



The impact of dry period length on production at dairy herd level

Akke Kok^{1,2}, P.F. Mostert¹, C.E. van Middelaar¹, A.T.M. van Knegsel², H. Hogeveen³, B. Kemp², I.J.M. de Boer¹

¹Animal Production Systems group; ²Adaptation Physiology group; ³Business Economics

Introduction

Shortening or omitting the dry period of dairy cows:

- increases lactation length before calving
- reduces milk yield level after calving
- improves metabolic health and fertility after calving

Insight in the resulting production at herd level would facilitate economic and environmental assessments of these strategies.

Objective

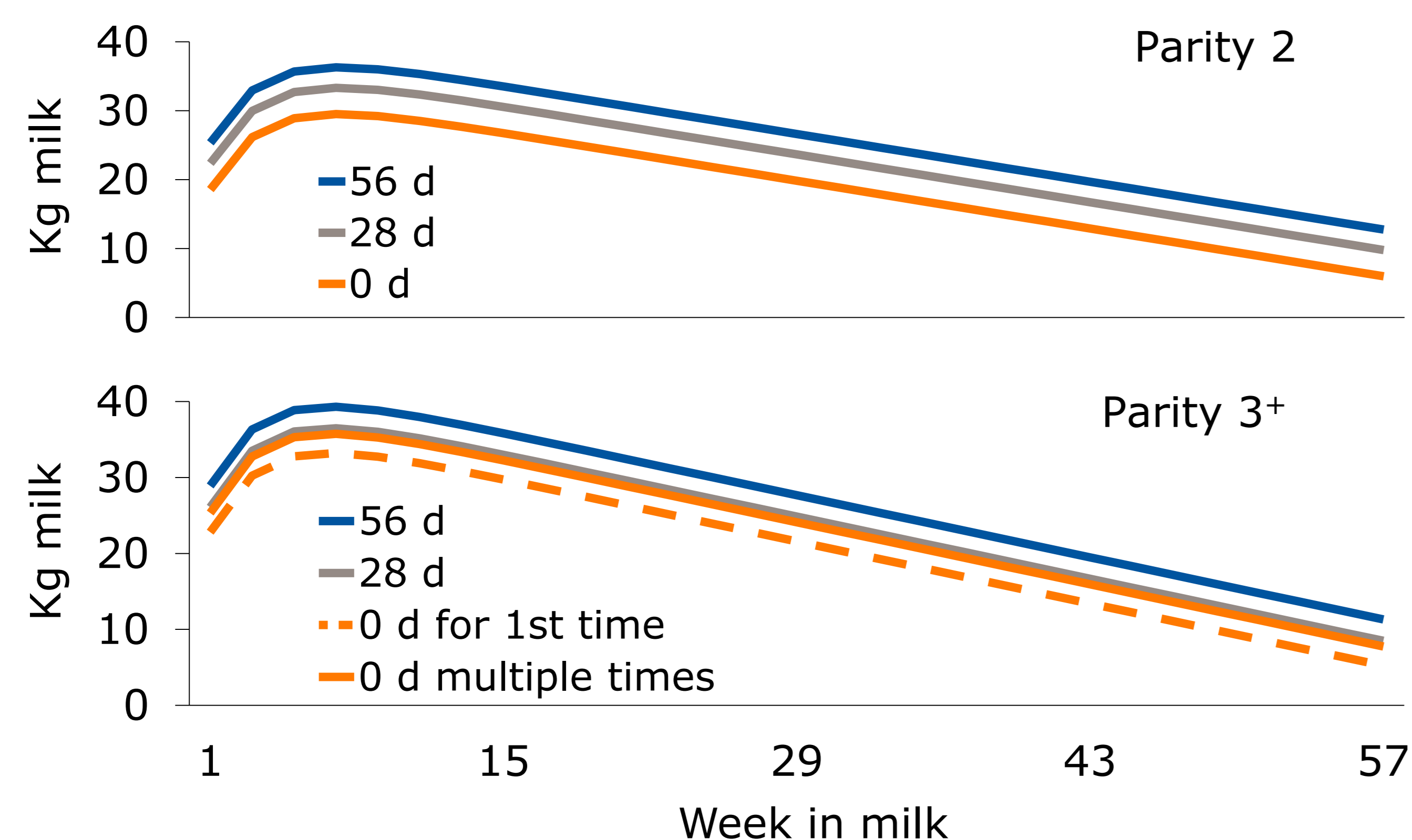
To evaluate the impact of shortening or omitting the dry period on production at herd level, using a simulation model.

Material and methods

A dynamic, stochastic model was developed to simulate herd dynamics with three dry period lengths: 56, 28 and 0 days dry.

- Dry period length affected three model inputs:

1) lactation curves after a dry period of 56, 28, or 0 days:



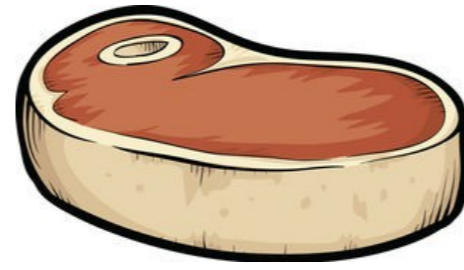

2) calving interval & 3) culling for fertility reasons per dry period:

Parity	Days dry	Calving interval (d)	Fertility culling (%)
2	56	385	7.5
	28	368	5.2
	0	360	3.9
3+	56	388	7.8
	28	383	7.4
	0	373	3.7

- The model simulated 100 cow places per herd in which individual cows lactated, calved, and were replaced.
- It recorded outputs (cows, calves, and milk) per calendar year.

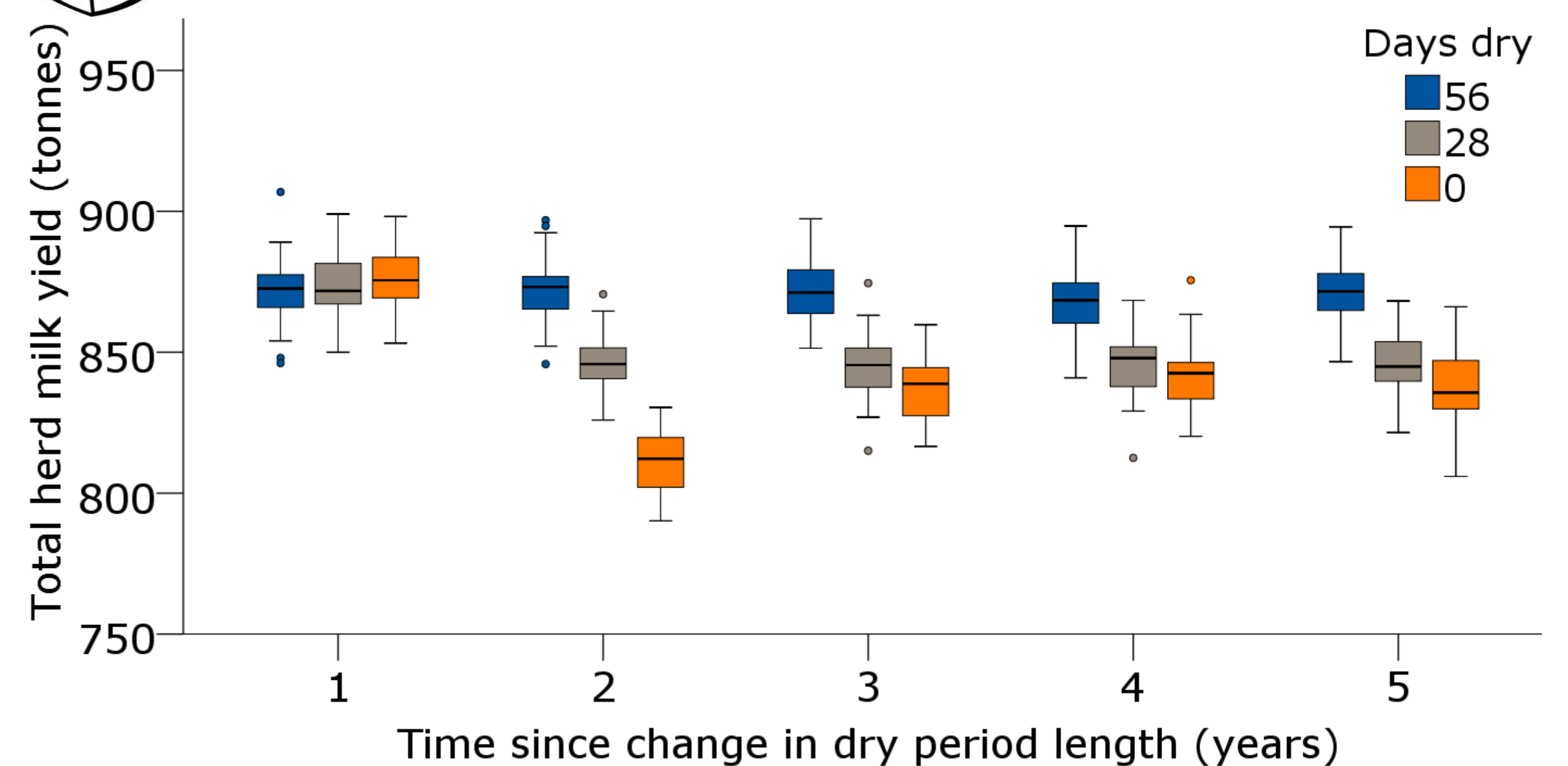
Results

Mean per herd from 3rd year onwards (n = 40 herds of 100 cows)

	56 days dry	28 days dry	0 days dry
Cows culled			
	38.5	37.5	36.3
Calves born			
	117.1	118.9	120.6



Milk yield per herd per year with a dry period of 56 days and after changing to a dry period of 28 or 0 days.



- A dry period of 28 days reduces yield by 2.9% from the 2nd year
- No dry period reduces milk yield by 7.0% in the 2nd year, and by 3.7% from the 3rd year onwards

Conclusions

- Effect of dry period length on cows culled & calves born is small
- Total herd milk losses are smaller than lactation curves suggest

Future work

Use this simulation model to assess the impact of shortening and omitting the dry period of dairy cows:

- on the financial flows at herd level
- on greenhouse gas emissions per kg milk

These results can facilitate informed decisions on dry period length by dairy farmers.