I-29
“Moo-University”
What is your pregnant cow worth?

Annual Winter Workshop Series
5 locations, 1 agenda

Educating & Ag-Vocating for the Future

January 2016
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"Moo-University"
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Educating & Ag-Vocating for the Future
January 2016

Agenda
Agenda will be repeated at each location
9:00-10:00 am: Registration
10:00-10:15 am: Welcome
10:15-11:00 am: Synchronization 101 - Ryan Breuer, DVM, Iowa State University
11:00-11:45 am: Genomics and Genetics: Optimizing Your Choices - Jim Paulson, University of Minnesota
11:45-12:15 pm: Break
12:15-12:45 pm: Lunch
12:45-1:30 pm: Managing Personnel to Maximize Your Profits: Tracey Erickson, South Dakota State University and Dr. JW Schroeder, North Dakota State University
1:30-2:15 pm: Using Records to Keep Your Herd Performing - Jim Saifer, University of Minnesota
2:15-3:00 pm: Reproduction and Economics - Robert Tighe, University of Nebraska
3:00-3:30 pm: Wrap-up and Evaluation

Visit: iGrow.org/livestock/dairy for more information and to register
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- Genex Cooperative, Inc.
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Field Representative: Scott Stude 612-756-3735

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Synchronization 101

Ryan Breuer, DVM
Dairy Specialist for Northwest Iowa

Background

- Recent transplant from SE Wisconsin
- Family Dairy Farm Background
- DVM from UW – Madison
- ISU Extension & Outreach Dairy Specialist for NW Iowa

Overview

- Concept of Synchronization
- Hormones
- Conception Risk
- Reproductive Success
- Developments in achieving high Pregnancy Rates
**Concept of Synchronization**

- Improves Reproductive Efficiencies
  - Control over the 21 day estrous cycle
- Milk production efficiency
  - Achieving maximum milk production levels from the majority of the herd
  - Increases profitability to your operation
- Examples of synchronization:
  - Estrus (heat) detection, Ovsynch, Presynch, Resynch, CIDR

**Hormones**

- **Progesterone (P4)**
  - Hormone that supports pregnancy
  - Produced & secreted into circulation
    - by the corpus luteum (CL) during estrous
    - by the placenta during pregnancy
- **Prostaglandin F₂α (PGF₂α)**
  - Hormone that induces labor
  - Causes luteolysis of the CL
    - Inhibiting the production of progesterone
    - Produced by the uterus

**Hormones**

- **Gonadotropin-Releasing Hormone (GnRH)**
  - Causes the release of another hormone: Luteinizing Hormone (LH)
  - Luteinizing Hormone (LH) + Follicle Stimulating Hormone (FSH)
    - Both hormones (LH & FSH) are produced by the pituitary gland
    - Stimulates the growth of ovarian follicles
    - Causes ovulation allowing a CL to form in the place where the oocyte was released on the ovary
Conception Risk

- Factors influencing conception with Artificial Insemination (AI)
  - Cow fertility
  - Bull fertility
  - Accuracy of heats
  - AI efficiency

Reproductive Success

- Inseminate cows quickly after your Voluntary Waiting Period (VWP)
- Inseminate cows during the correct time in their estrus cycle – ovulation
- Improvements to AI efficiency
- Identify non-pregnant cows promptly after insemination
- Aggressively re-inseminate non-pregnant cows

Achieving High Pregnancy Rates

- Progesterone effects on Ovsynch
  - Low-progesterone levels at first GnRH
  - Incomplete luteal regression
  - Decreased fertility at TAI
- Additional PGF2α treatment in the Ovsynch protocol
  - 24 hours after 1st PGF2α treatment
- Achieving a 30% Pregnancy Rate
You and I probably have a lot in common.

If you’re a dairy farmer like me and want to stay in control of your independent farming destiny, then you should learn more about AMPI.

Local AMPI Division Offices:
Freeman, S.D. | 605-925-4234
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The Alltech Mycotoxin Management program consists of natural, nutritional solutions tailored to address challenges impacting modern production and profitability. The Alltech Mycotoxin Management program places high value on quality, efficiency, genetic potential, traceability, food safety, and the environment. For more information on how the Alltech Mycotoxin Management program can benefit your farm or operation, contact your Alltech representative today.

From September 2015 to November 2015, Alltech analyzed 116 corn silage samples in key production areas across the United States and Canada, testing for more than 37 mycotoxins through the ALLTECH 37+® mycotoxin analysis.

97% of samples were contaminated with at least 1 mycotoxin.

- Even at low levels, mycotoxins can negatively impact animal health and productivity.
- Mycotoxins in the diet have led to the following:
  - Reproductive inefficiencies: poor conception rates, increased abortion and mortality rates
  - Substantial losses in production performance
  - Depressed immune function

The Real Risk of Mycotoxins

AVERAGE 5.62 Mycotoxins per sample

<table>
<thead>
<tr>
<th>Number of Different Mycotoxins</th>
<th>Percentage of Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-9</td>
<td>34.48%</td>
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<tr>
<td>6-7</td>
<td>34.48%</td>
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<tr>
<td>4-5</td>
<td>10.34%</td>
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<tr>
<td>2-3</td>
<td>1.72%</td>
</tr>
<tr>
<td>0</td>
<td>6.03%</td>
</tr>
<tr>
<td>1 mycotoxin</td>
<td>1.72%</td>
</tr>
<tr>
<td>2-3 different mycotoxins</td>
<td>9.48%</td>
</tr>
<tr>
<td>8-9 different mycotoxins</td>
<td>9.48%</td>
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<tr>
<td>0 mycotoxins</td>
<td>9.48%</td>
</tr>
<tr>
<td>10-11 different mycotoxins</td>
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<td>0 mycotoxins</td>
<td>6.03%</td>
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<td>1-2 different mycotoxins</td>
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<td>6-7 different mycotoxins</td>
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<tr>
<td>4-5 different mycotoxins</td>
<td>10.34%</td>
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<tr>
<td>2-3 different mycotoxins</td>
<td>10.34%</td>
</tr>
<tr>
<td>6-7 different mycotoxins</td>
<td>10.34%</td>
</tr>
<tr>
<td>4-5 different mycotoxins</td>
<td>10.34%</td>
</tr>
</tbody>
</table>
Genetics and Genomics: What are your choices?

Jim Paulson and Tony Seykora
University of Minnesota

What are your breeding goals for your dairy herd?

EVERYBODY’S GOALS

- Profitable cows
- Cows that last
- Good udders
- Good feet and legs
- Cows that get pregnant
- Cows that don’t get mastitis
- Cows that don’t get sick
Modern cows

Champions

Genetic levels for milk production have increased by about 8,000 lbs.
12916 lb. ME milk  26253 lb. ME milk

Unfortunately, fertility has decreased as milk production increased!

Inbreeding costs you money
REASONS FOR CULLING

- Lame cows
- Cows that are open
- Cows with mastitis/ high SCC
- Dead Cows
- UN-Profitable cows (voluntary)
  - Are you breeding to correct reasons for culling?

HOW DO YOU PICK YOUR BULLS?

- Let the AI company
- Mating program
- Study info, make a list
- Use bulls on farm
- The goal is to produce cattle that will be profitable under market conditions in 3 to 5 years.

HOW DO YOU PICK YOUR BULLS?

- Price/unit
- NM$, CM$, GM$
- Minimums for ....?
- CFP
- Health traits – PL, DPR, SCS
Bull Proofs  “Mr. Milk”

<table>
<thead>
<tr>
<th>Bull Production Information</th>
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<tbody>
<tr>
<td>lbs milk</td>
<td>2,000</td>
</tr>
<tr>
<td>lbs protein</td>
<td>60</td>
</tr>
<tr>
<td>lbs fat</td>
<td>80</td>
</tr>
<tr>
<td>CFP</td>
<td>100 &gt;100+</td>
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</table>

Type traits

<table>
<thead>
<tr>
<th>Type</th>
<th>1.01</th>
<th>UDC</th>
<th>udder</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPI</td>
<td>2500</td>
<td>FLC</td>
<td>feet/legs</td>
</tr>
<tr>
<td>BD</td>
<td>D</td>
<td>BD</td>
<td>body</td>
</tr>
<tr>
<td>D</td>
<td>D</td>
<td>D</td>
<td>dairy form</td>
</tr>
</tbody>
</table>

Genetic Progress = Goals and guidelines

<table>
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<tr>
<td>SCS</td>
<td>somatic cell score (mastitis)</td>
</tr>
<tr>
<td>PL</td>
<td>productive life</td>
</tr>
<tr>
<td>DPR</td>
<td>daughter pregnancy rate</td>
</tr>
<tr>
<td>Calving ease</td>
<td>service sire</td>
</tr>
<tr>
<td>Stillbirth</td>
<td>daughter</td>
</tr>
<tr>
<td>SCR</td>
<td>sire conception rate</td>
</tr>
</tbody>
</table>

Intro to Indexes

Lifetime net merit (NM$) is a selection index for commercial dairy producers

Cheese-, fluid, and grazing-merit indices accommodate alternative marketing & production scenarios

Weighting in the formula changes with changing economics (price of milk, beef, replacements)

Graziers face different challenges and so, different priorities: more focus on fertility and less on longevity
Table 1

<table>
<thead>
<tr>
<th>Trait</th>
<th>Net Merit (MNS)</th>
<th>Choice Merit (GMR)</th>
<th>Fluid Merit (FMR)</th>
<th>Grade Merit (GSR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk (lb)</td>
<td>-1</td>
<td>-9</td>
<td>23</td>
<td>-4</td>
</tr>
<tr>
<td>Fat (lb)</td>
<td>22</td>
<td>19</td>
<td>23</td>
<td>20</td>
</tr>
<tr>
<td>Protein (lb)</td>
<td>20</td>
<td>24</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>Production lifeurvived</td>
<td>13</td>
<td>16</td>
<td>20</td>
<td>10</td>
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<tr>
<td>Somatic cell score</td>
<td>-3</td>
<td>-7</td>
<td>-5</td>
<td>-6</td>
</tr>
<tr>
<td>Udder composite</td>
<td>6</td>
<td>9</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Feet/hoe composite</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Body size composite</td>
<td>-5</td>
<td>-4</td>
<td>-5</td>
<td>-4</td>
</tr>
<tr>
<td>Daughter pregnancy rate</td>
<td>7</td>
<td>6</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Herd conception rate</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Cows conception rate</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Calving ability dollars</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

New economic values for each unit of predicted transmitting ability (PTA) and relative economic values of traits that were implemented with December 2014 evaluations.

Figure 2

Selection indexes

- New MNS: 42% Production, 41% Health, 16% Type
- New TPI: 48% Production, 28% Health, 26% Type

Traits Included in Lifetime Net Merit

- Fat (lb)
- Protein (lb)
- Production lifeurvived
- Somatic cell score
- Udder composite
- Feet/hoe composite
- Body size composite
- Daughter pregnancy rate
- Herd conception rate
- Cows conception rate
- Calving ability dollars

April 2015

43% PRODUCTION
- 22 Net
- 20 Protein
- 1 Milk

41% HEALTH
- 15 Production Life
- 14 Daughter Pregnancy Rate
- 12 Somatic Cell Score
- 11 UdderComposite
- 9 Herd Conception Rate
- 8 Cows Conception Rate

16% CONFORMATION
- 68 Daughter
- 38 Body Size
- 36 Milk
- 34 Udder
- 33 Production Life
- 32 Daughter Pregnancy Rate
- 31 Somatic Cell Score
- 30 Udder Composite
- 29 Herd Conception Rate
- 28 Cows Conception Rate
- 27 Calving Ability Dollars

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### Changes in Relative emphasis on traits in index (%)

<table>
<thead>
<tr>
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<td>Milk</td>
<td>6</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>-1</td>
<td>-1</td>
<td></td>
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<tr>
<td>Fat</td>
<td>25</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>22</td>
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<td>Protein</td>
<td>43</td>
<td>36</td>
<td>33</td>
<td>23</td>
<td>16</td>
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<td>11</td>
<td>17</td>
<td>22</td>
<td>19</td>
<td>10</td>
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<td>SCS</td>
<td>-6</td>
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<td>-10</td>
<td>-7</td>
<td>-6</td>
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<td>7</td>
<td>6</td>
<td>7</td>
<td>8</td>
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<tr>
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<td>...</td>
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<td>4</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
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<tr>
<td>BDC</td>
<td>...</td>
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<td>-3</td>
<td>-4</td>
<td>-6</td>
<td>-5</td>
<td>-4</td>
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<td>9</td>
<td>11</td>
<td>7</td>
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<td>...</td>
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<td>3</td>
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<tr>
<td>CCR</td>
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<td>...</td>
<td>...</td>
<td>...</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>CA$</td>
<td>...</td>
<td>...</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

#### MAKE YOUR OWN INDEX?

- **Spreadsheet**
  - Set up your own emphasis for traits
  - Pick a pool of bulls and plug them in

#### SHOULD I USE A MATING PROGRAM?

- Match genotypes of parents to minimize genomic inbreeding
- Avoid mating carriers
- Consider non-additive gene action
- May attempt to increase variance to get outliers
PEDIGREE OR GENOMIC MATING?

- Computer mating programs have helped breeders identify potential mates with fewer ancestors in common to reduce pedigree inbreeding.
- Such programs could instead help breeders to identify potential mates with fewer alleles in common to reduce genomic inbreeding.
- This works best if both mates are genotyped.

MATING PROGRAM RESULTS

- With linear programming, genomic inbreeding was:
  - 3% lower than with random mating.
  - 1% lower than with sequential mate selection.
- Genomic instead of pedigree relationships:
  - Added value was $32 \times 184,693$ calves = $5.9$ million / year for Holstein females genotyped in 2013.
- Extra benefits from predicting dominance were small.

USING CROSSBREEDING TO IMPROVE HEALTH TRAITS

- No matter which breed, pick the best bulls.
- Crossbreeding gives hybrid vigor – more valuable for lower heritability.
- Have a plan and follow it.
GENOMIC GOALS

Predict the genetics of heifers and bulls more accurately and do it sooner!

1. More accurately estimate the relationships between animals.
2. Locate SNP’s that have effects on production, health and type traits.

Reliabilities for Traditional and Genomic Predictions

<table>
<thead>
<tr>
<th>Trait</th>
<th>Reliability</th>
<th>Traditional</th>
<th>Genomic PA</th>
<th>Genomic Realized</th>
<th>Genomic Gain</th>
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<tbody>
<tr>
<td>Net Merit</td>
<td>30</td>
<td>60</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk</td>
<td>35</td>
<td>58</td>
<td>23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fat</td>
<td>35</td>
<td>68</td>
<td>33</td>
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<tr>
<td>Protein</td>
<td>35</td>
<td>57</td>
<td>22</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A LIFETIME OF DECISIONS ARE POSSIBLE

- Keep or Sell? (or Buy?)
- Breeding Decision – who should bear more heifers (using other technologies).
  - Heifer strategies
  - Cow strategies
  - Terminal breedings: beef semen (if >20% excess females above need) or embryo recipients.
A LIFETIME OF DECISIONS ARE POSSIBLE

- Better individualized mating decisions to reduce risks and prioritize matings
  - Parentage corrected
  - Haplotypes and genetic recessives identified

- Management decisions

- Adult cull cow decisions (How many chances?)

One or More Strategies can be Adopted

- Non-Select
- Select - Conventional Semen
- Select - Sexed Semen
- ET or IVF Amplification

Average # of Animals Genotyped Per Month

- Yearly genotyping numbers from 2009 to 2015, showing an increase in the number of animals genotyped per month.
### Holstein prediction accuracy

<table>
<thead>
<tr>
<th>Trait</th>
<th>Bias*</th>
<th>Reliability (%)</th>
<th>Reliability gain (% points)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk (kg)</td>
<td>~80.3</td>
<td>69.2</td>
<td>30.3</td>
</tr>
<tr>
<td>Fat (kg)</td>
<td>~1.4</td>
<td>66.4</td>
<td>29.5</td>
</tr>
<tr>
<td>Protein (kg)</td>
<td>~0.9</td>
<td>60.9</td>
<td>22.6</td>
</tr>
<tr>
<td>Fat (%)</td>
<td>0.0</td>
<td>93.7</td>
<td>54.8</td>
</tr>
<tr>
<td>Protein (%)</td>
<td>0.0</td>
<td>86.3</td>
<td>48.0</td>
</tr>
</tbody>
</table>

*2013 deregressed value – 2009 genomic evaluation

Source: VanRaden, Advancing Dairy Cattle Genetics: Genomics and Beyond presentation, Feb. 2014

### Holstein prediction accuracy

<table>
<thead>
<tr>
<th>Trait</th>
<th>Bias*</th>
<th>Reliability (%)</th>
<th>Reliability gain (% points)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productive life (mo)</td>
<td>~0.7</td>
<td>73.7</td>
<td>41.6</td>
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<tr>
<td>Somatic cell score</td>
<td>0.0</td>
<td>64.9</td>
<td>29.3</td>
</tr>
<tr>
<td>Daughter pregnancy rate (%)</td>
<td>0.2</td>
<td>53.5</td>
<td>20.9</td>
</tr>
<tr>
<td>Sire calving ease</td>
<td>0.6</td>
<td>45.8</td>
<td>19.6</td>
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<tr>
<td>Daughter calving ease</td>
<td>~1.8</td>
<td>44.2</td>
<td>22.4</td>
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<td>Sire stillbirth rate</td>
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<td>5.9</td>
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<tr>
<td>Daughter stillbirth rate</td>
<td>0.1</td>
<td>37.6</td>
<td>17.9</td>
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*2013 deregressed value – 2009 genomic evaluation

Source: VanRaden, Advancing Dairy Cattle Genetics: Genomics and Beyond presentation, Feb. 2014

### Reliability gains with genomics vs. parent average

<table>
<thead>
<tr>
<th>Reliability (%)</th>
<th>Ayrshire</th>
<th>Brown</th>
<th>Swiss</th>
<th>Jersey</th>
<th>Holstein</th>
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<tr>
<td>Genomic</td>
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<td>54</td>
<td>61</td>
<td>70</td>
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<td>Parent average</td>
<td>28</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Gain</td>
<td>9</td>
<td>24</td>
<td>31</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>
RECOVERING HEIFER RAISING COSTS

- A cow must produce over 31,000 lbs of milk before she has covered her raising costs and her ongoing cost of production and is adding to the profitability of the operation\(^1\)
  - Typically 2nd lactation cow

\(^1\)Source: AgStar Financial Services, 2011

Integrating Results

(Conceptual results with Decision-Making on $275 GNM group)

- Ave Genetics passed on to each offspring: $345 vs $275 (+$70 increase)
- Lifetime Profitability (x2): +$140/hd kept

Ave Genetics passed on to each offspring: $451 vs $275 (+$176 increase)

Animal genomics from UW-Madison Integrated Dairy

GENETIC PROGRESS

HOLSTEINS

- Assume 60% REL for net merit
  - Sires mostly 2.5 instead of 6.5 years old
  - Dams of sons mostly heifers with 60% REL instead of cows with phenotype and genotype (66% REL)
- Progress could increase by >50%
  - Reduce generation interval more than accuracy
**Genetic Progress**

Accuracy × Intensity × Genetic Variation

Generation Interval

High rel. X times used X how much better

Generation Interval

>90% x 90% of heifers x best bull x sexed semen

Generation Interval

---

**Result: Faster Genetic Progress**

---

**AI studs: Faster Genetic Progress**

Use of more young sires as sires of sons

AI companies source young sires Identify bad genes faster and eliminated

---
A “Supercow” constructed from the best haplotypes in the Holstein population would have an EBV(NM$) of $7515.

Genetic markers have been found for recessive genetic defects in dairy cattle –
Blads, CVM, Mulefoot, and Dumps, reproductive haplotypes
As well as for black vs. red hair color, polled

Some other traits to look at improving with genomics
- Claw health (Van der Linde et al., 2010)
- Dairy cattle health (Parker Gaddis et al., 2013)
- Immune response (Thompson-Crispi et al., 2013)
- Milk fatty acid composition (Soyeurt et al., 2011)
- Persistency of lactation (Cole et al., 2009)
- Residual feed intake (Connor et al., 2013)
- Feed Efficiency (Van deHaar 2014)
SUMMARY ON GENOMICS

- Genomic evaluation has dramatically changed dairy cattle breeding
- Rate of gain has increased primarily because of large reduction in generation interval
- Genomic research is ongoing
  - Detect causative genetic variants
  - Find more haplotypes that affect fertility
  - Improve accuracy

How many doses of semen does the US need?

9.3 million cows plus 30% culls bred once
3.1 million
3.6 million heifers bred as replacements

12.4 million cows bred 2.2x plus 3.6 million heifers bred 1.2x = 31.6 million doses of semen/year

How many doses of semen does the US need?

One bull produces 100,000 units/year for domestic use
31.6 million/100,000 = 316 bulls
SUMMARY

- We have made a lot of progress for milk production.
- Use the best bulls, fewer bulls, volume buying, high reliability
- Genomics will help make faster progress for all traits.
- Increased genetic progress worth $8 million/year is expected if all breeders select on NM$.
THE NEW 50-DOSE FERTAGYL BOTTLE IS TOO BIG FOR THIS CARD.

BUT IT'S A GREAT FIT FOR YOU.
Delivering Nutrition and More . . .

Improve Your Milk Production Efficiency With QLF Liquid Supplements

Feeding QLF molasses based liquid supplements delivers a consistent, high quality sugar source and enhances fiber digestion while reducing TMR sorting.

- More milk from less feed
- Improve fiber digestibility
- Increase milk component yield
Managing Personnel to Maximize Your Profits

Or, The beatings will continue until the attitude improves....

 Tracey Erickson, SDSU Extension Dairy Field Specialist
Recognizing the supervisor’s role.

Cost of Turnover

Cost to Value of an Employee

- $3,500.00 to replace one $8.00 per hour employee (all costs)
- Society for Human Resource Management (SHRM) estimates these costs for:
  - recruiting, interviewing, hiring, training, reduced productivity, and so on.
  - SHRM’s estimate was the lowest of 17 nationally respected companies who calculate this cost!
Other sources provide these estimates:
- It costs you 30-50% of the annual salary of entry-level employees,
- 150% of middle level employees, and up to
- 400% for specialized, high level employees!

Cost of employee turnover

5 key HR tasks for managers

1. Create a vision
   ✓ No two businesses alike

2. Develop strategic goals
   ✓ SMART: Specific, Measurable, Attainable, Rewarding, Timed

3. Craft an organizational structure
   ✓ Defines who is supervised and responsibility

4. Put the "right" HR practices in place
   ✓ The right practices must be chosen and put in place first. There are no unimportant HR practices

5. Equip managers to lead
   ✓ Outstanding work at one level does not adequately prepare an employee to succeed at the next level
Once the shouting begins, the listening stops

Know any managers like this??

Communicating Shared Values

- Mission – What you want to do now and the business you are in
- Vision – What you want to be in future
- VS. Purpose – It tells why a company exists in the first place, why are you here?

What is Disney's Purpose?

<table>
<thead>
<tr>
<th>Mission</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>What we do: Operating a business, Strategic, Motivational, Creates &quot;buy-in&quot;, Promotes focus, Building a company, Loving bricks, Parking cars</td>
<td>Why we do it: Sharing a dream, Cultural, Aspirational (true north), Inspires &quot;community&quot;, Fulfills passion, Building a community, Building cathedrals, Creating happiness</td>
</tr>
</tbody>
</table>

~ Jones, B., Disney Institute Blog  April 23, 2015
Disney’s Purpose – “Where Dreams Come True”

Employees with Purpose & Shared Values...

- So how do you as producers work to have employees that share the same purpose as you?
- What common values might you have with employees and consumers?

Values Exercise
Hire based upon values

- Employees with like values
- Allows you to connect
- Will emulate the same values and work ethics

Dreams = Goals
Goals = Plans
Plans = Reality

Hire for Attitude,
Train for Aptitude

Teams - work together, shared purpose

- Versus.

Group – common goal, work individually

- Versus.

Individuals – independent, individual goals

Building your team...

- 1. Share Purpose, Mission and Vision
- 2. Train Employees – onboarding
- 3. Communicate and Evaluate
- 4. Include employees – farm planning and direction
- 5. Celebrate Success
10 things your employees expect from you...

1. “What is my job?”
2. “Who do I report to?”
3. “How am I doing?”
4. “To know reward for top performance?”
5. “Want a winning team and Expect to be successful.”
6. “Where is the organization going?”
7. “Access to information related to their work.”
8. “Management’s support, respect and confidence.”
9. “Have a life outside of work.”
10. “Problem employees dealt with decisively & quickly.”

Training

- First 8 hours – first impressions
- Kinesthetic learners
  - Show & tell simultaneously
  - Teach-back
  - Observe
  - Feedback
- Do not assume performance based upon prior experience
- Training on-going
- Use teachable moments
- Random acts of kindness – Thank You
Training… Requires Leadership

- Leadership – is NOT micromanaging people it is holding people accountable and empowering them to make decisions
  1. Delegation
  2. Transfer Control

Elements of motivation

- Challenging work
  - Brings employee’s abilities and performance
- Feelings of personal accomplishment
- Recognition for achievement
  - Employee’s contribution worth the effort
- Achievement of increasing responsibility
  - By delegating more responsibility to an employee
- A sense of importance to the organization
  - Employee feels their presence is needed
- Access to information
  - Worth’s know about things that affect them and their job
- Involvement in decision making
  - Having a voice in the workplace allows freedom to exercise initiative/creativity

WOULD YOU WORK HARDER IF YOUR EFFORTS WERE BETTER RECOGNIZED AND APPRECIATED?

- Yes 78%
- No 22%
Compliments are free. They don’t cost a cent, yet judging by the stinginess with which they are doled out on many farms, they seem to be the most rare and precious thing on earth.”

This article appears on page 746 of the November 2014 issue of Hoard’s Dairyman.

Most valued skills

The "right stuff" is more art than science:

- Communication
  - Needs, as well as expectations
  - Frequently and honestly about staff successes and growth opportunities
- Communication
  - R-E-S-P-E-C-T

Communication

- Be approachable -
- Listen before speaking – get the whole story

Photo credit: Tracey Erickson, 2014
What you said... What you got?

Communication

- Remember to answer “Why”

Communication

- You are human – it is ok to say I’m sorry
- Remember Language barriers
- Education Levels
Communication

- Meetings
  - Formal Meetings – input, training, direction and goals
  - Informal Meetings -

Communicate Directly with the person who you need to talk to.
You don’t want the Telephone Game Outcome…

Define workplace and performance expectations

- Share business vision, mission, values & goals
- Identify standard operating procedures
- Be clear about job responsibilities
- Define policies and consequences for failing to follow rules and policies
- Communicate performance expectations
- Offer rewards as incentive for performance
- Have a system to keep employees informed
Why employees leave a company:
1 their manager
2 no career path
3 bureaucracy and politics
4 meaningless work
5 no recognition and rewards

When I Talk to Managers
I get the feeling that
They are Important.

When I Talk to Leaders
I get the feeling that
I am important.

Good Performing Teams Do This...
- Communicate
- Respect
- Fun Working Together
- Encourage
- Shared Purpose / Goal
- Organize Skills / Understand Roles
Celebrate Success

Case Study

Read ABC Dairy Case Study and Discuss...

What are some problem areas?

What could be done to enhance employee performance and satisfaction?

Foster Mothers of the Human Race

- Thank You – Questions?
  Tracey.Erickson@sdstate.edu
  605-882-5140
  JW.Schroeder@ndsu.edu
  701-231-7663
### Connecting With Values

<table>
<thead>
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<td>Play</td>
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<td>Pleasure</td>
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<td>Excitement</td>
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<td>Patience</td>
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<tr>
<td>Fitness</td>
<td>Personal Power</td>
<td>Zest</td>
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</table>

Contact Laura Daniels: [lauradaniels@uwalumni.com](mailto:lauradaniels@uwalumni.com) Mobile: 608-513-0210 Facebook: Laura Daniels or Heartwood Farm LinkedIn: Laura Daniels Twitter & Instagram: @cowsrmylife Blog: HeartwoodFarm.blogspot.com
I-29 Moo University “What is Your Pregnant Cow Worth?”
Winter Workshop Series
Case Study
Tracey Erickson, SDSU Extension Dairy Field Specialist
JW Schroeder, Professor Emeritus, NDSU Dairy Specialist

Case Study ~ Please Read and be prepared to identify potential problem areas and how changes could be implemented that would improve employee performance.

Background:

ABC Dairy is located in the I-29 Dairy Corridor. The dairy milks about 500 head and raises all of their own replacements on farm. They also farm an additional 1500 acres of crop ground which provides for a majority of the feedstuffs for the milking herd and a land base for manure spreading.

ABC Dairy was started as a family dairy in 1945 and is now in the third generation of family member/operators. Presently, the father, mother, son and daughter-in law all receive income from the operation and are all equal partners in the LLC. They also have eleven additional employees who are employed full time on the family farm. Six of the eleven employees help directly with milking responsibilities, two employees are responsible for feeding and one employee fills in where needed in either feeding, milking or with maintenance. The father and son both manage the breeding responsibilities of the dairy herd, nutrition decisions and also all aspects of the agronomy decisions, while also putting the crop in the field and taking the crop out of the field. The mother manages the book keeping and accounting for the entire family farming operation. The daughter-in law oversees the heifer raising from birth to freshening along with two of the eleven employees.

Recently, they lost two of the six employees who were tasked with milking at the dairy operation. When the employees gave their notice they commented that part of the reason for leaving was frustration with a lack of facilities maintenance and confusion regarding the job responsibilities, along with no opportunity for advancement.

What are some problem areas? Discuss

What could be done to enhance employee performance and satisfaction? Discuss
KEEP YOUR COWS AHEAD OF THE CURVE!

Protect the health and performance of dairy cows from modern production stress with the next-generation feed additive. Promote immunity, protect feed quality, and release more energy from feed for an outstanding return on investment.

Healthy Cows. Healthy Dairies.

STRONGANIMALS.COM
We focus on your finances so you can focus on your farm.

Our staff of experienced professionals work day in and day out with farmers and understand agriculture. Let us provide the solution for your finance or loan requirement. We’ll provide the perfect answer for your financial needs, when you need it.
“In recent years the opinion has been held by a large number of dairymen that difficulties with breeding accompany high milk production. Dairymen have had the impression that difficulties with breeding have increased in recent years. As the level of production has also increased during the same interval, the conclusion has been drawn that the two bear the relation of cause and effect”

Eckles, 1929, U of MN Dairy Bulletin
A good reproductive program:

Keeps days in milk (DIM) low

- DIM low - a higher percentage of cows in early lactation and at peak
- The ideal range for DIM in a herd is between 150 and 170 DIM.
- It is estimated for every one-day increase in average DIM above 150 you will lose 0.17 pounds of milk per cow.
  - 190 DIM vs 160 DIM = 5 lbs less milk

A good reproduction program:

Increases number of calves born

- Increasing heifer calves augments the dairy’s flexibility in culling decisions
- Increasing bull calves improves income, as increasing heifer calves allows management greater flexibility in culling decisions.
- With more heifers available, the dairy has the option of
  - selling open heifers for export
  - selling bred heifers
  - selling springing heifers
  - doing more voluntary culling

A good reproductive program:

Lowers culling rate

- Culling for reproductive reasons is the single-highest reason cows leave the herd.

- Reducing the amount of cows culled for reproductive reasons, will allow culling for low production
A good reproduction program:

Knows when to stop breeding

- If 3rd lactation and "deviation from herdmates" milk is negative after 1st breeding consider DNB
- If average consider DNB after 2 services
- 4 breedings should be the limit for the majority of cows. An exceptional cow may get more breedings.
- If a cow loses a pregnancy and is over 200 DIM then she should be on the DNB list.

Definitions:

- Goals are target levels of performance toward which managers are striving.
- Benchmarks are standards by which performance can be measured or compared, and are not synonymous with goals.
  - Herds that represent specific categories (herd size, production level or geographic location for example).
- 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.

Goals of reproduction

- **Pregnancy rate: >22%**
  - Cow inseminated within 21 of end of VWP: >90%
  - Heat detection rate >65%
  - Conception rate: >35%
  - Cow pregnant by 150 DIM: >70%
- **Lactating herd confirmed pregnant: >50%**
- **Cows culled for reproduction: <5%**
- **Age at first calving: 22-24 months**
Key performance indicators to consider:

- **Count of pregnant cows**
  - Weekly: 8 to 10 percent of the number of milking cows
  - 50-55% of cows in the herd should be pregnant

- **Palpation pregnancy rate** – best method to measure heat detection rate and is dependent of interval from breeding to examination.
  - Cows ≥60%
  - Heifers ≥80%

- **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
  - 4 to 5% at 30 DIM and 6 to 8% by 60 DIM

**Keys to getting cows pregnant**

<table>
<thead>
<tr>
<th>VWP</th>
<th>Days in Milk</th>
<th>Allowable Breeding Time</th>
</tr>
</thead>
</table>

**Transition Cow Management**

- Timely First Insemination
- Early “Open” Exam
- Quickly re-breed open cows
- Confirm pregnancy

**Culling Strategy**

All of the components require “managerial” efforts

**How are we doing?**

Averages for MN, IA, NE, SD, ND

- Dairy Metrics - accessed 12-23-2015

<table>
<thead>
<tr>
<th>Item</th>
<th>Average</th>
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<tbody>
<tr>
<td>General</td>
<td>189.3</td>
</tr>
<tr>
<td>Days in Milk</td>
<td>178.6</td>
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<tr>
<td>Cows Left Herd for Repro-All Lact %</td>
<td>7.1</td>
</tr>
<tr>
<td>Production</td>
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<tr>
<td>Rolling Milk</td>
<td>22094.8</td>
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<tr>
<td>Rolling Fat</td>
<td>861.5</td>
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<tr>
<td>Daily Fat %</td>
<td>3.9</td>
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<td>Daily Protein %</td>
<td>3.2</td>
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<td>Summit Milk 1st Lact</td>
<td>72.8</td>
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<tr>
<td>Summit Milk 2nd Lact</td>
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<td>Summit Milk 3rd Lact</td>
<td>97.9</td>
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<td>SCC Actual</td>
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<td>Reproduction</td>
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<tr>
<td>Pregnant Rate-Year Ave</td>
<td>17</td>
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<tr>
<td>Days Open-Pro Min Total Herd</td>
<td>152.5</td>
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<tr>
<td>Voluntary Waiting Period(VWP)</td>
<td>58.8</td>
</tr>
<tr>
<td>Heats Observed for Year %</td>
<td>43.7</td>
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</table>
Reproduction and milk production

<table>
<thead>
<tr>
<th>% Milk Production</th>
<th>RHA lbs</th>
<th>Summit 1st lbs</th>
<th>Summit 2nd lbs</th>
<th>Repro cull %</th>
<th>SCC 1000/ml</th>
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<td>23642</td>
<td>75</td>
<td>94</td>
<td>4.9</td>
<td>240</td>
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<tr>
<td>21-25%</td>
<td>24755</td>
<td>77</td>
<td>98</td>
<td>4.3</td>
<td>212</td>
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<tr>
<td>26-30%</td>
<td>25802</td>
<td>79</td>
<td>101</td>
<td>4.4</td>
<td>172</td>
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</table>

Dairy metrics – accessed 12-21-2015

Milk production and reproduction

<table>
<thead>
<tr>
<th>RHA 1000 lbs</th>
<th>Pg Rate</th>
<th>Days open</th>
<th>DIM</th>
<th>Days service 1</th>
<th>Con rate %</th>
<th>Milk all cows</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-20</td>
<td>13.3</td>
<td>173</td>
<td>187</td>
<td>105</td>
<td>37</td>
<td>49</td>
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<tr>
<td>20-25</td>
<td>16.7</td>
<td>150</td>
<td>177</td>
<td>92</td>
<td>33</td>
<td>61</td>
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<td>25-30</td>
<td>20.5</td>
<td>135</td>
<td>171</td>
<td>83</td>
<td>33</td>
<td>72</td>
</tr>
</tbody>
</table>

Dairy metrics – accessed 12-21-2015

Pregnancy Rate

The percentage of cows eligible to become pregnant, in a given time frame, that actually do become pregnant.
Pregnancy Rate Factors

**Insemination risk**
- Heat detection
- Anestrus/Anovulatory
- TAI programs for first services
- Frequency of "open" checks
- Resynchrony of repeat services

**Conception risk**
- Transition/Herd health
- Program compliance
- Proper handling and placement of semen
- Cycling status
- Nutrition
- Length of VWP
- Sire fertility

Conception Rates

- Fertility of Cow
- Timing of insemination
- Technician skill
- Fertility of Bull
The cow fertility issue is complicated

Goals
• Maximize the number of inseminations made each week (AI submission rate)
• Maximize conception for each cow inseminated (conception rate)

Maximize pregnancies per week!
Herd #1: 50% IR × 30% CR = 15% PR
Herd #2: 70% IF × 30% CR = 21% PR

Bredsum 21 d pregnancy rate (annual)
Bredsum 21 d pregnancy rate (6 mo)

Bredsum 21 d pregnancy rate by breeding cycle

Bredsum 21 d pregnancy rate by month
Days at first breeding for heifers

What is this??

Survival Graph (Graph dopen's) 27% Pg rate

RHA = 33159
Yearly tank avg = 104
Survival Graph (Graph dopen's) 22% Pg rate

Tank avg = 104

Re-insemination interval 27% Pg rate

Re-insemination interval 18% Pg rate
Increasing conception rates...
Technician’s can vary

<table>
<thead>
<tr>
<th>Technician</th>
<th>%Conc</th>
<th>#Preg</th>
<th>#Open</th>
<th>Other</th>
<th>Abort</th>
<th>Total</th>
<th>%Tot</th>
<th>SPC</th>
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<td>3</td>
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<td>Art</td>
<td>18</td>
<td>2</td>
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<td>0</td>
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<td>14</td>
<td>38</td>
<td>4</td>
<td>0</td>
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<td>14</td>
<td>133</td>
<td>836</td>
<td>69</td>
<td>17</td>
<td>1038</td>
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<tr>
<td>David</td>
<td>29</td>
<td>85</td>
<td>38</td>
<td>4</td>
<td>0</td>
<td>56</td>
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<td>3.7</td>
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<td>0</td>
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<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
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<td>TOTALS</td>
<td>21</td>
<td>393</td>
<td>1522</td>
<td>135</td>
<td>31</td>
<td>2050</td>
<td>100</td>
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</tbody>
</table>

4 non-AI breedings were omitted

DHI Information to collect

Breeding codes
- Standing heat
- TAI Synch (Maybe multiple if important)
- TAI Resynch
- Chalk/Tail Paint
- Other (should have limited use)

By Breeding Code
Summary

- Good reproduction results in more calves and higher milk production and more profit!!
- Good reproduction can be achieved by:
  - Calve em healthy
  - Inseminating cows shortly after the VWP
  - Rapid identification and re-insemination of open cows
- New technologies have the potential to improve reproduction
BETTER TOGETHER.
Learn more at ZoetisUS.com.

Lutalyse® HighCon Injection
(dinoprost tromethamine injection)

Factrel® Injection
(gonadorelin injection)
Economic Valuation of Reproduction Parameters

Definitions
- ED: estrus detection
- TAI: timed AI
- DIM: days in milk
- SR: service rate
- CR: conception rate
- PR: pregnancy rate
- MDO: mean days open
- PP366: percent pregnant cows at day 366

Factors effecting pregnancy value
- Factors that influence
  - Higher lactation persistency
  - DIM:
    - Early lactation high producing cows value is negative
    - High DIM value declines
  - Value is lower as heifer prices drop
  - Likely daily milk production for the remainder of a lactation
Factors not affecting pregnancy value

- Milk price
- Absolute milk yield
- Probability of involuntary culling

Figure 3. Value of a new pregnancy during first lactation by days after calving and relative milk yield (80%, △; 100%, ●; 120%, □) compared with an average lactation curve.


Figure 4. Value of a new pregnancy during second lactation by days after calving and relative milk yield (80%, △; 100%, ●; 120%, □) compared with an average lactation curve.

Economic loss due to pregnancy loss

- $555
- Smaller than previous estimates
- Did not consider greater likelihood that future pregnancies will be aborted and reduced future cash flows
- Other estimates ranged from $600-1286


Total loss due to early or late pregnancy

Cost per day open after optimal conception date
Overall Adoption Rate for Reproduction Protocols, number of herds

<table>
<thead>
<tr>
<th>Reproductive synchronization program for the first breeding in cows</th>
<th>None</th>
<th>CIDR Ovsynch</th>
<th>Double Ovsynch</th>
<th>Ovsynch</th>
<th>Prosynch</th>
<th>Other program</th>
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</thead>
<tbody>
<tr>
<td>72% of 200 cow + herds use reproduction protocol</td>
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</tbody>
</table>

Source: Brotzman et al., 2015 J D Ly Sci

Economic comparison of reproductive protocols

- Adding TAI to ED increases annual net per cow by $8.90 to $99.40
- Range due to:
  - Rate of estrus detection
  - Accuracy of estrus detection
  - Compliance with timed AI protocol
- 95% TAI compliance and 60% rate of estrus detection produced highest return

Galvao K. et al., 2013, Economic Comparison of reproductive programs, J Dairy Sci. 96:2681-2693

Steady state herd results of model

<table>
<thead>
<tr>
<th>Table: Steady state herd results of model for the reproduction programs</th>
<th>None</th>
<th>CIDR Ovsynch</th>
<th>Double Ovsynch</th>
<th>Ovsynch</th>
<th>Prosynch</th>
<th>Other program</th>
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</thead>
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<tr>
<td>Galvao K. et al., 2013, Economic Comparison of reproductive programs, J Dairy Sci. 96:2681-2693</td>
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Economic results of model

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<th></th>
<th>E93-94</th>
<th>E95-96</th>
<th>E96-97</th>
<th>E97-98</th>
<th>E98-99</th>
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<td>45.1</td>
<td>58.3</td>
<td>53.2</td>
<td>48.8</td>
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<td>51.6</td>
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<td>Fertility, %</td>
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<td>90.1</td>
<td>89.9</td>
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<td>Calving, %</td>
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<td>90.0</td>
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<td>Milk, %</td>
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<td>Milk solids</td>
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<td>Calf price</td>
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<td>Total cost</td>
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<tr>
<td>Profit</td>
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<td>1,068.2</td>
<td>1,068.2</td>
</tr>
</tbody>
</table>

Galvao K. et al., 2013, Economic Comparison of reproductive programs, J Dairy Sci. 96:2681-2693

Economic comparison of reproductive protocols

- Take home:
  - Train and develop ED skills
  - Use TAI protocols and follow thoroughly
  - Ensure all eligible cows are included
  - Due to the compounding effect of 85% accuracy of cows receiving all injections, an individual cow has a 61% chance of all injections for 3 shot Ovsynch
  - Authors noted that 75%-97% of eligible cows often do not receive first AI in 100% TAI herds

Valuing Improved Pregnancy Rates

- Marginal revenue increase from 1 percentage point increase in pregnancy rates
- Marginal cost should be below the revenue increase to remain

Figure 1. Marginal economic value of improving 2-14 pregnancy rate

Reproductive economic analysis tool

- http://dairymgt.uwex.edu/tools.php

Rationale

- Herd profitability depends on reproductive efficiency, but relationship is highly complex
- Reproductive performance can be measured (e.g., 21-d pregnancy rate)
- Costs of reproductive programs can be calculated (e.g., cost per pregnancy)
- But, it is difficult to measure its full economic impact (e.g., profitability)

Source: Cabrerra, DAIReXNET Webinar Series, 8 April 2013

Markov chained economic analysis: method used to forecast the value of a variable whose future is independent of its past history

- Dynamic model: allows analysis that includes variability
- Problems with the simulation:
  - Includes nine parturitions or more
Evaluation of repro decision tools

- Analyze specific reproductive programs
- Impact of reproductive management strategies on ad farm-by-farm specific basis (Giordano et al., 2011; 2012; 2013; Kalantari and Cabrera, 2012)

Source: Cabrerra, DAIReXNET Webinar Series, 8 April 2013

Revised UWEX-Cornell Reproductive Analysis Tool

- Can be used to improve ED and possible PR.
- Up to 10 different systems available
- Can be integrated with other cow management systems or as standalone

Using Automated Activity Monitors (AAM)
Reasons to use AAM

- Improve ED
- Increase labor efficiency
- Lack of trained staff for ED
- High labor costs
- Poor or inconsistent PR

Economic Comparison of AAM use

- Simulation using “Wisconsin-Cornell Dairy Repro” decision tool
- Only compared improved financial results from AAM when ED is poor


$120 cost per activity tag

Economic improvement of use of AAM for a herd with poor ED, 30%, versus average ED, 60%
$90 cost per activity tag

Economic improvement of use of AAM for a herd with poor ED, 30%, versus average ED, 60%.

Questions?
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  - 308-345-3390