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Agriculture

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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

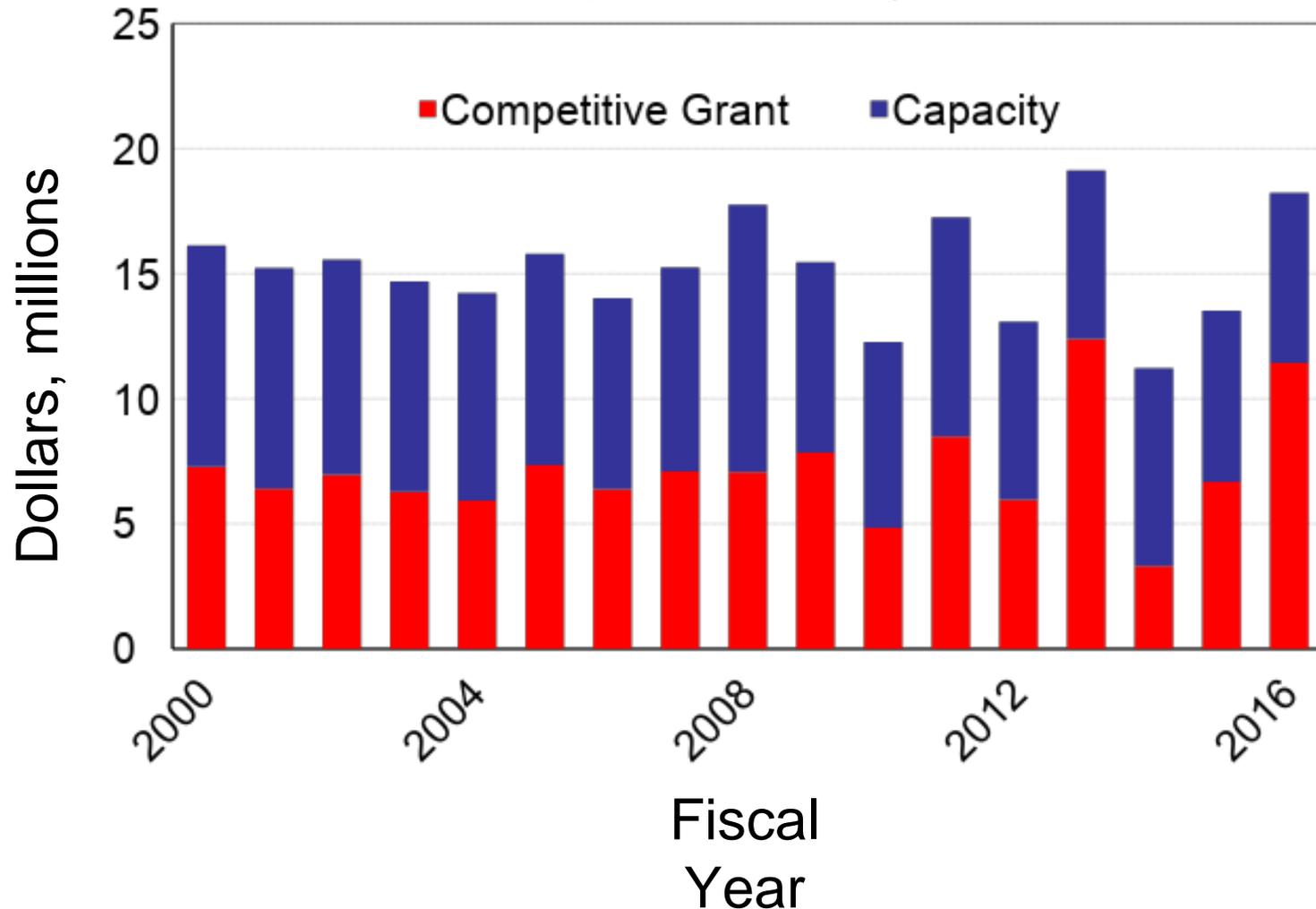


Challenges in Animal Reproduction

- 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

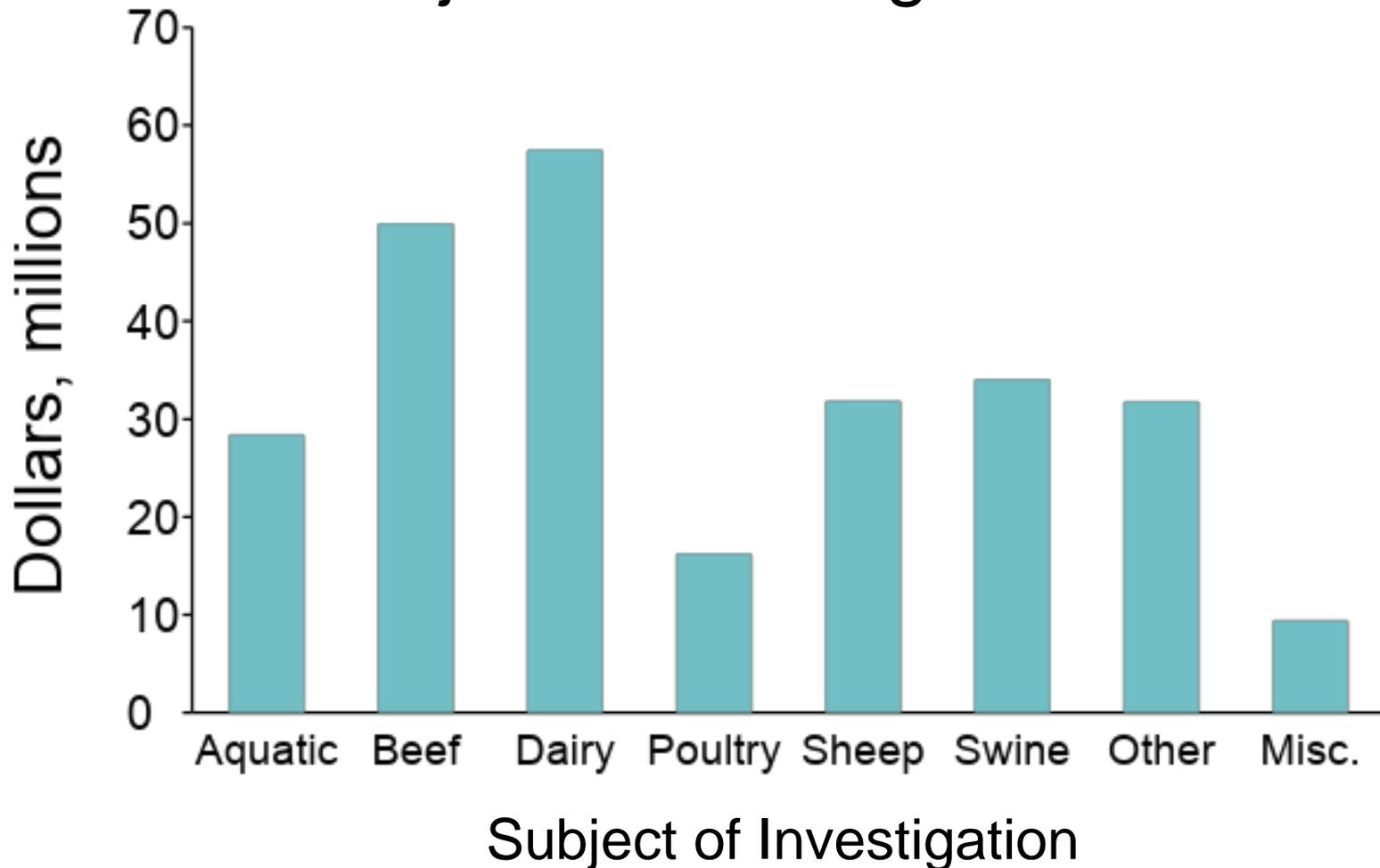


NIFA Funding for Animal Reproduction 2000 to 2016 – by Funding Mechanism





NIFA Funding for Animal Reproduction – by Subject of Investigation





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



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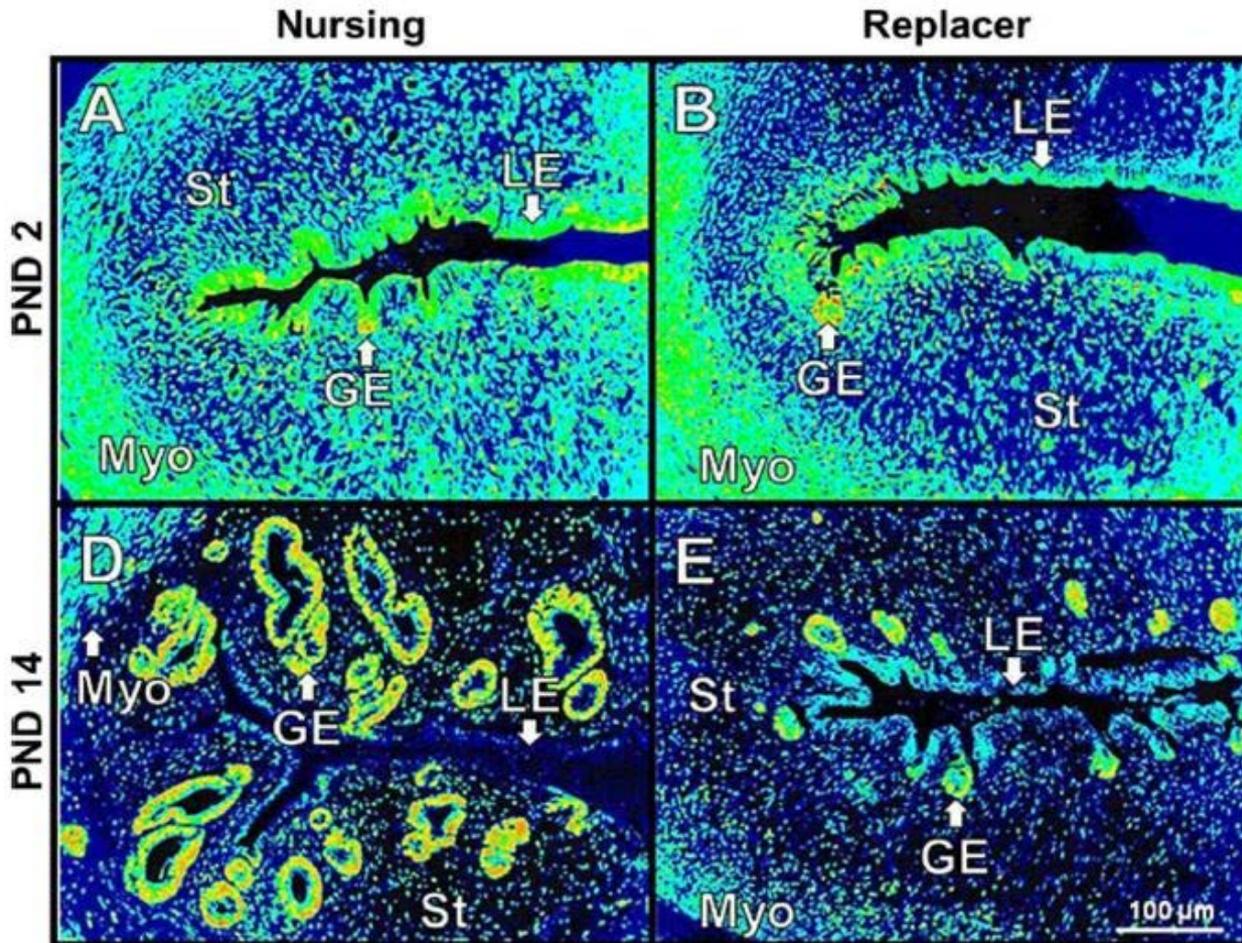
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Timed Artificial Insemination of Beef Cattle



Discovery of Lactocrine Signaling in Pigs





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Assessing Fertility of Roosters





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