

Mineral deficiencies in game

By Kobus du Plessis

One of the goals of a game rancher is to breed enough trophy-quality animals that are healthy, productive, and fertile. This also means the acquisition of good genetics, albeit at a price. Ranchers often focus on the more expensive inputs, not always considering the major role that factors such as mineral supplementation play in the breeding of top-quality animals.

Although sometimes considered insignificant, mineral supplementation has a major impact on the profitability of a game ranching business. Game is considered to be mostly self-sufficient, but due to habitat limitations and changes in environmental conditions, mineral deficiencies are on the rise. The focus of this article is on mineral deficiencies in the daily diet of game species in winter and summer, and how supplementation can address these deficiencies.

Reasons for mineral deficiencies

- A decrease in the digestibility, protein, and mineral content of maturing grasses will result in nutrient deficiencies in natural pastures.
- Seasonal variation occurs gradually as essential nutrients in plants decrease in the dry season.
- Overgrazing and soil erosion can reduce the minerals available in the environment.
- Fences and intensive farming practices restrict the movement of game and impede access to diverse mineral-rich areas. These areas are natural sources of minerals that animals have historically relied upon for alleviating any mineral deficiencies they might have had. Animals sometimes engage in geophagy (licking and eating of soil to supplement their diets) when their natural feed sources cannot provide the nutrients they require. Species such as kudu and eland are particularly prone to such behaviour.
- High game numbers can intensify the competition for resources, exacerbating mineral deficiencies.

This is especially the case when natural grazing is not given enough time to regrow.

- Some elements and compounds have an antagonistic effect on the absorption of other essential minerals. Even if the latter is supplemented at sufficient levels in the diet, deficiencies may still occur. For example, high calcium levels can reduce zinc's absorbability.

The species-specific nutritional requirements of grazers such as blesbok and blue wildebeest are largely influenced by the decline in the quality of grass during dry seasons; this makes supplementary nutrition essential. Foliage feeders such as giraffes are better able to find a consistent supply of protein throughout the year; however, they too can experience deficiencies due to seasonal changes and the presence of tannin in leaves, which reduces digestibility.

Consequences of deficiencies

Mineral deficiencies affect the general health and survival of the animal. The extent of the deficiency depends on which mineral is deficient and the particular game species.

- Skeletal problems can occur due to calcium and phosphorus deficiencies. Deficiencies can also impair horn growth.
- Sodium, potassium, and selenium deficiencies lead to muscle weakness and lameness.
- Fertility issues, including low conception, stillbirths, abortions and weak offspring, are among the most

underestimated consequences of mineral deficiencies.

- Copper, iron and cobalt deficiencies can lead to anaemia, characterised by weakness and pale mucous membranes.
- Some deficiencies cause digestive issues and inefficient rumen fermentation. This impairs cellulose digestion and causes inefficient utilisation of the available plant material.
- Issues with skin and hair can occur due to copper and zinc deficiencies, resulting in hair loss and discoloration (pale appearance).
- Malnutrition and specific mineral deficiencies can impair the body's immunity, increasing animals' susceptibility to disease.
- Poor growth and weight loss can also occur.

Resolving mineral deficiencies

- Provide the correct nutrition and supplements. High-quality, species-appropriate feed containing enough vitamins, minerals and protein can help prevent nutritional deficiencies. Consult a nutritionist regarding the type, amount, and timing of supplements.
- Regular monitoring of animal health and behaviour can help to quickly identify and address deficiencies. Count the new arrivals each year.
- Know what each animal species requires and understand the differences between grazers and browsers.
- Improve habitat health and diversity, and allow game to roam freely over

large areas that will give them access to natural mineral resources.

- Regulate animal populations to alleviate competition for resources, improve individual animal health, and prevent overgrazing.

Supplements can be used to attract game to specific areas for monitoring or management purposes. However, the provision of mineral supplements does come with a few risks. For instance, it changes the way animals behave by affecting their roaming pattern; also, different species, which otherwise would have avoided each other, now gather to feed. Animals congregating around licks can increase the risk of disease transmission. Moreover, over-reliance on mineral supplements can lead to animals being reluctant to seek out natural mineral sources, thus increasing the risk of overpopulation.

Minerals are categorised into two groups, namely macrominerals, which are essential in larger quantities (for example calcium, phosphorus, magnesium, potassium, sulphur, sodium, and chlorine), and microminerals, which are required in

smaller quantities but are also crucial for health and fertility (for example copper, iron, iodine, manganese, cobalt, zinc, and selenium).

It is important to provide the right supplement at the right time. Micromineral supplements contain all the microminerals game require and can be given year-round. These minerals can either be given in inorganic or organic form. During the green season macromineral supplements (such as phosphate licks) are essential for promoting optimal pasture utilisation. They not only contain microminerals, but also all the macrominerals game require and which are commonly deficient in South Africa.

Year-round provision

These supplements can be given throughout the year. Protein, energy, or mineral supplements (such as game licks) are normally molasses-based and provide energy, protein, and minerals in the form of a lick during the transitional and dry seasons. Game ranchers can mix their own lick supplements according to the instructions of a registered animal nutritionist.

The game industry has been recovering in recent years. Hunting prices are determined by overseas hunters, and the need for well-bred, top-quality animals therefore remains essential.

A comprehensive understanding of the specific mineral requirements, the causes of deficiencies, and appropriate management strategies is necessary to promote the health of game populations and ensure long-term ecosystem stability.

A balanced approach that includes habitat management, targeted mineral supplementation, and regular monitoring can effectively address mineral deficiencies. In doing so, thriving game populations are supported in terms of health, fertility, condition, and horn lengths. It is possible to recoup the investment in supplementation several times over by breeding more animals of exceptional quality. **SF**

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