Extended lactation: could it work for EU dairy farmers?

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Agricultural priorities have changed

THE ANIMAL FACTORY

Daily Mail, Monday, June 17, 1996

Drive for size that could hit humans hardest of all

Pelvis — May be too narrow to give birth to calves from the big beef cattle with which they are inseminated.

Stomach — Stressed digestive system from huge food intake

Emaciated back with lack of muscle

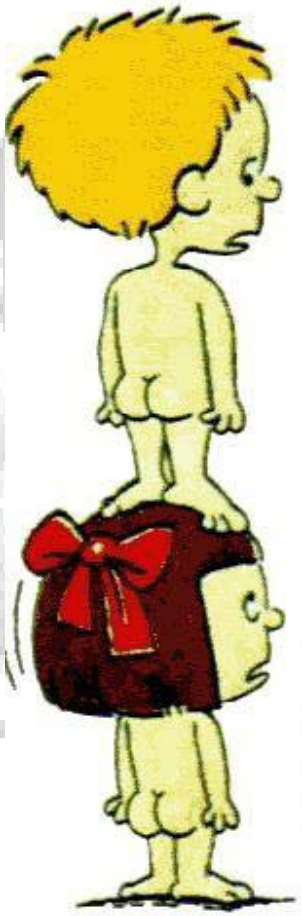
Udder — much bigger than is natural, chief problem is disease mastitis

Legs — longer and thinner. Leg deformities, particularly outer claw of the hoof which is liable to tear because of the struggle to cope with weight of carrying huge milk-laden udders

Cows are 20 per cent bigger than they were 20 years ago. The use of feed containing animal protein turned these gentle ruminants into carnivores. The first BSE case was diagnose in 1986. Infected feed made from the remains of diseased sheep is thought to be at the root of the mad cow disease crisis.

- Every bottle of Tesco's milk now carries a welfare statement

Fertility, as understood by a lactation scientist!



OK, So we've taken off our clothes and I'm on top of you - how long before we get that orgasm thing?

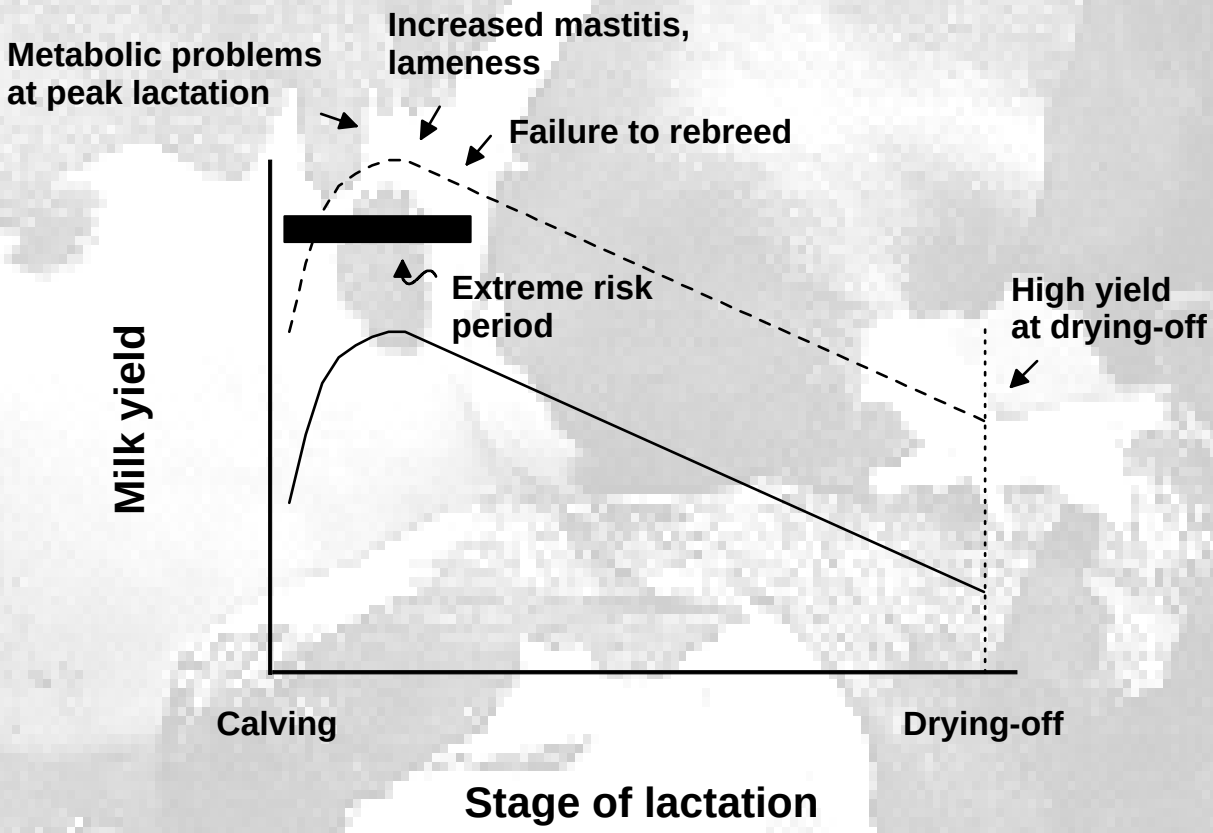
I don't know but now I understand why mummy has a headache all the time!

The gap

Can I afford not to re-breed?

Can I afford to re-breed?

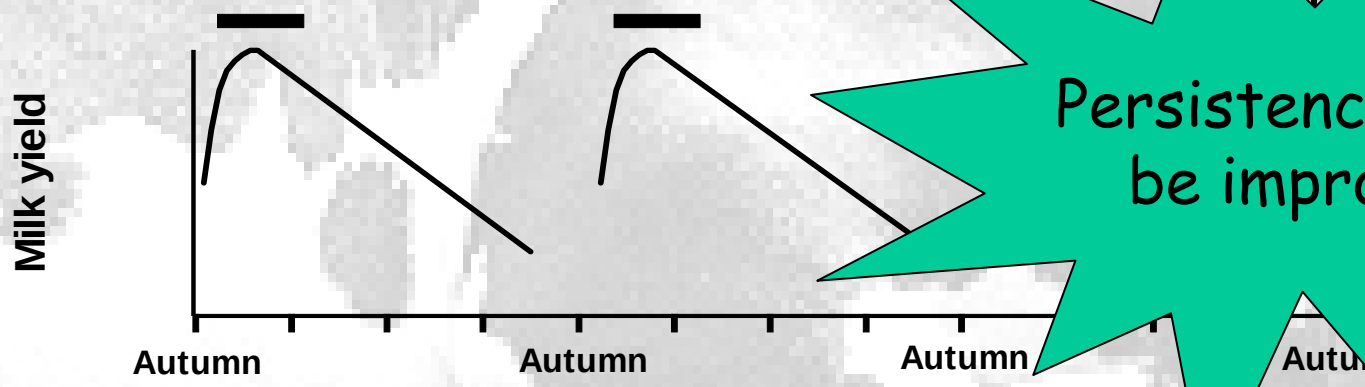
Risk analysis



- 60% of vet costs are incurred in the first 45d of lactation

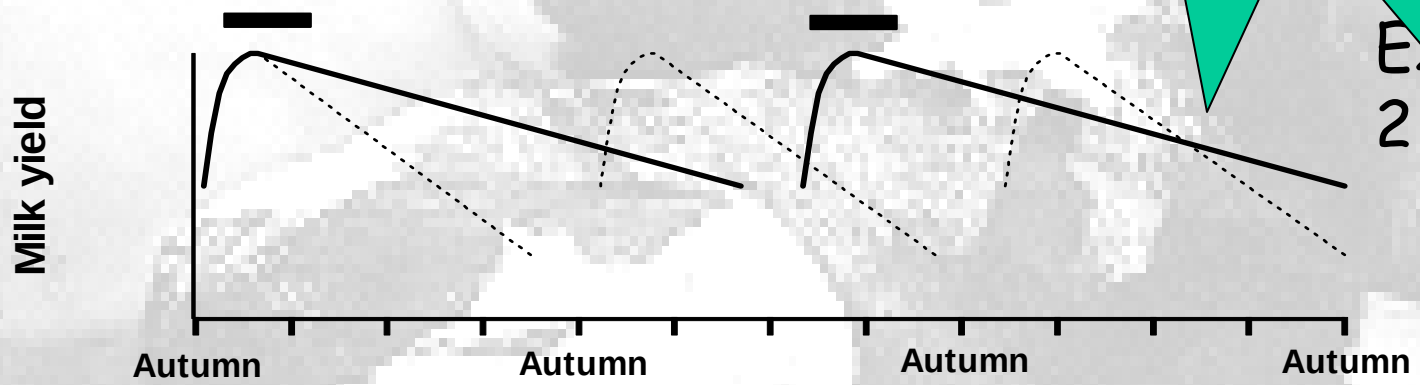
Risk avoidance

Conventional lactation:

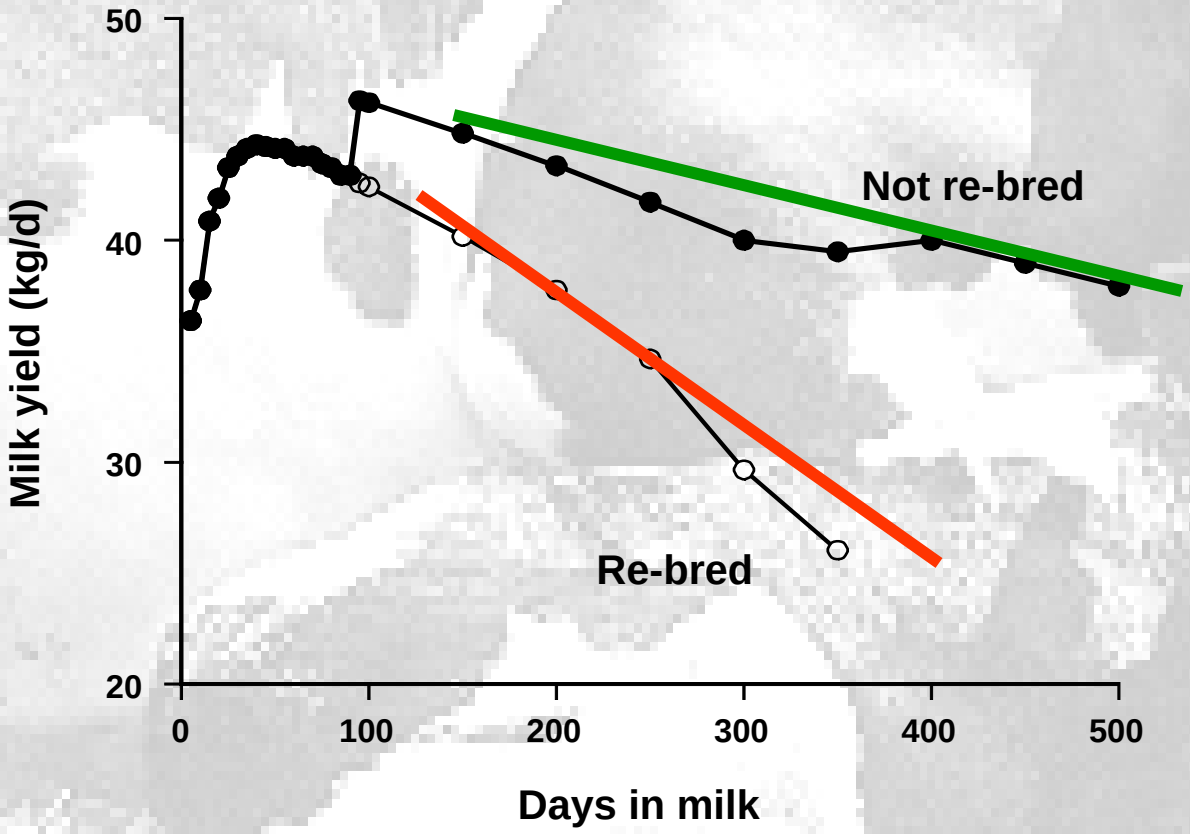


Persistency must be improved

Extended lactation:
2 risk periods



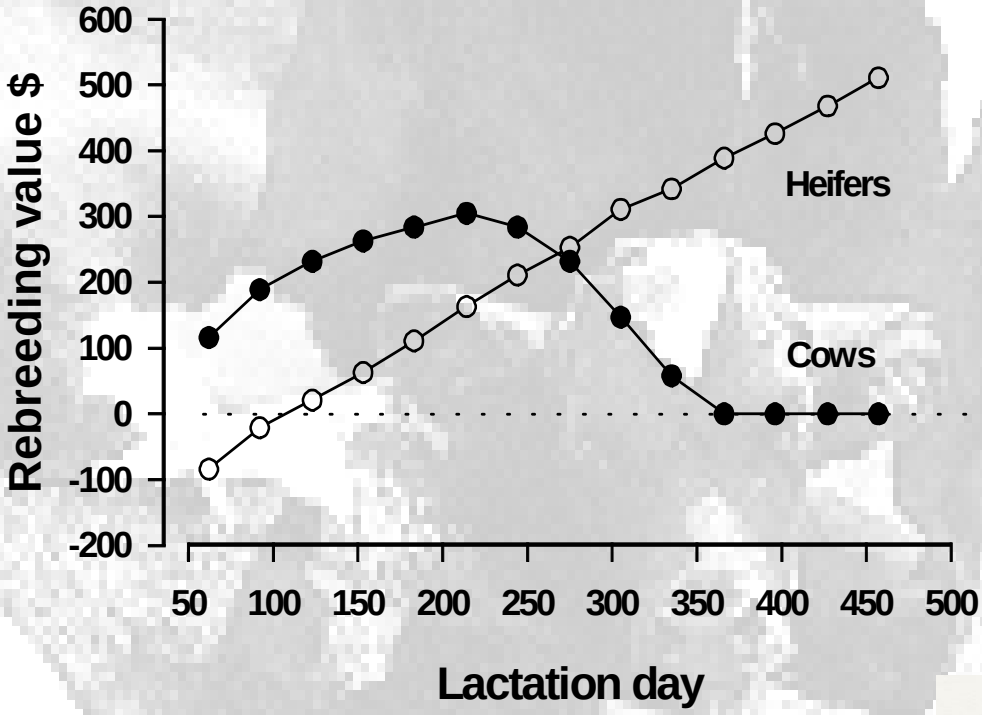
Persistency *can* be improved



- Modern cows can lactate for *at least* 18 months
- But this is US data, with BST

Optimum rebreeding time

- Dogma: 60d
- De Vries et al (2006) USA
- What about Europe?



Strategies for improving persistency

- Breed for increased persistency
- Identify the persistent cow, delay re-breeding
- Manage the whole herd for increased persistency

Managing for increased persistency without BST

- Would the combination of frequent milking and more appropriate nutrition increase lactation persistency?

Extended lactation at Hannah

- Experimental study, 24 cows
- Effect of milking frequency, nutrition and calving season
- Two consecutive 18 month extended lactations
- Half-udder design

Lactation characteristics

	Nutrition	Group					
		Spring	Winter	Second	Group	Nutrition	Interaction terms
Lactation length (d)	Low	497±19	556±31	474±18	<0.001	n.s.	n.s.
	High	515±15	575±17	481±18			
Dry period length (d)	Low	124±25	84±16	65±6	<0.05	<0.05	n.s.
	High	72±7	56±4	56±2			
Final body weight (kg)	Low	672±26	652±16	733±54	<0.05	n.s.	n.s.
	High	647±23	713±36	754±14			
Final BCS (units)	Low	4.3±0.4	3.0±0.4	2.9±0.4	n.s.	n.s.	n.s.
	High	3.3±0.28	3.8±0.49	2.8±0.4			

Milk yield (half-udder)

	Nutrition	Group					
		Spring		Winter		Second	
		2X	3X	2X	3X	2X	3X
Total yield (kg)	Low	3563±226	4861±279	4473±346	5960±479	4532±224	5778±292
	High	4259±345	5969±227	4626±531	6433±553	5322±335	6218±208

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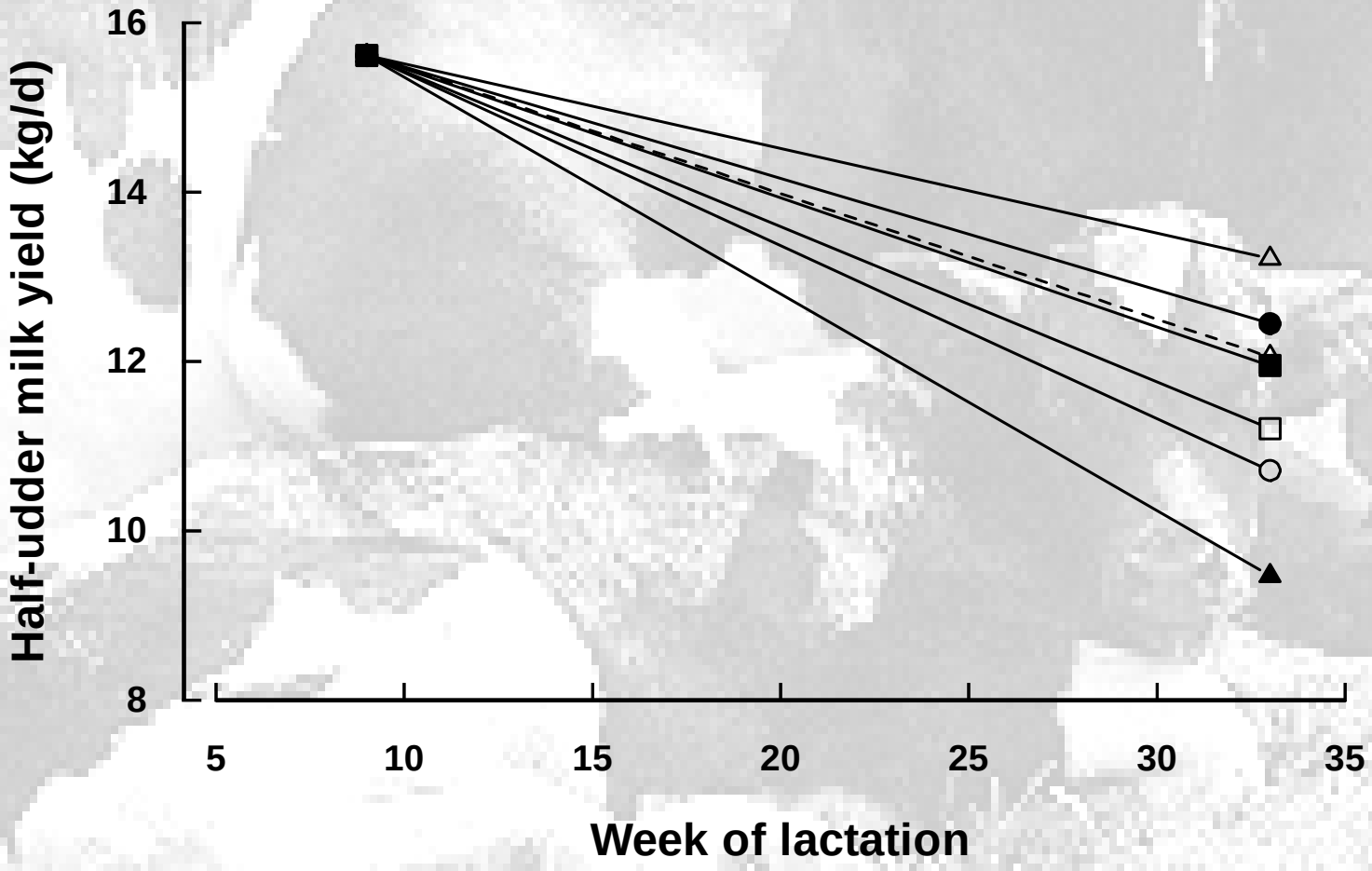
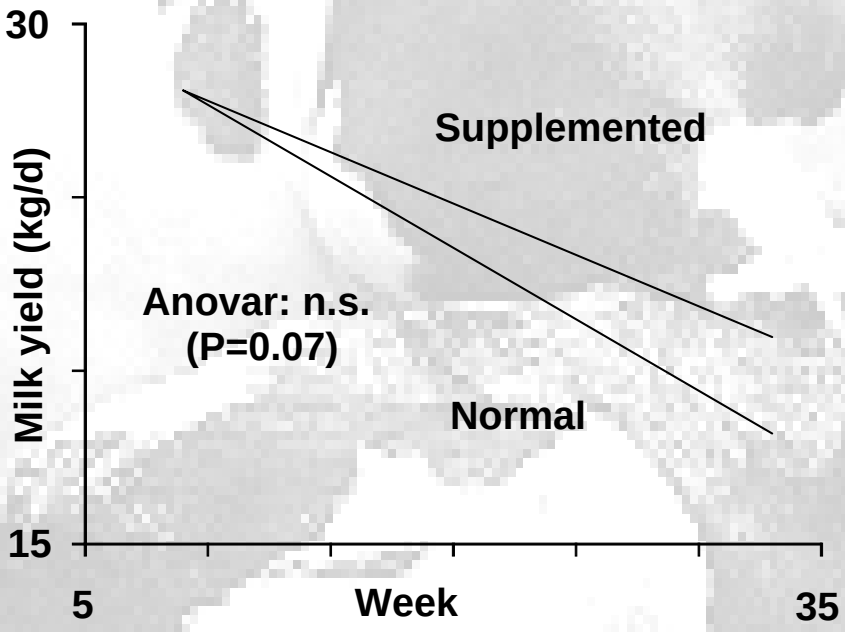
	Frequency	Group	Nutrition	Interaction terms
Total yield (kg)	<0.001	<0.01	=0.01	n.s.

Persistency was altered by treatments

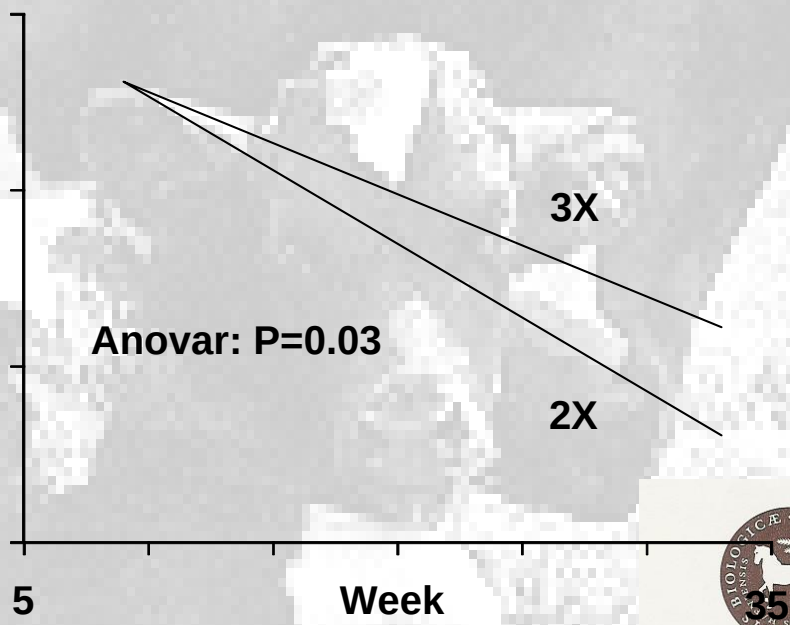


Lactation persistency: 9 months

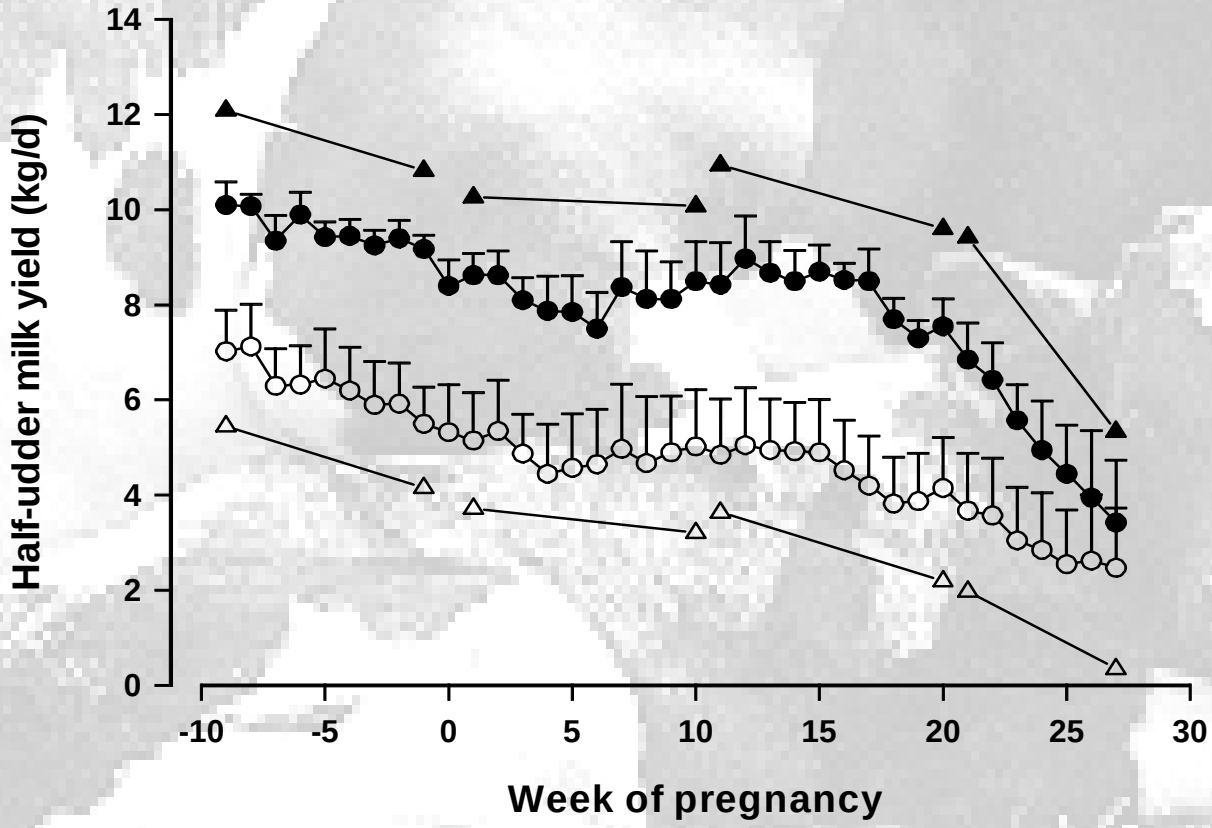
Nutrition



Milking Frequency

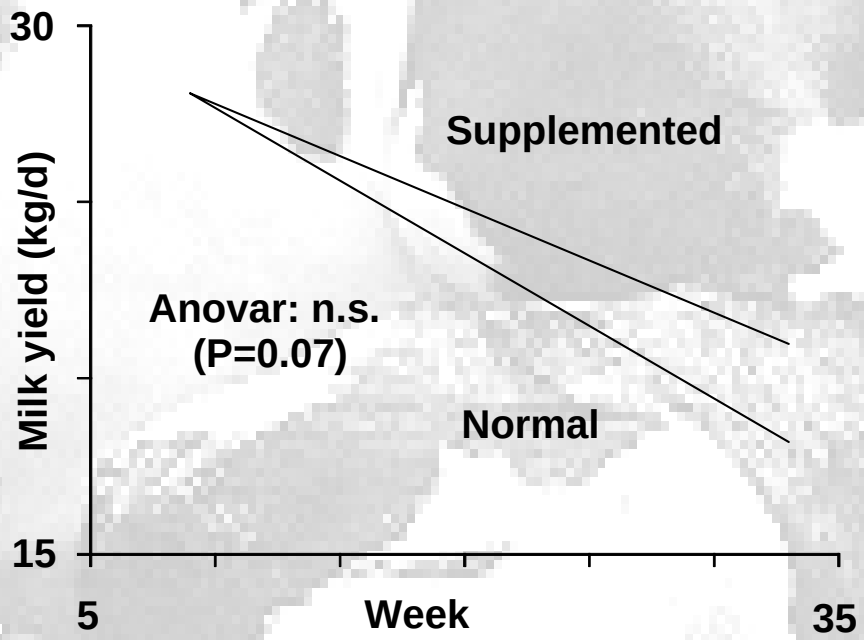


Effect of pregnancy on lactation persistency

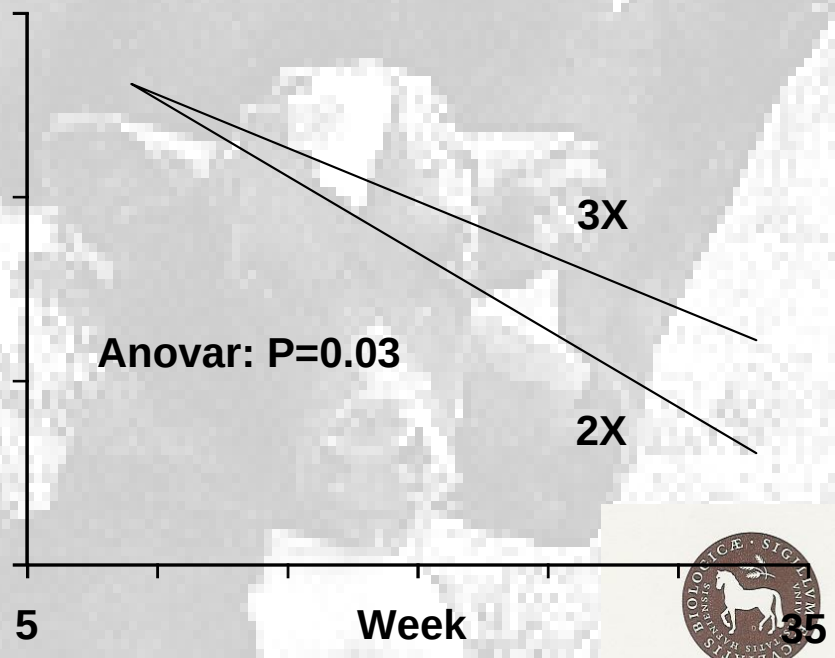


Lactation persistency: 16 months

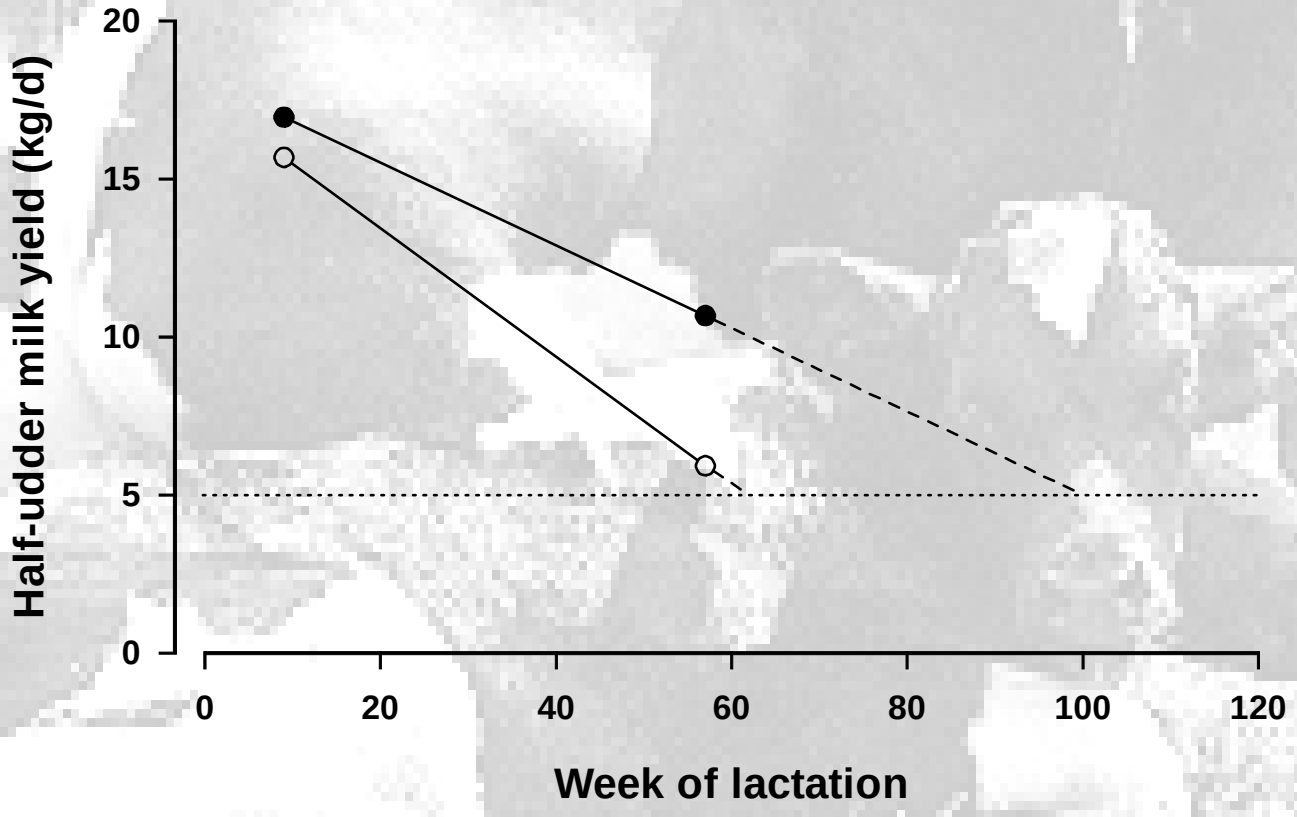
Nutrition



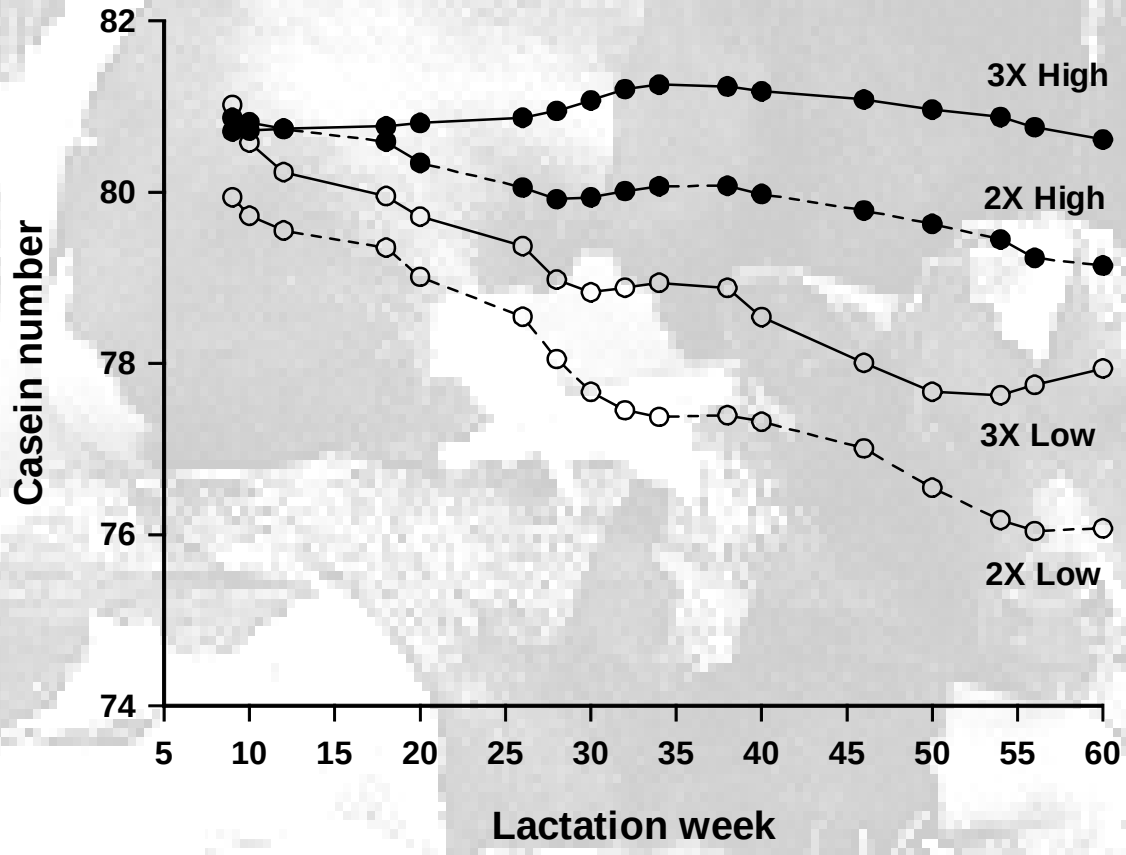
Milking frequency



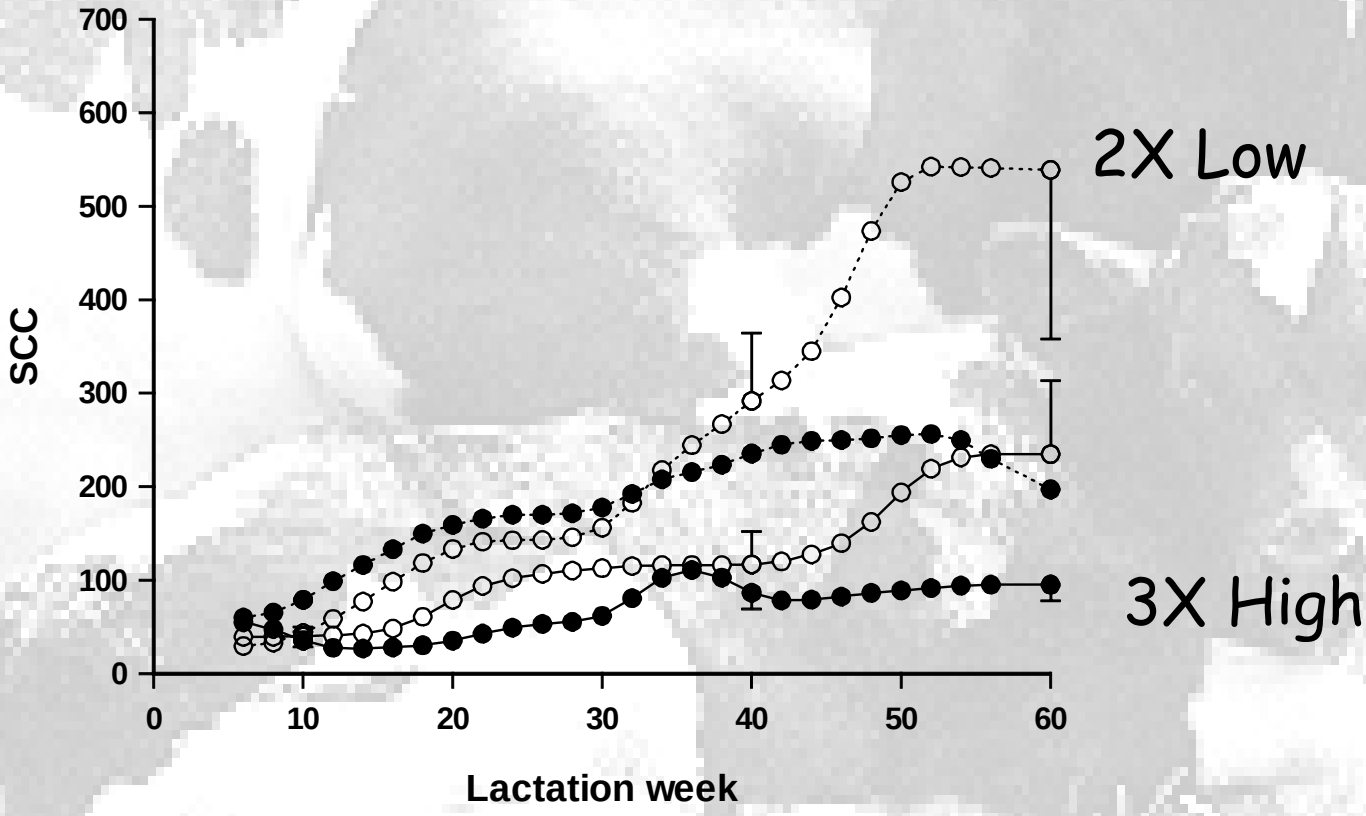
Potential effect of frequent milking on lactation length



Milk quality during extended lactation

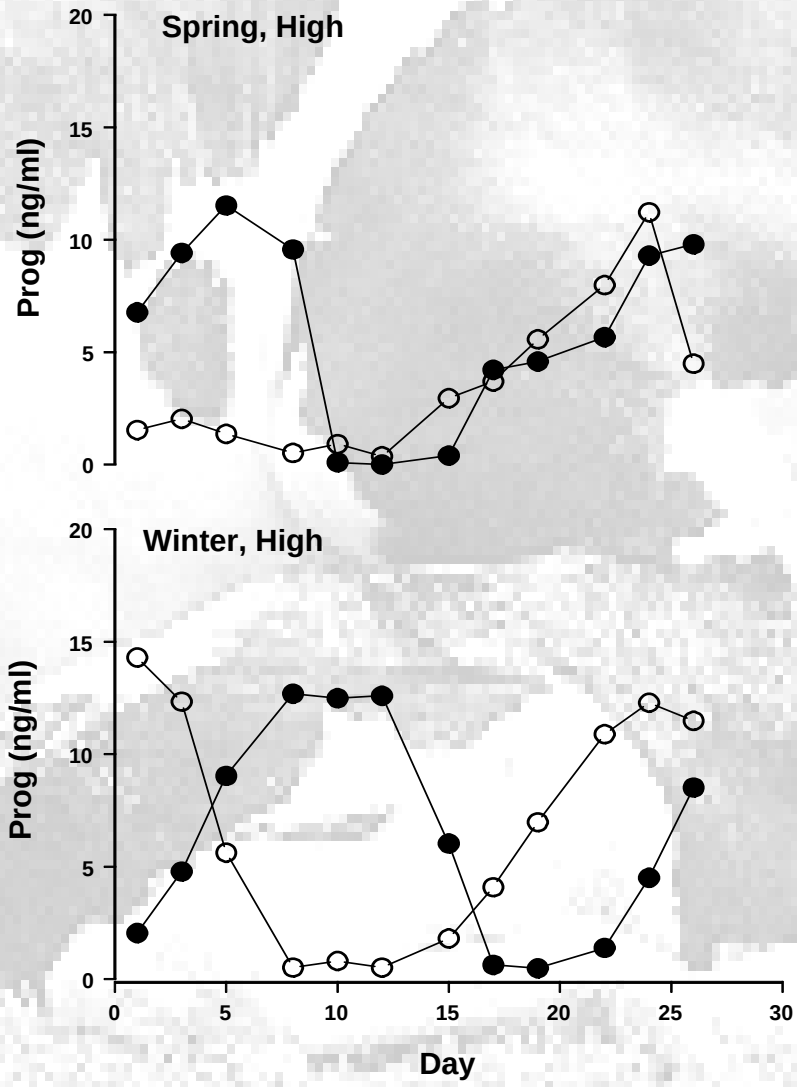


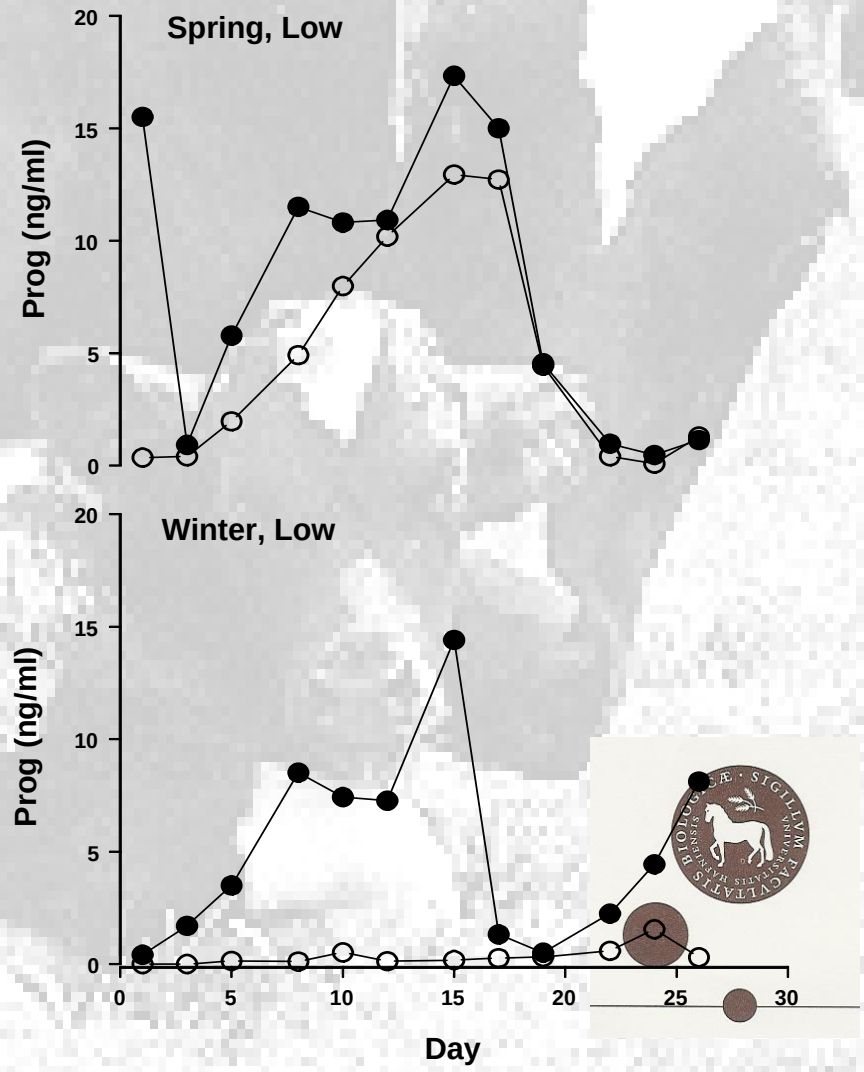
Milk quality: SCC



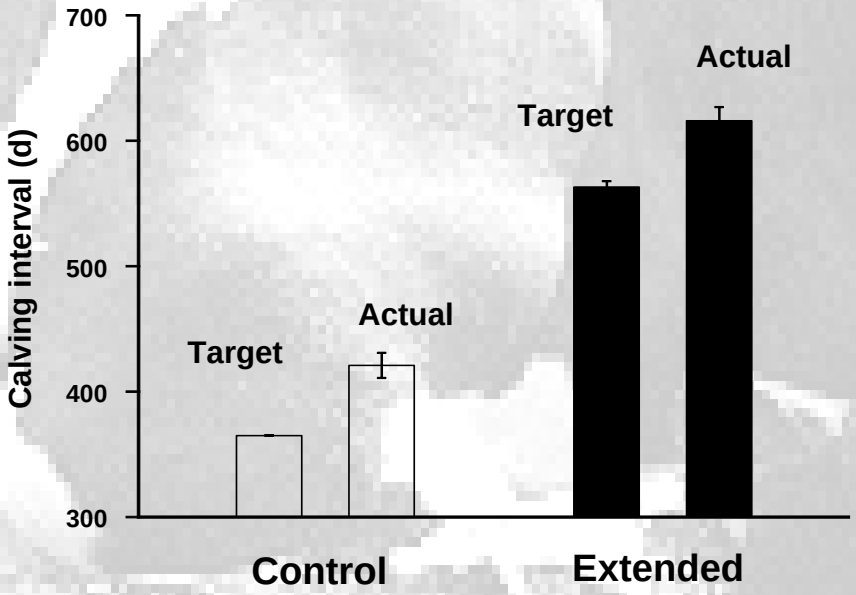
Progesterone profiles

Open:'Early' Closed: 'Late'



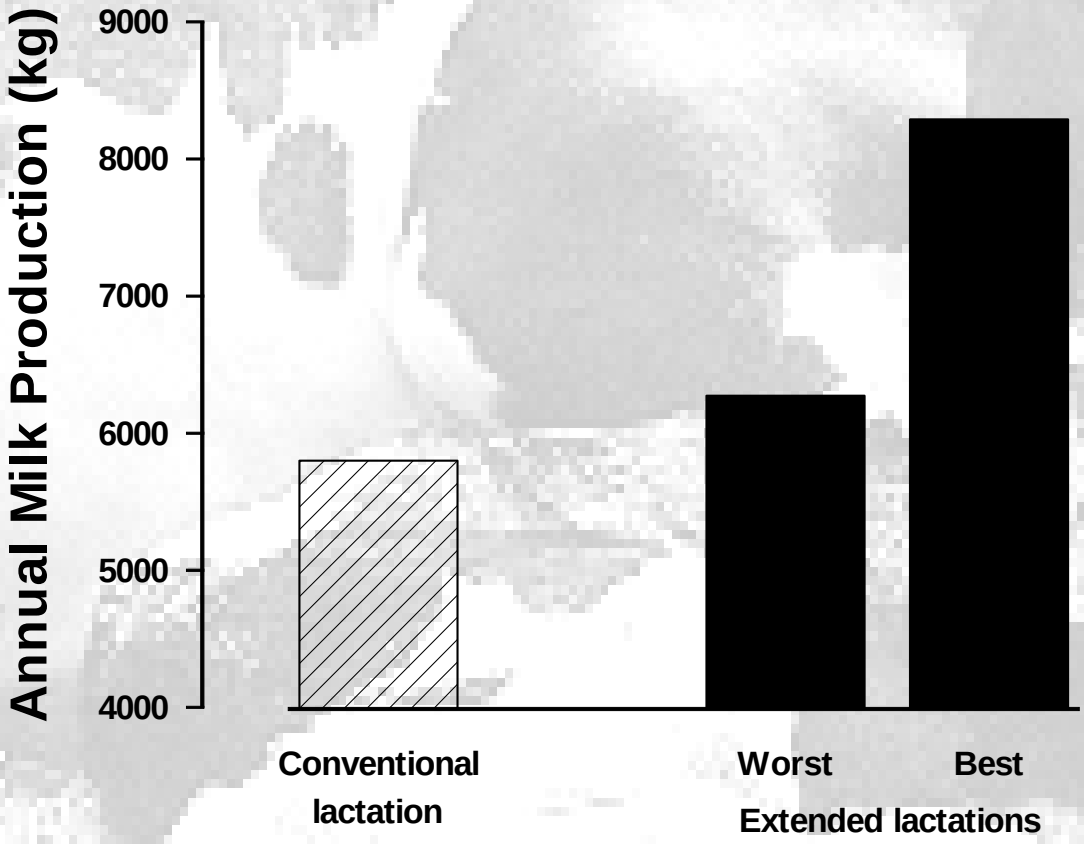


Rebreeding



- Reproductive problems at 9 months were different to usual 2 month problems
- They may be less intractable
- Outcome was similar

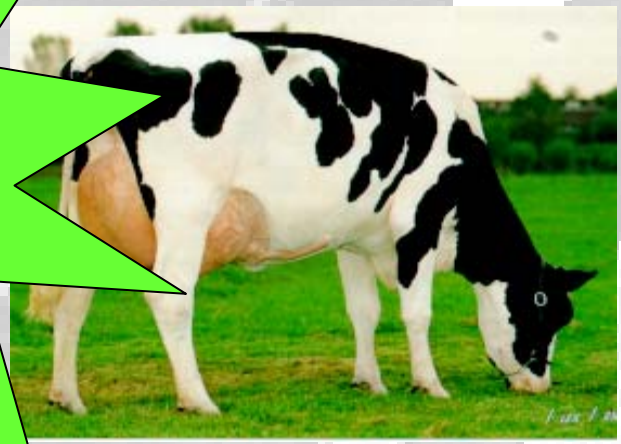
Extended lactation: Profitability



- For 100 cows:
  - extra cost of £22K
  - extra revenue of £42K
  - extra profit of £20K

Bridging the gap

Extended lactation



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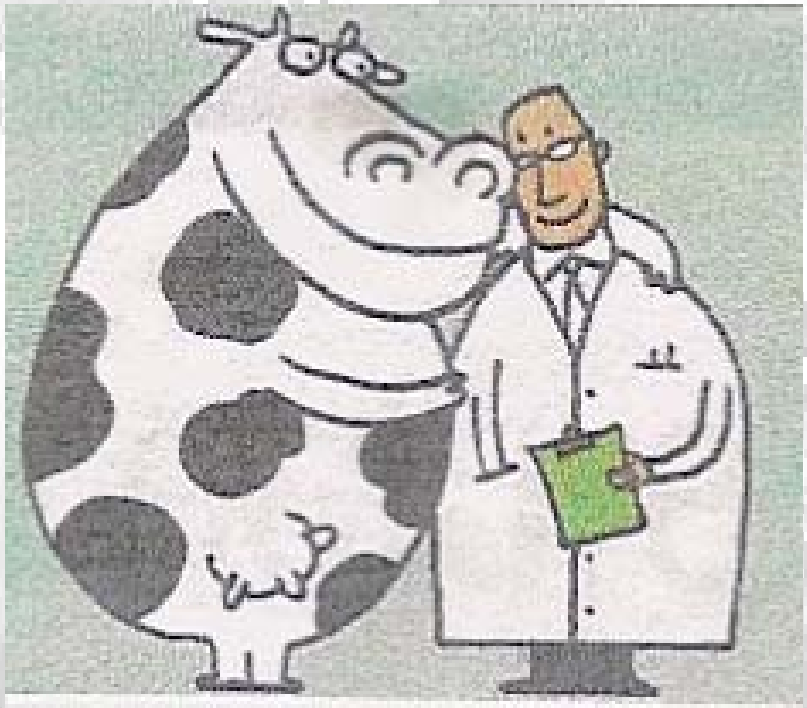
When is the best time to rebreed?

And… its welfare friendly!



- Allore & Erb (2000)
- Increasing VWP did not increase disease incidence per lactation
- Meaning, on an annual or lifetime basis, disease is reduced

Acknowledgements

- Funded by SEERAD and DEFRA