

Overgrazing and Overstocking

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1. Introduction

The condition and productivity of your rangeland is the foundation on which a productive and viable livestock production enterprise in Namibia should be built. Two of the most important elements of rangeland production and restoration are OVERGRAZING and OVERSTOCKING. These two elements of rangeland management are extremely important but are very often confused with each other.

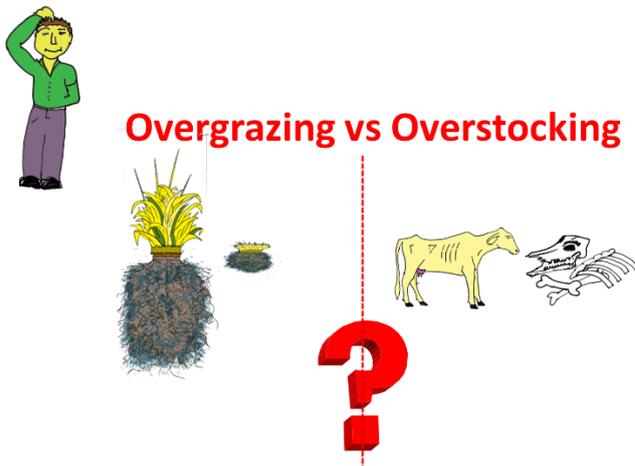


Figure 1: Difference between overgrazing and overstocking

Overgrazing takes place in the growing season when a camp is not rested long enough after a grazing period that allows enough time for perennial grasses to recover. If overgrazing takes place for too long, the root system of the grass will reduce, and with it the ability to store growth reserves, until it is so small that the perennial grass plant cannot survive a normal dry season or drought period. The end result of overgrazing is that the perennial grass plant dies.

Overstocking on the other hand happens during the dormant season where more animals are kept than what the available fodder sources allow for. The end result of overstocking is that animals don't perform optimally and even die due to fodder shortages. These two elements have actually very little to do with each other and overgrazing is even possible while under stocked.

Since this is the end of the growing season and the start of a long dry season, this article will focus on preventing overstocking, or on the positive side, ensuring that there is enough fodder available to livestock until it rains again. A second article addressing how to prevent overgrazing will follow towards the beginning of the next growing season.

2. How to address overstocking

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The 2016/17 rainfall year was generally much better than the previous season, although in some areas the farmers are still in danger of experiencing major fodder shortages during the ensuing dry season.

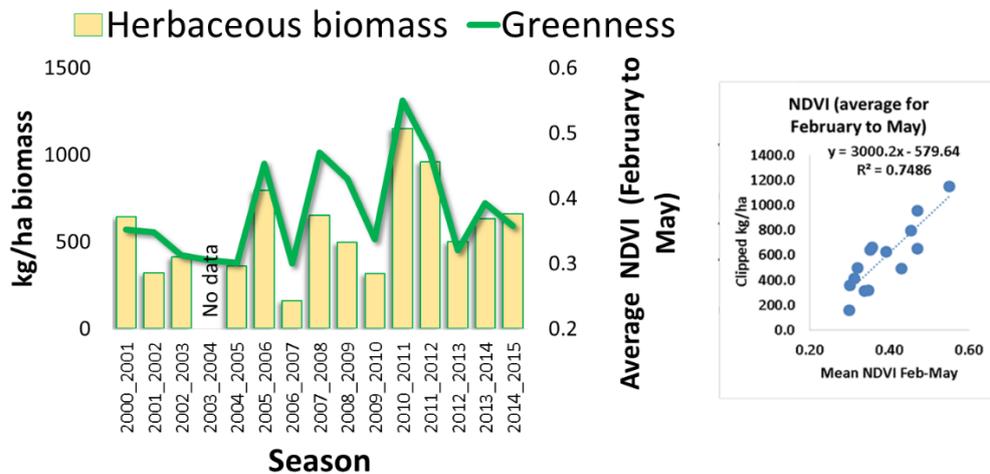


Figure 2: Variation in fodder availability (kg/ha) on farm Kamambonde Ost in the Omaruru district

Mrs Lundt from the farm Kamambonde Ost in the Omaruru district has arguably the best records for a private farmer on seasonal variation in fodder availability based on the clipping of quadrats in Namibia. Figure 2 clearly illustrates the variation in fodder availability at the start of the dry season between different years from 2000/1 to 2014/15. These data also clearly confirms that carrying capacity and stocking rate are not fixed and should vary from year to year, depending on the rainfall.

This is again the time of the year that each livestock farmer should ask a number of important questions for his or her production system, namely:

- How much fodder do I have available on my farm?
- What are the current fodder requirements of my livestock herd?
- How long will the current available fodder last?

In order to answer the first important question (how much fodder do I have?), several techniques and possibilities exist. The first one is to physically go and cut a number of representative quadrats evenly distributed over the farm, dry the grass for 14 days and weigh it. This is currently still the most reliable method, but unfortunately very labour intensive and in our experience, few farmers find the time to do this. A second possibility is to use a reference photo-guide of different fodder availability scenarios and, by relating a specific piece of land to a specific photo, fodder availability can be estimated. Agra ProVision and Agri-Ecological Services are in the process of developing photo guides for a number of areas in the country. The third possibility, which is currently still being tested, is to directly read it from an herbaceous production (kg Dry Matter/ha) map that is generated at the end of the growing season from calibrated satellite derived data. These satellite products are currently tested with several farmers and also in two communal grazing systems. So far the results are promising and further validation is under way.

It does not matter which method you use, as long as you can produce a reliable estimate of fodder availability. In terms of the second and third questions, a stocking rate calculator (SRC) has been developed. This tool intends to assist land users (livestock and game) to plan their dry season fodder flow.

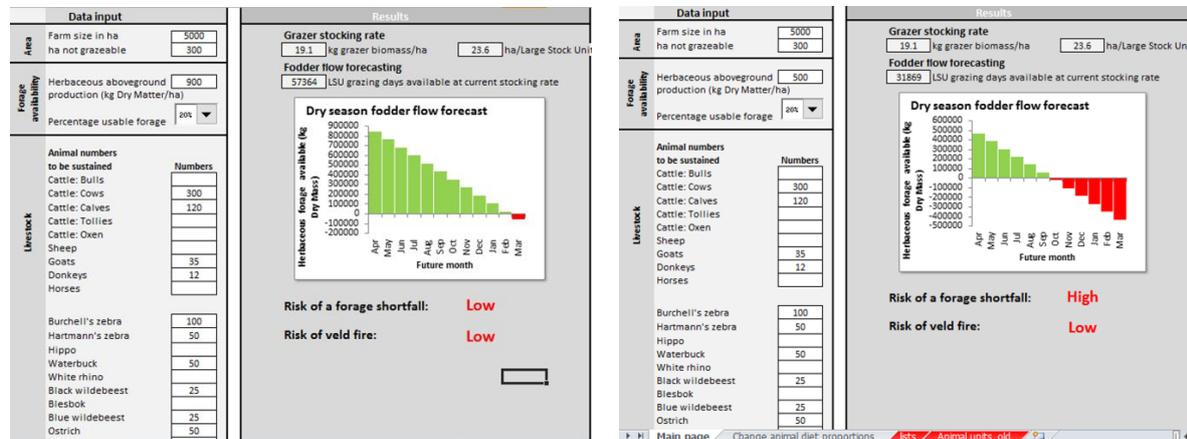


Figure 3: Outputs from the Stocking Rate Calculator

Figure 3 reflects outputs from the SRC under two different scenarios. The one on the left is where fodder availability on the farm is 900 kg/ha and the one on the right is where it is only 500 kg/ha. All the other variables are the same for both scenarios.

The scenario on the left indicates that, with the current livestock and game numbers on the farm, available fodder will last until end of February, while in the scenario on the right it will only last until the end of September. This information is crucial to the farmer because the one will ensure that his animals will have enough to eat until it rains again, while the other one describes a scenario of fodder shortages after 6 months into the dry season with at least 3 months to go before the next rainy season is likely to start. This can mean a difference between a “normal” season and a “drought”, which could have been avoided. The calculator still requires further fine-tuning, for example how the percent fodder that can really be used by animals differ between regions. Several factors, including trampling by animals, termites and so on, determine that only a fraction of the initially available biomass should be considered if planning fodder flows. Another area that requires further research is how the browse percentage differ between herbivore species and regions. For example, cattle in the broad leaf savannas are known to browse substantially, but how much is still debated. In the SRC both the utilization factor and browse: graze ratio can be adjusted, although some default values are suggested.

3. In Conclusion

Even if the rangeland situation this year is much better than last year, it is still important that each farmer determine if there is enough fodder available for the current livestock herd on the farm. Remember this available fodder should last for at least 9 months until the next “full” grass bite will be possible. This time of the year is the right time to estimate fodder availability and several methods exist or are currently being developed to do so. Using a stocking rate calculator it can be calculated how far the available fodder will go with the current livestock herd on the farm.

4. Contact Us

There are two ways how we can support a farmer to determine fodder availability and doing a fodder flow projection for the dry season ahead. The first way is that you can attend a rangeland management training course where we will teach you the skills to do it yourself. Secondly, you can request us to visit your farm and do it for you. If you have any questions and need further support in this very important activity, please feel free to contact Bertus Kruger at Agra Provision (081 1204 0124) or bertusk@agra.com.na or Dr Cornelis van der Waal of Agri-Ecological Services at 081 604 5878 or corwaal@gmail.com