AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

2018 Agricultural Outlook Forum "The Roots of Prosperity"

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

Mark Mirando, National Program Leader,
AFRI Science Coordinator,

National Institute of Food and Agriculture

Economic Importance of Reproductive Performance

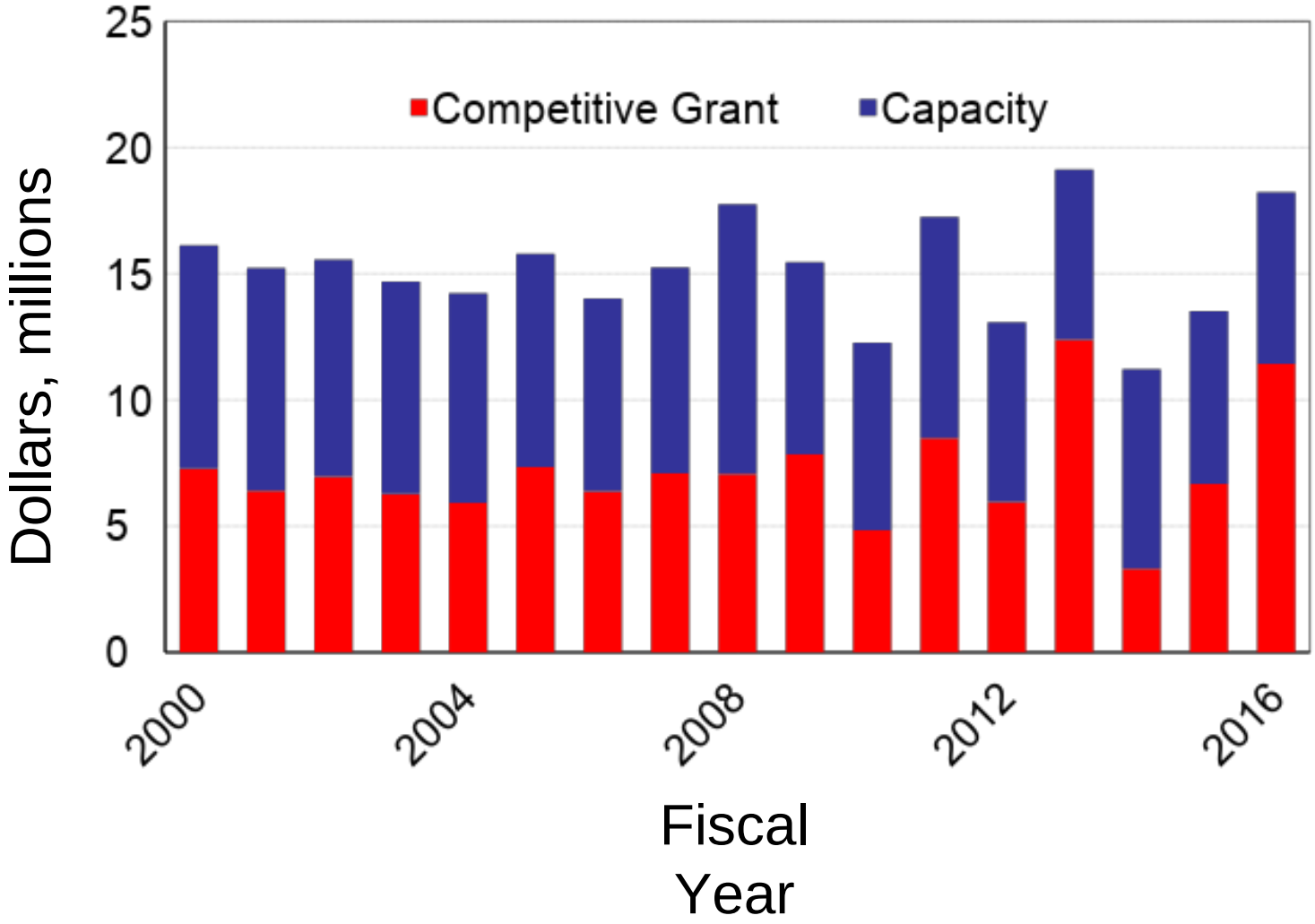
For most types of livestock enterprises, reproductive performance traits are the most important determinant of profitability

- 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

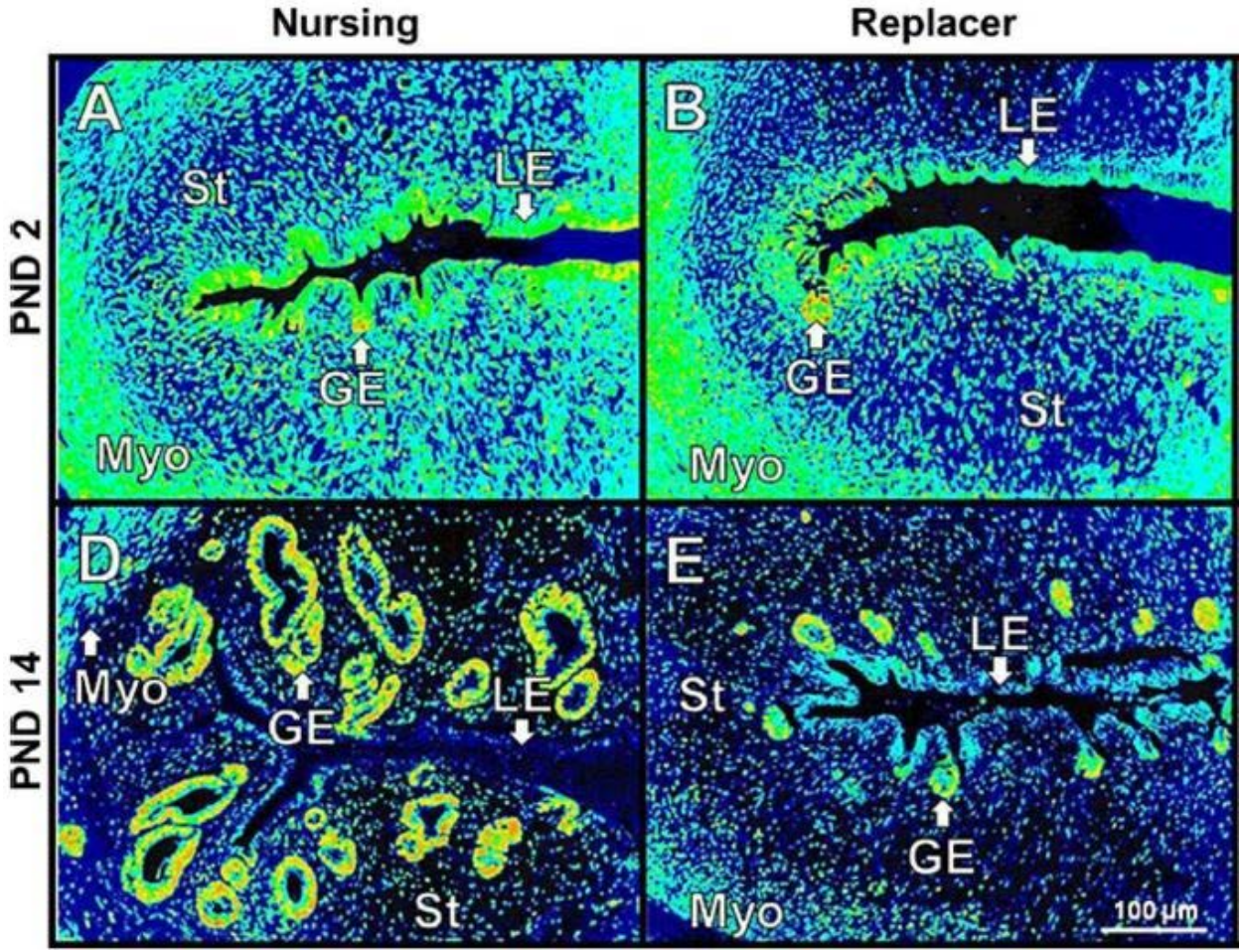
Success Stories

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

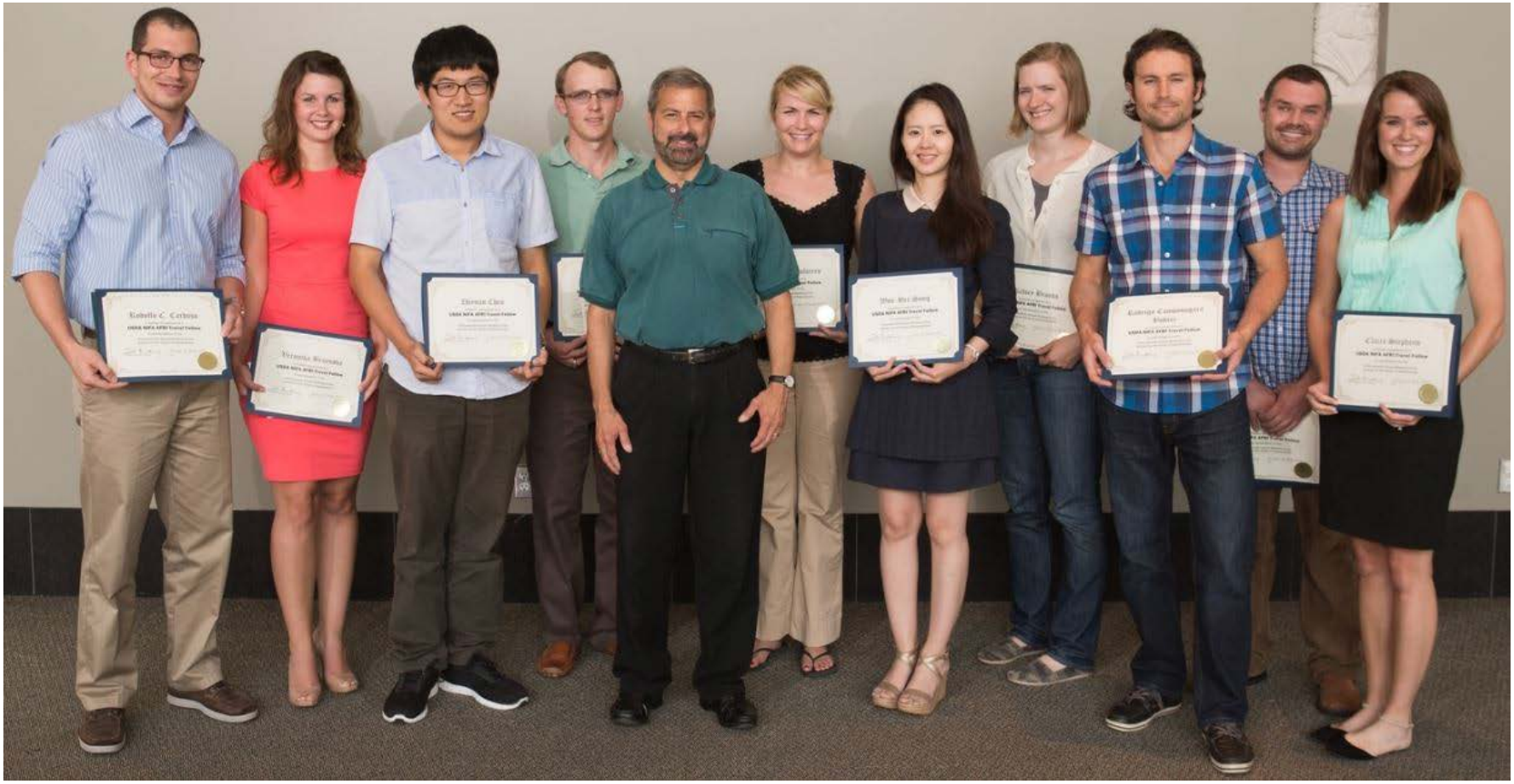
Timed Artificial Insemination of Beef Cattle

Discovery of Lactocrine Signaling in Pigs



Assessing Fertility of Roosters

Recognition of Outstanding Trainees



Partnership Between Land Grant Universities and NIFA Assists the Livestock Industry

- 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, lambs weaned

Mark A. Mirando, Ph.D.
National Program Leader,
AFRI Science Coordinator

mmirando@nifa.usda.gov