

IMPROVED GRAZING MANAGEMENT SYSTEM FOR BENT GRASS PASTURES

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Bent grass (*Agrostis castellana*) invasion has been identified as one of the greatest limitations to pasture and animal production in the high rainfall districts of Victoria. It infests over 1 million hectares and is a threat to a further two million hectares. This represents a loss of at least \$60 million to Victoria (R.Hill, pers.comm. 1993). The aim of this project was to demonstrate a 'best bet' improved pasture grazing management system that controlled bent grass and increased the carrying capacity and productivity of beef cattle properties. The program involved spraytopping of bent grass, direct drilling with improved pasture, application of high fertilizer rates and rotational grazing. This system was compared to traditional management of low fertilizer rates and set stocking of bent grass.

A 35 ha paddock was fenced into eight paddocks, which were allocated randomly to the two different pasture systems, viz improved pasture system vs traditional pasture system. The design of the experiment consisted of two treatments and four replicates. In November 1993 the improved pasture system paddocks were spraytopped with 0.225 kg active ingredient/ha glyphosate. In the autumn of 1994 they were sprayed with 0.9 kg active ingredient/ha glyphosate. Then the paddocks were topdressed with a superphosphate potash mixture providing 18 kg P/ha and 50 kg K/ha, and direct drilled to improved pasture with 9 kg P/ha applied as 50/50 superphosphate and lime with 50 gm/ha of molybdenum. In 1995 and 1996 the improved pasture system paddocks received fertilizer dressings of 11 kg P/ha and 30 kg K/ha and 20 kg P/ha and 38 kg K/ha respectively. The traditional pasture system paddocks were topdressed with 18 kg/ha P and 50 kg/ha K, 7 kg P/ha and 19 kg K/ha, and 9 kg P/ha in 1994, 1995 and 1996 respectively.

Limousin X Angus/Red Poll weaners were allocated to balance the liveweight on each paddock. The average stocking rate in the improved pasture system was 14.9 and 14.3 dse/ha in 1995 and 1996 respectively. For the traditional pasture system the stocking rates were 8.7 and 9.2 dse/ha for 1995 and 1996 respectively.

The botanical composition of the pasture before the experiment began was 70% bent grass, 2% clover, 3% perennial ryegrass and 16% annuals and broadleaf weeds. In 1996 there was 34% bent grass, 19% perennial ryegrass, 26% clover and 21% annuals on the improved pasture system and on the traditional pasture system there was 46% bent grass, 3% perennial ryegrass, 17% clover and 33% annuals.

The difference in the amount of beef produced between the Improved Pasture and Traditional Pasture systems was highly significant ($P < 0.001$) between years. There was also an interaction between years and the type of pasture which was highly significant ($P < 0.001$). This was due to an increase in the amount of liveweight turned off the traditional pasture relative to the improved pasture. (Table 1).

Table 1. The average amount of liveweight produced from the two grazing systems in 1995 and 1996 (kg/ha)

1996		1995	
Improved Pasture	Traditional pasture	Improved Pasture	Traditional pasture
388.7	250.6	374.3	142.8

Carcass quality measurements showed that all carcasses met the market specifications regardless of pasture system. Carcasses from the improved pastures averaged 280 kg carcass weight and 11.4 mm of fat at the P8 site in 1995 and 285 kg carcass weight and 11 mm of fat in 1996. Carcasses from the traditional pasture averaged 254 kg carcass weight and 8.4 mm fat in 1995 and 291 kg carcass weight and 11.3 mm fat in 1996. The improved pasture system was shown to be highly profitable in each of the years compared to the traditional pasture system. A cash flow analysis showed that additional costs of pasture improvement were repaid in seven to eight years. However, this was sensitive to the purchase and sale price of additional stock.