A Case Study on Major Constraints of Small Ruminants Management in Juba County Central Equatoria State South Sudan

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Abstract: A six month case study was conducted in Juba County South Sudan to identify major constraints encountering small ruminant management systems. A total of 45 respondents were administered with questionnaires in the study area. Secondary relevant data obtained from peer-reviewed journals, records and websites. Descriptive statistics and SSPS-20 were used in data analysis. Results revealed that major constraints of small ruminants management included inadequate knowledge and skills in improved management practices (19.2%), cost of drugs and vaccines (18.3%) and both pasture scarcity during the dry season and irregular demand for sheep and goat products showed 17.5% compared to inadequate herdsmen (0.8%). Internal parasitic infection showed 44.3% compared to pneumonia (32%) which is more common in both Nyarkenyi and Lirya Payams. The external parasitic infestations are commonly observed in Nyarkenyi compared to the other Payams due to poor management system. Livestock diseases were controlled by provision of drugs and vaccines (58.6%) and practiced by most of the farmers in Nyarkenyi and Rejaf Payams compared to Lirya Payam due to accessibility to veterinary services delivery. Further study is needed for identifying and bridging gap areas of veterinary education and extension services delivery to the farmers for sustainable development of sheep and goats production in Juba County South Sudan.

Key words: Constraints, Small Ruminants, Management, livestock Diseases, South Sudan

INTRODUCTION

Livestock production is a tremendous enterprise in East African countries where about 56% of livestock wealth in Africa is maintained. Small ruminants create a substantial contribution to the prosperity of the people in the region and sub-Saharan Africa (Winrock International, 1992 De Leeuw, 1995). Livestock production constitutes an important livelihood activity for the most communities in South Sudan. It is estimated that 80% of total populations are agro-pastoralists consisting of a large number of resource-poor households including the returnees and economic migrants (FAO, 2009a).

Nilotic sheep and goats, mountainous dwarf sheep and goats in Equatoria region and fat tailed Toposa sheep and goats in the semi-arid region of Eastern Equatoria State exist (Udo,2006).Such indigenous goats are characterized by resistance to diseases, good flocking instinct, ability to trek in search of feed, high tolerance to adverse climatic conditions and fluctuating nutrient availability (Kosgey et al., 2008). Small ruminants provide sufficient products to the subsistence farmer’s own use (MARF, 2006). Moreover, they provide vast range of services such as immediate cash income, meat, milk, skin, manure, risk spreading/management and social functions (Abebe, 2008).

There are major constraints encountering livestock productivity in South Sudan and contributing to higher production losses, particularly in young stocks (FAO, 2009 b). Respiratory Disease Complex (RDC) was among the most important livestock disease associated with complexes in small ruminants management system (Tibbo, 2006). Moreover, early mortalities as high as 50% in lambs are associated with cold stress, starvation, mismothering among others (Tibbo, 2006). So far little or no data obtained to reveal constraints of small ruminants in Juba County.

This study was aimed to provide baseline data to key stakeholders in Juba County. This will eventually provide an impetus for addressing food and nutrition security and income generating activities in Juba County South Sudan.

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MATERIALS AND METHODS

Study Area
The study was conducted in three Payams of Juba County Central Equatoria State which covers an area of 18,396 square km. These Payams include: Rejaf, Nyarkenyi and Lirya.

Sampling and Sample Size
Stratified sampling method was used due to a variation in the ages and sexes of small ruminant production farmers. The sample size was 45 respondents due to inaccessibility to some villages in the study area during the rainy season.

Data Collection
Primary data were collected using participatory approach where structured questionnaires were administered to 45 small ruminant respondents from the three respective Payams. Secondary data were collected from peer-reviewed journals, records and websites.

Data Analysis
Data were managed and analysed using descriptive statistics and SPSS-20 package from which graphical presentations were made.

RESULTS

Table 1: Major constraints encountering small ruminants production in Lirya, Nyarkenyi and Rejaf Payams Juba County, Central Equatoria State- South Sudan.

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Variables</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Inadequate knowledge on improved management practices</td>
<td>23</td>
<td>19.2</td>
</tr>
<tr>
<td>2.</td>
<td>Cost of veterinary drugs and vaccines</td>
<td>22</td>
<td>18.3</td>
</tr>
<tr>
<td>3.</td>
<td>Scarcity of pasture during the dry season</td>
<td>21</td>
<td>17.5</td>
</tr>
<tr>
<td>4.</td>
<td>Irregular demand for small ruminant’s products</td>
<td>21</td>
<td>17.5</td>
</tr>
<tr>
<td>5.</td>
<td>Lack of space</td>
<td>16</td>
<td>13.3</td>
</tr>
<tr>
<td>6.</td>
<td>Inadequate finance to expand herd size</td>
<td>14</td>
<td>11.7</td>
</tr>
<tr>
<td>7.</td>
<td>Security (theft and predators)</td>
<td>02</td>
<td>1.60</td>
</tr>
<tr>
<td>8.</td>
<td>Unavailability of laborer to look after flock</td>
<td>01</td>
<td>0.80</td>
</tr>
</tbody>
</table>

From table (1) inadequate knowledge of small ruminant management (19.2%) was the most common challenge facing small ruminant production in the study area. This could be attributed to lack of extension delivery services. This study showed that an ability to control livestock diseases using veterinary drugs became difficult in most areas as the cost of drugs and vaccines was significant reaching 18.3%. While scarcity of pasture during the dry seasons and irregular demand for sheep and goat products in the markets have shown the same percentage of 17.5%.
Table 2: Common livestock diseases challenging small ruminant production in Lirya, Nyarkenyi and Rajaf Payams, Juba County, Central Equatoria State -South Sudan.

<table>
<thead>
<tr>
<th>Diseases</th>
<th>Lirya Frequency</th>
<th>Northern Bari Frequency</th>
<th>Rejaf Frequency</th>
<th>Total Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal parasites</td>
<td>15</td>
<td>15</td>
<td>13</td>
<td>43</td>
<td>44.3</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>13</td>
<td>14</td>
<td>4</td>
<td>31</td>
<td>32.0</td>
</tr>
<tr>
<td>External parasites</td>
<td>0</td>
<td>14</td>
<td>9</td>
<td>23</td>
<td>23.7</td>
</tr>
</tbody>
</table>

Table (2) showed that internal parasites were highly significant (44.3%) as a common disease in the study area. Whereas pneumonia ranked as second disease (32%) which usually disturbs the rearing of small ruminants in the area. It is more common in both Nyarkenyi and Lirya Payams, respectively. The external parasites are more commonly found in Nyarkenyi Payam compared to other two Payams. Such ectoparasitic infestation could be attributed to poor husbandry and management systems.

Table 3: Disease control measures practiced by small ruminant's producers in Lirya, Nyarkenyi and Rejaf Payams, Juba County, Central Equatoria State -South Sudan.

<table>
<thead>
<tr>
<th>Disease control Measures</th>
<th>Lirya</th>
<th>Nyarkenyi</th>
<th>Rejaf</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock density reduction</td>
<td>02</td>
<td>0</td>
<td>0</td>
<td>02</td>
<td>3.8</td>
</tr>
<tr>
<td>Isolation of sick animal</td>
<td>14</td>
<td>0</td>
<td>03</td>
<td>17</td>
<td>32.0</td>
</tr>
<tr>
<td>Delivery of new pasture</td>
<td>0</td>
<td>02</td>
<td>01</td>
<td>03</td>
<td>5.7</td>
</tr>
<tr>
<td>Provision of drugs and vaccines</td>
<td>03</td>
<td>14</td>
<td>14</td>
<td>31</td>
<td>58.6</td>
</tr>
</tbody>
</table>

Table (3) shows that provision of veterinary drugs and vaccines represent 58.6% which could obviously reflect that major disease control measures are practiced by most of the small ruminant farmers in Nyarkenyi and Rejaf Payams. This is ascribed to their accessibility to veterinary services delivery. Meanwhile, Lirya Payam normally depends on isolation of sick animal due to inaccessibility of veterinary drugs and vaccines.

**DISCUSSIONS**

Inadequate information on improved management practices (19.2%) is the most common constraints encountering small ruminant production in the study area (table1). This is attributed to inadequate extension delivery services due to improper implementation of South Sudan extension policy. This is in line with the report of FAO (2009b) which stated the balance of operations and management between central and local governments, an almost universal absence of clear livestock development policies and strategies. Moreover the pace of privatization and the possibilities of cost recovery for goods and services are important factors constraining the development possibilities for sheep and goats. However, the major constraints impeding the performances of sheep and goats of smallholder farmers were reported as diseases and predators, water shortage and associated drought (Tibbo, 2000 Tsedeke, 2007 Talore, 2009). Internal parasites and pneumonia are the most prevalent diseases in the study area (table 2). This could be explained by the attachment of internal parasite larvae to pastures and improper housing system that led to respiratory disease (ILRI, 1998) that constituted major diseases of sheep and goats in sub-Saharan Africa comprising of enzootic pneumonia, pasteurellosis, lungworm infections, diseases of the digestive system that associated with parasites. Tibbo (2006) revealed that respiratory disease complex (RDC) is among the most important diseases associated with complexes in small ruminants husbandry and management. This is due to poor management that creates a favourable
environment for disease incidences. Moreover, Gebretsadik (2012) reported that most common diseases noted from the description of symptoms of diseases in all surveyed areas are Ovine Pasteurellosis, Ovine Pleuropneumonia, dysentery and skin diseases including scabies and internal parasites such as Haemonchus, Hydatid cyst and Fasciola species. The mean prevalence of hydatidosis in Juba County accounted for 6.99% and 2.74% for sheep and goats, respectively (Ochi et al., 2015).

Provision of veterinary drugs and vaccines accounted for 58.2% as a means for disease control (Table 3). Veterinary drugs are supplied from veterinary drug stores though vaccines are received occasionally. Gebretsadik (2012) reported that animals had been only vaccinated against few diseases and treated with veterinary drugs. Thear (1988) presented that routine prevention programmes worthing for goats are treatment against roundworm, fluke and Clostridia infections.

CONCLUSION
Livestock management in the study area is based on the old traditional system which provided enabling environment for such challenges of animal production. Further study is needed for identifying and bridging gap areas in delivering quality extension services to the farmers for sustainable development of sheep and goats production in Juba County.

ACKNOWLEDGEMENTS
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Conflict of Interests
Authors declare no conflict of interests

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FAO South Sudan mobilized a team of independent consultants to conduct this study. The views and opinions expressed in this report are those of the authors and do not necessarily reflect the views of FAO. C. In global rankings of conflict events, South Sudan is ranked sixth, making it one of the most violence-prone countries in the world. From 2011 to 2014, there were about 1 643 reported conflict events in South Sudan. Some 60 percent of these were reported in Greater Upper Nile, while 23 percent and 17 percent of conflict events were reported in the Greater Bahr el Ghazal and Greater Equatoria, respectively. Management of disputes or competing claims to power contributed to the political dispute within the SPLM that degenerated into a national crisis from December 2013. Central Equatoria State (CES) is the next highest (27,910); home to the regional capital Juba and one of the main destinations ports for the returnees. Juba is also the central transit point for returnees trying to get home to various counties throughout the Equatorias. Dispersion of returnees to their homes is logistically difficult, illustrated by the fact that over 50 percent of returnees are located in just nine of southern Sudan’s 79 counties. One of these counties is Morobo on the southern tip of CES bordering the Democratic Republic of Congo (DRC) and Uganda. A Case Study on Major Constraints of Small Ruminants Management in Juba County Central Equatoria State South Sudan. Lado, M.M.*, Salah K. Jubarah and Erneo B. Ochi. Goats production in Juba County South Sudan. Key words: Constraints, Small Ruminants, Management, livestock Diseases, South Sudan. The study was conducted in three Payams of Juba County Central Equatoria State which covers an area of 18,396 square km. These Payams include: Rejaf, Nyarkenyi and Lirya. Sampling and Sample Size Stratified sampling method was used due to a variation in the ages and sexes of small ruminant production farmers. The sample size was 45 respondents due to inaccessibility to some villages in the study area during the rainy season. Conflicts in the Equatorias, particularly in the west, intensified following the ARCSS signing, leading to persistent violence and displacing more than 100,000 people in eight of the region’s 23 original counties. The SPLA-IO capitalised on mounting grievances with a deliberate policy of support and incitement to rebellion, helping turn localised violence into low-level armed combat. Formation of the transitional government in Juba has furthered the move toward peace; Equatorians are well-represented in it, leading two of the three security ministries, and Bakosoro has been released. Even the concept of a centralised state in South Sudan butts against the reality of a country lacking basic institutions and infrastructure including roads. Central Equatoria is a state in South Sudan. With an area of 43,033 square kilometres (16,615 sq mi), it was the smallest of the original South Sudanese states. Its previous name was Bahr al-Jabal (also Bahr el-Jebel), named after a tributary of the White Nile that flows through the state. It was renamed to its present name of Central Equatoria in the first Interim Legislative Assembly on 1 April 2005 under the government of Southern Sudan. Central Equatoria seceded from Sudan as part of the Republic.