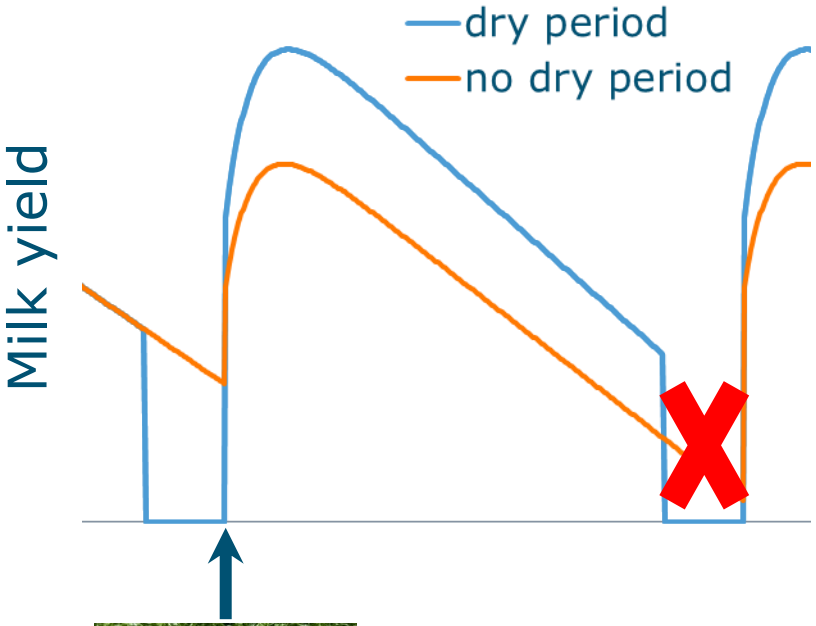
Comparing milk production of cows that differ in dry period length

Akke Kok, C.E. van Middelaar, B. Engel, A.T.M. van Knegsel, H. Hogeveen, B. Kemp, I.J.M. de Boer

Animal Production Systems and Adaptation Physiology, Wageningen University

WAGENINGEN UR
For quality of life

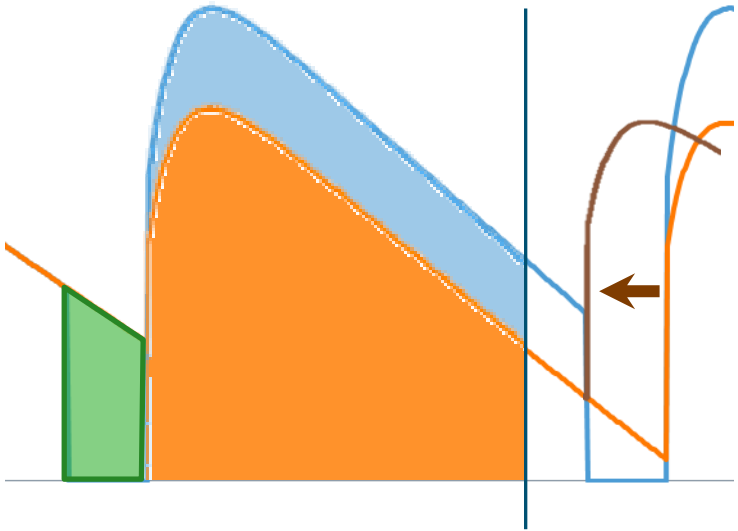
Introduction – Lactation and Dry Period



- Negative Energy Balance
  → health & fertility issues
- Innovation:
  short / no dry period
- 

Andersen et al. 2005; Van Knegsel et al. 2013

Introduction – Comparing milk yield



- Traditional: **305-d yield**

does not account for

- Additional milk
- Improved fertility

Gümen et al. 2005; Van Knegsel et al. 2013; Chen et al. 2015

Aims

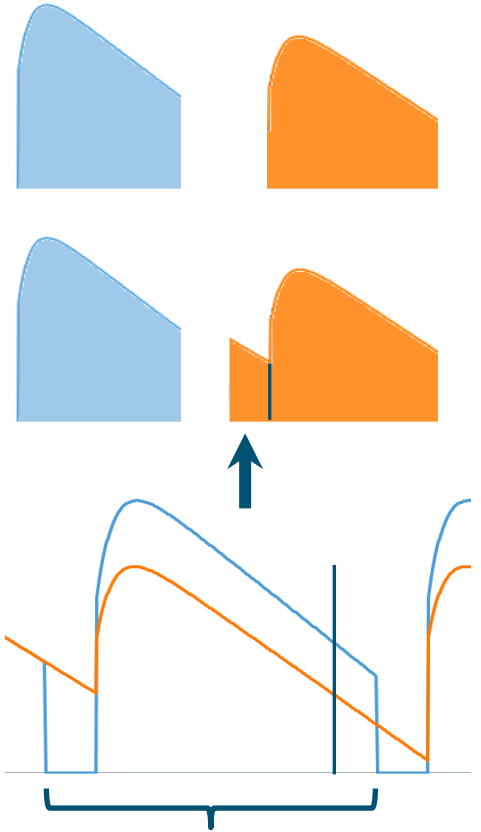
1. Develop a measure to compare milk yield of cows that differ in dry period length

2. Assess impact of accounting for
   - additional milk
   - improved fertility

   in a case study

Methods – Yield measures

- 305-d yield
- 365-d yield
  - 305-d yield + 60-d additional yield
- Effective lactation yield
  - 60d before calving until 60d before calving
  - shifted lactation yield
  - variable duration



Methods – Case study

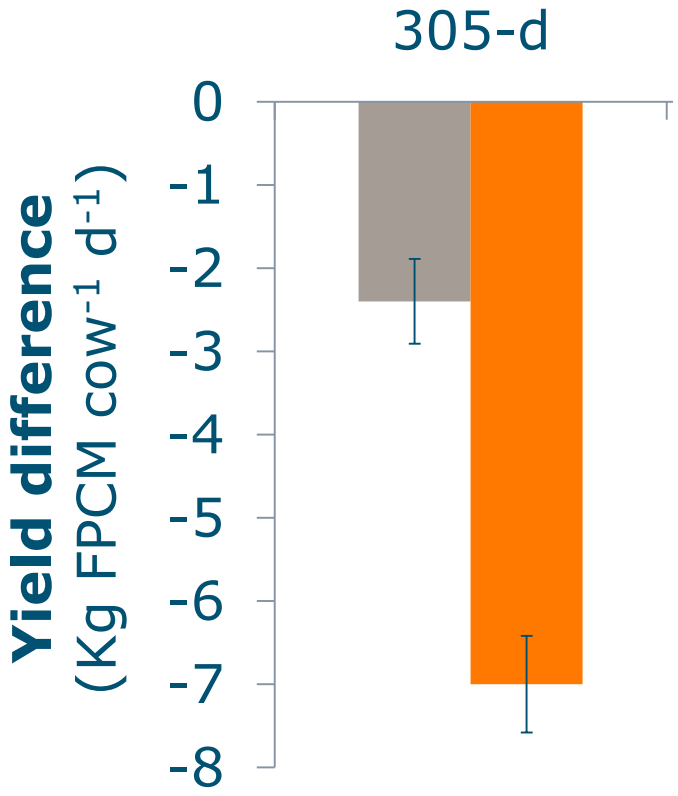
- 15 farms, 2007-2014
  - 2nd parity lactations
  - Dry Period: standard, short, none

49-90d 20-40d -

- 817 lactations
  - 305-d, 365-d, effective lactation yields
  - Kg FPCM per day

$$Yield = DryPeriod + farm + 305\text{-}d\ yield_{parity1} + e$$

Results – Standard vs. short/ no dry period



Additional Yie

Dry Period

Short

No

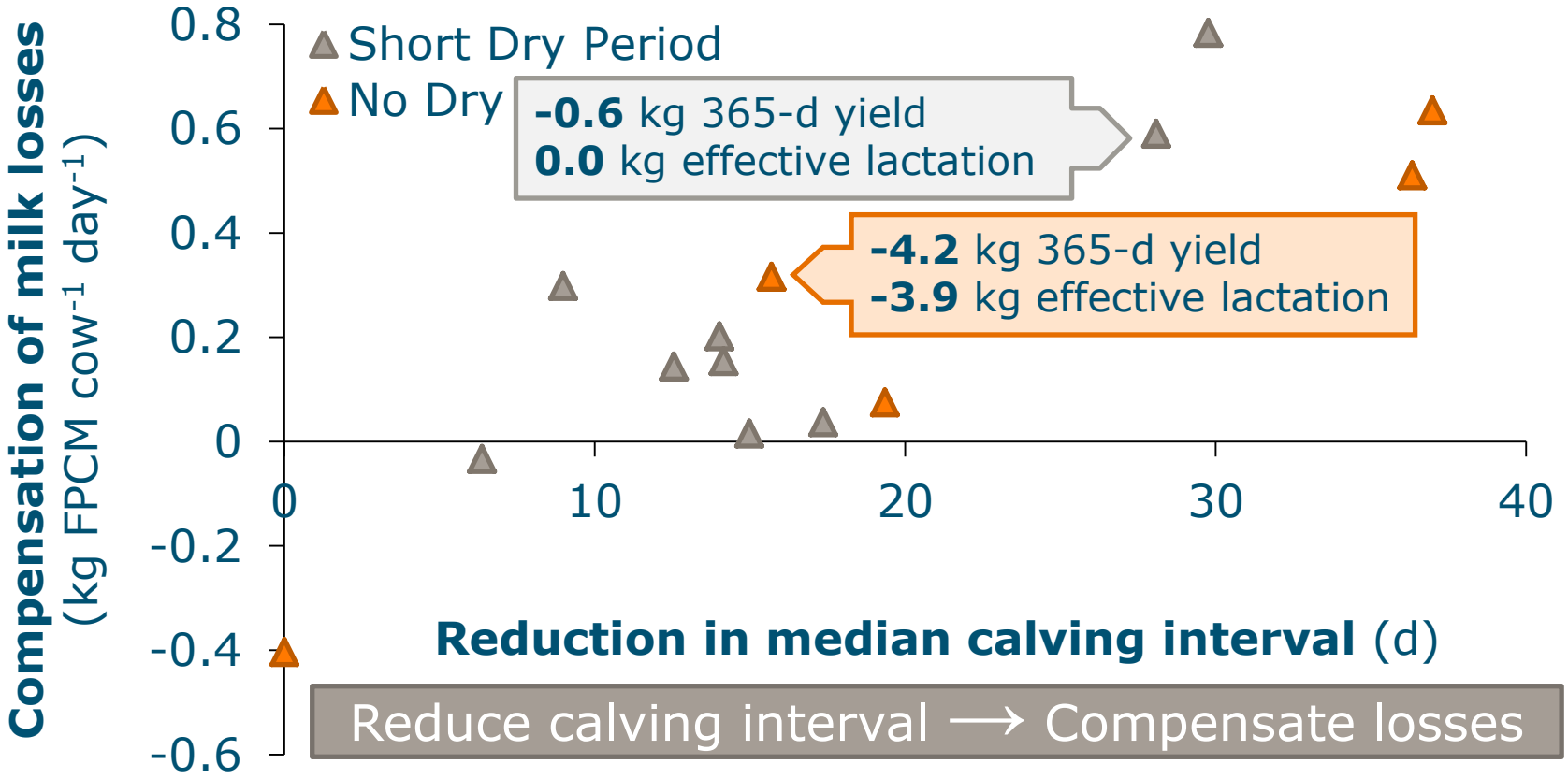
Reduction in calving interval

Dry period	days
Short	18
No	25

Short Dry Period

No Dry Period

Results – Variation between farms



Discussion

- Yield definition impacts conclusions!

- Short/ no dry period:
  - Same or reduced milk yield
  - Other benefits
  - Economic and environmental performance?

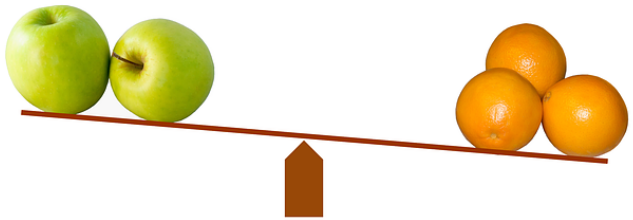
Schlamberger et al. 2010; Steeneveld et al. 2013

Conclusion

- 365-d and effective lactation yield
- Additional milk: major, consistent impact
- Calving interval: smaller, more variable impact
    - Important for individual cows and herds

Take-home message

305-d yield



effective lactation yield

akke.kok@wur.nl