Reproductive Benchmarks for Management Decisions
Why is reproduction so important?

LACTATION CURVE
CONTROL COST OR INCREASE MILK LEVEL

Reproduction Regulates % of lifetime spent in each phase

Net Return 3/1
CI 12.1 12.7 13.4 14.1 14.9 15.5 16.0 16.7 17.3

Net Return 2/1

Source: Dr. Dave Galligan, UPenn

3rd Lactation: 20,000 lbs
Benchmarks

• Benchmarks are standards by which performance can be measured or compared, and are not synonymous with goals.

• They are simply the averages for different monitoring parameters and may be derived by grouping together herds that represent specific categories (herd size, production level or geographic location for example).
Goals

• Goals are target levels of performance toward which managers are striving.

• Complete herd records should provide the necessary tools to define herd performance history, assist in establishing goals.

• Goals should not be static but change once reached to achieve higher performance.
Key Performance Indicators

• A key performance indicator (KPI) is a metric that a dairy may use to gauge performance and whether future performance will be a success or failure.

• There are many KPIs that can be used to proactively predict where a herd’s reproductive performance is headed
  – Weekly hard count of new pregnant cows
  – Palpation pregnancy rate
  – Number of cows leaving the herd within the first 60 days in milk
RePRO Analysis© and RePRO ReView

• These are two tools developed to assist in the evaluation of production and reproductive performance.

• RePRO Analysis is an Excel® macro based software program that utilizes records from many sources (PCDART, DairyComp, dhi-Plus, DeLaval, AFi, GEA, etc) it is used by member specialist to access performance, make recommendations, set goals for a reproductive audit of both cows and heifers.
### Benchmarks - Current Status For

**Imported 549 Pregnant**  
**Last Data Entry 9/13/2016**  
**Voluntary Waiting Period (VWP) 54**  

<table>
<thead>
<tr>
<th>Item</th>
<th>National</th>
<th>Regional</th>
<th>Current Status</th>
<th>Herd Benchmarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Preg &gt; VWP</td>
<td>50</td>
<td>48</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>% Preg &gt; VWP &lt; 150 DIM</td>
<td></td>
<td></td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>% Confirmed Preg 3 Cycles Past VWP</td>
<td>32</td>
<td></td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>% Confirmed Preg for Desired Calving Interval¹</td>
<td></td>
<td></td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>Days in Milk at First Service (DIMFS)</td>
<td>~90</td>
<td>80</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>% DIMFS &gt; 100 DIM</td>
<td>~30</td>
<td>20</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>% Open &gt; 270 DIM</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>% DNB</td>
<td>~6</td>
<td>5</td>
<td>5</td>
<td>--</td>
</tr>
<tr>
<td>% Heat Detection Rate</td>
<td>~65</td>
<td>50</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>% Conception Rate First Service</td>
<td>~40</td>
<td>45</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>% Conception Rate All Services</td>
<td>~35</td>
<td>35</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>% Average 21-day Pregnancy Rate</td>
<td>~20</td>
<td>18</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>% Heat Detection Rate, Last 120 days</td>
<td>~60</td>
<td>60</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>% Conception First Service, Last 120 days</td>
<td>~40</td>
<td>45</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>% Conception Rate, All Services, Last 120 days</td>
<td>~35</td>
<td>35</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>% Conception Rate, Lac = 1, Last 120 days</td>
<td>~40</td>
<td>45</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>% Conception Rate, Lac &gt; 1, Last 120 days</td>
<td>~35</td>
<td>35</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>% Average 21-day Pregnancy Rate, Last 120 days</td>
<td>~20</td>
<td>18</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>

| Average Days in Milk                      | 170      | 174      |                 |                 |
| Average Days Open                         |          |          | 144             |                 |
| Current Test Day Milk (lb)                | 70       | 70       |                 |                 |
| Current Somatic Cell Count (1000)         | ~250     | 250      | 127             |                 |
| % Cows < 250000 SCC                       | ~50      | 80       | 88              |                 |

---

1. Desired Calving Interval

---

**Select Sires RePRO Monitoring Program**
RePRO Analysis© and RePRO ReView

• RePRO ReView is an automatically created herd reproductive report currently for DairyComp files only. It can include both cow and heifer information.

• It is sent monthly and can include benchmarks against contemporaries determine by the herd owner.

• This reported is emailed to SRS member specialist to review, add comments and share with the management team.
As of February 1, 2017. There were a total of 1,315,323 animals currently in the system.
21-day Pregnancy Rate
21-day Pregnancy Rate

Submission Rate
(Heat Detection and Timed A.I.)

Conception Rate

Number of eligible cows every 21-days divided into the number that get pregnant
21-day Pregnancy Rate Trend
169 KY Holstein herds

Holstein herds – Jan. 6, 2017. DairyMetrics (drms.org)
21-day Pregnancy Rate Trend by Herd
169 KY Holstein herds

Holstein herds – Jan. 6, 2017. DairyMetrics (drms.org)
21-day Pregnancy Rate Trend

9,594 USA Holstein herds

Holstein herds – Jan. 6, 2017. DairyMetrics (drms.org)
Days Open
Minimum Days Open Trend

KY Holstein herds

Holstein herds – Feb. 6, 2017. DairyMetrics (drms.org)
Minimum Days Open Trend

USA Holstein herds

Holstein herds – Feb. 6, 2017. DairyMetrics (drms.org)
Heat Detection
Percent Heats Observed Trend
KY Holstein herds

Holstein herds – Jan. 6, 2017. DairyMetrics (drms.org)
Conception Rate, 1st Service
First Service Conception Rate Trend

KY Holstein herds

Holstein herds – Jan. 6, 2017. DairyMetrics (drms.org)
Conception Rate, All Service
Services/Pregnancy, All Lactations Trend
KY Holstein herds

Holstein herds – Jan. 6, 2017. DairyMetrics (drms.org)
Days in Milk
Days in Milk Trend

KY Holstein herds

Holstein herds – Jan. 6, 2017. DairyMetrics (drms.org)
Daily Milk Trend
KY Holstein herds

Holstein herds – Jan. 6, 2017. DairyMetrics (drms.org)
Key Performance Indicators
Hard count of new pregnant cows

Should be between 8 and 10 percent of the number of milking cows and is dependent on replacement rate

Example: July 57 (cows) + 39 (heifers) = 96 total new pregnancies

Nov. 105 (cows) + 40 (heifers) = 145 total new pregnancies

Herd has 1100 milking cows divide by 10 (months) = 110 new pregnancies each month
Palpation pregnancy rate

- Best method to measure heat detection rate
- Activity tracker – Pregnant versus Verified Pregnant

Heat Detection Percent = \( \frac{178}{251} \times 100 = 71\% \)
Number of cows leaving the herd within the first 60 days in milk

This measures involuntary culling, death and is an excellent indicator of the success or failure of the transition program.

First 60 days 22 cows were removed = 7%

Benchmark national is ~10%; Goal should be ~8%
Start-up Milk Weights
Early DIM Butterfat %
Week Four Milk Weights
<table>
<thead>
<tr>
<th>Title</th>
<th>XdbName</th>
<th>YdbName</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIM (td) vs Lact Avg SCS</td>
<td>Days in mil-tst</td>
<td>Lact av SCC scr</td>
</tr>
<tr>
<td>DIM (td) vs Milk</td>
<td>Days in mil-tst</td>
<td>Curr milk</td>
</tr>
<tr>
<td>Butterfat for the 1st 30 DIM</td>
<td>Days in mil-tst</td>
<td>Curr fat %</td>
</tr>
<tr>
<td>DIM (td) SCC Score</td>
<td>Days in mil-ref</td>
<td>Curr SCC scr</td>
</tr>
<tr>
<td>Prev SCS vs Curr SCS</td>
<td>Prev SCC act</td>
<td>Curr SCC act</td>
</tr>
<tr>
<td>Body Condition Score vs DIM</td>
<td>Body Cond Score</td>
<td>Days in mil-ref</td>
</tr>
<tr>
<td>Body Condition Score Score Dry</td>
<td>Curr days dry</td>
<td>BCS Dry -curr</td>
</tr>
<tr>
<td>Fat-Protein ratios by DIM</td>
<td>Days in mil-tst</td>
<td>Fat Prot ratio</td>
</tr>
<tr>
<td>Week 4 Milk by Days in Closeup</td>
<td>Days in CU</td>
<td>Wk4Mlk</td>
</tr>
<tr>
<td>Week 4 Milk by Age at Calving</td>
<td>Age - mon (civ)</td>
<td>Wk4Mlk</td>
</tr>
</tbody>
</table>

PCDART
Summary

• There are many KPIs that can be used to help predict where the reproductive performance of the herd is headed.

• Benchmarks must compare herds of similar size, geography location and management styles to be useful.

• Goals should be set to always strive to become better, but keep in mind the cost. It may not make sense to improve pregnancy rates if the income does not cover the expense.
Thank You