

Kikuyu pastures: the quality and quantity

Background

Kikuyu is proving it has an important role to play in some of the farming systems on Kangaroo Island. It is a tough, hardy perennial that can, unlike many other perennials, withstand heavy grazing and set stocking. It is a summer active grass, meaning it can provide green forage for livestock at a time when other pastures are of low quality and, being winter dormant, it allows annual companion species such as sub clover to grow well in the winter months. Its dense turf-like growth provides excellent soil cover during summer reducing erosion risk and, due to its high water usage; it can reduce salinity impacts too.

It also tolerates waterlogging and is relatively drought tolerant. Freshly grazed kikuyu leaves can exceed 70% digestibility, metabolisable energy of around 10 Mg/ha dry matter (DM) and crude protein of between 10 to 20%. Additionally, it is one of the few perennial species suited to acidic infertile sands.

What was done

In Sept 2010 three sites on Kangaroo Island were selected (John and Jo Symons, Hundred of Duncan, Ian and Virginia Green, Hundred of Menzies, and Terry and Ros Howard, Hundred of Dudley) to compare an existing kikuyu stand to an adjacent paddock of annual pasture. All paddocks were run according to the farmers' normal farming practices. At each site both paddocks have been measured for dry matter production (using a falling plate meter) and feed quality (feed test) on a monthly basis since September 2010. In addition, grazing pressures (DSE/ha) were recorded on Greens and Howards.

Results

Differences in pasture growth rates

At Symons and Greens properties pasture cages were used to quantify the amount of pasture grown each month. On Howards a different monitoring technique was used, pastures were measured using the Falling Plate Meter and so results are expressed in kg/ha. Figure 1 and 2 below show the changes in amounts of feed grown over time.

Due to the early start in 2011 the annual pastures performed quite well often out producing the adjacent kikuyu paddocks at Symons and Greens. From about April 2011 onwards the kikuyu paddocks either out produced or produced the same amount of feed as the annual paddocks. At Howards the kikuyu pasture outperformed the annual pasture at all times except for a period in Spring. These results are surprising as traditionally it was thought that kikuyu paddocks produced less feed than annuals during the winter months, although all kikuyu stands had very good clover coverage during winter. Suggesting that they may be no winter feed loss as long as kikuyu paddocks are well managed to ensure a good clover stand during winter/early spring.

FIGURE 1: Pasture Growth Rates (PGR) kg/ha/day for Symons and Greens kikuyu and annual pastures

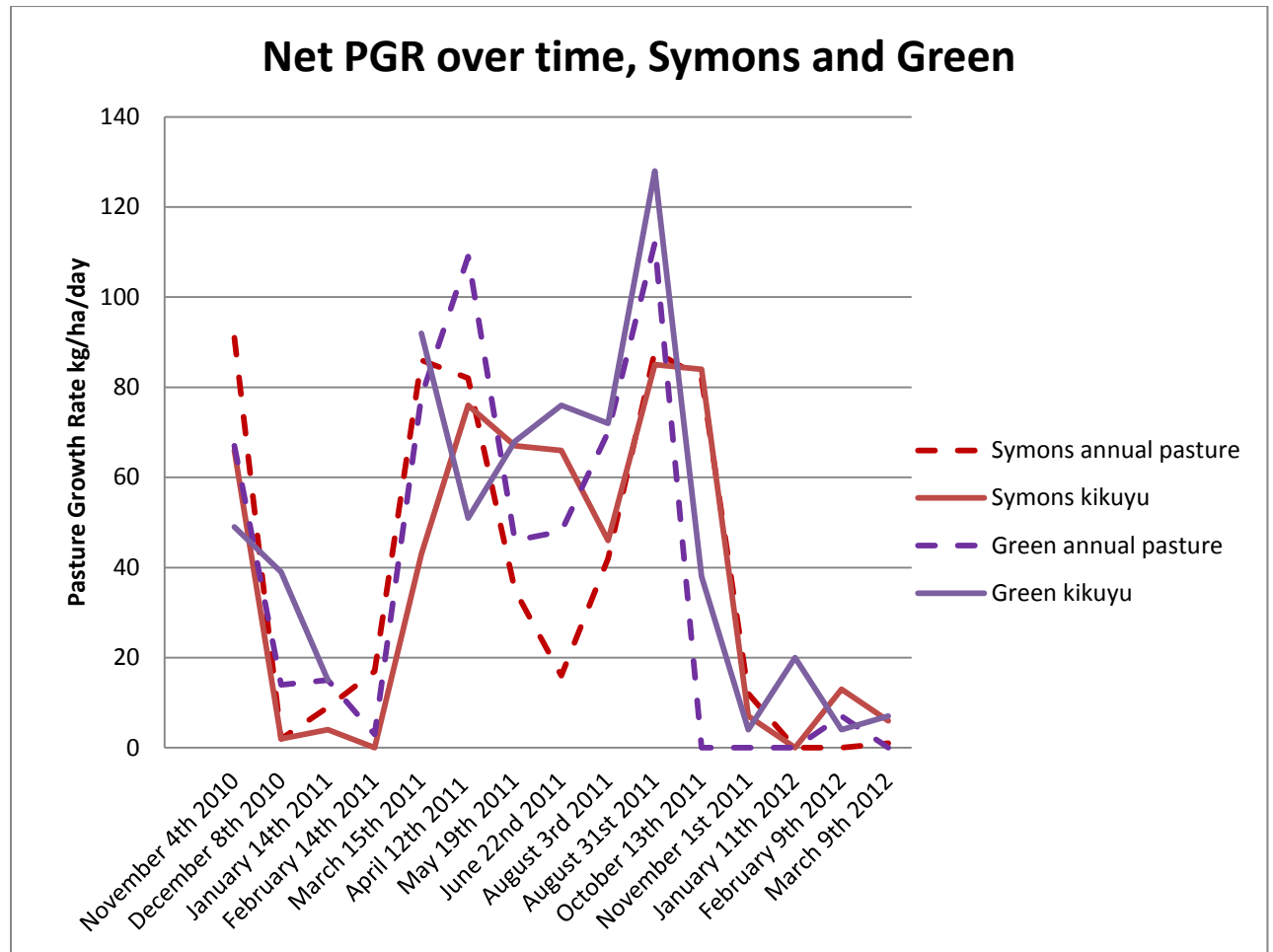
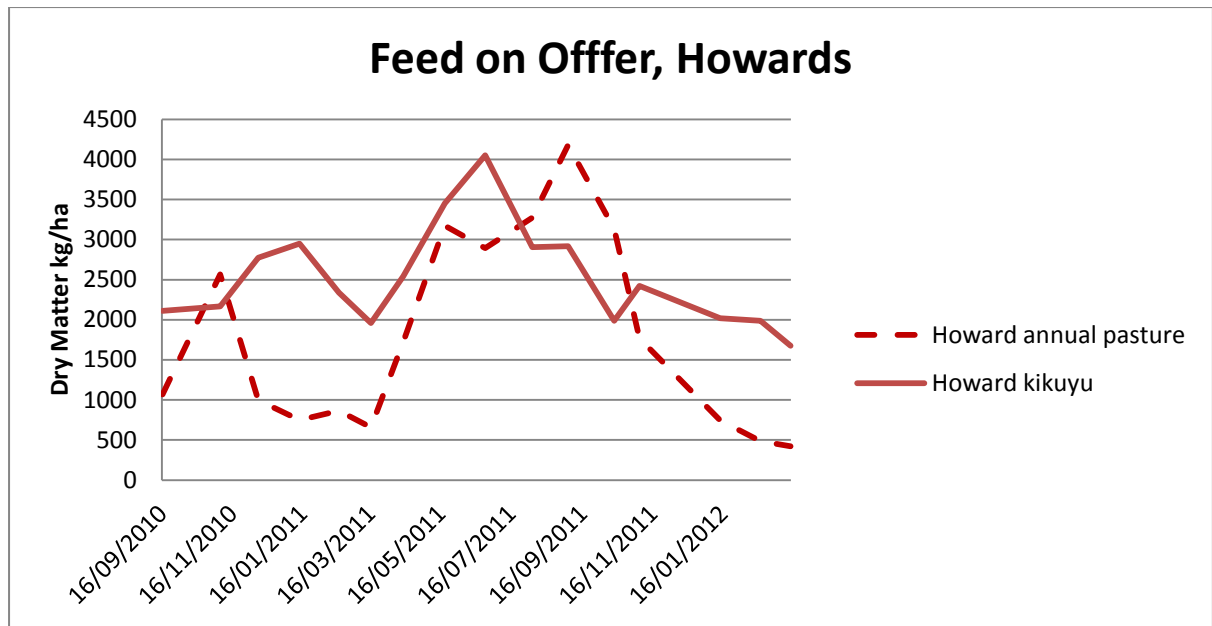


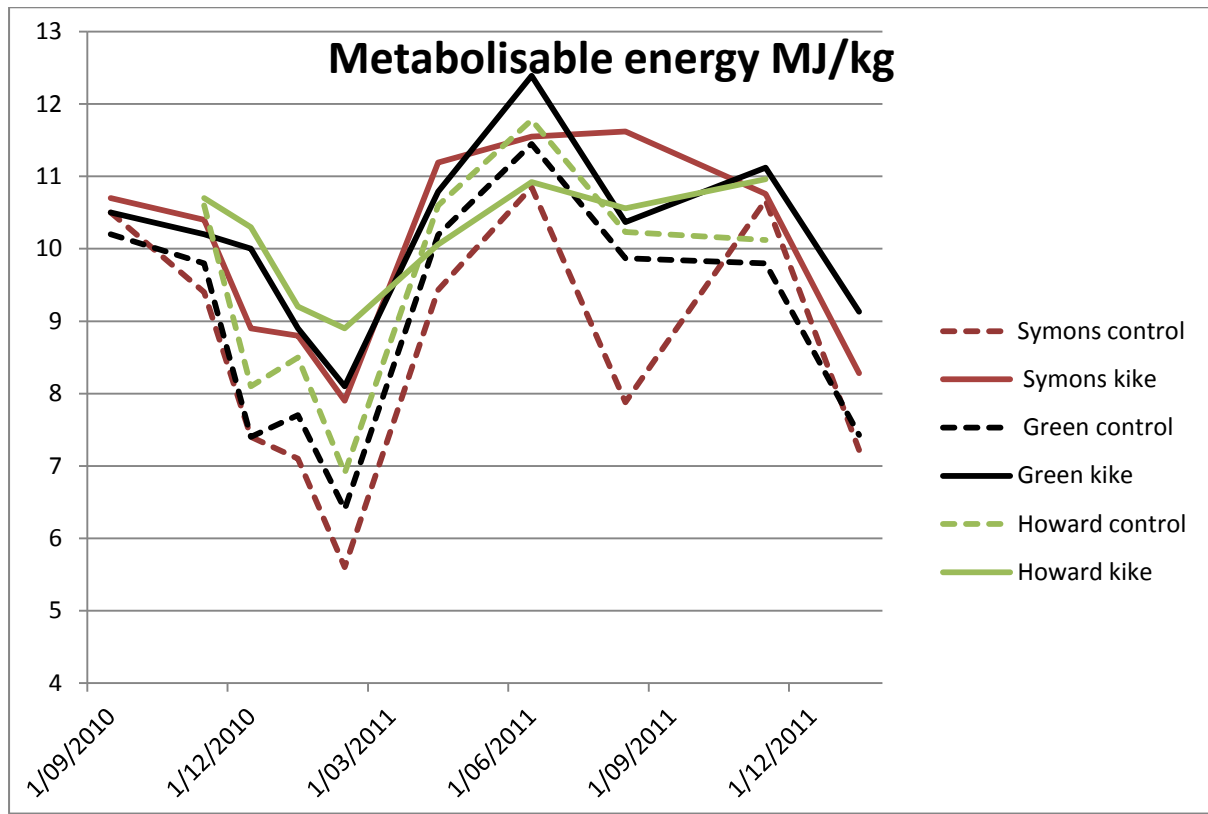
FIGURE 2: Feed on Offer (kg/ha) at Howards



Feed Quality

For nearly all the feed values for the four key determinants (crude protein, metabolisable energy, neutral detergent fibre and relative feed value) the kikuyu paddock out-performed the adjacent annual pasture paddock.

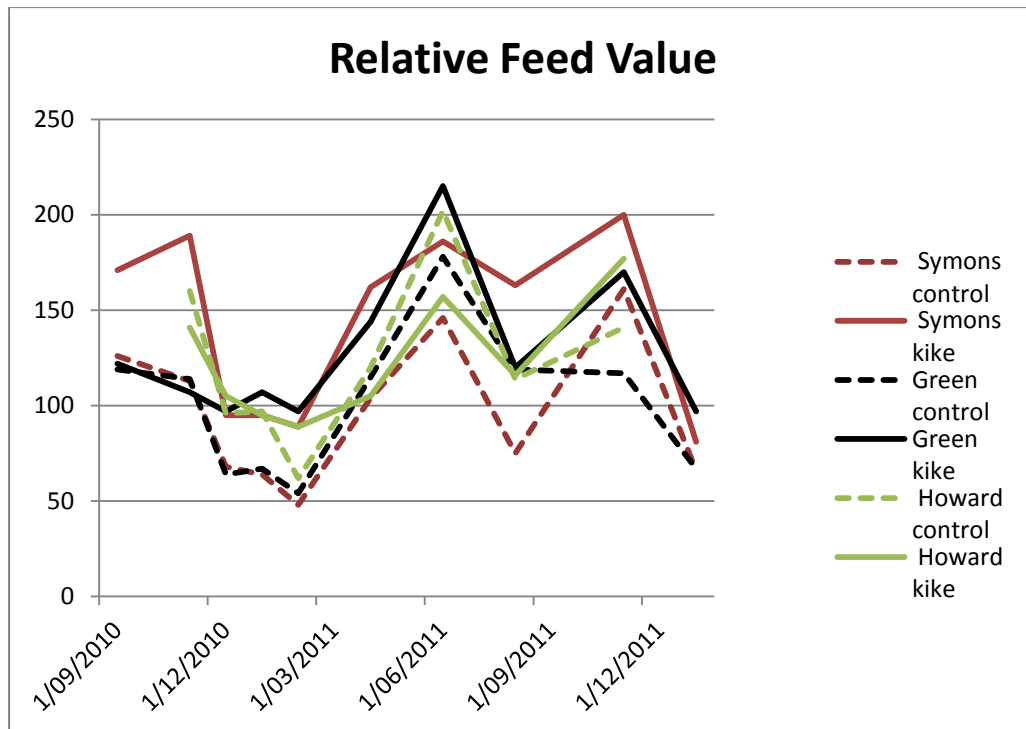
FIGURE 3 Changes in metabolisable energy over time



The ideal range for lactating livestock is greater than 12 and greater than 8 for dry stock. All pastures decreased in value over the summer months and increased over winter. During both summers all the annual pastures were less than ideal for all stock types whilst the kikuyu remained suitable for dry stock.

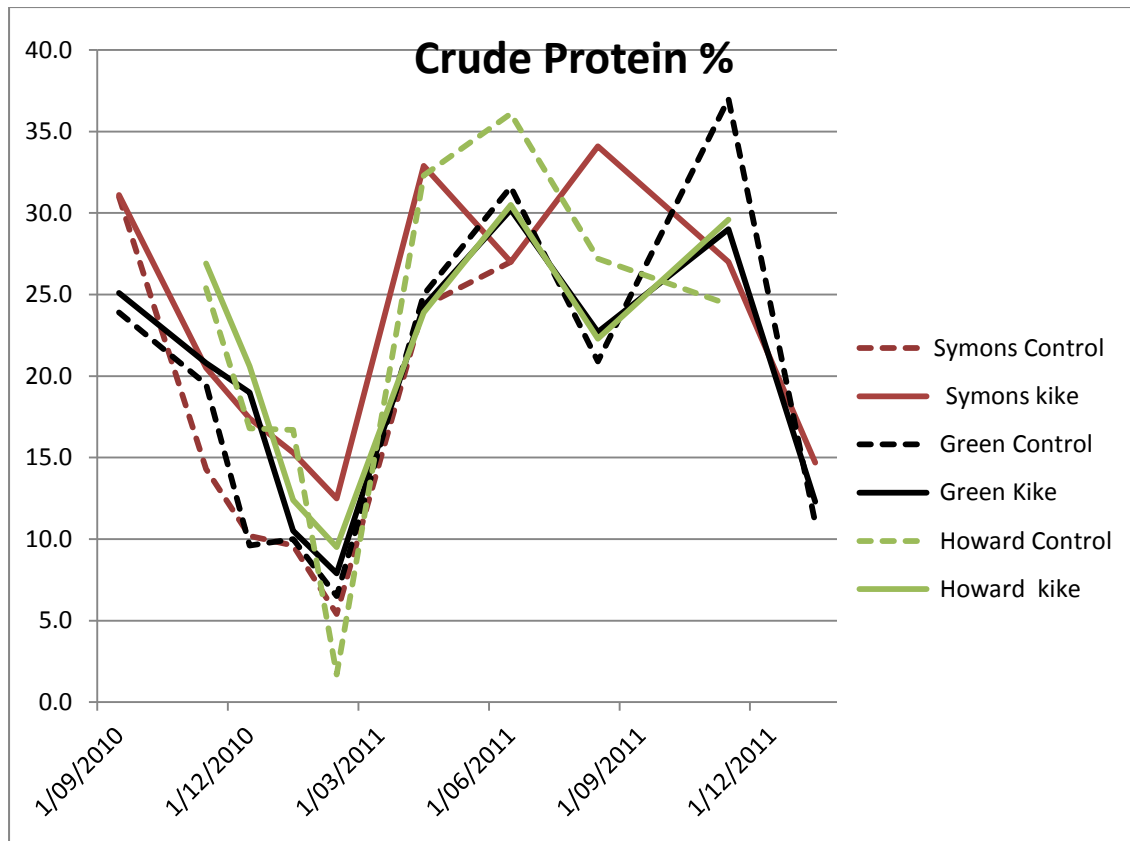
The fibre % for the annual pastures increased over time, as would be expected as the feed dried off. The kikuyu also increased but at a lesser rate.

FIGURE 4 Changes in relative feed value



100 is considered average for all stock types for relative feed value. Again all pastures decreased in value over the summer months and improved during the winter/spring period. For Symons and Green's the kikuyu paddock had a higher feed value than the adjacent annual pasture throughout the entire year. At Howards the annual pasture had a higher feed value during April/June 2011.

FIGURE 5 Changes in crude protein value



Again, similar trend lines with all pastures decreasing in quality over the summer months and improving during winter. Ideal figures are 16-18 for lactating cattle, 16 for lactating sheep and 8 for dry stock.

Results were variable with Symons kikuyu pasture outperforming the annual pasture at all times. Greens kikuyu pasture was higher or the same crude protein reading for all months except Nov 2011. Howard's kikuyu was lower than the annual pasture during the winter period.

The suggested "ideal" levels are extracted from "Nutrient Requirements of Domesticated Ruminants" published by CSIRO 2007, a Dairy SA factsheet on mineral supplements prepared by Dr Geoff Judson September 2003, and information from the Feed Test Laboratory at Hamilton.

Grazing Pressure

The stock at Greens and Howard's are being managed by the owners under their normal grazing regime. Stock numbers are recorded and used to estimate an average stocking rate (Table 1).

TABLE 1 Stocking rates comparisons between the annual and kikuyu paddocks between October 2010 and March 2012

Property	Stocking rate (DSE/ha)
Howard kikuyu	13.5
Howard annual pasture	10.4
Green kikuyu	17.5
Green annual pasture	10.2

Both kikuyu paddocks ran more stock than the adjacent annual pasture paddocks. Not only did the kikuyu paddocks run more stock but they also had more ground cover through all seasons ie although they had a higher stocking rate the kikuyu paddocks were able to carry more stock without baring the paddocks out.

Take home messages

- Kikuyu paddocks grew more pasture than the annual paddocks for most months of the year.
- In terms of feed value, kikuyu outperformed the annual pastures for nearly all criteria over the 18 month monitoring period.
- Kikuyu paddocks were able to sustain a higher stocking rate than the annual paddocks

Funding/sponsors;

- GRDC Grain and Graze 2
- John and Jo Symons
- Ian and Virginia Green
- Terry and Ros Howard

For further information contact

Lyn Dohle, Rural Solutions SA,
Kingscote, on 8553 4999 or email
lyn.dohle@sa.gov.au