Comparing milk production of cows that differ in dry period length

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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
  - 2\textsuperscript{nd} 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-d yield\textsubscript{parity1} + e
Results – Standard vs. short/ no dry period

Yield difference (Kg FPCM cow⁻¹ d⁻¹) vs. -8 to 0.

305-d

Additional Yield Difference and Reduction in Calving Interval

<table>
<thead>
<tr>
<th>Dry Period</th>
<th>Short</th>
<th>No</th>
<th>Dry Period days</th>
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<tbody>
<tr>
<td></td>
<td>18</td>
<td>25</td>
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- Short Dry Period
- No Dry Period

Short Dry Period

No Dry Period
Results – Variation between farms

Compensation of milk losses (kg FPCM cow\(^{-1}\) day\(^{-1}\))

- Short Dry Period
  - -0.6 kg 365-d yield
  - 0.0 kg effective lactation

- No Dry
  - -4.2 kg 365-d yield
  - -3.9 kg effective lactation

Reduction in median calving interval (d)

Reduce calving interval → Compensate losses
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

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effective lactation yield