A COMPARISON OF RYEGRASS CULTIVARS IN SOUTH CANTERBURY

2. Annual Cultivars

C. C. McLEOD

Ministry of Agriculture and Fisheries, Timaru

Abstract

The results of three annual ryegrass cultivar trials showed that, of seven cultivars, the Dutch tetraploid Western Wolths Tewera Barenza established first and made good autumn growth. Three tetraploid Western Wolths cultivars including Grasslands Tama were observed to give the best early spring growth. In contrast, the two later maturing Dutch tetraploid Italian ryegrasses gave the highest late spring and early summer production, For maximum total yields, the tetraploid Western Wolths ryegrass Billion was the most consistent cultivar. In addition, the tetraploids, whether Italian or Western Wolths, tended to be more productive than the New Zealand diploid Grasslands Paroa (Italian) or Grasslands Manawa (short-rotation) ryegrasses.

INTRODUCTION

SOUTH CANTERBURY'S climate necessitates supplementary stock feed being provided far approximately four months during winter and early spring each year. To overcome this regularly occurring feed shortage, one of the common district practices is to sow a mixture of turnips and an annual ryegrass for winter feed. Such a combination can provide excellent grazing for all classes of stock.

Until 1968 Paroa, or occasionally Manawa, was the annual ryegrass used. These were able to give high yields of good quality feed, providing a more balanced diet than turnips alone. In the spring the recovery growth gave good pre- land post-lambing grazing. In 1968, Grasslands Tama ryegrass was released to farmers. Since then it has proved more productive and leafier and, as a result, has largely replaced Paroa and Manawa ryegrasses.

Although in New Zealand there has been a considerable amount of field work comparing the performance of Grasslands Tama, Paroa and Manawa ryegrasses, particularly in comparison with cereal greenfeeds or when overdrilled into lucerne, there

TABLE 1

(a) *Eyre Soil (1966)* — Sown March 1, 1966

Cultivar	*Dry Matter Yields (kg/ha) Date of Mowing* 9/5	*12/10*	*28/11*	*Total*
*Tetila Barenza (Ital)	670 bB	2 930 cdAB	1 890 aA	5490aABC
*Tewera Barenza (W.W.)	1 050 aA	2 980 bcdAB	1290 bB	5 320 abABC
*Tetrone (Ital)	410 cdC	3 300 abA	1 860 aA	5 570 aAB
*Billion (W.W.)	950 aA	3 270 abA	1520 bAB	5 740 aA
*Grasslands Tama (W.W.)	550 bcBC	3 220 abcAB	1 530 bAB	5 300 abABC
Grasslands Paroa (Ital)	370 dC	3 310 aA	1 290 bB	4 970 bBC
Grasslands Manawa (S.R.)	520 bcdBC	2810dB	1 560 bAB	4 890 bC
cv %	14.3	5.3	10.2	4.5

(b) *Claremont Soil* (1966) — Sown March 8, 1966

Cultivar	*Date of Mowing* 4/5	8/6	*12/10*	*28/11*	*Total*
*Tetila Barenza (Ital)	2 280 bBCD	890 bcAB	3 290 bA	3 630 aAB	10 090 aA
*Tewera Barenza (W.W.)	2 610 aA	1 000 aA	3 470 abA	3 090 bBC	10 170 aA
*Tetrone (Ital)	2 050 cD	860 bcAB	3 250 bA	3 770 aA	9 930 aA
*Billion (W.W.)	2 540 aAB	940 abAB	3 500 abA	3 200 bABC	10 180 aA
*Grasslands Tama (W.W.)	2 500 aABC	900 abcAB	3 720 aA	3 060 bBC	10 180 aA
Grasslands Paroa (Ital)	2210bcCD	800 cB	3 620 abA	2 890 bC	9 520 abA
Grasslands Manawa (S.R.)	2 130 bcD	840 bcAB	3 490 abA	2 760 bC	9 220 bA
CV %					

(c) *Claremont Silt Loam* (1967) — Sown March 7, 1967

Cultivar	*Date of Mowing* 7/6	21/8	2/10	8/1	*Total*
*Tetila Barenza (Ital)	1 850 dBC	1 340 cB	*187OaA*	4 130 abAB	9 190 aAB
*Tewera Barenza (W.W.)	*2 460* aA	1870 aA	1400 bcB	3 150 cdBC	8 880 abAB
*Tetrone (Ital)	1780 dC	1 400 cB	1890 aA	*4 440* aA	9510aA
*Billion (W.W.)	*2 370* abA	1890 aA	1510 bB	*3 730* bcAB	*9 500* aA
*Grasslands Tama (W.W.)	*2* 150 bcAB	1 860 aA	1400 bcB	*2 840* dC	*8 250* bB
Grasslands Paroa (Ital)	2 160 bcAB	1 580 bB	1330 bcB	3 690 bcABC	8 760 abAB
Grasslands Manawa (S.R.)	1940 cdBC	1 600 bB	1 240 cB	4 350 abA	9 130 aAB
c v %	*5.8*	*6.0*	*7.8*	*9.8*	*4.6*

have been few investigations into the relative performance of New Zealand and imported annual ryegrasses. This paper presents the results of three trials conducted in 1966 and 1967 to evaluate the seasoaal and total yields of seven annual ryegrass cultivars including four from the Netherlands and three bred in New Zealand.

METHOD

One trial was conducted on stony flat land of low to medium fertility (Eyre stony silt loam) while the other two were on the medium fertility Timaru downlands (Claremont silt loam). Previous crops were Paroa ryegrass for grazing (Eyre soil) and choumoellier for winter feed (both downlands trials) .

Of the seven cultivars compared, five were tetraploid" including four Dutch (two Western Wolths and two Italian) and one New Zealand Western Wolths (Grasslands Tama) and two diploid, Grasslands Paroa (Italian) and Grasslands Manawa (short-rotation). All were broadcast in early March with 250 kg/ha superphosphate. Because of their large seed size the tetraploids were sown at 33 kg and the smaller seeded diploids at 22 kg/ha. Plots were 5 x 1.2 m with three replicates. Mowing and plot weighing took place whenever each of the cultivars reached a height of approximately 15 to 20 cm. Clippings were removed after weighing.

RESULTS

Results of the three trials are given in Table 1.

DISCUSSION

In all three trials, Tewera Barenza (W.W.) established first, was the most vigorous cultivar in the early stages, and gave consistently high autumn production. Although' remaining green and leafy, none of the cultivars made significant growth in mid- to later winter (July and August). Usually they recommenced growth in late August/early September when frost severity diminished, the three Western Wolths cultivars being observed to give the best early spring growth while the two later maturing tetraploid Italian ryegrasses gave the highest late spring, early summer production.

The Dutch tetraploid Western Wolths ryegrass Billion was consistently very productive during the growth period of all three trials and was not outyielded by any other cultivar, including

New Zealand Western Wolths (Grasslands Tama). The tetraploids, whether Western Wolths or Italian, tended to produce at least as well as the New Zealand diploid Italian (Grasslands Paroa) or short-rotation (Grasslands Manawa) ryegrasses.

Because of their rapid establishment and high production during periods of feed shortage, particularly autumn, early winter and early spring, the tetraploid Western Wolths could justifiably replace the diploid cultivars as sources of feed during these periods. However, if vigorous late spring growth is desired, for example, a heavy hay cut, the tetraplaid Italians could have a place.

Although Billion Western Wolths ryegrass was more consistent than its New Zealand equivalent, Grasslands Tama, the yield differences were not large enough to warrant the latter's replacement.

ACKNOWLEDGEMENTS

The co-operation of farmers on whose properties the trials were conducted and the Canterbury Farmers' Cooperative Association Ltd, Timaru, who supplied the seed of the imported cultivars, is gratefully acknowledged. In addition, the assistance of the Timaru Field Research Team, J. L. Symons (Farm Advisory Officer, Waimate), and the statistical analyses performed by the Biometrics Section, Ministry of Agriculture and Fisheries, Wellington, are appreciated.