HeiferHub – A decision support tool to forecast sales of beef calves and future heifer replacements

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Dairy Records Management Systems

ICAR 2024 Annual Meeting
Introduction

Historically
• All Cows bred to dairy semen
• If Short on replacements – Purchase replacement heifers

Opportunity
• Holstein x Angus cross – Sale Price of $600 - $800 right after birth

Considerations
• Replacement Heifers – Purchase price $2,400 - $3,500
• Breeding decisions made today will impact your farm 34 months later

How do I maximize returns from AI beef service sires while ensuring enough replacement heifers?
Herd Example - Breedings

This farm changed strategy by eliminating use of conventional dairy semen for milking cows. However they significantly increased the use of sexed dairy semen when breeding Heifers.
There can be significant swings in number of available replacements from month to month. This can impact culling decisions especially in situations with shortage of stalls or parlor capacity.
Planning for Future Replacements

Breeding decisions made today will impact number of available replacements in the future

Needed replacements depend on:
• Involuntary culling rates
• Voluntary culling rates (selling heifers)
• Expansion plans

Generated replacements depend on:
• Number of animals bred this month/week to the different semen types
• Conception Rates
• Pregnancy Loss
• Stillbirths
• Heifer losses (from live birth to the heifer’s own calving)
• Age at first calving (when will the heifers be available)

Many farms don’t have easy access to this data
New Online Tool to predict future replacements

Simulate different strategies to:
• Ensure enough replacements are available
• Maximize revenues from selling beef x dairy crosses
• Measure impact of management changes

Uses DRMS herd info
• Provides actual numbers based on the farm’s performance
## DRMS and Producer Inputs

Accounts for involuntary and heifer losses from birth to calving

Reproductive performance and apparent pregnancy losses

Producer provide number of animals to breed by month or week, revenue from sale of calves and costs of semen

Consider Seasonality of conception rates, still births and pregnancy losses

### Herd data provided by DRMS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milking Herd Size</td>
<td>1063</td>
</tr>
<tr>
<td>Annual Involuntary Culling Rate</td>
<td>36</td>
</tr>
<tr>
<td>Voluntary Culling Rate (Buffer)</td>
<td>1.2</td>
</tr>
<tr>
<td>Heifer Loss %</td>
<td>22.2</td>
</tr>
<tr>
<td>Target Age (mo) at First Calving</td>
<td>21.5</td>
</tr>
<tr>
<td>Stillbirths %</td>
<td>5.8</td>
</tr>
<tr>
<td>Pregnancy Loss % (Cows)</td>
<td>4.4</td>
</tr>
<tr>
<td>Pregnancy Loss % (Heifers)</td>
<td>2.7</td>
</tr>
<tr>
<td>Conception Rate (% Cows)</td>
<td>32</td>
</tr>
<tr>
<td>Conception Rate (% Heifers)</td>
<td>32</td>
</tr>
<tr>
<td>Heifer to Cow Breeding Ratio</td>
<td>0.25</td>
</tr>
<tr>
<td>% Cows Bred to Sexed Semen</td>
<td>12.9</td>
</tr>
<tr>
<td>% Cows Bred to Conventional Semen</td>
<td>15.0</td>
</tr>
<tr>
<td>% Cows Bred to Beef Semen</td>
<td>72.1</td>
</tr>
<tr>
<td>% Heifers Bred to Sexed Semen</td>
<td>55.1</td>
</tr>
<tr>
<td>% Heifers Bred to Conventional Semen</td>
<td>44.9</td>
</tr>
<tr>
<td>% Heifers Bred to Beef Semen</td>
<td>0.0</td>
</tr>
<tr>
<td>% Heifers Bred to Boar Semen</td>
<td>0.8</td>
</tr>
<tr>
<td># of Expected Heifers per Unit of Sexed Semen</td>
<td>0.85</td>
</tr>
<tr>
<td># of Expected Heifers per Unit of Conventional Semen</td>
<td>0.48</td>
</tr>
</tbody>
</table>
Results

Reduction of numbers based on pregnancy loss and stillbirth rates

Reduction of numbers based on Heifer loss rates

Number of replacements needed based on involuntary culling only

Shortage based on involuntary culling only

Cost benefit analysis, revenues generated from sales of female replacements, dairy bull calves and beef on Dairy calves minus semen expenses

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Recent Semen Usage

Using actual breeding data, HeiferHub can determine # of replacement heifers and adjust if necessary.

The default semen distribution uses annual average % of each semen type. However farms can see monthly or even weekly variation. Compare the annual number with most recent breeding pattern.
Measure impact of “What–if”

Improve management
- Lower involuntary culling rates
- Breeding Program
  - Higher conception rates
  - Lower pregnancy losses
- Environment
  - Reduce still births and calf losses

Changes in breeding philosophy
- Try different ratios of dairy versus beef
- Maximize breeding to beef and use of dairy sexed semen to generate enough replacements
  - Can I generate enough replacements from breeding my heifers with sexed semen?
Summary

- Use of Beef Semen will continue as long as it is profitable
- Challenge is to plan far enough ahead to ensure enough replacements are available while maximizing returns from beef on dairy calves
- Make the most informed culling and mating decisions to maximize profitability
- DRMS has key data and two new and exciting tools to support dairy producers to make the most informed decisions.
Thank You!

Acknowledgements: DRMS Staff

Not all Staff pictured