

ADAPTING TO A CHANGING CLIMATE: CASE STUDY 4

PASTURE RENOVATION AND KIKUYU MANAGEMENT
A Northland beef farm

THE FARM

- Bull beef finishing farm in Kawakawa, Northland.
- 730 hectares: 485 hectares in pasture, most of which is kikuyu dominant.
- Producing more than 350kg carcass weight per hectare – close to twice the Northland average.
- A mixture of rolling and steep hill country, with steeper areas planted in pines.

THE FAMILY

- Geff and Dinah Cookson.

KEY EFFECTS

- Increased risk of longer dry periods.
- Extreme rainfall events may be greater in intensity.
- The greatest reduction in rainfall is likely in winter and spring, increasing the risk of early drought.
- Annual temperature increases of about 1.0°C by mid-century and more than 2.0°C by 2100.
- Most warming is likely in summer.

Northland farmers Geff and Dinah Cookson have adapted their farming systems in response to the spread of kikuyu across the region, and developed innovative methods to manage this pasture species.

Kikuyu is an invasive, subtropical C4 pasture species, which has become a major component of Northland pasture. Being a drought tolerant grass, kikuyu dominates pasture species during the summer and autumn by creating a dense mat of stolons that effectively starves competitor pasture species of sunlight.

Despite the capacity for explosive growth during autumn, kikuyu growth is very sensitive to cool weather. This can result in severe feed deficits in winter and spring.

Like many farmers in Northland, Geff finds kikuyu management challenging, especially during a wet autumn when kikuyu growth is rampant.

Under projected climate change scenarios, kikuyu will have longer growing seasons and will be even more challenging. The number of farms with kikuyu is likely to increase as kikuyu spreads into southern regions, so more farmers will be looking for management advice.

WHY IS MANAGING KIKUYU A CHALLENGE?

MANAGING POOR QUALITY FEED IN AUTUMN

Kikuyu pasture quickly loses quality if not controlled by hard grazing or mechanical control, especially in autumn. Geff explains: "We work hard to avoid a mat of kikuyu building up and shading out clover and ryegrass seedlings. Keeping kikuyu short and leafy in late autumn through grazing pressure means sacrificing weight gain but it's cheaper than mulching."

MANAGING THE SEASONALITY OF KIKUYU PASTURE

Geff explains: "Kikuyu grows well in the summer and autumn, but it slows right down in the winter, which is when we need the grass. This can mean very low pasture growth rates in cooler winter and spring months. Keeping kikuyu pasture short in the autumn will encourage ryegrass to grow through kikuyu as the soil temperature drops in the winter."

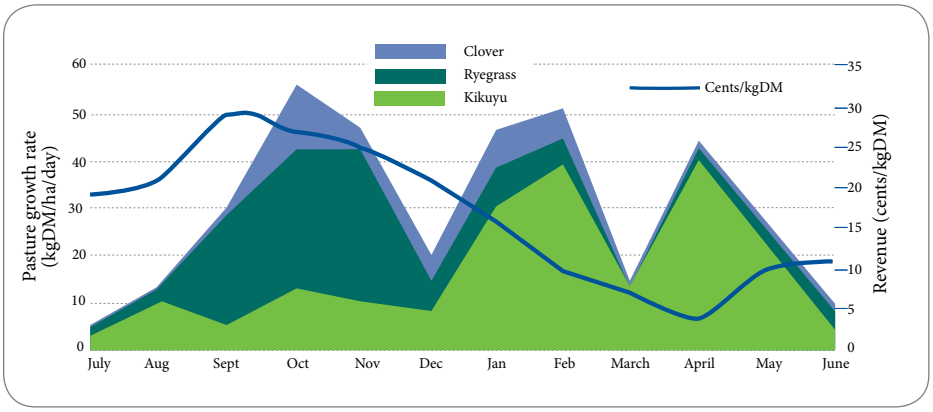
UNPREDICTABLE AUTUMN GROWTH

It is essential to keep kikuyu pasture under control in autumn, but matching animal demand to pasture growth is a real challenge. "Kikuyu comes away quickly when it rains," says Geff, "so we either need to have extra bulls on the farm through the summer, or we have to buy them in during the autumn". There is a fine balance between keeping enough stock on the farm to keep control of kikuyu and not overstocking during a dry summer.

Geff uses stock pressure, paddock subdivision and flexibility in stock marketing to control feed quality during autumn. Unfortunately falling schedules in autumn and a high stocking rate are not a profitable mix; "even when bulls are growing it's hard to make money through the autumn," he says.

The graph highlights the seasonal return from pasture (blue line) against a typical pasture growth profile for kikuyu. Returns are lowest when kikuyu growth is high in April and May.

PASTURE GROWTH AND RETURN BY MONTH



Key points

1. **Climate change will increase the prevalence of kikuyu in Northland.**
2. **Kikuyu pasture requires specialist management in all farming systems.**
3. **Controlling kikuyu in autumn is essential to ensure good winter and spring growth.**
4. **Stock pressure, paddock subdivision and flexibility in stock marketing are used to control feed quality during autumn.**
5. **Pasture renovation helps farmers focus stock pressure on kikuyu areas, increases pasture production during winter, and improves feed quality.**
6. **Low cost pasture renewal improves kikuyu management across the whole farm.**

HOW DOES PASTURE RENOVATION HELP?

Geff uses pasture renovation to complement his current kikuyu management; the plan is to grow pasture which has strong winter growth and retains quality through autumn. He explains: "Kikuyu pasture is sprayed out in early autumn and the paddock levelled to create a seedbed. The seed (a mixture of clover, herbs and ryegrass) is broadcast and lightly harrowed."

Because pasture renovation involves spraying of paddocks, animals are stocked at higher rates across the rest of the farm, which effectively increases the stocking rate on kikuyu paddocks. Renovated paddocks retain feed quality and don't need to be intensively grazed through autumn, which allows more stock pressure on kikuyu paddocks.

New pasture is more productive through winter and spring, which helps to offset low winter pasture growth rates on kikuyu. Pasture quality is also higher on renovated pasture, so bulls grow faster and reach target weights earlier.

IS IT COST EFFECTIVE?

Pasture renewal means Geff can manage kikuyu across the remainder of the farm more effectively. "Having part of the farm sprayed out or in quality pasture in the autumn makes pasture management much easier." Even a small amount of pasture renewal allows Geff to use his stock numbers to control kikuyu more effectively during autumn and lift productivity across the whole farm.

WHERE TO FROM HERE?

Geff plans to concentrate on more subdivision in the short term, but sees pasture renovation as a useful tool to manage kikuyu. "We don't expect to get rid of kikuyu, but if we can get 2–3 years out of the new grass, it's going to help us manage kikuyu better."

FOR MORE INFORMATION

- The Northland Kikuyu Action Group has carried out farm-based trial work on kikuyu management. The results are stored on Enterprise Northland's website: **www.enterprisenorthland.co.nz**
- Beef + lamb New Zealand publishes a range of resources including *Intensifying beef production to a small paddock/cell grazing system*, *Finishing Cattle in a tough environment*, and *Comparison of pasture quality of kikuyu dominated pasture with ryegrass*. These three publications are all available at **www.beeflambnz.com**
- The Sustainable Farming Fund supports rural communities to achieve sustainability. A range of publications including *Kikuyu Management Opportunities on Steep Land* are available at **www.maf.govt.nz**

THIS IS ONE IN A SERIES OF CASE STUDIES CALLED ADAPTING TO A CHANGING CLIMATE

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