

Forage quantity and quality from kikuyu pasture over-sown with ryegrass and clover

Dr. Philip Botha, Institute for Plant Production. Outeniqua experimental farm

Kikuyu is considered an important summer and autumn pasture which is climatologically well adapted in the main milk producing areas of the Southern Cape. The main problems experienced with kikuyu is that the winter and spring production is low, it is a fodder of low quality for dairy cows and the exclusion of legumes make it dependant on nitrogen that increases the input cost.

In an effort to improve the seasonal production and pasture quality researchers at Outeniqua experimental farm compared a pure kikuyu stand with kikuyu over-sown with annual ryegrass, kikuyu over-sown with a mixture of perennial ryegrass and perennial white and red clovers and kikuyu over-sown with a mixture of only perennial white and red clovers.

These pastures were evaluated in terms of dry matter production, growth rate, botanical composition, calcium (Ca), phosphorus (P), dry matter content, crude protein (CP), neutral detergent fibre (NDF), metabolisable energy (ME) and grazing capacity.

The most important findings from this trial were the following:

- The over-sowing of annual ryegrass, perennial clover or perennial ryegrass-clover into existing kikuyu pasture changed the seasonal fodder flow, increased the spring dry matter production and grazing capacity.
- The over-sowing of clovers into kikuyu pasture resulted in a lower grazing capacity.
- The over-sowing of kikuyu with an annual ryegrass during May had no effect on the dry matter production of kikuyu during the summer and autumn.
- Kikuyu and kikuyu-ryegrass, fertilized with nitrogen fertilizer, had a high dry matter production rate resulting in a high grazing capacity.
- The clover content of kikuyu/clover pasture was maintained at levels higher than 30% for more than two years. The clover content of the kikuyu-perennial ryegrass-clover pasture decreased to lower than 30% within a year.
- The Ca content of the kikuyu/clover pasture was higher than the nutritional requirement for dairy cattle (0.67%) but decreased as the grass content increased. The Ca content of the grass pastures (Kikuyu and kikuyu/ryegrass) was low and cows should receive Ca supplementation.
- The P content of both the legume and grass pastures exceeded the requirement needed for dairy production (0.38%).
- The low Ca content in the grass pastures resulted in a Ca:P imbalance that was lower than the 1.6:1 ratio needed by dairy cows.
- The over-sowing of kikuyu with clover resulted in lower DM and NDF values and higher CP and ME values.
- The CP content of kikuyu pasture was the lowest during summer and autumn.
- The CP content of the concentrate supplement fed to cows should be increased during summer and autumn when cows graze kikuyu dominant pasture.

This important information should be taken into account when farmers plan a fodder flow system and supplementation should be considered when dairy cows grazed kikuyu pasture.

For further information phone dr Philip Botha at 0 44-803700