Wisconsin Center for Dairy Research

Pizza Update:
New Cheese Technologies and Innovations

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Cheese Innovations

- Control of Browning
- Stuffed Crust Cheese
- Cheese Variety Blending
Browning
Trend

Pizza companies looking for mozzarella that browns less
Many Mozzarellas are Over browning. WHY?
Manufacturing Issues Leading to Excess Browning

- Fortification leads to excess lactose levels in cheesemilk
- Faster make times result in less time for sugar metabolism
- All coccus (*Streptococcus thermophilus*) starter incompletely metabolizes lactose, builds up galactose
Sugar Metabolism

Key to control of browning
Lactose $\rightarrow$ glucose & galactose

Galactose a potent browning enhancer
Cheese for Pizza Issues

- Need for speed, time, temp
- Oven type
- Lack of protectors
Strategies for Control of Browning

- Start with less lactose
- Metabolize lactose/galactose completely
- Wash out excess lactose/galactose
Start with less galactose

- Minimize fortification with NDM, condensed skim
- Utilize UF milk
- Consider diafiltration
Metabolize lactose/galactose completely

- Culture selection (mesos, rods)
- Increase make time
- Control presalting
Wash out excess lactose/galactose

- Whey dilution
- Curd rinse (finishing vat or matted curd)
- Curd soak
Final strategy is facility- and make-procedure-specific
Stuffed Crust Cheese
Desirable Attributes

• Visual – want to see cheese-filled crust
• Flavor – deliver desirable flavor
• Mouthfeel – want appropriate chew
Overmelt
Solution......

Creation of custom melt-controlled process cheese
Benefits

• Tailor-make melt/texture of cheese for stuffed crust
• Custom-flavored (i.e., pepperoni) to deliver greater flavor impact
• Utilization of trim
Cheese Variety Blending
To illustrate differentiation...
Traditionally Blended with Mozzarella

- Cheddar
- Muenster
- Provolone
Higher Value Varieties—Feta
Higher Value Varieties—Asiago
A Word about Lowfat Cheeses for Pizza
Summary

• Controlled Browning
• Customized Stuffed Crust Cheese
• Higher Value Blends
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Funded by dairy farmers through the Wisconsin Milk Marketing Board & Dairy Management Inc.

Thank you