

Kikuyu is king on the south coast of WA



Kikuyu and subterranean clover

Kikuyu – the plant

Kikuyu is a creeping, subtropical perennial grass that forms a dense turf, is tolerant of continuous heavy grazing and is very persistent. Kikuyu grows rapidly in spring, summer and early autumn but is dormant in winter, at which time pasture production is driven by annual companion species such as subterranean clover or winter fodder crops.

Kikuyu has a deep root system (2–3 m where soil depth permits), is an efficient water-user and can dry out soils. It will tolerate waterlogging and is relatively drought tolerant. The growth habit of kikuyu helps protect the soil surface from erosion and stabilise soils likely to erode. Its creeping habit also displaces broadleaved weeds.

Mature kikuyu leaves are only about 65% digestible. Although sufficient for livestock maintenance and wool production, supplementation is required to grow livestock. Fresh, closely grazed kikuyu leaves can exceed 70% digestibility. Kikuyu is ideal to fill the autumn feed gap and reduce supplementary feeding requirements and/or allow increased stocking rates. For example, a kikuyu-sub clover pasture enabled stocking rates to be increased by more than 60% compared with a sub clover based annual pasture on the south coast of WA.

Rainfall and soil type

Kikuyu requires an annual rainfall of at least 500 mm with either summer rain or summer moist soils, although on the south coast of WA it is growing successfully with only 400 mm annual rainfall. While kikuyu has moderate frost tolerance it is not suited to areas with severe or prolonged frosts.

Actions summary

- ▶ ***Kikuyu can provide green feed for livestock in summer and autumn, and help reduce soil salinity and wind erosion on the south coast of WA***
- ▶ ***Kikuyu is a summer-active, deep-rooted subtropical perennial grass suited to sandy soils***
- ▶ ***Properly managed kikuyu pastures with companion species are highly profitable***
- ▶ ***Trials have recorded gross margins of \$231/ha for kikuyu based pastures versus \$79/ha for annual pastures***

Kikuyu is suited to a range of soil types and production systems (right)

Kikuyu is sown into a weed-free seedbed in spring (far right)

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Kikuyu grows on silt and clay dominant soils but spreads more rapidly on sandy soils, and in soils with a pH(CaCl₂) of 3.7 or greater. It is not suited to shallow or waterlogged-saline soils.

Kikuyu is one of only a few perennial pasture species suited to deep acidic infertile sands. These sands typically grow poor annual pastures with a high proportion of broadleaf weeds. When lower in the landscape, these soils often have significant summer moisture. If sown to kikuyu, they can support some of the best pastures on the property.

Kikuyu on farms

Kikuyu is ideal to maintain breeders or wethers in summer and autumn.

It is particularly suited to wool production at high stocking rates, as kikuyu based pastures provide an even plane of nutrition throughout the year thereby maintaining high staple strength and supporting high stocking rates. Sub clover is an essential companion species for this purpose. Kikuyu also provides excellent ground cover assisting to reduce dust in wool.

Many sheep and cattle farms on the south coast of WA have a number of kikuyu paddocks. If well managed with a strong legume component these pastures are as productive as annual pastures during the growing season. Kikuyu should be grazed hard in autumn to promote annual legumes.

Cultivars

Common kikuyu - a non-seeding type propagated by runners. It is narrow leaved and forms a dense stand.

Whittet (public variety) - the main variety sown in southern Australia. Compared with the common type, it is a comparatively taller variety characterised by broad leaves, thicker stems and longer internodes on the stolons. It persists well under low fertility conditions and is free seeding. Whittet is susceptible to 'kikuyu yellows' which is a fungal disease that occurs in subtropical areas.

Other public varieties such as Breakwell, Noonan and Crofts exist however they are not commercially available at the time of writing.

Establishment

Kikuyu seed is sown into a weed-free seedbed in spring. The optimum temperature for germination is 19–29°C but about 50% of the seed will germinate at 14°C. Autumn sowings normally fail due to poor germination or seedlings dying in winter due to cold temperatures and the inability to compete with fast growing annual species. In WA, kikuyu is normally sown at 1 kg/ha at a depth of 10 mm or less, resulting in 30–40 seedlings/m². However one of the advantages of kikuyu is that if only one plant per square metre is established, it will eventually spread over much of the paddock via runners.

In the year before sowing use a combination of hard grazing and herbicides to reduce annual grass species competition. Red-legged earth mite (RLEM) should also be controlled.

In the year of sowing, heavily graze the paddock to remove excess pasture growth, and then control remaining pasture with a knockdown herbicide 2–3 weeks before sowing. Red-legged earth mite control should also be applied if RLEM are present in sufficient numbers to damage seedlings. It is not common practice in WA to apply fertiliser at sowing as there is a release of mineralised nitrogen following the use of the knockdown herbicide, and the root systems of the new pasture are too immature to take up applied nutrient efficiently.

Companion species

Kikuyu is normally grown in conjunction with a temperate legume to provide nitrogen and winter feed. The most common companion in WA is sub clover although in years with a dry autumn it can struggle to establish. On deep duplex soils and deep sands kikuyu combines well with yellow serradella. On soils with substantial summer moisture it combines well with perennial legumes such as strawberry clover. If the paddock has a good legume



A mix of kikuyu and sub clover can provide year-round feed

history, then the regeneration following kikuyu establishment should be sufficient. However, if the paddock has a poor legume history, re-sow with sub clover in the following winter once kikuyu stops growing. Alternatively knock kikuyu back with a herbicide prior to sowing.

Fertiliser

Fertilise kikuyu pasture to provide adequate phosphorus and potassium for winter-active annual species.

Nitrogen fertilisers (applied at 40–50 kg N/ha as either 100 kg/ha of urea or 200 kg/ha of ammonium sulphate) may be applied after early rains to encourage extra autumn growth of kikuyu. Nitrogen can also be applied in spring and summer (ideally just prior to a rainfall event) to increase dry matter production. Defer grazing for several weeks after nitrogen application. A good annual legume component will fix large amounts of nitrogen reducing the need to apply nitrogen fertiliser.

Grazing management

Grazing management is very straight forward as kikuyu can be continuously grazed. However rotational grazing at high stocking rates in summer and autumn may be beneficial to maximise dry matter production when plant growth rates are low.

Newly sown kikuyu - graze once the runners are 20 cm or longer and have strong roots. Graze for a short period with high stocking rates, ie 100 DSE/ha. New stands should be monitored during grazing and stock removed if runners are being pulled out.

Autumn - just prior to the break of the growing season, graze kikuyu hard (down to 800–1000 kg DM/ha) to open up the sward to allow space for annual species to establish.

After the autumn break, maintain kikuyu based pastures at 800–1400 kg DM/ha by grazing with high stocking rates – grazing from 2 cm for a dense ‘turf-like’ pasture to 5 cm for a more upright pasture.

This will maximise pasture quality and allow light penetration for good establishment of annual clover and winter-active annual grasses.

Winter - maintain kikuyu based pasture at 1400–3000 kg DM/ha. Grazing pressure will need to be 30–50% higher than that imposed on annual pastures. Manage pastures to encourage annual pasture species. Aim to have greater than 60% clover and annual grasses in the pasture. This will provide sufficient winter feed for stock, as kikuyu virtually stops growing during colder months.

Spring - keep pastures to 1000–1400 kg DM/ha (around 2–5 cm depending on density). In late spring and early summer, apply higher stocking rates to prevent rank material accumulating. Do not let kikuyu ever exceed 3000 kg DM/ha.

Summer - apply high stocking rates to graze to 800 kg DM/ha (around 1 cm or less). This maintains pasture quality and minimises the build-up of rank material that inhibits germination of winter-active annual pastures in autumn. As summer rain will stimulate kikuyu growth, increase grazing intensity after each rainfall event to keep pasture below 3000 kg DM/ha.

Management tips

- Kikuyu pastures are most productive at 1000–1400 kg green DM/ha.
- Kikuyu pastures provide valuable autumn deferment areas while annual pastures establish.
- Kikuyu pastures can be cut for silage in spring.
- Once established, kikuyu tolerates long dry spells, however under severe drought defer grazing in summer.
- Kikuyu can be ‘cropped into’ with a winter crop such as lupins, canola or cereals.
- Red-legged earth mite can severely reduce clover production in kikuyu pastures – spray with insecticide after the first cold spell in autumn if control was not achieved in the previous spring.
- Kikuyu is relatively low in metabolisable energy (ME) – maintain minimum 60% annual clover and grasses.

Wayne Smith's daughter plays hide and seek in a lush kikuyu pasture in June 2006 (right)

Kikuyu advances via cow dung (far right)

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Animal health

Although kikuyu poisoning is rare in WA, sporadic outbreaks in cattle and sheep have been reported in Australia, New Zealand and South Africa. Poisoning has occurred with the grazing of rapid autumn growth of kikuyu that has been initiated by rain following a protracted summer drought. Symptoms include inappetence, rumen distension, dehydration, staggering and collapse.

Kikuyu experiences

Wayne Smith, Marbellup

Carrying capacity on the Smith's farm has doubled thanks to kikuyu. Kikuyu is fertilised often, and ryegrass and other seeds are often added to the fertiliser. The system works very well as kikuyu slows down in late May just as the winter grasses and clovers take over. Around the start of November kikuyu cranks up rapidly underneath. Wayne believes this to be a near perfect pasture system. The pastures are rotationally grazed.

Phil & Nicole Chalmer, Condingup

Planting perennials including kikuyu, Rhodes grass and tagasaste has resulted in dramatic increases in production and profit on Phil and Nicole Chalmer's property. Phil and Nicole sowed small patches of

kikuyu soon after they arrived. It is now spreading rapidly around the farm especially by cattle, as the ingested seeds germinate in the cow dung. The weed free dung pads provide an ideal environment for kikuyu seedlings.

Rob West, Dalyup River

Rob West increased the carrying capacity on 400 ha of his worst performing deep sands from 1 DSE/ha to over 6 DSE/ha in just three years – thanks to the Evergreen Mix® of subtropical perennials, serradella, tall wheatgrass and kikuyu. The quality green pick over summer keeps weaners and young sheep healthy and growing. Sheep are rotationally grazed through a number of paddocks, with 3–4 week spells.

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Further information

Perennial pastures for Western Australia. Western Australian Department of Agriculture and Food, Bulletin 4690

Grower testimonials and photos sourced from Evergreen Farming and Agronomic Acumen (Wayne Smith)

EverGraze on line: www.evergraze.com.au

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