SUBTROPICAL DAIRY REGIONAL GROUP – SUNSHINE COAST

On farm evaluation of legumes in kikuyu swards

Marcelo Benvenutti
Research Scientist (Agronomy),
Department of Agriculture and Fisheries Queensland

The Project

Perennial tropical grasses are the cheapest feed source available to farmers in the Sunshine Coast region. Kikuyu is a highly productive tropical grass; however production per cow is limited due to the inherent lignified carbohydrate structure (fibre) of tropical grasses. Integrating legumes into a sward is a potential strategy to improve pasture quality, dietary energy intake and reduce rumen fill, leading to greater pasture intake. The challenge with this approach is selecting a legume variety that will be agronomically robust to compete with the high growth rates of kikuyu and be resilient to grazing pressure from quick rotations.

A plot experiment is being conducted at the Wheeler's family farm near Kandanga, Queensland, and is evaluating the integration of legumes with kikuyu/ryegrass. The experiment was planted on an existing kikuyu/clover pasture on 7 May 2018 using large plots (11 x 50 m) in between irrigation runs of a solid set irrigation system. There are 24 plots that include four pasture mix treatments and two soil preparation treatments with three replicates of each treatment combination (Table 1).

Pasture cuts are being taken before grazing from each plot every two months until April 2019. Pasture samples are then separated into different species, dried, ground and sent to the feed lab for analysis. The different pasture mixes and soil preparation methods will be assessed based on their relative yield and forage quality for each pasture species and their total dry matter yield as a mixed sward.

Treatment	Ryegrass Tetila	Clover Shaftal	Lucerne Titan 7	Chicory Choice	Plantain Tonic	Soil preparation	Replicates
1	60					Mulch	3
2	60					Rotary Hoe	3
3	40	20				Mulch	3
4	40	20				Rotary Hoe	3
5	40		20			Mulch	3
6	40		20			Rotary Hoe	3
7	40	10	10	3	3	Mulch	3
8	40	10	10	3	3	Rotary Hoe	3

Table 1. *Seeding rates (kg/ha) for each species and soil preparation*

Initial results

The results from the first pasture assessment and cuts done on the 21 June 2018 are shown in Figure 1. These results indicate that:

a. The yield of ryegrass was much higher when the seedbed was prepared with a rotary hoe for all pasture mix treatments. This was a reflection of the better pasture establishment achieved with this planting method

b. In general, the legume with the highest yield was the natural clover that was already present in the kikuyu pasture.

c. Rotary hoeing resulted in better establishment of not only ryegrass but also of the other companion species. As a result, the yield of the companion species was greater for rotary hoe treatments. However, this planting method resulted in ryegrass fully dominating kikuyu which may have an impact on the kikuyu yield over the summer.

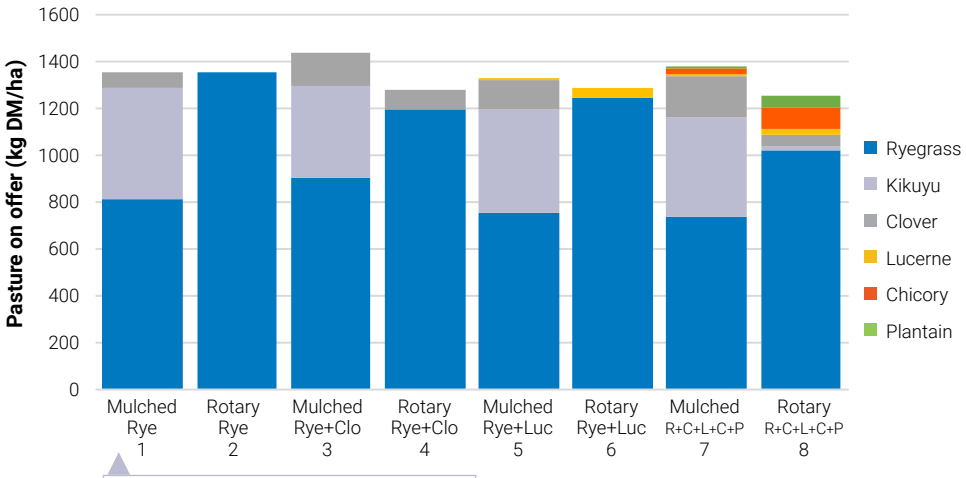

Figure 1. *Pasture on offer 21 June 2018*

We will follow the forage quality and compositional changes of these pastures across the spring and summer periods. Further updates with results will be provided in the near future. This project is an initiative of the Subtropical Dairy Sunshine Coast Regional Group, with support from DAFQ.