Tips to maximise conception rate with sexed semen

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Sexed semen and timed AI
(2019 Field Trial)

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24 dairy herds
~720 cows per treatment
Overall analysis

Treatment: $P < 0.001$

Relative conception rate: 80.3% 84.0%

CONV9AM: 61.1% (445/722)
SEXED9AM: 49.0% (377/734)
SEXED3PM: 51.3% (365/708)
Herd variation in RCR

- RCR = 100% (91% to 121%)
- RCR = 84% (78% to 89%)
- RCR = 67% (48% to 77%)

[Bar chart showing herd variation across different RCR levels]
Using sexed semen (1)

• Bulls
  o Pick highest EBI bulls available
  o Use a team of ≥5 bulls

• Dams
  o Heifers
    • Target live-weight and BCS ≥3.25
    • Cycling regularly
  o Cows
    • Parity 1 to 4
    • >50 days in milk on day of AI
    • BCS ≥3.00
    • Cycling regularly
    • Free of postpartum disorders and uterine disease
Using sexed semen (2)

When to use?
• First 3 weeks of the breeding season
• Within first 10 days if possible.

Timing of AI
• 14 to 20 h after heat onset

Fixed time AI
• Costly, but mitigates risk
• Facilitates targeted usage of sexed semen on mating start date
Using sexed semen (3)

Straw handling on day of AI

- Organise sexed straws into one goblet
- Thaw 2 sexed semen straws at a time MAX
- Thaw straws at 35 to 37 °C for 45 seconds

- Load straws into pre-warmed AI guns, keep warm.
- Deposit semen in uterine body
- Complete inseminations within 5 mins
Breeding Females

<table>
<thead>
<tr>
<th></th>
<th>Heifer CR</th>
<th>Cow CR</th>
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<tbody>
<tr>
<td>Conventional</td>
<td>70</td>
<td>60</td>
</tr>
<tr>
<td>Sexed (observed)</td>
<td>60</td>
<td>50</td>
</tr>
<tr>
<td>Sexed (TAI)</td>
<td>60</td>
<td>50</td>
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</tbody>
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**Calf crop**

- Female dairy: 40
- Male dairy: 30
- Female beef: 40
- Male Beef: 3

Total pregnancies = 113
Heifer prostaglandin protocol for AI after detected heat

- Heifers must be cycling
- Use heat detection aids combined with periods of observation

**Cheapest option; best fertility**

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<tr>
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<th>PG</th>
<th>PG</th>
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<tbody>
<tr>
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<td>7</td>
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</table>

AI at 72 & 96 h after 2nd PG for heifers with no heat

- $\approx \frac{1}{3}$ heifers get no PG
- $\approx \frac{2}{3}$ heifers get 1st PG
- $< \frac{1}{10}$ heifers get 2nd PG
- AI occurs over 21 days
- Most bred by day 10

Heifer fixed time AI protocol

- AI at fixed time, regardless of signs of heat

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<thead>
<tr>
<th></th>
<th>GnRH</th>
<th>PG</th>
<th>PG</th>
<th>GnRH + TAI</th>
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<tbody>
<tr>
<td>-8</td>
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P4D

4 interventions
4 injections, 1 P4D
None in heat before sch. TAI

**GnRH:** Gonadotropin releasing hormone (e.g., Ovarelin, Receptal, Acegon)
**PG:** Prostaglandin F2α (e.g., Enzaprost, Estrumate, Lutalyse)
**P4D:** Progesterone device (e.g., CIDR, PRID)
**TAI:** Timed artificial insemination
Cow FTAI for sexed semen

- Should be >40 DIM at start of synch
- AI at fixed time, regardless of signs of heat

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Thank You!