

# Climate Change & Agriculture

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Land O'Lakes, Inc.

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**LAND O'LAKES, INC.**



We operate four diversified agribusinesses,  
driven by insights & innovation



**WinField® United**  
Crop Inputs & Insights  
Agricultural products,  
data, technology tools and  
services



**Purina**  
Animal Nutrition  
Solutions that enhance  
performance and well-  
being

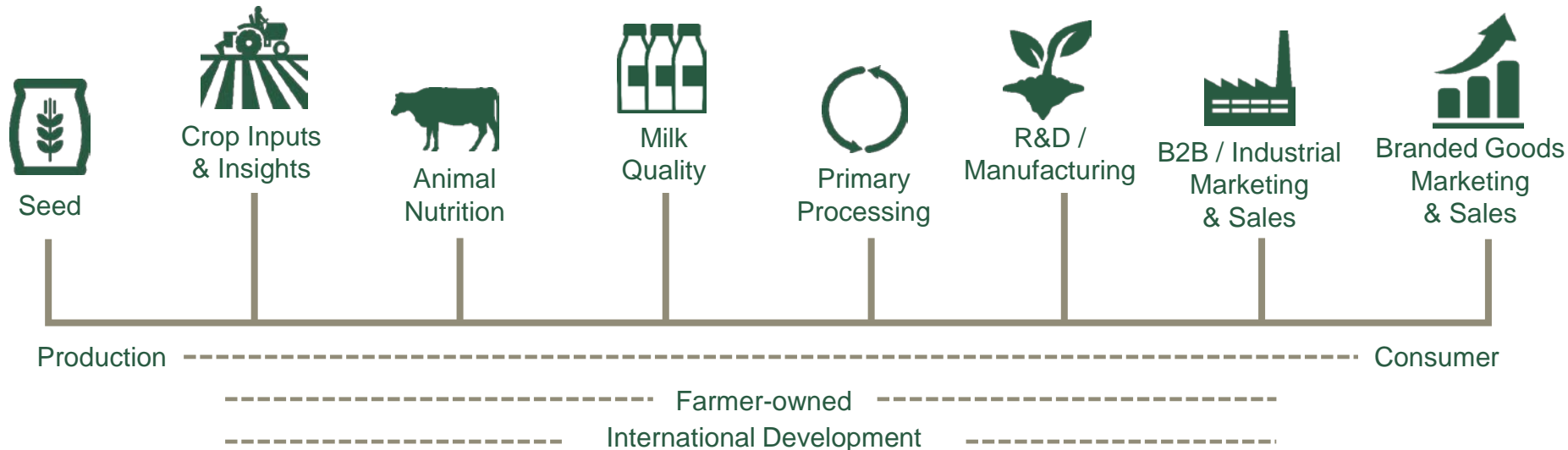


**LAND O LAKES®**  
Dairy Foods  
Milk-based products and  
ingredients



**Land O'Lakes**  
**SUSTAIN™**  
Environmental  
sustainability solutions

# Our unique farm-to-fork business model enables us to see things differently





# Ability to influence sustainability from farm to fork



## OUR FARMER-OWNERS

2,200 dairy producers

1,270 ag producers

800 ag retail co-ops



## WE TOUCH

50% U.S. harvested acres

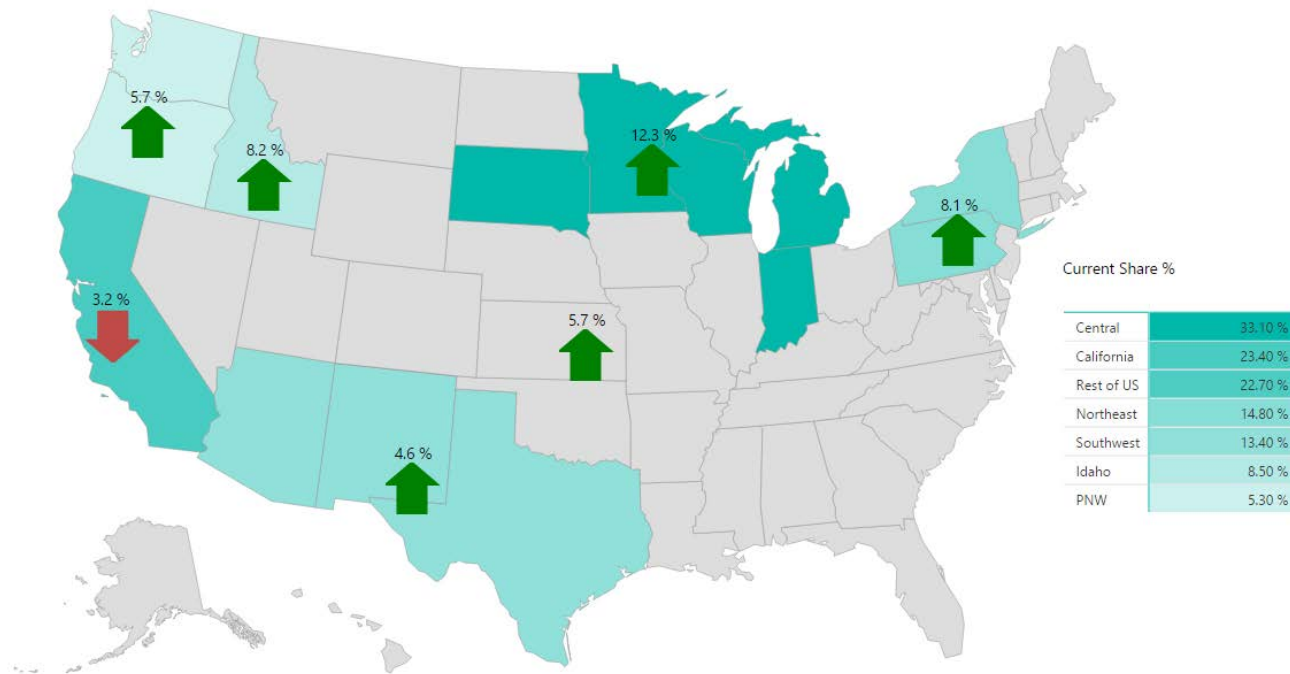
25% U.S. producers



# US Milk Production Shifting Back to Midwest and Northeast

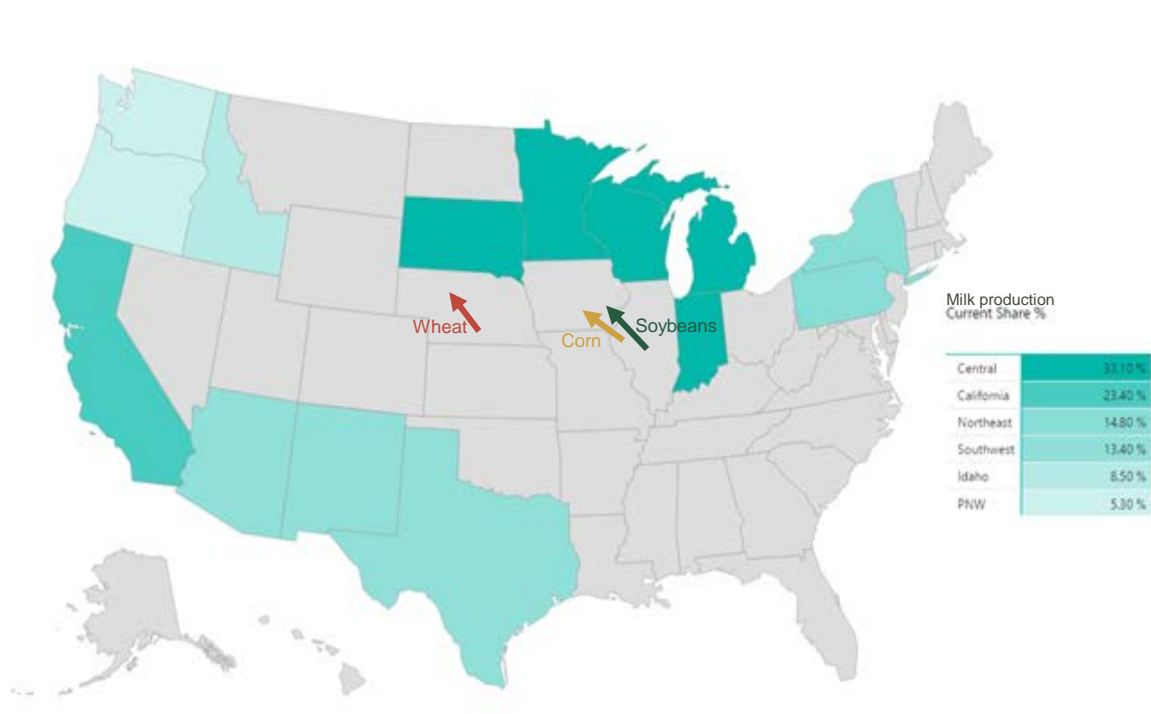
Growth by Region

## US Milk Production from 2012 to 2016



- ▶ CA milk production has declined from 2012 due to competing crops, regulatory issues, and drought
- ▶ Strong milk profitability over the past five years has resulted in strong growth in the Midwest and East (dumping is a problem)
- ▶ Expecting growth to continue in the Midwest and East with CA stabilizing to flat growth due to less concerns about drought

# Feed production moving North might further accelerate these milk production shifts



- Feed moving North is getting it closer to Midwest milk sheds, which may further reduce their feed cost and improve profitability
- Climate change impacts on water availability and feed production shifts may put further pressure on milk production in W and SW milk sheds

# Crop mix shifts will likely continue to exacerbate the trucker shortage issue

- Transportation demand likely to shift from barge to more rail and truck
  - Railroads likely have capacity to absorb these increases, driven by reductions in coal and impending decreases in oil as pipeline infrastructure grows
  - Trucking industry is already facing capacity issues due to driver shortages
- Other investments into the infrastructure might be necessary to accommodate shifting volumes
  - E.g. (rail)roads and loading capacities



## U.S. Market Influences and Assumptions

Dairy farmer growth mentality

Expansions during past boom times require satisfaction  
in challenging times

Historic growth of 1 – 2 % per year

Dairy profitability remains high

Production shifting back to Midwest/East from CA

Limited plant capacity expansion

All leading to milk oversupply



# Global Market Influences and Assumptions

NAFTA renegotiation

Importers (China, Russia, Venezuela, others)  
scaled back

European Union greatly increased its dairy  
production

Dollar on a multi-year climb, making U.S.  
exports less competitive



A photograph of a combine harvester and a grain elevator in a field. The combine harvester is yellow and black, and the grain elevator is green. They are both harvesting a field of golden-brown grain. The combine harvester is on the left, and the grain elevator is on the right. A long, straight row of harvested grain runs from the foreground towards the background, separating the two machines. The sky is clear and blue.

# Thank you

**LAND O'LAKES, INC.**