

Animal Agriculture and One Health

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PACCARB

Presidential Advisory Council on Combating Antibiotic-Resistant Bacteria

One health concepts in the US swine industry

The One Health Triad



- Large industry
 - 548,000 U.S. jobs, \$24 billion in sales
 - 2016 pig population \approx 1920 population
- Enormous change over last 30 years
 - Structure and operations
- Change driven by multiple factors
 - Economics and efficiency
 - Animal health and productivity
 - Availability and use of antibiotics incidental

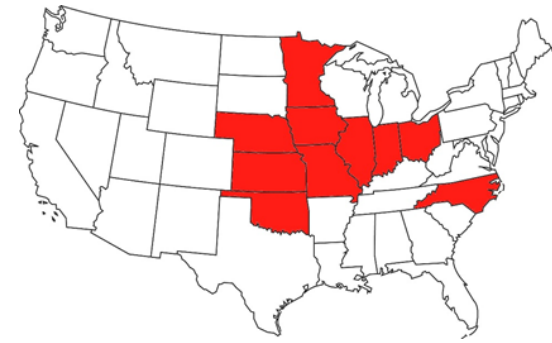
Measurable advances in pork safety

The One Health Triad



- *Taenia solium*
 - Most important pork-borne zoonosis globally
 - Excluded from modern pork industries
- *Trichinella spiralis, Toxoplasma gondii*
 - Now negligible/minimal risk in confined pigs
 - Residual risk in animals with outdoor access
- Contamination with enteric pathogens
 - Marked reduction since 1996 HACCP/PRA rules
 - Reductions in *Yersinia, Campylobacter, Listeria* incidence

Violative antibiotic residues in market swine



- 1978:
 - 5.6% for antibiotics
 - 9.7% for sulfonamides
- 2014
 - No violative residues in 774 scheduled samples
 - 16 (0.09%) violative residues in 17,720 ‘inspector generated’ samples
- PQA, producer education, industry maturity

Animal Health

The One Health Triad



- Many changes in industry motivated to improve pig health
 - Minimize mixing of pigs of different ages/sources
 - “All-in/All-out” management of barns/sites
 - Multiple site production
 - Hygiene and vaccination
- Changed disease profile of industry
 - Particularly bacterial diseases
- Antibiotics still necessary for animal health in the best managed farms

Challenges

- Environmental management
- Animal welfare
- Emerging diseases
 - Viruses
 - Antibiotic resistant bacteria
- Industry image and misinformation

