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- Stories from the land -

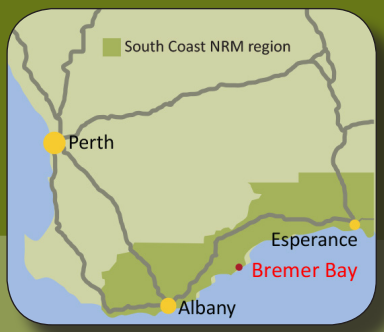
SOUTHCOAST NATURAL RESOURCE MANAGEMENT INC.

land

- CROPPING into KIKUYU -
HERBICIDE USE & REGROWTH of PASTURES

FARMER PROFILE

NAME: Ken and Jan Reddington, Paul and Alice Reddington
LOCATION: Bremer Bay, WA
AVERAGE ANNUAL RAINFALL: 520 mm
ENTERPRISE: 80 per cent livestock, 20 per cent cropping
PROPERTY SIZE: 2,000 ha
SOIL TYPE: Sandy duplex, non-wetting, South Coast sandplain



NUTS & BOLTS

- Rejuvenates kikuyu and improves sub-clover, kikuyu mixture
- A low cost, low input system
- Two applications of atrazine (pre & post emergent) in canola controls silver grass
- Two years of cropping, provides a cash and hay crop

The perennial pasture grass kikuyu is highly suited to some parts of the South Coast sandplain of WA, but even when well managed, the pastures gradually decline in productivity.

To look for solutions, South Coast NRM through the Climate Action Farming project, talked to two South Coast farmers who are rejuvenating their kikuyu pastures by cropping into them. Ken Reddington and son Paul crop canola followed by oats or triticale for hay on their Bremer Bay farm, while Adrian Anderson uses a standing lupin crop to fatten his prime lambs and add nitrogen to the following pasture phase on his Wellstead property.

The South Coast sandplain is at high risk of wind erosion. Kikuyu pastures, in areas with suitable rainfall, help stabilise sandy soils; provide out-of-season feed and fill the autumn feed gap. The kikuyu, sub-clover mixture in winter pastures provides high quality feed for sheep and cattle.

Although kikuyu is a good option for sandy soils, farmers have noticed reduced productivity due to thatching, decreasing amounts of sub-clover and increasing silver grass when kikuyu has been long established. One solution is to pasture crop.

The Reddingtons and Adrian Anderson have different cropping systems, but both found that after the cropping phase and provided there was spring and summer rainfall, kikuyu responded with good regrowth. Also, the sub-clover returns with winter rain and the silver grass disappears, providing much higher quality pasture.

THE REDDINGTONS' BREMER BAY CROPPING SYSTEM

Ken and Paul opened up the thatch in their 20-year old paddocks by working up the kikuyu mechanically. Noticing this caused the kikuyu to come back with greater vigour, Paul suggested cropping canola into the paddocks might be the answer to rejuvenating kikuyu, as its long taproot would help aerate the soil. Thinning out the kikuyu would also prevent it choking out the sub-clover. As a result over the past four years, they have cropped 75-150 ha/year into their kikuyu.

Ken and Paul's approach of cropping into perennials keeps the system low cost, low input. Under their current system they get a cash canola crop, followed by a hay crop. So far, they have been in front financially, because of the return on the crops and the improvement in the pasture phase.

Initially, the Reddingtons' tried one year of cropping and then let the kikuyu regrow, but found that two years of cropping thins out the kikuyu more effectively and is important in removing the silver grass. They now crop the first year with canola and follow with a hay crop of triticale or oats. The system has also assisted with controlling silver grass and geranium. Two years of cropping has been effective in controlling the silver grass, although 2,4-D has been used on geranium which grows in gaps between the kikuyu.

Kikuyu regrowth in harvested canola crop.

In future, Ken and Paul plan to crop each kikuyu paddock once every five years in rotation. They also see the advantage in keeping the system flexible and being able to respond to the season. In a good year they might put extra paddocks into crop. If the season is shaping up to be a dry one they will crop less and use fewer inputs.

HERBICIDES, KNOCKDOWN & the RE-ESTABLISHMENT of KIKUYU

Herbicide quantities used to suppress kikuyu depends on seasonal conditions. Ken and Paul generally complete a double knockdown with 540g/l glyphosate at 2l/ha, followed up with Sprayseed® (1.5 l/ha). With an early break the glyphosate is effective in suppressing all the kikuyu.

They have used atrazine at 2kg/ha post seeding to control silver grass in the canola crop, but in future will split the atrazine to two applications of 1kg/ha, one pre-emergent and one six weeks later for better control.

A disc coulter in front of a double disc V-shaped opener with press wheels behind cuts through the kikuyu and releases nitrogen bound up in the thatch. Seed is Triazine tolerant canola at 3.5-4 kg/ha and 100 kg/ha Agras at seeding, followed by one or two applications of up to 75 kg/ha NS31, depending on the season.

Alpha-cypermethrin at 400 ml/ha and 150 ml/ha of Le-mat is used to control mites in the canola and 80 kg/ha Agras in seeding the following cereal crop. Kikuyu regrowth after cropping has been good, particularly in seasons with more summer rain. When a single year of crop was trialled, the kikuyu came back too strongly to allow good sub-clover recruitment. The Reddingtons get good kikuyu regrowth even after two successive years of cropping because they average 25-30 per cent of their annual rainfall in summer. They can use a lower rate of glyphosate in the second year because there's less regeneration. Because of the region's variable climate, the Reddingtons recognise that flexibility in adapting to seasonal conditions is the key to cropping into perennials. Paul is keen to trial other perennials to complement the system and increase flexibility.

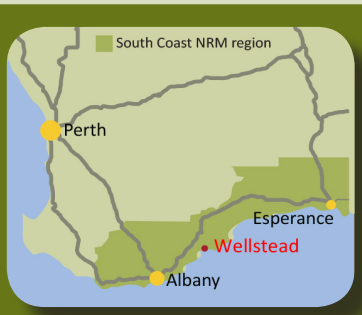
"After four years of cropping into kikuyu we're still feeling our way with the system because everything depends on the particular season," Paul said.

Herbicides used in the Reddingtons' system

- For canola, a double knockdown with 2l/ha of 540 gl glyphosate plus Sprayseed® at 1.5l/ha. One application of glyphosate is sufficient in early breaks.
- For the following cereal crop, 1.5l/ha of glyphosate.
- Atrazine at 2kg/ha for silver grass among canola. In the future this will be split into two applications, pre and post emergent.
- Two years of cropping controls silver grass and thins out kikuyu enough to allow good clover regeneration.
- 2,4-D to control geranium in kikuyu gaps as it regrows.

FARMER PROFILE

NAME: Adrian Anderson
LOCATION: Wellstead, WA
PROPERTY SIZE: 5,000 ha
AVERAGE ANNUAL RAINFALL: 550 mm
ENTERPRISE: Merino self-replacing, prime lambs (Wiltshire, Dorper, Van Rooy), beef cattle, sheep & cattle trading
SOIL TYPE: Sandy duplex, South Coast sandplain



NUTS & BOLTS

- System rejuvenates kikuyu, brings sub-clover back into the pasture, controls silver grass.
- Lupins provide extra nitrogen and quality feed for fattening prime lambs.
- Re-growth of kikuyu can be slow when spring and summer rainfall is low.

Wellstead farmer Adrian Anderson planted his kikuyu after the Reddingtons but also found his kikuyu pasture quality declined over time. He now crops into kikuyu to break up the thatch and rejuvenate the pasture, control silver grass and bring back clover, but in his case with lupins.

Adrian doesn't harvest lupins, but grazes them as a standing fodder crop to fatten prime lambs. Lupins provide extra nitrogen for the kikuyu and his rejuvenated kikuyu; clover pasture provides fattening quality feed for lambing in August. To achieve best results, Adrian sprays his declining kikuyu paddocks in late May with 1.5l glyphosate plus 1.1 kg simazine, ammonium sulphate, wetter, 400 ml cypermethrin and 100 ml omethoate/ha. He stresses the need to include cypermethrin to control wire worms and balaustium mite, as both of can devastate emerging lupins.

The lupins are sown in early June at 100 kg/ha using a disc drill with coulter discs and Baker Boots. He includes granula inoculant at 8 kg/ha and manganese sulphate at 20kg/ha. He found lupin seed needs to be placed under the kikuyu thatch or germination is poor. He also broadcasts Super Potash 4:1 at 200 kg/ha. He generally doesn't have to spray again unless there's a balaustium mite re-invasion. If there is a major germination of grasses he follows up with an application of Fusilade®.

FATTENING PRIME LAMBS

Adrian generally stocks his lupins at 20 lambs/ha for two months beginning mid-December. They fatten quickly, growing at around 2 kg/week. He's been able to stock the lupin paddocks for as long as five months, gradually reducing his stocking rate to 10 sheep/ha.

Kikuyu spring re-growth depends on rainfall. Adrian has found that as long as this is average or more, the kikuyu re-establishing under the lupin crop is up to 100 mm high and provides greater than 70 per cent groundcover.

However, during a dry spring, it can be too thin and subject to wind erosion in autumn. During the year following the lupin crop, the pasture has a higher proportion of clover, is silver grass free and has much higher animal production than the old kikuyu paddocks. The rejuvenated kikuyu persists in that state for several years.

Herbicides used in Adrian Anderson's system

- 1.5 l/ha glyphosate plus 1.1 kg/ha of simazine in tank mix with ammonium sulphate, spray adjuvant and cypermethrin for balaustium mite control.
- Follow up spray with grass selective herbicide if major germination of kikuyu, as it can regenerate densely during July.

CONCLUSION

The Reddington and Anderson enterprises have proven that cropping into kikuyu paddocks on the South Coast sandplain is an effective way of rejuvenating pastures. The regrowth of kikuyu after herbicide suppression is dependent on spring and summer rainfall.

With good rainfall kikuyu rapidly provides sufficient groundcover to prevent wind erosion in autumn. By the following winter, the pasture is highly productive. In locations or seasons with less late spring and summer rain there may be poorer regrowth after cropping and increased risk of wind erosion in autumn. A main problem of pasture cropping with canola or lupins on the South Coast is controlling balaustium mite which builds-up in large numbers in kikuyu pasture.

With one year of cropping, it's likely some kikuyu regeneration is from rhizomes and some from seed, but with two years of cropping, it's more likely most of the recruitment is from seed. Cropping into kikuyu gives farmers the ability to take advantage of unseasonal rainfall events, be opportunistic and grow a cash crop if conditions are favourable and make their farming systems more robust against future climate variability with the added bonus of rejuvenating old kikuyu pastures.

"After four years of cropping into kikuyu, we're still feeling our way with the system, because everything depends on the particular season."

– Paul Reddington, Bremer Bay, WA, 2014. –

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CONTACTS

For information on Carbon Action Farming, contact South Coast NRM carbon farming project officer Charlotte Powis: charlottep@southcoastnrm.com.au or 9845 8514.

FURTHER INFORMATION

Visit the Climate Action Farming program at: www.climateactionfarming.com.au. For information on agricultural trials in WA visit: www.agtrialsites.com.
A series of Climate Action Farming short films can be viewed on the South Coast NRM You Tube channel.

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