# Overview of ARS Research

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# Research Components/Priorities - NP101

- Genetics and genomics
  - Functional genomics – genotype to phenotype & GEM
  - Genomics as a tool for basic research
- Nutrition – nutritional efficiency
  - Basic physiology
  - Forage/feed efficiency
- Reproductive efficiency
- Animal well-being/adaptation
- Product quality, consistency and healthfulness

# Forage Animal Production Research Locations

- US Meat Animal Research Center, Clay Center, NE
- US Dairy Forage Research Center, Madison, WI
- Livestock and Range Research Lab, Miles City, MT
- US Sheep Experiment Station, Dubois, ID
- Grazinglands Research Lab, El Reno, OK
- Forage Animal Production Research Unit, Lexington, KY

# Areas of Increasing Priority

- Nutritional Efficiency
  - Improved Forage Use Efficiencies
  - Improved energy use
  - Reducing emissions and nutrient loss
  - Reducing costs and increasing feed use efficiencies
  - Metagenomics in ruminants and monogastrics

# Research Components/Priorities – NP215

## NP 215: Pastures, Forages & Rangeland Systems

- Rangeland Ecology
  - Fire/annual-weed cycle and resource effects
  - Water quantity and quality
  - Vegetation and soil resources
  - Forage production and wildlife habitat
  - Animal production systems
  - Landscape scale restoration
    - Invasive annuals and junipers
    - Mine reclamation
  - Environmental resiliency and adaptation to drought and climate change

# Research Components/Priorities – NP215

- Bio-Energy, Turf and Forage Grasses
  - Germplasm enhancement
  - Yield, persistency and adaptability
  - Water-use efficiency
  - Salt tolerance
  - Water quality - environmental issues
  - Pest management
  - Soils health and ecology
  - Integrated turf systems, including economic analyses

# Research Components/Priorities – NP215

- Alfalfa
  - Germplasm enhancement
    - Yield, persistence
    - Water use efficiency
    - Salt tolerance
    - Disease/drought tolerance
    - Improved ruminant utilization
  - Innovations in harvesting, processing & new products
  - Environmental services
    - Soils health and ecology
    - Nitrogen fixation
    - Nutrient recovery
    - Carbon sequestration

# Major Research Locations – NP215

- Beltsville Area Research Center, Beltsville, M
- US Dairy Forage Research Center, Madison, W
- Livestock and Range Research Lab, Miles City
- US Sheep Experiment Station, Dubois, ID
- Grazinglands Research Lab, El Reno, OK
- Forage Animal Production Research Unit, Lexington, KY
- Jornada Range Research Center, Las Cruces, NM
- Rangeland Resources Research Unit, Cheyenne, WY
- Range and Meadow Forage Research Unit, Burns, OR
- Northwest Watershed Research Unit, Boise, ID
- Forage and Range Research Unit, Logan, UT
- Poisonous Plant Research Unit, Logan, UT
- Dale Bumpers Small Farms Research Center, Booneville, AR

# Current Research Budgets

- NP101 Food Animal Production
  - 84 scientists at 11 locations
  - FY2013 gross funding = $47 million
- NP215 Pastures, Forages and Rangeland Systems
  - 99 scientists at 23 locations
  - FY2013 gross funding = 42 million
- FY2014 ARS Budget – Increase of $105 million