



VELD MANAGEMENT PRINCIPLES

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An important goal in grazing management is to minimize the negative effects grazing has on herbage production and species composition. This is achieved by implementing five principles.

These principles are:

- (1) match the stocking rate to the carrying capacity;
- (2) use a rotational rest;
- (3) use fire appropriately, at the correct time and for the correct reasons;
- (4) ensure fences are in the correct location and make camps a uniform size; and
- (5) balance what's good for the veld with what's good for the animal.

(Refer to Agri Update 2014.03 for Grazing Management Terminology).

Photosynthesis is a process that occurs in leaves, whereby energy from the sun is converted into chemical energy available for plant growth and functioning. The availability of energy to the plant (or lack thereof) affects the roots – root biomass, root depth and the quantity of new roots that develop. Roots are important for accessing moisture and nutrients, plus anchoring the plant firmly in the ground. A poor root system will jeopardize the longevity of a plant. A strong root system will enhance root and shoot growth and is achieved by allowing the plants a period of rest to replenish their reserves and to strengthen their root systems. This is the most fundamental grazing principle.

The response of grass plants to grazing are:

- (1) intensive grazing without rest has a negative effect on plant growth and persistence;
- (2) dry matter production increases with lenient grazing and decreases with heavy grazing;
- (3) frequent grazing at the correct intervals increases forage quality; and
- (4) grazing management (frequency, intensity and timing of utilisation) has an effect on species composition.

Veld condition assessments should be used to determine grazing capacity and to plan a veld grazing system.

The type of animal grazing the veld has a significant effect on selection. Small stock (eg sheep and goats) are highly selective in their feeding habits, while cattle are predominantly bulk grazers and are less able to select both species or plant parts. Once veld has deteriorated it is nearly impossible to get it back to its original state. When grazing, apply the rule-of-thumb “take half, leave half” – this refers to dry matter production, not to plant height. In other words, take half of the bulk of dry matter produced and leave half to enable the plant to survive.

For sweetveld, manage your grazing for quantity since this is the limiting factor. Sweetveld retains its quality throughout the year, but quantity is limiting. For sourveld, manage for quality, since quality starts to decline in autumn, with poor quality grazing during the winter months.

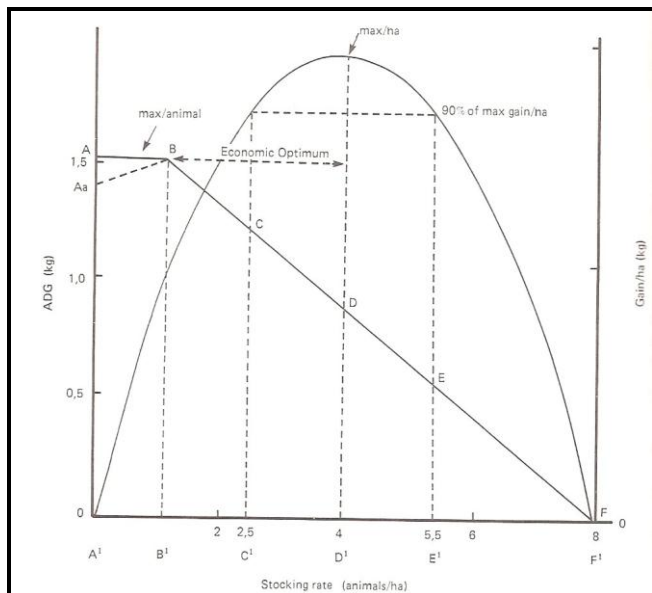


FIGURE 1: The theoretical relationship between stocking rate and average daily gain and between stocking rate and livemass gain per hectare (Edwards, 1981).

The Jones-Sandland model (Figure 1) is an animal performance model indicating that livemass production per hectare (kg/ha) is higher at medium stocking rates than at low stocking rates up to a critical stocking rate (D¹), at which kg/ha peaks. At stocking rates higher than D¹, livemass production per hectare decreases. Livemass gain (kg/ha) generally increases with increasing grazing severity up to a critical stocking rate, thereafter production per hectare decreases as stocking rate increases. From this model, it can be noted that to achieve 90% of the maximum livemass production (kg/ha), there are two possible stocking rates that can be implemented – a high stocking rate (E¹) and a low stocking rate (C¹) (Figure 1). The point C¹ (which has a lower stocking rate than E¹) has lower individual animal performance than the point E¹. However, the gain per hectare is the same for both stocking rates. The higher number of animals at E¹ compensates for the lower individual animal performance at this stocking rate.

High performance grazing is a strategy that enables selective grazing of preferred plants and aims to maximise animal performance. High utilisation grazing is when heavy utilisation is implemented on

both preferred and non-preferred plants and aims to maximise utilisation. Chronic intensive grazing is detrimental to plants since it reduces the leaf area available for photosynthesis on an ongoing basis.

Rest is important to grass plants and allows them time to replenish their reserves so they can survive the seasons ahead. There are two types of rest: one that is solely for the benefit of the grass and another type of rest that is aimed at benefitting the animals utilising the grazing. “Rests” aimed at bulking up material for the benefit of livestock are not considered “rests” but rather periods of absence and does little to benefit the vegetation in the long-term. Rests implemented for the benefit of the vegetation aims to maintain species diversity and plant vigour.

Spring and autumn rests restore root reserves, summer rests allow seed production and a full season’s rest allows all physiological functions to occur. Full season’s rests (from first rains to first frost) are advocated for sourveld and mixed veld areas. In sweetveld areas full seasons’ rests are used to improve degenerated veld or to accumulate dry matter for a hot burn to control bush encroachment. Veld grazed by sheep needs rest more frequently than if grazed by cattle, due to the severity of defoliation that sheep inflict. Give veld a full growing season’s rest once every three to five years to maintain vigour. “Survival of the rested” is the usual result.

Fire should be used for (1) removing unpalatable growth from the previous season, and (2) to control encroachment of undesirable plants. Sweetveld areas seldom need fire to remove unpalatable material, since it can be readily grazed year-round. In sourveld areas, spring burns are often done to stimulate a “green flush” but this is not advocated, since it is not beneficial to the grassland. During periods of moisture stress, burnt grasslands suffer more than unburnt grasslands. Late burning in spring is detrimental to grass species.

The larger the camp, the bigger the variation within the camp, which increases the selection occurring within the camp and complicates management. All vegetation within a camp should be as uniform as possible to promote uniform utilisation. Divide camps into similar aspects and where possible, similar soil types. Use watering points and supplements to force animals to move and graze in different areas especially if camps are large.

Veld management needs to balance what's good for the animal with what's good for the grass. Heavy grazing of veld may benefit livestock in the short-term but will be detrimental to grazing in the long-term. Look after grazing.

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Once veld has changed for the worse, it will take time and dedication to improve it. Rather manage for good quality grazing and maintain veld condition for successive generations to come.

References

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