

# Grazing management of kikuyu pastures



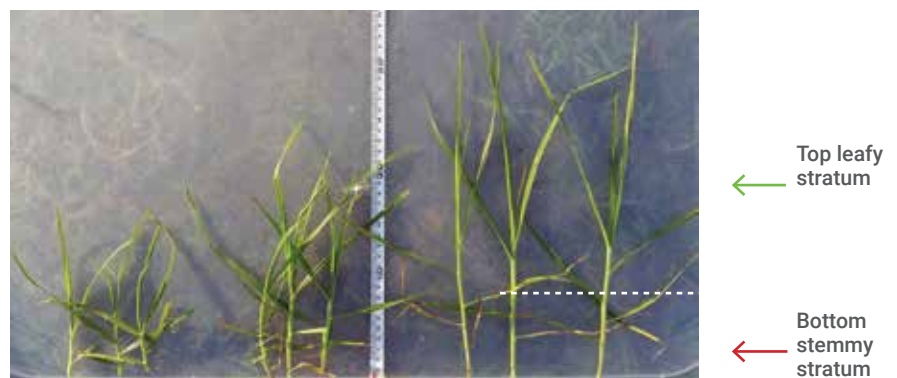
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**All kikuyu pastures consist of a top leafy stratum and a bottom stemmy stratum (Image 1). The forage quality of the leafy stratum is much higher than the stemmy stratum (Table 1, page 3) and cows can achieve a high level of pasture intake only when grazing the leafy stratum. Pasture intake and milk production decline when cows are forced to graze the bottom stemmy stratum through low pasture allocations.**

In order to achieve maximum cow productivity from pastures, it is recommended to graze only the top leafy stratum and avoid forcing cows to graze the bottom stemmy stratum. However, this grazing management strategy may result in an undesirable accumulation of the stemmy stratum and pasture residues, if appropriate management practices are not put into place.

Pasture height is a well known factor that affects pasture residues. During the summer of 2017-18, a study was conducted on two farms to look at the relationship between pasture height and the height and amount of the leafy and stemmy strata. The farms were located in Glenore Grove and Wilsons Plains in southeast Queensland. Pasture cuts of a range of pasture heights were taken during the early, mid and late kikuyu season.



*Image 1. All kikuyu pastures consist of a top leafy stratum and a bottom stemmy stratum irrespective of pasture height*

The results indicated that the height of the leafy and stemmy strata increased with pasture height in similar amounts in pastures of up to 30 to 35 cm (Figure 1, page 3). Taller pastures resulted in full canopy closure (Figure 2, page 3) which triggered stem elongation. Therefore, the amount of stem in pastures taller than 30 to 35 cm was much greater than the amount of leaves (Figure 1 and 3, page 3).

The results seem to indicate that there is no benefit in letting the pasture grow beyond 30 to 35 cm. Beyond that pasture height, there are three potentially negative consequences for the pasture and the animal productivity:

1. Most pasture growth consists of an accumulation of the bottom stemmy stratum of low quality (Table 1, page 3) as the growth of the top leafy stratum is marginal;
2. There is a significant decrease in tiller density. This may result in a decline of

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growing points in the pasture which may reduce the regrowth rate of the pasture after grazing;

- Grazing only the top leafy stratum allows the cows to achieve high pasture intake but would leave large pasture residues of at least 15 cm (Figure 1). These large residues are recommended to be reduced to 5 cm which may increase the cost of the system if done mechanically by slashing or mulching.

Grazing short pastures of less than 15 cm may also have negative consequences for the pasture and the animals:

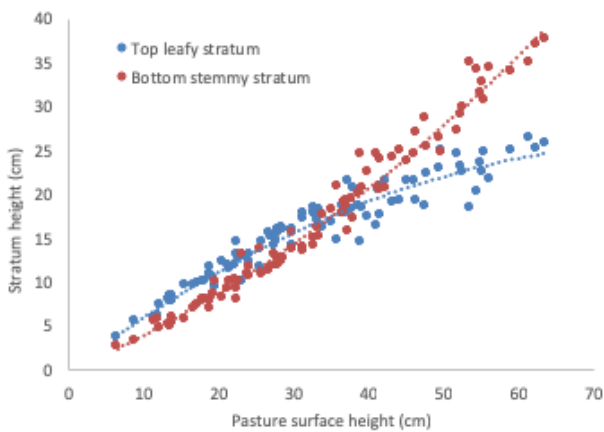
- It is well documented for other pasture species that bite size and intake rate is low in short pastures which may result in low daily pasture intakes;
- Also, grazing short pastures may compromise the growth rate of the pasture for two reasons. Firstly, these pastures are less likely to be at the ideal leaf stage of 4.5 leaves (Figure 4). This means that energy reserves for regrowth may have not been fully replenished. Secondly, as shown in Figure 2, canopy closure has not occurred indicating that the pasture has not reached maximum growth rate.

	NDF (% DM)	Crude protein (% DM)	ME (MJ/kg DM)
Top leafy stratum	43.6	28.6	10.3
Bottom stemmy stratum	55.6	23.5	8.4

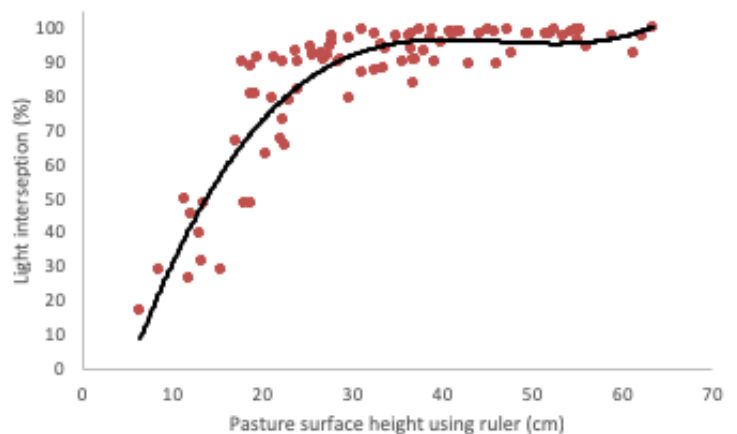
**Table 1** Nutritive value for strata on kikuyu pastures (25 cm height). Data collected at Gatton Research Dairy in February 2016.

The ideal pasture height for grazing kikuyu seems to be between 20 and 25 cm for the following reasons:

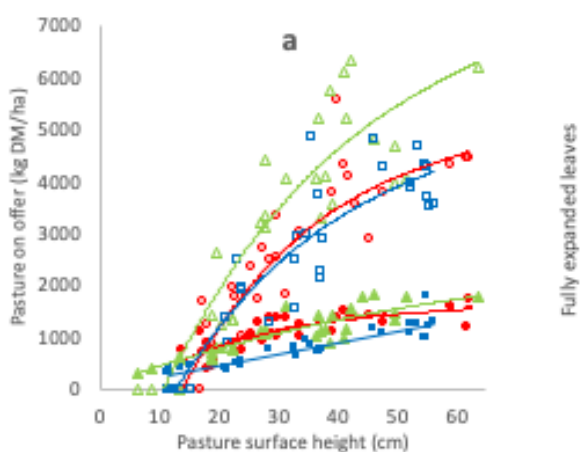
- Reasonable pasture residues of less than 10 cm are likely to be achieved after grazing the top leafy stratum (Figure 1).
- The pastures are likely to be at the ideal leaf stage (4.5 leaves) (Figure 4) and may be close to achieving maximum growth rate as their canopies are nearly fully closed (Figure 2).
- The pastures are tall enough so that bite size, intake rate and thus daily pasture intake may not be compromised as found for other grass species. ■■



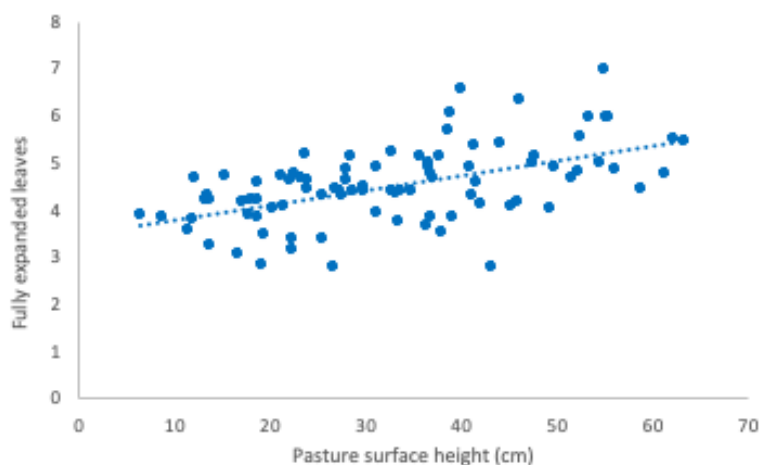
**Figure 1** The relationship between pasture surface height and stratum height for kikuyu pastures. 90 datapoints from two farms, 3 sampling months and 15 observations per month.



**Figure 2** The relationship between pasture surface height and light interception for kikuyu pastures. 90 datapoints from two farms, 3 sampling months and 15 observations per month.



**Figure 3** The relationship between pasture surface height and the top leafy (solid symbols) and bottom stemmy stratum (empty symbols) on offer. Colours of symbols and lines indicate months (red: January, green: February and blue: March)



**Figure 4** The relationship between pasture surface height and the number of fully expanded leaves of kikuyu pastures. 90 datapoints from two farms, three sampling months and 15 observations per month.

## Acknowledgments

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