



A collaboration between AWI, GRDC, MLA, RIRDC and Dairy Australia

## Tall fescue

### Scientific name(s)

*Festuca arundinacea*

### Strengths

- Deep rooted perennial
- Adapted to a wide range of soil types
- Tolerant of wet/poorly drained soils
- Tolerant of moderate salinity
- Provides good year-round production of quality feed
- Does not frost off in winter as readily as phalaris and cocksfoot

### Limitations

- Relatively slow to establish
- Heavy grazing, particularly during late spring/summer may reduce persistence particularly in drier marginal areas
- Temperate types need significant summer rainfall or irrigation to maintain high production and persistence
- May cause animal health problem known as 'Fescue Foot'

### Plant description

**Plant:** A deep rooted, tufted, largely hairless perennial, with erect, unbranched tillers arising from deep underground rhizomes (horizontal stems). It can grow to 2m tall at flowering.

There are two types grown in Australia:

- temperate varieties that grow in spring, summer and autumn and are suited to high rainfall, temperate climates.
- Mediterranean varieties that grow well in winter but are summer dormant and are better suited to winter rainfall regions

**Leaves:** Numerous dark green basal leaves, 4 - 15 mm wide and 10 - 60 cm long. Leaves are rolled in bud, becoming flat and tapered at the end. The upper leaf surface is dull and the lower leaf surface is smooth glossy with the leaf edges rough to touch.

**Seedhead:** The seedhead is a loosely branching panicle, 10 - 30 cm long.

**Seeds:** The seed is about the size and shape of ryegrass, with 420,000 - 500,000 seeds per kg.

### Pasture type and use

Tall fescue is principally sown in permanent pastures for cattle and sheep grazing.

### Where it grows

#### Rainfall

>650 mm for the spring-summer active types preferably with summer rain  
>450 mm for summer-dormant (winter-active) varieties.

#### Soils

Grows across a wide range of soil types from sandy to heavy clay soils. Tall fescue tolerates

wet soils and short periods of flooding, but also has moderate drought tolerance. Tall fescue can tolerate soil acidity below pHCa 4.8, and moderately high levels of soil aluminium (up to 20% of CEC). However, it is most productive when soil pHCa is 5.0 to 6.5. On the more acid soils with high levels of exchangeable aluminium liming may be required. It can also tolerate moderately saline soils (<8 dS/m(ECe)).

### **Temperature**

Tall fescue is a cool season grass and is suited to areas with mild to warm summers and cool to mild winters. It is more tolerant of frost in early winter than cocksfoot and phalaris.

## **Establishment**

### **Companion species**

Grasses: cocksfoot, phalaris, ryegrass

Legumes: subterranean, red and white clovers, lotus, lucerne.

### **Sowing/planting rates as single species**

6 -15 kg/ha

### **Sowing/planting rates in mixtures**

3 -10 kg/ha

If using a more vigorous grass species such as perennial ryegrass a seeding rate of less than 2 kg/ha of ryegrass is preferred.

### **Sowing time**

The best time to sow tall fescue is in autumn to early winter (March - June) when soil moisture is adequate. In high altitude, high rainfall areas, spring sowing (September) can also be successful.

### **Inoculation**

Not applicable

### **Fertiliser**

At sowing, a compound or starter fertiliser (containing nitrogen, phosphorus and sulphur) should be used. If applying fertiliser with seed, nitrogen rates should not exceed 20 kg N/ha.

## **Management**

### **Maintenance fertiliser**

Phosphorus and sulphur are the major nutrients of concern particularly to promote good clover growth, and hence adequate nitrogen for the grass. Annual applications of these nutrients will depend on soil nutrient levels. At moderate stocking rates of 5 - 7 DSE/ha, a maintenance dressing of 125 kg/ha of single superphosphate is often adequate. If tall fescue is not sown with a legume, nitrogen fertiliser will be required. Deficiencies of molybdenum and other trace elements should be corrected.

### **Grazing/cutting**

Most tall fescue cultivars exhibit poor seedling vigour, resulting in slow establishment. Grazing management during the first 12 months after sowing is particularly important to ensure a satisfactory plant population. Establishing stands of tall fescue should only be grazed when the root system is well developed and will not be pulled out of the ground. Once established, the pasture should be kept within the 'active growth' phase to maximise pasture growth rates and feed quality, allow rapid post-grazing recovery, and encourage companion legumes. During autumn and winter (non-reproductive phase) tall fescue should be grazed in the range of 5 - 15 cm. In spring (reproductive phase), tall fescue should be grazed in the range of 3 - 10 cm (when pasture mass reaches around 2 - 3 t DM/ha) to prevent stem development and optimize palatability. Such intensive grazing means that the grazing rotation needs to be reduced to 12-14 days during spring.

### **Seed production**

Has the potential to produce large amount of seed (50-150 kg/ha). To increase stand density

tall fescue paddocks should be opportunistically locked up over spring/summer to allow seed set. The pasture should then be strategically grazed to reduce pasture biomass to allow seedling recruitment. Heading commences about mid-September and seed may be ripe by mid-December.

### Ability to spread

Will regenerate from seed, but has poor seedling vigour. Is able to spread slowly vegetatively by short rhizomes.

### Weed potential

Low weed potential

### Major pests

Tall fescue can be attacked by pasture scarabs (but is more tolerant than most other temperate grasses), red-legged earth mites, blue oat mites, field crickets, slugs and snails.

### Major diseases

Leaf diseases (e.g. rust, blights) occasionally occur on tall fescue, particularly in humid summer conditions.

### Herbicide susceptibility

Herbicides are available to selectively control broadleaf weeds. Generally applied after first leaf stage.

## Animal production

### Feeding value

Tall fescue has a high nutritive value comparing favourably to perennial ryegrass and phalaris. Digestibility ranges from 60-80% DMD, metabolisable energy from 8.5-11.5 MJ and crude protein from 7.5-25%.

### Palatability

Very palatable feed

### Production potential

Valuable feed for maintenance, growing and finishing livestock provided management maintains pasture in vegetative phase & adequate clover.

### Livestock disorders/toxicity

Sporadic reports of 'fescue foot' in stock grazing tall fescue dominant pasture. Symptoms include heat stress, severe lameness, reduced feed intake and poor weight gains. Fescue foot is caused by a toxin 'ergovaline' produced by a fungus (endophyte) associated with tall fescue plants. This condition is not common as current cultivars either have no or very low levels of endophyte.

## Cultivars

Varieties should be initially selected on the basis of type and maturity, and then local performance, seedling vigour, and rust resistance.

Group	Cultivar	Seed source/Information
<u>Temperate types</u>		
very early flowering	AU Triumph	Public variety
	Quantum	Wrightson Seeds
	Quantum Max P®	Wrightson Seeds
	Quantum II Max P®	Wrightson Seeds
mid-late flowering	Grasslands Advance 	PGG Seeds

	Grasslands Advance Max P® Ⓟ	PGG Seeds
	Demeter	Australian Herbage Plant Cultivars Seedmark
	Dovey	Heritage Seeds
	Jesup	PGG Seeds
	Jesup Max P®	PGG Seeds
	Lunibelle	Specialty Seeds
	Torpedo	PGG Wrightson
	Typhoon	PGG Seeds
late flowering	Vulcan II	Wrightson Seeds
	Carmine	Seed Distributors
<u>Mediterranean types</u>		
mid season flowering	Grasslands Flecha Ⓟ	PGG Seeds
	Grasslands Flecha Max P® Ⓟ	PGG Seeds
	Fraydo Ⓟ	Australian Herbage Plant Cultivars Seedmark
	Prosper Ⓟ	Heritage Seeds
	Resolute Ⓟ	Wrightson Seeds
	Resolute Max P® Ⓟ	Wrightson Seeds
	Origin	Seed Distributors

**Note:**

MaxP®

- 'novel endophyte' in some of the tall fescues now commercially available
- helps protect the plant against insect attack and may also improve plant tolerance of environmental stresses
- safe for dairy cows and will not cause staggers or heat stress problems.

Ⓟ Denotes that this variety is protected by Plant Breeder's Rights Australia

## Acknowledgements

Information has been adapted from NSW Department of Primary Industries Agnote DPI-285 and NSW Department of Primary Industries Tall Fescue Agfact P2.5.6 4th Edition 2003.

Additional information has been drawn from "Grasses for Dryland Dairying Tall Fescue: Species and Cultivars", AG1241, and "Grasses for Dryland Dairying Tall Fescue: Management for Production and Persistence", AG1265, both by Viv Burnett, Rutherglen of the Victorian Department of Primary Industries.

## Author and date

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