

Bush Fodder Production in the Waterberg Region, Namibia: Challenges and Potentials

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Introduction

Bush encroachment¹ and an extreme drought event in 2019 left cattle farmers in the Waterberg region (Fig.1) with little feed for their livestock. A promising solution, trending in South Africa, was the production of so-called “bush fodder”.

Research questions:

- 1) Is the farmers appreciation of bush fodder linked to the nutritional quality?
- 2) Under which conditions can the use of bush fodder be an alternative feeding strategy in the future?



Figure 1: Map of Northern Namibia.



Figure 2: Roaming cow on bush encroached rangeland (M. Gurny).

Methods

- **Semi-structured interviews** (n=10) about bush fodder usage, harvest, production, composition, etc.
- **Feed samples** (n=16) for **laboratory analysis**: Weende and van Soest fractions, tannins and Hohenheim-Gas tests with a PEG²-treatment
- **Quality Scoring** of samples from -5 (very poor) to 5 (very good)

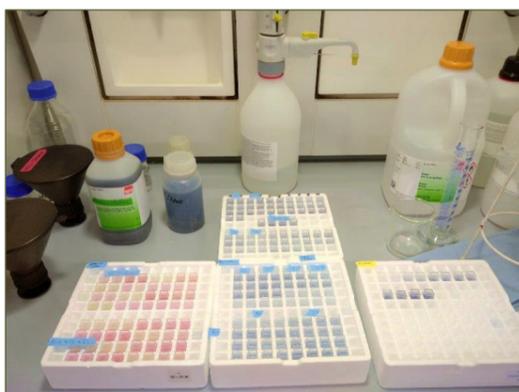


Figure 3: Tannin analysis in Laboratory.

Category	Average Quality Score
Beanhay	2 ^a
Bush	-1 ^a
Bush + Camelthorn	-2 ^a
Covercrop	1 ^a
Hay	1 ^a
Lick	2 ^a
TMR	1 ^a

Table 1: Quality Scores of Feed Categories.

¹ Bush Encroachment = Increase of aggressive woody vegetation, leading to a decrease in carrying capacity of rangelands
² PEG = Polyethylene glycol (to test tannin bioactivity)
³ TMR = Total mixed ratio

Conclusion

- 1) Farmers' perceived quality is **not linked** to analysed quality.
- 2) Most important is to **harvest shortly after wet season**. There is a need for additives (e.g., minerals, sugars, **tannin inhibitors**) to increase palatability, digestibility and quality.

Bush fodder production was a good short-term strategy for risk mitigation, but **can serve as sustainable feed** for the future, as well. Besides high investment costs, some farmers are continuing to use bush feed as they perceive it as a **win-win situation** due to the necessity to remove bushes on parts of their farm anyway.

Results and Discussion

Interviews:

- Many farmers (very) low willing to invest
- Mentioned constraints: monetary costs, labor costs, and (unknown) quality
- Farmers perceived quality either as low or (very) high

Laboratory Results:

- TMR³ has higher gas production than pure bush
- No sign. diff. in quality between feed categories (Tab. 1)

Link between Interviews and Laboratory:

- Best harvest time is shortly after wet season
- Lab quality and perceived quality opposing each other
- Animal acceptance and „future use“ positively related

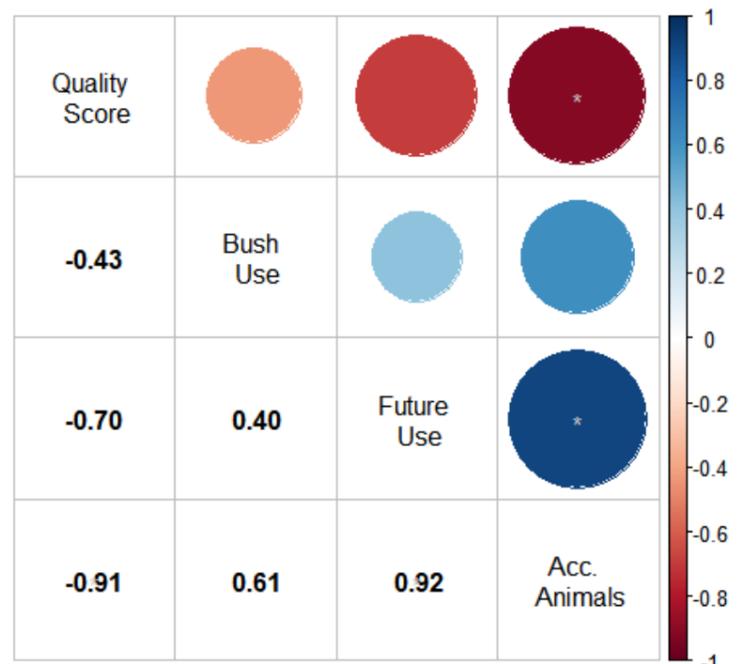


Figure 4: Correlations of Lab and Interview Variables (diagonally). Size and color of circles show the correlation coefficient (see scale on right). Numbers in the lower triangle depict the exact correlation coefficient (r^2). Asterisks show significant levels (*:p < 0.05, **:p < 0.01, ***:p < 0.001).

