



# Grasses for Dryland Dairying

## Tall Fescue: Species and Cultivars

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This Agriculture Note provides information on Tall Fescue and its suitability for dryland dairying areas in Victoria.

### Introduction

Tall fescue (*Festuca arundinacea* Schreb.) is a perennial temperate grass (C3) native to Europe but highly suited to livestock grazing systems in southeast Australia. Tall fescue has a deeper root system than perennial ryegrass and is generally more tolerant of heat, salinity and dry soil conditions. It is a nutritious grass and can rival perennial ryegrass for feeding value provided it is managed according to guidelines for the species. Tall fescue can be used in dryland dairying areas, especially where summer feed is required and soil conditions do not suit other grass species.

### Types of Tall Fescue

There are two main types of tall fescue:

- Continental – winter growth varies with cultivar;
- Mediterranean – summer dormant.

Continental tall fescue can be grown in southern Victoria and also in the northern Victorian irrigation area. Mediterranean tall fescue can be grown throughout central Victoria and East Gippsland. Both types are suitable in parts of North East and North Central Victoria (Figure 1). The introduction of novel endophyte technology has extended the areas where both types can be grown and producers should consult their local pasture seed representatives for recommended cultivars. Where can Tall Fescue grow?

### Soil conditions

Tall fescue is more suited to soil types that are medium to heavy in texture, which means they have high clay content and are able to retain water and nutrients. Tall fescue is generally tolerant of flooded and waterlogged areas and depending on the cultivar, is tolerant of acidic soils with pH<sub>Ca</sub> between 4.8 – 8.5. It will also survive in moderately saline soils of less than 10 dS/m (ECe).

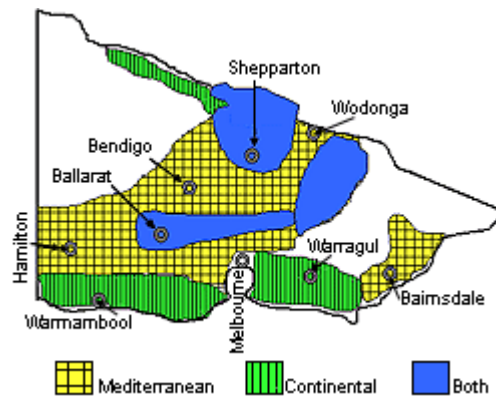


Figure 1. Suitability of Tall Fescue types in Victoria.

### Soil fertility

Tall fescue can tolerate low fertility, including acidic soils with high aluminium levels but productivity will be affected. Tall fescue responds well to high soil fertility, especially available nitrogen and phosphorus.

Target soil fertility levels for tall fescue for dairy production should be about 30 mg/kg phosphorus (Olsen P), 15 mg/kg sulphur (MCP SO<sub>4</sub><sup>2-</sup>) and about 250 mg/kg potassium (Colwell). Maintenance phosphorus requirements are 30-50 kg P/ha/year (Milne, 2001) but will vary according to soil type, stocking rate and production levels.

### Rainfall

Continental tall fescue is suited to areas receiving 600 mm or more annual rainfall, some of which needs to occur during the summer months to achieve optimum production. Mediterranean tall fescue is suited to lower rainfall areas of 450-600 mm, occurring during the winter months in line with its production cycle.

### Advantages of Tall Fescue

- Deep-rooted perennial grass;
- Tolerant of drought, low fertility, waterlogged, low level salinity and acidic soil conditions;
- Compatible with subterranean clover and white clover;

- Develops a robust pasture that is resistant to livestock trampling;
- Soft-leaved varieties are highly palatable and nutritious for dairy cattle;
- More even production across spring, summer and autumn;
- Does not contain endophytes, except some earlier seedlines of Demeter fescue) which produce toxins harmful to animal performance, as found in some perennial ryegrass types;
- More tolerant of frost in early winter than cocksfoot and phalaris;
- May be useful in reducing deep drainage in salinity recharge areas.

### Disadvantages of Tall Fescue

- Slow to establish;
- Can be limited by severe cold;
- Continental types require regular summer rainfall to reach their full potential;
- Requires different grazing management compared to perennial ryegrass which, if not practiced, can lead to loss of pasture quality and accumulation of stem and dead material;
- Requires good grazing management through spring to maintain nutritive value.

### Rust in Tall Fescue

Some cultivars are susceptible to leaf diseases such as rust, especially in warm humid environments. Cultivar selection in these areas should include rust resistance if possible.

### Tall Fescue cultivars suitable for dryland dairying in Victoria

#### Continental types

##### *Grasslands Advance*

This cultivar is used on dryland dairy farms in Victoria and compares favourably with perennial ryegrass based pastures for spring, summer and autumn production. It is very palatable to stock because of its soft leaves and has better persistence on lighter soils than perennial ryegrass. Advance requires soil salinity levels of less than 10dS/m (Ece).

In experiments conducted by the University of Melbourne in south west Victoria, pastures based on Advance tall fescue have been shown to persist better than perennial ryegrass pastures, and to result in more even seasonal distribution of growth (Nie *et al.*, (a) 2004). They have also proven equal to, or better than, perennial ryegrass in milk production potential, provided they are well managed to maintain green leafy feed.

##### *Vulcan II*

Vulcan II has soft leaves and better palatability than either AU Triumph and Quantum. It requires 700 mm+ rainfall but is less productive in winter with lower seedling vigour than AU Triumph.

##### *Typhoon*

This cultivar is suited to higher rainfall areas with at least 625 mm and summer rainfall. It has soft leaves, high palatability and nutritive value and is suited for dairy farms.

##### *Jesup MaxP<sup>®</sup>*

Jesup MaxP<sup>®</sup> can be used where soil conditions and climate are not suitable for Advance. It tolerates heat and drought to a greater extent than Advance and is more persistent. Jesup MaxP<sup>®</sup> requires rainfall of at least 600 mm with regular summer rainfall to achieve its full potential. It has leaves that are of intermediate strength so is therefore less palatable than Advance.

##### *Dovey*

The main advantage of Dovey is its rapid emergence and establishment vigour. It can provide growth throughout the year but has lower palatability and poorer nutritive value than other soft leaved cultivars.

##### *Quantum*

This cultivar is a replacement for AU Triumph and has good winter growth but is not as palatable as Advance. It is an early flowering type but has lower feed quality than perennial ryegrass.

##### *Demeter*

Demeter is a resilient Australian cultivar that has been grown since 1931. It has poor seedling vigour and winter growth, low palatability and some lines have endophyte infection. It is now being superseded by newer cultivars.

#### Mediterranean types

##### *Grasslands Flecha MaxP<sup>®</sup>*

This cultivar is used on dairy farms and complements Advance in providing good winter production in north east Victoria and east Gippsland. Flecha MaxP<sup>®</sup> is a highly palatable cultivar, with rapid establishment and tolerance to rust. It goes dormant in early summer with growth commencing in autumn when temperatures are cooler and soils become moist.

##### *Prosper*

Prosper has good rust and disease resistance. It is an erect variety with fine leaves.

##### *Fraydo*

Like Prosper, Fraydo is an erect variety with medium leaf width and is early maturing.

##### *Resolute*

This cultivar has a semi-prostrate growth habit with broad leaves. There is some evidence to suggest that it may not have complete summer dormancy and it is still being evaluated.

## Beneficial endophytes – Max P®

Some of the tall fescues now available commercially contain a special endophyte called MaxP® which helps protect the plant against insect attack and may also improve plant tolerance of environmental stresses. These ‘novel endophytes’ are safe for dairy cows and will not cause staggers or heat stress problems. The ‘novel endophytes’ work in a similar way to novel endophytes in perennial ryegrass, with the important difference that, for tall fescue, the breeders have added beneficial endophyte fungus to the plant where no endophyte existed before, whereas for perennial ryegrass they have replaced the naturally-occurring harmful endophyte with beneficial endophyte.

## Further reading

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*Figure 2. Tall Fescue (Festuca arundinacea Schreb.) vegetative growth.*

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