# Evaluation of meat production from improved tall fescue cultivars

G. Milne[1], F. Johnson[2], and H. Eisenhauer[2]

[1]*Grassline, AgResearch Grasslands, Palmerston North, New Zealand*
[2]*Pacific Seeds Pty. Ltd, Albury, NSW 2640, Australia*

The 'Fescue for Meat' project was set up in 1994 to evaluate and demonstrate the potential of new tall fescue cultivars to grow meat producing animals. The project is funded by the Australian Meat & Live-stock Corporation and Pacific Seeds.

In recent years, several new tall fescue cultivars have been released that provide improvements to establishment speed and vigour, palatability, and stock liveweight gain (LWG). They are alternatives to the cultivar Demeter, which has limitations of poor establishment and low stock palatability. Under correct management, the new cultivars may also be suitable in regions where tall fescue has not been traditionally used.

## Methods

Comparisons were set up on 27 commercial meat-producing properties in NSW, Victoria, and South Australia. Up to 40 hectares of new tall fescue were sown on each farm and compared with an equivalent area of pasture sown to Demeter tall fescue, or the most common pasture mix for the district. Treatment and control pastures were established with the same methods and have recieved the same fertiliser and herbicide inputs.

Farmers and local agronomists have been working together to assess per head and per hectare LWG in cattle and sheep. Trials were conducted with numbered animals of the same sex, breed, and weight being weighed onto pastures with the same cover. Pasture covers were equalised between treatments during the trials using a put-and-take method. Each trial lasted for between 40 and 150 days. Animals were individually weighed again at the end of the trial period.

Of the sites where data was collected, 53% were split paddocks and 47% paired paddocks. 20% of the comparisons were not sown at the same time as the tall fescue pastures, and data from these sites has been excluded from this paper. 47% of trials were conducted over summer and autumn, 33% in spring and 20% in winter.

Seven sites were sown in regions where Demeter tall fescue was commonly used (northern and central NSW Tablelands), and the rest in regions where tall fescue was not commonly used. Pastures were established using local methods and managed under the guidance of agronomists and the project management team.

Interested farmers and service industry staff are kept up to date with regular newsletters detailing results, field days, and through nine co-learner groups.

As well as evaluating tall fescue pastures, the project aims to ensure that new pastures based on the improved cultivars are sown in appropriate paddocks and regions, and are managed to achieve best economic results.

The project will be completed in June 1999, when final results will be published. This paper presents a summary of results achieved to March 1988.

## Results

Of the 27 sites sown, three failed to establish. These three sites were in regions considered marginal for tall fescue and they suffered from droughts in the first year. Of the 24 established, one has failed to persist. This site was in the lower Hunter Valley and lasted for two years, with the pasture dying over the summer of 1998 which was the hottest in 50 years and followed a winter-spring drought.

**Table 1: Average feed quality.**

| | Crude protein (% DM) | Digestibility (% DM) | ME (MJ/kg DM) |
|---|---|---|---|
| Tall fescue | 16.6 | 74 | 10.5 |
| Perennial ryegrass | 13.3 | 71 | 10.2 |
| | n.s. | n.s. | n.s. |

Persistence results to date suggest that under correct management, tall fescue can be used successfully in some regions previously considered as unsuitable.

When results from all sites are averaged, the new tall fescue cultivars produced 13% higher per head LWG in cattle and sheep, and 19% more per hectare (Figure 1).

Insufficient data was collected from comparisons with phalaris or cocksfoot to draw any conclusions at this stage.

Sheep showed larger differences in LWG per head (+26%) between tall fescue and comparison pastures than cattle (+1%), but increases in carrying capacity were the same.

The largest advantages in LWG per hectare came in spring (+20%) and summer (+42%).

Five feed quality tests of whole pasture taken in conjunction with LWG trials show that, on average, tall fescue pastures had 25% more crude protein than perennial ryegrass comparators ($P<0.05$), and the same digestibility and energy levels (Table 1).

## Other observations

Farmers generally found the new cultivars to be reliable to establish and palatable to stock. No animal health disorders were observed.

Tall fescue pastures have been most successful where good establishment methods have been used, soil fertility is moderate or high, fertiliser is regularly applied at moderate to high rates, soils retain moisture well, summer rainfall is common or irrigation is used, and pastures are spelled during droughts.

## Conclusions

Results from the first four years of the project indicate that good levels of LWG per animal and per hectare can be achieved from the new tall fescue pastures when compared with other pasture types.

Advantages in LWG are greater with sheep than cattle.

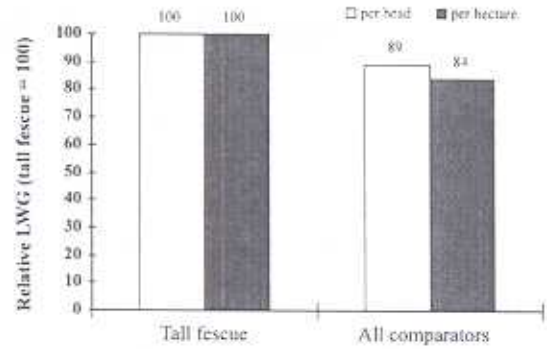


**Figure 1: Relative liveweight gain of sheep and cattle grazing tall fescue (=100) compared with all pasture comparisons.**

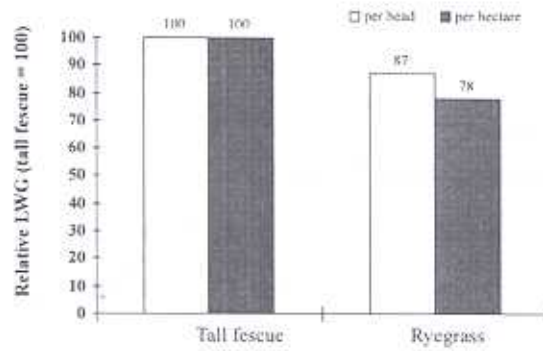


**Figure 2: Relative liveweight gain of sheep and cattle grazing tall fescue (=100) compared with perennial ryegrass.**

- The tall fescue pastures have generally established and persisted well.
- The new tall fescue cultivars have proven to be good alternatives to Demeter tall fescue in regions where tall fescue has commonly been used.
- LWG on tall fescue was superior to perennial ryegrass in all seasons measured. In regions where perennial ryegrass has been the most common pasture type, the new tall fescue cultivars can be used as alternatives, when sown in a suitable environment and managed to suit tall fescue.
- The new tall fescue cultivars can be used as specialist pastures on heavy and fertile soils to provide quality feed for growing animals whenever there is adequate soil moisture.