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The map to the left depicts almost 40,000 visits in 2011 from 185 countries.
Friday Notes

December 2, 2011

Neigh or Yea?
Lifting the Horse Slaughter Ban

Horses could soon be butchered in the United States for human consumption after Congress quietly lifts a five-year-old ban on funding horse meat inspections. Slaughter opponents pushed a measure cutting off funding for horse meat inspections through Congress in 2008 after efforts to pass outright bans of horse slaughter failed in previous years. Congress lifted the ban in a spending bill President Barack Obama signed into law November 18.

The move has resulted in strong comments from both sides. Some say the ban brought unintended consequences that actually made conditions worse for horses. Others still support the total ban.

News outlets, blogs, organizations, and activist groups will continue to cover an issue that can get emotional, so for the time being we will link to one objective source that provides a video and print article overview of the situation.

A Vegetarian Veterinary Student Talks About Why "Factory Farming" Is Necessary

In her article, "What Caused Fear? Factory Chicken Farm at Egg Demand," Nicole Wyatt examined issues regarding confinement livestock operations—what some call factory farms. You might not agree with her statements, but she seems to be sincere about trying to view it from all sides. Wyatt says, "Factory farming may not be pretty, but we all need to take a step back, look at how we got here, and try to understand the industry on a scientific, non-emotional level. The choice comes down to cramped housing that maximizes disease and injury but sacrifices natural behavior, or preserving natural behavior but increasing the incidence of disease, injury, and subsequent suffering among the flock. Disease and injury also mean a decline in food supply in the face of increasing demand. It is clear why agricultural practices have become what they are. As a vegetarian who plans on being a small-animal practitioner, I can say that there are aspects of modern agricultural practice I don't like. God have mercy.

CAST FRIDAY NOTES
Council for Agricultural Science and Technology

The Science Source for Food, Agricultural, and Environmental Issues

• Published 48 times each year
• Lead articles on current topics being discussed in agriculture
• More than 60 current agricultural news items selected from 100+ sources, including live links to the original articles
• New international section
• Washington, D.C., congressional updates from Meyers and Associates
Healthy Animals Make Confident Consumers

The Direct Relationship between Animal Health and Food Safety Outcomes

CAST Commentary QTA2012-1, May 2012

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Overview

The health of the animals within the food animal production system impacts many aspects of the system far removed from the animals themselves. Based on the analysis described here, it is evident that the national policy impacts of changing animal health can and should be modeled and considered.
Know the Trade-offs

- Complex relationship between animal health and public health involving many variables
- Closely connected
- Need a systems approach to understand
Background

- Many pressures on livestock production
- Fewer people controlling more animals
- Some demand near risk-free food
- Consumers are far removed from the farm and meat processing
- Issues in livestock production include:
Critical Issues Affecting Livestock Production Methods

• Outdoor production
• Risk-free food
• Sustainability
• Economics
• Environment


http://www.extension.purdue.edu/pork/images/jones/field.jpg
Critical Issues Affecting Livestock Production Methods

- Outdoor production
- Risk-free food
- Sustainability
- Economics
- Social media
- Antimicrobial use
- Organic production
- Animal welfare

Photo credit: Sally Ryan for The New York Times
Consider Animal and Public Health

- Critical issues affect animal health
- Animal health affects food safety
- Animal health affects public health
USDA Food Safety and Inspection Service Regulations Require Healthy Animals

• Meat Inspection Act of 1906
• Require antemortem inspection
• Visibly ill animals NOT permitted to enter
Not Visibly Ill Animals (subclinical)

• Enter the packing plant
• Noticed by inspectors and quality assurance during the harvest process
• Will receive extra handling
• May require veterinary inspection
  – Portion of animal may be discarded
  – Entire animal may be discarded
• Require extra time and attention
Animal Health Affects Carcass Quality and Ultimately Human Health

- Antibiotic Use
- Herd Management
- Disease
- Other Factors

Animal Health

- Not Visibly Ill
- Healthy Animals

Processing
- Healthy Animals
- Contaminated Product
- Susceptible Humans
- Sick Humans

Inspection
- Uncontaminated Product
- Trim
- Discard

Healthy Animals

Uncontaminated Product

Contaminated Product

Susceptible Humans

Sick Humans
Epidemiologic Studies with Risk (systems) Modeling

- Pig studies (2) show residual impacts of infection (scars) will increase risk of *Campylobacter* and *Salmonella* on finished carcass

- Poultry with chronic airsacullitis ("pneumonia") had higher levels of *Campylobacter* on carcass

- Modeling this effect on human illness days showed small changes in bird health could greatly impact public health
Models of Poultry Health Show Large Impact on Human Illness Days

- Poultry with airsacculitis had higher levels of *Campylobacter* on carcass
- Differential equation model
- Shows minor changes in bird health have large impact on human illness days
- Depending on potency (correlation between health and contamination)

Changes in the total number of human illness days/year due to *Campylobacter*, relative to percentage of increased animal illness as a function of potencies.
Impact of Pig Health on Foodborne Risk (*Salmonella* and *Campylobacter*)

- Healthy: Passed FSIS antemortem inspection (not visibly ill)
- Some (~7%) had internal adhesions from previous infection
- Compared to carcasses without lesions
- Two published studies

Photo credit: Agricultural Research Service

Photo credit: Hudson ISD FFA
Carcass from Pig with “Scars” from Previous Illness is a Higher Risk

Pig with “peelout” is 90% more likely to be contaminated with *Salmonella* before entering the cooler

Normal carcass immediately after evisceration
Review the Animal Health and Human Health Nexus

![Graph showing the relationship between change in number of illness days and range of potencies. The graph includes different colored lines indicating increased illness percentages: 6%, 3%, 2%, and 1.5%. The y-axis represents the change in number of illness days, ranging from 0 to 30, while the x-axis represents the range of potencies from 1 to 20.]

CAST
The Science Source for Food, Agricultural, and Environmental Issues
Factors Known to Affect Animal Health

• Nutrition
Factors Known to Affect Animal Health

- Nutrition
- Veterinary care

Photo credit: Linda Coan O’Kresik for The New York Times
Factors Known to Affect Animal Health

- Nutrition
- Veterinary care
- Animal management
  - Housing
Factors Known to Affect Animal Health

- Nutrition
- Veterinary care
- Animal management
  - Housing
  - Stress
  - Stocking density
Factors Known to Affect Animal Health

- Nutrition
- Veterinary care
- Animal management
  - Housing
  - Stress
  - Stocking density
  - Social structure
  - Vermin, birds

Photo credit: Bird Gard, LLC

Photo credit: QC Supply
Factors Known to Affect Animal Health

- Nutrition
- Veterinary care
- Animal management
  - Housing
  - Stress
  - Stocking density
  - Social structure
  - Vermin, birds
  - Water
  - Biosecurity
Impact:
If societal decisions affect these factors that affect animal health, then you will affect public health.

Antibiotic Use
Herd Management
Disease
Nutrition

Animal Health

Public Health
Recommendations

• Take care!

• Ask the scientists
  – “Show me the data”
  – Use systems approach to analyze
    • Risk-risk trade-offs
    • Secondary unintended consequences

• Research to fill in missing critical parameters
Research Needs

• Correlation between subclinical conditions and carcass and product contamination
• Frequency of “not visibly ill” animals
• Nutrient regulation of gene expression
• Ecological studies
• Quantitative risk-risk assessment
• Interaction of housing, welfare, and health
Summary

• Many current social issues will affect animal health
• Animal health affects animal welfare
• Animal health affects public health
Questions/Discussion

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