Animal welfare assurance – impacts on cattle production and export markets

Suzanne T. Millman, BSc(Agr), PhD
Associate Professor, Animal Welfare

Dept. Veterinary Diagnostic & Production Animal Medicine
Dept. Biomedical Science,
College of Veterinary Medicine, Iowa State University
smillman@iastate.edu
Animal welfare assurance – impacts on cattle production and export markets

Introduction to animal welfare assurance
- Definitions and conceptual framework
- Public concern for animal welfare
- How can we measure animal welfare

Animal welfare issues affecting global cattle production
- Alternatives to painful procedures
- Alternatives to restrictive housing
- Care of compromised cattle
- Low stress handling
Animal welfare and sustainability


- Social justice
- Economic development
- Environmental protection

#4 = Animal welfare

Definition of Animal Welfare

Animal welfare means how an animal is coping with the conditions in which it lives. An animal is in a good state of welfare if (as indicated by scientific evidence) it is healthy, comfortable, well-nourished, safe, able to express innate behaviour, and if it is not suffering from unpleasant states such as pain, fear, and distress.

Good animal welfare requires disease prevention and veterinary treatment, appropriate shelter, management, nutrition, humane handling and humane slaughter/killing. Animal welfare refers to the state of the animal; the treatment that an animal receives is covered by other terms such as animal care, animal husbandry and humane treatment’

A scientific concept of animal welfare that reflects ethical concerns

Resources available: research articles and policy guidance documents

  - “University Links” program, scholarships, grants
  - International Animal Welfare Science Society

Frameworks to address issues:

Five Freedoms of Animal Welfare

1. Freedom from hunger, thirst and malnutrition – by ready access to fresh water and a diet to maintain full health and vigor
2. Freedom from thermal or physical distress - by providing an appropriate environment including shelter and a comfortable resting area
3. Freedom from pain, injury and disease – by preventing or by rapid diagnosis and treatment
4. Freedom to display most normal patterns of behavior – by providing sufficient space, proper facilities and company of the animals’ own kind
5. Freedom from fear and distress – by ensuring conditions and treatment to avoid mental suffering

Changing social contract with animals
- Amsterdam Treaty (1997)

“Desiring to ensure improved protection and respect for the welfare of animals as sentient beings, have agreed upon the following provision, which shall be annexed to the Treaty establishing the European Community, in formulating and implementing the Community’s agricultural, transport, internal market and research policies, the Community and the Member States shall pay full regard to the welfare requirements of animals, while respecting the legislative or administrative provisions and customs of the Member States relating in particular to religious rites, cultural traditions and regional heritage.”
U.S. farm animal laws

Federal (national) laws

- 28 Hour Law (livestock transportation)
- Humane Slaughter Act

In some States, certain farming practices are illegal, but these are acceptable in other States

- Sow gestation stalls (AR, CA, CO, FL, ME, MI, OH, OR, RI)
- Veal calf stalls (AR, CA, CO, KY, ME, MI, OH, RI)
- Tail docking cattle (CA)
- California: “Animals [laying hens, gestating pigs, veal calves] must have sufficient space to lie, turn around, groom, stretch limbs freely”
Social contract and the legal status of animals - “partial personhood”

Animal trials common during 13th-16th centuries

In 1567, a sow was imprisoned by the royal notary of the court in France for murder. She was subsequently convicted and sentenced to hang.

In the USA in 1916, elephant “Mary” was convicted of murdering her trainer and hung using a crane.
Animal welfare & social responsibility emerge in niche & mainstream markets
Welfare assessments and audits

- Welfare assessments
  - Gather and analyze relevant data to determine compliance, areas for correction
  - 1st party, self-assessment
  - 2nd party (expert, consultant) to provide advice

- Welfare audits
  - Verify compliance to a standard or regulation, no advice for correction
  - 3rd party inspectors to avoid conflict of interest
Understand animal welfare assurance programs emerging in food production

- Type 1: Provide for health and functioning
- Type 2: Provide for affective states
- Type 3: Provide for natural behavior
- Type 4: Provide for natural experiences

What do we know about current U.S. attitudes about farm animal welfare?¹

- American Farm Bureau survey of consumers, animal welfare ranks poorly relative to competing concerns¹

- Importance score for animal welfare: 4.15
  - 23.95 Poverty
  - 23.03 US health care system
  - 21.75 Food safety

I consider well-being of farm animals when I make decisions about purchasing meat. 

Low meat prices are more important to me than well-being of farm animals\textsuperscript{1}

Government should take an active role in promoting farm animal welfare

What expectations of animal care?
Importance score (out of 100%)\(^1\)

- Provided shelter at comfortable temperatures
- Protected from harm by other animals
- Allowed exercise outdoors
- Allowed to exhibit normal behaviour
- Treatment for injury/disease
- Receive ample food/water

2015 consumer survey of public opinion in U.S.¹

When asked to rank 12 life issues, animal welfare (47%) did not rank in top 5, but...

- If farm animals are treated decently and humanely, I have no problem consuming meat, milk and eggs
  - 60% strongly agree

- U.S. meat is derived from humanely treated animals
  - 25% strongly agree

- I would support a law in my State to ensure the humane treatment of farm animals
  - 53% strongly agree

¹Center for Food Integrity, 2015. A clear view of transparency and how it builds consumer trust. 2015 Consumer Trust Research. CFI, Gladstone, MO. http://www.foodintegrity.org/research/
2015 consumer survey of public opinion in U.S.¹

Who is responsible for transparency on issues of farm animal welfare?

- Food companies – 49%
- Farmers – 30%
- Grocery stores – 11%
- Restaurants – 10%

¹Center for Food Integrity, 2015. A clear view of transparency and how it builds consumer trust. 2015 Consumer Trust Research. CFI, Gladstone, MO. http://www.foodintegrity.org/research/
Customer demand for cage-free eggs

- In March 2016, cage-free eggs sold at $2.49/dozen; conventional eggs sold at $1.07/dozen

- In 2016, 4.7% of U.S. non-organic table egg layer flock is managed in non-cage systems
  - 48% of current non-organic flock of 276 million birds will need to be cage-free by 2025 to meet demand of 20 grocery chains, 38 restaurant chains & 5 food service distributors

*Can it be done? At what cost?*

---

What animal welfare issues are affecting global animal production?
Alternatives to painful husbandry procedures

Pain is a negative subjective experience

Regardless of species, we can only gain an understanding of how an animal (or person) “feels” by indirect measures.
Animal welfare in practice
- which is better?
Cortisol Response to Dehorning

Stafford & Mellor, 2005
Pressure algometry: “ask” the calf about pain when given analgesic drug

OIE standard – Ch. 7.9 Animal welfare in beef cattle production

Painful husbandry procedures:

- Performed in such a way as to minimise any pain and stress to the animal.
- Performed at as early an age as possible or using anaesthesia or analgesia under the recommendation or supervision of a veterinarian.

Future options:

- Ceasing the procedure and addressing the current need for the operation through management strategies;
- Breeding cattle that do not require the procedure;
- Replacing the current procedure with a non-surgical alternative that has been shown to enhance animal welfare.
Alternatives to restrictive housing
Benchmarking: 317 tie-stall dairy farms in Ontario, Canada/17,893 individual cows

- 90% of farms had stalls with dimensions less than the Recommended Code of Practice
- 23% of cows had severe hind claw rotation, suggesting lameness. Negative association with milk yield (P=0.015)
- 3.8% of cows had neck lesions
- 3% of cows had broken tails; 5% of farms had >15% of cows with broken tails. Positive association with SCC (P=0.016)

# Score Your Farm, Ontario Tie Stalls


<table>
<thead>
<tr>
<th>Problem</th>
<th>Best 20% of farms</th>
<th>2\textsuperscript{nd} best</th>
<th>Middle 20% of farms</th>
<th>2\textsuperscript{nd} worst</th>
<th>Worst 20% of farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swollen hocks</td>
<td>0-3.8% cows</td>
<td>3.9-8.8%</td>
<td>8.9-15.4%</td>
<td>15.5-25.7%</td>
<td>25.8-60.8%</td>
</tr>
<tr>
<td>Hock wounds</td>
<td>0.1% cows</td>
<td>1.1-3.4%</td>
<td>3.5-6.9%</td>
<td>7.0-12.2%</td>
<td>12.3-100%</td>
</tr>
<tr>
<td>Neck lesions</td>
<td>0% cows</td>
<td>0%</td>
<td>0-1%</td>
<td>1.1-4.1%</td>
<td>4.2-47.8%</td>
</tr>
<tr>
<td>Broken tails</td>
<td>0% cows</td>
<td>0%</td>
<td>0-1%</td>
<td>1.1-5.0%</td>
<td>5-50%</td>
</tr>
<tr>
<td>Dirty hind limbs</td>
<td>0-2.9%</td>
<td>3-8.7%</td>
<td>8.8-18.2%</td>
<td>18.3-36.1%</td>
<td>36.2-94.4%</td>
</tr>
<tr>
<td>Hind claw rotation</td>
<td>0-6.7%</td>
<td>6.8-14.6%</td>
<td>14.7-22%</td>
<td>22.1-34.2%</td>
<td>34.3-73.7%</td>
</tr>
</tbody>
</table>
Animal welfare assessment & auditing: Is it worth it?

- Self-auditing as a management tool
  - Some welfare-relevant data is already collected in production software systems (ie: pedometers, feed consumption, milk yields and SCC)
  - Helpful to know where the “dirty laundry” is and plan ahead.
  - Benchmarking progress. Choose what welfare criteria you are interested in addressing (ease, profitable, interest)

- Documentation
  - Proof of following best management practices in response to complaints
Caring for the compromised animal

Jean Francois Millet, 1864
Animal welfare policy for care of compromised cattle

- Legal regulations for transport of ill or injured animals
- Requirements by slaughter and meat processing facilities
- Voluntary guidelines and educational materials by cattle industry
Farmer awareness of transport regulations

- In a survey of 49 dairy farms in Netherlands
  - 80% of farmers recognized that a cow with a broken limb should not be transported

However,

- 68% believed transport was suitable for lame cows
- 61% believed transport was suitable for feverish cows (>31.9°C)
- 79% believed transport was suitable for severely malnourished cows

Caring for the compromised cattle at the farm – before decision to ship

- In a survey of Iowa dairy farmers, 80% of farmers had an area to move sick or injured cows away from the herd.
  - Those that did not have hospital pens kept sick cows in barn vs pasture, or separated the sick cow within the free stall area.
  - 100% of large farms (>1000 cows) had designated hospital pen vs 39% small farms (<100 cows).
  - 27% of organic farms had designated hospital pen.

- Key reasons for moving a cow to the hospital pen were well-being (62%), cow comfort (51%), ease of observation (45%).

What are the behavioural needs of convalescent animals?

- ↓ food consumption
- ↓ water consumption
- ↓ activity
- ↓ exploration
- ↓ social behavior
- ↓ grooming

- ↑ slow-wave sleep
- ↑ thermoregulation
- ↑ nociception
“Special Needs Pen” – is this an effective hospital environment?

- Hospital pens also included
  - fresh cows (46% of farms)
  - calving (35% of farms)
  - close-up cows (35% of farms)
Alternatives to stressful handling
Assessing welfare in “real world”: Slaughter plant audits

- Temple Grandin began doing slaughter audits in the 1990s for the USDA & retailers

- Benchmarking
  - Vocalizations
  - Slips, falls, balks
  - Stunning

- Improving facility design & training programs
  - Behavior indicators
  - Meat quality
  - (Line efficiency)
  - (Worker safety)
Low stress handling

- Does not necessarily require more time
- Can be accomplished by working with the animal’s innate and learned responses
  - Sensory perception
  - Social facilitation
  - Learned associations with equipment and people
  - Fear response, flight zone
- Requires attention to cattle behavior and to handler’s own behavior re: what is communicated to animal
  - Postural signals, eye contact, predictable movement, speed, voice
Handling facilities that account for animal behavior & perception

- Visual or physical contact with other cattle ahead
- Solid sides to avoid distractions & contrasts
- Gradual slopes, non-slip flooring
- Curves to facilitate movement

Photo by T. Grandin, www.grandin.com
Understanding how to guide cattle where you want them to go

Sorting calves with Dr. Joe Stookey, Western College of Veterinary Medicine: https://www.youtube.com/watch?v=P4FUE-OrXRw
Animal welfare assurance – impacts on cattle production and export markets

- There is broad sustained public interest in animal welfare globally, international standards of care
  - Possible niche marketing opportunities
- Multidisciplinary approach
  - Behavior, health, physiology, performance (production)
  - Experienced at individual animal level
- Practical interventions exist to improve animal welfare
  - Evaluate interventions using animal outcome criteria
  - Animal welfare assessment tools provide opportunity to benchmark animal care and identify specific risk factors
Photographer: Yann Arthus Bertrand, *Beasts and Their Keepers*