

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

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## Introduction

Bush encroachment<sup>1</sup> 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 PEG<sup>2</sup>-treatment
- **Quality Scoring** of samples from -5 (very poor) to 5 (very good)

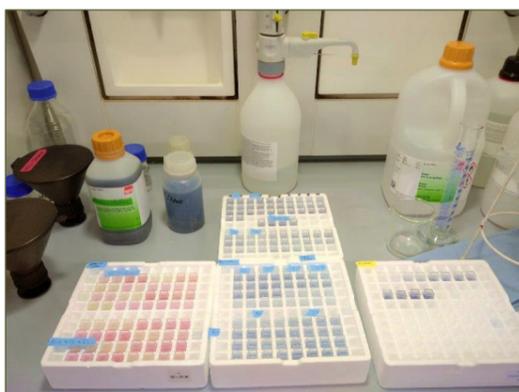


Figure 3: Tannin analysis in Laboratory.

Category	Average Quality Score
Beanhay	2 <sup>a</sup>
Bush	-1 <sup>a</sup>
Bush + Camelthorn	-2 <sup>a</sup>
Covercrop	1 <sup>a</sup>
Hay	1 <sup>a</sup>
Lick	2 <sup>a</sup>
TMR	1 <sup>a</sup>

Table 1: Quality Scores of Feed Categories.

<sup>1</sup> Bush Encroachment = Increase of aggressive woody vegetation, leading to a decrease in carrying capacity of rangelands  
<sup>2</sup> PEG = Polyethylene glycol (to test tannin bioactivity)  
<sup>3</sup> 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:

- TMR<sup>3</sup> 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

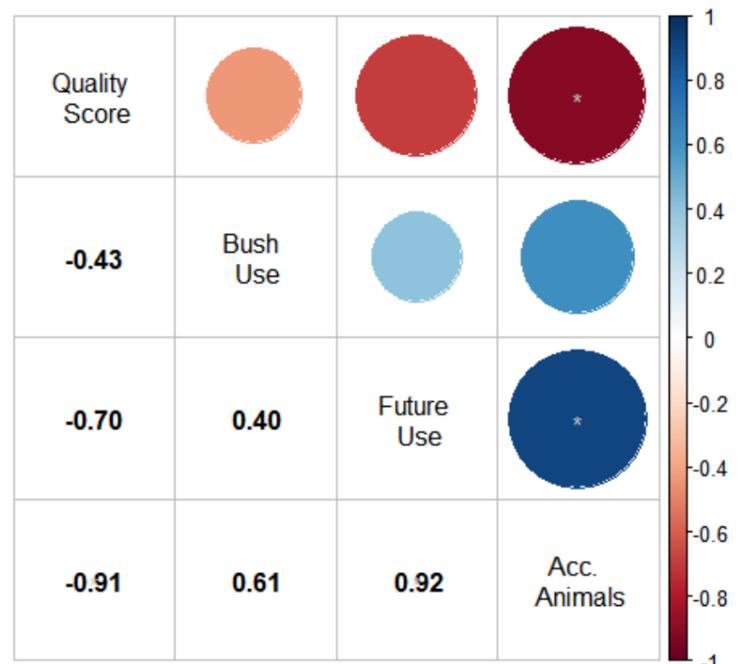


Figure 4: Correlations of Lab and Interview Variables (diagonally). Size and color of circles show the correlation coefficient (see scale on right). Numbers in the lower triangle depict the exact correlation coefficient ( $r^2$ ). Asterisks show significant levels (\*:p < 0.05, \*\*:p < 0.01, \*\*\*:p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

