

MANAWATU DAIRY FARMERS EXPERIENCES WITH MATUA PRAIRIE GRASS

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Manawatu dairy farmers have been quick to appreciate the possible benefits of a pasture species that can out-perform conventional ryegrass white clover based pastures. A survey conducted by Grasslands Division, DSIR in 1985 showed knowledge and use of Matua prairie grass by dairy farmers in the Wellington province were 70% and 42% respectively, compared with the national figures of 55% and 29% for dairy farmers, and 32% and 9% for non-dairy farmers.

When Matua was first released little data was available as to how best to sow the seed, what seed mixes are the most appropriate, how to manage the establishing pasture, and how to get the best from an established pasture. Researchers and pioneering farmers right around the country have by trial and error found the answers to most of these questions. The stimulus to find the answers was always the promise that Matua offered, that of 15 to 30% extra drymatter production compared to standard ryegrass pastures. Not only is there more annual drymatter, but the extra comes at very useful times for the dairyfarmer: winter, early spring and late summer.

Pasture Management

The first management widely adopted by dairy farmers for Matua pastures was for grazings to be both lax and infrequent. This certainly grows the feed but utilisation under this regime is low and the extra growth potential was not being harvested. If the pasture is normally receiving this lax grazing treatment it does not withstand occasional hard grazing very well and the stand thins. The trend now amongst dairy farmers is to graze close, but maintain the long spell of 30 to 40 days between grazings. Utilisation under this management is much improved without apparent damage to the plant.

The length of spell between grazings is important, 30-40 days during rapid growth periods, longer over low growth periods.

Soil Type

Right from the start we have known that Prairie grass cannot withstand wet feet and that it should only be sown into well drained soils. A number of farmers on the heavier terrace soils such as the Tokomaru silt loam (low natural drainage and only moderate natural fertility) planted Matua pastures into paddocks with intensive artificial tile and mole drainage. These pastures performed very well and survived the relatively dry winters of 1983 to 1985, with careful on-off grazing. 1986 winter was another story and the same careful winter management and the good drainage was not enough to nurse the pasture through. Massey No. 4 dairy farm, on Tokomaru silt loam with excellent artificial drainage had built its area in Matua up to 22 ha (16% of the farm) because it offered good dry season growth and therefore a chance to reduce the summer supplement requirement. After the wet winter of 1986 six ha required regrassing because it had become run out. Reasons for this were attributed mainly to the soil type, but perhaps head smut and management played a part as well. The remaining area had become much thinned.

A policy change has been made to progressively reduce the area in prairie grass as it runs out, replacing it with high endophyte perennial ryegrass.

The naturally free draining river silt soils are far more suited to Matua. Where occasional flooding occurs Matua can withstand covering by up to 30 cm silt, eventually poking through and ultimately thriving, whereas ryegrass pastures are killed. Experience indicates that the lighter the soil the shorter the spell necessary between grazing. At Flock House for example, on light soils beside the Rangitikei River, Matua in mixtures with ryegrass has thrived for many years grazed at 14 to 16 day intervals.

Animal Production

Very little research has been carried out with dairy cows to look at milk production from Matua pastures so farmers are drawing their conclusions from on-farm observations. Two such on-farm observations are detailed:

1. David Penny dairy farms on 39.2 ha of Kairanga fine sandy loam at Linton, 10 km south of Palmerston North. As an enthusiast for Matua he has steadily increased his area in these pastures from 6% in the 1982/3 season to 47% in the 1986/7 season. Per hectare production has varied considerably during these years due to problems with a third of the farm flooding from time to time. In general though he has not been able to achieve the increases in production that the growth rates of Matua indicate should be possible.

It appears the grazing intensity necessary to adequately utilise prairie grass is sufficient to reduce much of the annual growth advantage that Matua offers over conventional pastures.

Visual assessments of pasture growth are regularly recorded and the superior growth characteristics of Matua pastures are being obtained. During winter and spring over two seasons he has recorded 36% extra dry matter production from the Matua pastures. It appears as though he has not yet been able to convert the extra dry matter into milkfat.

The normal grazing pattern is to alternate each feed between his Matua based pastures and his ryegrass based pastures. Resulting from experiences during occasional periods when only one pasture type is fed, it is Mr Penny's firm belief that cows fully fed on ryegrass pasture will out-produce cows fully fed on Matua based pastures. Despite this he has no plans to alter the proportion of the farm in Matua, as he believes the drymatter production advantage marginally outweighs the lower feed conversion efficiency.

2. Massey No. 1, a town supply dairy farm on the banks of the Manawatu River now has a considerable area (19%) in Matua and an analysis of their records shows that at best production is maintained when the herd grazes Matua, and at times a moderate reduction has occurred (Table 2).

Table 2: Milk production litres per cow during 4 day periods on two feed types on Massey No. 1 town supply farm

	Matua pastures	Ryegrass pastures
September 1986	14.3	14.3
November 1986	17.1	17.6
April 1987	148	160

It is planned to increase the area of Matua up to 50% of the farm because of the persistence of Matua on the light river silts compared to ryegrass pastures which tend to run out over summer. During the three years of sowing Matua pastures there has been an increase in total milk production of 14% which can be attributed to a number of factors, and the Matua contribution may be in the extra summer grazings which are achieved.

Limited formal animal production research using Matua has been carried out at Massey University. Wilson and Graze (1978) showed no significant difference in milkfat yield between identical twinmates fed Matua, Tama and a mixed perennial ryegrass pasture. This experiment was carried out with leafy pastures in spring. Milkfat (%) was greater on mixed compared with Matua based pasture (4.66% and 4.36%, respectively, $P < .01$).

Conclusion

A great many of the agronomic and management questions about Matua have now been answered, but as yet some leading Manawatu dairy farmers have not been successful in converting the extra drymatter that Matua is capable of providing, into extra kilogrammes of milkfat. This conclusion is based on observations made from farm records and the limited animal research data available is insufficient to answer all the questions raised. I challenge the agricultural researchers to show farmers how to express the potential advantages of Matua swards as increased milkfat and protein in the vat.

Acknowledgements

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References

Wilson, G., Grace, N. 1978. Pasture magnesium levels and milk production in dairy cows. *NZ Journal of Experimental Agriculture* 6, 267.