

CHOOZIT® BC Cultures

The New Solution for
Pizza Cheese Browning Control

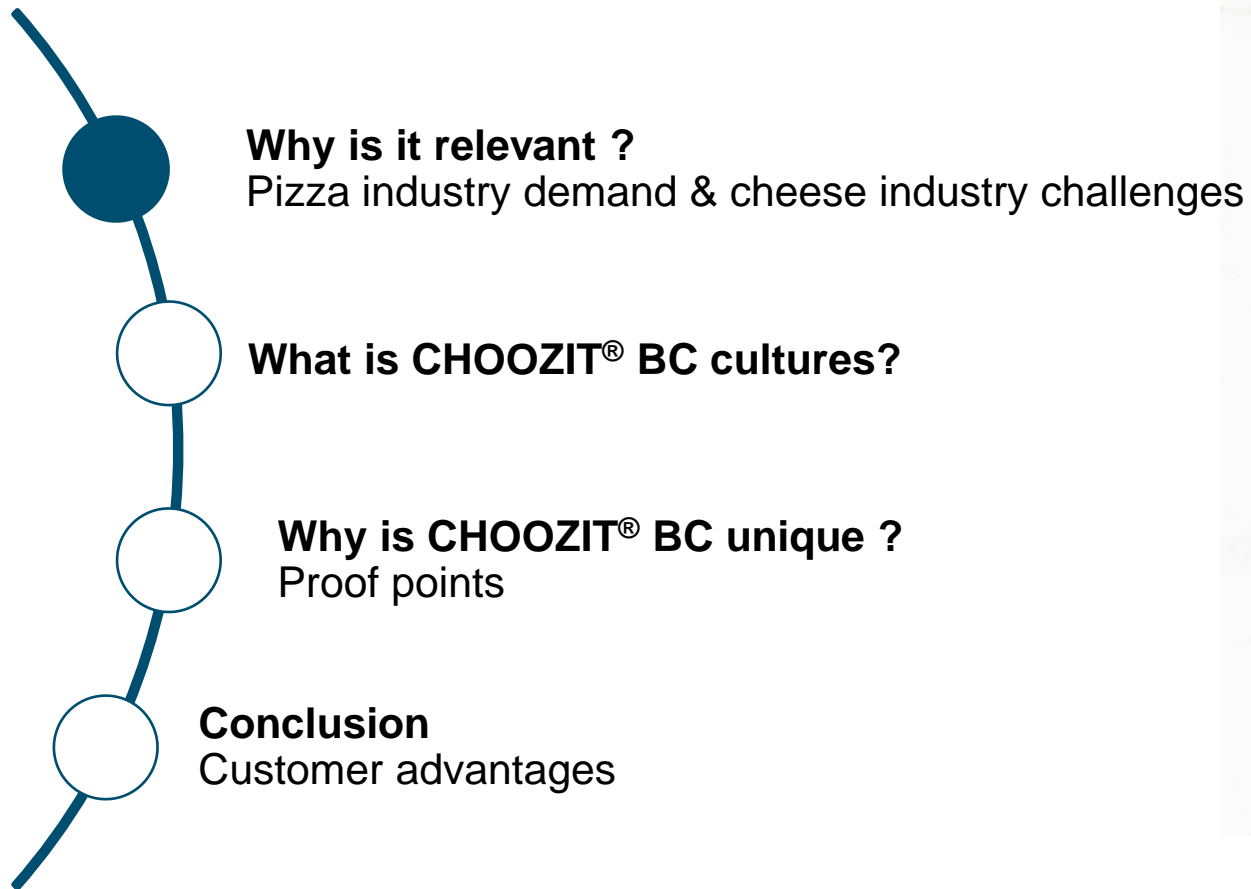
Mette Winther Børsting

Mejeriteknisk Selskab, January 30th 2020

Nutrition & Biosciences

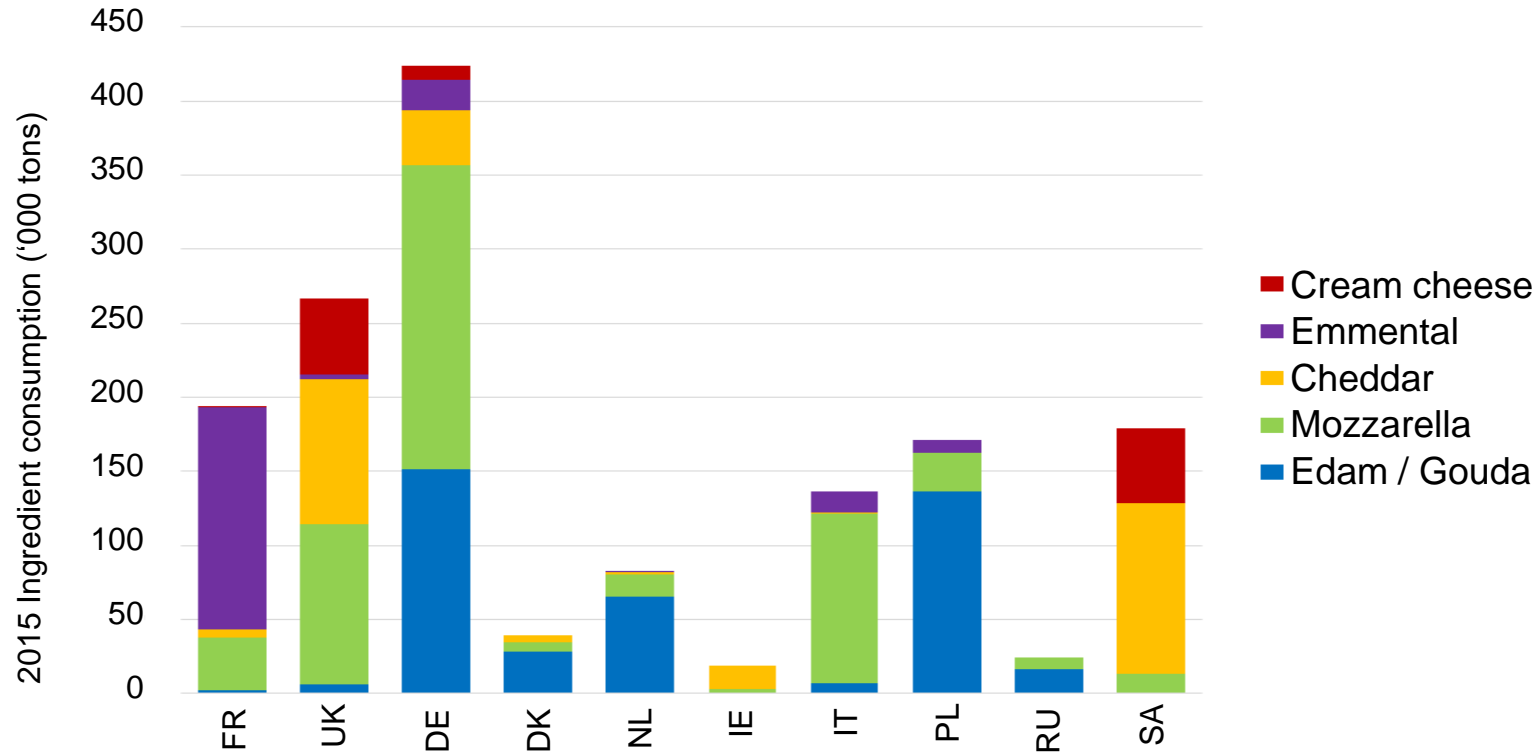


Agenda



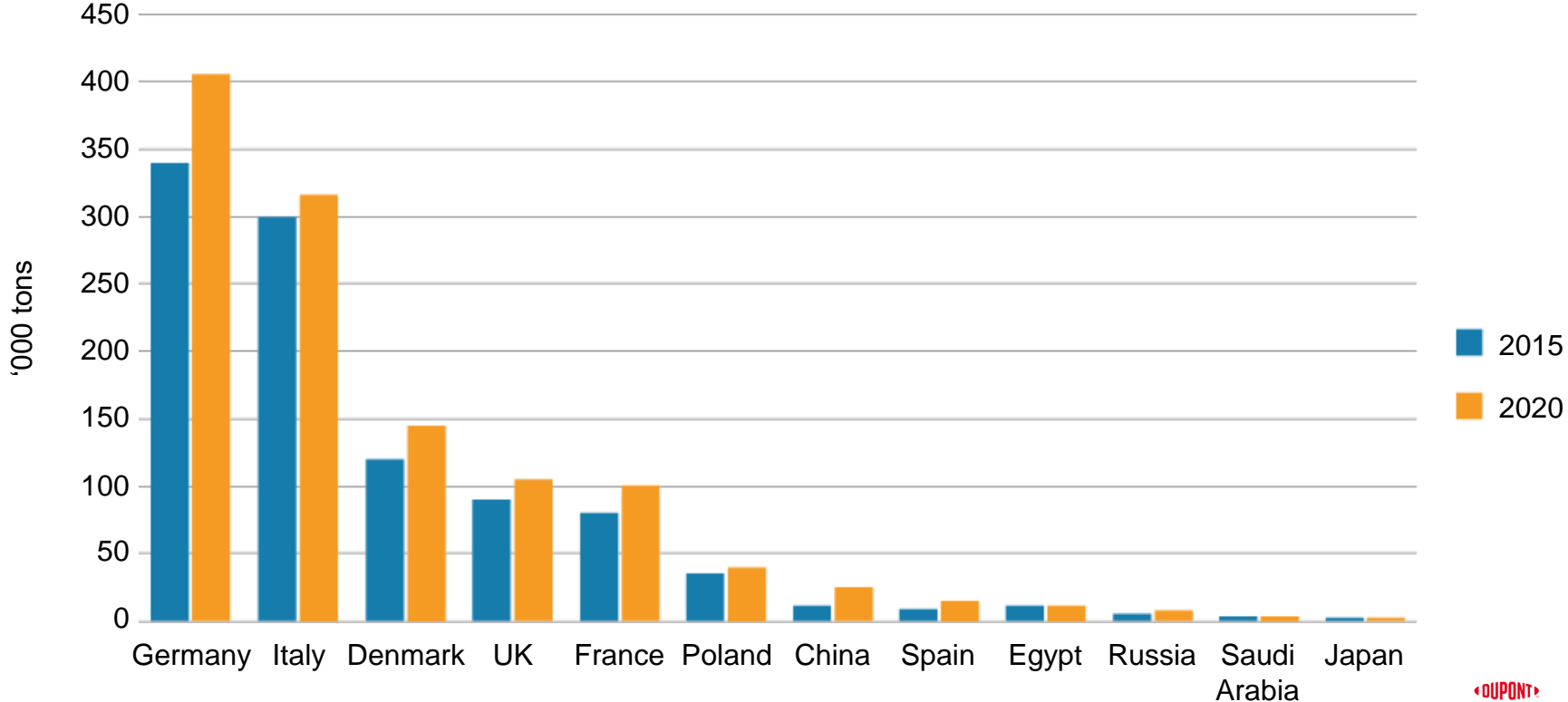
Mozzarella as a cheese ingredient is the n° 1 type of cheese used by pizza makers & food service industry in EMEA

Cheese consumption as an ingredient by type of cheese

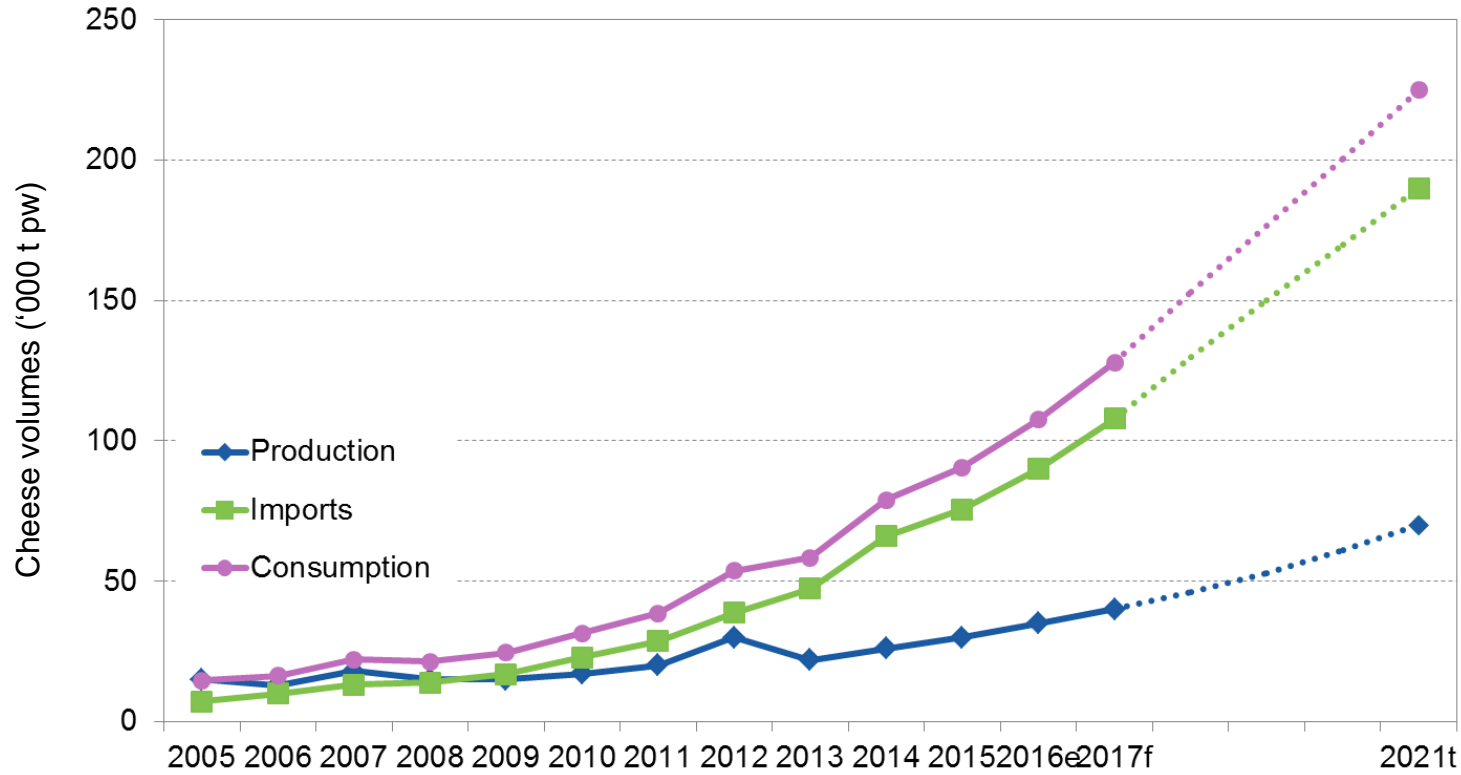


In EMEA, mozzarella production is expected to grow to meet the increasing global demand of the pizza industry

Mozzarella production



In China, the pizza cheese market is taking off largely served by imports from New Zealand, US and a few European countries



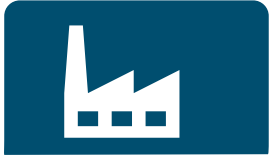
Domino's Pizza
dominos.com.cn • Traduire cette page
 送披萨, 全国人工配送, 39元起 | 外送30分钟必达, 超时送免费比萨券 | 周二周三网上订餐比7折, 27元起 | 满88元免8元外送费!
 最新优惠 | 门店查询 | 团购 | 甜品及饮料 | 法律条款 | 注册会员



Pizza Hut China
www.pizzahut.com.cn • Traduire cette page
 外送披萨, 全国人工配送, 39元起 | 外送30分钟必达, 超时送免费比萨券 | 周二周三网上订餐比7折, 27元起 | 满88元免8元外送费!
 最新优惠 | 门店查询 | 团购 | 甜品及饮料 | 法律条款 | 注册会员



The challenges of the pizza cheese producers



Continuous improvement of cheese processing

- Fast acidification time and reliable processes



Higher productivity

- Mitigate the high risk of phage attack in challenging production conditions
- Reduce cheese cost-to-make



Maximizing cheese yield and quality of whey

- Flexible process adapted to milk standardized at high protein level to increase yield
- Optimize the quality of whey for added value applications such as infant formula or sport nutrition



Maintaining quality over shelf-life

- Consistent texture of pizza cheese supplied in shreds, blocks of frozen formats to the pizza catering industry
- Prevention of yeast & mold contamination in shredded pasta filata cheese



Meet company objectives for sustainability

- Reduce water consumption in cheese processing
- Reduce waste in the factory thanks to consistent performance and avoidance of non-conformity



Address the needs of the pizza industry

- Control the browning and deliver consistent "white" color during fast pizza baking in oven conveyors
- Consistent functionality (melting, stretching and oiling off) properties after baking

Both cheese producers and pizza chains express the importance to control color of pizza cheese during baking

“Browning in specific conveyor ovens with too high temperature and too little time, yes, cheese is a delicate ingredient that can easily 'burn’ ”
(Pizza maker Europe. 2018)

“Certain countries ask for a whiter cheese”
(Pizza cheese producer Europe. 2018)

“Pizza makers are not interested in changing their temperature and time setting! It's something the mozza producers have to develop their cheeses to cope with”
(Pizza cheese producer China. 2019)

“Mozzarella must be able to withstand a baking of 260°C for 6 minutes in the conveyor oven here in Asia. It must NOT brown too much, but it must have a few blisters”
(Pizza cheese producer China. 2019)

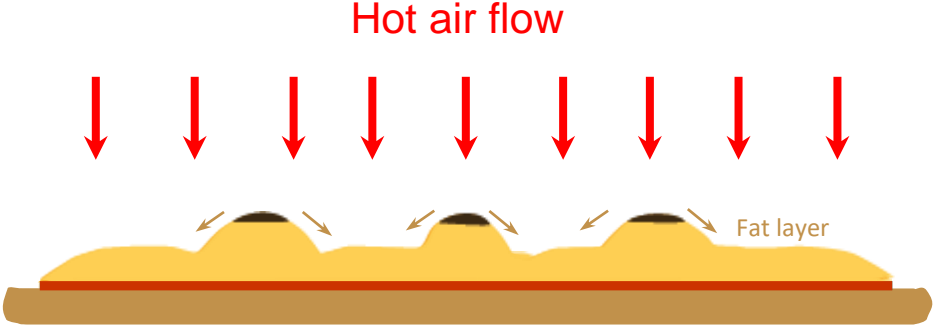
“Take care not to have cheeses too yellow, but rather close to white; it's selling better!”
(Pizza chain manager Europe. 2018)

“There is a huge difference between the ovens over here. Some ovens can deliver the power they indicate and some may not. Best advice is to have a product that is incredibly robust in relation to many different oven settings. It's a big challenge - so wonderful if you can find a solution through cultures”
(Pizza cheese producer in China. 2019)

Agenda



Cheese browning during pizza baking: the theory



The new CHOOZIT® BC culture series

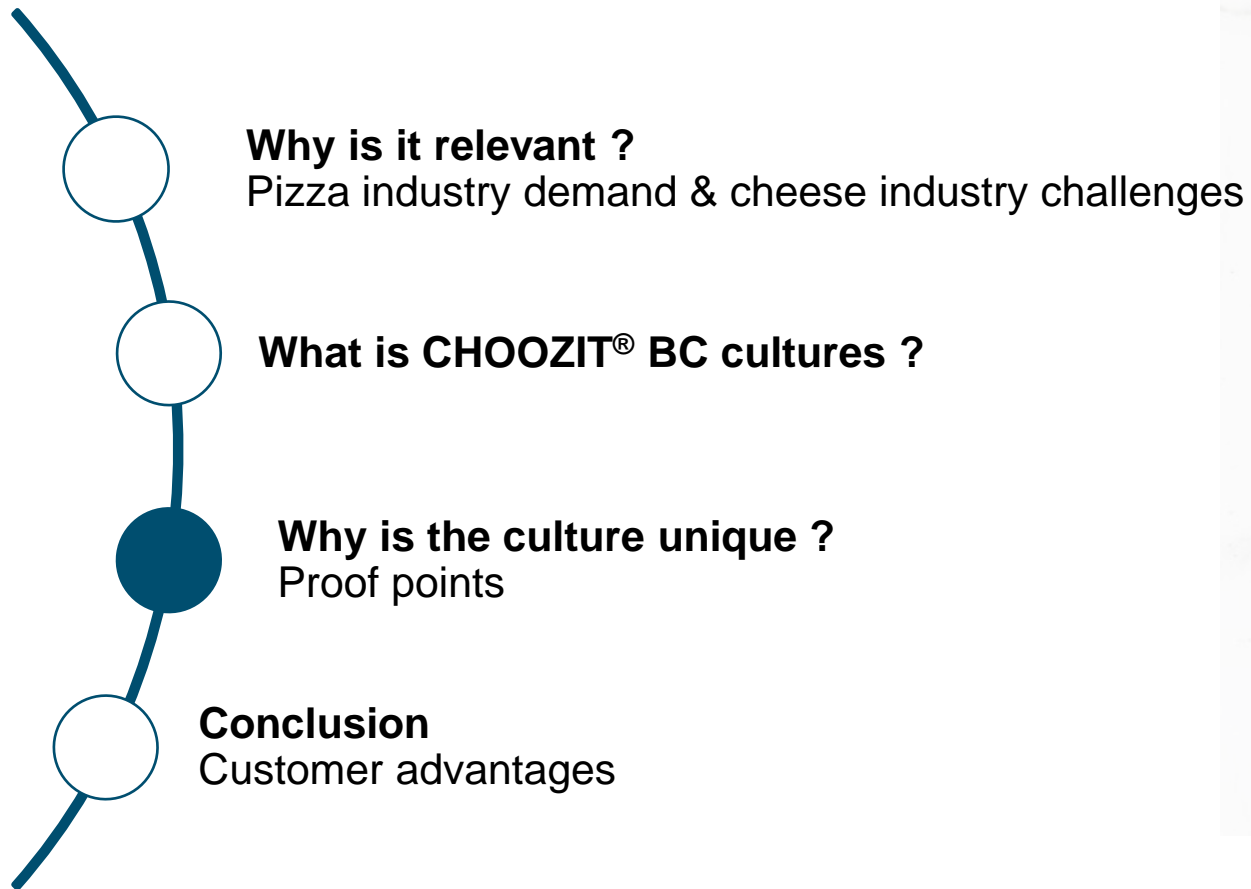
Very new cultures formulation designed for cheese browning control

- Include new proprietary formulations of lactic bacteria selected for higher galactose consumption during cheese curd processing
- Built-in phage robustness thanks to biodiverse selected strains



All-in-one solution	LAB species	Comments
	<i>Lactococcus lactis</i>	Mesophilic. Stretching sensitive
	<i>Lactobacillus helveticus</i>	Thermophilic. High proteolytic potential
	<i>Streptococcus thermophilus</i>	Thermophilic. Fast acidifying

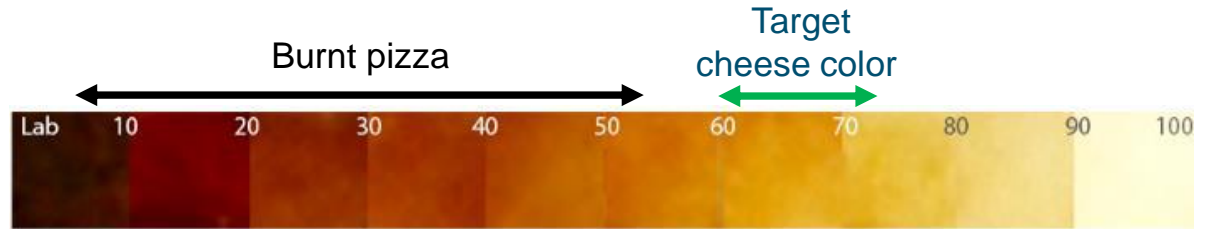
Agenda



Limit cheese browning for best quality pizza

Quantitative evaluation of cheese browning

- Evaluation of pizza burnt surface
- Consistent method using universal gamut color



Limit cheese browning for best quality pizza

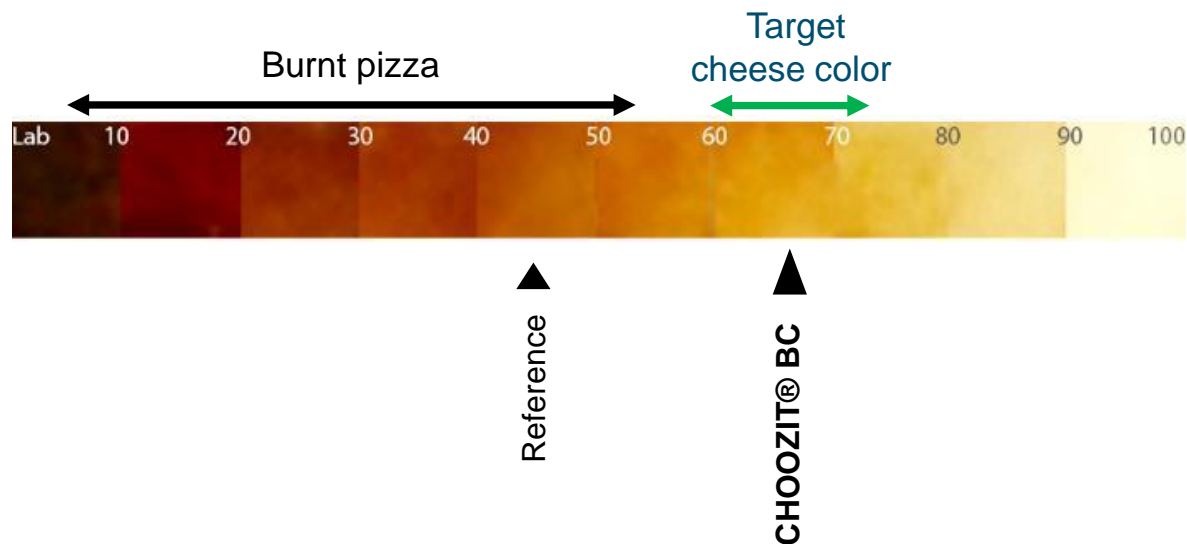
25% reduction of dark spots after baking

Browning intensity comparison

Pizza cheese used for pizza baking after 15 days of production

Standard culture

CHOOZIT® BC

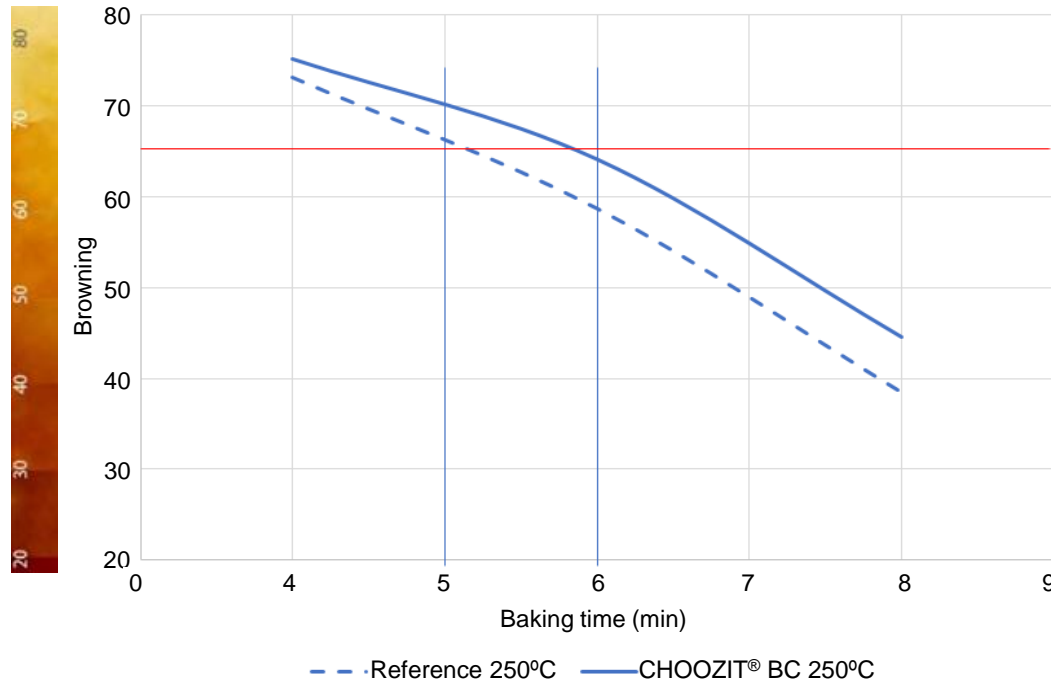


➔ CHOOZIT® BC significantly reduces browning

Increase flexibility of pizza making in oven conveyors

With CHOOZIT[®] BC the cheese can stay 20% more time in the oven for the same browning.

Baking time reduction

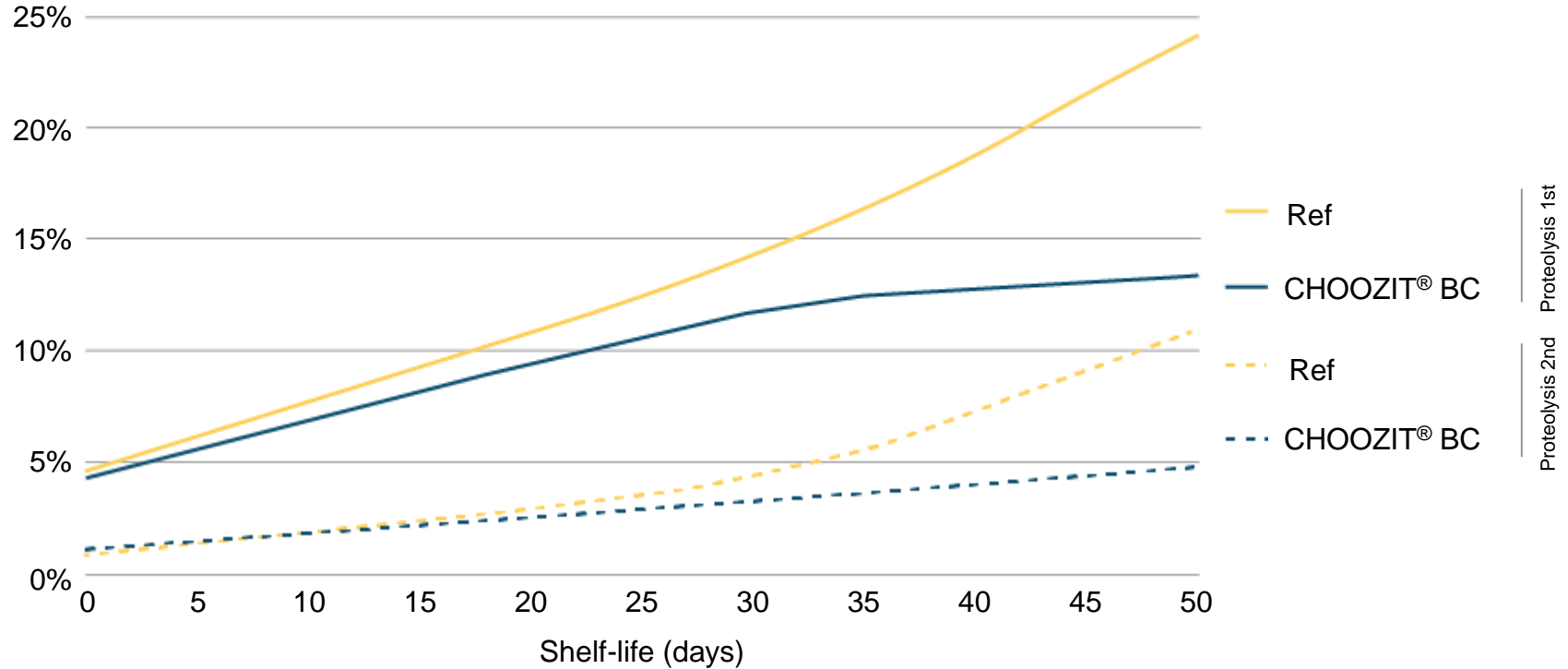


At 250°C, the cheese can stay 1 minute more in the oven for a total baking time comprised between 5 to 6 minutes

No change in quality of pizza cheese texture & taste

No negative impact on proteolysis

Proteolysis evolution on mozzarella



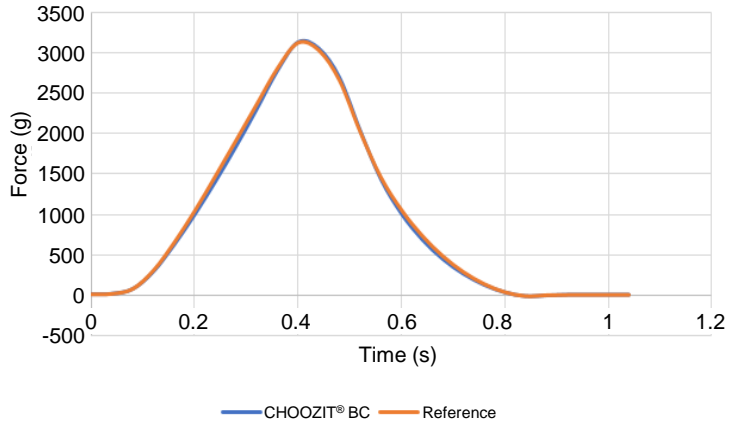
Note that the choice & dose of coagulant is a key parameter to manage proteolysis.

No change in quality of pizza cheese texture & taste

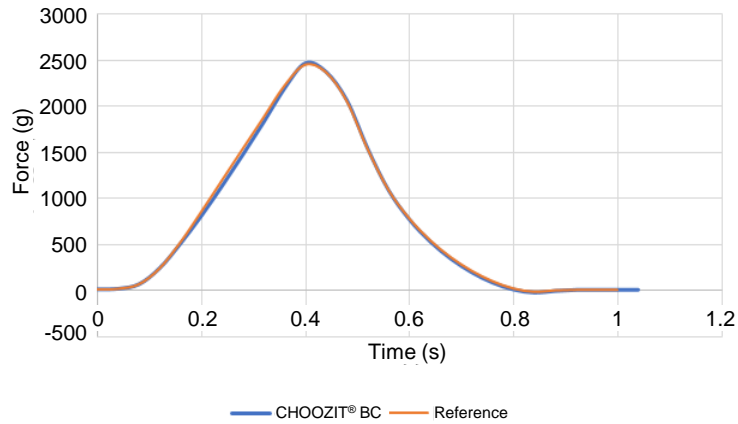
No change in texture before shredding

Comparison of the evolution of cheese texture

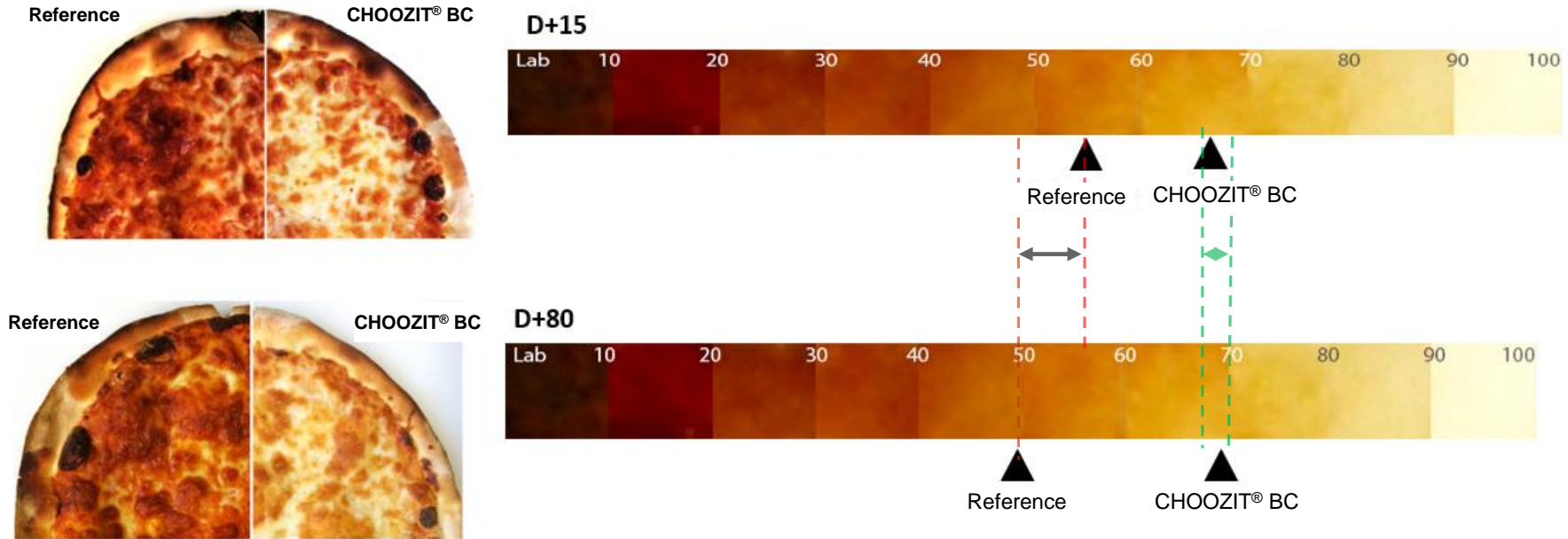
Day+15



Day+30

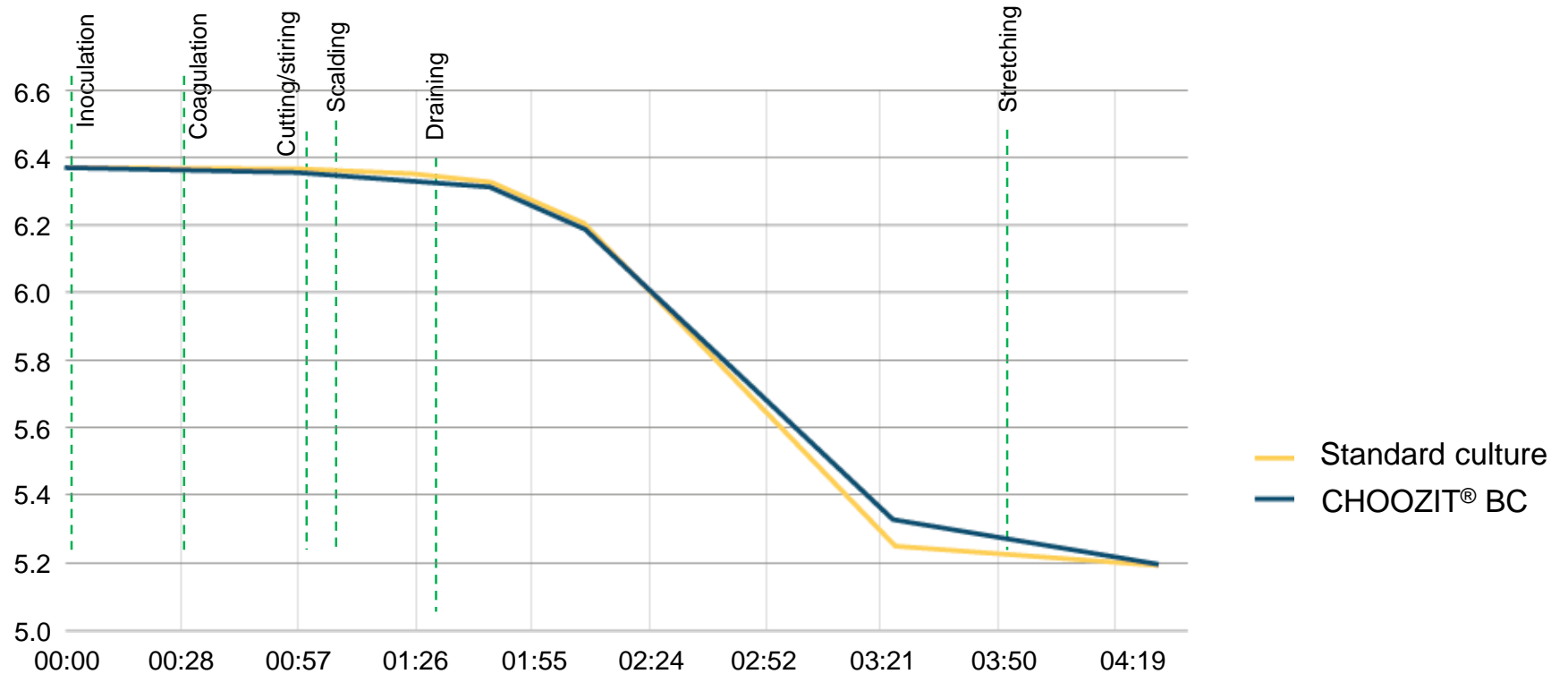


Much longer shelf-life of shredded cheese for same browning control 3 months instead of one



➔ With CHOOZIT® BC, reduced browning is stable over cheese shelf-life

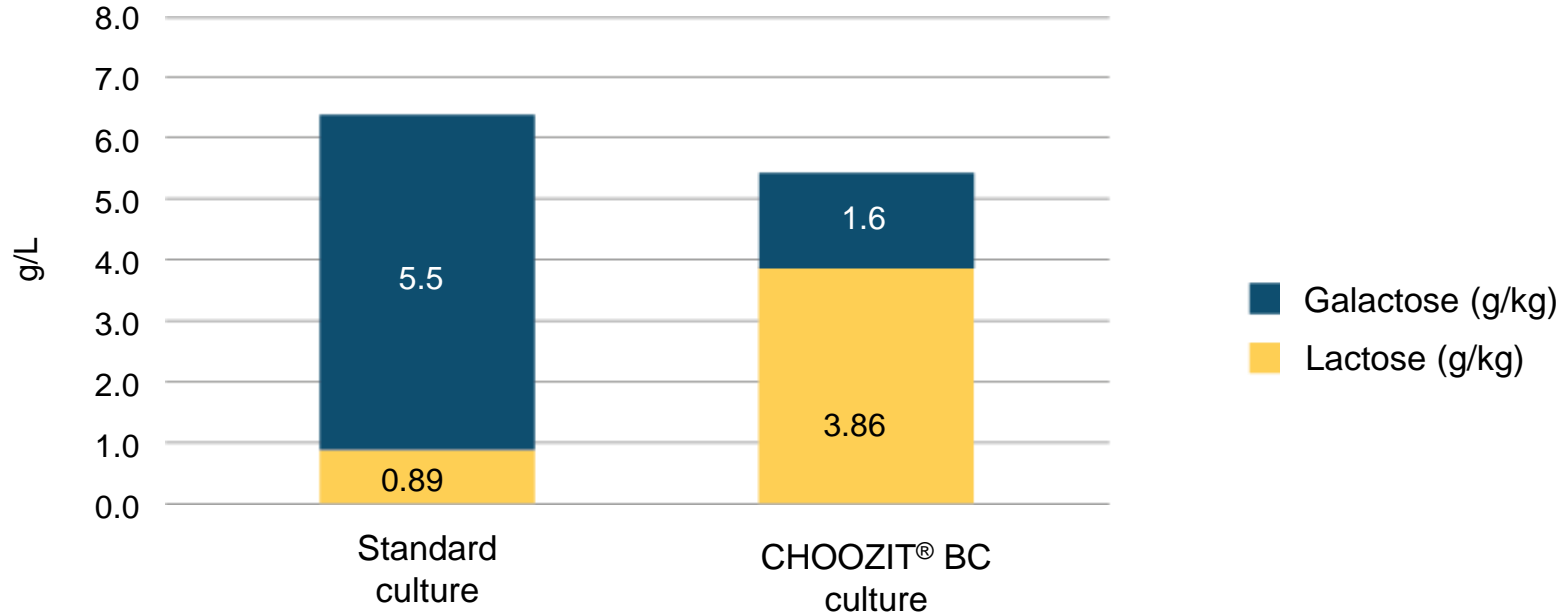
Easy to use, no change of cheese processing conditions



➔ Similar acidification profile to standard culture. No process adjustments needed

Reduce galactose content in the cheese

3 times less galactose in the cheese

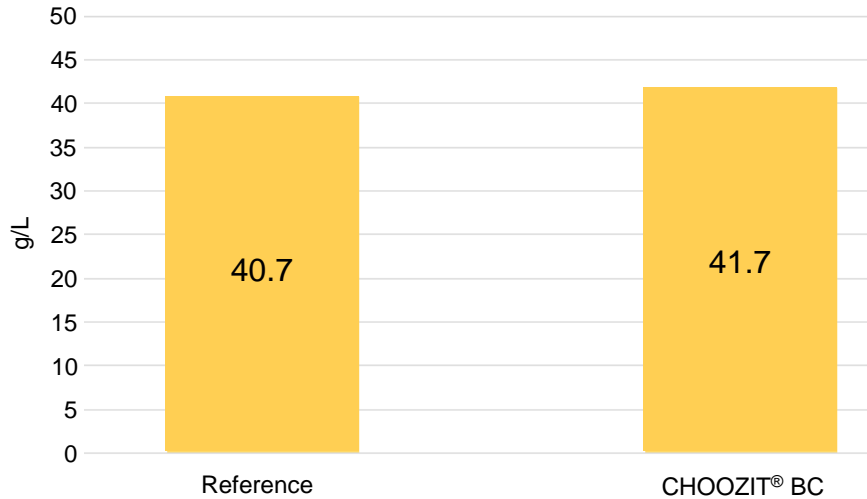


➔ 3 times less galactose in the cheese

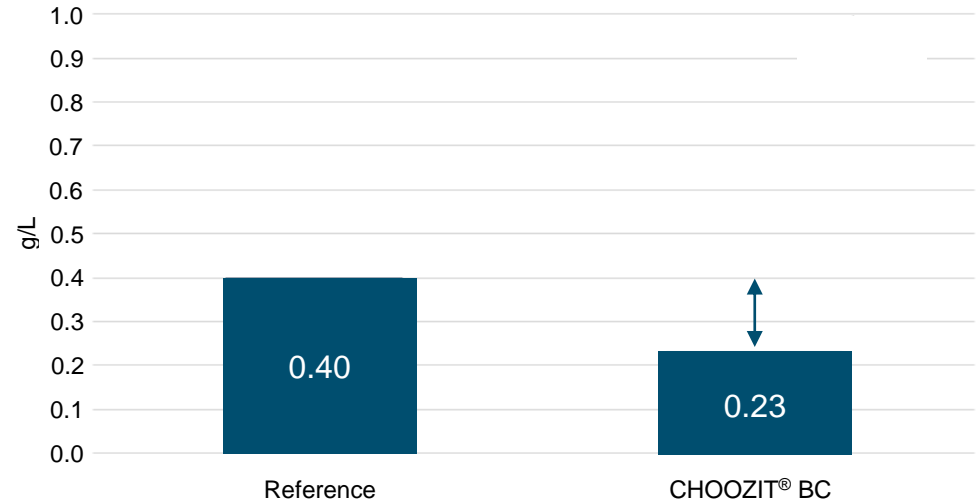
Improve whey drying process

Less galactose in the whey, easier to dry

Residual lactose in whey after molding

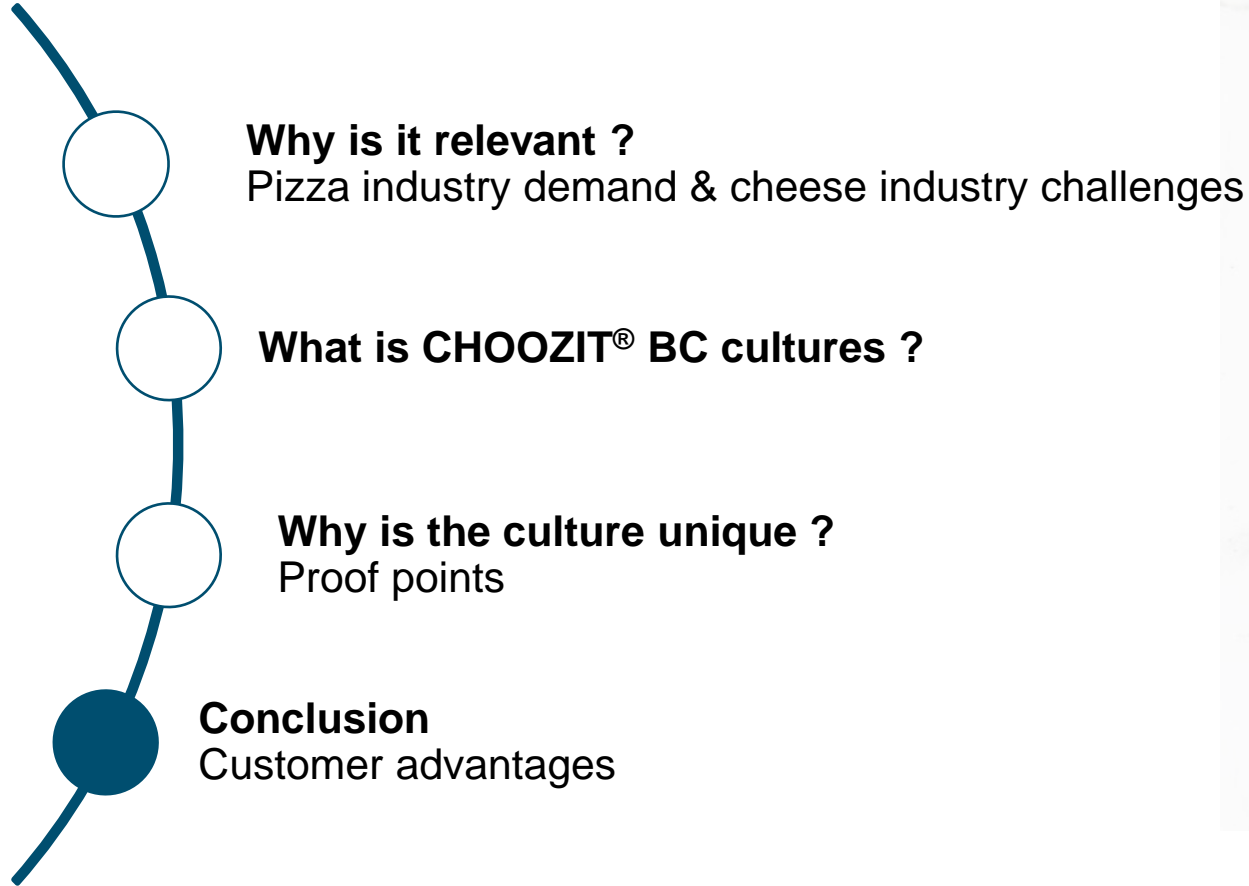


Residual galactose in whey after molding



➔ We can expect 2 times less galactose in the whey

Agenda



Customer advantages using CHOOZIT® BC Cultures

Pizza makers

- Limit cheese browning
- Meet consumer expectations in Asia for a white cheese pizza
- More flexibility in the oven conveyors for the same desired browning
- Protect against potential food contamination

Cheese marketers

- Sell pizza cheese with a premium price
- Develop export sales in markets like China
- Extend cheese shelf-life with same browning control

Cheese production managers

- Easy to use DVI cultures, all in one solution
- No change of processing parameters, compared to existing cultures
- Consistent pizza cheese production process
- Facilitate whey drying

Cheese R&D experts

- Acquire new expertise in cheese technology by using galactose positive lactic bacteria
- Built-in phage robustness thanks to selected biodiverse lactic bacteria
- No change of pizza cheese quality criteria, no proteolysis
- Clean label Browning Control solution versus alternatives formulated with additives

Thank You



DANISCO.

Copyright © 2020 DuPont or its affiliates. All rights reserved.

The DuPont Oval Logo, DuPont™ Danisco® and all products denoted with ™ or ® are registered trademarks or trademarks of E. I. du Pont de Nemours and Company or its affiliates.