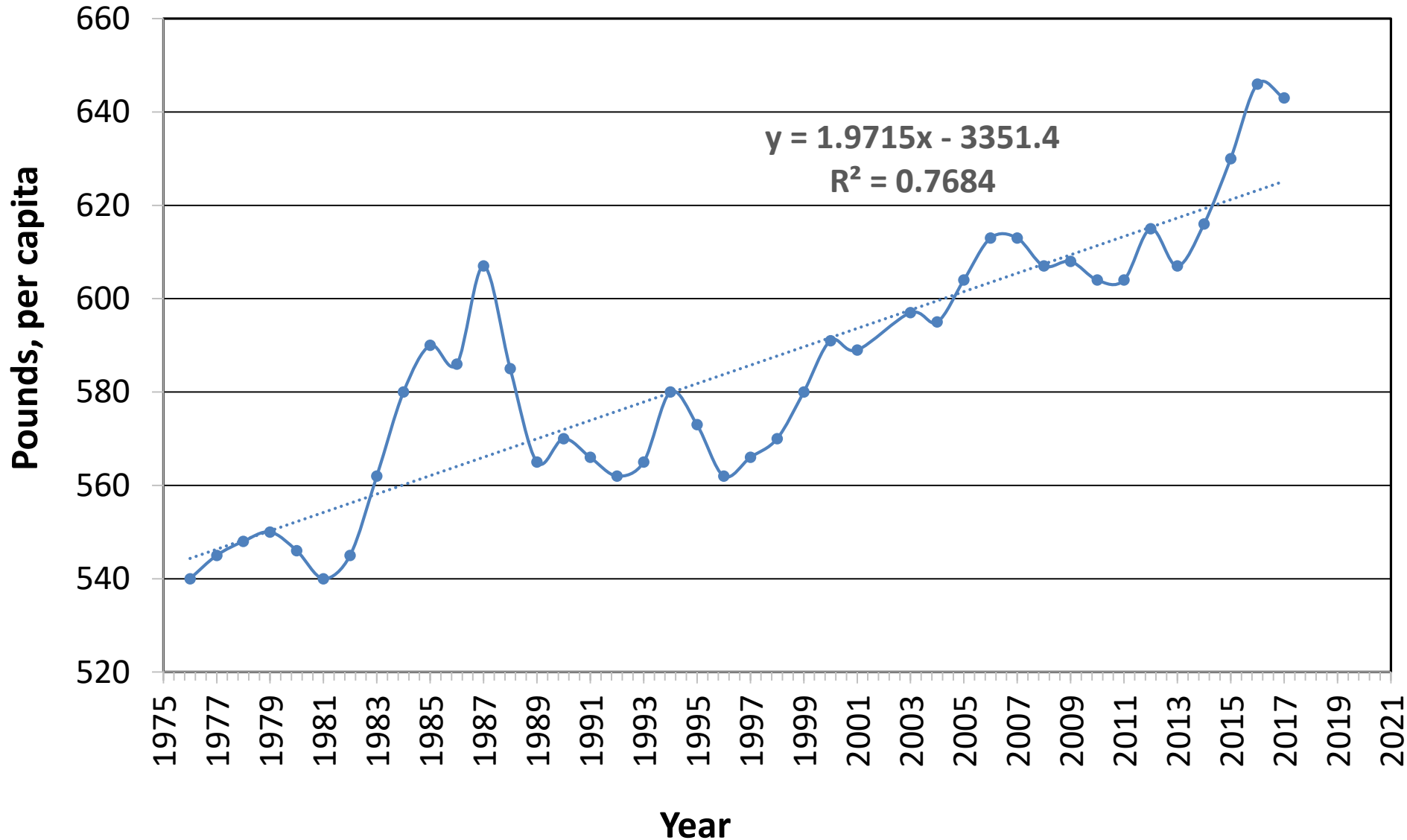




## BUILD Dairy - Next Generation of Dairy Scientists

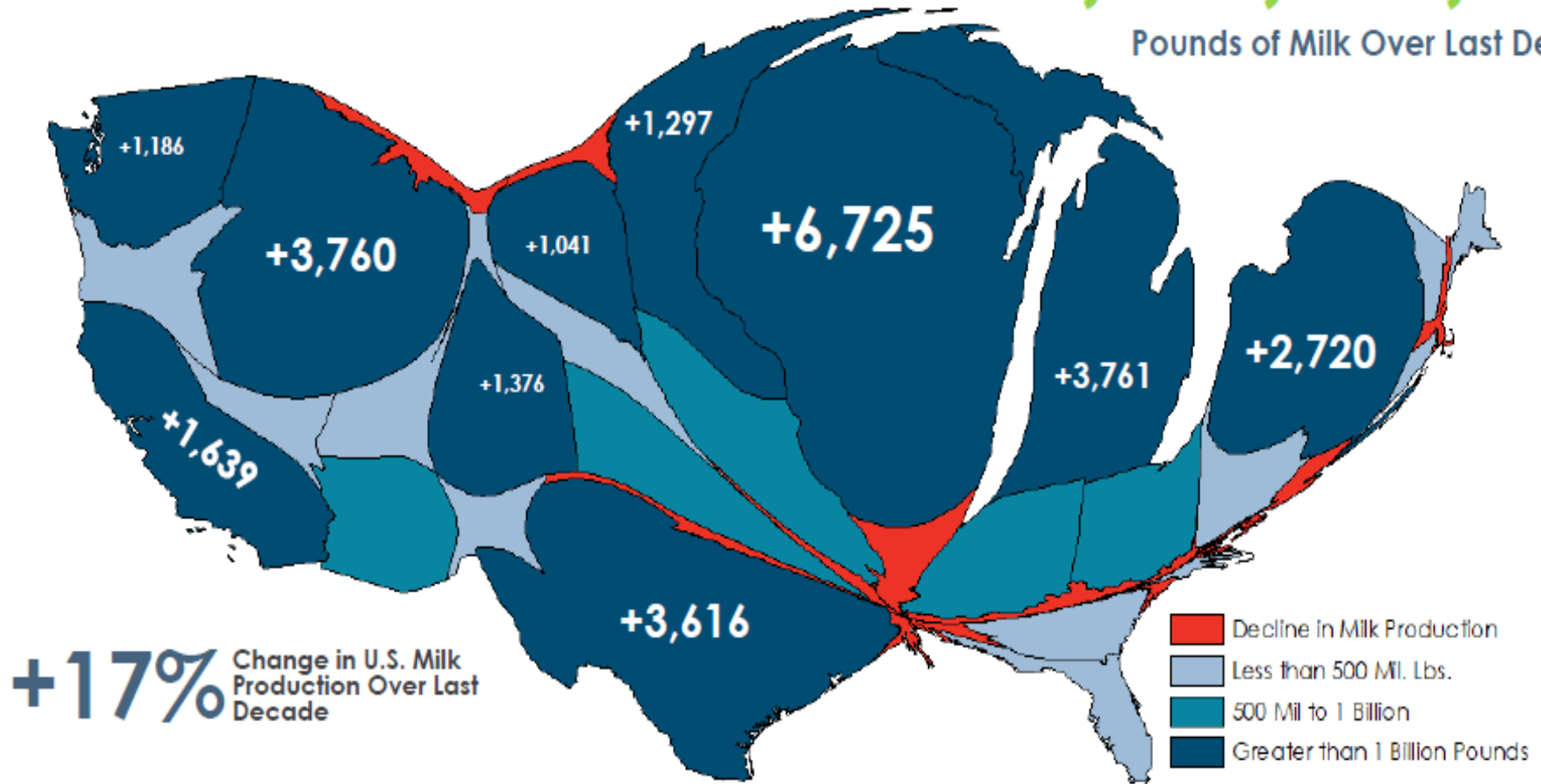
Oregon Dairy Industries – April 9, 2019

# All Dairy Products Consumption, Milk-Equivalent, Milk-fat basis



# +30,654,000,000

Pounds of Milk Over Last Decade



**+17%** Change in U.S. Milk Production Over Last Decade

- Decline in Milk Production
- Less than 500 Mil. Lbs.
- 500 Mil to 1 Billion
- Greater than 1 Billion Pounds

Source: USDA NASS, AFBF Calculations

# Milk Oversupply Situation

- Cut back milk production to line up with current demand
- INCREASE DEMAND
  - Marketing
  - Education
- INNOVATION



# INNOVATION

- Do we need new markets? Domestic and Export?
- Do we need new products?
- Organizations that can create new products and explore new markets?



INNOVATION

# COMPANIES



# INNOVATION

What resource is needed by companies to innovate; create new products and new markets?



INNOVATION

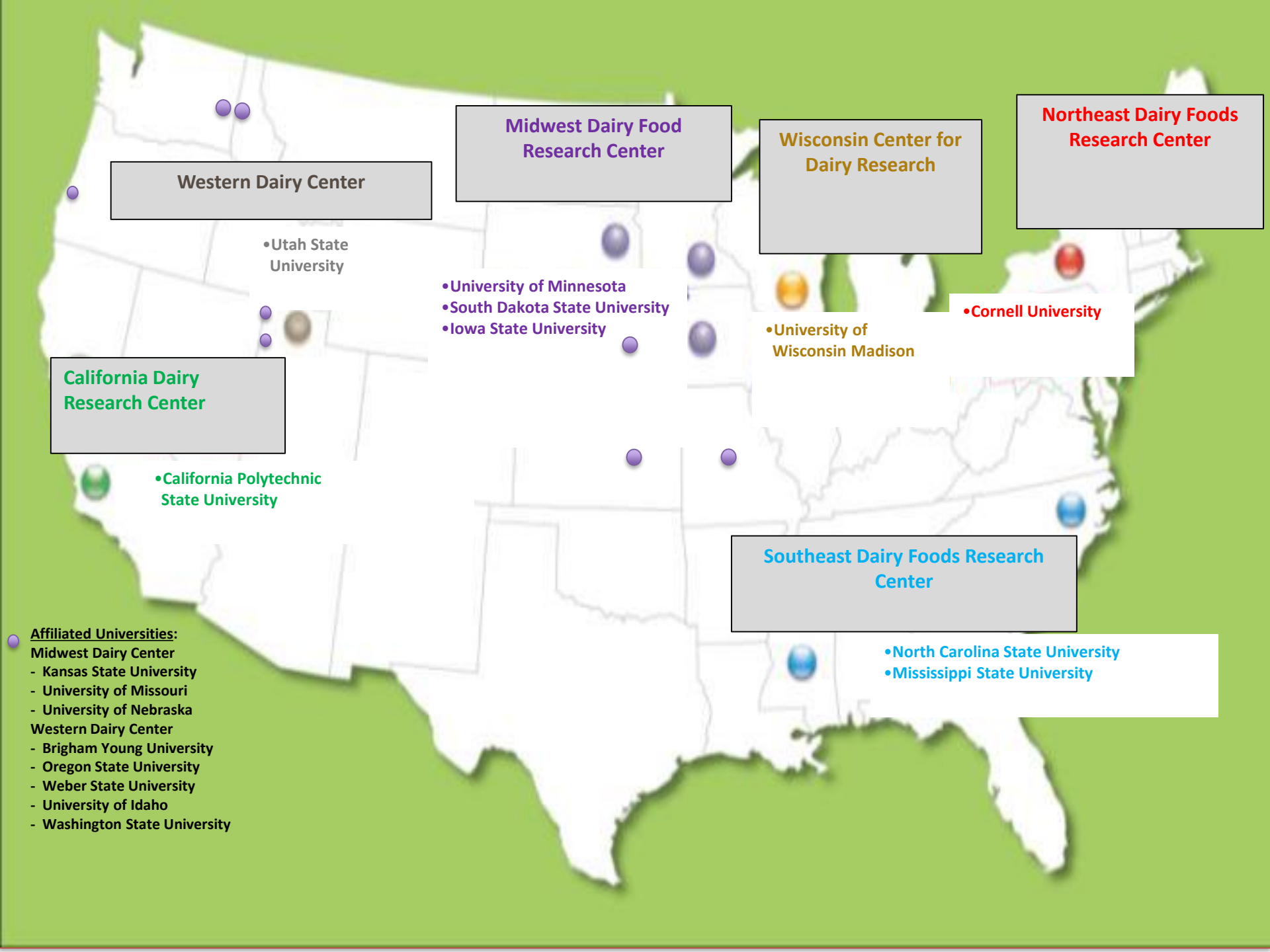
PEOPLE





# The Power of 15 cents





**Western Dairy Center**

**Midwest Dairy Food Research Center**

**Wisconsin Center for Dairy Research**

**Northeast Dairy Foods Research Center**

**California Dairy Research Center**

**Southeast Dairy Foods Research Center**

•Utah State University

•University of Minnesota  
•South Dakota State University  
•Iowa State University

•University of Wisconsin Madison

•Cornell University

•California Polytechnic State University

•North Carolina State University  
•Mississippi State University

- Affiliated Universities:**
- Midwest Dairy Center
    - Kansas State University
    - University of Missouri
    - University of Nebraska
  - Western Dairy Center
    - Brigham Young University
    - Oregon State University
    - Weber State University
    - University of Idaho
    - Washington State University

# Our Goals

- Revitalize the Western Dairy Center
- Develop a technically-trained workforce - dairy scientists for the innovative future of our industry – regional effort
- Create innovation driven by R&D, QA, Technical Services and Technical Sales professionals
- Provide future Dairy Leaders
- Develop Dairy Advocates among our young people
- Relevant Research Programming
- Develop technologies for our future



# Context

- Western Dairy Center 1987 –
  - USU: **Tony Ernstrom, Gary Richardson, Rod Brown, Jeff Kondo**
  - OSU: **Bill Sandine, Floyd Bodyfelt**
  - BYU: **Lynn Ogden**
- Dairy leaders trained in dairy centers include:, Chenchaiiah Marella (IMP), Hadi Eshpari (Tillamook), Loren Ward (Glanbia), David Perry (Glanbia), Megan Tippets (Darigold), Shakeel Rehman (Fairlife), Kyle Jensen (Hilmar), Brandon Nelson (Daisy Brand), Richard Merrill (Leprino), Bill Graves (DMI), Don McMahon (USU), Lisbeth Goddik (OSU) and Helen Joyner (U of I).



Year	Utah Dairy Commission	Dairy West	Oregon Dairy Products Commission	Western Dairy Farmer Promotion Association
1989	\$50,000	\$50,000	\$40,000	\$10,000
1990	\$50,000	\$50,000	\$40,000	\$10,000
1991	\$50,000	\$50,000	\$40,000	\$10,000
1992	\$50,000	\$50,000	\$40,000	\$10,000
1993	\$50,000	\$50,000	\$40,000	\$10,000
1994	\$50,000	\$50,000	\$40,000	\$10,000
1995	\$50,000	\$50,000	\$20,000	\$10,000
1996	\$50,000	\$50,000	\$20,000	\$10,000
1997	\$50,000	\$50,000	\$0	\$10,000
1998	\$50,000	\$50,000	\$0	\$10,000
1999	\$50,000	\$50,000	\$0	\$10,000
2000	\$25,000	\$25,000	\$0	\$0
2001	\$25,000	\$0	\$0	\$0
2002	\$0	\$0	\$0	\$0
2003	\$0	\$0	\$0	\$0
2004	\$0	\$0	\$0	\$0
2005	\$0	\$0	\$0	\$0
2006	\$0	\$0	\$0	\$0
2007	\$0	\$0	\$0	\$0
2008	\$0	\$0	\$0	\$0
2009	\$0	\$0	\$0	\$0
2010	\$0	\$0	\$0	\$0
2011	\$0	\$0	\$0	\$0
2012	\$18,000	\$0	\$0	\$0
2013	\$18,000	\$0	\$0	\$0
2014	\$0	\$0	\$0	\$0
2015	\$0	\$0	\$0	\$0
2016	\$0	\$60,000	\$0	\$0
2017	\$0	\$1,460,000	\$0	\$0
2018		\$1,600,000	\$0	\$0

# Western Dairy Center

## Check-off Funding History



# Context

- 2014-16 – BUILD Dairy program initiated by Glanbia – with Don McMahon
- 2015 – Research Advisory Council, ID Dairy Council – Industry review of projects
- 2015-2016 – \$600K check-off funds to WDC.
- July 1, 2016 – Eric Bastian Joined Dairy West
- July-December 2016 visits to regional dairy processors & universities
- Feb. 28, 2017 – 1<sup>st</sup> Research needs assessment and prioritization meeting in Meridian, ID.
- March 2017 – 1<sup>st</sup> call for proposals
- March 2018 – 2<sup>nd</sup> call for proposals
- Dec. 5, 2018 – 2<sup>nd</sup> Research needs assessment and prioritization meeting in Meridian, ID.
- January 2019 – 3<sup>rd</sup> call for proposals



# BUILD Dairy Program Initiated in 2014

Building University-Industry linkages through Learning and Discovery

- BUILD upon university funding to recruit and train students from the Western states in dairy food technology and innovation.
- BUILD leadership qualities in students.
- BUILD awareness, linkages and communication between professors, students and dairy food companies.

# Progress

- December 31, 2017 – 19 new projects with 19 new students, bringing total program to 29 students
- December 31, 2018 – 18 new projects with 18 new students and undergraduate research opportunities offered for 21 undergraduate students bringing total graduate students to 41.
- Projects running at USU, U of I, WSU, OSU, BYU, NCSU and BSU.
- 2018 check-off funds \$1.6 M for BUILD Dairy Projects.
- Co-funding of \$620K bringing total to \$2.22 M.





# Progress

- Co-funding, \$620K from
  - Glanbia
  - Tillamook
  - Jerome Cheese/Agropur
  - Darigold
  - Litehouse
  - Commercial Creamery
  - High Desert
  - Hilmar
  - DMI
  - Schreiber
  - University of Idaho
  - Washington State University
  - BYU
  - NC State University
  - Utah State University



# BUILD Hires

- Jimmy Zhong (USU) – Hilmar
- Ying Lu (USU) – Modesto Junior College
- Nicola Beatty (USU) – SAHM
- Tyler Allen (USU) – Glanbia
- Jason Kim (BYU) – General Mills -Yoplait
- Sam Smith (NCSU) – Glanbia
- Dillon Fallen (USU) – Sargento
- Eva Kuhn (OSU) – Tillamook
- Katherine Speight (NCSU) – Takasago Flavors
- Hannah Damiano Fosberg (UI) – Continental Mills
- Tom Overbeek (USU) – Jeneil Biotech
- Elton Li (UI) – Happy Family Brands
- Alex Meldrum (UI) – Foodwit
- Richard Geslison (USU) – Glanbia
- Danton Batty (OSU) – Lactalis
- Isaac Bowen (USU) – Jeneil Biotech
- Kanak Bulbul (USU) – Glanbia
- David Doxey (BYU) – ConAgra Brands



# Future Dairy Leaders

- Best practice for our region
- Train bright, young people who know about milk (new product development, chemistry, microbiology and food safety, processing).
- Embed these young people into our industry
- Sustainable innovation going forward for our industry.



# Future Dairy Advocates

Never before has there been such a need to develop advocacy for our industry

- GMO
- Environmental concerns – green house gas, nutrient management
- Vegetarian & Vegan diets
- Animal activism
- Aging population – Sarcopenia, osteoporosis
- Urbanization of America



# Training Schedule

Year	Number of Students into BUILD Dairy Program	Number of Students Expected to Graduate
2016	12	4
2017	19	4
2018	18	10
2019	20	20
2020	20	20
2021	20	20
Total 5-year	123	84



# Current Training Pace

- Our industry will have access to most of the technically trained talent that they need in the next 5 years.
- These trained students will become our future dairy leaders
- These people will also be dairy advocates!



# Examples

- Danton Batty – currently employed at Lactalis in Nampa
  - Started a BUILD Dairy MS degree in September 2016
  - Worked on pathogen control in cheese using High Pressure Processing (HPP)
  - BUILD annual meeting in May 2018 – he met Lactalis representatives
  - Within 20 days, he was hired by Lactalis to do innovations at their Nampa, Idaho facility.
  - The Future?



# Examples





# Examples

- Richard Geslison
  - Glanbia Cheese Innovation Center – 4 years, 2012-2016
  - BUILD Dairy Student, August 2016 – January 2018, MS degree working on whey expulsion from cheese made with MCC and cream.
  - Chobani Scientist 2018-2019
  - Glanbia Scientist 2019-present
  
  - The Future?



# Examples

