



# **FIBERTEX™ CF 102 and 502**

## **multi-benefit citrus fibers**

**Clean Label Conference**  
**May 22-23, 2023**



Presented by: Xin Yang, Global Applications  
Business Scientist



# Today's presenter



**Xin Yang, Ph.D.**  
**Ingredion**  
Business Scientist  
Global Applications

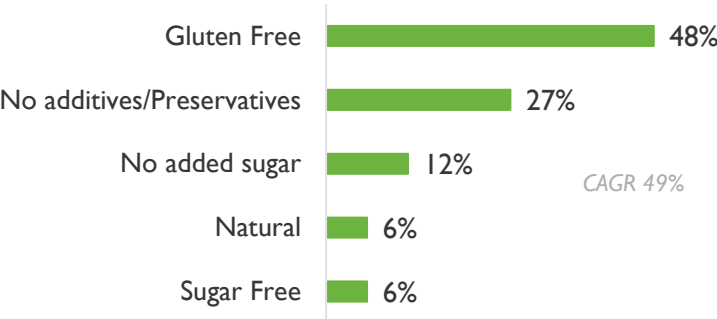


# Agenda

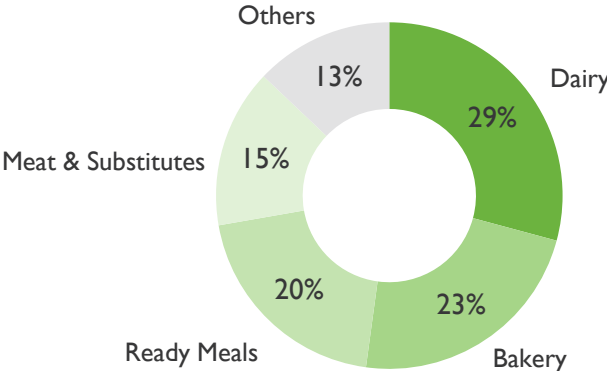
- FIBERTEX™ CF 102 and 502 citrus fibers
- Application case studies
- Additional applications
- Key takeaways

# Key consumer insights on citrus fibers

Top **Front of pack claims** for new product launches with **citrus fiber** US/CAN 2019-22<sup>1</sup>



Top **categories** for new product launches with **citrus fiber** US/CAN 2019-22<sup>2</sup>



**38%**

Growth in NA consumers finding it important to have sustainability claims for their foods<sup>4</sup>



**21%**

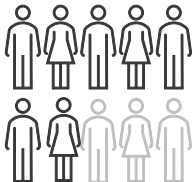
Growth of the total launches with citrus fiber between 2019-2022 in US/CAN



**13%**  
CAGR in the past **3 years** in new product launches using **citrus fiber** in US/CAN<sup>2</sup>



**80%** of manufacturers worldwide say they have reformulated for clean labels in the last two years, with at least 60% reported they are currently reformulating their products for clean label<sup>5</sup>



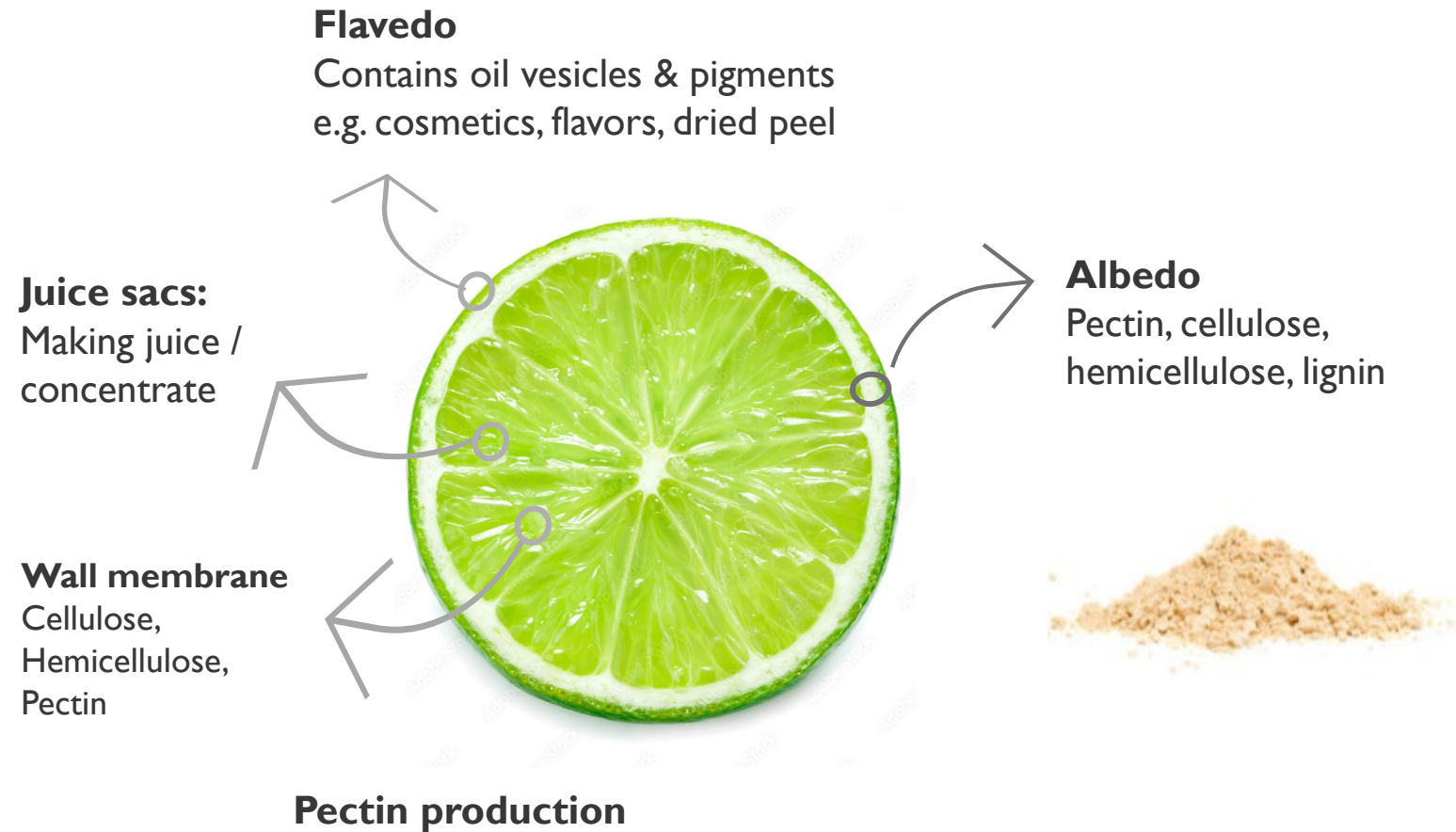
**7 in 10**  
global consumers **willing to pay more** for a natural product<sup>3</sup>

<sup>1,3,4</sup> ATLAS Ingredion proprietary global consumer research, 2022    <sup>2</sup> Innova Ingredient Genius Citrus fiber US/CAN

<sup>5</sup> ATLAS Ingredion proprietary Manufacturer survey, 2022



# Multi-benefit citrus fibers from upcycled citrus peels



# FIBERTEX™ CF citrus fibers



## CLEAN AND SIMPLE INGREDIENTS

Addressing the clean label trend of shorter lists of acceptable food ingredients.



## UPCYCLING INGREDIENTS

Using all of the fruit, coming out of side streams



## INHERENT FUNCTIONALITY

Leveraging the functionality that nature provides



Range of multi-benefit citrus fibers  
varying by **particle size**

- FIBERTEX™ CF 102 citrus fiber
- FIBERTEX™ CF 502 citrus fiber



# FIBERTEX™ CF citrus fibers

## Key features






Features	502	102
Water holding capacity	7~13g H <sub>2</sub> O / 1g fibre	4~10g H <sub>2</sub> O / 1g fibre
No heat activation needed	✓	✓
Highly Process resistant (temp., pH & shear)	✓	✓
Shear activation recommended <sup>1</sup>	✓	✓
α-amylase stable	✓	✓
Cost in use	✓	✓
Usage level (max.)	0.3 - 1.0 %	0.1 – 0.8 %
Nutritionals	0% sugar, 1.4% carbohydrates, +90% dietary fiber*(U.S. only) <sup>4</sup>	
Particle size	90% <200 microns	80% <75 microns

<sup>1</sup> Only in table sauces, dips, dressings. Not in meat, marinates and baked goods.

<sup>4</sup> Likely requires additional fiber sources to enable “high in fiber” claims with best texture results

# FIBERTEX™ CF citrus fibers

## Selecting the right citrus fiber for different applications

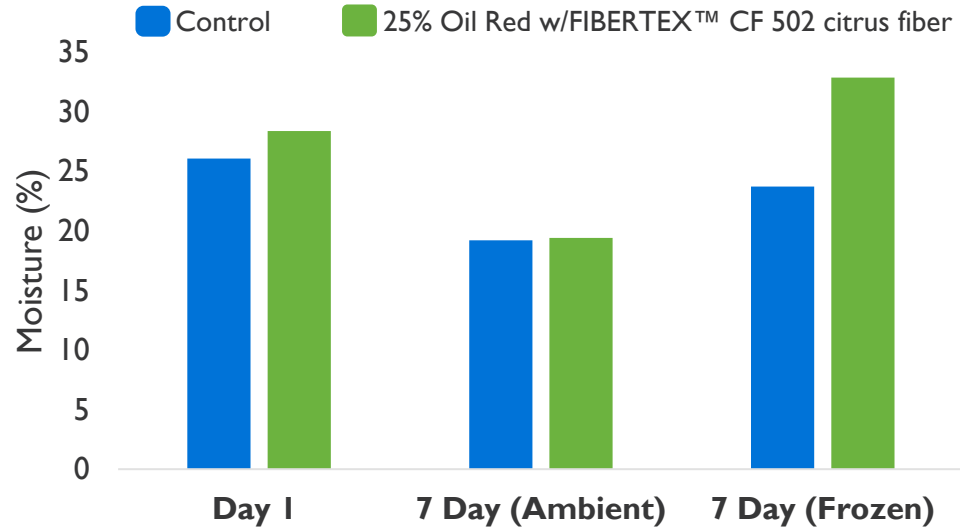
	BAKERY		SAVORY		
	Fat reduced muffins & cakes 	Longer shelf life in soft & chewy cookies & soft baked bars 	Emulsified dressing & mayonnaise (hot/cold process) 	Table sauces, dips, condiments 	Processed meat 
<b>FIBERTEX™ CF 502</b> citrus fiber	✓	✓	✓	✓	✓
<b>FIBERTEX™ CF 102</b> citrus fiber	✓	✓			✓
<b>Benefits:</b> <ul style="list-style-type: none"> <li>• Texture Improvement</li> <li>• Replacement of high-cost and not consumer-preferred ingredients</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Fat reduction</b></li> <li>• Softness enhancement</li> <li>• Improved shelf-life stability</li> <li>• Moistness in gluten-free applications</li> </ul>		<ul style="list-style-type: none"> <li>• <b>Tomato/pulp solids replacement</b></li> <li>• Oil reduction in dressings</li> <li>• Partial starch replacement</li> <li>• Withstands harsh processing</li> </ul>		<ul style="list-style-type: none"> <li>• <b>Improved cook yield</b></li> <li>• Phosphate replacement</li> <li>• Water retention</li> <li>• Texturize hybrid meats</li> <li>• Create the perfect bite</li> </ul>





## Case studies

# Case study: 25% oil reduction in gluten-free muffins



**Control**



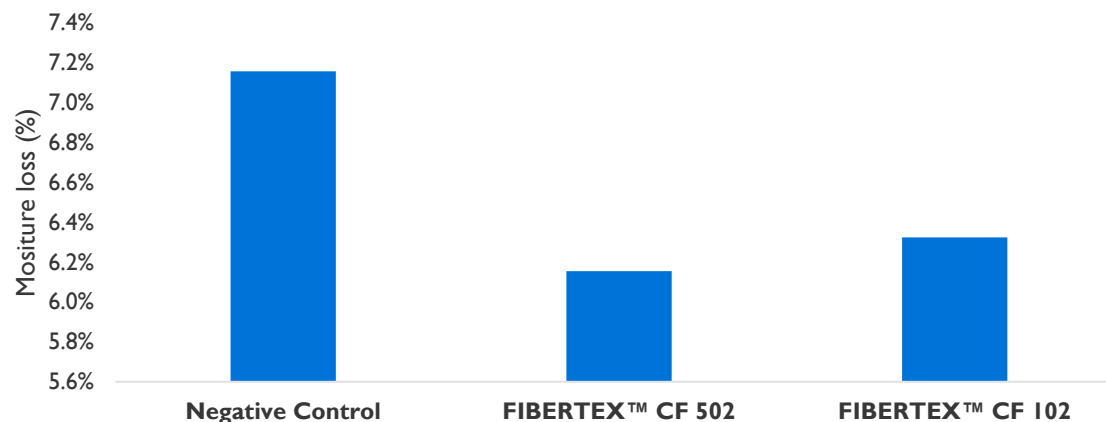
**25% Oil reduction**  
(0.6% citrus fiber)

## Conclusions

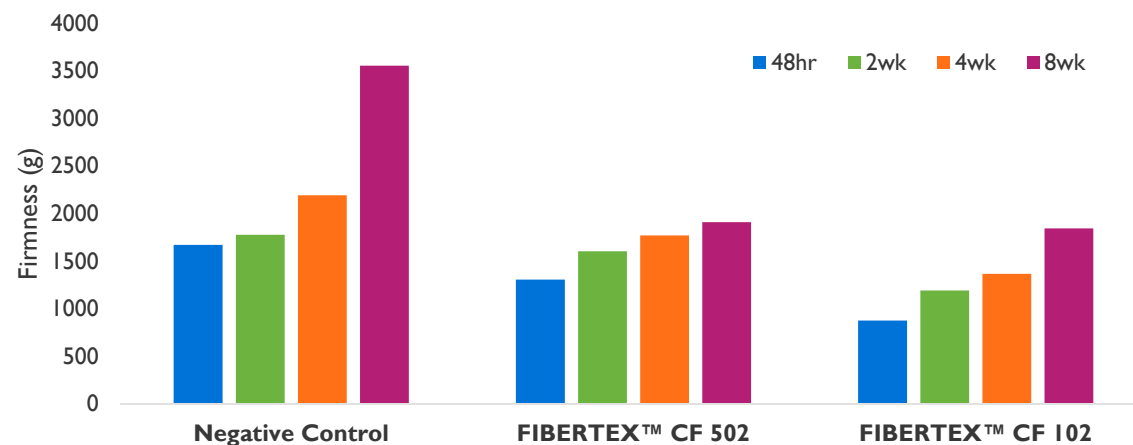
- Gluten-free muffins using FIBERTEX™ CF 502 citrus fiber to reduce 25% oil showed comparable moisture retention, height, cell structure and texture attributes to the full-fat control
- The water-holding capacity of FIBERTEX™ CF 502 citrus fiber can address the dryness often associated with gluten-free products

# Case study: Shelf life extension in soft baked bars

## Moisture loss



## Firmness over time

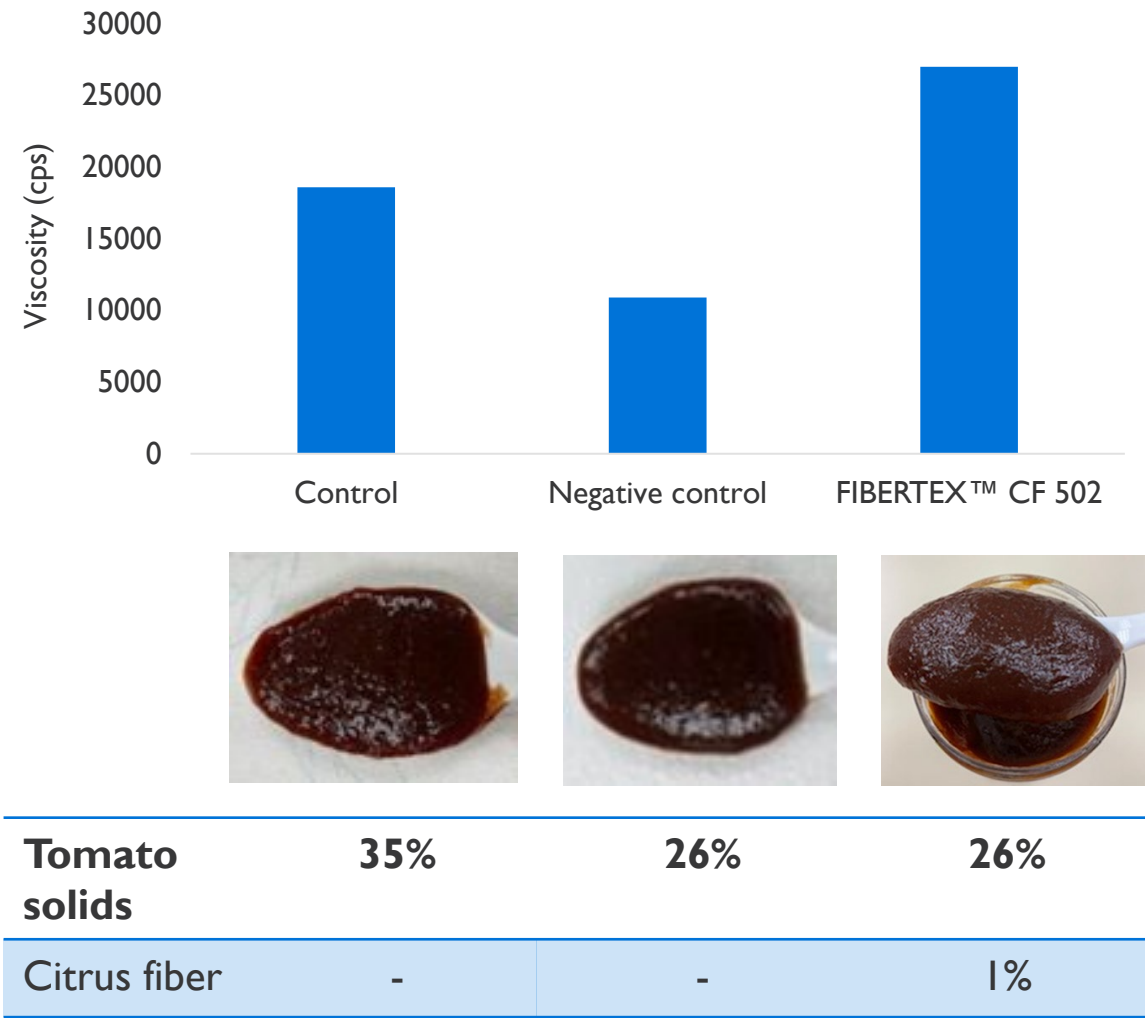


## Conclusions

- FIBERTEX™ CF citrus fibers are highly functional at reducing moisture loss, inducing and maintaining desired level of firmness
- FIBERTEX™ CF citrus fibers can be used at 0.25-0.5% to extend shelf life in soft bake bars



# Case study: 25% tomato solids reduction in BBQ sauce



## Conclusions

- FIBERTEX™ CF 502 citrus fiber can successfully build back mouthfeel and pulpy appearance when reducing 25% tomato solids in BBQ sauce
- It is recommended to use the FIBERTEX™ CF 502 citrus fiber and starch to maintain the texture and stability





## **Additional applications**





## FIBERTEX™ CF 502 citrus fiber's impact in gluten-free cookies



FIBERTEX™ CF 502 citrus fiber when used at 0.6% in 25% butter reduced gluten-free cookies can:

- Control spread and deliver increased cookie height
- Comparable moisture retention and water activity at ambient storage as full fat control
- Improved moisture retention at frozen storage

## FIBERTEX™ CF 102 citrus fiber increases cook yield in meat



FIBERTEX™ CF 102 citrus fiber when used at 0.25~1% in ground beef can:

- Bind moisture and increase cook yield
- Increase firmness
- The finer particle size of the FIBERTEX™ CF 102 citrus fiber is preferred for meat applications

# Key takeaways

**FIBERETEX™ CF citrus fibers are another of Ingredion's texturizers designed to create a winning food experience**

**OWN** the **AND** with FIBERETEX™ CF citrus fibers:

- Maintains eating quality
- Same preferred appearance

**AND**

- Cost neutral/advantage
- Sustainable
- Minimize label listings
- Clean Label claims and listing
- Contribute to dietary fiber content

