

Profitability of short-term partial mixed ration feeding decisions under variable pasture allowance



This study investigated the economics of short-term partial mixed ration (PMR) feeding with low, medium or high pasture allowance.

KEY MESSAGES

- In early or late lactation, cows fed a partial mixed ration (PMR) with access to a medium or high pasture allowance had higher milk production and higher profit (defined as total milk income minus the cost of supplement and pasture) than cows on a low pasture allowance.
- There was no additional advantage to increasing pasture allowance from medium (25 kg DM/cow per day in early lactation and 20 kg DM/cow per day in late lactation) to high (40 kg DM/cow per day in early lactation and 32 kg DM/cow per day in late lactation).

INTRODUCTION

In a previous analysis, the economics of short-term mixed ration feeding decisions was investigated using data from experiments conducted under limited pasture allowance to represent drought conditions. This fact sheet presents results of an economic analysis where pasture allowance varied with

mixed ration feeding. In a similar approach to the previous study, the milk responses to mixed ration feeding from the Flexible Feeding Systems project were used. It was assumed the infrastructure and equipment needed to feed out the mixed ration were already available.

APPROACH

Two grazing experiments from the Flexible Feeding Systems project were used in which a PMR was fed with cows offered three pasture allowances. Details of the diets fed are presented in Table 1.



Table 1. Summary of diet treatments and rates of feeding used in the Flexible Feeding Systems project. Components of the partial mixed ration (PMR) comprised wheat grain (38% DM basis), maize grain (18%), canola meal (22%) and lucerne hay (22%).

Stage of lactation	Supplement (kg DM/cow per day)	Perennial pasture allowance (kg DM/cow per day)
Early	PMR (6, 10, 12, 14)	Low, medium or high (15, 25, 40)
Late	PMR (6, 8, 10, 12)	Low, medium or high (12, 20, 32)

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Profitability of the diets were compared by estimating the total income from milk produced minus the cost of supplement plus pasture, for different amounts of supplement intake. The milk and feed prices used to estimate profit are given in Table 2 and are based on historical data from Dairy Australia, ABARES and AusPork, and the expertise of the project advisory committee.

Table 2. Milk prices and feed prices used in the analysis.

Item	Price received or paid
Milk protein and fat	\$8.75/kg protein, \$3.50/kg fat
Grain	\$309/t DM wheat, \$400/t DM maize
Canola meal	\$428/t DM
Lucerne hay	\$342/t DM
Pasture	\$150/t DM



RESULTS

Early lactation

In early lactation, increased pasture allowance increased milk production and the margin of total milk income minus feed cost. However, there was no additional advantage to increasing pasture allowance to 40 kg DM/cow.day (Figure 1). At a supplement intake of 6 kg DM/cow.day, profit for the PMR with medium and high pasture allowance was \$1.40/cow per day higher than the PMR with low pasture allowance (Figure 1b). At a higher supplement intake of 14 kg DM/cow.day, profit for the PMR medium and high pasture allowance diets was about \$0.45/cow.day higher than the PMR with low pasture allowance.

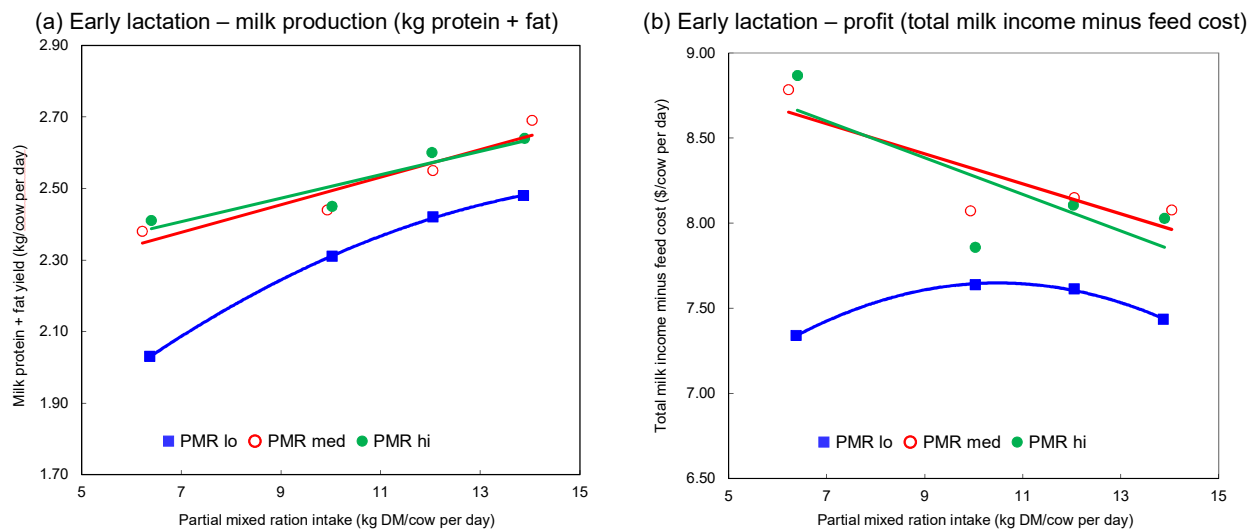


Figure 1. Changing partial mixed ration (PMR) intake with (a) Milk protein plus fat production and (b) Profit (total milk income minus feed cost) in early lactation where pasture allowance was low, medium or high (15, 25 or 40 kg DM/cow per day).

Late lactation

In late lactation, the results were similar with increased pasture allowance increasing milk production and profit (Figure 2). There was more of a difference in profit, ~\$0.50/kg DM/cow.day, between PMR with medium and high pasture allowance than in early lactation, over the range in PMR intakes tested (Figure 2b).

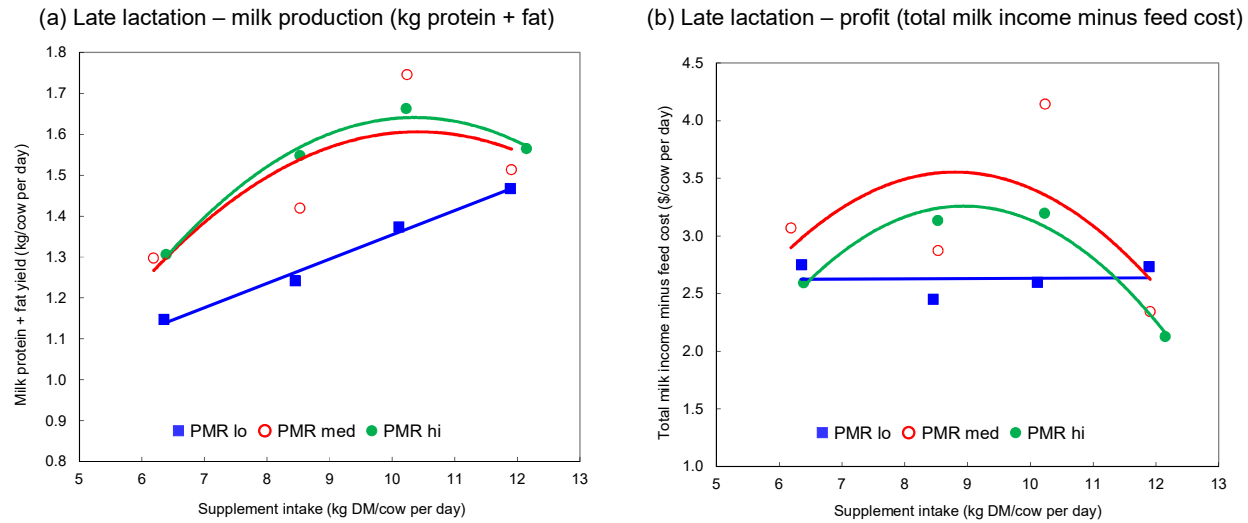


Figure 2. Changing partial mixed ration (PMR) intake with (a) Milk protein plus fat production and (b) Profit (total milk income minus feed cost) in late lactation where pasture allowance was low, medium or high (12, 20 or 32 kg DM/cow per day).



Further information

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