

## **Low Input Sustainable Livestock Production: A Case Study of Communal Grazing System in Botswana**

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**Types of livestock produced:** Cattle, Sheep, Goats and traditional chicken

**Size of farm (ha):** The farmer operates his livestock production activities in a *cattle post*<sup>1</sup> under *communal grazing system*<sup>2</sup>. He does not own any exclusive land rights. His main livestock enterprise is cattle which are operated within a five kilometre radius from the nearest borehole.

**Number of animals on the farm:**

The farmer owns 175 cattle and 50 calves; 9 sheep and 11 goats including 32 indigenous chickens.

**Years in operation:**

He started his livestock production in 1984 while under government employment in the Department of Veterinary Services.

### **Introduction**

#### *Improved Environmental Sustainability*

The farmer is purely a livestock farmer and utilizes the communal pastureland to graze his cattle and small stock (sheep and goats). This free range system allows cattle to utilize the natural and organic pastures which results in low carbon footprint. He depends solely on grazing pasture and minimal supplementary feeding with di-calcium phosphate. The farmer shares a borehole for watering his livestock with other farmers under a *syndicate system*<sup>3</sup> a kilometre away from his cattle post. This distance of the borehole away from the cattle post reduces underground water pollution.

Whenever there are livestock predators giving trouble especially, the hyaena (*crocuta crocuta*), the farmers organise themselves into groups (the herd boys, himself and other members of the syndicate) to scare these predators away from the livestock grazing area.

#### *Animal Health and Welfare*

He uses *pasteurella* and *botulism* vaccines which he buys from private retailers while *quarter evil* and *anthrax* vaccines are provided freely by the government because the latter are considered diseases of economic importance. He treats sick cattle with antibiotics and other drugs in case the animals are sick. He also uses indigenous technical knowledge to control *calf paratyphoid* using parts of mogonono (*Terminalia sericea*), and moretlwa (*Grewia flova*) trees. He built a pit latrine on his cattle post premises for use with his herd boys and encourages all other farmers nearby to use it in order to control measles (*Cysticercus bovis*).

With regards to animal welfare, to mitigate human-carnivore conflict and theft, livestock are kept in kraals overnight. He controls external parasites using acaricides and occasionally controls internal

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<sup>1</sup> These are cattle holding units owned by individual farmer which are located in communal areas with no distinct boundary or exclusive use of land.

<sup>2</sup> These are open access spaces which farmers utilize for grazing their livestock.

<sup>3</sup> A group of livestock farmers who share and maintain a common borehole for watering livestock.

parasites only during the rainy season. He demarcated his kraals into three holding pens and during the rainy season, the cattle are transferred to those pens which are not yet filled with kraal manure. In the long run, when all the pens are saturated with manure, the kraals are relocated to a new place.

#### *Food-not-feed strategies*

The farmer owns an arable farm which he long stopped operating because of competing demands for his time between the livestock and crop production activities. However, he buys yellow maize and sorghum to supplement the indigenous chickens that are kept at subsistence level. There are no food-not-feed strategies that he practices in cattle and small stock production.

#### *Livestock operation and impact*

- Started by establishing kraals by harvesting poles from *moselesele* (*Dichrostachys cinereo*) trees from the communal land. He bought fencing wire to bind the wood poles together.
- He secured his initial breeding cows through inheritance and from earnings accrued.
- He uses Government Artificial Insemination Centre to improve his breed from *Tswana* to *Brahman*, *Simmental*, *Sherolain* and of late *Simbra* breeds.
- In the morning, cattle are let out to graze in the communal pastures, while the calves are left behind in the kraal for a few hours to allow the mothers to go a distance away before they are released to go and graze on their own. The separation of calves is to motivate their mothers to come back to them. In the afternoon, the calves would arrive early and they are kraaled to await the arrival of their mothers. Upon their arrival, the mothers are milked for home consumption only. Thereafter, calves are allowed to stay the rest of the night with the mothers.
- The farmer sells to the local butcheries, individuals and the Botswana Meat Commission (BMC) which processes beef mainly for export to European Union market.

All these practices facilitate low initial capital costs that are invested by the farmer to establish his livestock operation and sustainable production. By releasing the cattle during the day to go into the pastures, it reduces the amount of kraal manure that could have otherwise accumulated if they were to be kept under intensive system, hence i) improving the environmental sustainability and ii) allowing cattle to exercise thereby reducing animal stress. These practices enhance quality products.

The farmer explores different markets and sells to one which offers a better price. However, he prefers selling to local butcheries and to individuals because they offer a better price than the BMC which prefers to buy younger cattle for the lucrative EU market. The local butcheries offered P21<sup>4</sup> per kilogramme dressed weight which is higher.

#### **Challenges and Solutions**

During the time when he operated both arable and livestock production activities, he used to experience frequent absconding of herd boys from work. This in turn led to his cattle getting astray. As a result, he relinquished the arable farming for livestock production where he actively took part in their management.

The watering point is on the other side of a busy highway that makes his animals susceptible to vehicle accidents which attracts a fine of P1000.00 from him. The Herd boys are to guide livestock

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<sup>4</sup> |Exchange rate from USD to BWP is about P8.50

when crossing this busy road to and from the watering point. However, he is considering reticulating water from the borehole syndicate to his cattle post.

He used to experience poor branding of his cattle for ease of official identification during selling of his livestock. He has since made it a point to do the cattle branding himself.

He used to experience cattle measles (*Cysticercus bovis*) in his livestock. As a result, he controlled the disease by digging a pit latrine at the cattle post.

#### **Estimated income:**

The farmer owns 175 cattle (male and female) which give birth to about 50 calves per year. He usually sells about 12 matured cattle at a go and would subsequently sell any other cattle to individuals for different purposes and for contingencies. He makes about P50 000.00 per annum from sale of cattle only which he supplements by old age pension and gratuity from his former employer. Over time, cattle as a store of wealth have potential to increase monetary value in real terms.

#### **Best management practices employed by the farmer:**

- Use of natural pasture for grazing livestock
- To be an owner manager of the livestock enterprise in order to avoid mismanagement
- Pays herd boys at least P800.00 per month which is more than current government minimum wage of P550.00.
- Timely disease and parasite control measures
- Supplementary feeding with Di-calcium phosphate because of the poor nature of *sand veldt* grasses.

#### **Key stakeholders:**

- Botswana Meat Commission
- Butcheries
- Speculators
- Borehole syndicate
- Government Artificial Insemination Centre
- Private retailers who sell animal health products
- Government extension services
- Herd boys
- Family members

#### **Key lessons learned and conclusions:**

- There is great dependence by the farmer on livestock as the main livelihood strategy by selling cattle as well as slaughtering small stock and chicken for home consumption.
- He no longer depends solely on herd boys as livestock managers.
- He sacrificed his income by building a pit latrine to improve sanitation around the cattle post.

The whole story can be concluded by the quotation from the farmer about the future and importance of livestock farming:

*“I am more or less relying on livestock, and I depend on livestock rearing. I manage the whole of my life problems with these cattle. When I get troubles like death, like marriages, like feeding **bana mo lwapeng** (children in the household), like when one of my children get into problems and needs*

*assistance I come to them. If she says that I am in serious arrears...I owe someone and need ten thousand Pula, I come to them (cattle). I wouldn't like my child to go to jail because she had no money when I got these things (cattle)!" (James Pule Mogomotsi, 2014).*



My Name is James Pule Mogomotsi. I am 69 years old. I am a Mokgatla by birth. I completed standard seven. I have a wife and six children.

The place where my cattle post is situated is called Monametsana. I belongs a borehole syndicate which comprises of Bakgatla tribesmen.

I spend most of my time here at the cattle post though I visit home (Mochudi Village) regularly and come back. Sometimes I spend the whole week here and on the second week I would go home for a week and come back again.

Well I enjoy myself mostly when I am here with the animals. There are not much things that entertain me when I am at home because I am no more a beer drinker or smoking. I don't like games like football. I am always more than happy when I am here (cattle post). I consider myself a successful livestock farmer.

The assets I have mostly are cattle and very few residential plots. I have shifted to buying and developing residential plots for rental purposes because right now I have 7 plots which are at different stages of development.

I have a Toyota Hilux pick-up for my use at the cattle post and a Toyota Camry car for my luxury which I use at home.

Figure 1: Profile of the Farmer with his photograph





Plates 1-6: 1. Two researchers on one of the Kraals before stocked with cattle. 2. Some cattle feeding on Di-calcium phosphate. 3. The farmer feeding some of his local chickens. 4. The borehole with water reservoir. 5. Farmer with his small stock. 6. Calves feeding while separated from their mothers.





Figure 2: The map showing the location of the cattle post  
Source: Google maps



Figure 3: Group photo of researchers: From Left Ms M.V. Ramorathodi, Mr G. K. Mphothwe Prof. D.O. Torimiro, Dr N.M. Tselaesele & Mr. A. Abdulazeez