

Monitoring Reproduction

DHMCP Module 1

Goals of analysis of records

- Start with clear questions
- Evaluation of records alone rarely explains fully why things are going well or poorly
- The objective is to focus investigation and inform management decision making

Questions to ask

- What is performance now?
- Have things changed recently?
- Do I need to investigate further now?
- Is the herd generating enough pregnant cows in a timely way?
- Do I need to take new action now?
- Which cows do I need to do something with today?

Management errors

- Failure to examine performance, use of invalid measures, or incorrect interpretation of data lead to management errors
- Commission:
 - Changing something that shouldn't be
 - Spending money unprofitably
- Omission:
 - Failing to act when change is needed

What is current reproductive performance?

- The key outcome is pregnant cows
- We wish to measure the efficiency of making open cows pregnant
- Pregnancy rate is the best single measure of current herd performance
- Most traditional measures (calving interval, herd average days open, services per conception) do not accurately measure performance

How efficiently are pregnant cows being generated?

1. Start with pregnancy rate

- 21 d insemination and pregnancy rates:

- By calendar time: BREDSUM\E

- By cow time (DIM): BREDSUM\ERE

- Set VWP: BREDSUM\EV or BREDSUM\ERV

- Specify date range (default is 1 year): BREDSUM\EDE

- For heifers: BREDSUM\EY

Minimum production of pregnancies

- 100 milking cows + 20 dry cows
 - ± actual calvings per year
- Calving interval = 13 months
- *Adjust to target*
- Need to freshen $120/13 = 9-10$ animals/mo
- + 10% abortions/pregnant culls → 10-11 pregnancies/month
 - SUM BY MYDUE LCTGP FOR CDAT>0\G
- If CR = 35% then need 31 breedings/mo
 - EGRAPH → BRED; DATE; REM; 30 D WINDOW COWS + HEIFERS

Pregnancy Rate

- Reflects speed at which cows become pregnant
- Includes all cows whether bred or not
- Lag = 6 weeks (time until pregnancy diagnosis)
- For most Canadian herds 6 to 12 mo of data provides trade-off between momentum and variation

21 Day Pregnancy Rate in Dairy Comp 305

Esc [A] BREDSUM\E											
Date	Ht Elig	Heat	Pct	Pg Elig	Preg	Pct	Aborts	25	50	75	
2/05/04	28	12	43	27	2	7	0	P	H		
2/26/04	30	17	57	29	3	10	0	P	H		
3/18/04	34	17	50	34	4	12	0	P	H		
4/08/04	37	18	49	36	3	8	0	P	H		
4/29/04	39	16	41	39	5	13	1	P	H		
5/20/04	40	16	40	40	3	8	0	P	H		
6/10/04	39	26	67	39	1	3					
7/01/04	42	17	40	41	3	7					
7/22/04	48	27	56	48	9	19					
8/12/04	45	24	53	43	13	30	0	P	H		
9/02/04	38	18	47	38	5	13	0	P	H		
9/23/04	39	24	62	38	6	16	1				
10/14/04	37	20	54	37	9	24	0				
11/04/04	32	17	53	31	6	19	0	P	H		
11/25/04	32	13	41	29	5	17	0	P	H		
12/16/04	32	16	50	28	0	0	0		H		
1/06/05	22	11	50	0	0	0	0	Undet	Preg	Stat	
1/27/05	16	0	0	0	0	0	0	Undet	Preg	Stat	
Total	592	298	50	567	77	14	5	P	H		

Insemination Risk
("Heat detection Rate")

Pregnancy Risk

50

14

Examination of Insemination Risk

- How efficiently are cows getting inseminated for the first time?
 - Graph of DIM at 1st service
 - Insemination risk in first cycle after VWP
- How efficiently are open cows being re-bred?
 - Frequency of pregnancy diagnosis
 - Program to re-inseminate open cows
- **It is possible to take complete control over time of first breeding and time from pregnancy diagnosis to re-breeding**

How efficiently are cows being inseminated?

2. Insemination rate

- 2A - 1st service
 - GRAPH BRED1 BY DIM LCTGP FOR LACT>0 \ Z
 - PCT BRED1=50-80 FOR LACT>0 DIM>80
 - EGRAPH - BRED
- 2B - repeat services
 - EGRAPH - BRED
 - EGRAPH - PREG or OPEN
 - BREDSUM\P "PGF event" = OPEN → % bred within 10 d
 - Intervals: BREDSUM\I - use with caution re preg dx timing

What is the success of insemination?

- 3 Conception risk (a.k.a. pregnancy/AI; $SPC = 1/CR$)
- BREDSUM - CR by: Graph \R
 - Insemination number \B
 - Stage of lactation \N
 - Day of week \W [compliance]
 - Calendar month \C [season]
 - Reason for breeding (standing heat, Ovsynch) \O [compliance]
 - Technician \T
 - Parity \L
 - (Bull \S) (Stud \M)

Conception risk

- Start by looking at the 'n' and % total for each category
- Then look at the CR
- Consider 95% CI
- Cross-reference: BREDSUM\X<thing 1><thing2>
 - BREDSUM\XB0 → CR by code by AI number
 - BREDSUM\XT0 → CR by code by tech
 - BREDSUM\XLB → CR by AI number by parity

Cautions

- Apparent CR and “abortion” rate depends on when pregnancy is diagnosed
- To measure a statistically significant difference between CR of 35 and 40 % would require a total of ~ 3000 inseminations
- The point of looking at break downs of CR is to guide further questions and hypotheses
- Begin with a specific question

Setup

- Breeding codes: ALTER → Breeding and technicians
- Schedule Synch programs: 1 800 JEROMY

Measuring Reproduction

- Conception risk
 - Reflects accuracy of heat detection/timing of AI; compliance with protocols; efficiency of semen use
- Non-return rate
 - Overestimates CR
- Calving interval
 - Large bias by including only multiparous cows that become pregnant
- Days open
 - Inconsistency in inclusion
 - Biased if only pregnant cows; inaccurate if projected for open cows

% cows open at preg check \neq pregnancy rate

	Heat Detection	Total Ovsynch
n	100	100
Insemination Risk in first cycle	40%	100
Number bred in first cycle	40	100
Conception risk	40%	35%
Number bred returning to heat	24	65
Number detected and re-bred in 2 nd cycle	10	0
Number for preg check	30	100
Number pregnant	16	35
Number open	14	65
% pregnant at preg check	53%	35%
1 cycle Pregnancy Risk	16%	35%