Balancing Dairy Business and Animal Welfare

Franklyn Garry
Number of U.S. Dairy Operations, 1991 to 2001

Number (Thousands)

Year


180.6 170.5 157.2 148.1 139.7 131.0 123.7 117.2 111.0 105.2 97.6

#1029
## The Dairy Efficiency Story

<table>
<thead>
<tr>
<th>Year</th>
<th>Cow #’s:</th>
<th>Milk /cow:</th>
<th>Tot Milk/Yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>1955</td>
<td>21.5 million</td>
<td>5,900 lbs</td>
<td>120.1 billion lbs</td>
</tr>
<tr>
<td>2005</td>
<td>9.04</td>
<td>19,576 lbs</td>
<td>176.9 billion lbs</td>
</tr>
</tbody>
</table>
Increased Milk Production Per Cow Has More Than Compensated For The Long-term Decline In The Number Of Milk Cows

In 1950 the U.S. had 21.9 million milk cows, averaging 5,300 lbs of milk per cow.

In 2001 the U.S. had 9.1 million milk cows, averaging 18,100 lbs of milk per cow.

Source: USDA-NASS June 2002
Working with Change

- Unintended Consequences
- Balance
- Research and Education
Reasons to Dairy

- Avocation
- Family
- Animals
- Business
US and Wisconsin Monthly Average All-Milk Prices: 1988-Present

$/cwt

© 2003, University of Wisconsin (UW Dairy Market Website: dairy.wisc.edu)
Low cost business

- Price received vs. cost to produce
- Low cost
- Animal well-being?
- Balance with other concerns?
Business focus

- Preeminent force for change
- Is that bad?
- Business models
  - Low cost business
  - Total quality management
Low cost business

- Price received vs Cost of production
- Low cost
- Animal well-being?
- Balance with other concerns?
Total Quality Management

- Constancy of purpose toward improvement of product and service
- End awarding business on basis of price alone
- Institute modern methods of training for all employees
- Institute leadership
- Take action
Animal Welfare in the Dairy Industry

- Consumer perceptions
  (= marketing concerns)
- Producer perceptions
Animal Welfare in the Dairy Industry

- Dairy image to consumers
- Few “Lightning Rod” issues
  - Debeaking poultry
  - Swine gestation crates
- Healthy animals, healthy product
Dehorning

- Easily justified for animal and human safety reasons
- Real question – How?
- 53.1% of operations use some form of ‘surgical’ dehorning
- Timing, method, pain relief

1997 USDA:APHIS:VS:NAHMS
Dairy ’96 Study
Orphan rearing

- Easily justified for animal management and health reasons
- Depends upon real commitment by human caregivers
- More on this later
Dairy Animal Welfare

- Infectious Disease Problems
- Cow Comfort, Exercise and Housing Design
- Production Diseases
  - Subacute rumen acidosis and laminitis
  - Metabolic disease
  - Abomasal displacement
- Downer Cow Problems
### Dairy cow illness

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical mastitis</td>
<td>13.4%</td>
</tr>
<tr>
<td>Lameness</td>
<td>10.5%</td>
</tr>
<tr>
<td>Respiratory</td>
<td>2.5%</td>
</tr>
<tr>
<td>Diarrhea (&gt;48 hr)</td>
<td>3.4%</td>
</tr>
<tr>
<td>Reproductive probs</td>
<td>11.6%</td>
</tr>
<tr>
<td>Milk fever</td>
<td>5.9%</td>
</tr>
<tr>
<td>Displaced abomasum</td>
<td>2.8%</td>
</tr>
<tr>
<td>Retained placenta</td>
<td>7.8%</td>
</tr>
</tbody>
</table>

*1997 USDA:APHIS:VS:NAHMS Dairy '96 Study*
Culling and Death Loss
Dairy culling

- 25 to 30% of dairy cows culled each year
- 78.5% sent to market or auction
- 20.8% sent directly to slaughter
- Vast majority non-elective culls
- Leaving herd as ‘broken cows’?
Percentage of Herd Removals by Cause

Dairy 2002. NAHMS
Percentage of Herd Removals by Cause for Western Dairy Herds

- **Dairy**: 7.9%
- **Died**: 12.2%
- **Reproduction**: 3.2%
- **Udder**: 2.6%
- **Other**: 6.3%

DHI Provo, 2005

Courtesy J Olson
Bruising

- Only 11.8% free of bruising
- 77.2% had minor bruises
- 41.7% medium
- 21.6% major
- 2.4% extremely
- 3.3% of cow carcasses condemned

1999 NMCBBQA - NCBA
DHI Provo - 8 Western States
<table>
<thead>
<tr>
<th>Cause of death</th>
<th>Percent of deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digestive</td>
<td>8.6%</td>
</tr>
<tr>
<td>Respiratory</td>
<td>10.3%</td>
</tr>
<tr>
<td>Calving</td>
<td>17.4%</td>
</tr>
<tr>
<td>Lameness/Injury</td>
<td>13.9%</td>
</tr>
<tr>
<td>Mastitis</td>
<td>17.1%</td>
</tr>
<tr>
<td>Metritis</td>
<td>11.1%</td>
</tr>
<tr>
<td>Down</td>
<td>1.4%</td>
</tr>
<tr>
<td>Other</td>
<td>7.6%</td>
</tr>
<tr>
<td>Unknown</td>
<td>19.8%</td>
</tr>
</tbody>
</table>
Classification of Deaths

Organ system - Euthanized

- Digestive: 12%
- Hepatic: 6%
- Mammary: 3%
- Musculoskeletal: 33%
- Other: 21%
- Peritonitis: 3%
- Respiratory: 9%
- Uterine: 12%

% of deaths
Classification of Deaths

DAMNIT System

- Infectious: 48%
- Degenerative: 6%
- Inflammatory: 14%
- Neoplastic: 4%
- Metabolic: 3%
- Trauma: 24%

% of Deaths
Classification of Deaths

Management Prevention System

<table>
<thead>
<tr>
<th>Condition</th>
<th>% of deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unmanageable</td>
<td>22%</td>
</tr>
<tr>
<td>Environmenal trauma</td>
<td>13%</td>
</tr>
<tr>
<td>Calving</td>
<td>16%</td>
</tr>
<tr>
<td>Nutritional</td>
<td>14%</td>
</tr>
<tr>
<td>Toxic Mastitis</td>
<td>8%</td>
</tr>
<tr>
<td>Pneumonia - Aspiration</td>
<td>5%</td>
</tr>
<tr>
<td>Pneumonia - chronic</td>
<td>8%</td>
</tr>
<tr>
<td>Digestive - infectious</td>
<td>5%</td>
</tr>
<tr>
<td>Hardware</td>
<td>2%</td>
</tr>
<tr>
<td>Digestive - obstruction</td>
<td>1%</td>
</tr>
<tr>
<td>Pneumonia - Acute</td>
<td>2%</td>
</tr>
<tr>
<td>Post surgical trauma</td>
<td>2%</td>
</tr>
<tr>
<td>Metabolic</td>
<td>1%</td>
</tr>
</tbody>
</table>
Birthing/Calf Delivery Problems
## Delivery of heifer calves from 1st calf heifers

<table>
<thead>
<tr>
<th>Delivery type</th>
<th>% of calves</th>
</tr>
</thead>
<tbody>
<tr>
<td>No assistance</td>
<td>68.4</td>
</tr>
<tr>
<td>Minor pull</td>
<td>19.3</td>
</tr>
<tr>
<td>Hard pull</td>
<td>7.5</td>
</tr>
<tr>
<td>Mechanical</td>
<td>4.7</td>
</tr>
<tr>
<td>Caesarian</td>
<td>0.1</td>
</tr>
</tbody>
</table>

1994 USDA:APHIS:VS:NAHMS
National Dairy Heifer Evaluation Project
Dystocia Severity Scoring

Score 1 = No assistance

Score 2 = One person pull

Score 3 = Severe traction or surgery
Heifer Stillbirths: Death w/in 24 hours

- Score 1: 2.2%
- Score 2: 5.4%*
- Score 3: 36.0%*
- Overall: 5.6%

* significantly different from score 1 (p<0.05)
Heifer Calf Deaths: Days 2-120 of age

- Score 1: 7.9%
- Score 2: 8.5%
- Score 3: 14.6%*
- Overall: 8.4%

* significantly different from score 1 (p<0.05)
Dairy Animal Welfare

Calf Management Practices
- Newborn calf care
- Calf feeding and nutrition
- Bull calf management
Unweaned dairy calf mortality

Total deaths 10.5%

Percent of deaths
- Scours/diarrhea: 62.1%
- Respiratory: 21.3%
- Calving problems: 4.1%
- Other known: 2.9%
- Unknown: 6.9%

2003 USDA:APHIS:VS:NAHMS
Dairy 2002 Project
Milk feeding

- Volume
- Nutrient concentration
- Frequency of feeding
Milk replacer feeding

- **Energy**
  - 1 lb replacer = 2Mcal
  - 95% for maintenance
- For 1 lb gain - 100 lb calf requires 1.6 lb/day
- Decreased temp from 50 to 5 F increases maintenance energy demand >50%
Feeding nursing calves

- No other neonatal feeding system restricts milk intake
- Proper nutrition critical to health and growth
- Baby calves remarkably efficient at feed conversion
What can be done to improve dairy animal welfare?
People make all the difference

You need to have the right people doing the right jobs
# Nursing care

<table>
<thead>
<tr>
<th>Caregiver</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spouse</td>
<td>7.0%</td>
</tr>
<tr>
<td>Operator</td>
<td>8.3%</td>
</tr>
<tr>
<td>Son/Daughter</td>
<td>9.4%</td>
</tr>
<tr>
<td>Hired worker</td>
<td>10.8 - 11.7%</td>
</tr>
<tr>
<td>Female</td>
<td>7.3%</td>
</tr>
<tr>
<td>Male</td>
<td>8.8%</td>
</tr>
</tbody>
</table>

1994 USDA:APHIS:VS:NAHMS
National Dairy Heifer Evaluation Project
Worker Training

- Workers replace owner/managers as primary animal caregivers
- High quality, ongoing worker education and training
- Quality management approach to business
- Standard operating procedures defined and implemented
Monitoring programs

- Routine necropsy
- Monitoring and tracking animal health and disease
- Facilities and housing
- Biosecurity and hygiene procedures
“Problems cannot be solved at the same level of awareness that created them.”

Albert Einstein