

# Extended Lactation: does feeding affect lactation persistence?

The use of extended lactation (EL) within Victorian dairy farming systems is now considered commercially viable. With research information now available and farmer experience growing, an informed decision can be taken by farmers and advisors regarding use of EL.

## Introduction

It is increasingly difficult to maintain a seasonal calving pattern. The modern dairy cow is capable of lactations well beyond the traditional 300 days. This provides dairy farmers with new management options. EL is a system that suits the modern cow.

## Does feeding affect lactation persistence?

- Special feeding strategies are not required for extended lactation
- Extended lactation can be achieved on the range of nutrition likely to be experienced on farm
- On pasture based diets, lactation persistence is as good on lower grain supplement levels as on higher grain levels
- A Total Mixed Ration (TMR) diet can result in lower lactation persistence unless carefully balanced to avoid excessive liveweight gain
- Cows respond well to additional feeding in the extended lactation phase

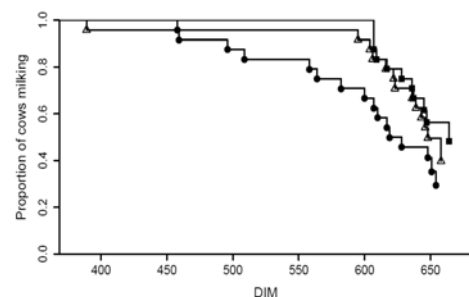
Cows in research trials have been fed different levels of nutrition (resulting in different levels of milk solids production). Persistence is similar for cows on different levels of nutrition, indicating extended lactation can be achieved on a range of nutrition levels.

The following table shows the lack of a link between nutrition (reflected as milk solids production over the first 300 days lactation) and persistence (% milking at dry off).

Study	Milk solids for days 1-300	% of cows milking at dry-off
Ellinbank 2 (Vic)	444	58
NZ	494	38
Ellinbank 1 (Vic)	505	42
Ellinbank 2 (Vic)	514	50
NZ	556	56
NZ	625	50

The graph below shows the persistence of cows in the extended lactation phase of an Ellinbank study with a target lactation of 670 days in milk. The drop in the proportion of cows milking indicates the level of persistence. Cows on a 160 MJ ME/day grass plus supplement diet (control) were as persistent as those on a 180 MJ ME/day grass with extra supplement diet (high) but more persistent than those on the full total mixed ration (TMR).

## Factors affecting EL performance - % milking at dry-off vs. quality of nutrition



The proportion of cows still milking during a 670 day lactation for cows undergoing lactations of 670-d offered a Control (■), High (Δ) or Full TMR (●) diet.

## Are cows responsive to supplements in the extended lactation phase?

Cows are responsive to supplements in the extended lactation phase.

*Affect of level of nutrition on % of cows milking to 670 days*

When using litres as the measure there appears to be a variable response in the first 60 days (0 to 1.8 L/kg DM grain) and 200 days of a lactation (0.8 to 1.9L/kg DM grain). However, when milk solids response was used, the result is more consistent (0.14 – 0.18 kgMS/kg DM grain).

The early lactation milk response was associated with variable liveweight change. The liveweight change needs to be factored in, as milk production of cows on lower levels of grain feeding was supported by weight loss.

Response to feeding of extra grain in the extended lactation phase was around 0.06 to 0.10 kg MS/kg DM grain (0.6 to 1L/kg). At this stage of lactation, litres response was consistent with milk solids response. Milk response was less in the spring of the extended lactation phase than when cows were fresh. This is most likely due to the high spring pasture allowance and its impact on milk response. In autumn of the extended lactation phase, the response was very good when liveweight gain plus milk response was considered.

*Milk and liveweight response to grain feeding during a 670 day extended lactation*

When	Milk yield (kg MS/day)	Milk Yield (L/day)	Lwt change (kg/day)	Kg MS/kg DM grain	L/kg DM grain
Spring (60 days) Control + 2.5 kg DM grain + 5 kg DM grain	1.7	22.7	-0.76		
	2.0	27.3	-0.67	0.15	1.8
	2.4	27.3	0.42	0.15	0.9
Autumn (200 days) Control + 2.5 kg DM grain	0.9	10.6	0.12		
	1.3	15.3	-0.03	0.18	1.9
	1.6	17.4	0.77	0.14	1.4

+ 5 kg DM grain					
Spring (420 days) Control + 2.5 kg DM grain + 5 kg DM grain	1.1	12.6	-0.60		
	1.2	14.1	-0.60	0.06	0.6
	1.5	16.8	-0.21	0.08	0.8
Autumn (530 days) Control + 2.5 kg DM grain + 5 kg DM grain	0.7	7.8	0.36		
	1.0	10.0	0.86	0.10	0.9
	1.2	11.8	0.92	0.09	0.8

The short term economics of responses to grain feeding need to be considered carefully taking into account the value of a litre of milk and liveweight change.

Short term economics should not be used in isolation. Consider whole of lactation economics and other important factors such as cow condition and reproductive performance.



### **Further References:**

Effects of Varying Lactation Length on Milk Production Capacity of Cows in Pasture-based Dairying Systems; M J Auldish, G O'Brien, D Cole, K L MacMillan and C Grainger, J of Dairy Sci, 2007: 90 : 3234-3241.

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