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MANAGEMENT OF THOROUGHBRED STUD PASTURES IN THE WAIKATO

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Abstract

Thoroughbred production systems are concentrated in the Waikato region on free-draining, high fertility soils utilising perennial pastures based on ryegrass/white clover.

The major emphasis is on the production of thoroughbred yearling stock for sale in January, and the mating of breeding stock, from September through until December.

As with other pastoral industries in the region, successful pasture management entails matching pasture production with animal requirements. On thoroughbred stud farms, a mixture of different classes of horses and co-grazers. principally cattle, make up the animal requirements.

This paper examines the relationship betwen pasture production and animal requirement on a large-scale thoroughbred stud operation. Data from a typical stud farm near Matamata were used to assess total animal requirements. Pasture production was determined from long-term, local mowing trials.

Pastures failed to meet animal requirements on this stud from April through to August, while a surplus ot pasture growth occurred from September through until March. Pasture utilisation over the main pasture growing period was estimated to be low.

Alternative management options are proposed and discussed.

Keywords: thoroughbreds, pasture production, management systems, perennial pastures

INTRODUCTION

Thoroughbred production in New Zealand has 'boomed' over recent years, to the extent that over $100 million worth were exported in the year ending June 1987 (NZ Statistics Dept). The majority of these export dollars were earned through the sale of yearling stock, principally to Australia for racing purposes, with the bulk of these sales being made by the larger commercial stud farms.

In conjunction with increasing returns from sales there has been a dramatic rise in the thoroughbred breeding population from the 1960s through to the 1980s (Hogan 1983). The bulk of the broodmare population is owned by "small" breeders (i.e. breeders owning less than 10 mares), who rely on larger, "commercial" studs to foal and graze their mares over the main breeding season (August to December). The larger stud farms also control the bulk of male breeding stock, which they offer for service to visiting mares as well as servicing their own femaie stock. Hence there is a dramatic rise in the horse population on the larger stud farms over spring and early summer. Their feed requirements have to be met, largely by all-grass feeding. A large feed 'bank' of pasture is allowed to accumulate over late winter • early spring to meet this demand (Wallace 1977).

Large amounts of supplementary feeds, mainly oats, chaff and lucerne hay, are bought in each year on most thoroughbred stud farms. These concentrates are fed almost solely to the weanling-yearling stock. Mares and cattle receive meadow hay as a supplement to winter pasture.

STUD BACKGROUND

Data have been collected from a typical thoroughbred stud farm near Matamata for 1986-87, which allowed total animal requirements through the year to be calculated (Table 1). These requirements are then contrasted against long-term pasture growth rate curves for the Matamata region.

Stud details

The property consists of 176 ha divided into approximately 55 permanent paddocks, which are further sudivided by electric fencing in winter. The stud runs 124 resident

broodmares, 60 of which are grazed off the property from May through to August. Eighty-five weanlings are reared through to sale in January at approximately 16 months of age. Twenty-eight mixed-age equine stock are also carried throughout the year, mainly spelling racehorses (but also 3 resident stallions which have not been included in the analyses).

Complementary grazers are all cattle; approximately 200 2-year-old bullocks are bought in autumn and shed off as feed supplies dwindle over the following summer-autumn. One hundred in-calf dairy heifers are also grazed through the year and replaced each spring.

In addition to the resident mares, approximately 155 visiting mares are catered for over the breeding season (September to December).

Table 1: Stock carried from May 1986-April 1987.

Stock Class	Month											
	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Mares	64	64	84	95	127	147	279	200	124	124	124	124
Foals	*	.	.	2	27	85	133	139	70	70	50	20
Weanlings	87	87	87	*	*	*	*	*	*	*	32	64
Yearlings	*	*	*	87	87	87	87	81	56	31	31	*
Others	25	25	25	25	25	25	25	25	25	25	25	25
2-yr Cattle	238	236	236	236	236	236	215	160	136	136	91	51
Heifers	100	100	100	100	100	100	100	100	100	100	100	100

Animal requirements

The animal stock requirements on the stud have been calculated on the basis of stock unit (SU) equivalents, with 1 SU having a daily DM requirement of 1.37 kg (Milligan et *al.* 1987):

(1) Pregnant broodmare DM requirements are assessed at 13 SUs in January, increasing to 14 SUs prior to foaling in October. In addition, the mares receive 3 kg/head of meadow hay per day during June, July and August. An initial bodyweight (BW) of 600 kg in January is estimated, through to a final BW of 650 kg prior to foaling in October. (Dick pers. comm.) Daily DM intake from April through until August is estimated at 2.0% BW and from September through until March, at 3%. It has been assumed that feeding levels are largely unrestricted on this stud and the horses are fed to appetite. Daily DM intake in such circumstances has been estimated to be in the range of 2.0-3.0% BW. (Ott 1986)

(2) Mares with foals at foot, from November through to April, are assessed at 13 SU equivalents.

(3) Weanling to yearling class requirements are assessed at 6 SUs in March, increasing uniformly thereafter to 13 SUs at sale time in January. Weanling weights are estimated at 200 kg in March, increasing uniformly to 450 kg by the following January (Goold unpublished data).

Weanlings receive 4 kg/head of concentrate grain mix per day, from May to the end of July. From August until the following January, the then yearlings receive 6-8 kg/head of the concentrate mix per day. Daily DM intake is estimated at 3% BW with a largely unrestricted diet.

(4) "Other horses" are also agisted throughout the year, mainly as spelling or resting racehorses. This class of stock has been assessed at 15 SUs.

(5) Two-year-old steer cattle are assessed at 6 SUs when bought in May, increasing to 8 SUs the following April. In-calf dairy heifers are assessed at 5 SUs in June, increasing to 8 SUs by the following May.

In the calculation of SU equivalents on the stud through the year, adjustments have been made for the amounts of concentrates and supplements fed to the various stock classes, especially the weanling-yearling class. Overall, the SU requirements were reduced by some 16% through the feeding of concentrates and supplements which highlights the dependence on pasture as a feed source for this stud operation.

Pasture productivity

Long term pasture production has been assessed from rate-of-growth trials conducted over a 10-year period on permanent grass pastures at Tirau, near Matamata. These data have been adjusted for the cutting technique used, using the GRASS computer program developed at Ruakura, and are shown in Fig. 1 (Baars & Rollo 1987).

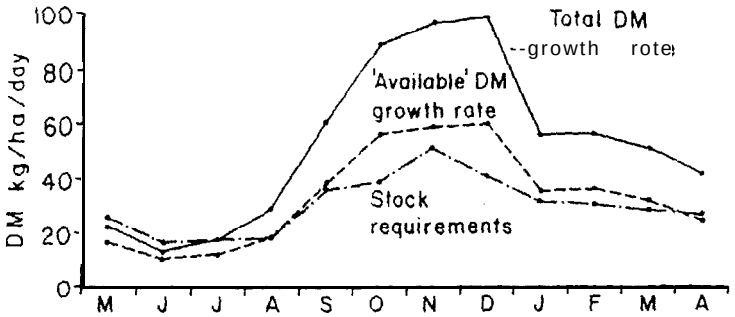

Figure 1: Ten year pasture production from permanent grass pastures at Tirau, and stock requirements on a thoroughbred stud near Matamata.

Pasture utilisation

For the purposes of this paper, pasture utilisation is defined as that proportion of pasture grown which is consumed by the grazing animal, expressed as a percentage. The grazing utilisations of the different animal classes on the stud differ throughout the year. Broodmares in winier may achieve quite high utilisation levels, especially behind an electric fence, perhaps up to 80%. However, after foaling, utilisation of pasture may decline to 50% or less, depending on stocking rate (Wallace 1977).

To obtain some on-farm data on pasture utilisation levels, another local Matamata stud was monitored over the 1985-86 season. Fifteen paddocks (32 ha total area) were assessed fortnightly for standing DM cover using a pasture probe and associated stock grazing the various paddocks were also recorded. The DM cover data were used in the GRASS computer program to estimate total monthly DM yields. Monthly animal requirements (intakes) were calculated by methods previously described. These data are shown in Table 2.

Table 2: Pasture utilisation levels on a thoroughbred stud farm near Matamata from December 1985 to May 1986

	December	January	February	April	May	Mean
Total monthly growth (kg/DM/ha)	2406	1755	1288	2952	1274	
Total estimated animal intake (kg/DM/ha)	1195	961	563	959	919	
% Pasture Utilisation	49.7	54.8	43.7	32.5	72.1	50.6

Utilisation of pasture by the weanling/yearling class is also estimated to be low, with abundant grass available and with the young thoroughbreds supplemented with large amounts of concentrates. For the purposes of this paper utilisation of pasture by this class is estimated at 50%, the same as for the "other horses".

Since the cattle are used primarily for cleaning up pasture, their utilisation assessment has been put in the order of 80% throughout the year.

Average farm utilisation levels have been calculated for the 1986-87 stocking levels and total pasture growth has been adjusted accordingly. The resultant available pasture yields are shown in Fig. 1.

The comparison of the available pasture yield curve with livestock requirements shows the deficiencies and surpluses which can occur, in an average year, on this thoroughbred stud farm.

DISCUSSION

The inability of pastures to meet animal requirements on the stud from May through to August is not unique to the thoroughbred industry. The dairy industry within the Waikato region has responded to this situation by rapidly adopting winter-active grass cultivars, such as Ellett perennial ryegrass and Concord annual ryegrass, to meet cow demands over this critical period (Goold 1984). Classes of thoroughbreds such as the broodmares which are almost solely reliant on pasture as a feed-source could well benefit from grazing swards based on Ellett/Concord over winter and spring. Subsequent benefits over summer and autumn may be mitigated by the propensity for Ellett pastures to be associated with a greater incidence of ryegrass staggers in pasture-fed horses over this period. To overcome this problem, special purpose pastures (sown with endophyte-free grasses) may be appropriate even though their persistency may be lowered by Argentine stem weevil damage (Prestidge et al. 1986).

Also, the high nutritive value of Ellett/Concord pastures may be detrimental to the development of young thoroughbred weanlings, especially those whose requirements are already being met through the feeding of large amounts of concentrate grain mix. For this class of thoroughbred lower fertility grass swards may be more appropriate.

The data from this study tend to support the view of Dewes (1973) that pasture utilisation by horses, from a nutritional viewpoint, is about 50%. Greater pasture utilisation can be achieved with horses, especially with broodmares over winter, but the real problem in maintaining pasture vigour lies in increasing the utilisation over the main growing period, when horse populations are maximum.

If the horse numbers were reduced and more cattle carried over spring-summer, then pasture utilisation would be higher. For major thoroughbred stud farms this would involve shifting away from a policy of boarding visiting mares and catering for "walk-in:watk-out" service and thereby create the opportunity for increasing the numbers of complementary cattle grazers.

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