“Fertility records making them talk”

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Reproductive efficiency

- Dependent on:
  - Submission rate
    - The percentage of cyclic cows at the planned start of mating (PSM)
    - Heat detection rate
  - Conception rate
    - Female effects
    - Male effects (bull/ AI operative)
    - Management effects
Optimising fertility

Involuntary waiting period
- Return to cyclicity
- Uterine involution
- Re-epithelisation
- Clearance of uterine contamination

Voluntary waiting period?

Breeding season

Days postpartum

0 45 55 to 60 100+
What to record?

- Calving dates ✓
  - Problem calvings, RFM, etc
- Pre-breeding heat dates
  - Assessment of anoestrus
- Insemination / service dates (AI and NS) ✓
  - Allows calculation of submission rate & conception rate
- Post breeding heat dates / pregnancy diagnoses
  - Early intervention
- BCS
## The targets

<table>
<thead>
<tr>
<th></th>
<th>Seasonal grass-based herds</th>
<th>High yielding liquid herds</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Calving interval</strong></td>
<td>365 days</td>
<td>400 days</td>
</tr>
<tr>
<td><strong>Breeding season</strong></td>
<td>12 weeks</td>
<td>?</td>
</tr>
<tr>
<td><strong>Calving to 1st heat</strong></td>
<td>&gt;90% by day 42</td>
<td>Same</td>
</tr>
<tr>
<td><strong>Calving to 1st service</strong></td>
<td>≥42 days, &lt;65 days</td>
<td>60-100 days</td>
</tr>
<tr>
<td><strong>Calving to conception</strong></td>
<td>≤83 days</td>
<td>100-140 days</td>
</tr>
<tr>
<td><strong>Submission rate (3-week)</strong></td>
<td>90%</td>
<td>-</td>
</tr>
<tr>
<td><strong>Conception rate per service</strong></td>
<td>60%</td>
<td>&gt;40%</td>
</tr>
</tbody>
</table>
### Targets (contd....)

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<tr>
<th></th>
<th>Seasonal grass-based herds</th>
<th>High yielding liquid herds</th>
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<tbody>
<tr>
<td>Pregnancy rate 6 wks post PSM</td>
<td>75/80%</td>
<td>-</td>
</tr>
<tr>
<td>Overall pregnancy rate</td>
<td>&gt;95%</td>
<td>&gt;90%</td>
</tr>
<tr>
<td>Culling rate for fertility</td>
<td>&lt;5%</td>
<td>5-10%</td>
</tr>
<tr>
<td>No. of services per cow per year</td>
<td>&lt;1.4</td>
<td>2</td>
</tr>
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Heat Detection

Cows in heat are not always so obvious!
Heat detection

- Heat detection rate on Irish farms is variable
- Detection rates dependent on:
  - Stockman
  - Use of aids
  - Environment, nutrition, herd-mates, health
    - (Diskin and Sreenan, 2000)
- Length of oestrus 6 to 11 hrs in US study
- CR ↓ if only one standing event recorded (36 v’s 46 %)
  - (Dransfield, 1998)
- Higher producing cows display lower intensity of heat
  - (Yoshida and Nakao, 2005)
- **Evaluate by looking at ‘Repeat interval data’**
## Repeat intervals

<table>
<thead>
<tr>
<th></th>
<th>Short</th>
<th>Normal</th>
<th>Abnormal</th>
<th>2x normal</th>
<th>Extended</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-17d</td>
<td>5</td>
<td>&gt; 65</td>
<td>5 - 10</td>
<td>10</td>
<td>5 - 10</td>
</tr>
<tr>
<td>18-24d</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-35d</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36-48d</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 48 d</td>
<td></td>
<td></td>
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Percentage of intervals calculated
Inefficient heat detection (missing heats)

- Failure to pick up cows in heat
- 3 week to 6 week ratio
  - if ratio of intervals in the "normal" interval to the "repeat" interval is less than 4 to 1

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<td>5</td>
<td>&gt;65</td>
<td>5-10</td>
<td>10</td>
<td>5-10</td>
</tr>
<tr>
<td>inefficient</td>
<td>5</td>
<td>&lt;45</td>
<td>5-10</td>
<td>10-30</td>
<td>&gt;10</td>
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Inaccurate heat detection

- if higher proportion of intervals in the “short” or “abnormal” categories

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<tr>
<td>Inaccurate</td>
<td>&gt;15</td>
<td>&lt;60</td>
<td>&gt;15</td>
<td>10</td>
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Early warning signs

- Pre-breeding heats
  - High % not seen on heat
- Poor BCS or rapid loss in BCS
- Low submission rate
- Repeat heat after service
  - First service NRR
Essential components to good fertility

- Action for cows with problem calvings
- Determine status of cows before day 42 pp
  - Pre-breeding heat checks
- Pre-breeding vet checks
  - Carried out on cows not seen on heat by d 42-50 pp
  - Focus on problem cows (do not waste time and resources on the normally cyclic cows)
- Improve efficiency of heat detection
  - Consider use of prostaglandin to increase SR
  - Create daily heat detection lists
  - Care with cow ID
- High Submission rate
Essential components to good fertility

- Records to allow full analysis of CR problems
  - To review male, female, management effects
- NRR to 1st service / early pregnancy diagnosis (35 days after AI)
  - Facilitate early intervention if not pregnant
- Optimise Heifer management to avoid similar problems in future
- BCS and Nutritional management
Summary

- Want to address fertility
- Keep records
- Interpret records and use information
- Verify heat detection (repeat intervals)
- Engage with vet on herd health
  - Intervene early on problem cows
- Constantly review submission rates and conception rates
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