FARMING CROPS TO INCREASE CATTLE HERD SIZES IN A SEDENTARY SYSTEM OF SOUTHWESTERN UGANDA

Pius Mbuya Nina, 1,2 Patrick Van Damme 1,3
1. Department of Agricultural Sciences, Faculty of Bioscience Engineering, Ghent University, Ghent, Belgium 2. Faculty of Agriculture, Uganda Martyrs University, P.O Box 5498 Kampala, Uganda 3. Faculty of Tropical AgriSciences, Czech University of Life Sciences, Prague, Czech Republic , piusm.nina@gmail.com

In Uganda rangelands maintain about 90% of national cattle in small holder farms and ranches. Milk production is important source of livelihood for pastoral households, but its share of contribution to households’ incomes has remained low for many decades in southwestern Uganda. This in part has prompted introduction of crop cultivation in the rangelands in a bid to produce staple food for home consumption and supplement pastoral household income. Our study analyzed the contribution of rangeland crop cultivation to household food security and how that might influence population dynamics of cattle herds in a sedentary system.

A survey was conducted between June 2013 and February 2015 in Lake Mburo Conservation Area (LMCA) in Nyabushozi County, Kiruhura district, southwestern Uganda.

Majority of households with 50 cattle and below reported increases in herd sizes, whereas wealthy pastoral households (>100 cattle) were leading with relatively stable populations over the same period.

Data were collected using non-participant observation and interviews with 366 respondents from randomly sampled households. The households were equally distributed across six distance zones along a gradient from Lake Mburo National Park (LMNP) and captured the diversity of cattle herd sizes.

In the analysis we segregated data into pre-defined groups identified by cattle herd sizes and income generating activity in order to maximize intra-group homogeneity and inter-group heterogeneity (Everitt et al., 2011).

Approximately 38.3% pastoral households experience food shortage at least during some months in a year. Poor pastoralists cultivate crops for own food and extra income to limit sale of live animal, while wealthy households cultivate crops mainly to supplement household food supplies. Households with major crop species cultivated in LMCA also varied strongly along a distance gradient from LMNP.

We presented food security situation for households in each zone along a distance gradient from LMNP (Table 1).

A slight majority of respondents (50.7%) reported that their household food situation had improved over the past five years.

Table 1: Spatial variations in food security situation among sedentary pastoralists

<table>
<thead>
<tr>
<th>Zones in km</th>
<th>Food secure %</th>
<th>Food insecure %</th>
<th>Mean Difference at 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 4</td>
<td>33.3</td>
<td>66.7</td>
<td>-1.333***</td>
</tr>
<tr>
<td>4 - 8</td>
<td>36.2</td>
<td>63.8</td>
<td>-1.310***</td>
</tr>
<tr>
<td>8 - 12</td>
<td>60.9</td>
<td>39.1</td>
<td>1.391***</td>
</tr>
<tr>
<td>12 - 16</td>
<td>76.7</td>
<td>23.3</td>
<td>1.233***</td>
</tr>
<tr>
<td>16 - 20</td>
<td>80.6</td>
<td>19.4</td>
<td>1.197***</td>
</tr>
<tr>
<td>20 - 24</td>
<td>71.0</td>
<td>29.0</td>
<td>1.290***</td>
</tr>
</tbody>
</table>

Mean difference was significant between food-secure and food-insecure households (*p<0.05 and ***p<0.001).

Conclusions
- Cultivating crops in rangelands for HH food provision compensates low income from selling livestock products and makes pastoral households more food secure.
- Pastoral households sell banana crop (Musa spp) surpluses to avoid cattle sales for petty cash.
- Less dependence on cattle sales for pastoral households’ expenditure leads to increase in size of cattle herds.
- Pastoral households use crop residues as animal feeds and animal wastes as fertilizer, which in turn optimizes range resource use in southwestern Uganda.

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Results
- Four categories of pastoral households’ wealth status were defined based on cattle herd sizes. Cattle herd population dynamic in the past 5 years varied among the four household categories.
- Majority of households with 50 cattle and below reported increases in herd sizes, whereas wealthy pastoral households (>100 cattle) were leading with relatively stable populations over the same period.

Table 2: Households’ herd population dynamics in 5 years

<table>
<thead>
<tr>
<th>&gt;100 cattle</th>
<th>50-100 cattle</th>
<th>10-25 cattle</th>
<th>&lt;25 cattle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased</td>
<td>Reduced</td>
<td>Relatively stable</td>
<td></td>
</tr>
</tbody>
</table>

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