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The XXIV International Grassland Congress / XI International Rangeland Congress (Sustainable Use of Grassland and Rangeland Resources for Improved Livelihoods) takes place virtually from October 25 through October 29, 2021.

Proceedings edited by the National Organizing Committee of 2021 IGC/IRC Congress

Published by the Kenya Agricultural and Livestock Research Organization

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Prospects of cattle farming in an era of land degradation-perceptions of the farmers in the Okakarara communal area, Namibia

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Keywords: Land Degradation; Cattle Farming; Farmers Perceptions

Abstract

Livestock farming plays an important role in many rural people s' livelihoods around the globe. The sector is, however, faced with numerous challenges, particularly land degradation. Namibia, one of the driest countries in the world, is no exception to land degradation challenges, mostly among communal rangeland areas. Several studies and interventions on land degradation have been conducted in the country, however, with limited or no information on farmers' perceptions. Although land degradation may be a physical process, understanding its causes, process, indicators, and effects from the own users' is indispensable. Here, we assessed farmers' perception in the eastern part of Namibia, Okakarara communal area. We conducted detailed interviews with 41 livestock farming households, selected through purposive sampling, from four villages. We documented how farmers perceive cattle farming in their areas amid land degradation and the interventions that they intend to make to sustain their livelihood in the future. Amongst others, farmers perceive livestock farming to be costly, relying mainly on procured supplements (97%), rangelands will deteriorate further due to increasing droughts (85%) and the land will become more bush encroached. To overcome future farming uncertainties, over 70% of the farmers state that they aim to diversify farming practices e.g. engaging in crop farming, use encroacher bushes to feed livestock (51%), planting grasses and preserving grasses for drought conditions (37%) as other key interventions to sustain livelihoods. Interestingly, removing the encroached bushes (de-bushing) was only mentioned by few farmers (10 %) as an intervention to improve rangelands. This is despite that the technique has lately gained momentum in the country as one of the solutions to overcome rangeland degradation. This could imply, farmers, are not yet made aware of the de-bushing techniques. The study suggests future community programs such as on-farm range research and development should consider farmers' views instead of side lining them.

Introduction

One of the highly practiced agricultural activities globally is livestock farming (FAO, 2020; Bettencourt et al., 2015 and Pica-Ciamarra et al., 2011). Livestock plays a significant role in more than 50% of rural communities in developing nations (FAO, 2020). In Namibia, over 39% of households are practicing livestock farming (NHIES -2015/2016 (2019), and it provides food sources, income creation, transport, employment opportunities, among other benefits (Bettencourt et al., 2015). The country's most predominantly livestock farming systems are for sheep, goats, and cattle, mostly in pastoral areas found in the northern, central, and eastern regions.

Given the semi-aridness nature and the harsh climate changes experienced, Namibia is susceptible to land degradation affecting the livestock farming areas (Brown et al. 1999). More than 60% of the rural population in the country are losing their natural resources, reduction of fertile land & species extinction, and exposing the natural resource base to extreme climate events such as droughts (Reynolds et al. 2007). Fundamental questions remain, what are farmers' perceptions of such land degradation, and how do they foresee their high dependence on livestock farming? It is against this context, that the current study assessed the perception of farmers in the Okakarara communal area regarding the future of cattle farming in the midst of the land degradation threats. The objectives of the study are to establish how farmers perceive the future of cattle farming amid land degradation and document strategies or alternative farming practices farmers perceive to use amidst future uncertainties.

Methods and Study Site

Okakarara district is located in the so-called Greater Waterberg Landscape (GWL), in the eastern central part of Namibia (**Fig 1**). The GWL covers an area of more than 19,000 km² which combines two different land-tenure systems; communal and freeholds. The rainfall of the area is typical for a semi-arid region in Namibia with mean annual rainfall between 350 - 500 mm but displays extreme inter-annual variation (SASSCAL

WeatherNet, 2021). The communal farmers in the Okakarara area are primarily subsistence livestock farmers mainly keeping cattle under extensive grazing conditions (Zuwarimwe and Mbaai, 2015).

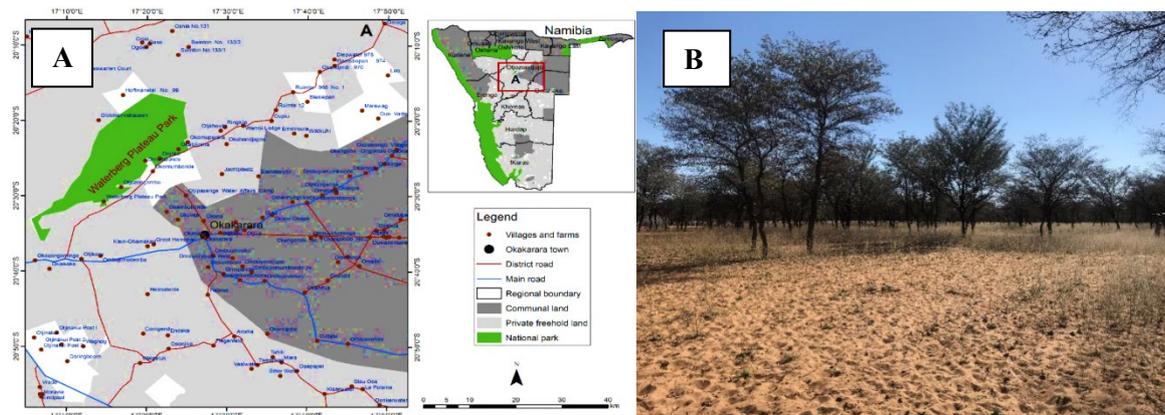


Figure 1: A map of northern central Namibia displaying the position of the Greater Waterberg Landscape at Okakarara area (A) and a typical rangeland landscape of the studied area (B).

To obtain comprehensive farmers' future perception, the study employed a community dialog scenario approach whereby, in-depth interviews at the household level were conducted in four villages, namely: Okahitua, Ozongarangombe, Ovitatu, and Ombooronde. Overall, a total of 41 households (10 households per village, with an exception of one village with 11 households) were interviewed. A household was defined according to Gxasheka, *et al.* (2017) definition. Households were selected using purposive sampling (Mack *et al.* 2005). Detailed information on land degradation and farmers' perception towards their grazing land within the context of land degradation was obtained. Questions were designed to understand the past and present knowledge of the farmers to better align future perception based on the past experiences. The content analysis method was employed to analyze the data. Data were critically examined and synthesized to discover patterns, themes and create categories.

Results

1. Okakarara Communal Farmers Perceptions on the future Cattle Farming in their Areas

Farmers have diverse perceptions on the future cattle farming in their areas (Fig 3). Among the most perceived future scenarios of cattle farming reported by the respondents were that drought will continue increasing (85%) and cattle farming will become more expensive (97%) due to high dependence on buying fodders to supplement livestock and that the rangelands will become bush encroached (80%). Based on the data, livestock farming is facing clear challenges and cattle products will become scarce (65%).

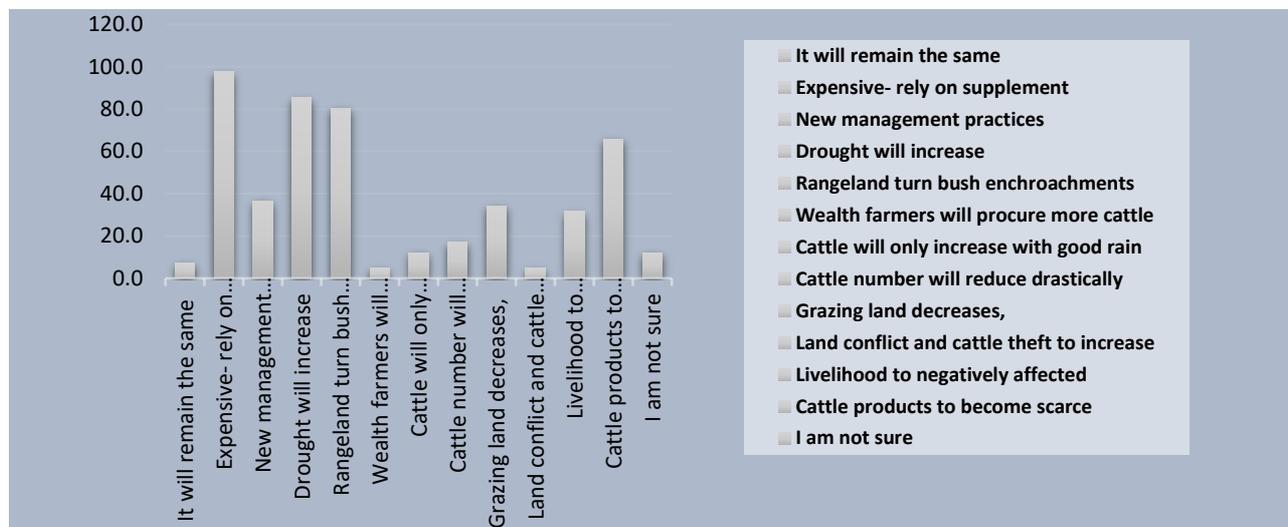


Figure 2: Perception of the farmers in Okakarara communal area on the future cattle farming in their area amidst land degradation

2. Perceived alternative interventions to overcome the impact of land degradation

As per farmer's perception, over 70% foresee themselves diversifying or expanding their practices beyond cattle farming. Over 50% are perceiving turning bush into feed as palatable grasses continue to be depleted due to bush invasion. Farmers also foresee planting and preserving grasses for drought conditions, while reducing the number of livestock as a future mechanism to overcome land uncertainties. The results indicates how farmers plan to be proactive in their farming practices, such that they are willing to forgo their generational traditional ways of living (not ready to destock and depending on only cattle).

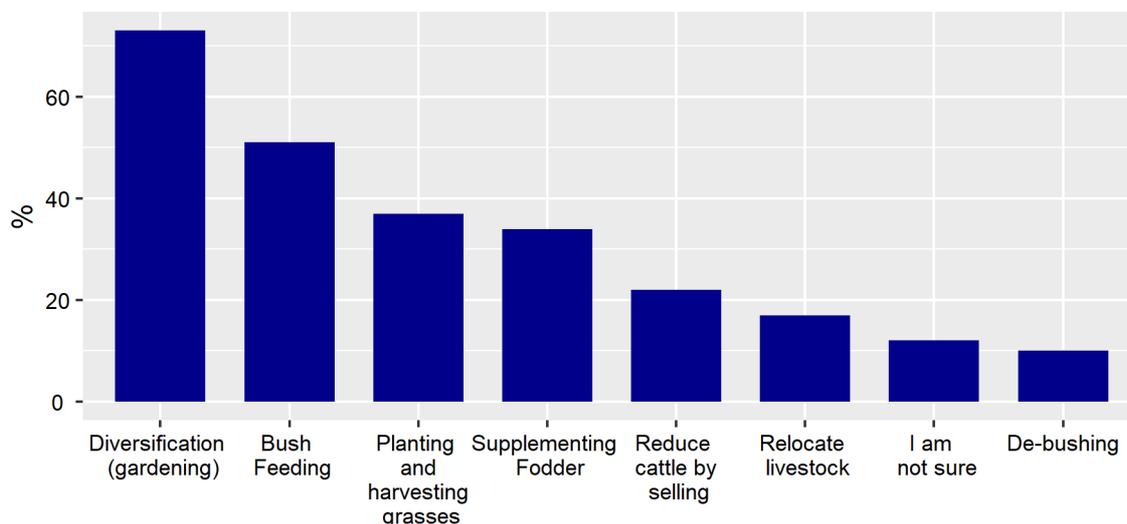


Figure 3: Perceived alternative farming practices farmers will employ to overcome future uncertainties (land degradation)

Discussion [Conclusions/Implications]

In these findings, communal farmers in Okakarara perceived changes in their livestock farming practices, with some, showed that it will be an expensive sector, mostly depending on buying fodder (supplements). Farmers also perceive droughts condition reoccurring in their area as a threat to livestock farming. These changes were attributed to land degradation, as reported by previous research (Strohbach, 2014). A recent study indicated that past state interventions and policies contribute to current land degradation in areas like Okakarara (Menestrey and Mbidzo 2020). The Farmer's responses are crucial as they indicate that farmers observe and understand their land-use changes. The latter is also an indication of how vital it is to include farmers' views when conducting similar projects and/or interventions, similar to what was proposed in the previous findings (Gxasheka et al., 2017). The results also showed that farmers have future directions or plans to resort to during land degradation severity. However, though they have future practice plans sorted out, one may still wonder what is preventing them from executing such practices in the present time, especially that many challenges (i.e. effects of drought) suggested are already happening (Menestrey et al. 2020, Brown et al. 1999).

This pilot study is a stepping stone to what will be called, "Documenting Farmers Perceptions towards Land use amid Desertification Tipping Point threats in Namibia". Henceforth, its methodology and findings will further be explored and extended to the rest of the country.

Acknowledgments

We would like to thank the NamTip project for funding.

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