

Welcome to the NGRG's native grass propagation page

Collecting and growing native grasses from seed has valuable environmental, educational and community benefits—and can be satisfying and fun. These propagation notes can help you grow your own tubestock—from seed collection to planting out.

Learn as much as you can about the native grasses in your area and, if possible, collect seed from those grasses for use in your revegetation projects. Different native grasses flower and set seed at different times of the year. Most States have regulations on the collection of native seed (e.g. *Native Vegetation Act 1991* in South Australia).

Cool season and warm season grasses

Choose grasses that suit your situation and climate, and propagate them accordingly. Grasses can be cool season or warm season plants, and they can be perennial or annual.

The period of active growth depends largely on whether the species is a cool season (C₃) or warm season (C₄) grass. These grasses differ in the way they use carbon dioxide. Cool season grasses (e.g. *Austrodanthonia*, *Austrostipa* and *Poa* spp.) photosynthesise more effectively, and thus are most actively growing, during the cooler periods of winter and spring (15–25°C). Warm season grasses, or summer grasses, photosynthesise best with full light saturation and consequently their period of most active growth is late spring and summer (25–40°C). The summer-growing bluegrass (*Dichanthium sericeum*) and kangaroo grass (*Themeda triandra*) are C₄ grasses. (Description from Brown, K and Brooks, K. 2002. Bushland weeds: A practical guide to their management. Environmental Weeds Action Network (WA).)

Seed of cool season grasses is best sown in autumn and seed of warm season grasses can be planted from spring to early summer (see table for species preferences).

Dormancy

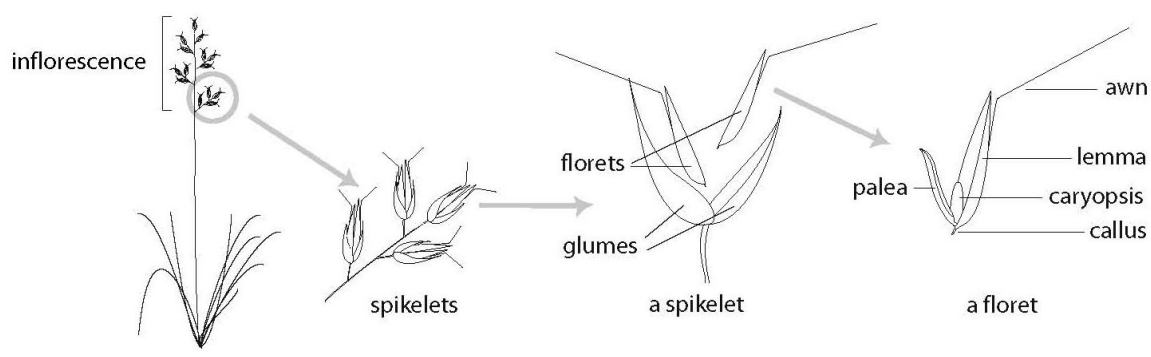
Many native grasses have a dormancy or 'after-ripening' period. Seeds may look mature, and may have dropped from the plant, but 'ripen' only after 3–12 months, depending on the species. This period delays germination until conditions or the season are suitable.

Grass seed

Grass seeds are produced one per flower. The flowers, called florets, are arranged in spikelets, which make up the inflorescence or flower head. What is often referred to as 'seed' is actually the floret with the true seed or caryopsis enclosed.

It can be difficult to separate the caryopsis from the floret, so seed that you collect, and most seed that you buy, will be intact 'fluffy' or 'chaffy' seed. The awns and hairs on the floret can aid germination: the twisted awns of *Austrostipa* spp. and *Themeda* 'drill' the seed into the soil, while the hairs on *Austrodanthonia* seeds are thought to retain moisture during germination.

Store collected seed in paper (NOT plastic) bags in a cool, dark place with a small amount of magnesite in each bag to smother insects and other pests.



Health and safety

Potting mixes can harbour *Legionella* bacteria (*L. longbeachae* and *L. pneumophila*) which cause the potentially fatal respiratory illness, Legionnaire's Disease.

Protect yourself from possible *Legionella* infection by:

- using damp propagation mix (breathing in 'dusty' mix is dangerous)
- wearing a particulate mask and gloves when handling potting mix
- always washing hands after handling seeds and potting mix, and
- not eating or smoking while handling potting mix.

How to grow some native grass species

In general, scatter fine seed over the surface of the soil or potting mix. Cover larger seed with a thin layer (about the same depth as the depth of the seed) of fine mix. After covering seed with potting mix and/or gravel, gently water to settle the gravel and potting mix, and to ensure good contact between seed and potting mix. Cover the tubes with a piece of shadecloth and place in a bright, shaded position.

Flowering time	Seed collection	Dormancy	Best sowing conditions	Sowing method
<i>Aristida behriana</i> (Brush wire-grass) C ₄ low-growing 15–30 cm perennial; brush-like seedheads eventually detach and tumble about				
spring and after summer rains	November–February	6–8 months (store before sowing)	25–36°C; sow from late winter through summer	push whole seed directly into mix, with callus buried and awns upright; firm mix to ensure good seed/soil contact; cover with thin layer of gravel
<i>Austrodanthonia</i> spp. (Wallaby-grasses) C ₃ widespread, tufted perennials that actively grow in winter and spring and remain green at the base of the tussock all year; some response to summer rain				
mainly spring and autumn	November–March	fresh seed germinates	15–25°C; can be sown in autumn, as water availability more important than temperature	surface-sow and cover with a layer of gravel; germination in 14–21 days in autumn and spring, up to 60 days in winter
<i>Austrostipa</i> spp. (Spear-grasses) C ₃ perennial tussock grasses that grow actively in winter and remain green at the base of the plant throughout the year; some have ornamental seedheads attractive for low-maintenance gardens				
spring	4–6 weeks after flowering	little known	6–8-month old seed should germinate in autumn, to plant out late winter–early spring	directly into tube, with callus and seed buried and awn upright; cover with potting mix to twice seed diameter and a layer of gravel; germination begins in 2–4 weeks
<i>Bothriochloa macra</i> (Red-leg grass) C ₄ perennial prostrate tuft of green leaves, with many wiry reddish or purplish stems; tolerates high temperatures and low moisture levels; good coloniser, can become dominant in over-grazed pastures				
mainly summer and autumn in response to rain	ready for harvest when culms reddish-purple and top spikelets begin to fall off	no dormancy	25–35°C; can be sown spring to early autumn	sow in tube no more than 5 mm below the surface of mix; cover with layer of gravel
<i>Chloris truncata</i> (Windmill-grass) C ₄ low-growing, tussocky, short-lived perennial, excellent coloniser of bare or disturbed soil				
spring to autumn in response to rain	December–April when seedhead changes from purple to black, and stems become brittle and straw-coloured	no dormancy	20–25°C; will germinate in higher temperatures if adequate water (will germinate in water); sow spring and early summer	sow seeds on surface and cover with gravel; keep mix saturated; germination 7–10 days in temperatures >25°C
<i>Cymbopogon ambiguus</i> (Lemon grass) C ₄ dense tufted perennial with greyish-blue leaves (smell of lemons if crushed); colourful stems, texture of foliage and unusual silky inflorescence offer landscaping potential				
summer, peak December–February	little known; check 4-6 weeks after flowering	little known	sow in spring and into summer	cover seed with thin layer of potting mix and then gravel

Flowering time	Seed collection	Dormancy	Best sowing conditions	Sowing method
<i>Dichanthium sericeum</i> (Silky or Queensland bluegrass) C ₄ tall (40–80 cm) summer-growing tussocky perennial with attractive bluish leaves; moderately drought- and frost-tolerant				
all year	December–February; seeds ripen progressively along seedhead; immediately drop when mature	greatest germination for seed 6–12 months old	requires wet conditions for germination; sow spring and into summer	plant in tubes; cover seeds with thin layers of mix and gravel; do not allow to dry out
<i>Enneapogon nigricans</i> (Bottle-washers) C ₄ small tufted perennial up to 45 cm with grey-green leaves; summer-active but green all year; does not tolerate heavy grazing or slashing				
spring and summer	November–January	dormancy of 2–4 months	sow summer, early autumn, or then in spring when conditions warm again	cover surface-sown seed with a layer of gravel; germination could take 3–6 weeks
<i>Elymus scaber</i> (Common wheat-grass) C ₃ widespread winter-growing tussock; palatable to stock; physical form is variable; frost-tolerant				
spring to early summer	November–December; seed yield very variable; ripe seed sheds readily	short dormancy in some seeds	sow autumn	cover seed with thin layers of potting mix and gravel; most germination in 7–12 days
<i>Microlaena stipoides</i> (Weeping rice-grass) C ₃ tufted perennial of variable form; long arching stalk and seedhead; tolerates high grazing pressure when actively growing				
late spring, and autumn if summer or early autumn rain	November–December and after summer rain	little or no dormancy	will germinate and establish all year round if watered; takes 10–14 days at 15–25°C	sprinkle on moist potting mix in tubes; cover with 10 mm mix and single layer of gravel
<i>Neurachne alopecuroidea</i> (Foxtail mulga-grass) C ₃ rhizomatous; compact dense clump up to 20 cm tall; dense flowerhead up to 60 cm above the clump with grey silky glumes; landscaping potential				
early to mid-spring	4–6 weeks after flowering	little known	sow autumn or spring	cover seeds with thin layer of potting mix and a layer of gravel: slow to germinate and establish
<i>Poa</i> spp. (Tussock-grasses) C ₃ perennial or annual tufted plants with slender leaves; inflorescence held above plant and often purplish; non-Australian species may be weedy				
spring	October–November	best stored for several months	optimal 15–25°C; all year round if water supplied	sprinkle on top of moist mix in tube and cover with single layer of gravel
<i>Themeda triandra</i> (Kangaroo grass) C ₄ summer-growing tussocky perennial 30–150 cm tall; attractive green or blue-green foliage, maturing to purple, then reddish-brown; inflorescence also colourful; tolerates low fertility soils, drought and fire				
October–February	watch for fertile florets with black twisted awns and solid lemmas; then harvest entire culm and keep in water until seed falls	variable dormancy	seed collected late spring to summer should readily germinate if sown immediately or a year later; optimal temperatures 25–35°C	plant directly in mix with callus and seed buried and awn upright, no gravel required; or remove callus and cover with 10 mm mix and single layer gravel

Getting started: Your propagation and growing area

Seeds have certain requirements for successful germination, most importantly water and shade.

Choose a spot for your growing bench that has easy access to water. Attach an adjustable rose or nozzle to the hose for gentle watering. An old table can make an excellent growing bench at a comfortable working height. Leaving your tubes (or trays of tubes) on the ground is not healthy for your back or your seedlings. Remove the solid table top and replace it with metal mesh to prevent pests such as snails from hiding under tubes and trays, and to improve drainage and air-flow, and to air-prune emerging roots.

Add uprights at each corner to attach shadecloth and adjust it as required, allowing some tubes or trays of seedlings to be in shade while others receive full sun.

Assembling and preparing your materials

Step 1: Wash the fine gravel that will be used as a mulch on the tubes in several changes of water to remove sand and soil particles. Set aside and allow to dry.

Step 2: Assemble propagation tubes, potting mix, wetting agent, fertiliser, face mask and gloves.

Step 3: Put on your face mask and gloves. Tip the potting mix into a container and add water (or diluted liquid wetting agent) to moisten but not saturate. Thoroughly mix in granular or powdered wetting agent and fertiliser. A wetting agent will make sure the mix doesn't become water-repellent if it completely dries out.

Step 4: Fill the tubes by: using a narrow trowel to fill the tubes to the rim; scooping up the mix with the tubes themselves; or shovelling potting mix into tubes set in a tray over a solid surface.

Then, from a height of about 2 centimetres, drop the tube (or tray of tubes) on to a solid surface to consolidate the mix. If necessary, add more mix to fill the tube to within 1 cm of the rim.

Sowing and growing

Follow the sowing methods given in the table for the species you are growing.

Label the contents of each tube with the name (scientific if possible) of the grass, location of seed-source, if known, and sowing date. A soft lead pencil won't fade as much as other markers.

After germination, seedlings need to receive full sun. Do not move them from shade to full sun on a hot day. Shelter them from hot winds.

Watering

Keep potting mix moist during germination and when plants are small. After wetting all the mix, a small amount of water should drain from the bottom of the tubes.

Before germination, water in the morning and evening and, in very hot weather, at midday as well. Make sure water from the hose isn't too warm.

Once seedlings have made good growth, once-daily watering—preferably in the morning or early afternoon—will probably be adequate apart from during very hot weather. Watering late in the day encourages fungal diseases, slugs and snails. Sporadic watering will weaken your seedlings.

Glossary

Annual	plant grows, flowers, sets seed and dies all within one year	Inflorescence	flowering portion or seedhead of a plant
Awn	fine bristle-like appendage attached to the glume, lemma or palea	Lemma	outer (lower) bract of the floret that encloses the palea and flower
Callus	hardened protuberance at base of floret or lemma	Palea	upper bract enclosing the flower and enclosed by the lemma
Caryopsis	grain or fruit inside the floret	Perennial	has persistent organs that allow it to live a number of years
Floret	fruiting body of the seedhead	Spikelet	basic unit of the seedhead and with one or many florets
Glumes	empty bracts at base of grass spikelet	Tussock	large clump or tuft of grass