

Where westerwolds work well

A.M. Leddin

Valley Seeds, 295 Maroondah Link Highway, Alexandra VIC 3714
<aleddin@valleyseeds.com>

Abstract. *Westerwolds ryegrass (Lolium westerwoldicum) has been grouped with Italian ryegrass (Lolium multiflorum) in trials but is specifically developed for herbage dry matter production over one year. Its high winter production makes up for its lack of production later in the season when Italian ryegrasses continue to produce vegetative material.*

Introduction

Westerwolds ryegrass, also commonly known as annual ryegrass, was first developed in the Netherlands in the early 1900s (Haan 1955). Selections from Italian ryegrass (*Lolium multiflorum*), commonly known as short-term ryegrass, led to the creation of this sub-species that does not require vernalisation to flower. This selection produced large amounts of forage in autumn, winter and early spring before going reproductive. Plant death occurs after flowering.

Since the first variety of annual ryegrass was developed, many more have followed with over 30 varieties currently for sale in Australia. Annual ryegrass is unique to the other species in the *Lolium* genus and it is important to revisit the thinking of why it was developed and where it can be best utilised by farmers to fit most effectively into their production systems.

Methods

The experiment at Mutdapilly, Queensland was irrigated by applying 50 mm every two weeks. All ryegrasses were defoliated on a 4-weekly (autumn/winter/summer) or a 3-weekly (spring) basis. The trial received a basal dressing of 200 kg/ha of CK88 (N:P:K:S – 15:4.3:11.3:13.6) before

sowing and received an application of 50 kg N/ha (as urea) after defoliation. Ryegrass entries were sown at seeding rates of 30 (diploids) or 40 (tetraploids) kg/ha in 5 m x 2 m plots by broadcasting seed onto the surface of fully prepared seed-beds. Plots were defoliated with a pasture harvesting unit to 5 cm in height.

Results and discussion

Results from the Queensland Department of Primary Industries & Fisheries (Qld DPI&F) forage report for 2008 (Lowe *et al.* 2008) highlight the differences in production between short-term and annual ryegrass.

Using the annual diploid ryegrass cultivar Aristocrat II as an example, it yielded significantly higher herbage dry matter (DM) than most short-term ryegrasses in the sub-tropical South-East Queensland (SE Qld) environment. This is despite the fact that it did not produce any feed in summer, where the short-term ryegrasses did. In late spring and summer, the annual ryegrasses have completed their reproductive phase and have died whereas the short term ryegrasses continue to produce DM. The advantage of the annual ryegrasses in annual forage production was due to their high winter and early spring production.

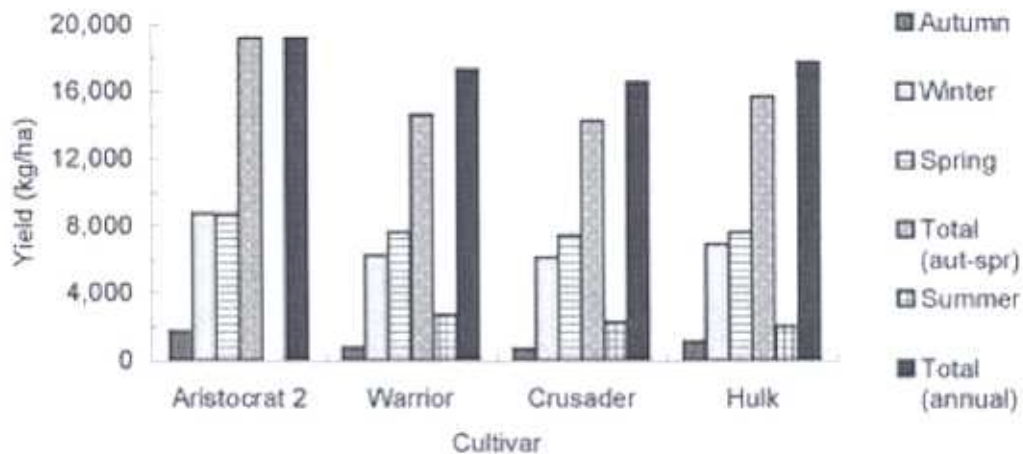


Figure 1. Seasonal and total herbage yield (kg/ha) of annual and short-term ryegrasses sown in Experiment 1 at Mutdapilly, Qld DPI&F in 2007 (lsd ($P=0.05$): Autumn: 565; Winter: 642; Spring: 501; Total (autumn–spring): 1145; Summer: 617; Overall total (annual): 1147).

Even when summer DM is included (which is unfair to an annual ryegrass as they will not produce feed in the summer), Aristocrat II still significantly out-yielded most short-term ryegrasses. Aristocrat II produced a total of 19,185 kg DM/ha (Figure 1) at the SE Qld site. The next best short-term ryegrass (cv. Hulk) at 17,765 kg DM/ha shows that the difference between the two was 1,420 kg DM/ha for the season. With the increase in variable costs such as fertiliser, this feed would be valued at 15 c/kg of DM to produce (H. Chenoworth, personal communication). Using these figures, this would be an increase in profit over the season from Aristocrat II of \$213/ha. Excluding seasonal production in summer it would be \$523/ha.

The biggest difference between annual ryegrasses and short-term ryegrasses is their winter yields, a time when feed is demanded by farmers due to cold weather. Aristocrat II had a 21 per cent higher winter herbage DM yield than the next leading short-term ryegrass variety. Aristocrat II also had a significantly higher total spring herbage DM yield than the next leading variety, even though it did not yield any herbage DM at the end of spring and the short-term ryegrasses did.

In conclusion, the consistent results from the annual ryegrass Aristocrat II in SE Qld over the seven years it has been trialed by the Qld DPI&F (Lowe *et al.* 2008) shows that annual ryegrass is different from short-term ryegrasses by having greater winter and early spring herbage DM yields.

References

- Haan H de (1995) Origins of Westerwolths ryegrass (*Lolium multiflorum westerwoldicum*). *Euphytica* 4, 206–210.
- Lowe K, Bowdler TM, Casey ND, Nolan SD (2008) 'Evaluation of temperate species in the subtropics - 2007'. Project series PR08-3577 (Department of Primary Industries & Fisheries, MS 825, Peak Crossing Queensland 4306)