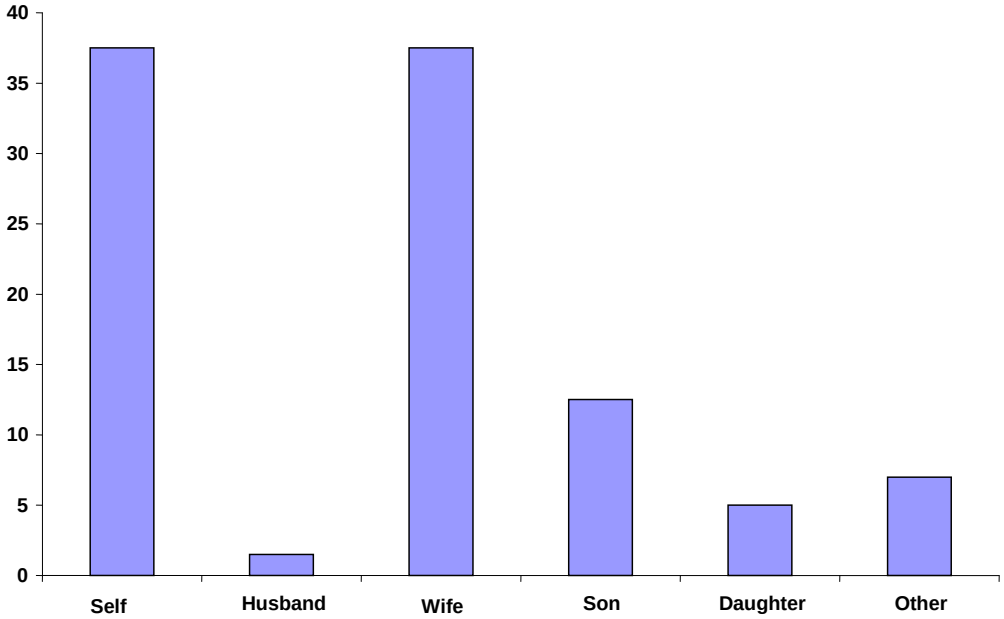

Figure 2. Relationship of respondent to farm owner in percentage.

Table 1. Ranking of the important livestock diseases by farmers.

	Ranking (percentage of respondents)		
Disease	**1 (Most important)**	**2**	**3 (Less important)**
ECF	36.1	2.3	2.3
FMD	6.4	10.2	0.4
Anaplasmosis	4.9	3.0	0.4
Helminths	1.5	6.0	1.9
Mastitis	0.8	1.1	1.1
Newcastle disease	0.8	2.6	1.9
Anthrax	0.4	1.1	0.4
Coccidiosis	0.4	1.5	1.1

East Coast fever, Foot and Mouth disease and anaplasmosis in cattle, helminthosis in small ruminants and Newcastle disease in poultry.

Helminth Control

Worm control was among the most widely reported animal health service farmers use with 57.9% of the respondents reporting that they deworm their livestock. This was only second to tick control which was reported by 74.7% of the respondents. When specifically asked if they dewormed their livestock 99.5% responded in the affirmative. Figure 3 summarises the frequency of deworming of different species of livestock. Farmers generally do not deworm goats as much as they treat other species of livestock. The majority did not treat goats at all and of those that treated, most said they did so only once in a year. Only 13% of the farmers said they treated goats three times a year. Farmers treat adult cattle more than they treat calves. Whereas only 10% of the respondents said they never treated adult cattle, almost one quarter of the respondents said they did not treat calves. Furthermore 30% of the respondents said they treated adult cattle three times a year compared to 22% of those that said they treated calves three times a year.

Adoption of Recommendations from NARP II Project

When asked about the NARP II project 78% of all the farmers who had contact with NARP II could remember the project and the 55% could recall the year. The rest of the respondents reported a different year ranging from 1994 to 2003. The messages that farmers reported to have been given are listed in Table 2. While the messages were quite varied, the majority of the respondents could recall they were advised to treat their animals 3 times a year. When asked if they followed the advice given, 73.3% of the respondents said they did not. The reasons for not practicing were largely due to financial constraints.

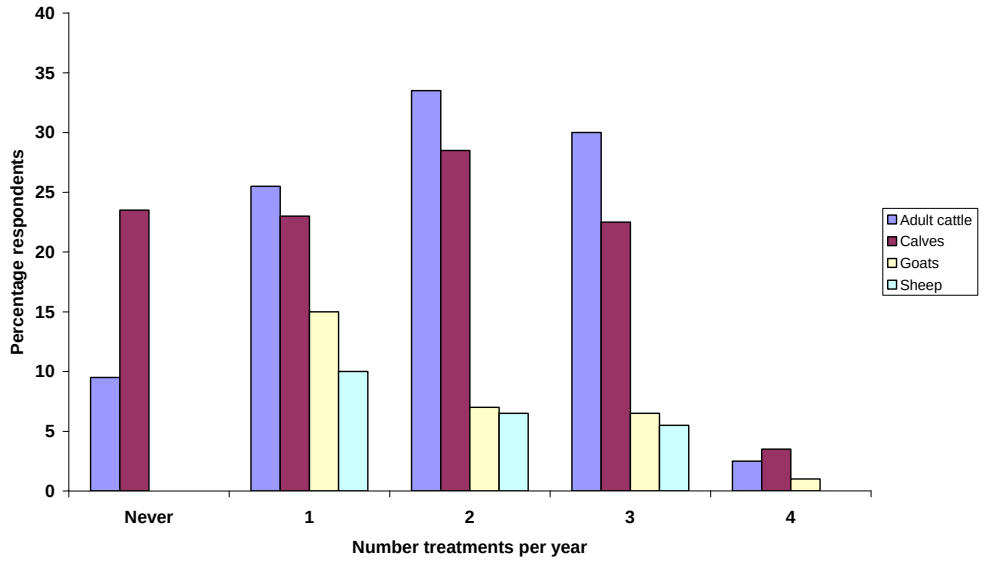

Figure 3. Frequency of treatment of different livestock species for worm infestation in Kericho district.

Table 2. The messages reported by farmers to have been given during the NARPII project.

Messages
Deworm after three months
Deworm if the animal looks sick
Deworm at the onset of rains
Deworm after 6 months
Deworm regularly
Graze adults and lambs separately
Keep the pens clan
Do not graze animals outside the farms
Give mineral supplements
No message was given

DISCUSSION AND CONCLUSIONS

Helminth infestation is regarded as an important disease by the smallholder farmers in Kericho County. The proportion of respondents who said they dewormed their livestock is evidence of this. This confirms what Emong'or et al. (2000) had reported. Although nearly all respondents said they dewormed their livestock, only a small number actually practiced it correctly, a finding similar to that by Wanyangu et al. (1999). Although farmers could remember the advice given by the researchers on strategic helminth control, very few practiced what they were told. There were lack of knowledge of helminth control in goats and adult cattle. It has been demonstrated that there is no benefit in deworming adult cattle (Bain et al., 1999) contrary to farmers of treating adult cattle more than calves which are more susceptible to helminth infestation. The reason for this might be because of the reasons farmers gave for deworming, which included increasing milk production. It is not clear why farmers did not deworm goats. It seems that the problem of adoption of strategic helminth control might not be due to the lack of knowledge but other factors including financial constraints. The study indicates the importance of scientists going back to farmers with findings of their research. Even if they might not all practice what they are advised to do, at least they have the knowledge and it seems the knowledge is kept for a long time. In addition to disseminating knowledge, ways to make veterinary services affordable is also crucial.

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