

Extended Lactation: will I produce less milk?

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 increasing 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.

Will I produce less milk with EL?

As with a 300 day lactation, the effect of extended lactation on milk production varies between animals. EL research with Friesian cows found:

- Extra days in milk and higher concentrations of milk solids are factors that compensate for lower daily volume in the extended lactation phase
- Annual average milk solids production does not decrease with an extra 3 months lactation
- Annual average milk solids production decreases by 0 to 3% with an extra 6 months lactation depending on dry off threshold
- Lactations extended by 9 to 12 months are associated with a decline in average annual milk solids production of 2 to 10% making the dry off threshold a much more important decision

Lactation length (months)	Milk Solids kg (F + P) All cows	Difference c.w. 10 months	Milk Solids kg (F + P) Top 50% of cows	Difference c.w. 10 month
10	497		532	
13	497	0	524	-2%
16	492	-1%	527	-1%
19	472	-5%	509	-4%
22	463	-7%	525	-1%

- Dry-off threshold should be considered carefully with economics in mind
- Selecting cows that are suited to EL, rather than applying it to the entire herd, results in relatively low milk solids production losses of ~2%

Results from lactation studies

Research studies have investigated extended lactations up to 670 days (24 month inter-calving interval). Comparisons are reported in terms of milk solids. Volume of milk production is lower in the extended lactation phase. Protein and fat tests are higher in the extended lactation phase. Extended lactation results in extra days in milk (less days dry). The table below illustrates changes in litres milk solids and days in milk.

Lactation yields for cows fed 160 MJME/day @4L/d dry-off

	Milk (kg/cow)	Milk solids (kg/cow)	Days in milk
300 days x 2 years	11060	837	601
670 days	10279	817	652
300 d – 670 day	-7.1%	-2.4%	+51

Milk production from extended lactation cows is higher per lactation due to the extra days in milk. It is more sensible to consider average annualised milk yields (eg annual yield for 18 month inter-calving intervals would be 2/3 the lactation figure). The following tables show the effect of EL on annualised milk solids production.

If EL is applied to the entire herd, dry-off threshold becomes an important decision for lactations beyond 16 months. With an increase in dry-off threshold, there is a slightly higher reduction in average milk production. For a 16 month lactation the decline in annualised milk solids production is 1% using a dry-off threshold of 0.5 kg MS/day and 3% for a threshold of 1.0 kg MS/day. For a 22 month lactation, the decline in annualised milk solids production is 7% using a dry-off threshold of 0.5 kg MS/day and 10% for a threshold of 1.0 kg MS/day.

The following tables also show the affect of EL on milk production when applied to the 50% most persistent, higher producing cows. For the 50% most persistent cows, the decline in milk solids production is relatively low at around 2%. The dry-off threshold was relatively unimportant as most of the top 50% of cows produced 1.0 kg MS/day until the end of their planned lactation.

Effect of lactation length on “annual” milk yields (fat = protein) when fed 180 MJME/day diet @ 0.5 kg MS/day dry-off

Lactation length (months)	Milk Solids kg (F + P) All cows	Difference c.w. 10 months	Milk Solids kg (F + P) Top 50% of cows	Difference c.w. 10 month
10	497		532	
13	497	0	524	-2%
16	492	-1%	527	-1%
19	472	-5%	509	-4%
22	463	-7%	525	-1%

Effect of lactation length on “annual” milk yields when fed 180 MJME/day diet @ 0.75 kg MS/day dry-off

Lactation length (mnths)	Milk Solids kg (F + P) All cows	Difference c.w. 10 month	Milk Solids kg (F + P) Top 50% of cows	Difference c.w. 10 month
10	497		532	
13	496	0	524	-2%
16	487	-2%	523	-2%
19	470	-5%	507	-5%
22	459	-8%	523	-2%

Effect of lactation length on “annual” milk yields when fed 180 MJME/day diet @ 1.0 kg MS/day dry-off

Lactation length (months)	Milk Solids Kg (F + P) All cows	Difference c.w. 10 month	Milk Solids kg (F + P) Top 50% of cows	Difference c.w. 10 month
10	496		532	
13	494	0	524	-2%
16	482	-3%	522	-2%
19	466	-6%	505	-5%
22	444	-10%	523	-2%

The annual average milk yield can be greatly affected by the kg MS/day dry-off threshold and this should be considered carefully due to the impact on economics.

Further References

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

Effect of type of diet and energy intake on milk production of Holstein-Friesian cows with extended lactations, C. Grainger, M J. Auld, G. O’Brien, K. L. MacMillan, and C. Culley, J. Dairy Sci. 92 :1479–1492

For further information contact

Greg O’Brien, DPI Ellinbank, ph 03 56242288
Ash Michael, DPI Leongatha, ph 03 56629901
Hayden Ballinger, DPI Warrnambool, ph 03 55619926
Tom Farran, DPI Kyabram, ph 03 58520505

Acknowledgements

The contribution of major funders Gardiner Foundation and DPI Victoria, together with support funding from GippsDairy and DHIA is gratefully acknowledged. EL research was conducted by Chris Grainger, Martin Auld, Greg O’Brien, Bill Wales, Jock MacMillan and Bill Malcolm.



GARDINER FOUNDATION

The advice provided in this publication is intended as a source of information only. Always read the label before using any of the products mentioned. The State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication

