

Growing kikuyu for summer feed and soil cover



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.

Kikuyu has a deep root system (2–3 m), 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 that are 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. On the south coast of WA kikuyu grows 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

- ▶ **Summer-active perennials provide forage for livestock over summer and autumn when other pastures are of low quality**
- ▶ **Green forage over summer also uses soil water and so helps to reduce soil salinity**
- ▶ **Kikuyu is a summer-active, deep-rooted subtropical perennial grass that is suitable for sandy soils**
- ▶ **This fact sheet provides information on establishment, management and use of kikuyu in the temperate zone of southern Australia under rain fed conditions**

Kikuyu growing on heavy clay flats at Hamilton, Victoria (right)

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

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Kikuyu can be grown on a wide range of soil types including deep sands. It will grow on fine textured soils but spreads more rapidly on coarse textured soils. It is not suited to shallow soils and waterlogged-saline soils. It can be grown on soils with a pH(CaCl₂) of 3.7 or higher.

Kikuyu is one of only a few perennial species that is suited to deep acidic infertile sands. On these soils, kikuyu will provide substantial increases in pasture performance compared with unproductive weedy clover pastures.

Kikuyu on farms

Kikuyu is an ideal pasture to provide a maintenance diet for stock when there is a feed deficit in summer and autumn.

Kikuyu for wool production

Kikuyu is particularly suited to wool production at high stocking rates both in trials and on farms. It provides an even plane of nutrition throughout the year, thereby maintaining high staple strength, and tolerates grazing at high stocking rates. Sub clover is an essential companion species for this purpose. The excellent ground cover provided by kikuyu reduces dust in fleeces, improving the value of wool clips.

General purpose pasture

Many sheep and cattle farms on the south coast of WA have a number of kikuyu paddocks for general purpose pasture. If well managed with a strong legume component these pastures are as productive as annual pastures during the growing season, with the added benefit of providing green feed in summer and autumn.

Cultivar selection

Whittet (public variety) – the main variety sown in southern Australia. Compared with the common type of kikuyu, 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.

Noonan (public variety) – developed from Whittet and Breakwell for tolerance to 'kikuyu yellows'. Will set seed without the regular cutting required to simulate seed production in other cultivars.

A few other cultivars are available – seek advice on the most appropriate cultivar for your situation from agronomists, resellers, researchers or consultants.

Establishment

Spring sowing is best for kikuyu. The optimum temperature for germination is 19–29°C but about 50% of seed will germinate at 14°C. Autumn sowings normally fail due to poor germination, or seedlings dying in winter due to cold temperatures or being unable to compete with fast growing annual species. Sow kikuyu at 1 kg/ha at a depth of 10 mm or less to obtain 30–40 seedlings/m². However even if only one plant per square metre establishes, it will eventually spread over much of the paddock via runners.

Kikuyu must be sown into a weed free seedbed. Competition by annual species, particularly grasses, is a common cause of establishment failure. In the year before sowing use a combination of hard grazing and herbicides to reduce annual grass populations. 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.

There is no need to apply fertiliser at sowing as mineralised nitrogen is released following the use of knockdown herbicide and the root systems of the new pasture are too immature to take up applied nutrient efficiently.



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

Companion species

Kikuyu is normally grown in conjunction with a temperate legume which provides nitrogen and winter pasture growth. When sowing kikuyu, choose paddocks with a good sub clover history – the larger the sub clover seed bank the more feed produced in winter when kikuyu is dormant. On deep duplex soils and deep sands, kikuyu combines well with yellow serradella. On soils with substantial summer moisture kikuyu combines with perennial legumes like strawberry clover or possibly greater lotus. If the paddock has a good legume history, then regeneration following kikuyu establishment should be sufficient. However, if the paddock has a poor legume history, re-sow with legume in the following winter once kikuyu stops growing. Alternatively, slow the growth of kikuyu with herbicide, prior to sowing the legume.

An option to bulk up winter feed is to sow annual ryegrass into kikuyu stands in late autumn–early winter.

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 (a 2–3 week spell between 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 (down to 800–1000 kg DM/ha) to open up the sward to allow space for annual species to establish.

After the autumn break it is essential to maintain kikuyu based pastures at 800–1400 kg DM/ha by grazing pastures 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 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.

A child playing hide and seek in lush kikuyu pasture in WA (right)

Kikuyu advances via cow dung (far right)

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Management tips

- Kikuyu pastures are most productive when kept at 1000–1400 kg green DM/ha (around 2–5 cm, depending on pasture density).
- Kikuyu pastures provide a valuable grazing area in autumn, enabling other pastures on the farm to recover after the season breaks.
- Kikuyu based pastures provide an ideal area for full feeding of sheep in late summer–autumn as they will recover quickly after the break.
- Red-legged earth mite can severely reduce sub 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 pastures can be cut for silage in spring if clover and annual grass content is high.
- Once established, kikuyu tolerates long dry spells. Under severe drought, defer grazing in summer, particularly if stock start to pull up kikuyu runners.
- Kikuyu can be cropped into with lupins, canola or cereals.

Animal health

Although kikuyu poisoning is rare, sporadic outbreaks in cattle and sheep have been reported in Australia, New Zealand and South Africa. Poisoning has occurred with the grazing of lush autumn growth of kikuyu that has been initiated by rain following a protracted summer drought. Symptoms include depression, loss of appetite, rumen distension, dehydration, staggering and collapse. If symptoms occur, remove stock from kikuyu pasture immediately.

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Further information

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

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For further details of EverGraze and to find out about activities in your area go to <www.evergraze.com.au> or write to Geoffrey Saul, National EverGraze Coordinator, 98 Leura Lane, Hamilton, VIC 3300.

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