External Forces Affecting your Business: Animal Care and the Environment

Cattle Feeder' Conference:
A New Era of Management

Maynard Hogberg, ISU

June 11, 2009

SILENT BUT DEADLY

Did you know that farmed animals produce more greenhouse gas emissions (18%) than the world's entire transport system (13.5%)? Or that nitrous oxide from animal manure is around 300 times as damaging to the climate as carbon dioxide? Or that methane (cow and sheep farts/burps to you and me) has 23 times the global warming impact of carbon dioxide?

Makes you think doesn't it?

Vegetarian Society (2008) http://www.vegsoc.org

Natural Health, Natural Living, Natural News

- **Eating Beef More Destructive to Environment than Driving a Car**
  - **December 18, 2007**

New Scientist Magazine

- **Meat is murder on the environment**
- 18 July 2007 by **Daniele Fanelli**
- A kilogram of beef is responsible for more greenhouse gas emissions and other pollution than driving for 3 hours while leaving all the lights on back home.

New American Dream Magazine

- **What about beef makes it so polluting?** While the greenhouse gas impact of many other food categories has much to do with transportation from pasture to serving plate, only one percent of red meat's emissions can be attributed to shipping.5 Beef's high percentage of methane emissions and nitrous oxide, stemming from fertilizers used to grow the corn-based feed that challenges cows' digestion, in addition to waste management by feedlot owners, and land cleared for grazing and growing feed all contribute to beef's significant footprint.
- It's important to understand how a cow's diet affects its greenhouse gas emissions. There are two parts to this: 1) the footprint of the feed itself, 2) how the feed once eaten by the cows increases methane emissions.

Factory Farming

- **Issues**
- The meat production industry employs methods that are unethical and environmentally destructive. **Cruelty, suffering and slaughter.** The factory farming method of meat production depends on suffering, cruelty, and slaughter of animals on a mass scale. Animals are kept in poor conditions where they endure physical and mental suffering before death. High meat consumption demands the slaughter of 1.5 million animals in Canada every day. They are bred specifically for this purpose.
- **Environmental Consequences.** Due to top soil erosion and feed shortage, the mass production of meat is detrimental to long term environmental sustainability. If people switched to consuming vegetarian or vegan diets, we could feed more people.
- **Health.** Techniques necessary for meat mass producion violate basic standards of animal and human health. Meat (often untested) may contain harmful bacteria, viruses and pesticides. In addition, the consumption of saturated animal fat is linked to numerous human health problems including cancer, heart disease, kidney disease and osteoporosis.

SUSTAINABILITY

"The livestock sector is a major player, responsible for 18 percent of greenhouse gas emissions measured in CO_2 equivalent. This is a higher share than transport."

-- Executive summary, Livestock's Long Shadow

Humane Treatment = Food Safety Issue?

Hallmark / Westland Meat Company

Chino, California

Jan. 30, 2008

A Different Type of Recall

Animal abuse caught on video in undercover investigation by well-known animal rights activist group.

Sensational??

They Appeal with Pictures Garnering Public Sympathy

Targeting Youth

Engaging youth... ensuring the future!

Relating Modern CAFOs to Environmental Destruction, Human Disease & Abuse

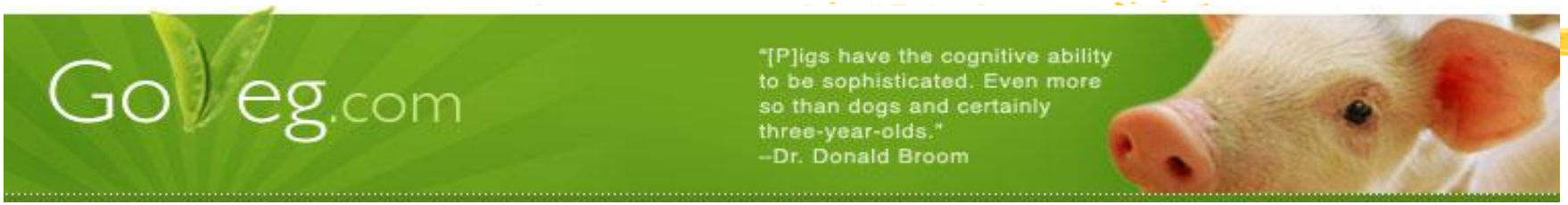
Johns Hopkins University's Bloomberg School of Public Health
Center for a Livable Future

GRACE
GLOBAL RESOURCE ACTION CENTER FOR THE ENVIRONMENT
GRACE FACTORY FARM PROJECT

THE MEATRIX
THE MEATRIX II: REVOLTING
THE MEATRIX II½

$3.4 Million Study Funded by Pew Charitable Trusts

Major anti-livestock advocacy groups



- Animal Liberation Front
- Humane Society of the United States
- Farm Sanctuary
- Environmental Working Group
- National Catholic Rural Life Association
- Union of Concerned Scientists
- Physicians for Responsible Medicine
- Tides Foundation
- Land Stewardship Project
- Earth Liberation Front
- Keep Antibiotics Working
- Defenders of Wildlife

Advocacy Groups

Advocacy Group	Budget
Consumers Union	$172,523,944
HSUS	$120,000,000
Sierra Club	$83,432,700
Environmental Defense	$50,148,388
People for the Ethical Treatment of Animals (PETA)	$26,596,090
Center for Science in the Public Interest (CSPI)	$15,916,209
Greenpeace	$12,767,826
Physicians Committee for Responsible Medicine (PCRM)	$5,820,397
Farm Sanctuary	$4,456,348
Public Citizen	$3,916,760
Institute for Agriculture and Trade Policy (IATP)	$2,929,418
Consumer Federation of America	$2,858,279

Follow the money …

The top 18 advocacy groups' budgets represent nearly $500 Million combined.

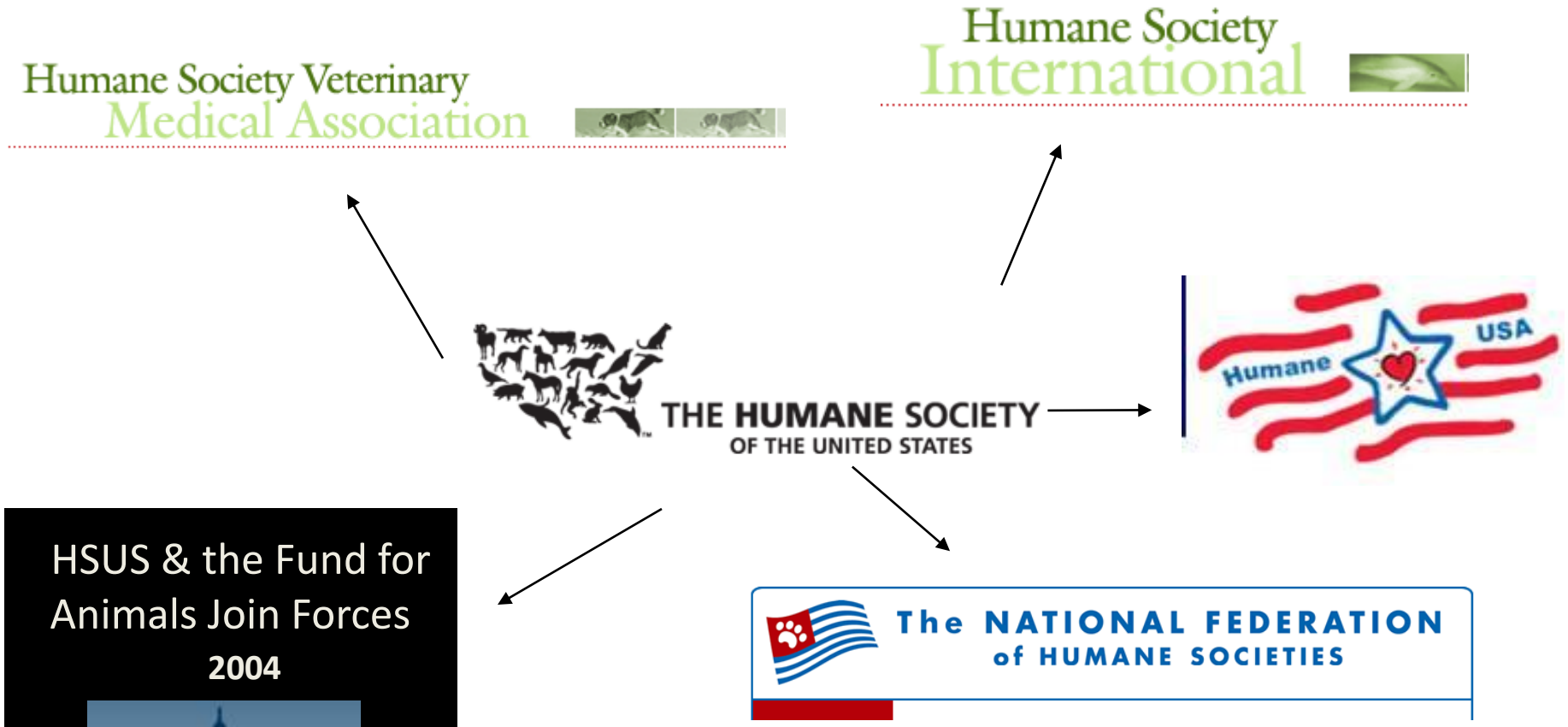
AR Activists of the ‘80s

AR Activists Today

Wayne Pacelle, HSUS President & CEO

Few are in a position to speak for the animals like Wayne Pacelle. … he leads nearly 10 million members and constituents in the mission of celebrating animals and confronting cruelty.” *HSUS website*

HSUS Strategy & Power



- Boasts 10 Million Members – 1 in 30 people in USA
- 30,000 in every congressional district
- Strategically works with other AR organizations

THE SACRAMENTO BEE sacbee.com

Humane Society chief seeks animal-rights focus in D.C.

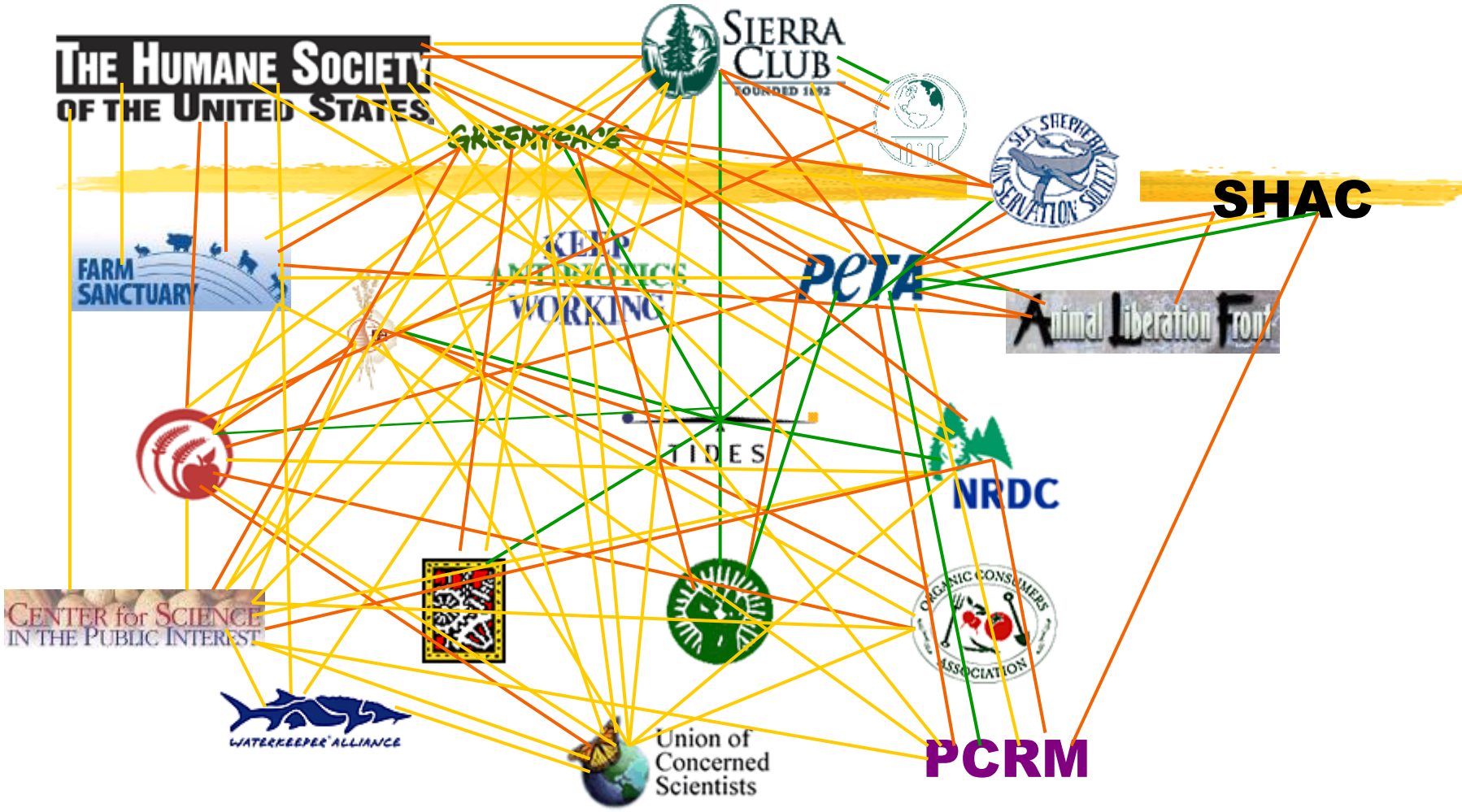
arojas@sacbee.com

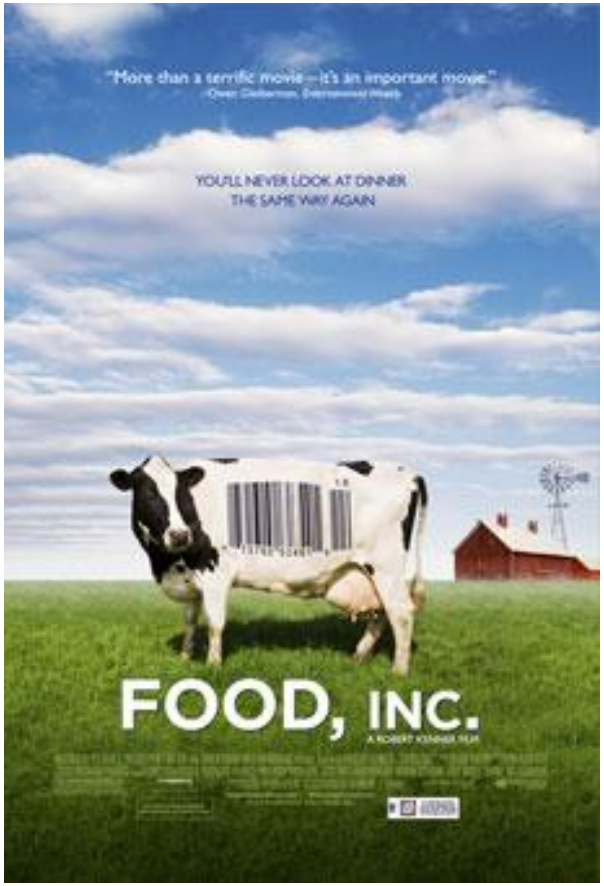
Published Friday, Nov. 28, 2008

Few political groups have been as successful in recent years at shaping state policies as the Humane Society of the United States under Wayne Pacelle.

Now that the nation's largest animal rights group has effectively banned the caging of egg-laying hens in California, it is turning its focus to Washington.

A week after voters here overwhelmingly approved Proposition 2, Pacelle called on the Humane Society's 10 million-plus members "to build on the momentum of that landmark outcome."


THE HUMANE SOCIETY OF THE UNITED STATES
SIERRA CLUB
FOUNDED 1892
GREENPEACE
SEA SHEPHERD CONSERVATION SOCIETY
SHAC
FARM SANCTUARY
KEEP ANTIBIOTICS WORKING
PETA
Animal Liberation Front
TIDES
NRDC
CENTER for SCIENCE IN THE PUBLIC INTEREST
ORGANIC CONSUMERS ASSOCIATION
WATERKEEPER ALLIANCE
Union of Concerned Scientists
PCRM



"…The industry doesn't want you to know the truth about what you're eating because if you knew, you might not want to eat it."

"The reality is, it's not a farm, it's a factory. That meat is being processed by huge multi-national corporations that have very little to do with ranchers and farmers."

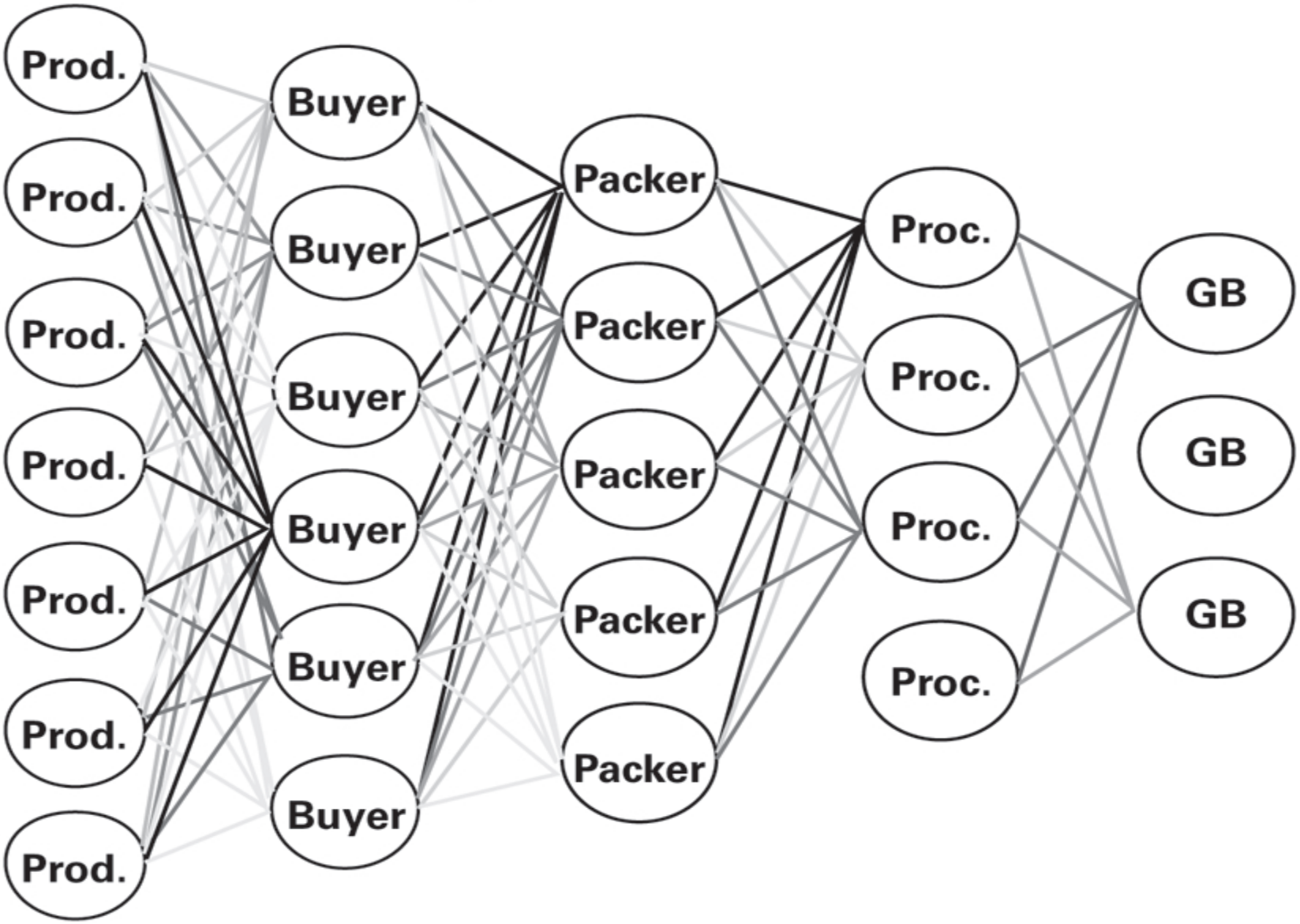
"We put faith in your government to protect us, and we're not being protected at the most basic level."

Corporate Campaigns

- *Undercover Hires "Reporting" - playing on media & public's love affair with animals*
- *Threatening Letters sent to Producers, claiming cruelty*
- *Continued push on retailers/producers for AW Guidelines;*

- *Stock Purchase - Shareholder Resolutions (Hormel, Tyson Pfizer, McDonald's, many more)*
- *Terrorism Against Ag & Food Companies*
  - *Violent acts increased in 2008 by 42% globally, 377% USA*

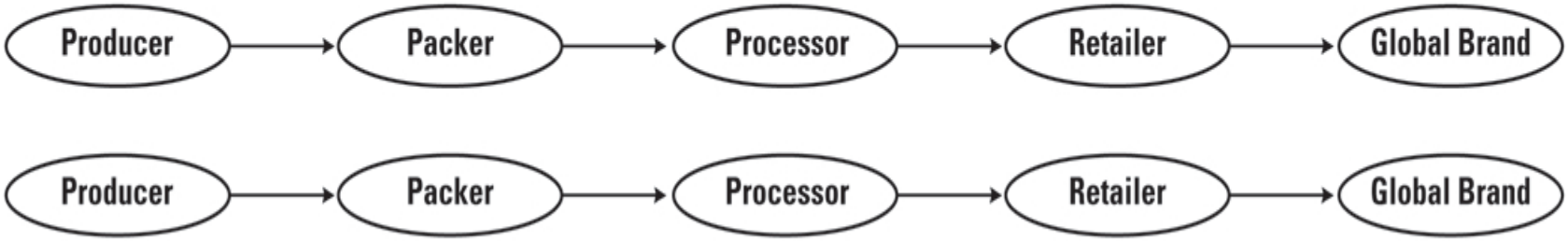
Agrarian Model

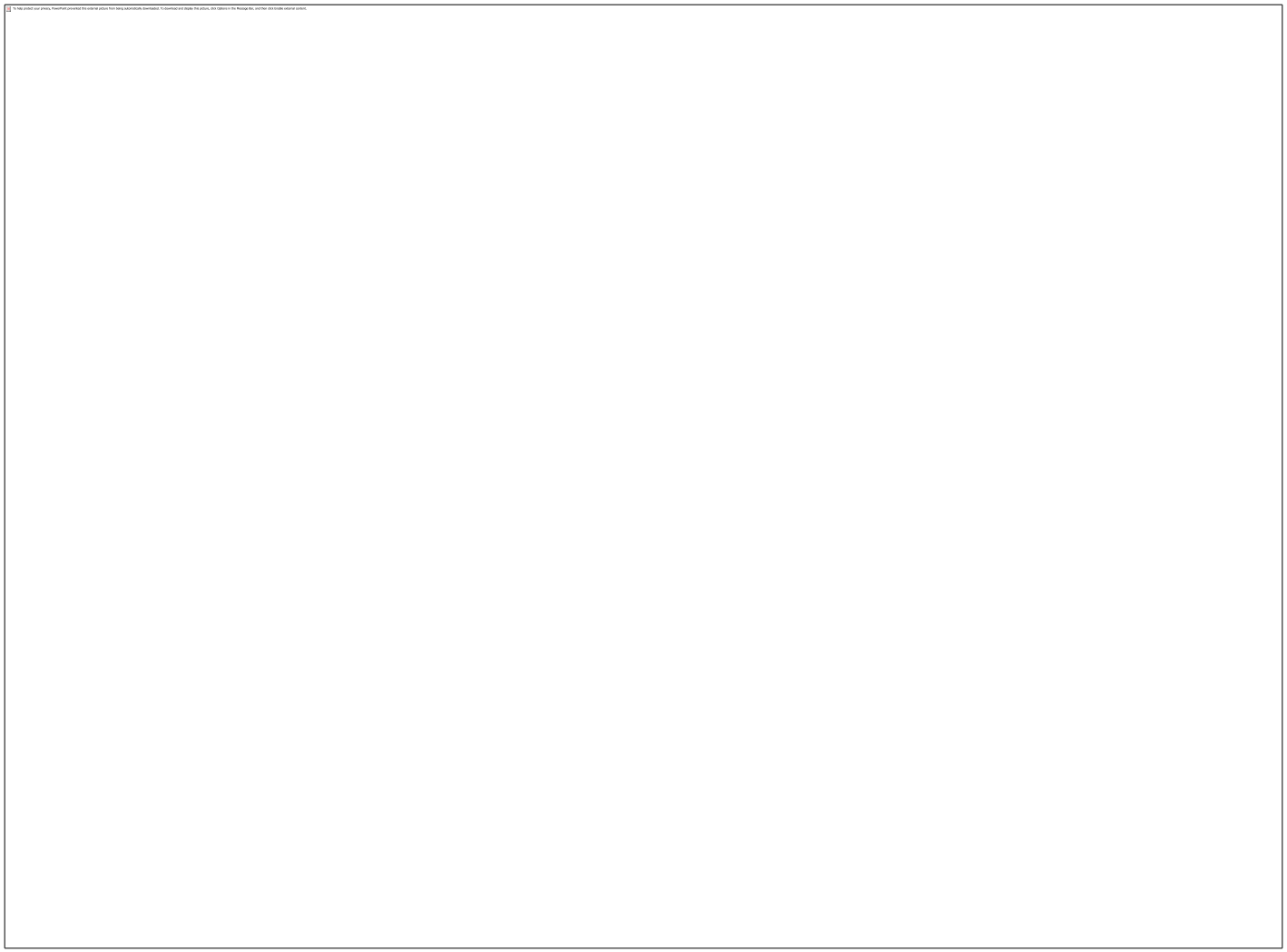


Prod. = Producer Proc. = Processor GB = Global Brand

Source: CMA Consulting

Industrial Model

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What are the Issues?

- Real Issues
  - Vegetarianism
  - Structural change in Agriculture
  - Corporate control of food supply
  - Worker exploitation
  - Fund raising
- Pseudo Issues (emotion catchers)
  - Environmental degradation
  - Animal welfare
  - Food safety
  - Public health
  - Social justice

Times have changed

- In USA today
  - Top 10 food retailers sell more than 75% of food
  - Top 10 chicken companies produce 79% of chicken
  - Top 50 dairy coops produce 79% of milk
  - Top 60 egg companies produce 85% of eggs
  - Top 20 pork producers produce >50% of pork
  - Top 10 pork packers process 87% of pork
  - Top 4 beef packers process more than 80% of beef

“Country of Iowa” Livestock Potential

36,000 sections of corn and beans in Iowa

Assuming a corn-corn-bean rotation and all fertilizer from manure (P basis)

Iowa would need 104 million hogs and 21.1 million cattle

Currently, Iowa – 26 million hogs and 1 million cattle

Currently USA – 103 million hogs and 26 million cattle

Iowa Ag Review, Fall, 2005

Environmental Issues

- Water quality
- Air quality
  - Odor
  - Dust emissions (PM2.5)
  - GHG
    - Carbon foot print (CO2)

What is a Carbon Foot Print?

- Total greenhouse gas emissions caused directly or indirectly by an industry
  - CO_2, CH_4, N_2O
- Production vs. production to consumer
- Modern production systems vs. older production systems

Primary goals of sustainable agriculture

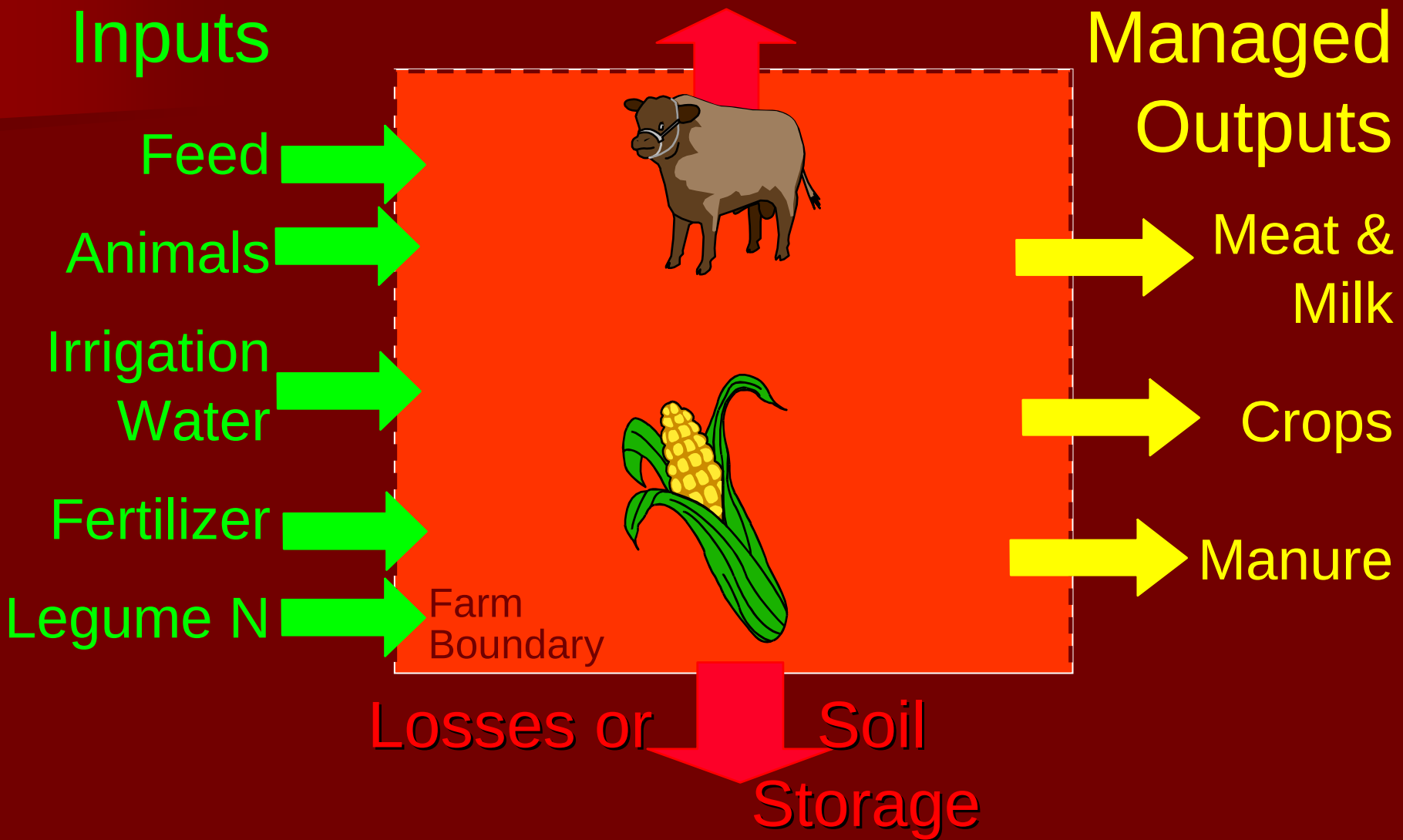
- Provide a more profitable farm income
- Promote environmental stewardship, including:
  - Protecting environmental resources and improving soil quality
  - Decreasing independence on non-renewable resources, such as fuel and synthetic fertilizers and pesticides
  - Minimize adverse impacts on safety, wildlife, water quality and other resources
- Promoting stable, prosperous farm families and communities

USDA SARE Program

Scientific Efforts Have Focused on Reducing Animal and Farm Emissions

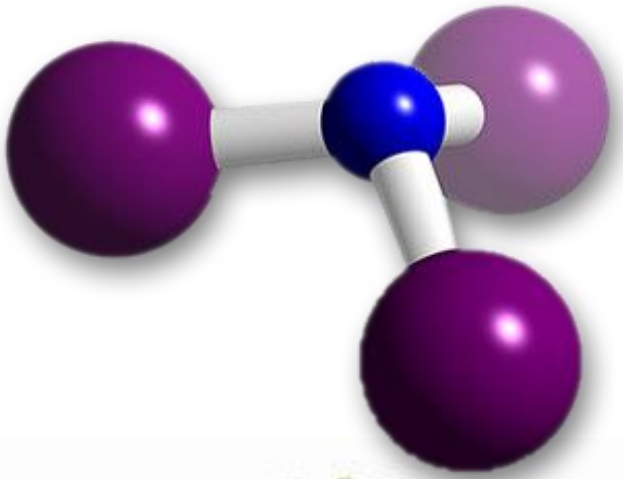
- ✓ Improve metabolic (feed) efficiency
- ✓ Improve nutrition
  - Ration balancing
  - Feeding management
- ✓ Improve cropping practices & technology
- ✓ Improve manure management
  - Storage
  - Processing
  - Application

Great Things to Do!


Inputs
Feed
Animals
Irrigation Water
Fertilizer
Legume N
Farm Boundary
Managed Outputs
Meat & Milk
Crops
Manure
Losses or Soil Storage

Sustainable Feedlot Systems

- **CAFO environmental issues**
- **Nitrogen and P problems**
- Challenges:
  - Excess N and P in many ingredients
    - Examples: corn milling and distillers co-products
  - Increased manure loads with co-products
  - Increased land requirements for manure disposal
  - Increased management
    - Diet changes – limited by infrastructure for change and limited ingredient base
    - Phase-feeding – logistical challenges in large CAFOs



Sustainable Feedlot Systems

CAFO environmental issues

Ammonia emissions

- December 2008 – Feedlots with > 1,000 animals must report ammonia and hydrogen sulfide release under EPA rules
- Problem – hydrolysis of urea in urine to ammonia
- Solutions – How can we "capture" ammonia and prevent release?

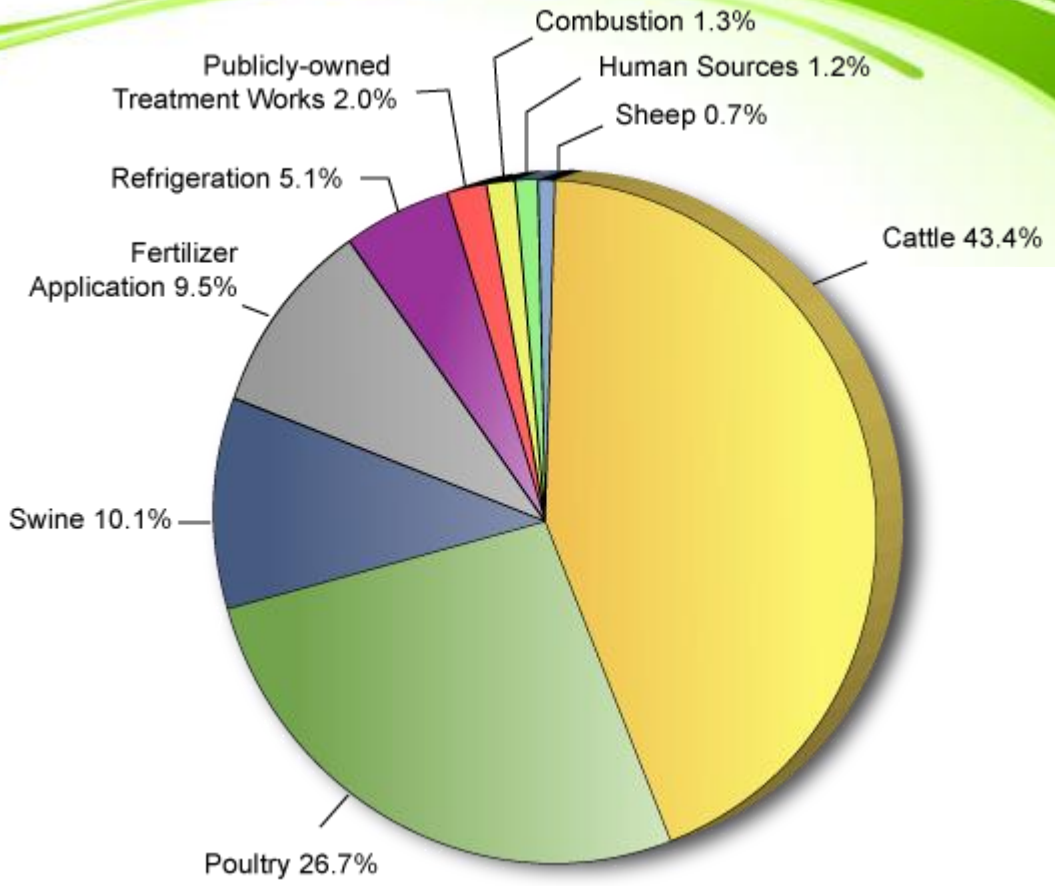


Figure 2. Estimates of ammonia emissions from man-made sources in the US in 1994 (Battye et al. 1994).

Sustainable Feedlot Systems

CAFO environmental issues

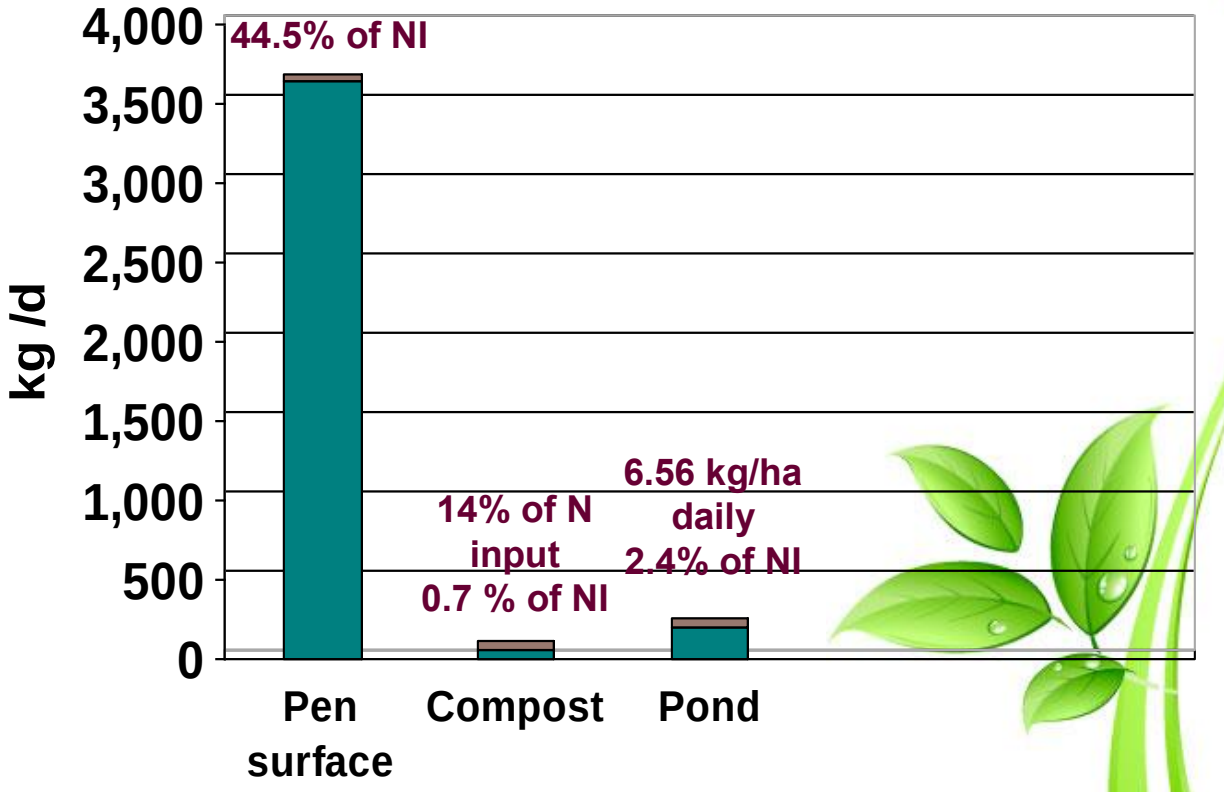
Nitrous oxide emissions

- Nitrous oxide ≈ 300 x the global warming potential of CO_2
- Dry, aerobic manure handling and spreading systems increase N_2O release
- Role of diet changes and coproduct feeds with greater manure loads and N content?

Image source:
http://www.arb.ca.gov/cc/inventory/images/sources_of_n2o.jpg

Sustainable Feedlot Systems

Feedlot NH_3 losses



Source: N. A . Cole – USDA-ARS, Bushland, TX

Sustainable Feedlot Systems

- **CAFO environmental issues**
- **Nitrogen and P problems**
- Solutions and opportunities:
  - Develop methods to increase utilization of fiber from coproducts
  - Decrease “traditional” roughage/fiber sources
  - Exogenous enzymes to increase fiber digestion
  - Pre-feeding treatment of coproducts to modify nutrient profiles – “extract” N and P
  - Develop dietary and management methods to decrease ammonia, N_2O, and H_2S emissions
  - Increased understanding of ruminal and metabolic N transactions

Sustainable Feedlot Systems

Animal welfare, food safety, and consumer concerns

- **Animal welfare issues**
- California Proposition 2 – Animal confinement rules – 67% in favor
- Increased pressure on food retailers to verify humane production practices
- Food safety – *E. coli* O157, BSE, hormones, antibiotic resistance
- Negative perceptions of CAFOs
- **Consumer concerns**
- Backlash against “factory” farming
- Growth in “whole” or “natural” foods market
- Contribution to “greenhouse” gas emissions

Pro-Actively Address Environmental Issues

- Treat manure as a resource, not a waste
  - Look for ways to conserve nitrogen
- Apply manure to land on P basis
- Look to alternative technologies when manure P exceeds crop needs
- Odor and particulate matter are big issues
  - Alternative technologies
  - Management needed

Animal Welfare Issues

- California Prop 2 – 67% in favor of banning cage laying facilities
- Increased pressure on food retailers to verify humane practices
- Food safety – antibiotic resistence, growth hormones, E.coli 0157H7
- Negative perceptions of CAFO's
- Backlash against "factory" farming

Animal Welfare

- Do the right thing
  - Think of how public perceives what they see
- Good animal care backed by science and not emotions
- Third party audits
  - Process verification
- PQA+, TQA, BQA
- Individual accountability/responsibility

PRODUCER CODE OF CATTLE CARE

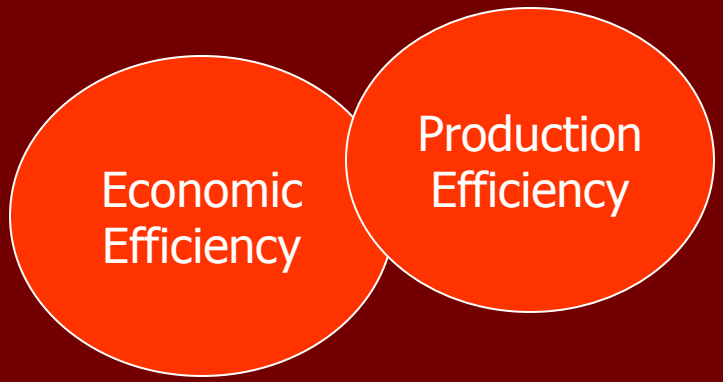
Beef cattle producers take pride in their responsibility to provide proper care to cattle. The Code of Cattle Care below lists general recommendations for care and handling of cattle:

- Provide necessary food, water and care to protect the health and well-being of animals.
- Provide disease prevention practices to protect herd health, including access to veterinary care.
- Provide facilities that allow safe, humane, and efficient movement and/or restraint of cattle.
- Use appropriate methods to humanely euthanize terminally sick or injured livestock and dispose of them properly.
- Provide personnel with training/experience to properly handle and care for cattle.
- Make timely observations of cattle to ensure basic needs are being met.
- Minimize stress when transporting cattle.
- Keep updated on advancements and changes in the industry to make decisions based upon sound production practices and consideration for animal well-being.
- Persons who willfully mistreat animals will not be tolerated.

NCBA, BQA

Complexity of Livestock Management

Complexity of Livestock Management

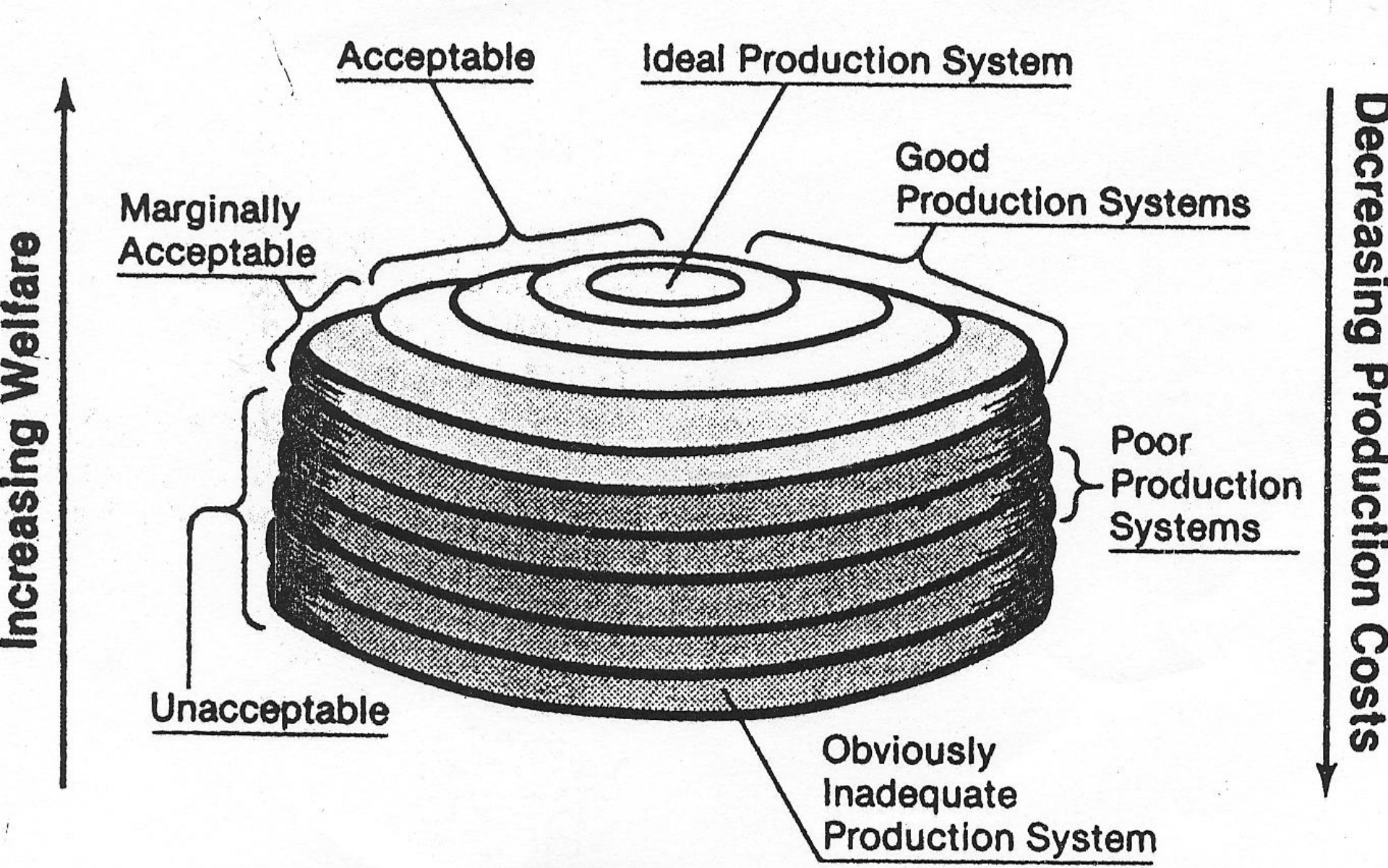


Complexity of Livestock Management

Complexity of Livestock Management

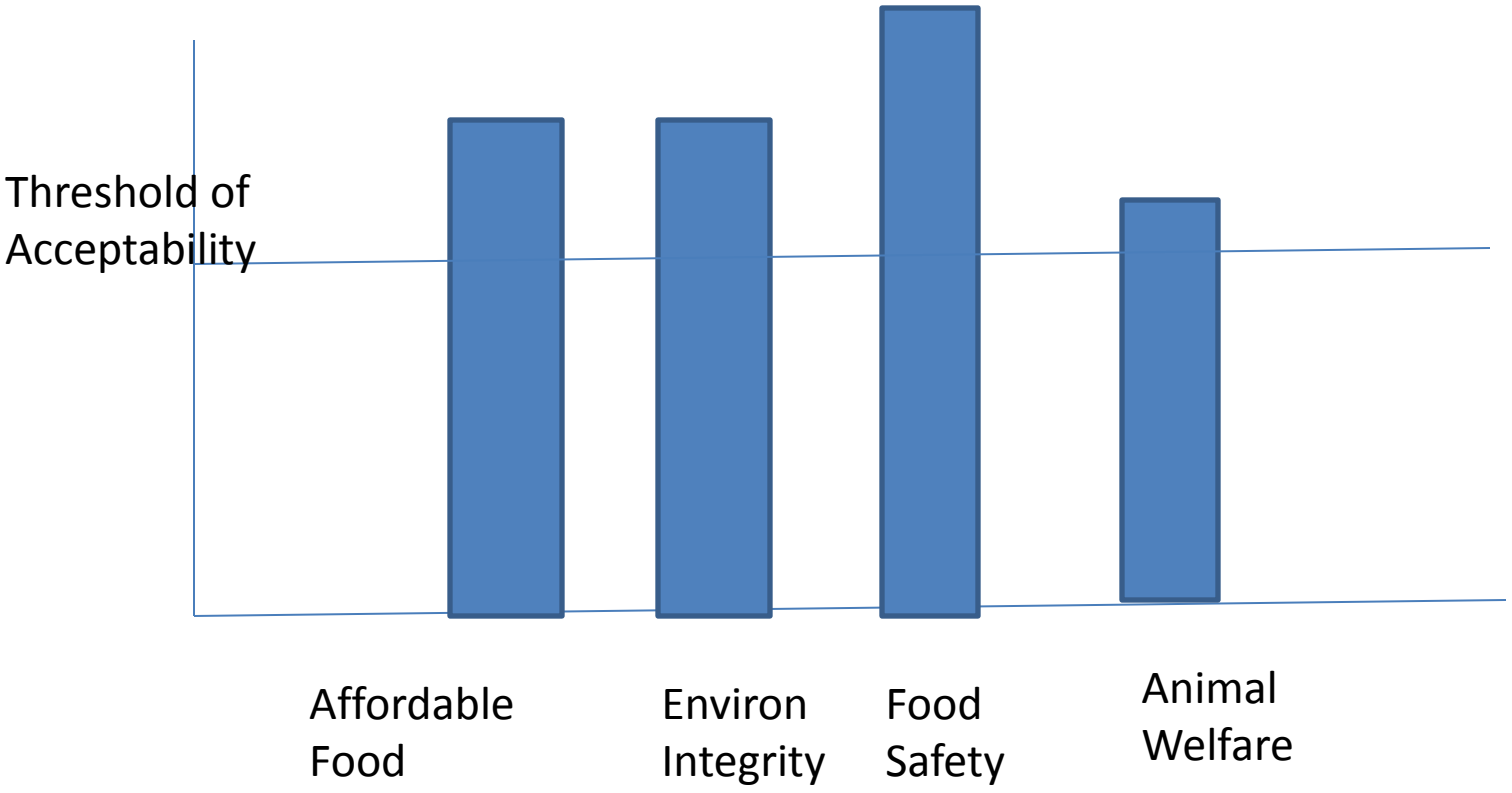
Livestock Production Systems

- There is no perfect system
- Systems should be evaluated on the basis of providing affordable food, food safety, animal welfare, environmental integrity
- These factors are often interdependent
- Issues of food safety, animal welfare and water quality are not size dependent
- Need to find the optimum system for all factors

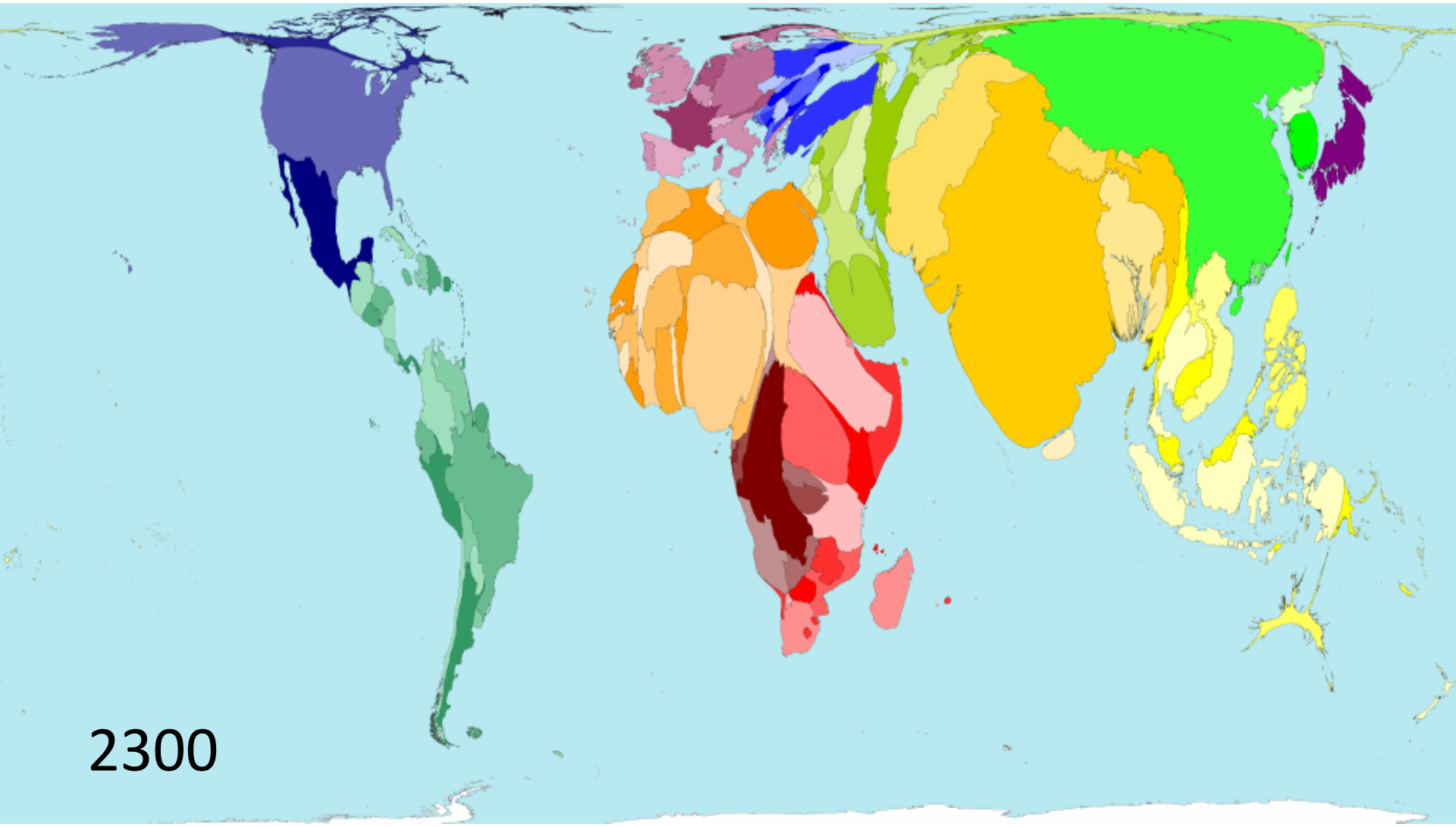


Welfare Plateau

Balancing a Livestock Production System



Where is Global Population Headed?



http://www.worldmapper.org/

What Does the Future Hold?

In 1800, one family farm could only supply food for one other family on average.

Conkin, P. (2008) '*A Revolution Down on the Farm*'

In the US today, with its highly efficient agriculture, farmers make up only 2% of our population, and each farmer can feed, on average, 125 other people.

Diamond, J. (2005) '*Collapse*'

This year, some 900 million people – including 178 million children under 5 – are suffering from malnutrition, estimates the United Nations; every day 50,000 starve to death.

Begley, S. (2008) Feeding the 900 million: Let them eat micronutrients. *Newsweek*

Acknowledgements

- Dr. Mike Galyean, Texas Tech
- NCBA
- Nancy Degner, Iowa Beef Industry Council