Interpretation of Reproductive Records
Part II

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Reproductive Efficiency and Management

• Identify the critical weaknesses and prioritize them
• Use the knowledge to develop management practices and implement changes to achieve your goals
• Goals should be -------------------------------
-----------------------------------------------
Herd Summary Data

- Provide a useful “shorthand” summary of reproductive performance.
- Indicate if there are potential problems
- It can serve as a tool for trouble shooting
- *All the records are rolling averages!*

DHI RECORD

- Reproductive Cull Rate
- % Heat Detection
- Average Days to First Breeding
- First Service Conception Rate
- Overall Conception Rate
- Breeding Per Conception
- Days Open
- Calving Interval
- Pregnancy Rate?
EXAMPLE

Average days to 1st breeding = 70 days
Average days open = 154 days
Services per conception = 3

\[ 154 - 70 = 84 \text{ days} \]

\[ \frac{80 \text{ days}}{21} = \text{comprises 4 cycles} \]

If all heats had been detected,
we should have had total of 5 services

*That tells us only half of the services are detected*

Herd Summary Data
(Drawbacks)

1) --------------------------:
   – Measured change does not appear in the
     average right away

*Example: delays in breeding heifers will not affect the
average age at first calving until heifers begin
freshening 9 mo. Later*

2) --------------------------:
   – Problems with avg. of records spanning a long
     period of time

*Example: Rolling herd average calculates last 12 mo.,
but makes it a poor indicator of current milk production*
Herd Summary Data (Drawbacks)

3) -------------------------:
   – Average favors a particular outcome

*Example:* services per conception take to account services for pregnant animals and not the services of open cows

4) --------------------------:
   – Is the calculated average based on normal distribution or skewed distribution?

*Example:* Average days open
*Do not breed (DNB)*

\[
\frac{(\text{Services per conception} \times 21)}{(\text{Days Open} - \text{VWP}) + 11} \times 100 = \% \\
\]

✓ All heats resulted in a service
✓ All services occurred on a heat
% Heat Detected
Post- 1st service

\[
\frac{(\text{Services per conception} \times 21)}{\text{Days Open} - \text{day to first service}} \times 100 = \% \text{ Heat Detected}
\]

Snap Shot

Breed 15 cow

Preg check = 6 cows Pregnant

\[6 \div 15 = 40\% \text{ Conception}\]

Services / Conception => \[15 \div 6 = 2.5\]
How to Calculate Conception percentage

Conception is directly related to the number of services per conception (also called services per pregnancy)

Conception % = # cow inseminated ÷ # cows pregnant

Estim. Concep. = 100 ÷ services per conception X 100

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How to Calculate Pregnancy Rate (Independent from Time Unit)

--------------------- = Heat detection % X Conception %
Pregnancy Rate
(Based on Time Unit)

More realistic and measurable

Pregnancy rate may be defined as the percentage of cows eligible to become pregnant within a given interval (21 days, the typical length of an estrous cycle, or 7 days, the length of a week), that actually do become pregnant.

Heat detection rate = 3221 +

Preg Rate = 940 +

| Rate | Heat | Pct Heat | Pct Preg | | | |
|------|------|----------|----------|---|---|
| 1/19/01 | 280 | 177 | 59 | 295 | 32 | 18 |
| 1/18/01 | 277 | 188 | 66 | 274 | 41 | 16 |
| 1/17/01 | 266 | 189 | 64 | 280 | 54 | 18 |
| 1/16/01 | 318 | 212 | 67 | 314 | 68 | 22 |
| 1/15/01 | 323 | 245 | 63 | 316 | 73 | 23 |
| 1/14/01 | 299 | 189 | 57 | 273 | 62 | 19 |
| 1/13/01 | 337 | 231 | 69 | 327 | 63 | 19 |
| 1/12/01 | 322 | 248 | 65 | 311 | 59 | 17 |
| 1/11/01 | 323 | 247 | 62 | 328 | 78 | 21 |
| 1/10/01 | 349 | 229 | 66 | 332 | 78 | 23 |
| 1/09/01 | 380 | 169 | 56 | 296 | 58 | 20 |
| 1/08/01 | 380 | 195 | 63 | 301 | 59 | 20 |
| 1/07/01 | 345 | 202 | 66 | 293 | 61 | 21 |
| 1/06/01 | 385 | 191 | 63 | 294 | 68 | 18 |
| 1/05/01 | 323 | 213 | 64 | 286 | 51 | 18 |
| 1/04/01 | 295 | 189 | 64 | 0 | 0 | 0 |
| 1/03/01 | 238 | 166 | 61 | 0 | 0 | 0 |

Total: 5870 3221 64 4066 940 19
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Days to First Service
(Days in milk at first service)

- Excellent indicator of management of the herd through the dry period, calving, and early lactation.

- Directly related to pre-service heat detection efficiency
Some additional Goals

- Present of cow pregnant at any given time
  
  — ------------ to -------------*

- Present of cows open by 150 DIM
  
  — ------------- %

* Unless calving is seasonal, like in New Zealand
In evaluating the success (or failure) of a new reproductive management program recognize that:

I. Traditional parameters such as average days open and calving interval while they are useful, they are not very sensitive to management changes.

II. Pregnancy rate based on time interval (e.g. 21-day) is sensitive to change.

III. Pregnancy rate allows for the evaluation of recent events or management changes on reproductive efficiency.

IV. Achievable pregnancy rate should be about 25% and higher.