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Basic guidelines to Veld Management – Overberg

The Overberg is situated in the Fynbos biome which is a unique type of vegetation and it includes the highly threatened low-lying Renosterveld. The average rainfall varies from 300 – 700 mm per year. All veld types are sensitive to incorrect grazing practices and it is therefore extremely important that good veld management should be practised to ensure the conservation of the veld by proper utilisation.

Pasture management can be divided into two components, namely:

- pastures (veld (natural pastures), cultivated pastures, etc.); and
- management (plant production, seed production, seedling establishment).

What are pastures and why are they important?

Pastures provide food for animals.

This is determined by:

- plant cover;
- species composition (different types of plants in the veld);
- productivity (yield of grain and veld plants).



This is influenced by:

- Soil – can be improved by leaving organic material on the ground, which leads to better water infiltration resulting in a denser plant cover, more food and less erosion.
- Climate (rainfall, temperature, etc.)
- MANAGEMENT – this is where humans fit in. If a farmer does not look after and take care of his veld and stubble fields, he will not have food for his animals.

Veld:

The number of plants or the plant cover, the type of plants (species composition) found in the veld, the size of the plants and how well they grow (productivity) determine how much food there will be and apart from the environment, the farmer has the greatest impact on this. It is therefore important to know how the livestock utilises the veld, to have

knowledge of the plants that grow in the veld and to know in what condition the veld is.

Veld condition is the condition of the vegetation in relation to certain characteristics such as the species composition, cover, productivity, palatability and nutritional value. Grazing capacity depends on the condition of a camp or the farm's veld.

How does livestock utilise the veld?

They first eat the plants that are palatable and leave the unpalatable ones until last. In the Overberg

the tastiest plants include the following: Sandbietou (*Chrysanthemoides monolifera*), perennial veldt grass/rooisadgras (*Ehrharta calycina*) and bobbejaankoring (*Ehrharta capensis*). All three species are very sensitive to grazing and therefore great care must be taken with regard to how they are used, particularly the palatable plants. In order to build up reserves for dry periods, no more than 40% of a plant should be used in one season.



If there are too many animals or if they are in a camp for too long, they will first eat up all the palatable species while only the unpalatable ones remain and multiply, therefore the farmer can keep fewer animals in the same camp over a period of time. It also leads to trampling of the vegetation and as a result a hard and impermeable soil crust can form which can hinder the germination of seeds.

It is therefore important for the farmer to know his veld, which species are desirable, which types he would like a lot of and which are the unpalatable and poisonous species of which he wants little or none in the veld. He must also know which plants are invasive species, such as Port Jackson, blue gum trees, rooikrans, black wattles, etc.

Does the veld improve with time or does it deteriorate?

Do the palatable species increase and grow bigger, thereby creating better cover and providing more food and causing less soil erosion, or are the plants eaten away with only gnarly bits remaining, totally gone or very scarce? Vegetation cover as a result of the average rainfall in the Overberg should be 60 -100%. There should therefore be very little bare ground.

An indication that the veld has deteriorated is the presence of renosterbos; the poorer the veld, the more renosterbos will be found.

Another good indicator of the condition of the veld is whether there are seedlings and young plants of the palatable species at the end of the rainy season, or whether there

are only seedlings of the unpalatable species and some ephemerals (opslag).

Soil:

The way in which veld and crop fields are managed will have a long-term impact on the soil. If the veld are overgrazed and trampled by animals as a result of incorrect management, erosion can take place or the soil surface can form an impermeable layer. This means that the seeds that are present and germinate cannot get their roots through the soil crust in order to establish themselves, and the water runs off instead of penetrating. Consequently rain becomes less effective, the top layer gets washed away and this can lead to gully erosion.

To create an effective seed bed for germination and the establishment of plants the farmer can, by means of good management and observation, make sure that there is organic material on the ground (twigs, leaves, etc.) that can decompose and be converted by microbes to food for the plants (organic carbon). Together with the plant cover, this will help to regulate the soil temperature and with holes/hollows in the ground it will help to improve water infiltration because water will flow away much slower; it will also help to catch the seed and provide shelter for the young seedlings. A good plant cover must be maintained to prevent erosion.

How is the farmer going to make sure that the veld provides enough food for his animals?

He can do this by applying the correct management. The following are a few points that should be noted:

1. the number of animals that the farm can support (grazing capacity); and
2. the management system that is followed.

Grazing capacity and stocking rate

Grazing capacity is the ability of a specific piece of veld to produce food, therefore the number of

animals a farmer can keep in a camp or on the farm, without the deterioration of natural resources (soil, plants, etc.). As already mentioned, this is dependent on the condition of the grazing land. Grazing capacity is expressed in ha/LSU (hectare per large-stock unit), or roughly how many hectares are required to provide food for a year for one head of cattle weighing 450 kg. Meissner and others (1983) divided all livestock and game as a factor of a large-stock unit. For example: One wool-bearing ewe (dry) = 0.15 LSU, while a wool-bearing ewe with a lamb is equal to 0.20 LSU.

The TOTAL number of livestock should not exceed the recommended grazing capacity!

For example: A grazing capacity of 30 ha/LSU means that the farmer needs 30 ha to provide food for one cow over a period of a year, that is to say that approximately 10 head of cattle can be kept on a farm of 300 ha. For sheep, this means that approximately four hectares are required for one sheep (seven wool-bearing sheep (ewes) are equal to one small-frame cow). The farmer can therefore keep approximately 70 sheep on his 300 ha farm, in other words 40 breeding ewes plus the lambs, rams and replacement ewes.

Stocking rate is the number of animals that a farmer can keep for a specific period on a certain area of the veld (camp/farm). This includes all animals on the farm, large and small, sheep, cattle, goats, donkeys, ostriches, game, etc. Remember that animals breed, therefore all animals, big and small, must be taken into account when determining the stocking rate.

Grazing capacity and stocking rate must be reconciled with one another in order to ensure the sustainability of a production system on the farm.

Grazing capacity is how many animals you can keep on the farm.

Stocking rate is how many animals you are really keeping on the farm.

The farm's grazing capacity is an indication of how many animals can be kept on the farm, while the stocking rate is an indication of how many animals are kept there. If the farmer keeps more animals than his grazing capacity permits, the condition of the veld will deteriorate with the result that he can keep fewer animals over the long term.

If the farmer keeps fewer animals than he is allowed to keep according to the recommended grazing capacity, this will be to the benefit of the veld and the animals because the veld will build up reserves (new and bigger plants, regrowth of existing plants, flowers, seed formation, etc.) and improve over the long term. The farmer will find it easier to overcome drought periods (may not have to supply additional fodder – cost implication), and he will be able to keep more animals over the long term.



The recommendation is usually to keep fewer animals than those that can be kept according to the recommended grazing capacity.

The recommended grazing capacity is a long-term value and an indication of grazing capacity under optimal conditions. For Renosterveld parts of the Overberg this is 36 ha/LSU and closer to the coast it is 30 ha/LSU. There will be above and below average rainfall years over a 10-year period when more or fewer animals can be kept, but on average this should not be more than one head of cattle per 30 ha or one head of cattle per 36 ha over the 10-year period. In drier years the number of animals should be reduced to adapt to the amount of food that is available. During good years the numbers can be gradually increased but not more than the recommended numbers.

The grazing capacity of stubble fields is determined by the type of crop that was sown and this can vary annually. It is important to note that the residues on these fields should not be grazed completely bare. Grazing and trampling by too many animals for too long can lead to compaction of the top layer of the soil causing the organic carbon and other nutrients that the crop residues return to the soil, to be drastically lower. This will lead to a much lower crop harvest in subsequent years.

Example:

Farm size (veld): 200 ha
 Recommended grazing capacity: 30 ha/LSU/year
 Animals that the farm (veld) can support:
 (Farm size ÷ grazing capacity) $200 \div 30$
 = 6.7 LSU per year

The veld is used for eight months of the year and therefore food available for a year can be used in an eight-month period.

Animals that the farm (veld) can carry if only eight months (245 days) of the year are used:
 Farm size ÷ (245 days ÷ 365 days x grazing capacity)
 $200 \text{ ha} \div (245 \div 365 \times 30 \text{ ha/LSU}) = 10 \text{ LSU}$ over eight months.

Grazing days

Referring to our example, let's look at the number of grazing days in the veld:

Grazing days =
 farm size ÷ grazing capacity
 $\times 365 \text{ days}$
 $= 200 \text{ ha} \div 30 \text{ ha/LSU}$
 $\times 365 \text{ days}$
 = 2 433 grazing days/LSU.

How many days' food is available for 10 LSU?
 = total grazing days ÷ LSU
 $= 2\,433 \div 10$
 = 243 grazing days (eight months)

How much food is available for 30 LSU?
 The number of animals presently on the farm in the example:
 = total grazing days ÷ LSU
 $= 2\,433 \div 30$
 = 81 days (<3 months)

The same method can be used to determine how many grazing days are available in a specific camp.

Current Stocking rate on the farm (veld) (total number of animals kept on the farm):
 100 breeding ewes (wool- sheep) x 0.15 LSU = 15 LSU
 110 lambs x 0.10 LSU = 11 LSU
 Two rams x 0.19 LSU = 0.38 LSU
 Four head of cattle = 4 LSU
Total 30.38 LSU

The veld is carrying 180 more LSU than recommended and will therefore deteriorate rapidly.

What is the ideal stocking rate?

2 head of cattle = 2 LSU
 25 breeding ewes x 0.15 LSU = 3.75 LSU
 4 replacement ewes x 0.15 LSU = 0.6 LSU
 33 lambs x 0.10 LSU = 3.3 LSU
 2 rams x 0.19 = 0.38 LSU
Total number of animals on the farm: 10.03 LSU

If the farmer wants to keep more animals than allowed according to the grazing capacity of the farm, he has to give them additional fodder – in a feeding-lot. Animals should not be fed in the veld because this leads to trampling and deterioration of the condition of the pasture. Animals still graze even if they get additional fodder. If the farmer wants to keep more animals, the period for which the veld can be used also becomes shorter (see the box with the example of grazing days). The additional fodder leads to higher costs. If the farmer is not going to feed, this will lead to deterioration of the veld and cropping fields, as well as lower animal production (therefore a poorer lambing percentage, a lower mating percentage and the growth of animals will decrease). All of these factors have financial implications.

Management

The farmer should preferably keep his stocking rate equal to or even lower than the grazing capacity. If incorrect management is applied the veld can deteriorate when animals graze in the same camp every year at the same time of the year, for example a lambing camp or a mating camp, etc. If a camp is used every year when the palatable plants are flowering and form seeds, the plants are not going to multiply. The palatable plants that die are not replaced. After a few years all the palatable plants, which are the main source of fodder, are grazed away and consequently fewer animals can be kept. The production of the animals will therefore drop because their fodder is substandard.



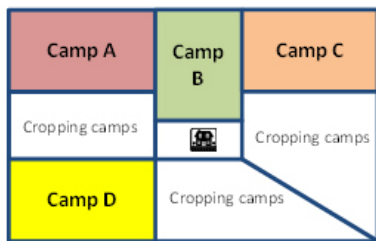
It is therefore important that a rotation rest/grazing system should be followed where the farm is divided into camps and each camp gets a rest period during the year. This veld type is particularly sensitive to grazing during winter until early summer when the plants flower, form seeds and establish new seedlings. The camps cannot always rest at that time of the year and in the Overberg district this is the time of the year when the veld is used because then the crops are on the lands and the animals are only

moved to the cropping camps during summer to autumn. To prevent continuous grazing in the growth season, the farm should be divided into camps and the animals should be rotated between the camps in the grazing season. These camps should also have a central watering place so that the grazing can be spread out evenly throughout the camp.

Example:

The farm consists of four veld camps (each camp is more or less of the same size and able to carry the same number of animals), as well as cropping camps. Residues in the cropping camps are grazed during the summer and early autumn, therefore December, January, February and March. Grazing of the cropping residues in the cropping camps must be managed and rotated between the camps to ensure that the land is not overgrazed and trampled. The veld camps are used from April to November, therefore a period of eight months.

One camp annually gets the opportunity to rest for the whole year and over the four-year period the same camp is never used for grazing in the same season. The camp therefore gets sufficient opportunity to flower, form seeds and establish seedlings by building up reserves through regrowth.



The following are examples of rotation grazing systems that can be used for eight months of the year in four veld camps.

Example 1:

	April/May	June/July	Aug/Sept	Oct/Nov
Year 1	Camp A	Camp B	Camp C	Camp D
Year 2	Camp D	Camp A	Camp B	Camp C
Year 3	Camp C	Camp D	Camp A	Camp B
Year 4	Camp B	Camp C	Camp D	Camp A

Each camp rests for at least one year before it is used for grazing again (three out of four years) and is never used for grazing in the same period over a four-year period.

Example 2:

	April/May	June/July	Aug/Sept	Oct/Nov	Rest
Year 1	Camp A	Camp B	Camp C	Camp A	Camp D
Year 2	Camp B	Camp C	Camp D	Camp B	Camp A
Year 3	Camp C	Camp D	Camp A	Camp C	Camp B
Year 4	Camp D	Camp A	Camp B	Camp D	Camp C

Only three camps are used annually, while the fourth camp rests for the whole year and is only used for grazing again in the third grazing season. The camp is therefore rested for 18 months in total after which it gets intermittent rest for 4 - 8 months over a four-year period. The 18-month rest period follows after the camp has been used twice for grazing in the calendar year with only four months of rest between the grazing periods.

Drought management

Before an area is hit by a disaster drought the number of animals should be reduced. The animals must be moved to the feeding-lot to be rounded off so as to conserve the reserves of the veld. The number of animals must be reduced to a core herd by selling the castrated animals first, followed by older animals and then the culls, including ewes that have not lambed in the previous season. Strict breed standards have to be applied when choosing culls.

Regardless of whether or not you have a veld management system, keep the number of animals low so that the impact on the veld is not too great. Get to know your veld and take note of the presence/absence of seedlings of the palatable species. Preferably not more than 50% of the plant should be grazed and make sure there is organic material on the soil (twigs, leaves, etc.). Lastly you should also look at the condition of your animals and their breeding. When the condition of your animals begins to deteriorate, you will often find that the veld is impoverished. The most important thing to remember is that you are a veld farmer and not an animal farmer.

Contact your local extension officer (pasture expert) and LandCare officer for assistance with a veld management plan for a specific farm.

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Remember, you firstly farm with your veld and then with your animals. If you do not look after your veld, you will not have fodder for your animals and therefore generate no income!