Characteristics & applications

• A robust, long-lived, summer-active perennial producing dense, upright foliage.

• Characterised by seed heads of unique form and russet colour on erect stems ~40-150 cm tall.

• A tussock grass with roots to more than 100 cm depth.

• Occurs across Australia from the arid inland to the Alps, though now not as common as it was once.

• As observed soon after European settlement, ‘...in paddocks that are heavily stocked all the year round, it will gradually become scarce.’

• Highly palatable to stock and kangaroos (crude protein 13.5 % DM /digestibility 61.3 % DM).

• Exhibits high tolerance to drought.

• Persists well on sites where soil fertility and surface moisture are low.

• Often found regenerating on exposed, north-facing aspects.

• The cool winters of southern Australia induce semi-dormancy in this summer-active grass, resulting in an accumulation of dry thatch.

• If not removed, accumulated thatch can give rise to a significant bank (8 t/ha) of very flammable material.

• Mowing, heavy short-term grazing or spring/summer burning results in a summer-persistent green sward. Kangaroo grass then becomes a fire-risk reduction ‘tool’.

• Where present as a substantial component of a native grassland community, it makes a significant contribution to the ecological equilibrium. For example, as a deep-rooted, summer-active perennial, it helps maintain a low water table and thereby contributes to controlling dryland salinity.

• Exhibits variations in summer leaf and stem colour within stands, and with the onset of cold weather the foliage takes on a dramatic purple tinge. These seasonal variations in colour have led to its use in the landscape and amenity industries.
Seed & propagation

- Kangaroo grass can be propagated from seed, providing seed is not dormant and soil temperatures are warm.

- Kangaroo grass is not a heavy bearer of seed, and not all seeds in a head may mature to germination.

- Seed heads can be put up anytime in the warmer months, and even in warmer winters, but seed ripens annually December to January. Ripening is controlled by temperature and available soil moisture and is not uniformly timed within a seed head. Several weeks can lapse between the first seed maturing and the last.

- Seed maturity is indicated by a dark, almost black, twisting awn attached to a well-filled dark brown seed that readily falls from the head. The seed should be hard when pinched between thumbnail and forefinger.

- Kangaroo grass seed is largely dormant when first shed, although dormancy rates vary between different populations. As a rule-of-thumb, fresh seed gives ~ 30% germination, 9-month old seed ~ 60% and 17-month old seed ~ 80%. In nature, this prevents germination during unfavourable conditions.

- Kangaroo grass can be established by direct seeding, by tubestock or from seed-bearing hay.

- Propagation by subdivision is possible but not practical for more than a few plants.

- Seed is available in various forms – as floret seed (straight from the harvester), and as cleaned seed with or without awns. Unless you collect your seed yourself, insist on a certificate of purity and germination. Weed seeds should be less than 0.1% and seed viability should be greater than 40-50%.

- Readiness to germinate can be tested by planting about 30 seeds in sterile potting mix kept at about 25 °C. A plus is that you will recognise your seedlings in the field and not mistake them for weeds!

Site selection and weeds, weeds, weeds

- In southern Australia, where warmth and moisture coincide for only a short season, north-facing aspects are best at absorbing solar warmth while the soil is still moist in spring.

- Site selection is also about weeds and their control or avoidance. Maintenance after germination is directly related to the quality of a site and/or preparation.

- Exotic perennial summer-growing grasses such as paspalum (Paspalum dilatatum), couch (Cynodon dactylon) and kikuyu (Pennisetum clandestinum) are very difficult to remove selectively and should be avoided or eradicated before establishing kangaroo grass.

- Kangaroo grass does well on rich soils, but so do the weeds, annual and perennial. Success in establishment will depend on the avoidance or removal of soil nutrients (N and P) or acceptance that weed control will be a big part of establishment.

Establishment by direct seeding

- Broadcasting awned seed can give good results provided the weed seed bank has been depleted and the ground roughened. Seed can also be spread with hydroseed mixes or compost.

- Mechanical seeding of cleaned seed into a well-prepared seedbed gives accurate placement and allows for easier weed management.

Establishment from seed-bearing hay

- Seed is harvested in the head with the whole stem, as for hay. The hay is immediately spread over the establishment site and, the following spring, is burnt with any winter growth.

- When seed is harvested as hay, harvesting is timed for the optimum number of mature seeds in the head. This is usually earlier rather than later in the ripening period and is indicated by the presence of very dark, twisted awns.
• The seed awns, which twist and untwist with the day/night changes in humidity, will dislodge the seed from the heads and lodge it in a crevice of the drying soil.

• No further action is required until the next spring. Weeds that flourish with the opening rains in autumn serve a useful purpose in inhibiting germination of the seed prior to kangaroo grass becoming dormant.

• In late winter/early spring, herbicide is applied at a rate sufficient to kill all weed growth that may be present.

• Three to four weeks later, when weed growth has dried, it is burnt to expose a bare, moist, undisturbed soil.

• Providing the aspect is suitable and there is sufficient moisture in the soil, a rise in soil temperature (to approx 25 °C) will trigger germination in 7-14 days.

• Where fire cannot be used, the necessary bare ground is achieved by applying herbicide earlier (early August), when the fibre content of the ground cover is low.

Establishment from tube stock

• Kangaroo grass germinates readily in tubes when daytime temperatures are 25-35 °C. Seed should be inserted in the mix to the depth of the seed with awn vertical and kept moist.

• Seedlings are planted out at 6-12 weeks and while daytime temperatures can be expected to be over 25 °C for at least another four weeks.

• If necessary, planting can be delayed by cutting the plants back.

• In dry years, some watering may be needed in the first year or two of establishment.

• Culms can be harvested by hand sickle or brushcutter and should be taken immediately to the revegetation site where they are spread evenly over the ground.

• The culms cut from a square metre of a dense stand of kangaroo grass are usually sufficient to seed an equivalent area and produce 5-10 plants per metre².
**KANGAROO GRASS  *Themeda triandra*  

**Post germination**

- The most critical period for the young plants will be in August/September of the following year when the next crop of winter grasses and broad-leaf weeds will have over-shaded the native grass. Mowing or an application of herbicide at this time will help keep the canopy open.

- Because kangaroo grass becomes semi-dormant with the onset of cold weather, any chemical weed treatments planned for winter should be approached with caution. Different selections of kangaroo grass can differ in their sensitivity to different chemicals.

- Sward maintenance such as burning and mowing are best carried out at the beginning of the growth season.

- Be patient! Native grass seedlings may seem to make slow growth in their first few seasons. This is because most of their resources are going to development of the root system that enables them to survive the summer. Fertilizer, while it may stimulate kangaroo grass, will definitely stimulate exotic weed growth and competition.

- If the young plants are protected from grazing by domestic or native stock for at least 12 months (preferably 24), they are very robust for the longer term.

- While over-grazing is responsible for significant losses of kangaroo grass across southern Australia, judicious burning, grazing or mowing annually in the growing season will stimulate plant growth and assist in maintenance of a healthy sward.

**Lessons past and present**

- Early government botanists in NSW, Joseph Maiden (1889) and Fred Turner (1895), both noted the value of kangaroo grass pasture for working horses and oxen.

- Horse health problems such as obesity, insulin resistance and equine laminitis can be alleviated by the introduction of kangaroo grass and other native grasses. Why? Australian native grasses are low in the problematic carbohydrates – sugar, starch and fructans – while introduced grasses are not.5

**Please note:** When sourcing propagation material remember that native grasslands and grassy woodlands are protected by legislation under the *Native Vegetation Act 1991*.

**For further information**


**References:**


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