Dairy Management

The Dairy Management site is designed to support dairy farming decision-making focusing on model-based scientific research. The ultimate goal is to provide user-friendly computerized decision support systems to help dairy farms improve their economic performance. Dr. Victor Cabrera focuses on model-based decision support in dairy cattle and in dairy farm production systems. Dr. Cabrera's primary interest is to improve cost-efficiency and profitability along with environmental stewardship in dairy farms by using simulation techniques, artificial intelligence, and expert systems. Dr. Cabrera's research and Extension programs involve interdisciplinary and participatory approaches towards the creation of user-friendly decision support systems. As an Extension Specialist, Dr. Cabrera works in close relationships with county-based Extension faculty, dairy producers, consultants, and related industry.

Latest Projects
- Dairy Cow Fertility
- Strategies of Pasture Supplementation
- Success for Small Dairy Farmers
- LGM-Dairy
- Dairy Economic Decision Support System

UW
- University of Wisconsin - Madison
- UW - Cooperative Extension
- UW - Dairy Science
- Understanding Dairy Markets
- UW Dairy Nutrient
- UW Center for Dairy Profitability

Dairy News
- UW-Extension Dairy News

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Professional Page

Victor E. Cabrera, Ph.D.

Dairy Management Tools
Click to find out more about tools provided by DairyMET

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Active Projects

A series of research and extension projects under development by the University of Wisconsin Dairy Science Department, Dairy Management program.

Click on the Project to learn more.

Funded Dairy Management Projects under Progress

1. **An Integrated Approach to Improving Dairy Cow Fertility**

<table>
<thead>
<tr>
<th>Title</th>
<th>An Integrated Approach to Improving Dairy Cow Fertility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team</td>
<td>Cabrera, V.C., Fricka, P., Racgg, P., Chaver, R., Weigel, M., Willbank, M.</td>
</tr>
<tr>
<td>Term</td>
<td>48 months January 2010 - January 2014</td>
</tr>
<tr>
<td>Amount</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Sponsor</td>
<td>Integrated Solutions for Animal Agriculture, Agriculture Food and Research Initiative, National Institute of Food and Agriculture</td>
</tr>
</tbody>
</table>

This is an Extension-Research Integrated project addressing FY 2009 NIFA-AFRI Integrated Solutions for Animal Agriculture priorities of: (1) Improving Fertility in Agricultural Animals and (2) Preventing and Controlling On-Farm Disease. Our overall objective is to improve the reproductive efficiency of dairy cattle using an interdisciplinary team approach that will identify and remove barriers to reproductive success by linking outcomes of basic and applied research with an innovative producer-responsive extension program. [More]

- Strategies of Pasture Supplementation on Organic and Conventional Grazing Dairies: Assessment of Economic, Production and Environmental Outcomes
- Success for Small Beginning Dairy Farmers
- Assessment of Gross Margin Insurance under Alternative Biofuels and Predicted Climatic Conditions: Implications for Wisconsin Dairy Farms
- Development of a Dairy Economic Decision Support System for Wisconsin
- Integrated Analysis of Diverse Dairy Systems in Mexico and Wisconsin: Building Capacity for Multi-disciplinary Appraisal of Sustainability
Publications

A collection of publications related to dairy management, economic decision-making, and risk management. It includes more research-based publications such as peer-reviewed journal articles, book chapters, and scientific presentations, and more extension-based publications such as extension reports, magazines, and press releases.

Click on the type of publication and specific links to learn more.

© Journal Articles

2010


2009


2008


Presentations

A collection of presentations related to dairy management.

Click to learn more.

**2010 Presentations**

Cabrera, V.E., Shreve, R., Dyk, P., Saller, J., Tranel, L., Endress, J. 4-State Dairy Extension Feed Cost Evaluator. Farm Management Update for Ag Professionals. (Download)

Cabrera, V.E., Gould, B.W. Least Cost Premium for LGM-Dairy. Farm Management Update for Ag Professionals. Kimberly, WI. April 2010. (Download)


Cabrera, V.E. Análisis Económico de Frecuencias de Ordeño. Argentina, May 2010. (Download)

Cabrera, V.E. Decisiones Optimas de Ingresos Sobre los Costos de Alimentación. Argentina, May 2010. (Download)


Cabrera, V.E. Estrategias para la Suplementación en Lecherías de Pastizales. Mexico. March 2010. (Download)


Cabrera, V.E., Giordano, J. Economics of Dairy Reproductive Programs. Johnson Creek Peer Group Meeting, March 11, 2010. (Download)

Cabrera, V.E., Vanderlin, J. Wisconsin Dairy Ratio Benchmarking Tool. Heart of the Farm, March 5, 2010. (Download)

Cabrera, V.E. Income Over Feed Cost for Wisconsin Dairy Farms. Sauk County Dairy Optimists, February 11, 2010. (Download)


Cabrera, V.E. Economics of Sexed Semen. Cow College 2010, Clintonville. 12 January 2010. (Download)

Cabrera, V.E., Fricke, P., Ruegg, P., Shever, R., Wiegels, K, Willbank, M. Successful NIFA/AFRI Grant(s) What it takes to be Successful. ANRE UW-Extension Meeting, Madison, 5 January 2010. (Download)
Management Tools

A collection of state-of-the-art dairy management tools that are user-friendly, interactive, robust, visually attractive, and self contained. All these tools have clear or self-explanatory instructions and technical support available.

Click on the Tool title to learn more.

**Feeding**

- Optigen® Evaluator
- Income Over Feed Supplement Cost
- The 4-State Dairy Extension Feed Cost Evaluator
- Corn Feeding Strategies
- Dairy Ration Feed Additive Break-Even Analysis

**Heifers**

- Cost-Benefit of Accelerated Liquid Feeding Program for Dairy Calves
- Economic Value of Sexed Semen Programs for Dairy Heifers
- Heifer Replacement
- Heifer Break-Even

**Reproduction**

- Economic Value of Sexed Semen Programs for Dairy Heifers
- UW-DairyRepro$: A Reproductive Economic Analysis Tool
- Exploring Timing of Pregnancy Impact on Income Over Feed Cost

**Production**

- Decision Support System Program for Dairy Production and Expansion
- Economic Analysis of Switching from 2X to 3X Milking
- Lactation Benchmark Curves for Wisconsin
- Economic Evaluation of using rbST
- Alfalfa Yield Predictor: Using a Computer Application to Predict Irrigated Alfalfa Yield
Management Tools

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Feeding

● Optigen® Evaluator
● Income Over Feed Supplement Cost

Maximizes the income over feed supplement cost (IOFSC) for a fixed amount of forage used in the diet and graphs the IOFSC to a substitution of two selected feed supplements

Excel Spreadsheet (Open)
Online (Open)
Instructions (Download)
Documentation (Download)
Demo (Click to View the Video)
Income Over Feed Supplement Cost

Maximizes the income over feed supplement cost (IOFSC) for a fixed amount of forage used in the diet and graphs the IOFSC to a substitution of two selected feed supplements.

Excel Spreadsheet (Open)
Online (Open)
Instructions (Download)
Documentation (Download)
### Calculate Dry Matter Intake

1. Milk Production: 110 lb/cow/day
2. Body Weight: 1380 lb/cow
3. Days in Milk: 180 day
4. Dry Matter Intake: 67.53 lb/cow/day

### Set the Sources and Proportion of Forage in the Diet

<table>
<thead>
<tr>
<th>Forage Source</th>
<th>Proportion (%)</th>
<th>% of Forage</th>
<th>Crude Protein in Diet (lb/cow/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>35-Com Silage-CoS</td>
<td>50</td>
<td>100</td>
<td>2.97</td>
</tr>
</tbody>
</table>

Add Row
### Income Over Feed Supplement Cost (IOFSC)

#### Tools: Spreadsheet

1. **Calculate Dry Matter Intake (DMI)**
   - Milk Production (MP) lb/cow/day: 80
   - Body Weight (BW) lb/cow: 1400
   - Days in Milk (DIM) day: 100
   - Dry Matter Intake (DMI) lb/cow/day: 53.66

2. **Set the Sources and Proportion of Forage in the Diet**
   - Proportion of Forage in Diet: 20%
   - % of Diet: 50%
   - 55-Corn Silage-CoS % of Forage: 20%
   - 83-Af. Slage-All % of Forage: 50%
   - 25-Corn Silage-CoS % of Forage: 50%
   - Crude Protein in Diet Provided by Forage: 4.12 lb/cow/day

3. **Set Source of Energy Supplements and Prices**
   - 8-Barley-BGR: 4.8, 7.5, 0, 0.00
   - 110-Wheat-Won: 7.5, 0, 0.00

4. **Set the Source of Protein, Byproduct Supplements and Prices**
   - 106-Soybean Meal-SBM: $30.00, Current Diet (lb): 5.95, Upper Limit (lb): 25, Optimal (lb): 4.21
   - 25-Corn Gluten Meal-CGM: 55.00
   - 24-Corn Gluten Feed-CGF: 160.00
   - 23-Corn Distiller Grains-CDG: 140.00
   - 109-Soybean Whole Roasted-HSB: 318.00
   - 104-Soybean Meal Expellers-SBMx: 402.00
   - 14-Blood Meal Ring Dried-BMRD: 900.00
   - Urea: 635.00

5. **Set the Upper Limits for RUP and RDP, and Milk Price**
   - RUP: Rumen Undegradable Protein, % of Diet DM: 6.50%, Amount In Diet: 5.93%
   - RDP: Rumen Degradable Protein, % of Diet DM: 11.50%, Amount In Diet: 11.50%
   - CP: Crude Protein, % of Diet DM: 18.00%, Amount In Diet: 17.04%
   - Milk Price: $/cwt: 4.9

6. **Perform Optimization, Maximize IOFSC**
   - Click the button to maximize the income.
   - Over Feed Supplement Cost (IOFSC)
# Heifer Break-Even

## Input Costs

<table>
<thead>
<tr>
<th>Item</th>
<th>Price ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forage Price (ton)</td>
<td>200</td>
</tr>
<tr>
<td>Corn (bu)</td>
<td>7</td>
</tr>
<tr>
<td>Soybean Meal (lb)</td>
<td>0.1875</td>
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<tr>
<td>Months to Freshen</td>
<td>26</td>
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## Heifer Raising Cost 0-12 Months

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forage Price (ton)</td>
<td>1.95</td>
<td>390</td>
</tr>
<tr>
<td>Corn (bu)</td>
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<td>102</td>
</tr>
<tr>
<td>Soybean Meal (lb)</td>
<td>190</td>
<td>36</td>
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<tr>
<td>Other Feed Supplements ($)</td>
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<td>25</td>
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<tr>
<td>Other Livestock Costs ($)</td>
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<td>46</td>
</tr>
<tr>
<td>Total Feed &amp; Livestock Costs ($)</td>
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</tr>
<tr>
<td>Value at Born ($)</td>
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<td>500</td>
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<tr>
<td>Total Costs ($)</td>
<td></td>
<td>1,098</td>
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<tr>
<td>Cost per day ($)</td>
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<td>1.84</td>
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## Heifer Raising Cost 12-24 Months

<table>
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<tr>
<th>Item</th>
<th>Amount</th>
<th>Cost ($)</th>
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</thead>
<tbody>
<tr>
<td>Forage Price (ton)</td>
<td>5.5</td>
<td>1,100</td>
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<tr>
<td>Corn (bu)</td>
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<td>28</td>
</tr>
<tr>
<td>Soybean Meal (lb)</td>
<td>50</td>
<td>9</td>
</tr>
<tr>
<td>Other Feed Supplements ($)</td>
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<td>10</td>
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<tr>
<td>Other Livestock Costs ($)</td>
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<td>147</td>
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<tr>
<td>Total Feed &amp; Livestock Costs ($)</td>
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</tr>
<tr>
<td>Cost at 12 months ($)</td>
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<td>1,098</td>
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<tr>
<td>Total Costs ($)</td>
<td></td>
<td>2,392</td>
</tr>
<tr>
<td>Cost per day ($)</td>
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<td>3.55</td>
</tr>
</tbody>
</table>

## Heifer Raising Cost >24 Months

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
<th>Cost ($)</th>
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</thead>
<tbody>
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<td>Forage (tons)</td>
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<td>110</td>
</tr>
<tr>
<td>Corn (bu)</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Soybean Meal (lb)</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Other Feed Supplements ($)</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Other Livestock Costs ($)</td>
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<td>15</td>
</tr>
<tr>
<td>Total Feed &amp; Livestock Costs ($)</td>
<td>253</td>
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</tr>
<tr>
<td>Costs at 24 months ($)</td>
<td></td>
<td>2,392</td>
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<tr>
<td>Total Costs ($)</td>
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<td>2,646</td>
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<tr>
<td>Cost per day ($)</td>
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<td>4.16</td>
</tr>
</tbody>
</table>
Economic Value of Sexed Semen Programs for Dairy Heifers

Victor E. Cabrera, vcabrera@wisc.edu, 608-265-8506

1. Conception Rates (CR)
   1.a. Conventional Semen CR (%)
       - Low CR: 34%
       - Average CR: 56%
       - High CR: 83%

   1.b. Sexed Semen CR (% of Conventional CR)
       - 80%

2. Expected Females
   - Conventional: 46.7
   - Sexed: 89

3. Semen Cost ($)
   - Conventional: $15
   - Sexed: $45

4. Other Economic Parameters
   - Raising Cost ($) / d: $2.4
   - Discount (%/yr): 12%
   - Female Calf ($): $562
   - Male Calf ($): $48
   - Salvage Value ($/cwt): $81.3
   - Dystocia Cost ($/heifer): $28.53
   - 20-mo Pregnant Heifer ($): $1200

- 1-Sexed Service
- 2-Sexed Services
- 3-Sexed Services
- 4-Sexed Services
- 5-Sexed Services

Overall EV ($) = $30.1

Conventional CR: 34%
Sexed Semen CR: 27.2%

Average CR: 56%
44.8%

High CR: 83%
66.4%