





CHEESE-MAKING 101



GREAT CHEESE STARTS WITH GREAT MILK





Mozzarella &
Provolone
Expertise



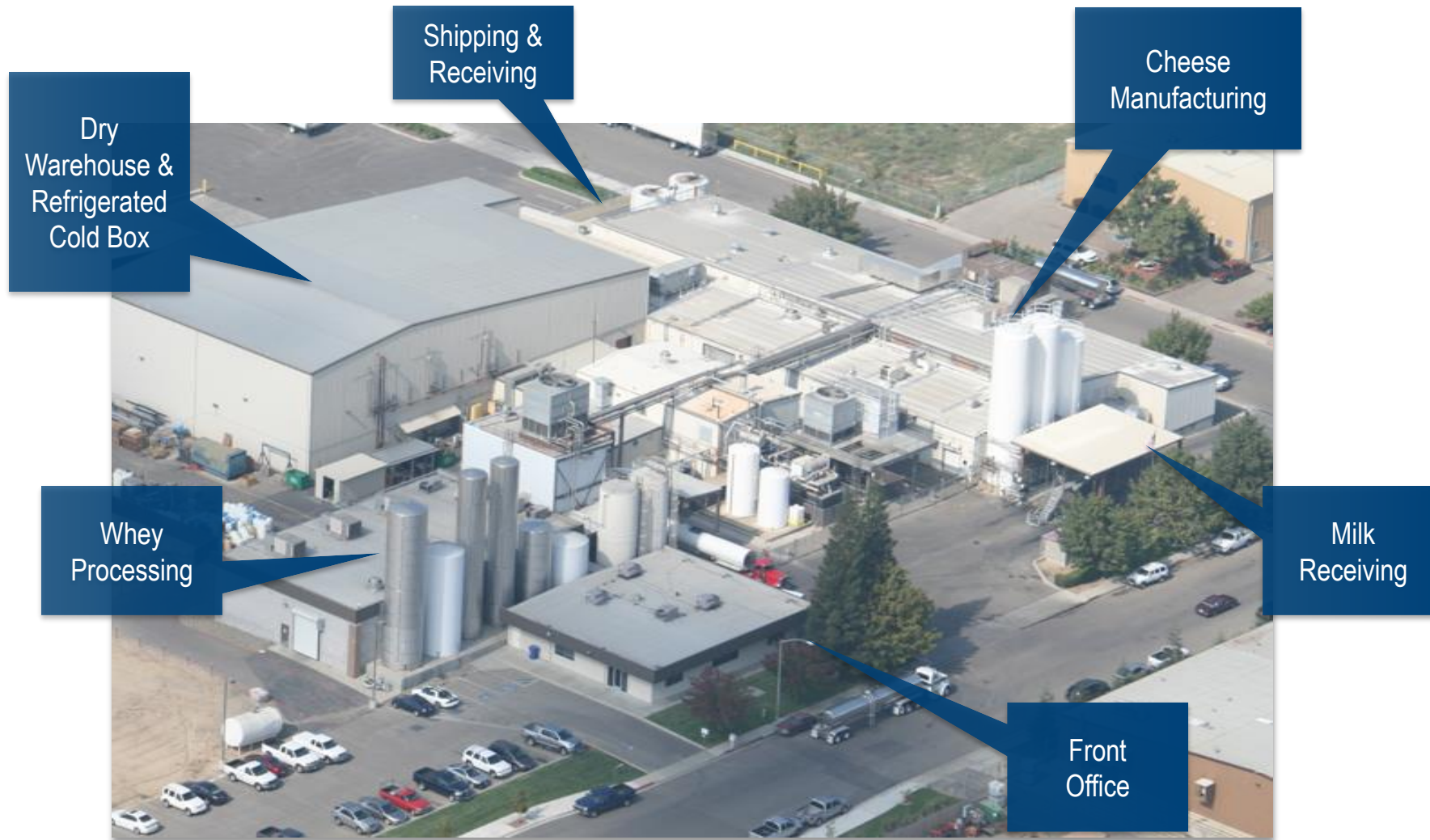
Award-Winning
Products



Employee Food
Safety & Quality
Commitment

TURLOCK, CALIFORNIA

- | Year | Event |
|------|---|
| 1988 | • Built by Mike Neu and father. Plant and company known as Select Cheese |
| 1992 | • After numerous owners, sold to California Gold Dairy Products |
| 1993 | • Expanded plant with new vats, packaging, warehouse and cold box |
| 1997 | • Plant became a joint venture between California Gold Dairy Products and Land O' Lakes |
| 1998 | • Built whey plant and offices |
| 1999 | • California Gold Dairy Products merged with Dairy Farmers of America and DFA purchased 100% of the Turlock plant |
| 2001 | • New brine cage cooling system and expanded packaging |
| 2009 | • New cheese Rotary Molder Chiller (RMC) |
| 2013 | • Packaging automation installation |



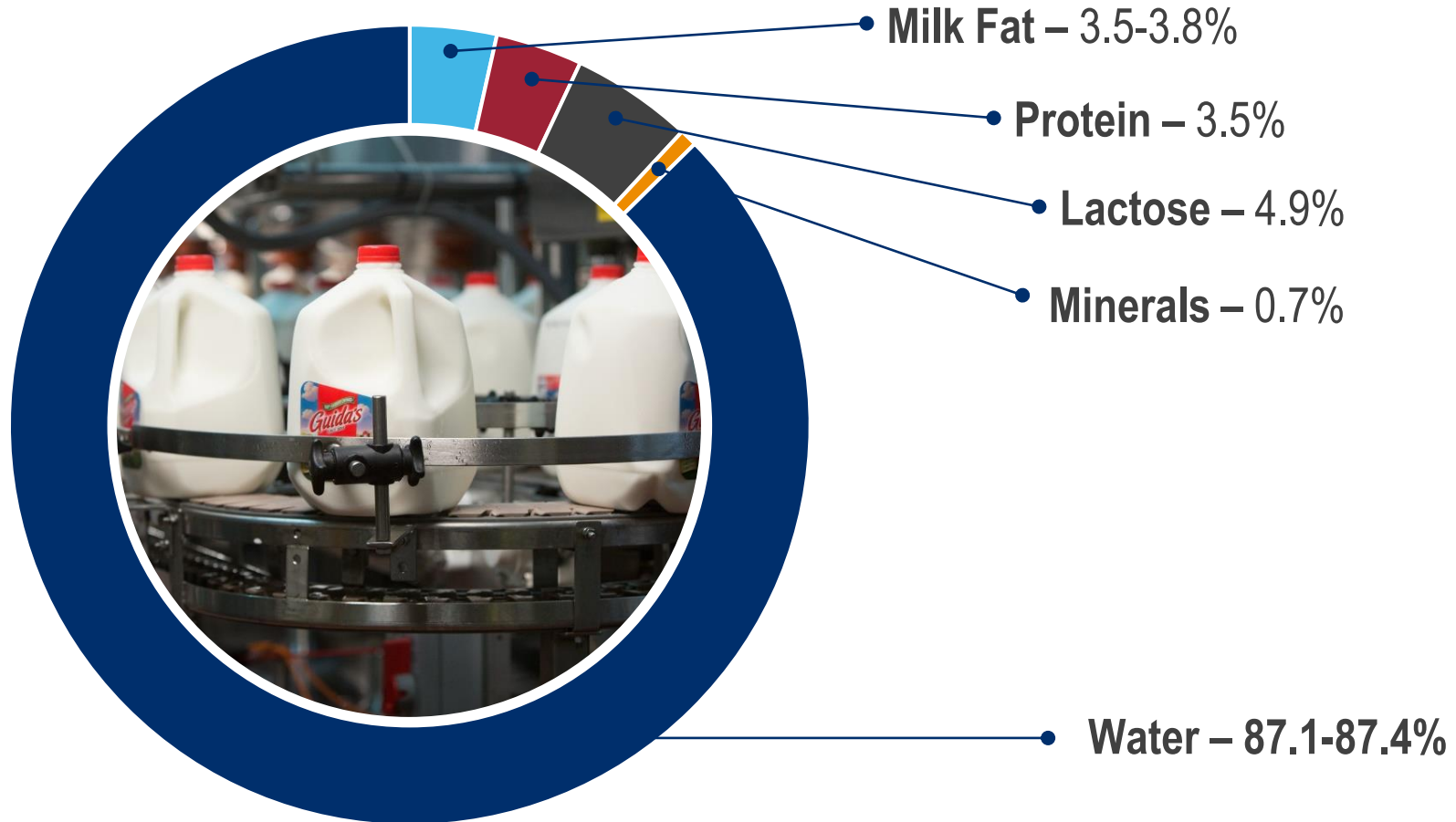
Located in the California Central Valley, approx. 90 miles east of San Francisco.
Original cheese plant built 1987.



TURLOCK, CALIFORNIA

- 111 Full-Time Employees
- Process 1.4 million lbs. milk equivalent/day (635,000 kg)
- Manufactures:
 - 80% Liquid Whey Protein Concentrate (WPC)
 - Deproteinized Whey (DPW)
 - Mozzarella and Provolone Cheese
- Product Mix:
 - 77% Mozzarella
 - 23% Provolone
- 155,000 lbs. cheese/day

MILK COMPONENTS



Percentages vary with season, breed, stage of lactation, feed, & health of cow

CHEESE YIELD



**10 POUNDS
OF MILK**

=



**1 POUND OF
CHEESE**

ADDED TO CHEESE

SALT

- Main Purpose –
 - Cheese Flavor
 - Slow/Stop Culture Growth
 - Preservative/Food Safety
- Methods of addition
 - Dry Salt
 - Very controllable amount
 - Brining
 - Less control over total salt amount
 - Brine is also used for cooling of cheese.



CHEESE-MAKING STEPS

MILK + RENNET + CULTURES + TIME =



PROCESS DIFFERENCES

Cheddar/Parmesan

- Salting
- Press/Block Forming
- Packaging
- Aging

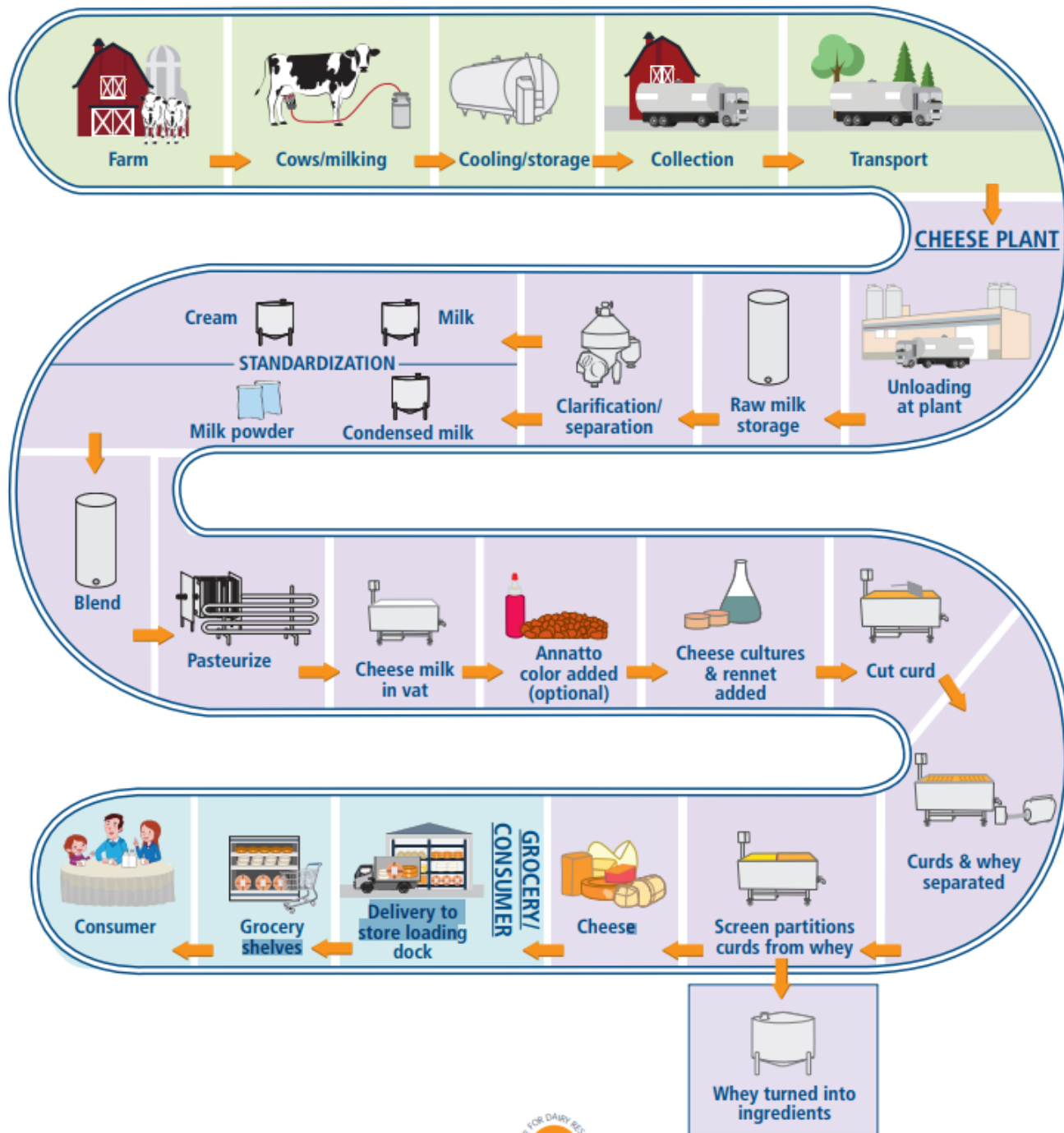


Mozzarella/Provolone

- Cooking/Stretching
- Molding – Block forming
- Brining
 - Salting & Cooling
- Packaging



Cheese Making Process



Pasta Filata Method

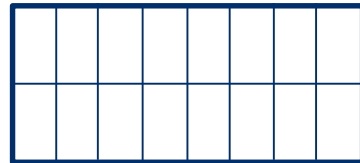
The Pasta Filata method gives our soft Italian cheese its superior meltability and exceptional stretch



Curds are processed in the vat.



Curds move to the cooker/stretcher where two augers knead the curds to develop the stringy texture.



The stretched mozzarella is shaped into the desired format



After shaping, the mozzarella moves to the brine and is chilled.





ALTERNATE MAKE vs PASTA FILATA

Alternate Make Mozzarella

- **Commonly known as stirred curd mozzarella or pressed curd mozzarella**
 - Called and labeled exactly the same as traditional
 - Analytically/Chemically the same as traditional
 - Allowed per the CFR
- **Production**
 - Alternate make mozzarella is made on cheddar cheese equipment
 - It is neither cooked, stretched or brined
- **Types**
 - Typically found in either 40 or 640 lb. blocks

Alternate Make Mozzarella

- **Advantages**

- No brine allows for consistently meeting lower salt targets
- Consistent block size reduces trim when cut for retail packaging
- Easier to control chemistry

- **Disadvantages**

- Texture is not the same – less “Chicken Breast”
- Poorer performance – less stretch

SOFT ITALIAN



SOFT ITALIAN-STYLE CHEESE



MOZZARELLA

Low-Moisture Whole Milk & Part-Skim – Made using the traditional Pasta Filata method

CHARACTERISTICS

- Mild and creamy flavor
- Semi-soft and stringy texture
- Natural white to light cream appearance

APPLICATIONS

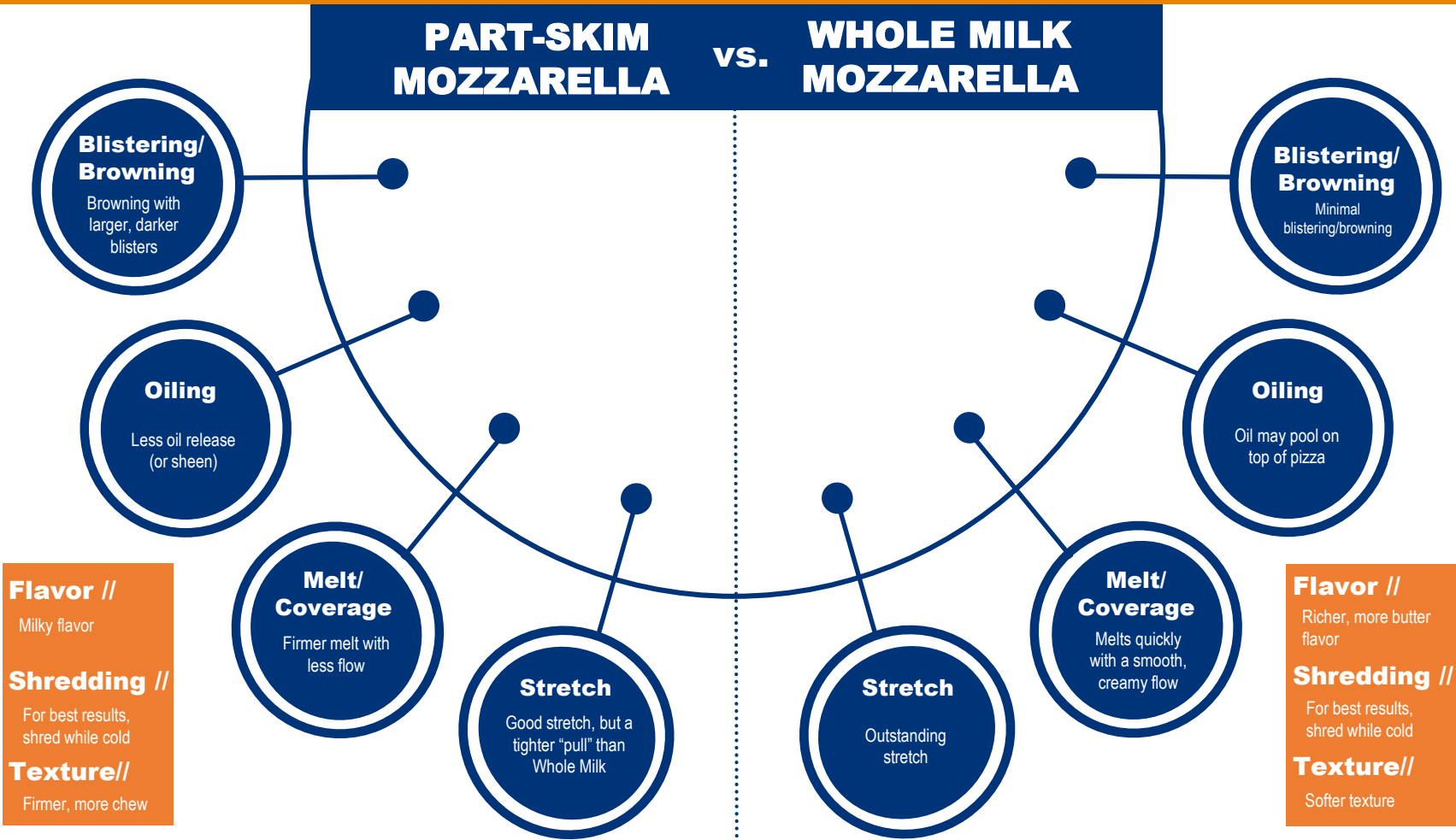
- Pizza
- Pasta
- Sandwiches

MANUFACTURING LOCATIONS

- Loafs and Blocks: New Wilmington, Pa., and Turlock, Calif.
- Diced and Shredded: West Middlesex, Pa.

MOZZARELLA CHEESE

PERFORMANCE QUICK GUIDE



MOZZARELLA CHEESE

PERFORMANCE QUICK GUIDE

Affect	Fair	Good	Excellent	Good	Fair
Melt	Extreme burning, shred strands visible after baking.	Medium browning, few visible after baking.	Light browning, no shreds visible after baking.	Light to medium browning, no shreds visible after bake, increasing coverage.	Heavier browning, with increasing blister size. May be runny or oily.
Flavor	Salty, dry, milky.	Light buttery taste.	Buttery taste.	Buttery, creamy taste.	Buttery, creamy taste.
Body	Very firm, excellent shredding, tough & chewy when baked.	Firm, shreds easily. Slightly chewy when baked.	Firm, shreds & slices well. Soft mouthfeel with some chewiness when baked. Good stretch.	Slightly soft, slight chewiness when baked, fair stretch, fair shred ability.	Soft, not tough or chewy when baked, little stretch on the melt. Difficult to shred or slice.
Days Old	5-7	8-13	14-29	30-49	50+



RECOGNIZED FOR OUR COMMITMENT TO QUALITY

2018 World Championship Cheese Contest

Best of Class: Turlock, Calif. – Part-Skim Mozzarella

2nd place: Turlock, Calif. – Whole Milk Mozzarella

2018 National Milk Producers Federation Championship Cheese Contest

1st Place: New Wilmington, Pa. – Low Moisture Part Skim Mozzarella

2nd Place: Turlock, Calif. – Low Moisture Whole Milk Mozzarella

2018 World Dairy Expo Contest

1st, 2nd and 3rd Place: Turlock, Calif. – Low Moisture
Whole Milk Mozzarella

Visit DFAMILK.COM to learn more.





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TURLOCK, CALIFORNIA



- Premium Provolone and Mozzarella Cheeses
- Exceptional flavor, performance, and made using the highest quality standards

FULL RANGE OF DAIRY OFFERINGS



DFA offers fluid milk, ingredients, consumer packaged goods and everything in-between

VERTICAL INTEGRATION



- From farm to consumer
- Reliable and consistent high-quality milk supply
- Sustainable and traceable supply chain
- Long-term view of partnerships
- Wide range of available milk attribute options



Thank you.

DAIRY MARKET EXPERTISE & INSIGHTS



Risk management programs
Regular updates on market dynamics



INNOVATION & INGENUITY

- New solutions grounded in customer insights
- Full capabilities in product customization, applications, R&D and innovation

QUALITY



Uncompromising commitment to quality, consistency, reliability and food safety