

## 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 -----  
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### 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!

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**DHI RECORD**

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- ✓ 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 ?**

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**EXAMPLE**

Average days to 1<sup>st</sup> breeding = 70 days  
Average days open = 154 days  
Services per conception = 3

154 - 70 = 84 days

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80 days / 21 = 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*

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**Herd Summary Data  
(Drawbacks)**

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**1) Lag Time:** 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) Momentum:**

- 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*

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**Herd Summary Data  
(Drawbacks)**

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**3) Bias:**  
 – Average favors a particular out come

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

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

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

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**% Heat Detection =**

$$\frac{(\text{Services per conception} \times 21)}{(\text{Days Open} - \text{VWP}) + 11} \times 100$$

- ✓ All heats resulted in a service
- ✓ All services occurred on a heat

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**% Heat Detected  
Post- 1st service**

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$$\frac{(\text{Services per conception} \times 21)}{(\text{Days Open} - \text{day to first service})} \times 100 = \% \text{ Heat Detected Post- 1st service}$$


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### Snap Shot

Breed 15 cow

Preg check = 6 cows Pregnant

$6 \div 15 = 40\%$  Conception

Services / Conception  $\Rightarrow 15 \div 6 = 2.5$

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### How to Calculate Conception percentage

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

Conception % =  $\# \text{ cows pregnant} \div \# \text{ cow inseminated}$

Estim. Concep. =  $100 \div \text{services per conception}$

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### How to Calculate Pregnancy Rate (Independent from Time Unit)

Pregnancy Rate = Heat detection % X Conception %

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The screenshot shows a complex software interface for herd management. It features multiple data tables with columns for various metrics such as 'Cows', 'Calves', and 'Pregnancies'. There are also some charts and summary statistics. Three red arrows are drawn on the screen, pointing to specific data points in the tables.

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This is a detailed data table with several sections. The top section is titled 'Milk Production' and includes columns for 'Milk', 'Fat', and 'Solids'. Below that is a section for 'Feed Costs' with columns for 'Feed', 'Cost', and 'Type'. The bottom section is titled 'Cows Sold' and includes columns for 'Date', 'Age', and 'Weight'. The table contains numerous rows of numerical data.

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**Pregnancy Rate  
(Based on Time Unit)**

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**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.

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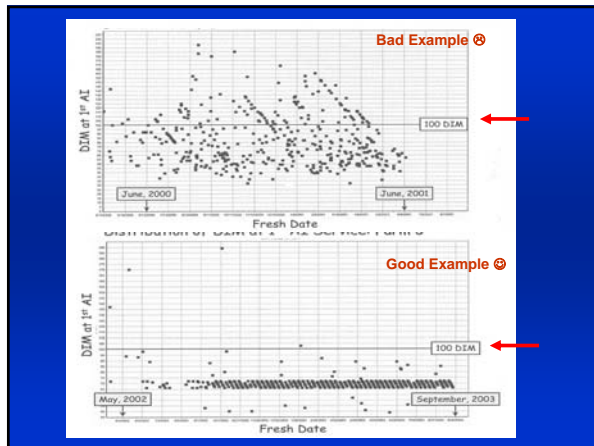
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HERO SUMMARY

Hero	Age	Sex	Color	Height	Weight	Score	Notes
1	1	M	B	12.5	100	85	
2	2	F	R	13.0	110	78	
3	3	M	B	12.8	105	82	
4	4	F	R	13.2	115	75	
5	5	M	B	12.9	108	80	
6	6	F	R	13.1	112	77	
7	7	M	B	12.7	103	83	
8	8	F	R	13.3	118	74	
9	9	M	B	12.6	101	84	
10	10	F	R	13.4	120	72	

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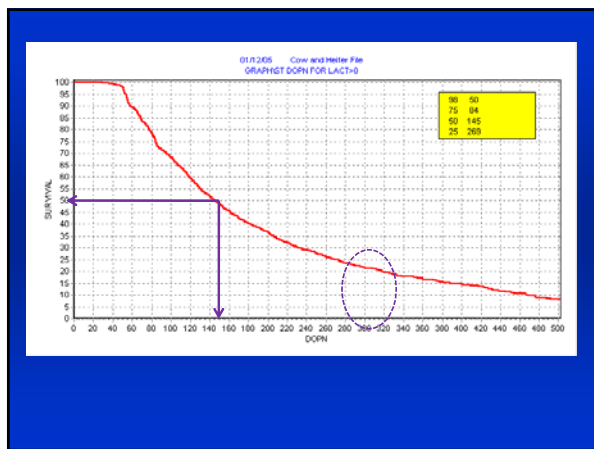
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### Some additional Goals

- Present of cow pregnant at any given time
  - 53% to 55%\*
- Present of cows open by 150 DIM
  - 15%

\* Unless calving is seasonal, like in New Zealand

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### 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 base on time interval (e.g. 21-day) is sensitive to change.

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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.

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