



# KEN BAILEY SCHOOL OF DAIRY ECONOMICS

DAIRY ONBOARDING

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# ONBOARDING LESSON

We will cover these topics:

- Milk production, cow comfort
- Milk components & dairy products
- Nutrition
- Dairy manufacturing plants
- Milk pricing 101
- Trade
- Cooperatives
- Sustainability

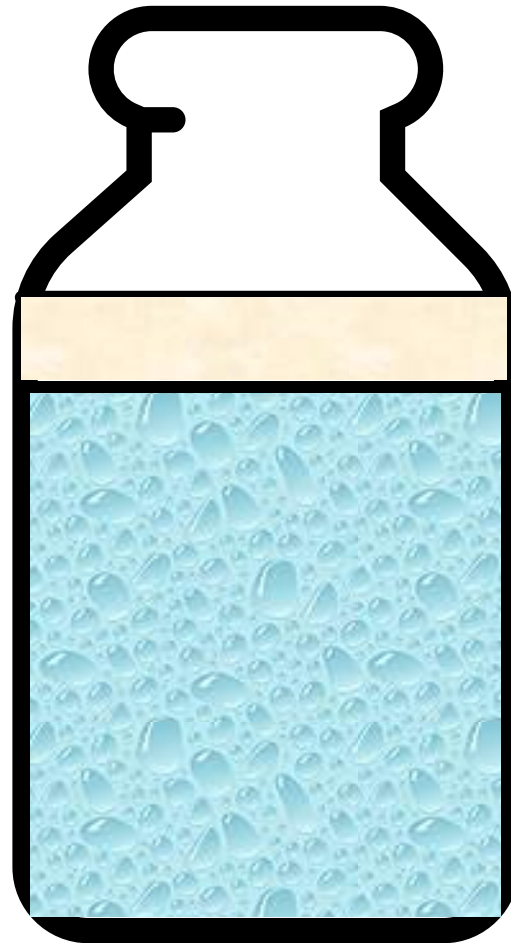


# COW COMFORT



- Cows make more milk when they are relaxed.
- They need water, room (not crowded), proper bedding, a regular routine, and lots of high-quality feed.
- Dairy farmers focus a lot of attention on making sure cows are comfortable and well fed.

# Milk



Economic value

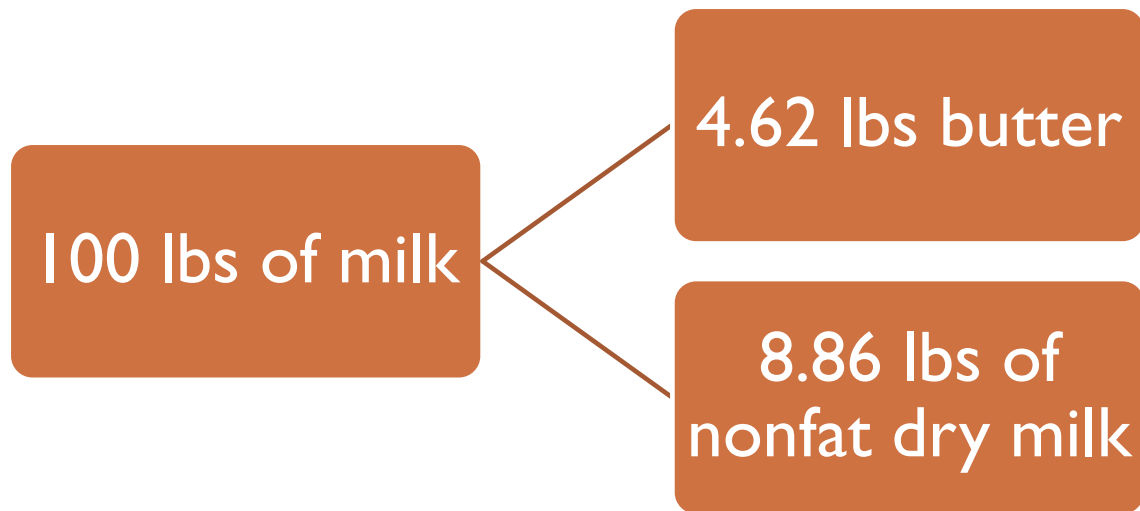
No economic value

*Only 13% of farm milk has economic value. The rest is water, a non-economic carrier.*

Milk solids: 13%

Water: 87%

## BUTTER/POWDER YIELD FROM MILK



- Milk is separated into cream and skim milk
- Cream is churned into butter
  - By product is “sweet cream buttermilk”
- Skim milk is dried into nonfat dry milk, or SMP (international standard)

Source: Dairy Economics: Pricing, Policy, and Risk Management, chapter 2.

# DAIRY IS A GREAT SOURCE OF NUTRITION

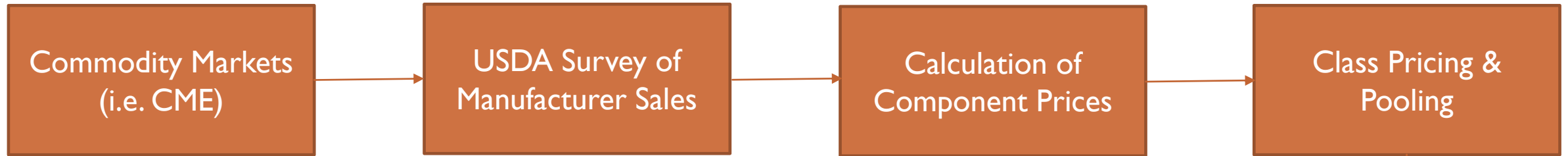


## Nutrition in a cup of milk

- Energy, 152 kcal
- Protein, 8.14 grams
  - Contains all nine essential amino acids
- Fat, 6.9 grams
- Lactose, 12 grams
- Calcium , 306 mg
- Various vitamins

Source: Milk, whole, 3.25% milkfat, 249 g, FoodData Central, USDA.

# HOW MILK IS PRICED IN THE U.S.



Dairy pricing in the U.S. starts with a commodity market, like the CME spot market for cheese/butter, or global markets for nonfat dry milk and whey.

Manufacturing plants are then surveyed for what they sold their dairy commodities for. From there, USDA uses “end product pricing” to derive component and class prices.

Farm Price of Milk Components & Pool Value

Component Cost for Manufacturers

## TOP DAIRY EXPORT DESTINATIONS FOR 2020

Ranking	Country	Value in mil \$
1	Mexico	1,416
2	Canada	677
3	China	538
4	Philippines	409
5	South Korea	370
6	Indonesia	348
7	Japan	322
8	Vietnam	185
9	Australia	171
10	Malaysia	157



# ORIGINS OF COOPERATIVES

- In the early 1900s dairy farmers had a problem. They had a perishable product, there were many farmers, and very few local processors. They were often taken advantage of, or lost their market when milk was not needed.
- The Capper-Volstead Act of 1922 clarified antitrust law regarding cooperatives.
- The Cooperative Marketing Act of 1926 broadened and formalized USDA support for and encouragement of cooperatives



Source: Kenneth W. Bailey, “Marketing and Pricing of Milk and Dairy Products in the United States, Chapter 7.

# SOURCES OF GREENHOUSE GAS FROM DAIRY FARMS

- Methane:
  - Enteric fermentation by cows
  - Manure storage
- Nitrous oxide:
  - Deposition of manure and urine on crops
- Carbon dioxide:
  - Production of N fertilizer for crops
  - Field operations

