

Spotlight on Agriculture

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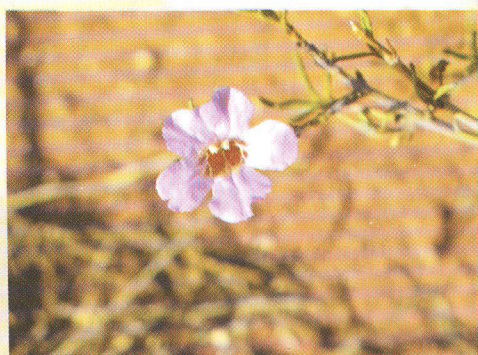
No 98 December 2005

PRELIMINARY NOTES ON THE BIOMASS PRODUCTION OF *PETALIDIUM LINIFOLIUM* (LUSERNBOS) ON THE SWARTRANT

INTRODUCTION

Petalidium linifolium, or 'lusernbos', as it is popularly known amongst the sheep farmers of southern Namibia, belongs to the Acanthaceae botanical family. Other well-known dwarf shrubs of the south belonging to this family are 'perdebos' (*Monechma genistifolium*) and 'skaapganna' (*Monechma incanum*). *Petalidium linifolium* occurs abundantly on the Swartrant in south-west Namibia and many farmers regard it as an important and valuable forage plant, hence its common name.

Investigating the plant production of dwarf shrubs is becoming increasingly important. Little is known about their actual contribution, in terms of dry material, to forage available in southern Namibia. The Dry Material (DM) yield of any plant is a crucial element in the calculation of the grazing capacity of an area.



Petalidium linifolium flower



Petalidium linifolium plant

METHODOLOGY

The first phase of a research project launched during October 2005 required that the dominant plant species of the Swartrant be determined. The ultimate aim of this project is to determine the value of these dominant plant species in terms of their dry material production, nutritive value and palatability. The first survey, consisting of 3600 points, was carried out in February 2006. It was repeated in April, July and November of that year, as well as during February and April 2007. Surveys will continue until April 2008. Each survey is spread over the same six sites, with the first site located roughly 20 km south east of Maltahöhe and the last about 25 km east of Helmeringhausen.

During each survey, specimens of the dominant species at each site are harvested and dried. After drying, the dwarf shrub material is hand-sorted into a utilizable and non-utilizable portion. The utilizable portion of any dwarf shrub is deemed to be all the leaves, as well as all woody material less than and equal to 2 mm in diameter. This portion is then weighed and regarded as the plant's dry material production. The portion is then milled, and analyzed for its nutritive properties.



Sorting material into utilizable and non-utilizable portions

RESULTS

Two species consistently emerged as dominant at each of the six sites: *Petalidium linifolium* and *Stipagrostis uniplumis* ('blinkaarboesmangras').

In order to have a comparable measure, the yield of *Petalidium linifolium* (dwarf shrub) is weighed against the other dominant species, *Stipagrostis uniplumis* (grass), which is harvested at the same time.

Abundance of *Petalidium linifolium* on the Swartrant

Table 1. Average available DM /plant/site (g) after five surveys (seven surveys remaining)

| Species | Site | | | | | | Average over six sites |
|-------------------------------|--------|--------|--------|--------|--------|-------|------------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| <i>Stipagrostis uniplumis</i> | 10.84 | 8.73 | 11.39 | 13.72 | 8.72 | 8.67 | 10.35 |
| <i>Petalidium linifolium</i> | 101.44 | 113.48 | 142.76 | 158.17 | 157.54 | 59.53 | 122.15 |

Table 2. Average number of times a plant is counted/site after five surveys (seven surveys remaining)

| Species | Site | | | | | | Average over six sites |
|-------------------------------|------|-----|-----|-----|-----|-----|------------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| <i>Stipagrostis uniplumis</i> | 24 | 56 | 228 | 187 | 63 | 400 | 160 |
| <i>Petalidium linifolium</i> | 51 | 141 | 231 | 289 | 113 | 117 | 157 |

DISCUSSION

On the Swartrant it seems as if *Petalidium linifolium* and *Stipagrostis uniplumis* appears in about equal numbers (Table 2). However, on average *Petalidium linifolium* produces roughly 10 times as much utilizable material as *Stipagrostis uniplumis*. If the information contained in Table 2 is considered, then the contribution of this dwarf shrub to the biomass production of the Swartrant is considerable.

From the data gathered so far, it was interesting to note that *Petalidium linifolium* consistently produced its highest yield in all six sites during the November measurement, while *Stipagrostis uniplumis* produced its highest yield during April (three sites), July (one site) and November (two sites).

Notes on the nutritive value and palatability of *Petalidium linifolium* will follow after completion of the project.



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