Cow characteristics associated with lactation performance of cows with customized lactation lengths on commercial dairy farms

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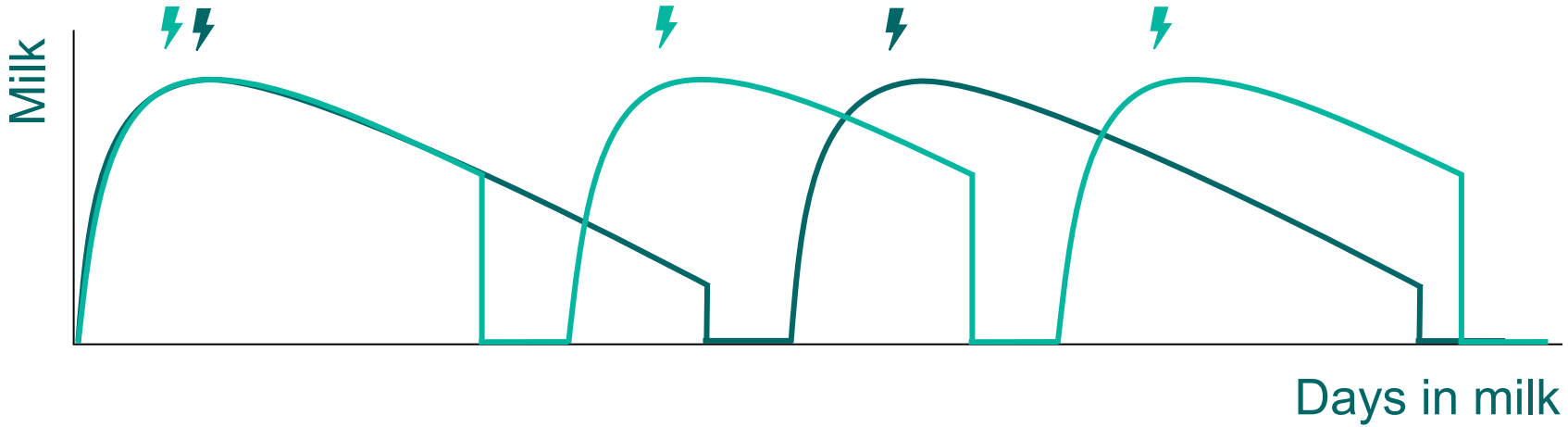
Traditionally farmers aim for a **one-year calving interval** (CInt)

Health issues during the transitions around calving

Surplus of calves from dairy farms

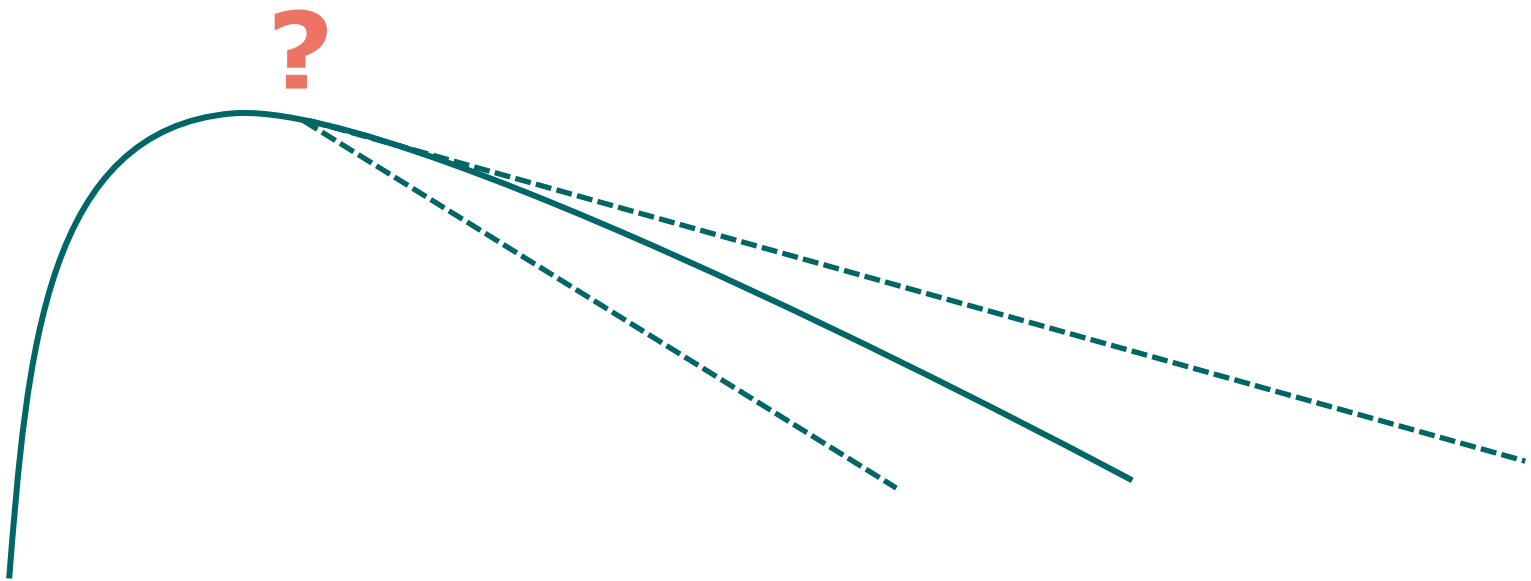
Labour: taking care of calving cows and calves

Reconsidering a one-year CInt



→ Extending the voluntary waiting period (VWP) for insemination

Customizing the lactation length: why?

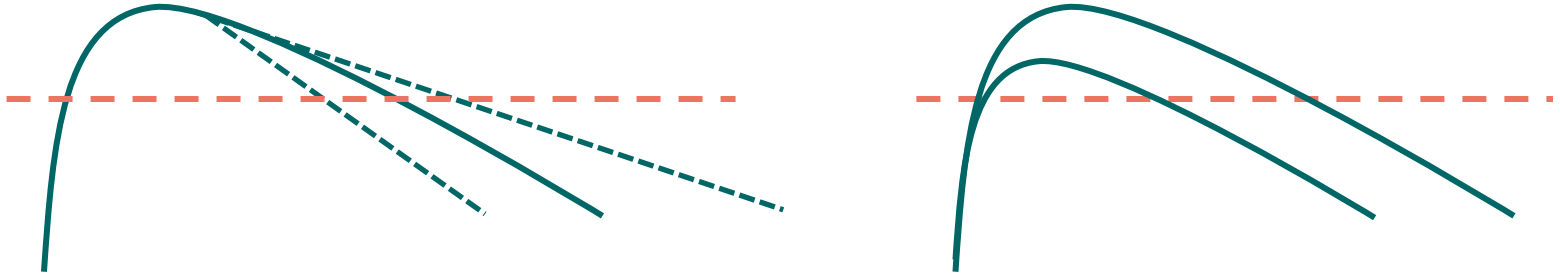


Which cow characteristics known before insemination can we use to select cows for an extended lactation?

- Based on experimental study with 150 cows with a VWP of 50, 125, or 200 days
- Apply on data of commercial dairy farms

Translating the experiment into practice

11 commercial dairy farms that already extended the voluntary waiting period for (part of) their herd



- Milk recordings every 4-6 weeks between 2014 and 2019
- Insemination data

How do we define lactation performance?

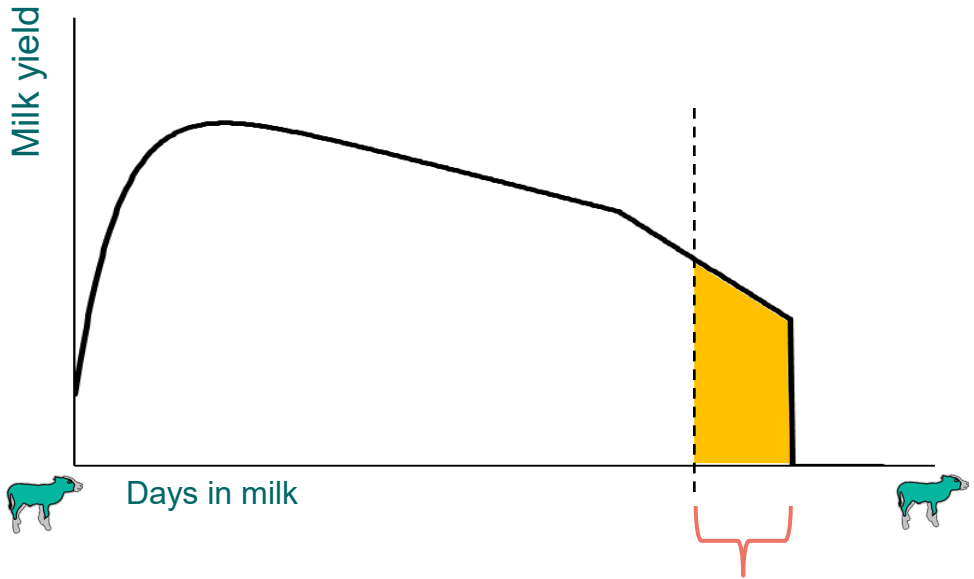
Lactation curves: Wilmink curve + gestation effect

Milk yield per day of calving interval

(MY/CInt)

How do we define lactation performance?

Lactation curves: Wilmink curve + gestation effect



Milk yield final 6 weeks of lactation

Cow characteristics relevant in the experiment

Milk yield per day of CInt

- Milk yield before pregnancy
- Peak yield
- Fat content before pregnancy
- Parity
- (Breeding value persistency)

Milk yield final 6 wk of lactation

- Milk yield before pregnancy
- Parity
- (Breeding value persistency)

- Are these and other characteristics before insemination related with milk yield on commercial dairy farms?

Translating the experiment into practice

Cow characteristics ~ lactation performance (MY/CInt + MY end lactation)

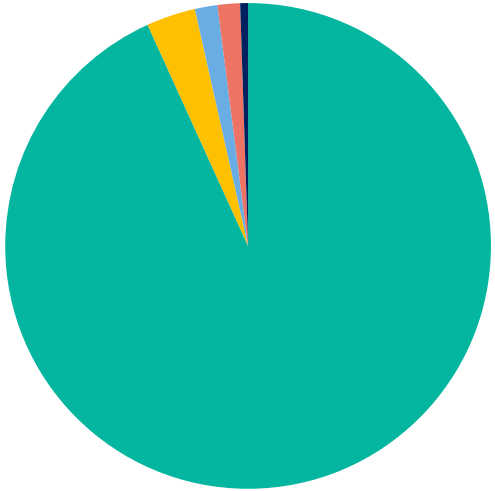
➢ Univariate selection at P < 0.20

- Including parity and
  - Lactation 1
  - Lactation 2+
  - < 84 days
  - 84 – 140 days
  - 140 – 196 days
  - 196 – 252 days
  - > 252 days

➢ Multivariable model, backward selection at P < 0.05

Analysis by Brigitte de Bruijn

Milk yield per day of calving interval



$R^2 = 0,87$

Cow characteristic

- Peak yield
- Interval calving – insemination
- Fat content before pregnancy
- Parity
- Parity x interval calving – insemination

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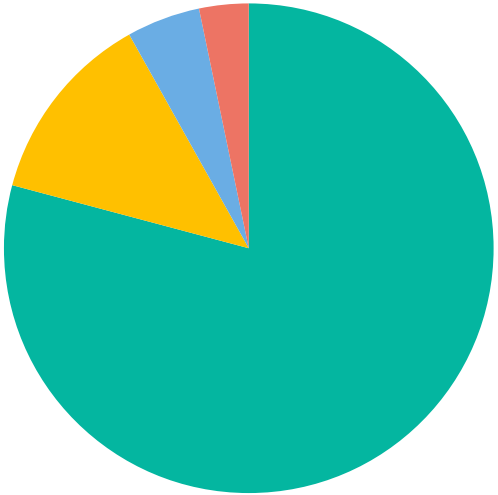
Analysis by Brigitte de Bruijn

Milk yield final 6 weeks of lactation



$R^2 = 0,54$

Cow characteristics

- Milk yield before pregnancy
- Parity
- Interval calving - insemination
- Parity x interval calving - insemination

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What cow characteristics can be used to select cows for an extended voluntary waiting period?

↑ Peak
↓ Fat % before insemination

~

↑ Milk per day CInt

↑ Milk before insemination

~

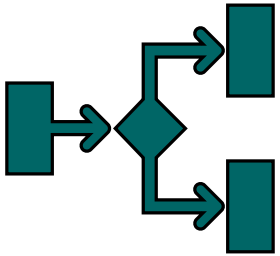
↑ Milk final 6 weeks

- Cows with these characteristics may be more suited for an extended voluntary waiting period and an extended lactation

What is next?

Project: OptiLac (**Opt**imizing **lac**tation length)

- Create a decision model to support farmers in selecting suitable cows for an extended lactation



- Feeding strategies to increase persistency and prevent fattening end of the extended lactation

Thank you for your attention!

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Take home messages

- Customize the lactation length
- Cows suited for a longer VWP have:
  1. High peak yield
  2. High milk yield before insemination

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