2018 Agricultural Outlook Forum
“The Roots of Prosperity”

The Partnership between Land Grant Universities and NIFA Assists the Livestock Industry

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Economic Importance of Reproductive Performance

For most types of livestock enterprises, reproductive performance traits are the most important determinant of profitability:

- **Beef cow-calf** – number of calves weaned
- **Sow farrowing** – number of baby pigs weaned per farrowing crate per year
Challenges in Animal Reproduction

- Beef – calf crop weaned
- Dairy – declining fertility of cows, heat stress
- Swine – seasonal infertility, sow longevity, age at puberty
- Meat type chickens – broiler breeder infertility
- Turkeys – photorefractoriness
- Sheep – out of season breeding, lamb crop weaned
NIFA Funding for Animal Reproduction 2000 to 2016 – by Funding Mechanism
NIFA Funding for Animal Reproduction – by Subject of Investigation

Dollars, millions

Subject of Investigation

Aquatic  Beef  Dairy  Poultry  Sheep  Swine  Other  Misc.
Competitive Grant Funding

- AFRI Animal Reproduction Program
- AFRI Translational Genomics of Improved Fertility of Animals Program
- AFRI Predoctoral, Postdoctoral and Undergraduate Fellowships Programs
- National Needs Graduate and Postgraduate Fellowship Grants Program
- 1890s Capacity Building Research Program
Capacity Funding

• Hatch Research – 1862 LGUs
  ♦ Individual projects at State Agricultural Experiment Stations
  ♦ Hatch Multistate Research Projects - Foster collaboration among researchers at State Agricultural Experiment Stations

• Evans Allen Research – 1890 LGUs

• Smith-Lever Formula for Extension
Hatch Multistate Research Projects

- Reproductive performance in domestic ruminants
- Germ cell and embryo development and manipulation for the improvement of livestock
- Methods to increase reproductive efficiency in cattle
- Swine reproductive physiology
- Ovarian influences on reproductive success in ruminants
Success Stories

Discovery of follicular waves in cattle led to:

• understanding that follicular development during the estrous cycle is complex

• fertility varies during follicular development

• follicular development must be managed for optimal fertility in estrous synchronization and timed artificial insemination programs
Timed Artificial Insemination of Beef Cattle
Discovery of Lactocrine Signaling in Pigs
Assessing Fertility of Roosters
Recognition of Outstanding Trainees
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