Dairy Education At K-State

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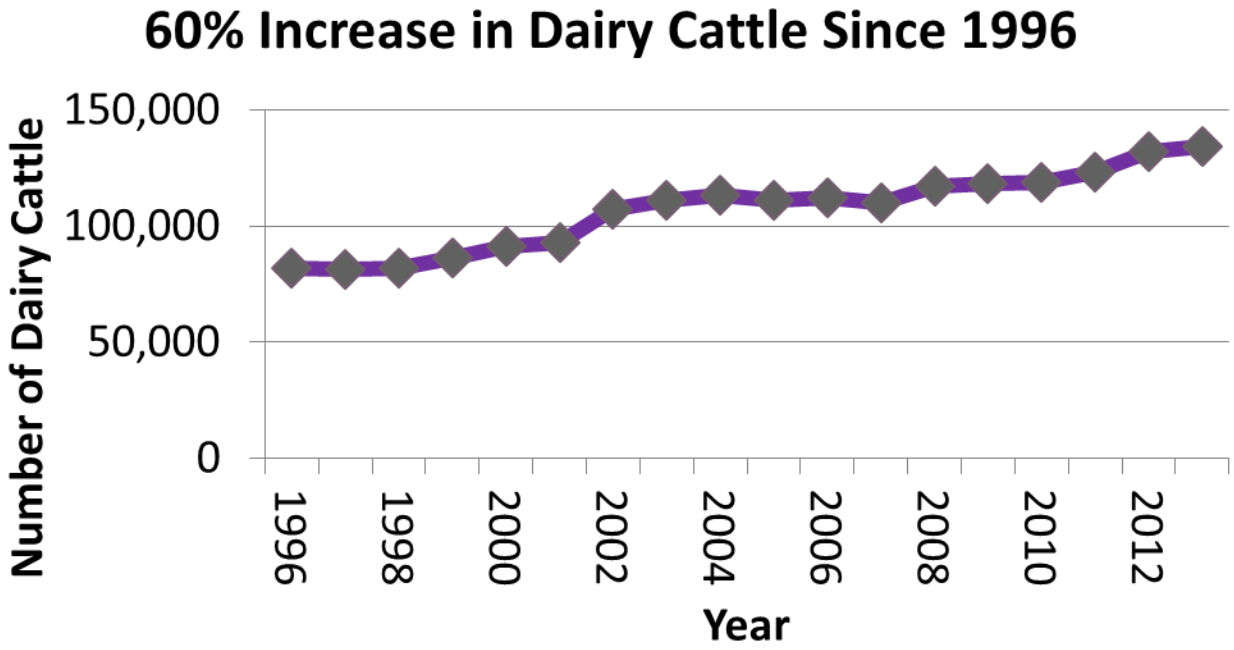
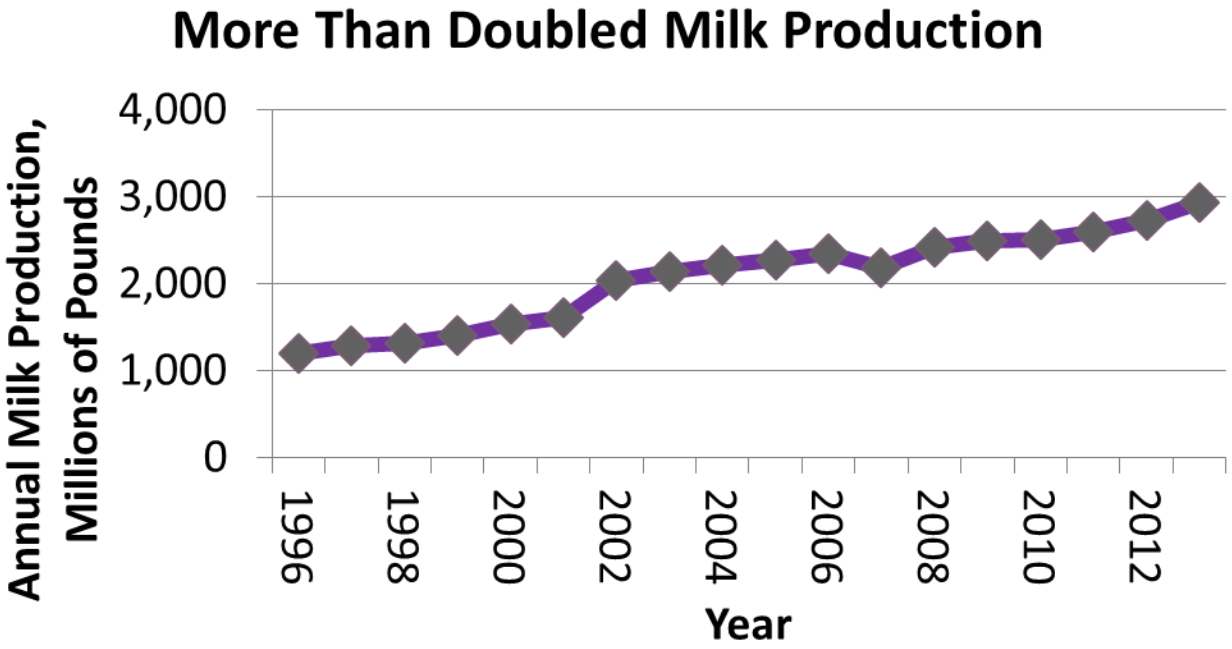
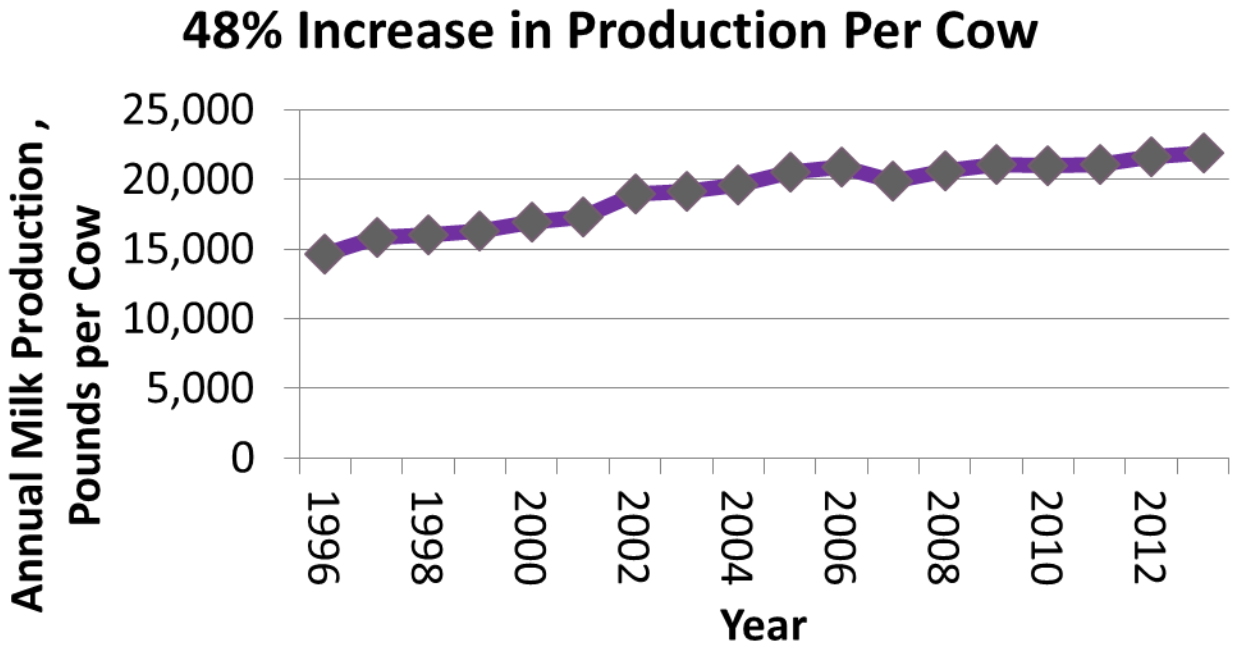
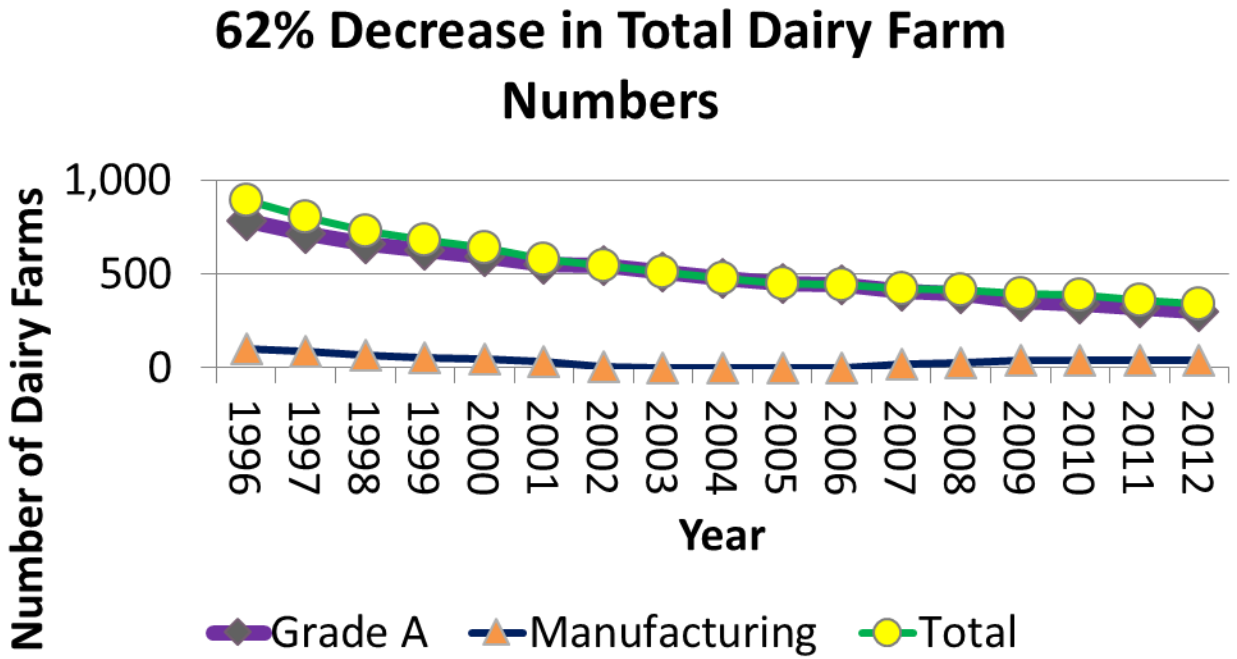
Kansas: Dairy Industry Trends – Production



Data Source: NASS Quick Stats

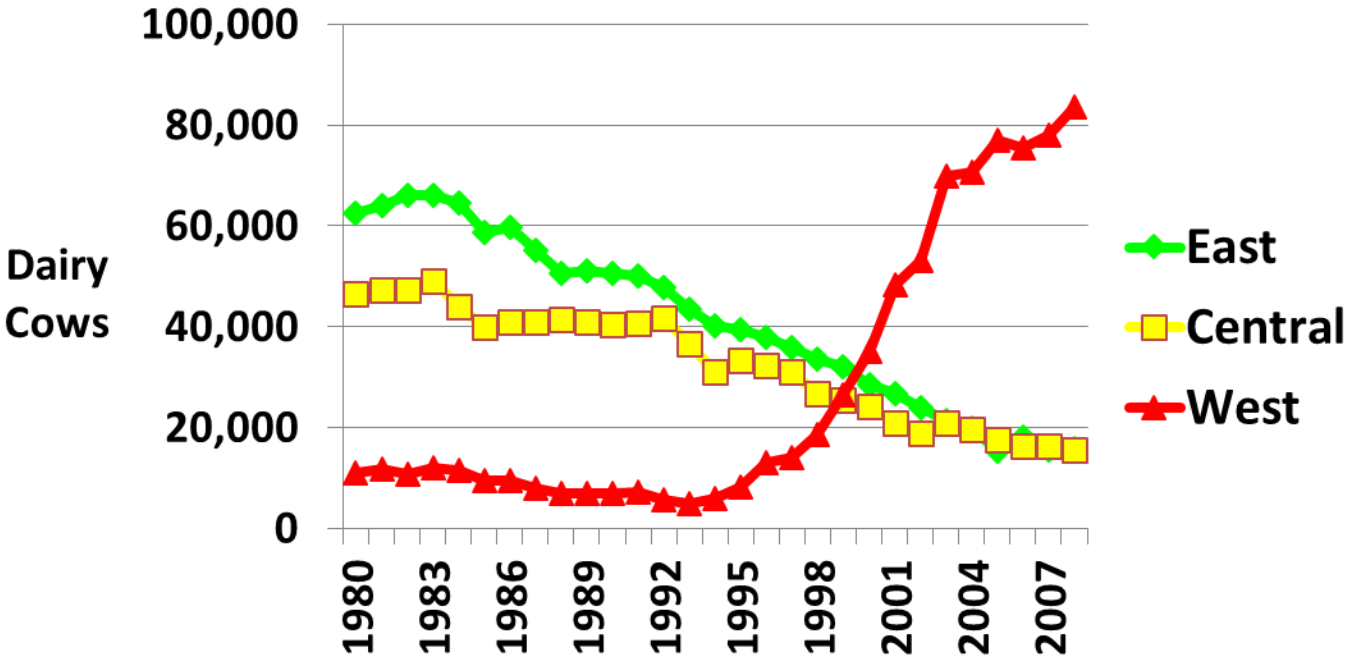

More Than Doubled Milk Production
Annual Milk Production, Millions of Pounds
4,000
3,000
2,000
1,000
0
1996
1998
2000
2002
2004
2006
2008
2010
2012
Year


48% Increase in Production Per Cow
Annual Milk Production , Pounds per Cow
25,000
20,000
15,000
10,000
5,000
0
1996
1998
2000
2002
2004
2006
2008
2010
2012
Year



Data Source: Kansas Department of Agriculture

Changes in the Location of Dairy Cattle Within Kansas



Compiled from: NASS Quick Stats

- **Kansas Dairy Farms by County - 2013**

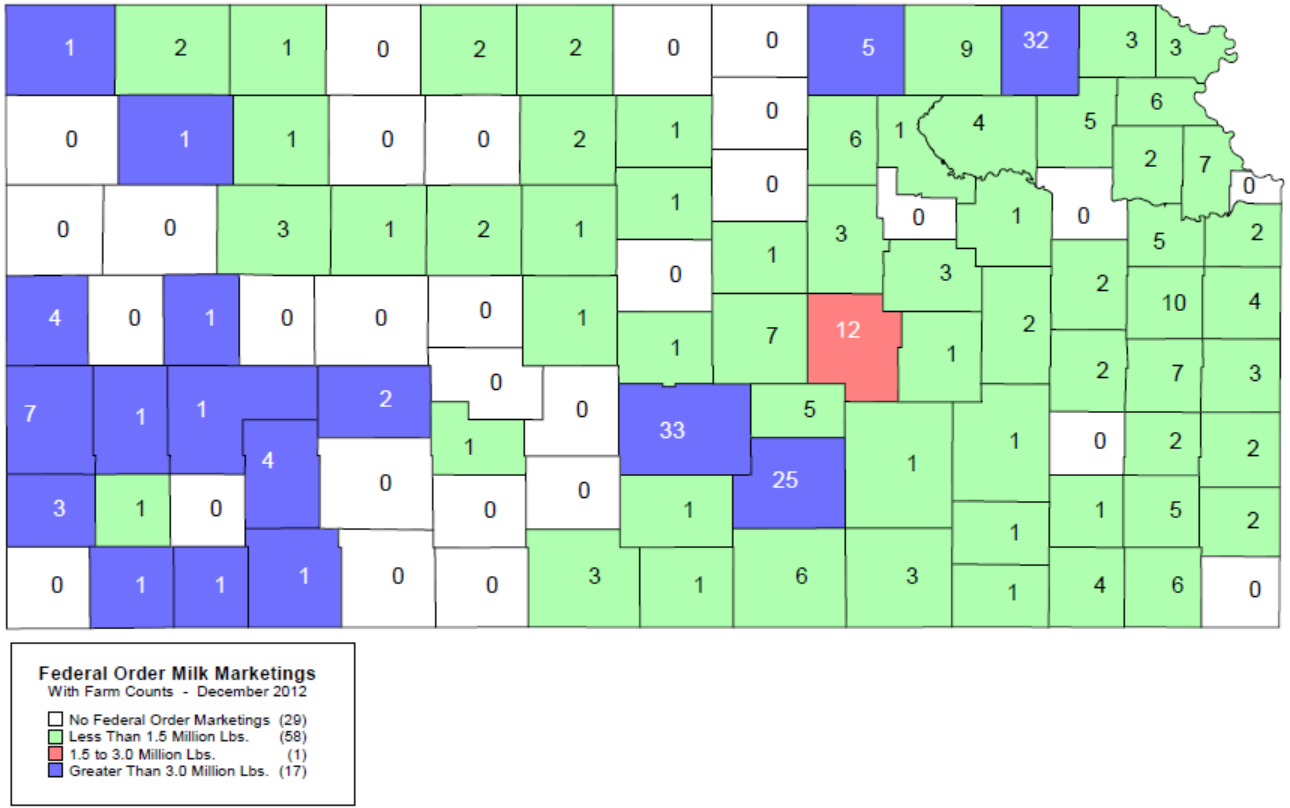
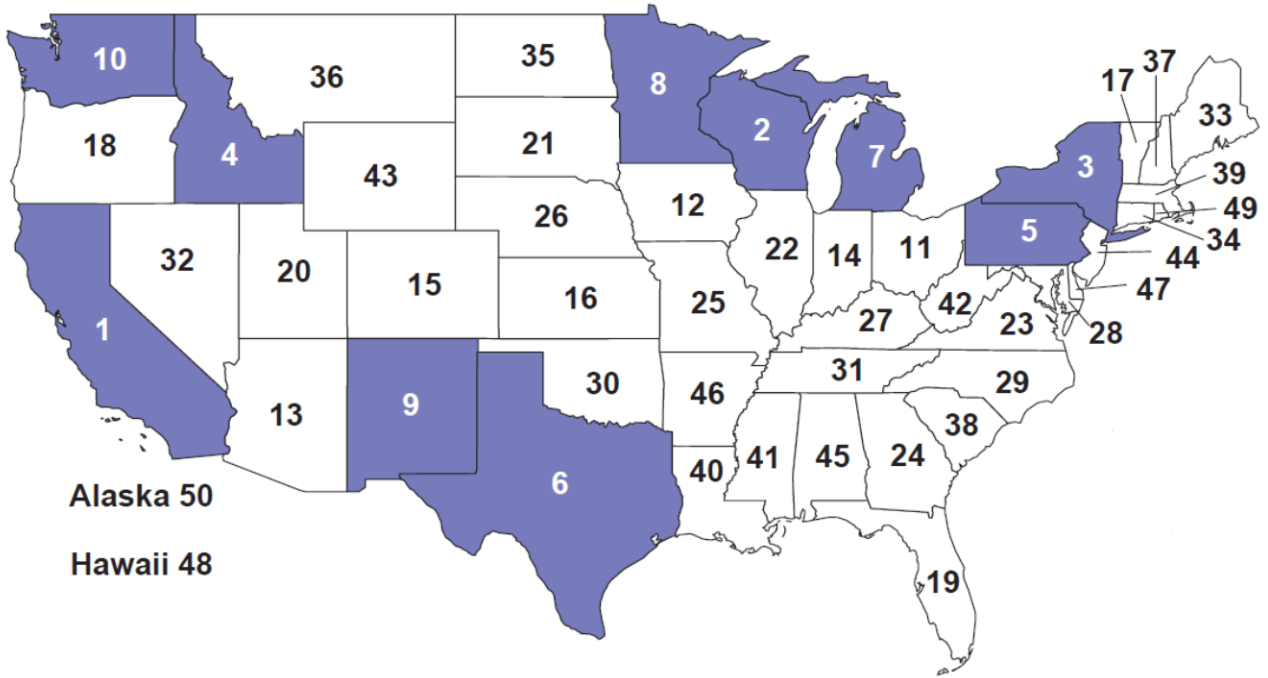


Chart courtesy of Federal Milk Market Administrator, Central Order 32.

2013 Milk Production Ranking
Top Ten States Highlighted



Source: Federal Milk Market Administrator – Central Order

KANSAS STATE UNIVERSITY- THE FACULTY

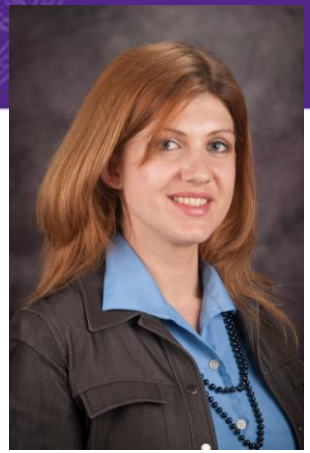
Dr. Barry Bradford

- Research & Teaching
  - ASI 318: Fundamentals of Nutrition (co)
  - ASI 601: Physiology of Lactation (co)
- Research: Ruminant nutrition and animal health
- Graduate (5-7) and undergraduates students

Dr. Micheal Brouk

- Extension & Teaching
  - ASI 621: Dairy Cattle Management
  - ASI 681: Dairy Cattle Forages
- Extension: Heat stress abatement, ruminant nutrition and facilities/robotics
- Graduate (1-2) and undergraduates students
- Team: Dairy Challenge Team

Dr. Lindsey Hulbert



- Research & Teaching
  - ASI 595: Contemporary Issues in Animal Sciences
  - ASI 655: Behavior of Domesticated Animals
- Research: Calf health and immune system; Probiotics to calves; Milk replacer to calves and Suckling development
- Post-doc, graduate (1) and undergraduate (6) students

Dr. Luiz Mendonca

- Extension & Research
- 40% of the state's cows (west and northeast)
- Extension: Educate owners, through managers, to frontline workers, with emphasis on "WHY" to improve performance and understand

Dr. Mendonca – cont.

- Research: Reproductive performance, heat stress
- Collaborations with Drs. Stevenson, Hulbert, & Bradford
- Graduate & undergraduate students research projects
- Global research interests – Uganda, Brazil, etc.
- I-phone app that focuses on cow environment to drive improvement

Dr. Jeffrey Stevenson

- Research & Teaching
  - ASI 106: Dairy and Poultry Lab (~250 students)
  - ASI 832: Ovarian Physiology
- Research: Monitor activity to predict ovulation in cows – manipulate progesterone before breeding
- Graduate (2) and undergraduate (1) students

Dr. Stevenson - cont.

- Faculty Coordinator: Dairy Research and Teaching Facility and KABSU
  - Milk 260 cows/day
  - ~20 students workers/semester
- Monthly column for Hoard's Dairyman

Dr. Jayendra Amamcharla

- Research & Teaching
  - FDSCI 740 Research and Development
  - FDSCI 728 Physical Methods of Food Analysis
- Research: Magnetic treated fluids & biofilm eradication
- Graduate (3) and undergraduate (5) students
- Product Development Teams (National Dairy Council & Research Chef Council)

Dr. Jayendra – cont.

- Faculty Coordinator: Dairy Plant & Bar
- Utilize ~87,000 gal of raw milk
- Main client: K-State Dining and Housing
- Products:
  - Milk, American-style cheeses, Ice cream
  - ~80% into milk, 13% cheese, and rest ice cream mix
  - ~17,000 gallons of ice cream (46 flavors)/year

Dr. Karen Schmidt

- Teaching & Research
  - ASI 405: Fundamentals of Milk Processing (~12)
  - ASI 608: Dairy Foods Technology (~12 to 15)
  - FDSCI 430: Food Product Evaluation (~12)
  - FDSCI 695: Quality Assurance of Food Products (~60)
- Research: Quality of Dairy Foods

Dr. Schmidt – cont.

- Graduate (4) & occasionally undergraduate students
- Coach? Dairy Products Evaluation Team (1993 – 2000, then 2012)

DAIRY PROCESSING (OR RELATED) CLASSES

Fundamentals of Milk Processing

- Milk processing from “farm” to consumer
- Regulations, best practices, testing, and “science” of best practices
- 2 h lecture & 3 h lab/wk
- ~10 to 12 undergraduate students (Animal Sciences, Agricultural Economics, Agricultural Communications & Food Science)

Fund. Milk Processing – cont.

- Do: milk pick-up, raw and processed milk quality testing, Heart of America DHIA, chocolate milk processing, cleaning and sanitation, etc.
- Classes: regulations and science of the process, test, procedure, etc.
- Features: Guest Experts, “in the dairy plant”, tours

Dairy Products: Technology & Processing

- Dairy foods and dairy-based ingredients
- 30% cheese, cultured, processed cheese and then the rest devoted to butter, ice cream and dairy-based ingredients
- 2 h lecture & 3 h lab/wk
- ~10 to 12 undergraduate and graduate students (ASI & FDSCI)

Dairy Products: - cont.

- Do: make Colby/Cheddar cheese, ice cream (own flavor), processed cheese, and yogurts, etc.
- Classes: theory of manufacture and identification of quality characteristics (or standards)
- Features: cheese Smörgåsbord, “see when making”, student projects, etc.

Food Product Evaluation

- Six dairy foods and other foods
- 50% cheese, cultured, butter, ice cream, and milk
- 2 h lecture & 2 h lab/wk
- ~10 to 12 undergraduate students (Animal Sciences, Agricultural Education, Ag Communication, Ag Business and Food Science)
- Former Dairy Products Evaluation Class

Food Product: - cont.

- Do: basic sensory tests, evaluated market dairy foods, learn the score cards
- Classes: basic manufacture and quality parameters (sensory)
- Features: Red meats, poultry, cheese Smörgåsbord, student projects, etc.

Overall

- 20 years +
- Total: ~400 students (predominately undergraduate)
- Not a solo effort
  - Dairy Bar and Plant Staff, Fellow Faculty Members, Graduate Teaching Assistants
  - Teams: Recognize the Dairy and Allied Industries (both financial, “teaching”, and samples

Class Thank You's

- Dale Niedfelt, Renee Westgate, Bob, Jim DeLisle, Jared Parsons, Mike, Sri Adapa, Lori McVay, Mike Scheffel, etc.
- Drs. Kropf, Houser, Beyer, Aramouni, Herald, Phebus, etc.
- Mr. Adapa, Dingeldein, Landge, & Michael
- Ms. Bala, Bock, Chen, Francis, Freyermoth, Golde, Kim, Menard, Thangpong, Webb, Wilder, & Wei

Questions?