

Role of the national rangeland monitoring and improvement programme on the enhancement of animal production in South Africa

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Natural resources utilization

South Africa covers an area of 121.9 million ha, and 81% of the total area is utilized as agricultural land. The natural agricultural resources of the country are finite; and the most important factor that limits agricultural production is availability of water as a result of prevailing low, erratic and uneven rainfall patterns across country. The net result is therefore the utilization of marginal areas of land and more intensive utilization of existing agricultural land in order to provide for the basic needs of the human population.

About 13% of the agricultural land is used for crop production (arable land), while 87% of the land is used by the animal production sector. The sector is largely natural resource based, with rangelands as its primary source of fodder. This implies that the animal production sector contributes a greater proportion towards food security through

herbivores' conversion of rangeland resources to food for human consumption.

Challenges faced by animal production sector

South Africa's rangelands remain the cheapest source of feed for the animal production sector; however, the condition of many of the rangeland resources has been seriously degraded by a number of management factors (Hoffmann and Ashwell 2001). There is a concern that overutilization (mainly by overgrazing) of these resources might not only degrade the natural resource base, but will also compromise people's livelihoods. Furthermore, the constraints imposed by climatic condition and soil dictate that the animal production sector should play a primary responsibility on the sustainable management of the rangeland resources.

The animal production development programmes usually emphasise animal improvement and eco-

nomics (marketing); but a total animal production enterprise is an integrated system that includes animal husbandry, animal health, marketing, animal nutrition and rangeland management.

Therefore, a good understanding of the dynamics and interaction between rangeland, pastures, climate and animals is essential for sustainable animal agriculture (Engelbrecht *et al.* 2004).

Department of Agriculture's framework for rangeland management

One of the eight DoA strategic goals (mission statement) is to "Enhance sustainable management of agricultural natural resources and ecological systems" (Anon 2006a), and Con-

servation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) (CARA) is used as an instrument to govern this goal. In addition to the various ordinances and interventions that foster management of natural resources, the DoA has put the sustainable management of rangeland resources on a high

agenda through the following initiatives:

- LandCare Programme for South Africa
- Livestock Development Strategy for South Africa (LDS) (Anon 2006b)
- Draft Policy for the development of a sustainable Wildlife Ranching Sector in South Africa
- Draft Policy for the sustainable management of Veld (Range) and Forage Resources in South Africa (Anon 2006c)

These initiatives are in support of effective administration of the CARA.

National Rangeland Monitoring and Improvement Programme (NRMIP)

The LDS and the Draft Veld and Forage policy recommends the establishment of a

NRMIP as an important step towards sustainable animal production, and this will be based on the evaluation of rangeland condition in order to understand the impact of rangeland management practices (various grazing/browsing regimes). This knowledge will provide a plat-

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form to identify and document changes in the resource over time; providing information upon which to evaluate management practices in relation to natural influences such as weather as well as to map out rangeland degradation.

NRIMP will be used to relate rangeland condition to animal productivity and efficiency as well as risk management. Implementation of NRIMP will be done through a range assessment and monitoring system at national level, whereby the following will be quantified and monitored for the different ecological regions:

- Degree of degradation in relation to rangeland potential
- Seasonal changes in forage productivity, quality and acceptability to livestock
- Impact of water stress (drought) on the productivity of the vegetation
- Impact of animal numbers, animal type and distribution on the productivity of the vegetation and different degrees of degradation.

NRMIP will enhance the animal production by achieving the following objectives:

- Assisting in on-farm decision making process such as evaluating the farming system, forage availability, expected animal production, number of animals, and type of animals
- Evaluating the effects of current management practices on

rangeland condition and to monitor change over time

- Evaluating the degree of rangeland degradation and assessing the status of vulnerability of rangelands.

These objectives are aimed at providing a disaster management pro-active response for sustainable animal production.

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