National Farm Animal Care Council (NFACC) Information Update
March 2006

*International Meat Animal Welfare Research Conference (IMAWRC), February 22, 2006**

Consistent theme delivered by several speakers: ***It pays to take care of animal welfare - there is a strong relationship between animal welfare and productivity (i.e., profit).***

Attention is needed in the following areas:
- Attitude and training of animal handlers
- Genetics
- Design, construction and operation of an animal's environment from production to transport to slaughter

Below is a summary of speaker messages relating to the above noted theme. While some presentations related to specific species, the information is likely transferable to other industries. Where possible websites have been ID'd for further information.

Dr. Grahame Coleman, Animal Welfare Science Centre, Monash University, Australia - "Human and animal interaction and welfare issues at the farm level"

- Research shows a consistent negative relationship between fear of humans and productivity in dairy (lower milk yields and increased lameness), pig (lower growth rates) and poultry (lower egg production)
- **Important to note**: overt cruelty/abuse is **not** the issue – some normal handling behaviours that one would think as intuitively harmless (e.g., minor slaps, fast movement) are causing production-limiting fear responses in livestock.
- The attitude and belief system of the animal handler is key – if people believe that force is needed this is what they will use.
- To change the behaviour of stock people towards farm animals requires:
  - ✓ Changing the beliefs that underlie the behaviour
  - ✓ Changing the behaviour in question
  - ✓ Maintaining these changes
- Research shows that changing stock person's behaviour to be more positive leads to improved animal productivity. Added benefit: training programs can lead to a 20% increase in employee retention.
- Slower is faster – amount of time to move animals with proper strategies is less or equal to efforts focused on getting things done quickly.
- 20% of animal behaviour can be attributed to human-animal interactions (learned behaviour), other 80% to genetics and other factors.
- Stock person training courses available in Australia and coming to U.S. (Animal Welfare Science Centre website: http://www.animal-welfare.org.au/, Prohand Pigs and Prohand Dairy training course brochure: http://www.animal-welfare.org.au/educate/phcc.pdf)

Dr. William Muir, Professor, Purdue University "Genetics: Breeding for Desirable Behaviours"

- Problems caused by competition:
  - ✓ Reduced gain

*Some presentations are available on-line at:
http://www.meatami.com/Content/NavigationMenu/Events_Education/AMI_Educational_Conference_Presentations/IMAWRC/IMAWRC_Agenda.htm

- ✓ Increased mortality (directly through injuries, indirectly through disease susceptibility)
- ✓ Reduced feed efficiency (e.g., energy lost in fighting, increased fat deposition)

- Addressing animal welfare issues can be profitable
- Individual selection (based on individual's productivity) in a group setting inadvertently selects for most aggressive animals – making problems with competition worse
- Alternative – group selection, if productivity of the group is high, stessors are reduced or absent. Selection based on productivity of the group.
- Results of 2 experiments with poultry layers and Japanese quail comparing group and individual selection using commercial lines:
  - ✓ Significantly reduced mortality for group selected lines (from 70% in 1st generation to 8.8% in 5th)
  - ✓ No beak trimming required
  - ✓ Improved feather cover
  - ✓ Productivity maintained
- Group selection - model can be used with any species:
  - ✓ Eliminates management practices used to prevent injury (e.g., tail docking in pigs, beak trimming in poultry)
  - ✓ Improves animal well-being
  - ✓ Improves productivity and profits
  - ✓ Improves consumer acceptance
  - ✓ Easy to implement by breeders
- Europe has switched to group selection in poultry, as have 2 U.S. poultry breeders
- Related article: http://www.newsham.com/gentel_lean_not_mean.asp

Dr. Stan Curtis, Adjunct Professor of Animal Science, University of Illinois
"Housing and Environmental Conditions for Pigs"

- Performance indicators of animal well-being (growth rate, feed conversion, mortality) preferred - We are not yet able to measure animal feelings.
- Maximize animal performance to maximize animal welfare and the bottom line.
- The information is available, but it is not being applied in the real world.
- The drag on performance of pigs in the real world is due to poor design, construction and operation of the animal's environment (70% or less of their genetic potential being met).
- Animal welfare problems start with the basics – not complicated, but not fully appreciated by industry, nor its impact on the bottom line.
- Ventilation – multiple housing structures must be managed individually as there will always be operational differences.
- Equipment Design – specifications not always followed in an effort to cut costs. There is a limit to cost cutting measures before they impact profits.
- Record keeping – need records of performance as the basis for identifying and resolving problems. Basic information and protocols are not being followed.

- Commissioning – each facility should be commissioned by a general expert who can assess ventilation and equipment to identify potential defects before animals are received.

Jeff Hill, Director of Animal Welfare and System Design, Premium Standard Farms (PSF) "Transportation, Loading and Unloading of Pigs"

- Estimate: U.S. swine industry utilizes less than 40% of pig potential (*note difference from previous speaker*).
- U.S. swine industry analysis: $254,104,500 total lost opportunity (due to DOA, DIP, meat quality losses) = $2.44/head.
- Other costs: worker safety (37% of injuries related to animal handling), downers (impacts movement efficiency and adds labour costs to handle) and equipment costs (hog sled, euthanasia options).
- Potential non-dollar costs: USDA/FSIS non-compliance with regulations, loss of consumer confidence
- PSF analysis of its issue areas: in production - load-out chute design
- Multiple challenges and detours in designing a load out chute that met goals:
  - ✓ Improve animal welfare (and eliminate electric prod use)
  - ✓ Enhance pork quality
  - ✓ Improve transportation efficiency
  - ✓ Enhance biosecurity
  - ✓ Improve human safety
- Prototype overall a success, with minor failings being addressed
- Next steps:
  - ✓ Performance tracking
  - ✓ Integration at other levels (unloading at plants)
  - ✓ Research – what is important and why (lighting, flooring, etc.), economic and other impacts (is it financially viable)
  - ✓ Patent pending – to protect the design, PSF willing to share information - view animal welfare as a non-competitive issue in spite of effort and expense that went into the chute design

Dan Hale, Professor and Extension Meat Specialist, Texas A&M University
"The Relationship between Animal Handling and Beef Quality"

- National Beef Quality Audits done in federal beef plants across U.S.
- Most quality issues relate to animal handling and stress (stress impacts marbling score and quality grade). Excitable animals produce less tender meat.
- Increases in dark cutters caused by stress. E.g.:
  - ✓ Thermal stress (hot or cold)
  - ✓ Feed withdrawal over 24 hours
  - ✓ Transport distance (dark cutters increase at distances over 180 miles)
- >50% of bruising due to rough, careless handling, 2/3 of bruising occurs while loading/unloading and cows bruise easier than steers.