Decision Support Tools

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DairyMGT.info
Largest collection of Decision Support Tools

Lots of info
- Projects
- Publications
- Presentations
- Links

Core of DairyMGT.info
Decision Support Tools
Many Dairy Farm Management Areas
- Feeding
- Heifers
- Reproduction
- Production
- Replacement
- Environment
- Financial
- Genomics
- Health
Anatomy of a DairyMGT.info tool

How to explore them

Title

Links to the tool

Short description

Supporting Docs

Video Demo

Tech Support Always Available

Other Languages
Some Decision Support Tools

Selected Tools for Practical Use

FeedVal 2012
- Estimates the actual value of feed ingredients

Grouping Strategies for Feeding Lactating Cows
- Evaluates the value of more feeding rations

The Economic Value of a Dairy Cow
- Calculates the projected net return of a cow
FeedVal 2012

Should I buy this feed?

Market price
- DM basis $/unit price

Nutrient content
Feed composition

Referee feeds
- Composition
- Market prices
### January 2014 dairy feed prices

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>DM %</th>
<th>Unit</th>
<th>Feed Prices ($/Unit)</th>
<th>Actual Price as % of Predicted</th>
<th>Best-buy Ranking</th>
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</thead>
<tbody>
<tr>
<td>Wet Distillers</td>
<td>15</td>
<td>ton</td>
<td>76.0</td>
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<td>ton</td>
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<td>cwt</td>
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<td>Corn Gluten Feed</td>
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<td>ton</td>
<td>160.0</td>
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<td>4</td>
</tr>
<tr>
<td>Hominy</td>
<td>89</td>
<td>ton</td>
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<td>ton</td>
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<tr>
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<tr>
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<td>ton</td>
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<td>Urea</td>
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<td>cwt</td>
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</table>
# FeedVal 2012

## January 2014 dairy feed prices

<table>
<thead>
<tr>
<th>Feed</th>
<th>Market price</th>
<th>Predicted price</th>
<th>% of Predicted</th>
<th>Rank</th>
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<tbody>
<tr>
<td>Wet Distillers</td>
<td>$76/ton</td>
<td>$176/ton</td>
<td>43%</td>
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<tr>
<td>Corn Grain</td>
<td>$4.3/bu</td>
<td>$5.5/bu</td>
<td>79%</td>
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<tr>
<td>Soybean Meal 44%</td>
<td>$462/ton</td>
<td>$469/ton</td>
<td>99%</td>
<td>17 of 27</td>
</tr>
<tr>
<td>Oats Grain</td>
<td>$237/ton</td>
<td>$194/ton</td>
<td>122%</td>
<td>23 of 27</td>
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</table>
FeedVal 2012
You can and you should do your own analyses

<table>
<thead>
<tr>
<th>Nutrients</th>
<th>2 to 13</th>
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<tr>
<td>RUP %</td>
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<tr>
<td>RDP %</td>
<td></td>
</tr>
<tr>
<td>NEI3x Mcc</td>
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<tr>
<td>peNDF %</td>
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</table>

### Nutrients Table

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>RUP %</th>
<th>RDP %</th>
<th>NEI3x Mcc</th>
<th>peNDF %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shelled Corn</td>
<td>4.5</td>
<td>4.5</td>
<td>0.91</td>
<td>0</td>
</tr>
<tr>
<td>Soybean Meal 48%</td>
<td>21</td>
<td>33</td>
<td>1</td>
<td>0</td>
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<tr>
<td>Soybean Meal 44%</td>
<td>17.5</td>
<td>32.5</td>
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<tr>
<td>Soybean Meal, expeller</td>
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<td>1.09</td>
<td>0</td>
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<tr>
<td>Soybeans, raw</td>
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<td>28</td>
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<td>0</td>
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<tr>
<td>Soybeans, heated</td>
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<td>21</td>
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<td>0</td>
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<tr>
<td>Good Quality Hay</td>
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<td>14</td>
<td>0.6</td>
<td>35</td>
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<tr>
<td>Poor Quality Hay</td>
<td>14</td>
<td>11.3</td>
<td>0.16</td>
<td>13.5</td>
</tr>
</tbody>
</table>

### Feeds

- **Referee**
  - 2 to 40+
- **Non-Referee**
  - 2 to 13

### All Names and Values

User Defined
FeedVal 2012

You can and you should do your own analyses
FeedVal 2012

Recap

Calculates real value of a feed based on:
- Nutrient content
- Referee feeds
- Market prices

Help decisions of:
- Feed purchases
- Diet balancing
- Feed utilization

Supports:
- Decreased feed costs
- Increased income over feed costs
Nutritional Grouping Strategies

Rationale

Same ration to all lactating cows
- All lactating cows receive same nutrient density
- Preferred “high” rations
- Low producing cows are overfed

Improved nutrient efficiency
- Diet closer to requirements
- Less over-conditioned cows
- Less environmental concerns
- Higher milk income over feed costs
Why Farmers do not Group More?
Exploring main constraints

2-page survey
- 196 farms in WI
- 211 farms in MI

Constraints to feeding more ration groups
1. Milk drops when cows are moved
2. Desire to keep management simple
3. Conflicts with grouping for reproduction
4. Farm facilities do not allow it
5. Not enough labor or personnel to handle it
Strategies for Grouping Cows

Depend on farm and herd characteristics

Number of cows
- Lactating cows
- Stages of cows

Individual cow requirements
- Energy (NEL)
- Protein (CP)
- DMI

Farm characteristics
- Capacity to handle feeding groups
Criteria for Nutritional Grouping

Several criteria exist and are used

Days after calving, DIM
- Based on lactation stage: e.g., earlier, medium, late

Dairy merit
- Function of both F(P)CM and BW

Cluster
- Seems the MOST efficient criterion

Fat (protein) corrected milk
- Based on production level
Grouping Strategies for Feeding Cows

You can and you should do your own analyses.
Grouping Strategies
Farm/herd possibilities and decision-making
## Grouping Illustration

**Economic impact of nutritional grouping**

### Current Situation

<table>
<thead>
<tr>
<th>Lactating Cows</th>
<th>470</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Groups</td>
<td>None</td>
</tr>
<tr>
<td>NEL Mcal/lb</td>
<td>0.80</td>
</tr>
<tr>
<td>CP, %</td>
<td>17</td>
</tr>
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</table>

### Possible Situation

<table>
<thead>
<tr>
<th>Groups</th>
<th>3</th>
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</thead>
<tbody>
<tr>
<td>Group Sizes</td>
<td>100, 100, 270</td>
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<tr>
<td>Milk loss</td>
<td>5 lb/d x 4 d</td>
</tr>
<tr>
<td>Saved costs</td>
<td>None</td>
</tr>
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</table>

- **Milk loss**: 5 lb/d x 4 d
- **Saved costs**: None
Decision Support System Illustration

Cluster grouping criteria

### Current Situation

<table>
<thead>
<tr>
<th>Group</th>
<th>Cows</th>
<th>NEL</th>
<th>CP</th>
<th>IOFC</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>470</td>
<td>0.80</td>
<td>17.00</td>
<td>6.9</td>
</tr>
</tbody>
</table>

+$147,000/year for 470 cows

### Possible Situation

<table>
<thead>
<tr>
<th>Group</th>
<th>Cows</th>
<th>NEL</th>
<th>CP</th>
<th>IOFC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100</td>
<td>0.62</td>
<td>13.07</td>
<td>4.7</td>
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<td>2</td>
<td>100</td>
<td>0.65</td>
<td>14.18</td>
<td>7.2</td>
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<tr>
<td>3</td>
<td>270</td>
<td>0.71</td>
<td>16.05</td>
<td>9.3</td>
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<tr>
<td>All</td>
<td>470</td>
<td>0.68</td>
<td>15.02</td>
<td>7.9</td>
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</tbody>
</table>
Analysis from 30 Dairy Farm Records
30 Wisconsin dairy farms

Prices
- Milk: $15.89/cwt
- CP: 0.1434/lb
- NEL: 0.1174/Mcal

Grouping criteria
- Cluster

Projected BW
- 1st lactation: 1,100 lb
- >1st lactation: 1,300 lb
### Grouping Strategies on 30 Farms

Cluster grouping on Wisconsin farms

<table>
<thead>
<tr>
<th></th>
<th>Lactating cows (n=30)</th>
<th>No grouping</th>
<th>3 Groups</th>
<th>Gain</th>
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<tbody>
<tr>
<td><strong>Minimum</strong></td>
<td>&lt;200</td>
<td>697</td>
<td>1,059</td>
<td>161</td>
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<tr>
<td><strong>Mean</strong></td>
<td>788</td>
<td>2,311</td>
<td>2,707</td>
<td>396</td>
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<tr>
<td><strong>Maximum</strong></td>
<td>&gt;1,000</td>
<td>2,967</td>
<td>3,285</td>
<td>580</td>
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Income Over Feed Cost $/cow.yr
The Economic Value of a Dairy Cow

CRUCIAL for multiple on-farm decisions

**Keep or replace**
- Herd is better off with or without the cow
- What are the least valuable animals
- What are the most valuable animals

**Breed or do-not-breed**
- Value of a pregnancy
- Cost of a pregnancy loss
- Cost of a day open

**Treat or do not treat**
- How much investment a cow is worth?
Projected Economic Net Return

Expected future profitability

Cow Value = $625
Economic Value of a Dairy Cow

You can and you should do your own analyses.

Herd analysis

Value of a Cow

Herd net return

Herd structure

Cow

Replacement

Herd

Market
The Value of an Average Cow
Open vs. pregnant in second lactation

- **Cow value, $**
  - $900
  - $675
  - $450
  - $225
  - $0
  - -$225

- **Months after calving**

- **Open**
- **Pregnant 3 MIM**
- **Pregnant 5 MIM**
- **Pregnant 7 MIM**
Milk Productivity and Value of a Cow

Impact of projected productivity

Cow Value, $

-500

-40

$420

$880

$1,340

$1,800

Milk Productivity

- Average
- +20%
- -20%

Months after calving

1

2

3

4

5

6

7

8

9

10

Cow Value, $

- $500

- $40

- $420

- $880

- $1,340

- $1,800

Milk Productivity

- Average
- +20%
- -20%
AgSource Herd Selection Guide

Individual cow value for all herd

Service Requested

Calculate Individual Cow Productivity

Lifetime ME

Genetic Merit

The Economic Value of a Dairy Cow
Thanks
DairyMGT.info