The Dairyland Initiative: Animal Welfare Challenges Associated with Confinement Housing of Dairy Herds

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Changing Times......

- Organized animal activism - HSUS, PETA
- Increasing Urban-Rural disconnect
- Industrialized food animal production systems
- Concern over food safety – BSE/nvCJD, E.coli O157, Salmonella, Johnes/CD etc.
- Antibiotic resistance concerns
- Growth in disposable income – niche markets and the marketing of speciality labels eg. Organic, BST free, locally produced, farmstead, etc
- Media influences - mainstream, social

The Wisconsin Dairy Industry

A Tale of Three Dairies

Herd A: The Organic Grazer

- 140 cow grazing herd, milked 2X averaging ~ 46 lb milk per cow per day predominantly from grass using cross-bred cattle
- Access to bedded pack for some of the winter during inclement weather
- Organic management and marketing
The Idealized Image of Dairying

Herd B: The CAFO
- All year round confinement housed freestall herd, 2,540 cows, parlor milked 3X averaging ~ 83 lb milk per cow per day with Holstein genetics
- No access to pasture or lots
- Conventional management system with BST, GM corn, synch hormones, antibiotics

Concentrated Animal Feeding Operation defined at dairy herds >700 cows

Herd C: The 30/30 Herd
- 550 cow, ‘medium sized’ freestall dairy
- All year round confinement housed, parlor milked 3X, averaging ~ 98 lb milk per cow per day with Holstein genetics
- No access to pasture or lots
- Conventional management system with BST, GM corn, synch hormones, antibiotics

Perception and Reality
Assumptions: Herd A

- Dairy cattle are managed in their ‘natural state’, eating grass and converting the nutrients consumed to milk
- Lower production helps prevent metabolic disease
- Lower prevalence of lameness
- No unnatural hormones or antimicrobials used
- ‘Organic’

People expect cows to eat grass!

So are organic dairy herds better for cow health and welfare?

Animal Welfare Assessment Benchmarking As a Tool for Health and Welfare Planning in Organic Dairy Herds

<table>
<thead>
<tr>
<th>Measures of Welfare</th>
<th>NF Conventional</th>
<th>FF Conventional</th>
<th>Organic</th>
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<tr>
<td>Physical Condition %</td>
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<tr>
<td>Dirty hindlimbs</td>
<td>100</td>
<td>97</td>
<td>100</td>
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<td>Dirty udders</td>
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<td>Behavior Observations %</td>
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<td>Lame</td>
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<td>Rising restriction</td>
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Grazing cows may be exposed to heat stress and flies with limited access to water and shade...
“My cows just aren’t keen on rain or sunshine”

A British Dairy Farmer, 2010

Main et al., 2010 JDS 93:1970-1978

8,776 cows in 67 UK herds (most graze in the summer)

Mean lameness prevalence of 39.1%!!!!!!

Perception and Reality

The Factory Farm

Assumptions: Herd B

- Dairy cattle are managed in an unnatural state, forced to live on concrete and milk around the clock
- Production enhancers push the cows to their metabolic limit leading to exhaustion, metabolic disease, lameness, mastitis and an early death
- The well-being of the individual is forgotten
The Grazing Cow Time Budget

Freestall Cow Time Budget

Data from 205 cows in 16 freestall farms, Gomez and Cook, 2010

Lying Time Variation Between Herds

When we fail to provide the cow adequate rest, lameness is the primary outcome!
Farmers don’t deliberately spend money on building facilities in which cows fail to thrive. So, is it ‘wrong’ to house dairy cows?

Free Choice Between Pasture and Freestall Housing (Legrand et al., 2009. JDS 92:3651-3658)

Perhaps we should provide late lactation cows access to pasture, especially at night.
Most organic herds house their cattle in the winter...

We need to find a better way to house our dairy cattle!

Animal Welfare meets Sustainability!

Population Growth to 2050

Source: UN, World Population Assessment 2006
Global Demand for Food

- By 2050, we will need to feed 9 billion people
- This will require 100% more feed
  - 20% from new farm land
  - 10% from increased cropping intensity
  - 70% from continued use of safe, efficacious technology to increase productivity

How do we create a profitable dairy industry, provide enough food for everyone, and protect animal well-being?

The ‘30/30’ Herd

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<tr>
<th>Herd</th>
<th>Cows</th>
<th>RHA Milk</th>
<th>Transuter Rate</th>
<th>TCI</th>
<th>SCC</th>
<th>Pregnancy Rate</th>
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<td>637</td>
<td>27</td>
<td>27</td>
<td>299</td>
<td>63</td>
</tr>
</tbody>
</table>

Mean 488 31438 33 1082 191 10 24 265 55
Herd C: 10,000lbs in 10 years

- Move into 6-row mattress freestall from old stanchion
- Stall renovation (elevar and neck rail)
- Improved hoof trimming frequency
- Improved cushion and lunge space
- Added new sand barn and purchased heifers
- Stall renovation (wider and neck rail)

RHA 25,999lb
TOR 48%
27% lame

- Improved heat abatement
- Increased hoof trimming frequency

RHA 30,904lb
TOR 38%
15% lame

- Improved cushion and lunge space
- Added new sand barn and purchased heifers

RHA 32,276lb
TOR 23%
5% lame

- Adjusted bunk management

RHA 21,998lb
TOR 34%
??% lame

‘You breed cows to produce more and more milk at the expense of well-being’

“Hyper-productivity”

Current Genetic Indices around the World

1. Sand Bedding

Sand vs Mattress: Resting Behavior

Data from 105 cows in 16 freestall barns, Gomez and Cook, JDS 2010
The Sand/Mattress Difference
Data From 62 Wisconsin Dairy Herds

<table>
<thead>
<tr>
<th>Factor</th>
<th>Mattress Herds</th>
<th>Sand Herds</th>
<th>Sand Benefit</th>
<th>$/100 Cows</th>
</tr>
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<tbody>
<tr>
<td>Rolling Herd Average Milk (lb)</td>
<td>24,260</td>
<td>25,926</td>
<td>+1,666</td>
<td>20,000</td>
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<tr>
<td>Lameness Prevalence (%)</td>
<td>27</td>
<td>16</td>
<td>-11</td>
<td>1,650</td>
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<tr>
<td>SCC ('000/ml)</td>
<td>373</td>
<td>298</td>
<td>-75</td>
<td>6,000</td>
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<tr>
<td>Turnover Rate (%)</td>
<td>40</td>
<td>32</td>
<td>-8</td>
<td>11,600</td>
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<tr>
<td>Cow Cases Mastitis %</td>
<td>62</td>
<td>45</td>
<td>-17</td>
<td>1,530</td>
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<tr>
<td>Total Benefit ($/100cows)</td>
<td>40,780</td>
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</table>

2. Stalls appropriately sized

Production and Health
- High quality genetics, management and feeding
- Exceptional care-givers and workers
- Strategic careful use of production enhancers and pharmaceuticals
- Facilities designed for success!
Does Cow Comfort Pay?

<table>
<thead>
<tr>
<th>Parameter</th>
<th>2003</th>
<th>2009</th>
<th>Difference</th>
<th>Benefit/100 cows ($)</th>
<th>Benefit/cow ($)</th>
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</thead>
<tbody>
<tr>
<td>Milk (lb)</td>
<td>25,997</td>
<td>31,009</td>
<td>5,012</td>
<td>78,180</td>
<td>752</td>
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<tr>
<td>Ave SCC ('000/ml)</td>
<td>285</td>
<td>136</td>
<td>149</td>
<td>13,862</td>
<td>139</td>
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<tr>
<td>Cow Cases Mastitis (%)</td>
<td>52</td>
<td>27</td>
<td>25</td>
<td>2,250</td>
<td>23</td>
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<tr>
<td>Lameness Rate (%)</td>
<td>80</td>
<td>35</td>
<td>45</td>
<td>2,250</td>
<td>23</td>
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<tr>
<td>Turnover Rate (%)</td>
<td>48</td>
<td>23</td>
<td>25</td>
<td>35,000</td>
<td>350</td>
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<tr>
<td><strong>Total Benefit</strong></td>
<td>128,542</td>
<td>1,285</td>
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</table>

Lack of standard building guidelines addressing cow comfort and performance

**Goal:**
Facilitate the construction of new & remodeled dairy cattle housing by bringing the producer, builder and lender together with one common purpose: to improve dairy cattle well-being and performance.

Growing consumer concern

http://thedairylandinitiative.vetmed.wisc.edu

Funded by the Ira and Ineva Reilly Baldwin Wisconsin Idea Endowment

So how do I use it?

- **FREE** web access through September 2012
  - Wisconsin Dairy Farmers (Dairy Producer License No.)
  - Wisconsin Lenders
  - Wisconsin UWEX and agriculture educators
  - Construction companies

- **$100** two-year web access subscription
The Dairyland Initiative

- Virtual Tours
- Construction, Lender & Consultant Directories
- The Wisconsin Blueprint
  - Adult Cow Housing Decision Tree
  - Replacement Housing Decision Tree

Web Site

The Wisconsin Blueprint

- Socially stable groups
- Exposure to natural light and ventilation, mechanical assistance where needed
- Meet the resting space requirements of cattle, providing for a target lying time of 12 hr/day for lame and non-lame cows
- Provide enough feed and water space for each animal to optimize metabolic health
- Design barn layouts that do not result in undue time out of the pen, minimizing trauma to cows' feet
- Minimize disease & death rates

Web Site
Cow Comfort Risk Assessment

- Submit floor plan & questionnaire
- Areas of low, neutral & high risk are evaluated
- Changes can be made to the plan... before concrete is poured!
  - $150 fee
  - Wisconsin farms only

Thank You!

http://thedairylandinitiative.vetmed.wisc.edu