WINTER GREEN FEED IN THE WAIRARAPA SEEDING RATES OF TAMA RYEGRASS AND RYECORN MIXTURES

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ABSTRACT

Several Tama/Ryecorn seed mixtures for winter greenfeed were compared to Tama alone in three trials in the Wairarapa. With the exception of the low seeding rate combinations, the total production of the mixtures and Tama did not differ but the pattern of production did. A high ryecorn content in the seed mixture gave high initial production which declined in late winter whereas a low ryecorn content gave steady production throughout. Tama alone established slowly and production increased steadily throughout the trial.

INTRODUCTION

In the Wairarapa, winter feed shortages usually occur in the late winter — early spring months and if a winter greenfeed is grown it must produce at this time. Cereal and ryegrass winter greenfeed crops have been studied for several years in the Wairarapa and details of the first three years work in which four cereals and two ryegrasses were examined have been reported (Crouchley and Bircham 1971). They concluded that if feed was required in early winter, a cereal greenfeed should be grown. If however, feed was required in the late winter/early spring, then a greenfeed ryegrass would provide this and some early winter feed as well.

In another trial conducted in 1970, the total production of a Tama/Ryecorn mixture (sown at 16/72 kg/ha) was similar to Tama alone and better than ryecorn alone with production in the early winter similar to that of ryecorn (Bircham and Crouchley, unpublished data). A series of experiments was initiated in 1971 to determine the value of Tama/ryecorn mixtures for winter greenfeed production in the Wairarapa.

EXPERIMENTAL

Three experiments were conducted at the Masterton Field Research Area on a yellow grey earth soil, Kokotau silt loam, during the winters of 1971, 1972 and 1973 in which seeding rates of Tama ryegrass alone and in association with various rates of ryecorn were compared.

A (3 x 3) + 4 factorial design with four replicates was used to compare seeding rates of **Lolium multiflorum** Lam. 'Grasslands Tama' Westerwolds and **Secale cereale** L. 'C.R.D.' ryecorn. The Tama seeding rates were 8.5, 17.0, 25.5 and 34.0 kg/ha and the ryecorn 0, 34, 68 and 102 kg/ha.

Plot size was 18 m x 1.25 m and each trial was sown with a basal dressing of 190 kg/ha of superphosphate.

Sowing and cutting dates are given in table 1. Production cuts were taken when the best plots had 10-15 cm of growth on them and the area was then grazed for a short time (1-2 days) with a large mob of ewes.

TABLE 1: Experimental details

	Year	Date trial sown	Date first cut	Date last cut	Total Number cuts
Trial 1	1971	12 March	6 May	13 October	8
Trial 2	1972	16 March	17 April	2 October	7
Trial 3	1973	8 February	29 March	12 Septemb	7

RESULTS

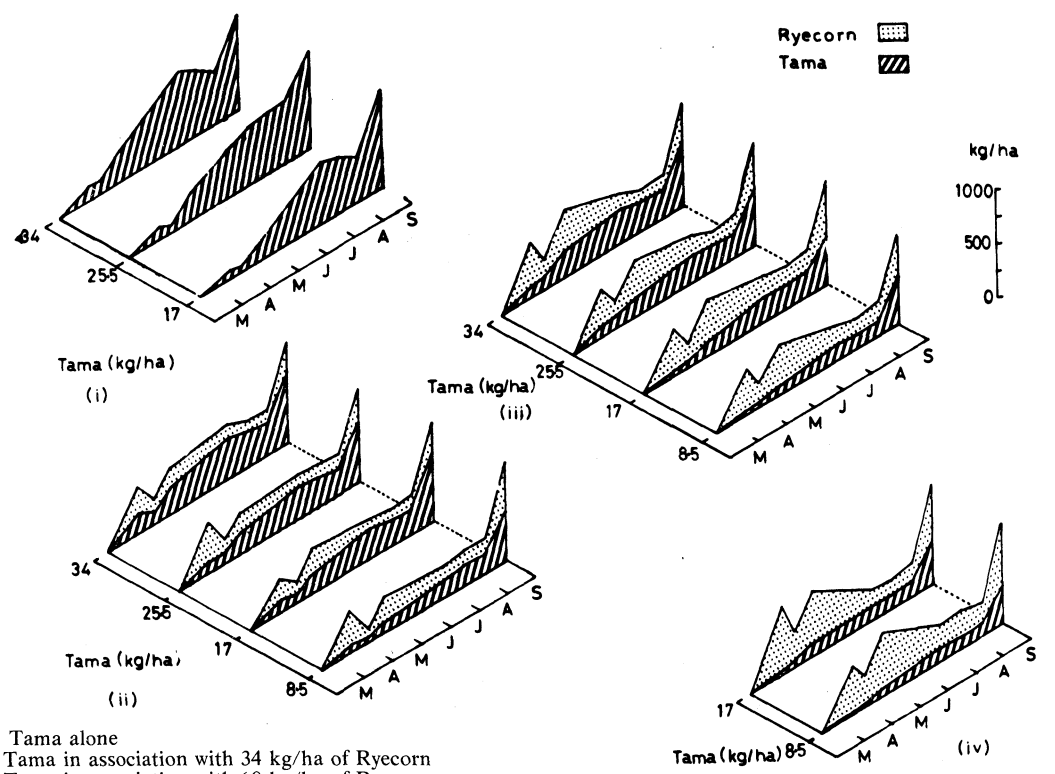
Dry matter production data for the three trials are listed in Table 2. In trial 1, maximum production was obtained from Tama alone, whereas in trials 2 and 3, maximum production was obtained from Tama/ryecorn mixtures. Dry matter production in all trials increased as the seeding rate of Tama was increased. In trial 1, production generally decreased as the seeding rate of ryecorn was increased and in trial 2, production generally increased as the seeding rate of ryecorn increased. There were no significant trends in Trial 3.

TABLE 2: Total dry matter production (kg/ha)

Trial 1	Seeding rates (kg/ha)			
Tama	0	34	68	102
8.5		2740 de	2240 f	2240 f
17.0	3700 ab	3060 cd	3010 cd	2500 ef
25.5	3960 a	3330 bc	3030 cd	
34.0	4020 a	3520 b	2830 de	
Trial 2				
	0	34	68	102
8.5		2640 c	2840 cde	3210 bcd
17.0	2730 de	2880 cde	3340 ab	3340 ab
25.5	2880 cde	3040 bcde	3350 ab	
34.0	3170 abc	3320 ab	3570 a	
Trial 3				
	0	34	68	102
8.5		3130 cd	3050 cd	3500 abc
17.0	2970 d	3430 abcd	3540 abc	3520 abc
22.5	3190 bcd	3470 abcd	3480 abcd	
34.0	3270 abcd	3660 ab	3780 a	

The pattern of dry matter production and the relative contributions of Tama and ryecorn in trial 2 are depicted in figure 1. (Trial 2 was considered to be representative in terms of sowing and harvest dates). Tama alone exhibited a relatively steady rise in production over the trial period. All the Tama/ryecorn mixtures gave high initial production but subsequent production was determined by the ryecorn seeding rate. Steady production was obtained from the two seed mixtures with the lower ryecorn contents but a marked decline from peak production was obtained from seed mixtures with the highest ryecorn content.

FIGURE 1: Dry matter production from Tama and Ryecorn (kg/ha)



i Tama alone
ii Tama in association with 34 kg/ha of Ryecorn
iii Tama in association with 68 kg/ha of Ryecorn
iv Tama in association with 102 kg/ha of Ryecorn

The ryecorn contribution to production was proportional to its seeding rate and peaked 4-6 weeks after sowing. The Tama contribution to production in the mixtures was generally proportional to its seeding rate and increased steadily throughout the trial.

DISCUSSION

The importance of Tama/ryecorn mixture management was demonstrated in trial 1 where a large amount of dry matter accumulated before the first production cut which resulted in the Tama component of the mixtures being smothered by the ryecorn. Hence the relatively higher production from the Tama alone in trial 1. Bad weather and wet ground conditions delayed the first production cut and grazing in trial 1.

Only two weeks elapsed between the first and second production cuts in trial 2 and the marked drop in ryecorn production (figure 1) compared to Tama at this time is considered to reflect the relative sensitivity of ryecorn to frequent cutting. The big increase in production in both Tama and ryecorn at the final cut (figure 1) was caused by the onset of warmer spring weather.

There is no advantage in terms of total production to be gained from sowing a Tama/ryecorn mixture compared to Tama alone. However different patterns of production can be obtained from sowing a mixture which may or may not be of value. If a steady supply of feed throughout the winter and early spring is required then a Tama/ryecorn seed mixture (34/35 kg/ha or 34/68 kg/ha) will provide it. If a large amount of feed is required in early winter as well as some later on then a Tama/ryecorn seed mixture (17/102 kg/ha) will provide it. In the Wairarapa however feed shortages usually occur in late winter — early spring at which time Tama outproduces the Tama/ryecorn mixtures.

This series of trials supports earlier recommendations made by Crouchley and Bircham (1971), that if a greenfeed crop is required in the Wairarapa, then a greenfeed ryegrass alone should be sown.

CONCLUSION

A Tama/ryecorn mixture will produce a steady supply of feed throughout the winter and early spring whereas Tama alone will produce little feed in the early winter but plenty later on.

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