AgriFoSe2030 brief
June 2024

Transformative Rangeland Management Practices (TRAMAP) project

Transforming Camel Health Outcomes through Community-Centred Strategies

Context

The global camel population stands at 37.51 million (M). Most of this population (89.4%) is comprised of one-humped dromedary camels. Kenya has the fourth largest dromedary camel population, with 4.7 million animals, and is the leading camel milk producer globally with an annual production volume of 1.165 million Metric Tonnes (MMT)[1]. Samburu County in northern Kenya is considered among the nine major camel-keeping counties of Kenya (Figure 1)[2].

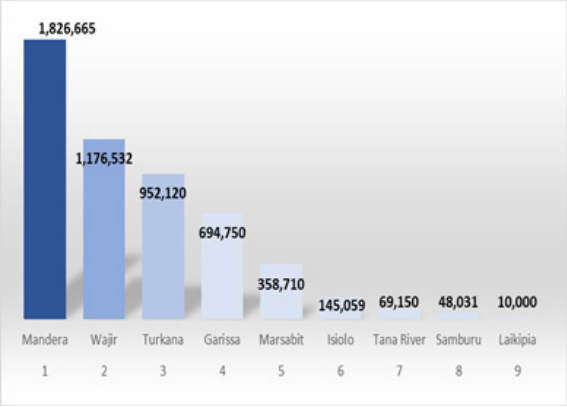

Figure 1: Camel Population distribution of the 9 major camel rearing counties of Kenya

The Transformative Rangeland Management Practices (TRAMAP) project hosted at the University of Nairobi was implemented from Oct 2021 – 31 May 2024 in Kenya. TRAMAP supported pastoralists and agro-pastoralists to increase agricultural productivity and enhance landscape ecosystem functions through the collective adoption of sustainable rangeland management practices and networking. A rich picture exercise - a pictorial representation of past, present and future of environmental and social scenario - revealed that traditionally, the Samburu community did not keep camels. They adopted camel keeping in year 2015 as a climate resilience strategy due to the frequent droughts that decimated their cattle herds.

Key messages

- There is need for sustained extension activities to bridge the knowledge gap of camel diseases and good husbandry practices amongst Samburu camel keepers.
- Samburu County should consider external sourcing of vaccines for endemic diseases such as Haemorrhagic Septicaemia and camel pox that are causing significant economic losses.
- The department of Agriculture, Livestock Development, Veterinary Services and Fisheries should advocate for timely disbursement of funds and advocate for increased budget allocation to the livestock sector.

Camels can constitute a more resilient and economically smart investment compared to cattle. The community identified camels as having more variety of feed than cattle, and it is also more resilient to drought as it survives 21 days without water, unlike the cattle maximum of 2 days. However, the community had minimal knowledge of good camel husbandry practices. The TRAMAP project aimed at improving the knowledge of Samburu livestock keepers on identification, reporting and management of the priority camel diseases.

The United Nations declared 2024 the International

Year of Camelids (IYC 2024). The declaration aims to advocate for and raise awareness of the important role played by camelids in advancing the Sustainable Development Goals (SDGs) related to the fight against hunger, eradication of extreme poverty, empowerment of women, and sustainable use of terrestrial ecosystems[3].

Findings

Priority diseases

- Livestock keepers identified eight (8) endemic diseases as causing significant economic losses due to the high cost of treatment, and in the case of camel cough and Haemorrhagic septicaemia, associated high morbidity and mortality rates. Rift valley fever (RVF) was the most important zoonotic disease as it is associated with storms of abortions in camels. Other zoonotic diseases are listed below (Table 1 and 2).
- The priority diseases list identified is similar to previous research findings conducted in the county[4, 5, 6].

The Samburu County Director of veterinary services informed the participants that recent surveillance efforts in northern Kenya have identified evidence of MERS-CoV exposure in camels and humans[7].

Disease surveillance

- The county relies largely on passive surveillance which are reports of camel disease outbreaks from livestock keepers and trained Community Disease Reporters (CDRs). The county with the support of NGO partners has trained over 100 CDRs. The county veterinary staff has a workforce of 23 personnel who respond to disease outbreaks reports by conducting participatory disease surveillance (PDS) and active surveillance where the collect samples that are transported 435 kilometres to the National Veterinary Reference Laboratories located in Kabete, Nairobi county.
- The CDRs and county staff use the Kenya Animal Bio-surveillance System (KABS) which is the nationally approved mobile based reporting system.
- Response to outbreaks in camels is through mass treatments. The county only offers 1 vaccine to camels. The Rift Valley fever vaccine is administered when there are incidences of enhanced rainfall which is often every 3 to 5 years.
- Non-governmental organisations (NGOs) support all surveillance and outbreak response activities as the county has minimal budget allocation.

Camel health peer-to-peer learning.
Credit: J. Mutune, 2023

Camel disease control challenges

- There is limited practical training in the management of camel disease at the universities and colleges.
- Research on camel diseases and diagnostics, drugs, and vaccine development is neglected globally. There is an urgent need to research diseases associated with acute respiratory and sudden death syndromes in Camels in Kenya.
- The county does not stock preventive vaccines for camel pox and haemorrhagic septicaemia, the two most economically important diseases associated with the highest morbidity and mortality rates.
- Most livestock keepers engage in extra-label use of veterinary medicinal products. In addition, due to a lack of knowledge, they often under or overdose their animals, resulting in adverse events in the long term, contributing to Antimicrobial Resistance (AMR).

Priority camel disease	Samburu name
1. Camel cough	Lchama
2. Haemorrhagic Septicaemia (HS)	Nalng'aring'ari
3. Contagious ecthyma (Orf)	Abitiro
4. Trypanosomiasis	Saar
5. Camel pox	Nariri
6. Abscesses	Ntubui
7. Worm infestation (helminthiasis)	Ntumwa
8. Mange	Lpepedo

Table 1: Priority camel diseases identified by workshop participants (2022)

Priority zoonotic diseases	Samburu name
1. Rift valley fever (RVF)	Lkibiroto
2. Rabies	Nkwang
3. Brucellosis	Moyian e Kule
4. Anthrax	Lokuchum

Table 2: The participants were informed that camel orf, mange and camel pox are also zoonotic diseases and biosafety measures like wearing gloves needs to be taken when handling sick animals.

Approach

- In September 2022, the TRAMAP project organised a co-learning workshop in Samburu County.
- The workshop utilized participatory approach to co-learn and co-produce knowledge and material on camel husbandry and health including peer-to-peer learning and experiential field visit.
- The TRAMAP workshop involved Samburu County government, camel livestock keepers and Community Disease Reporters (CDRs).
- We conducted peer-to-peer field visits to demonstrate the camel husbandry practices and identified camel feeds.
- Our theory of change impact pathway documented the sphere of direct influence to be attitude, knowledge, behaviour, and relationship among community, county government, and partners.
- The camel husbandry training component was facilitated by the Kenya Camel Association (KCA), while the camel health and welfare training components was facilitated by ASAL eXtension Ltd.
- The main output from the workshop was the development of a camel health and production handbook for extension workers based on both local and scientific knowledge.

- Inadequate funding and human resources significantly limit the delivery of animal health services. This has resulted in poor surveillance efforts that hinder evidence-based implementation of the county's livestock disease control strategy.
- Despite evidence from the literature indicating that camels were introduced to Samburu herders in the late 1980s[8], there is a low adoption rate. Consequently, there is little community knowledge of disease-preventive and control measures.
- Most camels have co-infection of diseases, making it difficult to rely on clinical signs to arrive at treatment and prevention strategies. The county lacks adequate diagnostic capacity to confirm camel diseases.
- Livestock keepers delay reporting severe diseases such as camel cough and haemorrhagic septicaemia as they first intervene using medicinal plants and cultural practices such as hot iron branding.

A farmer identifies camel feed.
Credit: J. Mutune, 2023

Policy Recommendations

Short-term

- The county should conduct a stakeholder mapping of NGOs and development partners and submit a request for logistic support of Community disease reporters (CDRs). This will ensure sustained reporting of diseases and allow the identification of disease hot spots that will, inform outbreak response activities.
- The county staff from the departments of livestock and veterinary services should facilitate and hold joint extension field visits to bridge the knowledge gap on camel husbandry among livestock keepers in the county.
- County government should facilitate and encourage public-private partnership with private animal health service providers. They will in turn support delivery of services, especially in areas where the county staff are not available. The private sector should also be trained on reporting using the Kenya Animal Bio-surveillance System (KABS tool) as well as encouraged the private sector to utilise CDRs in their operation.
- The county should expand the CDRs mandate to include collection of livestock population numbers in the villages they serve. This information will greatly enhance better planning of vaccination activities to increase the coverage.
- The county should procure haemorrhagic septicaemia and camel pox vaccines as this will avert the annual loss of camels during outbreaks. The county government to collaborate and form private sector partnership who will be able to import the vaccines especially if given tax incentives.

Medium term

- The Samburu County department of Agriculture, Livestock Development, Veterinary Services and Fisheries should advocate for timely disbursement of funds to the county departments using the guidelines set in the Public Finance Management

(PFM) act of 2016.

- The livestock department should advocate for increased budget allocation to the livestock sector to a minimum of 10% of the total budget.
- There is significant human and livestock research on medicinal plants in Samburu County. The county government should create a database of all the research activities and publish lessons and practices that have a positive impact so as to allow upscaling.
- The livestock departments should lobby for the government to support camel research. Research areas can include extracting the active compounds of medicinal plants to isolate and identify their pharmacological efficacy, developing rapid diagnostic kits, and developing drugs and vaccines for priority diseases.
- Lobby animal health training institutions to bring their students to the county for experiential field visits that will enable them put theory into practice.

Endnotes

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