

Native grasses

A regional guide



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More information

For more information on this guide, and identifying or managing native grasses on your property or in the field, please contact your nearest Landscape SA office.

Alinytjara Wilurara: landscape.sa.gov.au/aw

Eyre Peninsula: landscape.sa.gov.au/ep

Green Adelaide: greenadelaide.sa.gov.au

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South Australian Arid Lands: landscape.sa.gov.au/saal

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Recognition of Kurna Miyurna and Yarta

We acknowledge and respect the native title holders and Traditional Owners of the Adelaide Plains – the Kurna Miyurna (Kurna people) – and pay homage to their ancestors who maintained the natural processes of the land we are on and whose spirits still dwell on Yarta (Country). Mutual respect and trust enables us to walk and work side-by-side to restore Yarta.

Native grasses are part of most sustainable landscapes

These cards are for landholders and community members who are interested in identifying native grasses growing on their rural property and restoration or native bushland sites. It also promotes their use as part of more sustainable farming systems and revegetation practices across our region.

Native grasses can improve soil health and farm productivity

A better understanding of native grasses and integrating their use into your property or site has potential benefits, as they can provide:

- year round (perennial) cover to help minimise soil erosion and improve water infiltration into the soil profile
- better grazing management through rotational grazing, particularly on drier slopes, stony outcrops or exposed hills
- ecosystem services, such as attracting beneficial insects to improve crop health and for pollination

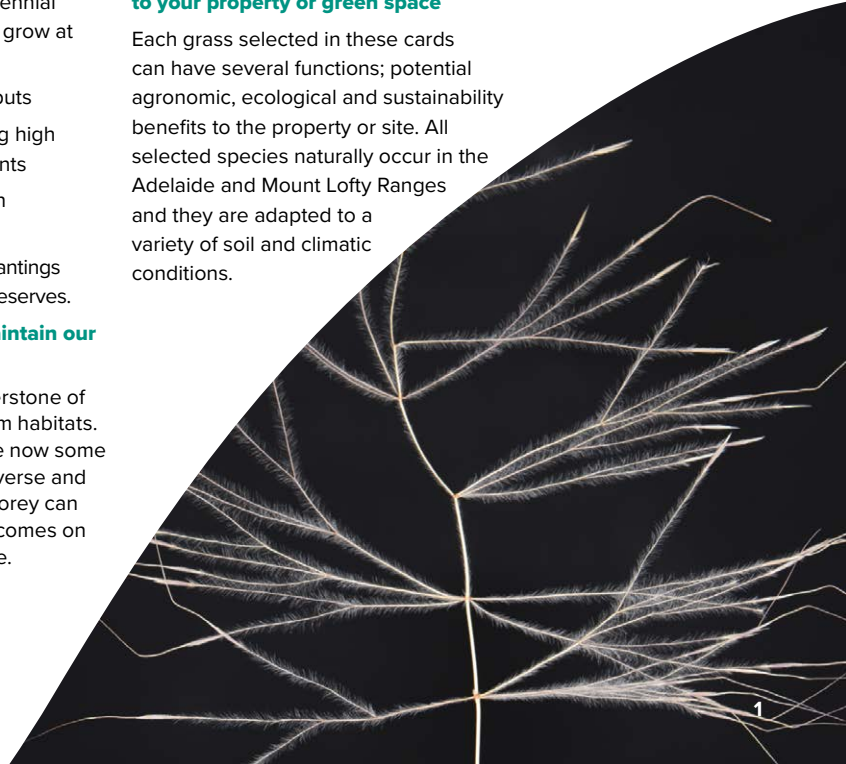
- feed over most of the year from pasture with a range of perennial native grass species which grow at different times
- feed with lower fertiliser inputs
- waterway buffers by filtering high nutrient run-off and sediments
- mid-row vegetation cover in horticultural crops
- low maintenance amenity plantings around the property and in reserves.

Native grasses can help maintain our local landscapes

Native grasses are the cornerstone of our original grassy ecosystem habitats. Regionally these habitats are now some of our most threatened. A diverse and healthy native grass understorey can improve the biodiversity outcomes on your property or green space.

Native grasses offer multiple benefits to your property or green space

Each grass selected in these cards can have several functions; potential agronomic, ecological and sustainability benefits to the property or site. All selected species naturally occur in the Adelaide and Mount Lofty Ranges and they are adapted to a variety of soil and climatic conditions.



Use these cards to help learn common grasses

Use these cards out in the paddock or in the field to help identify common species of native grass found in our region. Native grasses may be found in areas that have been grazed but not cultivated; such as hilly country, remnant bushland, amongst rocky outcrops, along fence lines or on nearby roadsides.

Grasses are most easily identified when they flower or seed.

Use the cards to flick through the colour photographs to assist your identification. Match your grass to the species it most resembles. Remember, only common widespread species are shown.

Compare distinct features of that species with the accompanying text. Take further note of weed mimics that have similar features to the native grass.

Use the written descriptions to help identification and determine what is native and what is exotic (weedy).

A small pocket hand lens can be a useful tool to help see key aspects of a grass, particularly when identifying small seed and leaf features.

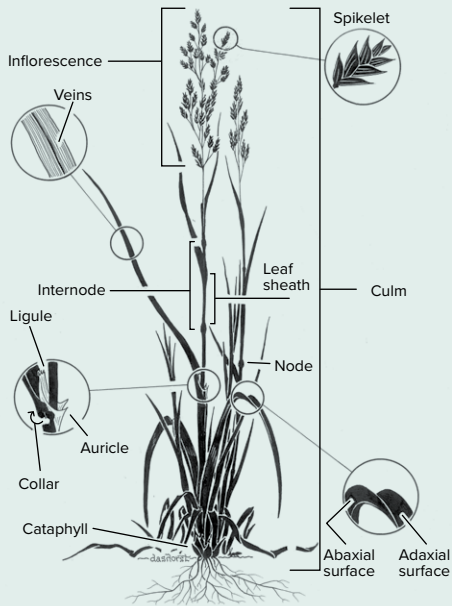
Grasses can be tricky to identify, so some further study or professional advice may be needed until you gain more familiarity with grasses on your property or when in the field

Use the diagram on the next page to help you identify the main structural components of a grass.



Common features and flower heads

Use this diagram to help identify the main structural components of a grass.

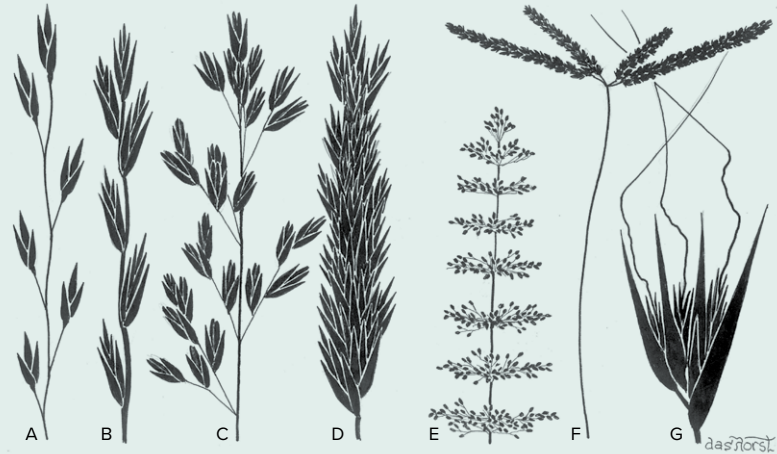


Structure of the grass plant

From Jessop, Dashorst and James (2006)

Use this diagram to help identify the main types of grass flower heads.

The look of the flower head can help guide you in your identification of grasses. Here are six main flower head shapes.



Inflorescence types: A. Raceme, B. Spike, C. Open panicle, D. Spike-like panicle, E. Whorled branches, F. Digitate inflorescence, G. Cluster of spikelets in a spathe

Main types of grass flower heads

From Jessop, Dashorst and James (2006)

Definitions

awn	long or short needle like extension to the seed	leaf blade	the flat part of the leaf
C3 grass	cool season grass, tend to have their most active growth period in autumn and spring	leaf sheath	the bottom section of the leaf which surrounds or curls around the stem
C4 grass	warm season grass, tend to have their most active growth period in summer	lemma	usually the most obvious of the 2 bracts protecting the floret
callus	hard tip to the seed, often sharp	ligule	where the blade meets the sheath of a leaf
caney grass	stem branches in several directions from stem nodes so grass is large and 3D	metabolisable energy	the amount of energy in a feed that is available for an animal's maintenance, production and reproduction
coma	ring of hairs at top of the seed	node	joint or strengthening junction on grass stems
crude protein	the estimated protein content of stock feed, as a percentage of the dry matter	palea	usually the smaller of the 2 bracts protecting the floret
culm	alternative name for the stem	perennial	green / growing all year and can live for many years
digestibility	the proportion of the dry matter in a feed which can be digested by an animal	rhizome	an underground stem, usually growing horizontal, produces roots at the joint
floret	individual small flower, protected by 2 bracts called lemma (visible) and palea (often not visible)	running grass	grass with stems which grow along the ground anchoring roots at nodes
flower	group of florets protected by glumes (bracts) in the flower head	scabrid	grass part feels rough to touch, a bit like sandpaper
flower head	all the flowering part of the grass – often called inflorescence	seed	the mature seed and its hard decorative casing
forage value	the overall quality of a pasture as a source of nutrition for livestock	sheath	see leaf sheath
glume	1 of 2 bracts protecting the floret (small flower)	spikelet	the botanical name for 'flower' in these cards
inflorescence	see flower head	tussock	grass that forms a clump, tuft, or bunch rather than spreading along the ground

* an asterisk, in the following ID cards, means the species is a weed

Native grasses for production and natural restoration

Native grassy ecosystems in the Adelaide and Mount Lofty Ranges were widespread but are now amongst our most threatened habitats due to historical, broad scale land modification. The protection and restoration of native grass communities in our agricultural and peri-urban landscapes is critical for long-term sustainability across much of our region.

Use these hints to improve native grass management

- Get to know what native grasses are on your property/site, and when they are actively growing. Most native grasses are either cool season growers (C3) or warm season growers (C4). Having both C3 and C4 grasses in a pasture provides growth and forage year round or over a long period.
- Native pastures can be managed to maintain their productivity and conservation values. Use techniques such as rotational grazing to avoid over-grazing native pastures.
- Regularly exclude livestock and rest paddocks of native pastures for several weeks between grazing events to strengthen the grasses.
- Rest some paddocks each year during flowering and seed development to encourage greater recruitment of seedlings and new plants.
- Native grasses are useful in restoration of watercourse and habitat areas.
- Seasonal burning can be another useful tool for encouraging new growth, diversity and seedling recruitment.



Native Wheat Grass *Anthosachne scabra*



Habit; fine tussock



Seed



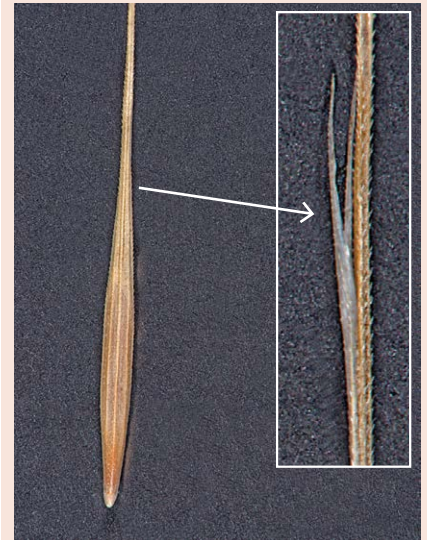
Inflorescence; awns curve away from the stalk

Weed

*Brome Grass *Bromus* species



Flower head



Seed has 2 tips as well as a long awn

Native Wheat Grass	Anthosachne scabra
Also known as	<i>Elymus scaber var scaber</i>
Description	Delicate tussock, almost like an annual. Leaf blades held out at intervals along upright stems like pennants – narrow, flat, blue-green triangles to 10 cm. Upright tall fine flowering stalks, narrow flower head flattened into one plane.
Key features	Herringbone outward bend of mature straw-coloured awns in slender flower head. Awns are scabrid; they feel rough in one direction, smooth in the other. Leaf shape. Split leaf sheath. Seed tapers into long awn.
Height	Flower stalks from 30 cm up to 1 m.
Fertiliser	Better growth
Frost	Tolerant
Drought	Moderate tolerance
Grazing	Moderate tolerance, highly palatable. Selectively foraged if set stocked. Rotational grazing encouraged. Remove stock and rest pasture during spring (mainly) for flowering and seed set. Moderate to high forage value. Metabolisable energy 7.4 MJ/Kg DM. Crude protein 10%. Digestibility 52%.
Growing season	Perennial, most active in winter, flowering in spring to early summer. (C3 Grass).
Distribution	MLR: Almost always in woodlands and grasslands of the eastern and western foothills and not usually found in the high rainfall forests. Often overlooked because of its fine growing habit. Widely scattered in SA. Also in WA, Qld, NSW, Vic.
Weed mimics	*Brome Grass (<i>Bromus</i> species): Seed with 2 small tips as well as awn. Annuals. Leaf sheath at least partly fused into a cylinder. Flowering in winter, spring. Many Brome grasses also have a scabrid awn in one direction.

Brush Wiregrass *Aristida behriana*



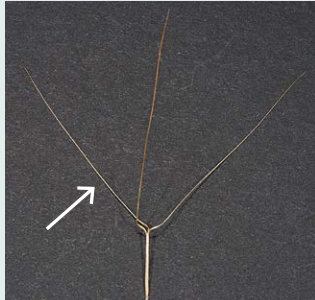
Habit; low dense clump or tussock



Mature flower head



Young flower head is green with a purple tinge



Seed with 3 awns spread like helicopter blades

Weed

***Feather Grass** *Cenchrus longisetus*



Habit; low dense clump or tussock



Flower group; flower with many hairy bristles



Flower head; mature flower head is white

Brush Wiregrass	<i>Aristida behriana</i>
Also known as	Three-awn Grass
Description	A low growing dense clump or tussock, with spreading coarse, narrow pale green leaves. The flower heads look like green witches brooms with purple tips when young and opening out to a cream straw bottle brush-like shape when mature. The dry brush can break off and blow away in the wind.
Key features	Flower head three-dimensional brush, bristly, cream to a golden straw colour when ripe. Seed has three long spreading straw-coloured awns.
Height	Tussock is rarely more than 20 cm high with flowers held above.
Fertiliser	Decreases in frequency
Frost	Moderate tolerance
Drought	High tolerance. Occurs northward into mid-north of SA. Can be found in low to moderate rainfall areas and on shallow soils.
Grazing	Moderate tolerance. Very palatable. Sharp awns may contaminate fleece. Remove stock and rest pasture from grazing for flowering and seed set. Moderate forage value. Metabolisable energy 7.4 MJ/Kg DM. Crude protein 10%. Digestibility 52%.
Growing season	Perennial, most active in summer, flowering in early summer, can flower at all times during the year, after rains. (C4 grass).
Distribution	MLR: Mainly in open woodland with native grassy understorey. Drier woodlands and grasslands of SA. A grassland specialist. Also in NSW, Vic.
Weed mimics	*Feather Grass (<i>Cenchrus longisetus</i> syn <i>Pennisetum villosum</i>): A very similar low growing tussock. Bottle brush-like flower heads with many long white bristles.

Spear Grass 1 *Austrostipa* species – Seed has curved awn; narrow flower head

Cottony Spear Grass *Austrostipa drummondii*



Tussock and flower head



Leaves hairy

Balcarra Grass *Austrostipa nitida*



Habit; fine leaf tussock



Flower head

Typical flower head shape



Noded Spear Grass *Austrostipa nodosa*



Nodes visible



Flower head

Typical seeds with curved / falcate awns



Weed

*Needle Grass *Nasella* species



Seed with turban / crown

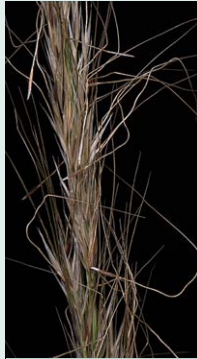
Spear Grass 1	Austrostipa species Spear Grasses with a curved (falcate) awn bristle; narrow flower head
Description	Hardy coarse- or fine-leaved perennial tussocks with variable growth habits and flower heads. Each floret has 1 seed with awn. Awns have a 'straight' section (column) topped with a curved or bent section (bristle).
Key features	Seed narrow like a cigarette, awn with a column twisted like tiny corkscrew at the base topped with a long smoothly curved tail or bristle.
Common MLR examples	Cottony Spear Grass (<i>Austrostipa drummondii</i>): all parts of plant very hairy, giving a bluish look. Rough Spear Grass (<i>Austrostipa scabra</i>): leaves thin, rolled, rough to touch. Balcarra Grass (<i>Austrostipa nitida</i>): basal leaves only, gold-green shiny tinge to narrow flower head. Noded Spear Grass (<i>Austrostipa nodosa</i>): leaves up stems, purple tinge, open flower head.
Height	Tussocks vary from 10 to 80 cm, flower stalk from 30 to 150 cm.
Fertiliser	Decreases in frequency
Frost	Moderate to high tolerance
Drought	High tolerance
Grazing	Low tolerance. Green leaf in spring/summer when young. Palatability and quality reduced as plant matures. Sharp awns contaminate fleece. Crash graze or slash at early flowering reduces contamination, but also population over time. Remove stock and rest pasture at flowering to aid persistence. <i>A. nodosa</i> : Low to moderate forage value. Metabolisable energy 6.6 MJ/Kg DM. Crude protein 10%. Digestibility 48%.
Growing season	Perennial, most active in winter but flowering in late spring to early summer. (C3 grass).
Distribution	MLR: About 30 species of Spear Grass, 20 of which are common. Many are widespread, especially in grasslands and woodlands, although some have very specific habitat requirements. Widespread in SA. Also in WA, NSW, Vic.
Weed mimics	*Needle Grass (<i>Nassella</i> species): Very like Spear Grass. Note turban / crown at top of almost hairless decorated seed.

Spear Grass 2 *Austrostipa* species – Narrow head and hairy awn **OR** branched flower head with hairy stalks

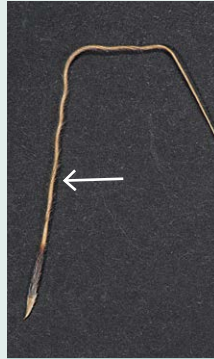
Fibrous Spear Grass *Austrostipa semibarbata*



Habit; erect tussock



Inflorescence



Awn column long

Soft Spear Grass *Austrostipa mollis*



Awn: long hairs spiral along column edge

Typical flower head shape (narrow head)



Elegant Spear Grass *Austrostipa elegantissima*



Hairy stalk



Seed awn without hairs

Typical flower head shape (branched head)



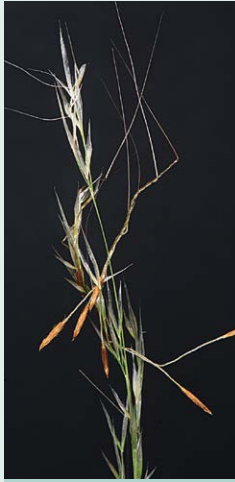
Spear Grass 2	<i>Austrostipa</i> species Spear Grasses narrow congested flower head with hairs on awn column OR wide branching flower head with hairs along flower stalks
Description	Hardy coarse- or fine-leaved perennial tussocks with variable growth habits and flower heads. Each floret has 1 seed with awn. Awns have a 'straight' section (column) topped with a curved or bent section (bristle).
Key features	Seed awn with a very hairy column twisted like tiny corkscrew at the base (visible to the naked eye if held against the light) topped with a less hairy awn OR flower stalk hairy.
Common MLR examples	Narrow flower head like a rat's tail, not spreading: Fibrous Spear Grass (<i>Austrostipa semibarbata</i>): Short hairs spread around column, long column to 2nd bend, long awn. Soft Spear Grass (<i>Austrostipa mollis</i>): Long visible hairs spiral along column twist, long column to 2nd bend, long awn. Foxtail Spear Grass (<i>Austrostipa densiflora</i>): Young leaves and flower glumes hairy. Short hairs spread around short column (1 to 2 cm) to 2nd bend, short awn to 4.5 cm. Expanded branched flower head: Elegant Spear Grass (<i>Austrostipa elegantissima</i>): Caney grass with branched stems; hairs on flower stalk, not on awn.
Height	Tussocks vary from 10 to 80 cm, flower stalk from 30 to 150 cm.
Fertiliser	Decreases in frequency
Frost	Moderate to high tolerance
Drought	High tolerance
Grazing	Low tolerance. Green leaf in spring/summer when young. Palatability and quality reduced as plant matures. Sharp awns contaminate fleece. Crash graze or slash at early flowering reduces contamination, but also population over time. Remove stock and rest pasture at flowering to aid persistence. <i>A. elegantissima</i> : Low to moderate forage value. Metabolisable energy 4.5 MJ/Kg DM. Crude protein 11%. Digestibility 35%.
Growing season	Perennial, most active in winter but flowering in late spring to early summer. (C3 grass).
Distribution	MLR: About 30 species of spear grass, 20 of which are common. Many are widespread, especially in grasslands and woodlands, although some have very specific habitat requirements. Widespread in SA. Also in WA, NSW, Vic.
Weed mimics	*Needle Grass (<i>Nassella</i> species): Very like Spear Grass. Has turban / crown at top of almost hairless decorated seed. See Spear Grass 1.

Spear Grass 3 *Austrostipa* species – Double bend awn, expanded flower head

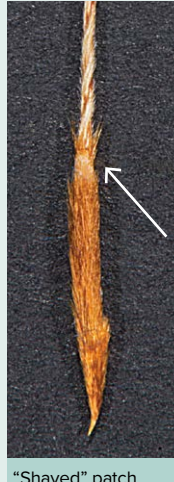
Rusty or Desert Spear Grass *Austrostipa eremophila*



Habit; tall tussock



Flower spike; inflorescence



"Shaved" patch on top of seed

Typical flower head shape



Small-seed Spear Grass *Austrostipa multispiculis*



Flower head



Seed, double bend awn

Weed

*Rice Millett *Piptatherum miliaceum*



Habit; large tussock



Many short glumes



Spikelet; tiny short awns

Spear Grass 3	<i>Austrostipa</i> species Spear grasses – large tussocks, wide leaf blades, awn with 2 bends, usually an expanded flower head
Description	Hardy coarse- or fine-leaved perennial tussocks with variable growth habits and flower heads. Each floret has 1 seed with awn. Awns have a 'straight' section (column) topped with a curved or bent section (bristle).
Key features	Seeds usually have an awn with a double bend up to 10 cm long. Some species have seeds with sharp tips. Large tussocks with flat leaf blades up to 50 to 70 cm long.
Common MLR examples	Rusty or Desert Spear Grass (<i>Austrostipa eremophila</i>): Seed with rusty-orange hairs and “badly shaved” patch near top. Coast Spear Grass (<i>Austrostipa flavescens</i>): stout stem, long thin seed in long slender glumes, seed with long straight callus. Small-seed Spear Grass (<i>Austrostipa multispiculis</i>): A loose many-flowered panicle, smaller glumes, seed, and callus to above species. A grassland specialist.
Height	Tussocks vary from 10 to 80 cm, flower stalk from 30 to 150 cm.
Fertiliser	Decreases in frequency
Frost	Moderate to high tolerance
Drought	High tolerance
Grazing	Low tolerance. Green leaf in spring/summer when young. Palatability and quality reduced as plant matures. Sharp awns contaminate fleece. Crash graze or slash at early flowering reduces contamination, but also population over time. Remove stock and rest pasture at flowering to aid persistence. <i>A. eremophila</i> : Low to moderate forage value. Metabolisable energy 7.5 MJ/Kg DM. Crude protein 14%. Digestibility 53%.
Growing season	Perennial, most active in winter but flowering in late spring to early summer. (C3 grass).
Distribution	MLR: About 30 species of Spear Grass, 20 of which are common. Many are widespread, especially in grasslands and woodlands, although some have very specific habitat requirements. Widespread in SA. Also in WA, NSW, Vic.
Weed mimics	*Rice Millett (<i>Piptatherum miliaceum</i>): Large tussocks, stout stems, long leaf blades. Busy heads. Many small glumes. Awns < 1 cm. *Needle Grass (<i>Nassella</i> species): Very like Spear Grass. Note turban / crown at top of almost hairless decorated seed. See Spear Grass 1.

Spear Grass 4 *Austrostipa* species – Fat seeds, bulging glumes, double bend awn

Short Crest Spear Grass *Austrostipa curticomis*



Large tussock, broad leaves, open head



Glumes bulge around seed



Seed; coma of short hairs

Crested Spear Grass *Austrostipa blackii*



Seed; coma of long hairs

Typical flower head shape



Corkscrew Spear Grass *Austrostipa setacea*



Black seed with white hairs



Culm; red-brown node



Double bend awn

Swollen Spear Grass *Austrostipa gibbosa*



Habit



Lop-sided seed

Spear Grass 4	<i>Austrostipa</i> species Spear grasses with obvious leaf blades, fat seeds and 2 glumes bulging to accommodate them, double bend awn; grassland specialists
Description	Hardy coarse- or fine-leaved perennial tussocks with variable growth habits and flower heads. Each floret has 1 seed with awn. Awns have a 'straight' section (column) topped with a curved or bent section (bristle).
Key features	Seeds fat, loose in 2 bulging bracts (glumes) of the spikelet that holds the seed. Called inflated glumes.
Common MLR examples	Short Crest Spear Grass (<i>Austrostipa curticoma</i>): fat black seed, brown hairs, short coma, one inflated glume only, short curved callus, glumes often purple tinge with 3 green veins. Crested Spear Grass (<i>Austrostipa blackii</i>): fat black seed, brown hairs, very long coma, hairy leaves. Corkscrew Spear Grass (<i>Austrostipa setacea</i>): fat black seed, white hairs, long ligule, brown nodes, double bend awn. Swollen Spear Grass (<i>Austrostipa gibbosa</i>): fat black seed lop-sided; position of awn not central.
Height	Tussocks vary from 10 to 80 cm, flower stalk from 30 to 150 cm.
Fertiliser	Decreases in frequency
Frost	Moderate to high tolerance
Drought	High tolerance
Grazing	Low tolerance. Green leaf in spring/summer when young. Palatability and quality reduced as plant matures. Sharp awns contaminate fleece. Crash graze or slash at early flowering reduces contamination, but also population over time. Remove stock and rest pasture at flowering to aid persistence. <i>Austrostipa</i> sp.: Low to moderate forage value. Crude protein 3-17%. Digestibility 35-60%.
Growing season	Perennial, most active in winter but flowering in late spring to early summer. (C3 grass).
Distribution	MLR: About 30 species of Spear Grass, 20 of which are common. Many are widespread, especially in grasslands and woodlands, although some have very specific habitat requirements. Widespread in SA. Also in WA, NSW, Vic.
Weed mimics	*Needle Grass (<i>Nassella</i> species): Very like Spear Grass. Note turban / crown at top of almost hairless decorated seed. See Spear Grass 1.

Red-leg Grass *Bothriochloa macra*



Habit; low growing tussock



Flower head; hairy rusty brown awns



Seed; indented pit in each seed



Young flowers; purple tinge to plant

Weed

* *Paspalum dilatatum*



Habit



Flower head; young flowers



Seed head



Flattened striped seed

Red-leg Grass	<i>Bothriochloa macra</i>
Also known as	Red Grass
Description	Tough low growing perennial tussock with coarse spreading broad leaves. Leaves can be slightly hairy. Flower stalks stiff, often emerge sideways and then there is a distinct bend upward from node and held high, erect. Several finger-like branches with narrow hairy flowers at intervals near top. Often a burgundy tinge to nodes, leaves, and flower heads.
Key features	Narrow flower heads with a burgundy tinge, stalk undulating between small hairy flowers. Each seed has a twisty honey to rusty coloured awn, with white hairs, can be decorated with stripes. One side of the seed always has a small pit (hand lens).
Height	Leaves 20 to 40 cm, flower stalks held clear of the leaves, up to 60 to 80 cm long, upright.
Flowering time	Flowers mainly in summer, but can flower at all times during the year.
Fertiliser	Reported to be responsive to fertiliser
Frost	Low to moderate tolerance
Drought	High tolerance if on loam to clay soils, less so in poor or quick draining soils.
Grazing	Tolerant. Rotational grazing encouraged to maintain pasture. Best grazed early summer for leafy growth. Forage quality decreases once stems and seed heads form and stock avoid it. To increase density remove stock and rest pasture, late summer. Low to moderate forage value. Metabolisable energy 9 MJ/Kg DM. Crude protein 9%. Digestibility 62%.
Growing season	Perennial, most active in summer, flowering in early summer. (C4 grass).
Distribution	MLR: In woodlands and grasslands of the eastern and western foothills and not usually found in the high rainfall forests. A grassland specialist. Grassy ecosystems in SA. Also in NSW, Qld, Tas, Vic.
Weed mimics	* <i>Paspalum</i> (<i>Paspalum dilatatum</i>): Broad-leaved low growing perennial, seeds not hairy. *Coolatai Grass (<i>Hyparrhenia hirta</i>): Upright tussock to over 1 m, long blue-green leaves, no pit on hairy seed. See Kangaroo Grass (<i>Themeda triandra</i>) card.

Windmill Grass *Chloris truncata*



Habit; small low growing tussock



Triangle black seeds with 2 long awns



Flower head like windmill or umbrella spokes

Weed

*Feathertop Rhodes Grass *Chloris virgata*



Habit; tussock or creeping foliage with tall flowering stems



Seed with 2 long awns plus many hairs

Windmill Grass	<i>Chloris truncata</i>
Description	Small squat bluish low growing tussocks. Leaves bluish-green, broad, flat but folded near base. Flower head stem with terminal branches radiating out, green when young but looking black when seeds mature. Seeds small, reddish-purple to black when mature.
Key features	Flower head resembles a windmill of radiating spokes at the top of the stem. Seeds like black triangles with long fine awns in 2 corners. Broad bluish leaf folded at base.
Height	Tussocks to 15 cm, flower heads to 40 cm high.
Fertiliser	Increases in frequency
Frost	Low tolerance
Drought	Moderate tolerance
Grazing	Tolerant. Favoured by sheep as it grows close to the ground. Best grazed over spring/summer. Leaves are fibrous and not very palatable; keep green and leafy to maintain quality. Moderate forage value. Metabolisable energy 7.5 MJ/Kg DM. Crude protein 11%. Digestibility 53%. Windmill grass is a valuable warm-season grass.
Growing season	A relatively short-lived perennial, most active in summer, flowering in early summer. (C4 grass).
Distribution	MLR: In woodlands and grasslands of the eastern and western foothills and not usually found in the high rainfall forests. A grassland specialist. Scattered in arid SA. Also in NT, Qld, NSW, Vic.
Weed mimics	Introduced * <i>Chloris</i> species and *Couch grasses have similar windmill flower heads. *Feathertop Rhodes Grass (<i>Chloris virgata</i>) is a taller grass, long hairs as well as long awns on the seed. *Rhodes Grass (<i>Chloris gayana</i>) is a much taller grass, short hairs on a short awn. *Finger Couch Grass (<i>Cynodon dactylon</i> var <i>dactylon</i>) spreads by running stems. See Couch-like grasses card.

Couch-like grasses *Distichlis distichophylla* (and other couch-like grasses)

Australian Salt-grass *Distichlis distichophylla*



Habit



Ranked leaves, flowerhead



Habit

Salt Couch *Sporobolus virginicus*



Ranked leaves



Flower head



Habit

Weed

*Green Couch *Cynodon dactylon* var *dactylon*



Habit; running stem



Flower head with 5 radiating spokes

*Saltwater Couch *Paspalum vaginatum*



Habit; running stems on ground



Flower head with 2-3 radiating spokes

Couch-like grasses	<i>Distichlis distichophylla</i> (and other couch-like grasses)
Also known as	Australian Salt-grass, Emu Grass
Description	Running grass with stems above and below ground. Leaf blades like stiff pennants along stem, open near stem but rolling inwards to tip, prickly. Leaves in 2 rows. Nodes not visible. Flower head a small flattened spike-like panicle.
Key features	Stiff prickly leaves clearly ranked in 2 rows in the same plane, quite regularly spaced along stem. Flower head slightly flattened.
Height	Running grass with upright stems to 30 cm and sometimes branching. Flower heads to 40 cm high.
Salinity	May be an indicator plant for salinity and waterlogged sites.
Drought	Tolerant
Grazing	Tolerant. Low forage value due to prickliness and low digestibility. Metabolisable energy 6.5 MJ/Kg DM. Crude protein 10.2%. Digestibility 37-47%. Avoid grazing waterlogged or sensitive environments (i.e. wetlands, lake edges).
Growing season	A perennial, most active in summer, flowering in late spring and summer. (C4 grass).
Distribution	MLR: Swamp and creek edges, river banks; often coastal but also inland on sand through to clay near fresh water and on saline soils. Widespread in SA. Also in NSW, Vic.
Similar looking native grasses	Salt Couch (<i>Sporobolus virginicus</i>) running stems, ranked leaves and habitat very similar to Australian Salt-grass. Leaves less regular, less prickly, flowerhead a thin spike-like panicle. Nodes not visible. Rats-tail Couch (<i>Sporobolus mitchellii</i>) above ground running stems only, leaves alternate up stem, nodes visible, flowerhead a thin spike-like panicle. Less common. Mainly near Murray River and lower lakes but also scattered in the hills in seasonally wet clay areas.
Weed mimics	*Green Couch (<i>Cynodon dactylon</i> var <i>dactylon</i>) A lawn grass, now also found in along watercourses and disturbed sites. Similar leaves; not stiff, duller green, can be hairy. Flower head a 'windmill' of 4-6 spokes, each at least 3 cm long, radiating out from top of the stem. *Saltwater Couch (<i>Paspalum vaginatum</i>) Salty wet soils. Leaves longer, thinner, alternate up stem. Flower head a 'windmill' of only 2 or 3 spokes; spoke stems wavy, with spikelets along only 1 side of each spoke.

Bottlebrush Grass *Enneapogon nigricans*



Habit; small upright tussock



Young upright flower head



Hairy seed, many spreading awns



Fruiting head; bottlebrush shape

Bottlebrush Grass	<i>Enneapogon nigricans</i>
Also known as	Nine-awn Grass, Shuttlecock Grass, Octopus Grass, Bottle Washers
Description	Small tussock with very upright look, with both green leaves and taller flower heads erect. Flower heads start green, turn blackish when mature and fade to straw colour.
Key features	Seeds look a little bit like an octopus or a badminton shuttlecock.
Height	Leaves to about 15 cm, flower heads to about 30 cm.
Fertiliser	Unknown
Frost	Low to moderate
Drought	Tolerant
Grazing	Moderate tolerance. High forage value. Metabolisable energy 6.9 MJ/Kg DM. Crude protein 12.5%. Digestibility 50%.
Growing season	Short lived perennial (green all year), sometimes almost an annual, most active in summer, flowering in early summer. Tussock usually not very visible in winter. (C4 grass).
Distribution	MLR: In woodlands and grasslands of the eastern and western foothills and not usually found in the high rainfall forests. Widespread in SA. Also in Qld, NSW, Vic.
Similar looking native grasses	Foxtail Mulga Grass (<i>Neurachne alopecuroidea</i>)
Weed mimics	Many weedy grasses have a similar flower head but none have the “octopus” or “shuttlecock” shaped seeds.

Weeping Rice-grass *Microlaena stipoides*



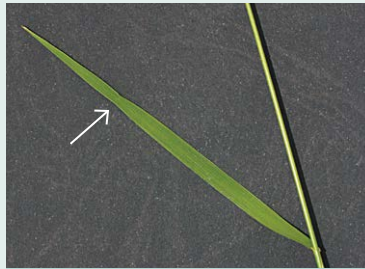
Habit; low tussock with short running roots and fine seed heads



Flower



Seeding head; small glumes, white when young



'Pinch point' in leaf



Ligule; white collar where leaf meets stem

Weeping Rice-grass	<i>Microlaena stipoides</i>
Description	Low growing green perennial tussock with short running root system which may give the impression of a 'couch-like growth'. Leaves green, broad. Flower heads very slender, arching, with a few slender flowers along it. Flowers with fine long awns.
Key features	Flower stalks have distinctive slender arching or weeping look. Tiny shiny white 'triangles' (small glumes) near base of each flower. A white encircling 'waist' where leaf meets stem. Many leaves have a small pinch point about 1 cm from blade tip.
Height	Tussock from 10 to 30 cm high. Flower heads to 50 cm long but spreading so usually less than 30 cm tall.
Flowering time	Summer to autumn
Fertiliser	Responds well to increased soil fertility
Frost	Tolerant
Drought	Tolerant
Grazing	Moderate to high tolerance when actively growing. Keep short to maintain quality. Rotationally graze for better leaf production. High forage value. Metabolisable energy 9.8-11.4 MJ/Kg DM. Crude protein 15-25%. Digestibility 66-75%.
Growing season	Winter active grass, with growth spurts and flowering in spring and autumn. (C3 grass).
Distribution	MLR: Usually damp soil and often shady sites where it can dominate the ground layer. High rainfall areas of SA. Also in WA, Qld, NSW, Vic, Tas. Widespread in all mainland states.
Weed mimics	*Couch Grass (<i>Cynodon dactylon</i> var <i>dactylon</i>): Other grasses that may be confused are running grasses, spreading along the ground and rooting at some nodes. See Couch-like grasses card.

Foxtail Mulga Grass *Neurachne alopecuroidea*



Habit; low, compact tussock, tall erect flower heads



Flower head



Hairy striped 'seed' with 1 short awn



Fruiting head

Foxtail Mulga Grass	<i>Neurachne alopecuroidea</i>
Description	Usually a small, very tidy, closely packed, low growing tussock. Leaf blades bluish, often quite short. Flowering stem held high above the tussock, usually emerging out sideways and then turning to be straight upwards at a distinct bend at node in the stalk. Flower head looks quite black and silvery when mature.
Key features	Upright flowering stalk. The outward curves on the dark and silvery flower head. 'Seeds' striped and covered with fine hairs.
Height	Tussock to 10 cm, flower head to 30 cm.
Fertiliser	Unknown
Frost	Unknown
Drought	Unknown
Grazing	Tolerance unknown. Metabolisable energy 7.9 MJ/Kg DM. Crude protein 16.1%. Digestibility 55%.
Growing season	Perennial, most active in winter, flowering in spring. (C4 grass).
Distribution	MLR: In scrub and woodland, often in sand. Widespread in southern SA. Also in WA, Vic.
Similar looking native grass	Bottle Brush Grass (<i>Enneapogon nigricans</i>)
Weed mimics	Many weedy grasses have a similar flower head but few are the black and silver colour and none have the striped hairy 'seed' with short awn.

Wallaby Grass 1 *Rytidosperma* species – Seed with 3 distinct rings of hairs

Common Wallaby Grass *Rytidosperma caespitosum*

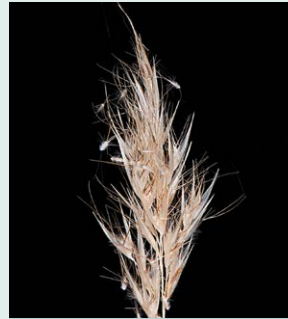


Habit; variable dense tussock



Seed; 3 rings of hairs, 3 long awns, middle awn longer

Small-flower Wallaby Grass *Rytidosperma setaceum*



Flower head; small seeds and glumes



Very small seeds

Lobed Wallaby Grass *Rytidosperma auriculatum*



Flower head



Lobe on edges of seed

Brown-back Wallaby Grass *Rytidosperma duttonianum*



Flower head



Back of seed roasted-brown, middle row hairs not obvious

Wallaby Grass 1	<i>Rytidosperma</i> species Seed with 3 distinct rings of hairs
Also known as	Austrodanthonia, Danthonia
Description	Hardy coarse- or fine-leaved perennial tussocks, variable in size and growth habits and flower heads. Distinctive white to off-white seeding heads with green or purple tinges. Seeds have fluffy white hairs (often in 3 rings) and a central honey brown awn and 2 side awns.
Key features of some MLR examples	White Top, Common Wallaby Grass (<i>Rytidosperma caespitosum</i>): broad green leaves, seed can be imagined to resemble a ballerina, 3 rings of hairs mimicking hair, bodice and tutu, and long side awns like legs. Flowering stalk to 60 cm. Small-flowered Wallaby Grass (<i>Rytidosperma setaceum</i>): short blue leaves, very small seed, small glumes, small version of <i>R. caespitosum</i> , busy flower head to 25 cm. Lobed Wallaby Grass (<i>Rytidosperma auriculatum</i>): small tussock, fine hairy leaves, fat seed with tiny side lobes on the smaller awns, spreading head to 30 cm. A grassland specialist. Brown-back Wallaby Grass (<i>Rytidosperma duttonianum</i>): large tussock, seed roasted-brown colour rather than straw coloured, awn with few dark brown twists, grows in seasonally wet ground.
Fertiliser	Most <i>Rytidosperma</i> species respond positively to nitrogen
Frost	Tolerant
Drought	Tolerant
Grazing	Tolerant. Responds to rotational grazing, rest pasture in spring (mainly) for flowering and seed set. Rest pasture after rains in spring/autumn for seedling establishment. Moderate to high forage value. <i>R. caespitosum</i> : Metabolisable energy 71 MJ/Kg DM. Crude protein 7.5%. Digestibility 50%.
Growing season	Perennial, most active in winter, flowering in spring to early summer. (C3 grass).
Distribution	MLR: About 14 species, 8 of which are common. Many are widespread, especially in grasslands and woodlands, although some have very specific habitat requirements. Natural stands are usually a mix of species. Common in SA. Also in WA, NSW, Vic, Tas, Qld.
Weed mimics	*Pussy Tail Grass (<i>Pentameris pallida</i> , <i>Pentaschistis pallida</i>). Most similar to <i>Rytidosperma setaceum</i> . Small hairy tussock, intricate flower head with many tiny glumes, shiny golden when young, maturing rusty brown. See Wallaby Grass 3.

Wallaby Grass 2 *Rytidosperma* species – Seed with rings of hairs with sections missing

Narrow-head Wallaby Grass *Rytidosperma racemosum*



Habit; fine leaved tussock



Flower head



Flower head



Seed; long 'neck', bottom row of hairs missing in middle

Hairy Wallaby Grass *Rytidosperma pilosum*



Flower head



Seed; hairs short, bottom row hairs mostly missing at edges

Smooth-flower Wallaby Grass *Rytidosperma laeve*



Flower head



Seed; middle row hairs mostly missing

Wallaby Grass 2	<i>Rytidosperma</i> species Seed with rings of hairs with sections missing
Also known as	Austrodanthonia, Danthonia
Description	Hardy coarse- or fine-leaved perennial tussocks, variable in size and growth habits and flower heads. Distinctive white to off-white seeding heads with green or purple tinges. Seeds have fluffy white hairs (often in 3 rings) and a central honey brown awn and 2 side awns.
Key features of some MLR examples	Narrow-head Wallaby Grass (<i>Rytidosperma racemosum</i>): fine-leaved tussock. Seed with long 'neck', bottom row of hairs interrupted in middle, long narrow flowerhead with spikelets held tight against stalk, sometimes arching, to 40 cm. Hairy Wallaby Grass (<i>Rytidosperma pilosum</i>): fine narrow, hairy-leaved tussock. Seed with bottom row of hairs missing at the outer edges. Smooth-flower Wallaby Grass (<i>Rytidosperma laeve</i>): fine-leaved tussock, seed with almost no middle ring of hairs.
Flowering time	Late spring, summer and autumn, depending on timing of rainfall.
Fertiliser	Most <i>Rytidosperma</i> species respond positively to nitrogen
Frost	High tolerance
Drought	High tolerance
Grazing	Tolerant. Responds to rotational grazing, rest pasture in spring (mainly) for flowering and seed set. Rest pasture after rains in spring/autumn for seedling establishment. Moderate to high forage value. <i>R. racemosum</i> : Metabolisable energy 9.6 MJ/Kg DM. Crude protein 10.8%. Digestibility 65%.
Growing season	Perennial, most active in winter, flowering late spring to early summer. (C3 grass).
Distribution	MLR: About 14 species, 8 of which are common. Many are widespread, especially in grasslands and woodlands, although some have very specific habitat requirements. Natural stands are usually a mix of species. Common in SA. Also in WA, NSW, Vic, Tas, Qld.
Weed mimics	*Pussy Tail Grass (<i>Pentameris pallida</i> , <i>Pentaschistis pallida</i>). Most similar to <i>Rytidosperma setaceum</i> . Small hairy tussock, intricate flower head with many tiny glumes, shiny golden when young, maturing rusty brown. See Wallaby Grass 3.

Wallaby Grass 3 *Rytidosperma* species – Seed with hairs between rings as well as in rings

Short Wallaby Grass *Rytidosperma carphoides*



Flower head



Seed hairy all over, very short awns

Tawny Wallaby Grass *Rytidosperma fulvum*



Flower head



Seed; seed fluffy, central awn longer

Knead Wallaby Grass *Rytidosperma geniculatum*



Habit; low growing tussock



Flower head



Seed; 3 awns on seed similar length

Weed

*Pussy Tail Grass
Pentameris pallida



Habit; soft hairy on many parts



Flower head; many tiny golden flowers



Seed hairs not in rings

Wallaby Grass 3	<i>Rytidosperma</i> species Seed with hairs between rings as well as in rings
Also known as	Austrodanthonia, Danthonia
Description	Hardy coarse- or fine-leaved perennial tussocks, variable in size and growth habits and flower heads. Distinctive white to off-white seeding heads with green or purple tinges. Seeds have fluffy white hairs (often in 3 rings) and a central honey brown awn and 2 side awns.
Key features of some MLR examples	Tawny Wallaby Grass (<i>Rytidosperma fulvum</i>): large tussock, broad blue-green leaves, seeds with very fluffy white hairs, tall erect flowering stems to 80 cm with regularly spaced spikelets held close to the stalk. A grassland specialist. Knead Wallaby Grass (<i>Rytidosperma geniculatum</i>): low growing tussock, fine leaved, seed central awn and 2 side awns all short and the same length, short compact flowering stems to 30 cm, stem often emerging sideways and then turning straight up at a distinct bend / joint in the stalk. Short Wallaby Grass (<i>Rytidosperma carphoides</i>): low growing tussock, short fat busy flower head, very short awns not very visible. Not common in this region.
Fertiliser	Most <i>Rytidosperma</i> species respond positively to nitrogen
Frost	High tolerance
Drought	High tolerance
Grazing	Tolerant. Responds to rotational grazing, rest pasture in spring (mainly) for flowering and seed set. Rest pasture after rains in spring/autumn for seedling establishment. Moderate to high forage value. <i>R. geniculatum</i> : Metabolisable energy 8.6-9.3 MJ/Kg DM. Crude protein 10-20%. Digestibility 59-63%.
Growing season	Perennial, most active in winter, flowering in spring to early summer. (C3 grass).
Distribution	MLR: About 14 species, 8 of which are common. Many are widespread, especially in grasslands and woodlands, although some have very specific habitat requirements. Natural stands are usually a mix of species. Common in SA. Also in WA, NSW, Vic, Tas, Qld.
Weed mimics	*Pussy Tail Grass (<i>Pentameris pallida</i> , <i>Pentaschistis pallida</i>). Most similar to <i>Rytidosperma setaceum</i> . Small hairy tussock, intricate flower head with many tiny glumes, shiny golden when young, maturing rusty brown. See Wallaby Grass 3.

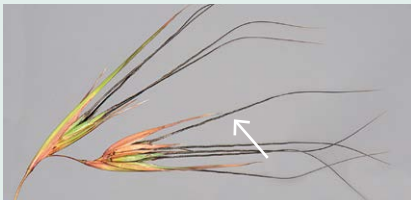
Kangaroo Grass *Themeda triandra*



Habit; large upright tussock



Flower heads



Seeding head, with long dark awns



Old seed heads are carrot-red in colour

Weed

*Coolatai Grass *Hyparrhenia hirta*



Habit; big bluish tussocks



Flower; short awns

Kangaroo Grass	<i>Themeda triandra</i>
Description	Large upright tussock. Leaves up to 50 cm long. New leaves are green while older leaves tend to have a rusty red appearance. Flower heads held well above foliage and are relatively large, sometimes drooping; green when young but usually maturing to rusty red.
Key features	Flower heads are busy-looking and rusty-red when ripe. Individual seeds in the head have long black crooked awns.
Height	Upright foliage 40 to 90 cm, flower heads to over 1 m.
Flowering time	Flowering can occur throughout summer from December to late April
Fertiliser	Responds well but loses dominance and decreases in frequency
Frost	Low to moderate tolerance
Drought	High tolerance, deep rooted.
Grazing	Low tolerance, decreased growth under heavy grazing. Lightly stock periodically over summer when actively growing. Regularly remove stock and rest pasture, particularly over winter. Moderate to high forage value. Metabolisable energy 8.9 MJ/Kg DM. Crude protein 13.5%. Digestibility 61%.
Growing season	Perennial, most active in summer, flowering in early summer. Plants tend to be dormant in winter. (C4 grass).
Distribution	MLR: Once very common but grazed and cropped out. Widespread in woodlands and arid grasslands in SA. Also in every state and territory.
Weed mimics	*Coolatai Grass (<i>Hypparrhenia hirta</i>) is a big tussock, flowers with short red-brown awns.

References

Agriculture Victoria 2006, *Native grasses*, note number: AG0720, online: <http://agriculture.vic.gov.au/agriculture/farm-management/native-vegetation/a-guide-to-native-pasture-management>

Bennett, E and Myers, R 2017 *Kangaroo Grass* (Themeda triandra) *species information sheet 2nd Edn.* Native Grass Resources Group Inc. South Australia <https://nativegrassresourcesgroup.files.wordpress.com/2017/03/ngrg-kangaroo-grass-info-sheet-2nd-edn1.pdf>

City of Whittlesea n.d., *Benefits of native pastures*, www.whittlesea.vic.gov.au

Edwards, C Rose, H and Pereira, S 2015, *Common native grasses of Central West NSW, an identification guide for central west NSW*, revised edn, Local Land Services, NSW Government.

Foster, P Reseigh, J and Myers, R 2009, *An introduction to the nutritional composition of Australian native grasses: forage and seed*, Rural Solutions SA, Adelaide.

Gibbs, J and Gibbs, R 2005, *Grass identification manual for everyone* 2nd edn, Native Grass Resources Group Inc., Mount Lofty Ranges Catchment Program, Adelaide.

Greening Australia 2011, *Bothriochloa macra*, Florabank fact sheet, online: https://www.greeningaustralia.org.au/uploads/knowledge-portal/Bothriochloa_marca.pdf

Hooker, N 2010, *Native grasses for revegetation in the Townsville region*, Coastal Dry Tropics Landcare Inc., Townsville.

Lodge, GM, Robinson, GG and Simpson, PC 1990, 'Grasses, native and naturalised', *Agfacts* P2.5.32, NSW Agriculture.

Martin, B 2005, *Native grasses, native pastures for the Mallee*, a revegetation fact sheet, Murray Mallee Local Action Planning.

Mitchell, M 2004, *Native grasses: An identification handbook for temperate Australia*. Third Edition. Landlink Press, Victoria.

Mokany, K Friend, D Kirkpatrick, J and Gilfedder, L 2006, *Managing Tasmanian native pastures – a technical guide for graziers*. Tasmanian Institute of Agricultural Research, Hobart.

Myers, R and Bennett, E 2012, *Understanding C3 and C4 native grass species*, Native Grass Resources Group Inc. South Australia <https://nativegrassresourcesgroup.files.wordpress.com/2015/01/understandingc3c4.pdf>

Myres, R 2001, *Native grasses for sustainable land*

management, Native Grass Resources Group Inc., Mount Barker, South Australia.

Native Grass Resources Group Inc. 2005, *Landscaping – which native grasses to grow*, Mt Barker, South Australia.

NSW Department of Primary Industries n.d., 'Grassed up' – *Bothriochloa macra* (Red grass), fact sheet online: www.dpi.nsw.gov.au/agriculture/pastures/pastures-and-rangelands/rangelands/publications/grassedup/species/red-grass

Stafford, J 1996, *Weeping Rice-grass* (Microlaena stipoides), species information sheet, Native Grass Resources Group Inc. Mount Barker, South Australia.

Thomson, L and Penfold, C 2012, *Cover crops and vineyard biodiversity*, Grape and Wine Research and Development Corporation, Adelaide South Australia, online: www.gwrdc.com.au/wp-content/uploads/2012/09/2012-07-FS-Cover-Crops-Biodiversity1.pdf

Waters, , Whalley, W and Huxtable, C 2002, *Grassed up – guidelines for revegetating with Australian native grasses*, NSW Department of Primary Industries.

Field notes

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