

## Introduced pastures & legumes



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Sowing introduced perennial pastures and legumes can bring about a **range of benefits** to improve stock production and reverse declining pasture and soil health. When managed using sustainable grazing practices, sown pastures can rejuvenate run-down native pastures and old cultivated country. Once established, **well managed sown pastures should persist for more than 10 years.**

The types of introduced grasses and legumes suitable for a particular area will depend on the soil and land type and on the cost and availability of seed.

After several decades of working on suitable sown pastures, the Queensland Department of Primary Industries has developed a table of best bet introduced pasture species and varieties for major land types and soils in the Moreton district of South East Queensland (SEQ) which has been reproduced on pg 3.

### Native pastures versus introduced pastures

Where pastures already contain a significant proportion of desirable native 3 P (Perennial, Productive, Palatable) species such as Black speargrass, Forest bluegrass, or Queensland bluegrass, it is not recommended to replace these with sown pastures.

Careful management of native pasture provides the **cheapest long-term fodder source for stock and maximises biodiversity.** The addition of a perennial legume may be all that is needed to give native pasture a worthwhile boost.

Keep in mind that the addition of suitable legumes may be enough to boost native or run-down sown pastures by increasing pasture quality, carrying capacity, and animal performance. Sown pastures are not recommended for some land types and soils (e.g. Ironbarks and Spotted gum ridges, Gum-topped box forest) because of low fertility and the potential to cause erosion.

#### The 3 Ps

**Perennial:** present all year round, and more resilient to fluctuating seasonal conditions and grazing.

**Productive:** produces a large amount of forage over time.

**Palatable:** high proportion of leaf and actively selected by stock.



Rhodes grass



Forest bluegrass

See Healthy Land and Water's *Pasture condition and native pasture species* factsheet for more information.

In some circumstances, it can be beneficial to sow introduced pasture species where native species have been overtaken by undesirable species such as wiregrass, or exotic weedy grasses.

These undesirable species are often unpalatable for livestock and create a hostile environment for native flora and fauna. As well as providing an option for managing weeds, sown pastures can also be used to strategically spell native pastures.

**Sown pastures are generally more productive and have higher carrying-capacity** than native pastures. Sown pastures often provide higher quality feed and have a longer growing season than native pastures.



*Setaria sphacelata* (left), *Rhodes grass* (top right), *Pangola grass* (bottom right)

New sown pasture will be the most productive for the first 3 to 5 years. After this, there is usually a tie-up of nitrogen in the soil and production decreases. Pasture "run-down" can be managed by application of fertiliser or deep ripping, however renovation by itself is a band-aid solution.

**Adding a legume(s) is essential** to halt pasture decline and unless renovation is accompanied by improved grazing management, the pasture will quickly return to its degraded state.

## Best bet introduced pasture species

Land type and main soil type	Best bet introduced grass	Best bet introduced legumes	Other introduced grass options
<b>Blue gum on alluvial flats**</b> Black clays, alluvial clay loams, red-brown earths	Rhodes grass ( <i>Callide</i> ) Creeping bluegrass Pangola grass*** Green and Gatton panic Setaria Swann Forest bluegrass	Lucerne Clover Annual medics Siratro Lotononis (well drained soils) Leucaena*	Kikuyu (high fertility areas) Paspalum Bambatsi panic (heavy clay soils) Floren bluegrass (cracking clays)
<b>Ironbark and gum on clays**</b> Prairie soils, clays and clay loams	Rhodes grass ( <i>Callide</i> ) Creeping bluegrass Pangola grass*** Green and Gatton panic	Lucerne Clover Annual medics Siratro Stylos	
<b>Rainforest on basalt Tall open forest on basalt**</b> Red volcanic soils	Kikuyu Green panic Rhodes grass	Clover Medics Glycine* Creeping vigna Siratro	Paspalum Creeping bluegrass
<b>Softwood vine scrub**</b> Brown and grey clays, prairie soils	Green panic Rhodes grass Creeping bluegrass	Glycine* Siratro Stylo Leucaena* Clover Medics	Kikuyu
<b>Brigalow forest**</b> Grey and brown clays	Green panic Rhodes grass Bambatsi panic	Siratro Stylos Leuceana*	



<b>Ironbark and Spotted gum on duplexes and loams</b> Non-calcic brown soils, red and yellow podzolics	Katambora Rhodes grass Creeping bluegrass	Wynn cassia Siratro Stylos	
<b>Ironbark** on granite</b> Earthy sands, red and yellow podzolics	Katambora Rhodes Creeping bluegrass Pangola grass*** Setaria	Wynn cassia Siratro Stylos Lotononis	
<b>Mixed eucalypt forest** on coastal sands</b> Earthy sands	Pangola grass*** Paspalum Setaria Katambora Rhodes Creeping bluegrass	Lotononis, Creeping ligna Lotus Siratro	

\* Some pastures & legumes can pose a threat to the environment if not carefully managed.

\*\* Refers to previously cleared land types.

\*\*\* Pangola grass can only be established vegetatively i.e. by planting runners.

The above recommendations are generally for cattle pastures. Pasture mixes for horses may need to be modified to avoid potentially high oxalate content grasses, e.g. Setaria.

## Key tips for sown pasture establishment and management

**Plan ahead:** Establishing sown pastures is expensive and given the long payback period should be carefully considered. If your native pastures are degraded or sown pastures run-down because of unsustainable grazing practices, planting sown pastures without improved grazing management will see the pastures quickly return to their degraded state.

**Prioritise:** Target suitable land types and concentrate on the most suitable areas of the property first. Land type provides a detailed description of the land and its suitability for a range of management activities. A property plan can help identify your land type.

**Get a soil test** to determine nutrient levels and possible imbalances requiring soil amendments such as fertilisers, lime or gypsum.

**Select an appropriate grass and legume species** for your soil type, climate and long-term management goals. In SEQ, varying elevations and microclimates can have local effects on the success of a pasture e.g creek flats susceptible to frosts or elevated areas with longer growing seasons.

**Seek advice** from others. If you are new to an area, talk to local landholders about what pastures and establishment and management techniques have been successful in the immediate area.

Always **purchase high quality seed** – check seed germination and purity tests, and make sure it is free of weed seeds.

Always aim to **sow on good soil moisture at optimum times** for the intended pasture/legume species.

**Inoculate legume seed before sowing.**

**Sow seeds at recommended rates** to ensure good establishment and early production.

**Do not bury the seed** – most pasture and legume seeds are small and cannot emerge if planted at over 1cm depth.

**Good grazing management is critical** for initial establishment and long-term production of sown pastures. In the first season, allow plants to grow and roots to develop. Consider light grazing only to encourage tillering and root development. Spell in late summer to allow pastures to set seed.

**Manage and monitor all pastures regularly** to ensure safe utilisation rates are achieved to maximise long-term sustainable production. Utilisation is managed by adjusting stock numbers according to pasture availability, with sustainable utilisation rates of established sown pastures usually around 30 - 40 % of annual forage growth.

**Regular spell or rest sown pasture at appropriate times** to enable desirable grasses and legumes to recover and set seed. Managed rotational grazing can allow more even utilisation and better budgeting of the feed supply.

**Legumes are an important component** of any pasture and should be considered an essential addition to sown pastures to provide high quality feed at particular times of the year, and improve soil fertility by increasing the availability of soil nitrogen and thus help to reduce pasture rundown.

**Prepare:** Reduce weed competition early in the season prior to sowing through cultivation and/or spraying, or in the case of particularly weedy situations, plant following successive crops.





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#### SOURCES

- QDPI BeefTalk (2005), Sown pastures for Moreton region.
- DEEDI (2009), Pasture management for the inland Burnett.
- DAFF FutureBeef website (2012) - Land types of Queensland - Moreton region v2
- DAFF FutureBeef website (2012) Establishing sown pastures

#### Other useful resources:

- Pastures for Protection & Production on marginal cropping lands, 2009, DEEDI
- Grazing land management - Technical manual and workshop notes (2003) Meat and Livestock Australia
- Land Condition Photo (Standards for the Burdekin Dry Tropics Rangelands (2009) CSIRO, MLA, DPI&F)



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