



# BAKELS

**BAKELS**

BUSINESS UNIT FLOUR INGREDIENTS



## Consistent Quality in Flour Based Applications IAOM 2023 - Vietnam



October 2nd 2023



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Bakels Group



# Outlines.



- Bakels Group - Ingredients Solutions
- Challenges in the Flour Milling Business
- Trend & Market Opportunities South-East Asia
- Flour Ingredients for Consistent Quality and Nutritional Value
- Our Approach and Expertise





BAKERY INGREDIENTS SINCE 1904

Over **110 years**  
of **Solutions** for the  
**Baking Industry**



Think Globally  
Act Locally





# Bakery and Flour Ingredients Solutions.



## Bakery

- Bread Improvers
- Bread margarines, shortenings, oil blends
- Sourdough
- Leavening agents
- Emulsifiers
- Premixes
- Release solutions



## Confectionary

- Cakes coverings, icings
- Cake margarines
- Fillings, glazes
- Emulsifiers for cakes and sponges
- Chocolate



## Industrial Flour Milling

- Flour Correctors
- Pasta and Noodles Solutions
- Steamed Buns
- Fortification Premixes



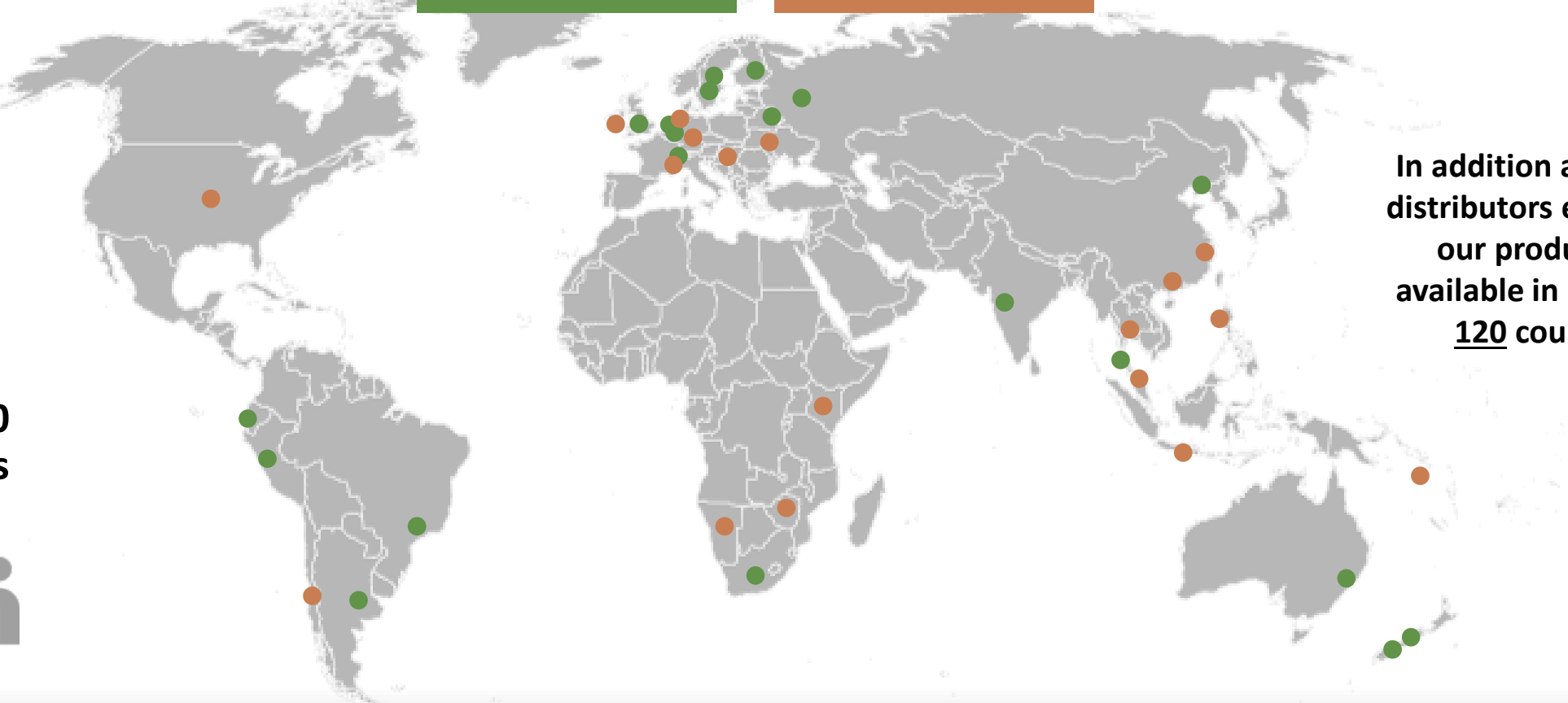
# Bakels Global Activities.



40 Companies

Manufacturing x 22

Trading x 18



In addition agents and distributors ensure that our products are available in more than 120 countries.

Over 2,850 employees



# Global Application Centres.



- World-class facilities
- Concept & Product Development
- Training & Support



Switzerland



Australia



Mainland China



Germany



Thailand



United Kingdom



Sweden



Ecuador



India



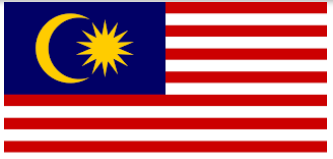
Malaysia



Hong Kong

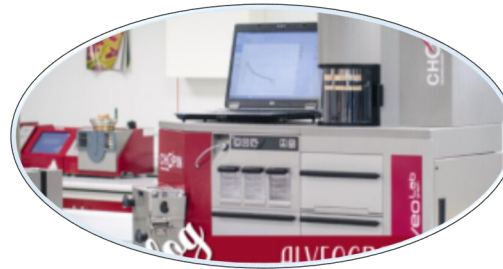


# Bakels Malaysia - Competence Center for Ingredient Solutions.



## Customer facing Application Centers.

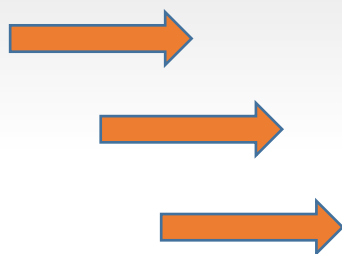
- Grain and Flour Analytical Lab
- Bakery and Noodles Application Centers
- New Product Developments (NPD)
  - Flour Correctors for Flour Milling
- Production of Flour Correctors and Bread Improvers for South-East Asia
- Flour Fortification Premixes for Mandatory programs.







## Challenges in Flour Milling Industry



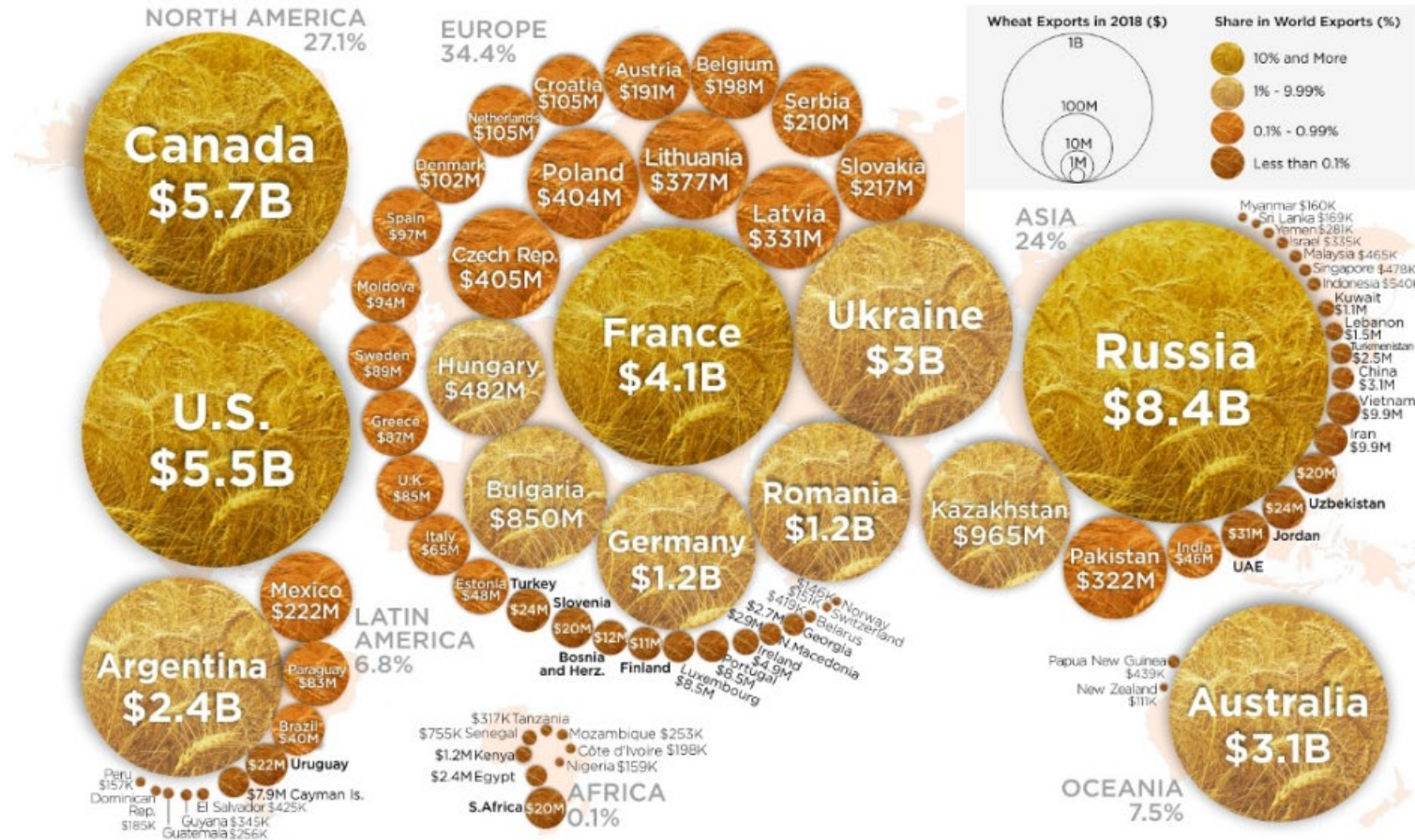
Think Globally  
Act Locally





# Challenges in the Flour Milling Industry.

## World Map of Wheat Exports



Source: WGB April 2021

Principal importing countries  
of wheat, flour and wheat products  
from 2020/2021 to 2021/2022

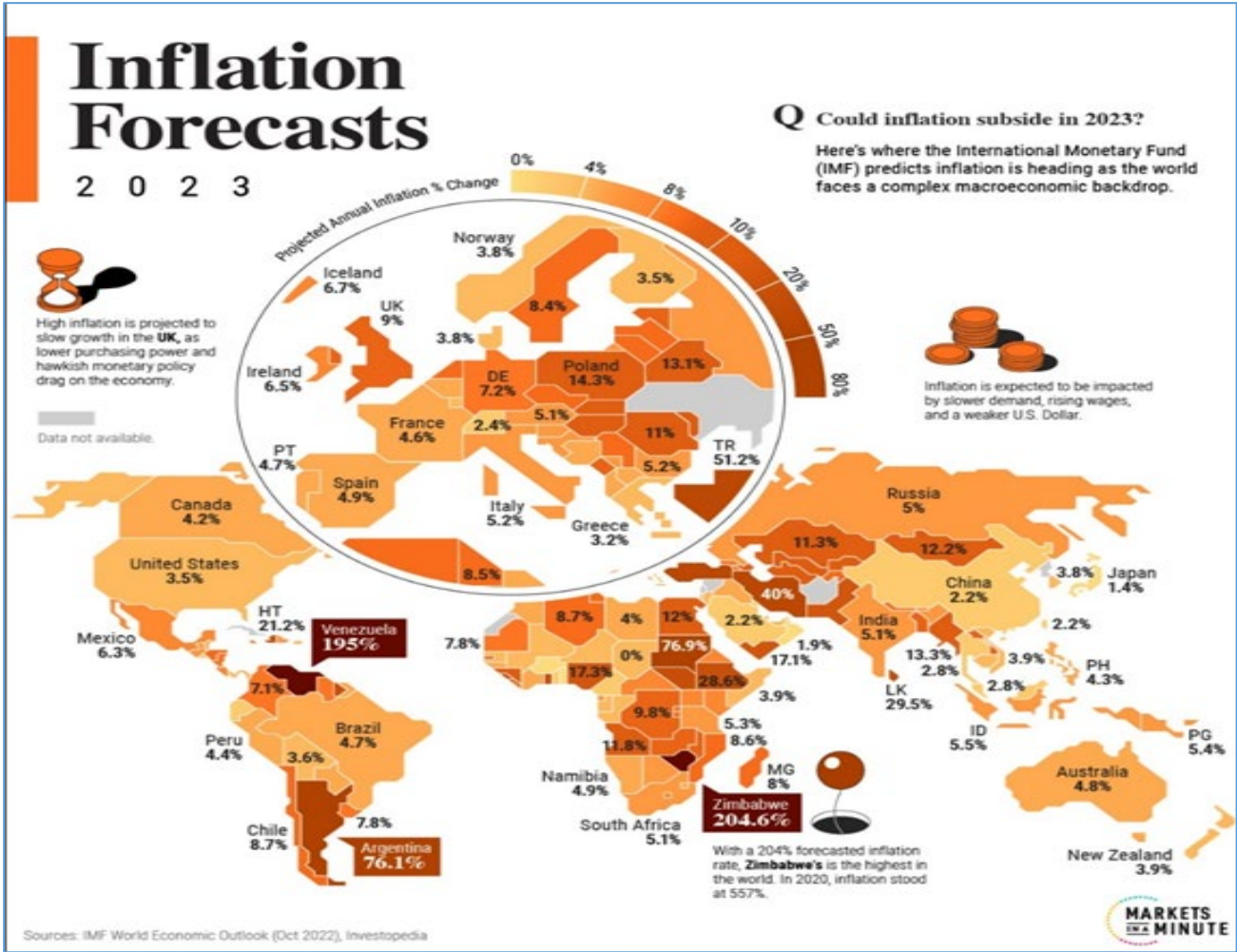
<b>EGYPT</b> <b>12,149</b> 2020/2021 <b>13,000</b> 2021/2022	<b>TURKEY</b> <b>8,051</b> 2020/2021 <b>11,000</b> 2021/2022
<b>INDONESIA</b> <b>10,450</b> 2020/2021 <b>10,750</b> 2021/2022	<b>ALGERIA</b> <b>7,680</b> 2020/2021 <b>7,700</b> 2021/2022
<b>BANGLADESH</b> <b>7,200</b> 2020/2021 <b>7,400</b> 2021/2022	<b>BRAZIL</b> <b>6,359</b> 2020/2021 <b>6,500</b> 2021/2022
<b>PHILIPPINES</b> <b>6,113</b> 2020/2021 <b>6,500</b> 2021/2022	<b>NIGERIA</b> <b>6,586</b> 2020/2021 <b>6,200</b> 2021/2022
<b>JAPAN</b> <b>5,493</b> 2020/2021 <b>5,600</b> 2021/2022	<b>EUROPEAN UNION</b> <b>5,379</b> 2020/2021 <b>5,200</b> 2021/2022

Source: USDA 2022

**Think Globally  
Act Locally**



# Challenges in the Flour Milling Industry.

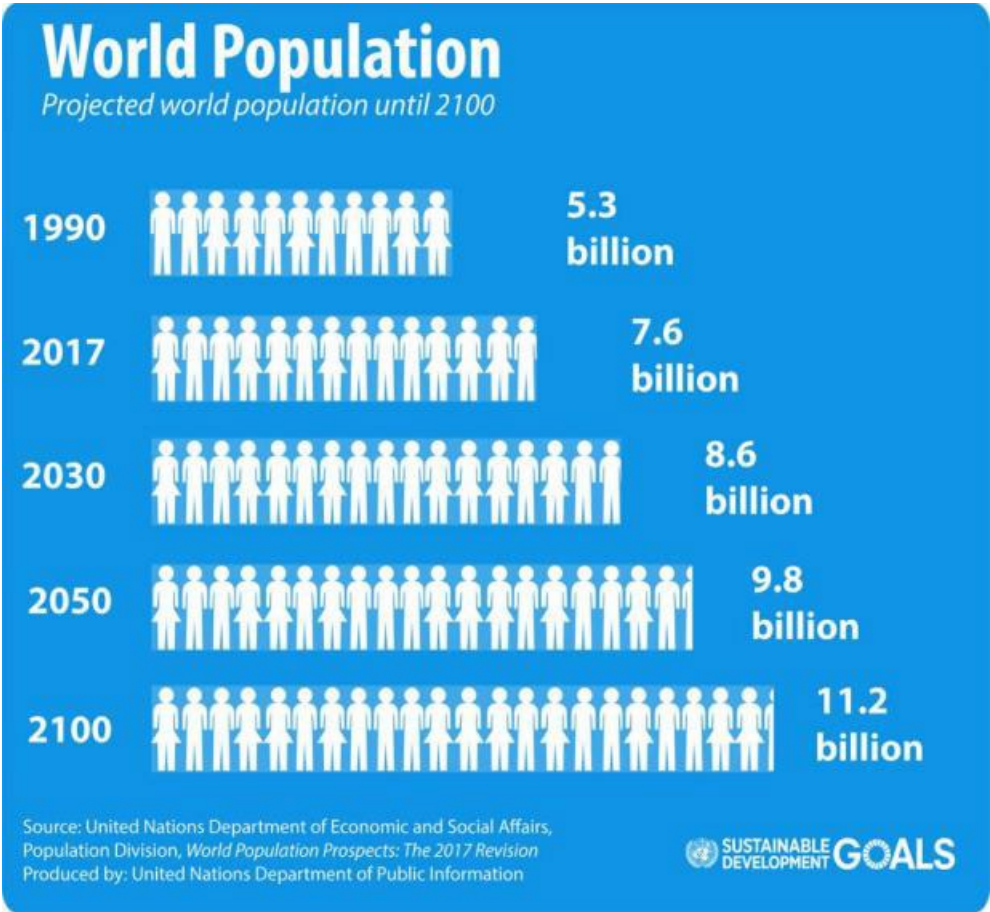


Source: Trading Economic 2023

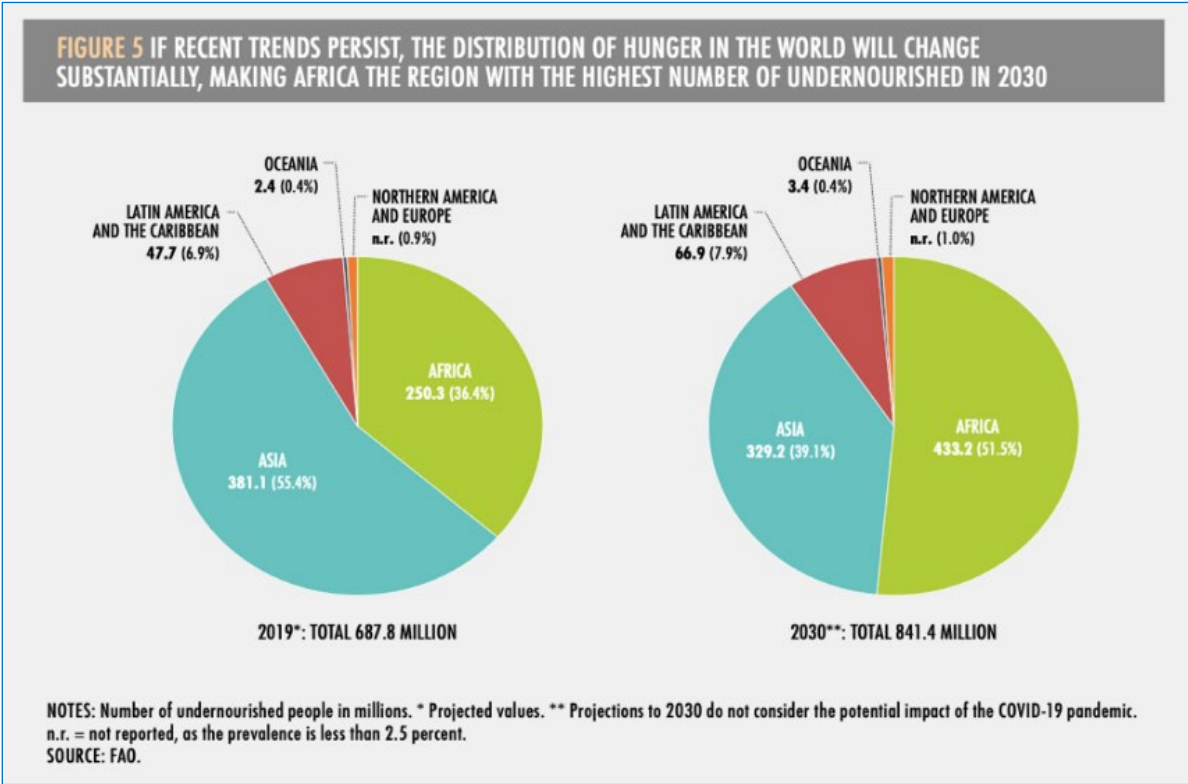




# Challenges in the Flour Milling Industry.



Source: UN Sustainable Development Goals 2022



Think Globally  
Act Locally





# Challenges in the Flour Milling Industry.



**2025 Global targets to improve maternal, infant and young child nutrients.**

- 1 40% reduction in the number of children under 5 who are stunted
- 2 50% reduction of anaemia in women of reproductive age
- 3 30% reduction in low birth weight
- 4 no increase in childhood overweight
- 5 increase the rate of exclusive breastfeeding in the first 6 months up to at least 50%
- 6 reduce and maintain childhood wasting to less than 5%

Large sections of Africa, Asia population chronically underweight. Various aid charities, such as UNICEF and the UN's World Food Program (WFP), as well as government-led initiatives, have been working to improve the situation.



# Challenges in the Flour Milling Industry.



- Overcapacity in the Flour Milling Industry leads to further consolidation.
- Global wheat supply is still unstable, the gap between supply and demand is also becoming wider over time with climatic instability such as drought & floodings.
- Food Security is at risk with higher burden of malnutrition with global impact.
- Inflation and higher energy prices push for more efficiency and for cost savings.
- Consumers behaviour are changing, more sensitive to pricing - switching to basic stable food consumption but also higher value products for the affluent consumers.
- Sustainability topics are much more important for the industry and consumers.



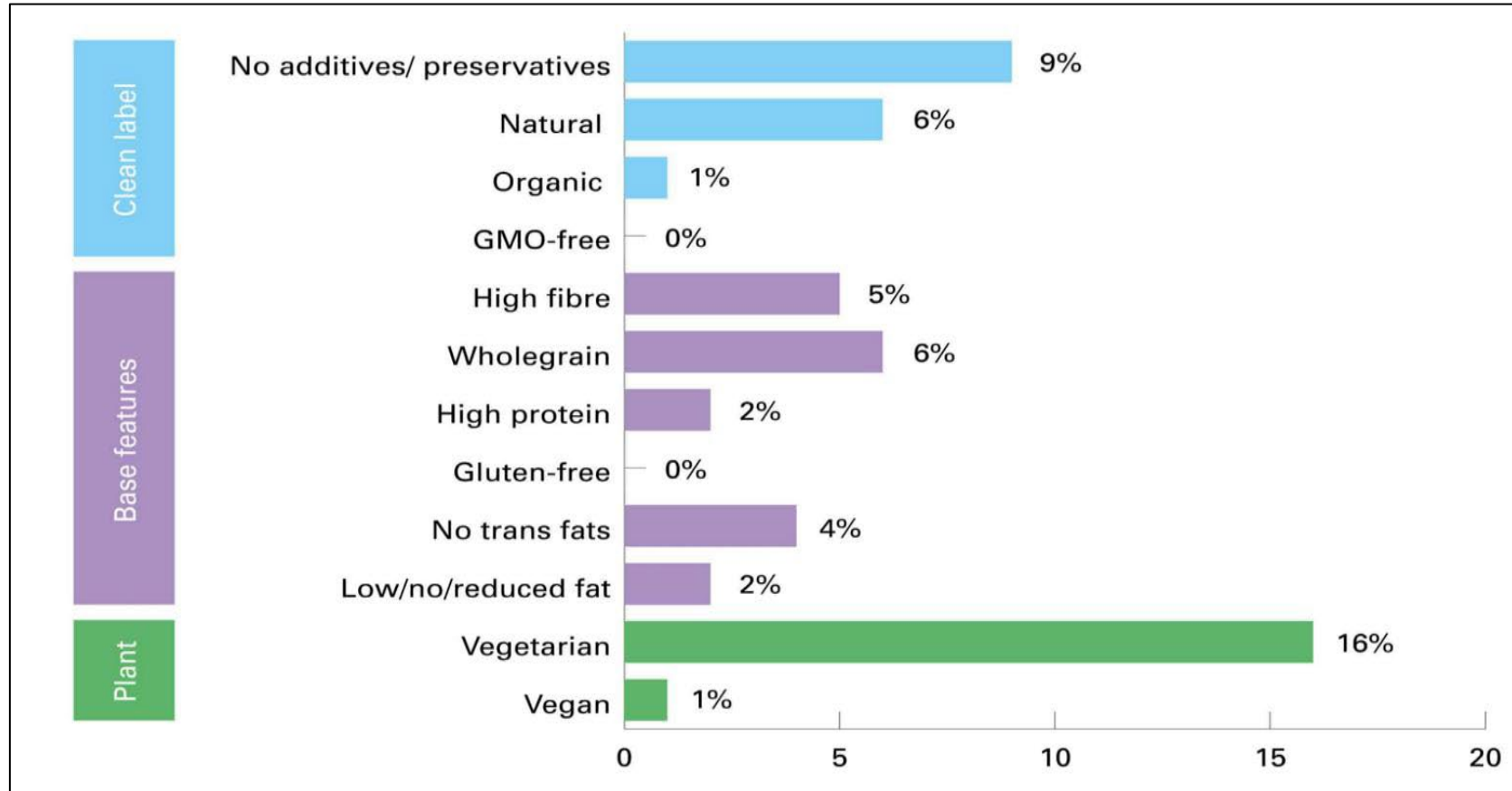


## Market Trends & Opportunities – Southeast Asia





# Market Trends - Asia

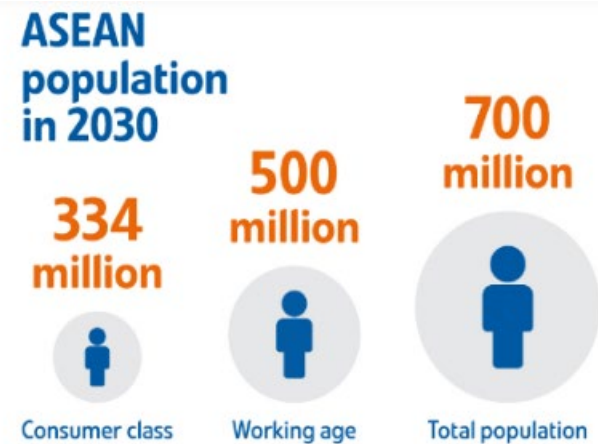
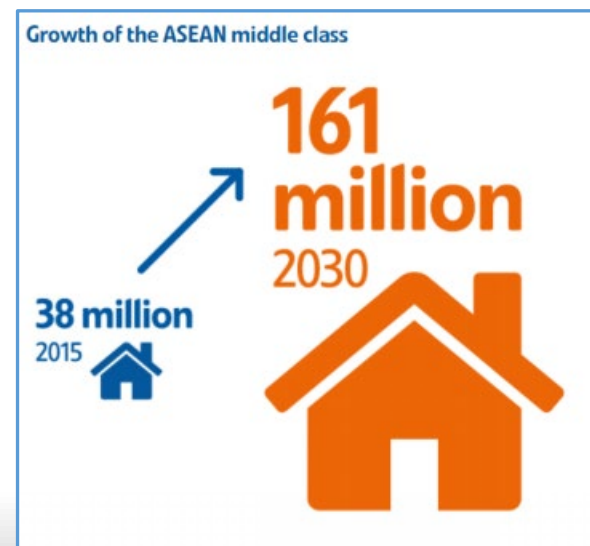
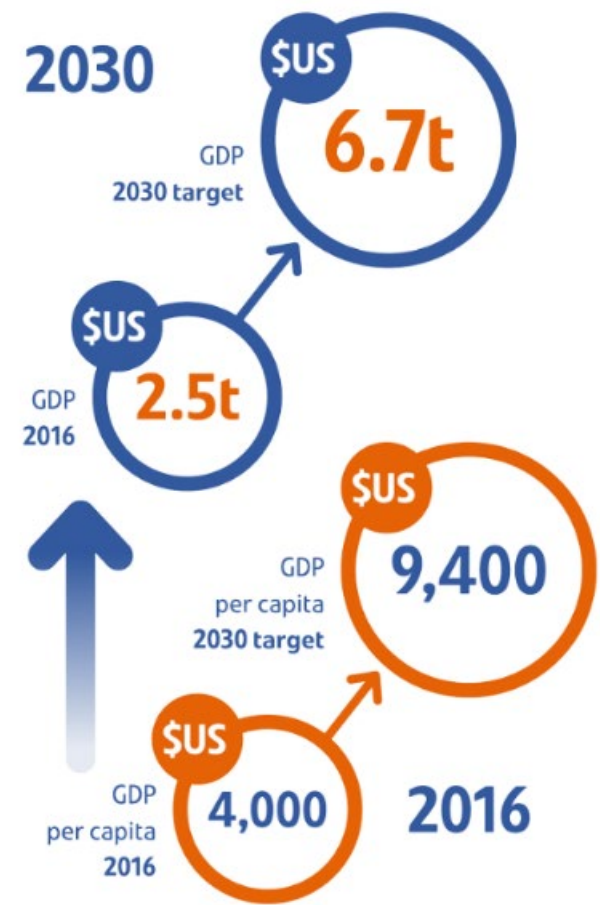


Source: Innova Category Survey 2023

Asia bread **launches** are more likely to include vegetarian claims.



# Market Opportunities - Asia 4<sup>th</sup> largest Economy by 2030.



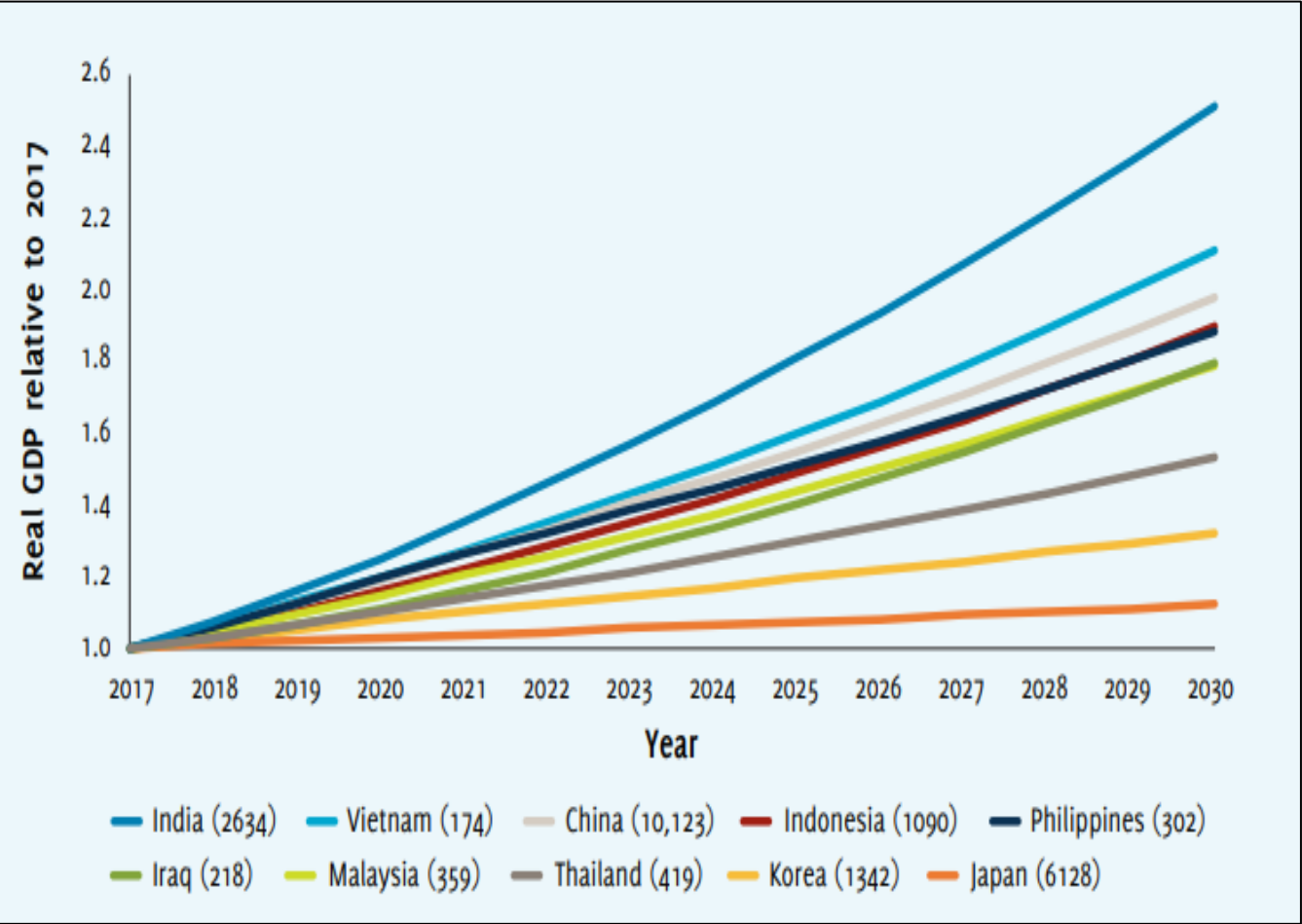
**40 cities of over 1 million people**

**80 medium-sized cities driving 40% of regional GDP growth**

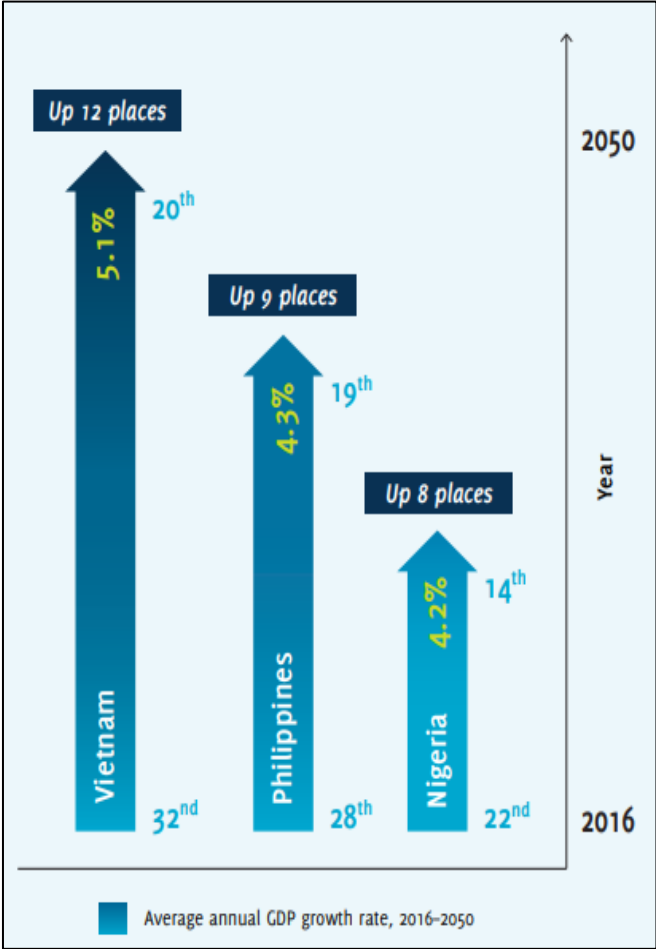
**Over 50% population growth forecast for mid-level cities including Batam and Denpasar in Indonesia and Vientiane in Laos**



# Market Opportunities.



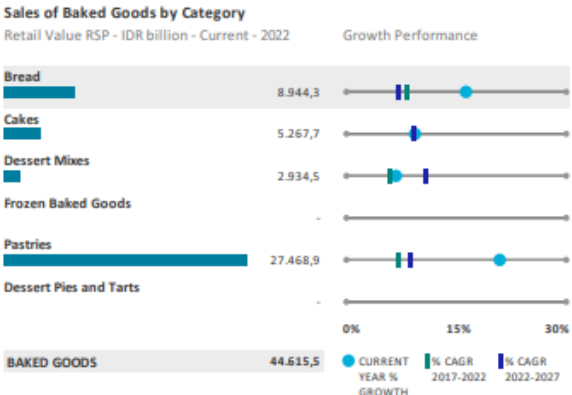
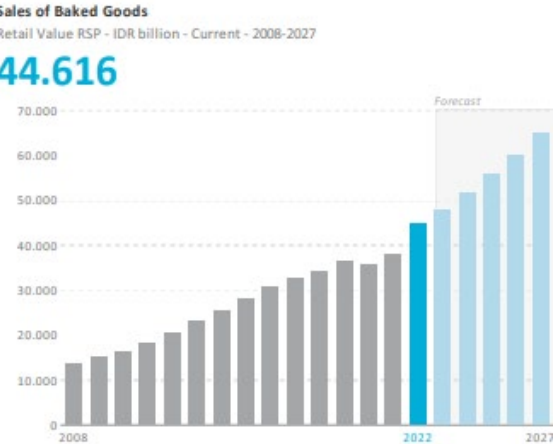
USDA 2021



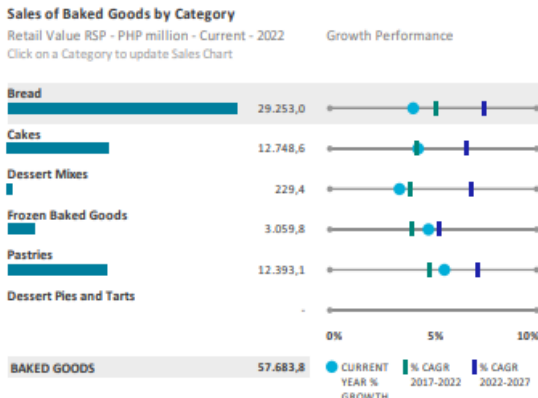
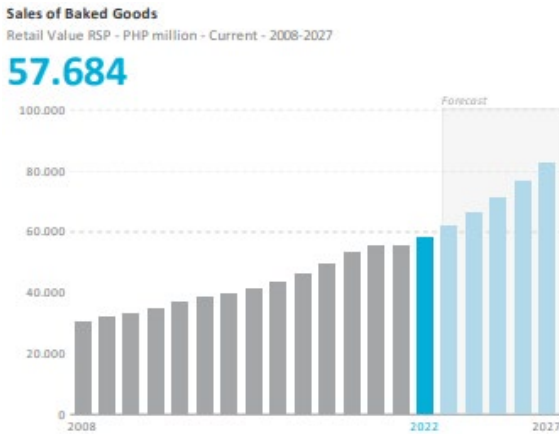


# Market Opportunities.

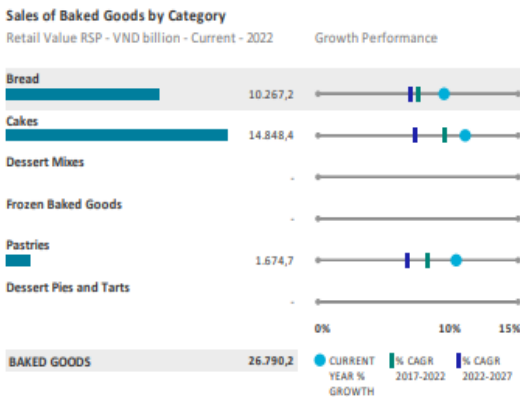
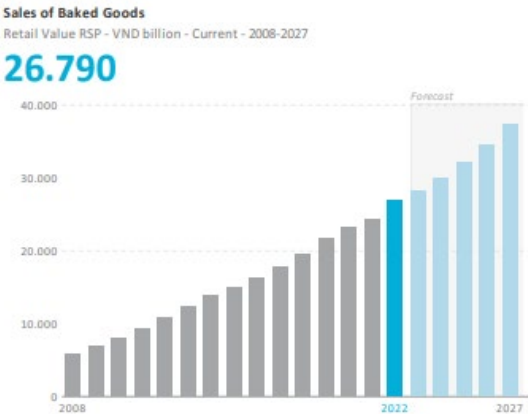
## Indonesia



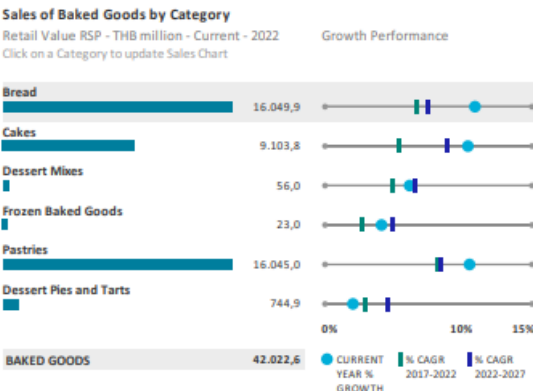
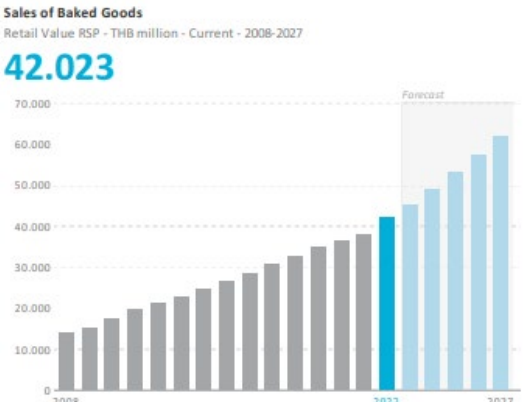
## Philippines



## Vietnam



## Thailand



Source: EUROMONITOR December 2022



# Market Opportunities - Noodles.



## IN CONTROL

After a period of mandates, empowerment will come from being able to make one's own decisions, including purchasing products that protect what consumers value most.

### MAKE CONSUMERS FEEL EMPOWERED AND CONNECTED



## ENJOYMENT EVERYWHERE

Consumers will be seeking joyful products that amplify the flavours, colours, textures, aromas and interactivity that food and drink can provide.

### HELP STRESSED CONSUMERS FIND MOMENTS OF JOY WITH PLAYFUL PRODUCT INNOVATION

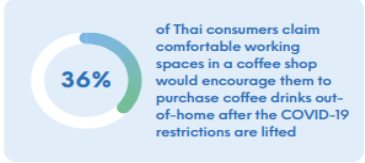


Source: Mintel 2022

## FLEXIBLE SPACES

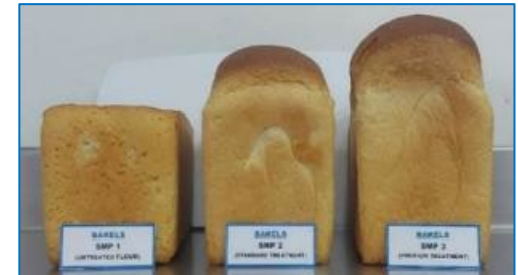
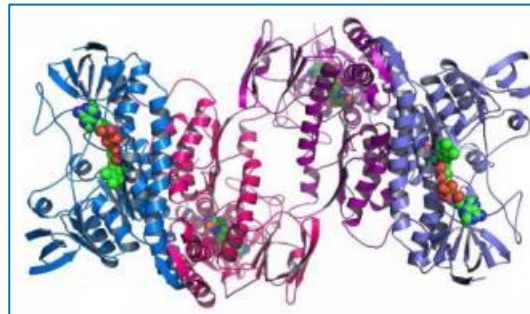
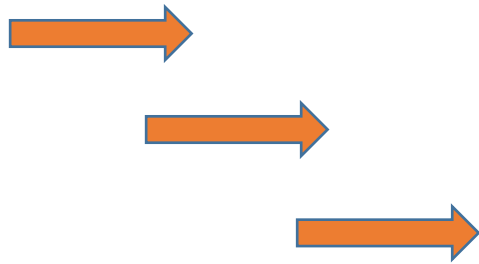
Retailers, restaurants and brands can create multifunctional, meaningful spaces where consumers can connect, shop and eat in-person or online, according to the 2022 Trend Flexible Spaces.

### SUPPORT CONSUMERS EVOLVING NEEDS WITH THE CREATIVE USE OF PHYSICAL AND DIGITAL SPACES





## Flour Ingredients - Consistent Quality



Think Globally  
Act Locally

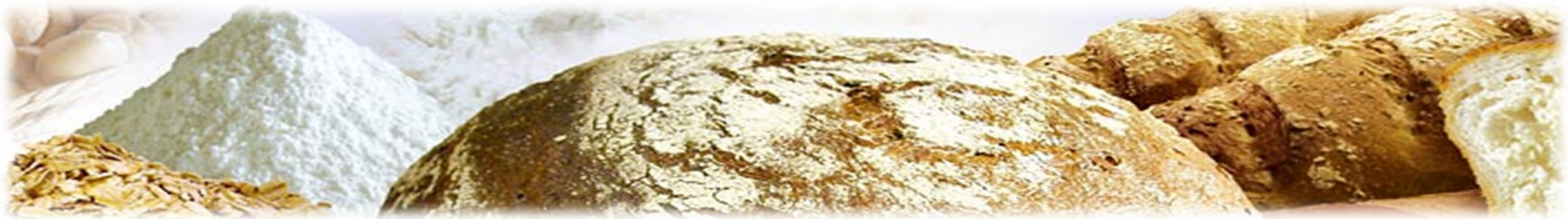




# Our Mission.



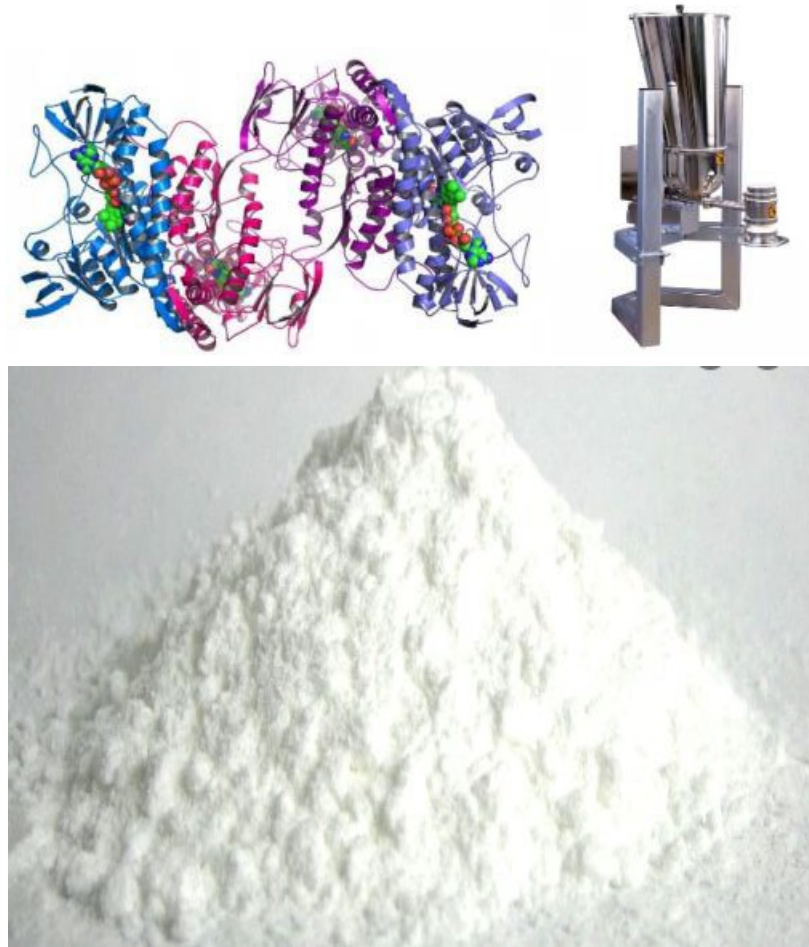
*We assist the millers in production of a consistent flour quality & Industrial Players for different food applications based on our key competencies from grain to final consumer goods.*



# Scientific Approach with SOP's in place.



Grain and Flour Analytical Lab



Integrating Flour Corrector Solutions



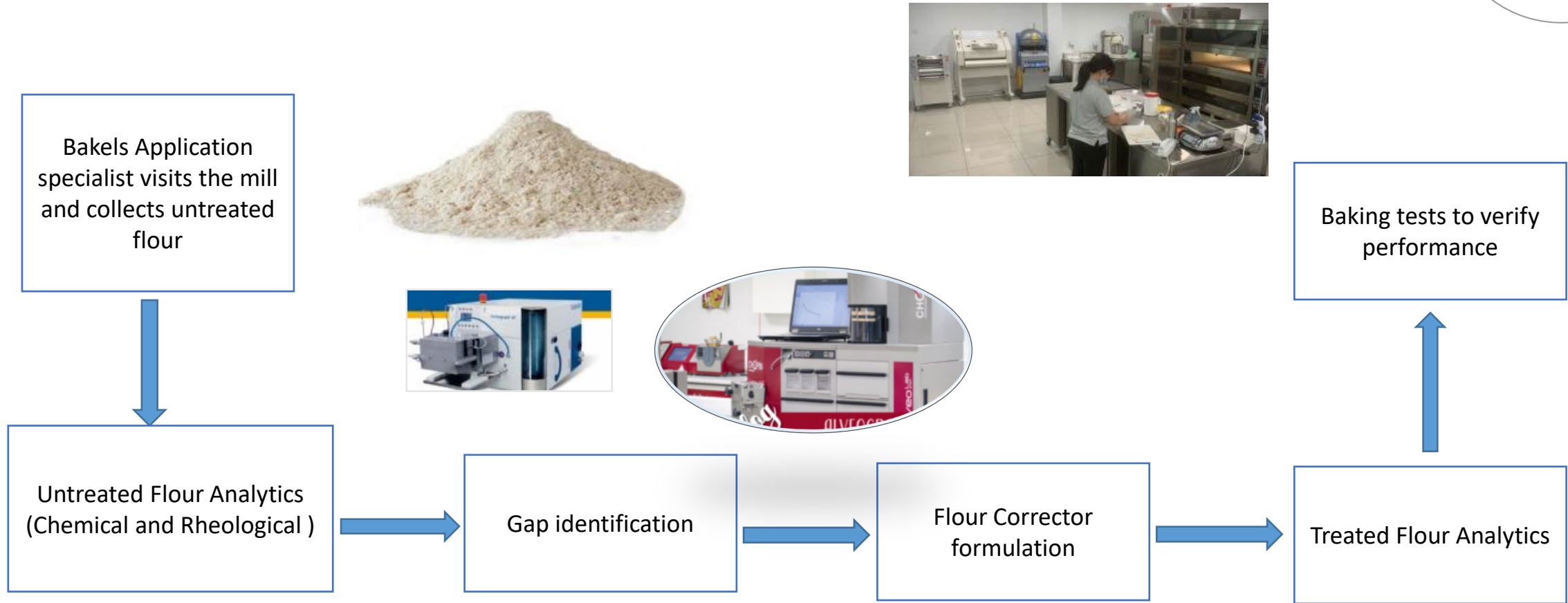
Final Consumer goods



# Scientific Approach with SOP's in place.



## Flour Correctors development process for the Milling Industry





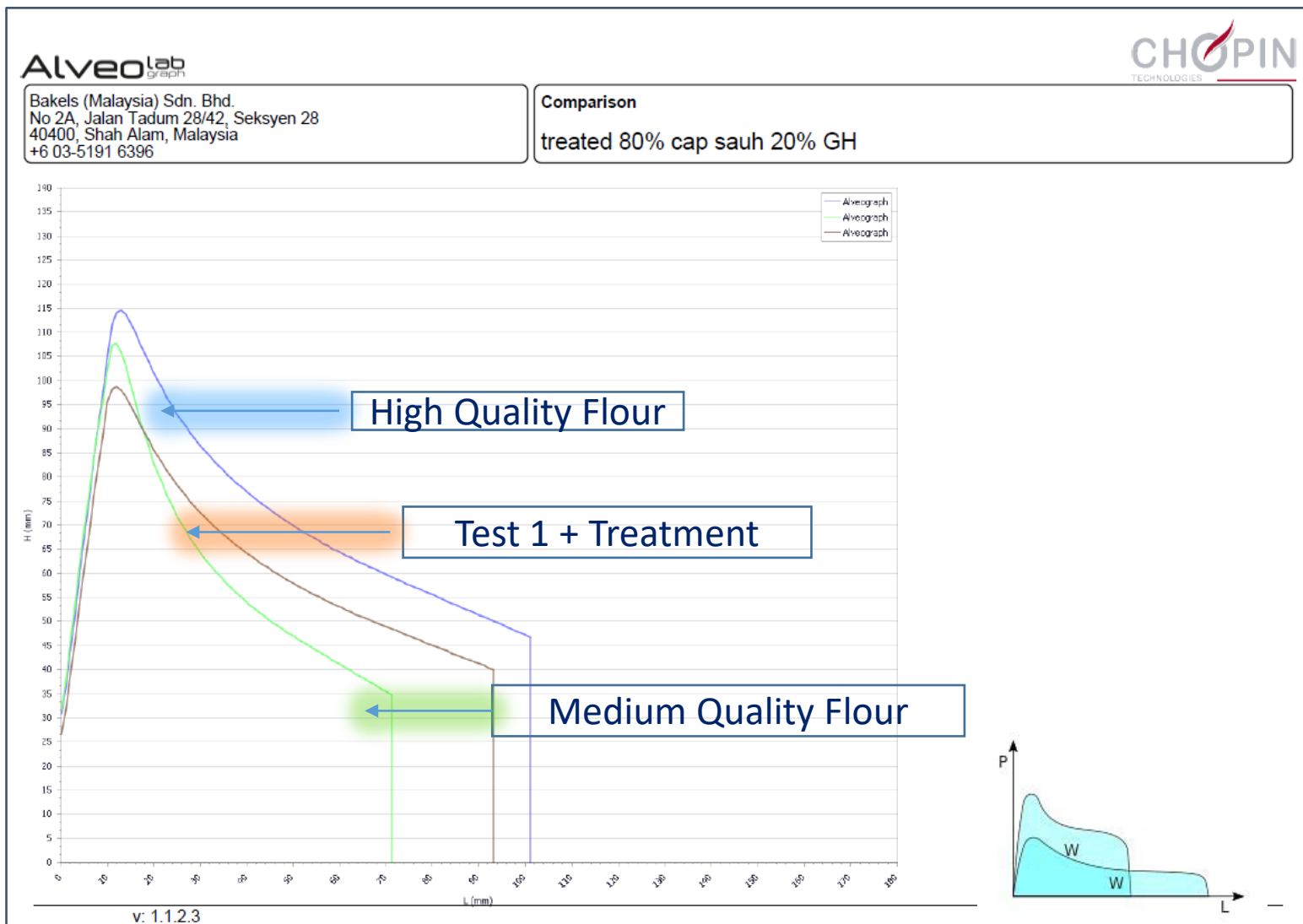
# Flour Ingredients for Consistency & Product Performance.

- Using Analysis + Flour Corrector technologies (Flour Upgrading) to provide solutions for Flour Millers.
  - Reduces high dependency on higher quality wheats
  - Ensures production of Flour Quality with consistency
  - Increase products performance of final goods
  - Reduces cost of raw materials
  - Achieving target objectives of end products
- Replacing some of the high-priced quality wheat with lower priced quality alternatives, including cake flour or flour from with high ash content + Flour Ingredients.
- Improve performance of specified flour for different food applications.





# Flour Analytics with Alveograph.

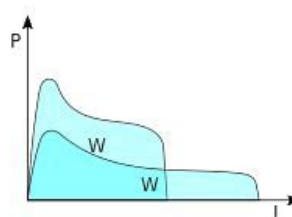


- High Quality Flour (Blue): Protein 14.8, Ash 0.56, Moisture 12.9, Absorption 62.3
- Test 1 (Orange): 20% HQ + 80% MQ + Flour Corrections.
- Medium Quality Flour (Green): Protein 11.5, Ash 0.76, Moisture 13, Absorption 62.6

## Baking Test:

Control: 60% High Quality Flour

Test 1: 20% High Quality Flour + 80% Medium Quality Flour + Flour Corrections.



# Flour Correctors and its Impact on Finished Products.



Improved performance - changing ratio MQ with HQ wheat.



60% High Quality Wheat + 40%  
Medium Quality wheat (MQ) +  
Fungal amylase

20% High Quality wheat + 80%  
Medium Quality Wheat + Fungal  
amylase + Xylanase + Glucose  
Oxidase

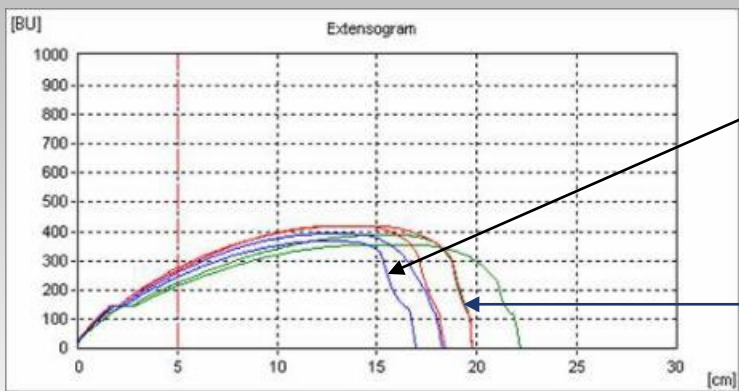
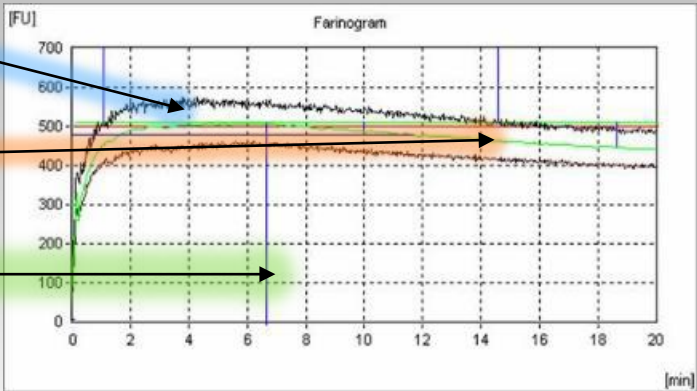


# Flour Analytics with Farinograph.



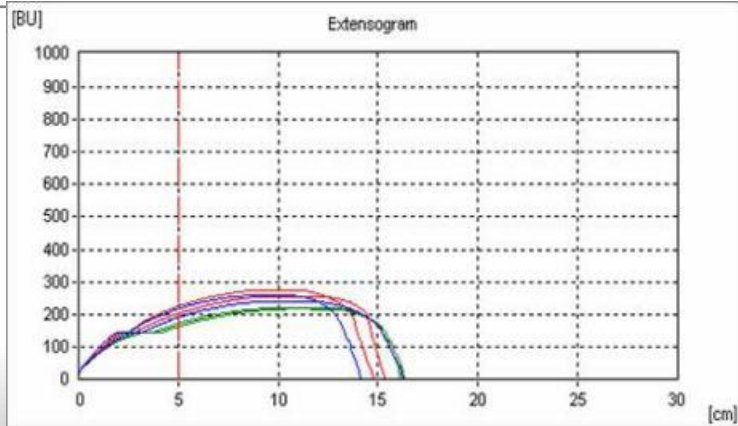
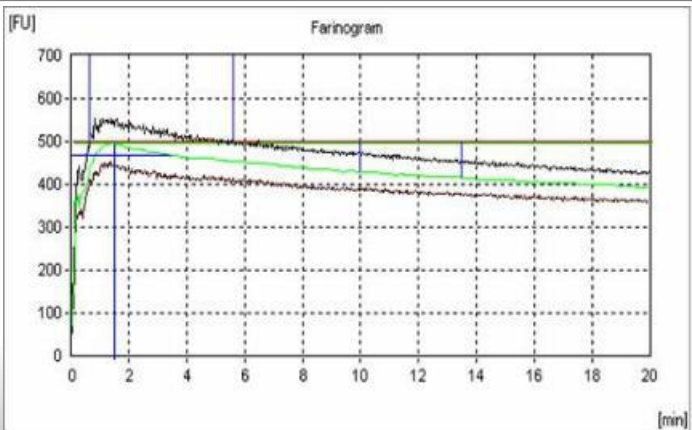
**FLOUR: Canadian (HQ) wheat flour**  
Ash 0.55%; Water absorption 66.2%; Falling No. 391 sec.

- Development
- Stability
- Softening



- Resistance to extension
- Extensibility

**FLOUR: European (LQ) wheat flour**  
Ash 0.55%; Water absorption 63%; Falling No. 355 sec.



Think Globally  
Act Locally

# Cost Benefits for Improved Flour Quality (Example).

Cost calculation based on average price per ton:

HQ \*Wheat / flour blend 60% HQ + 40% MQ \*Wheat / flour = USD 372.00

HQ \*Wheat / flour blend 20% HQ + 80% MQ \*Wheat / flour = USD 344.00 +

\*\*Flour Corrector Solution USD 12+/- = USD 356.00

**Potential savings: Approximately USD 28 /ton**

**\*Wheat Blending has some challenges for inconsistency - compared to flour blending**

“Addition of Flour Correctors allows flour correction to achieve consistency according to customer needs and therefore offers a tailor-made solution”.

**\*\*Average Costing +/- based on solutions applied.**





# Noodle Flour Improver

## Liangmei Enzyme – Flourzyme NT202

- Improve texture toward chewy & springy
- Improve cooking stability
- Improve slightly in colour toward yellow bright
- Reduce uses of chemical material while maintain desired textural properties
- Dosage 0,2-0,4% on flour weight

## Liangmei Enzyme – 402+

- Improve texture toward firm
- Improve cooking stability
- Improve significantly in colour toward brighter
- Reduce uses of chemical material while maintain desired textural properties
- Dosage 0,3-0,5%

## Benefit of Using Noodle Flour Improver

- No chemical ingredient inside the composition.
- Reduce dependence of chemical ingredient in formulation
- Improve quality in texture, mouthfeel & appearance

*Sheeted after 24 hours*



*Raw Noodles after 24 hours*

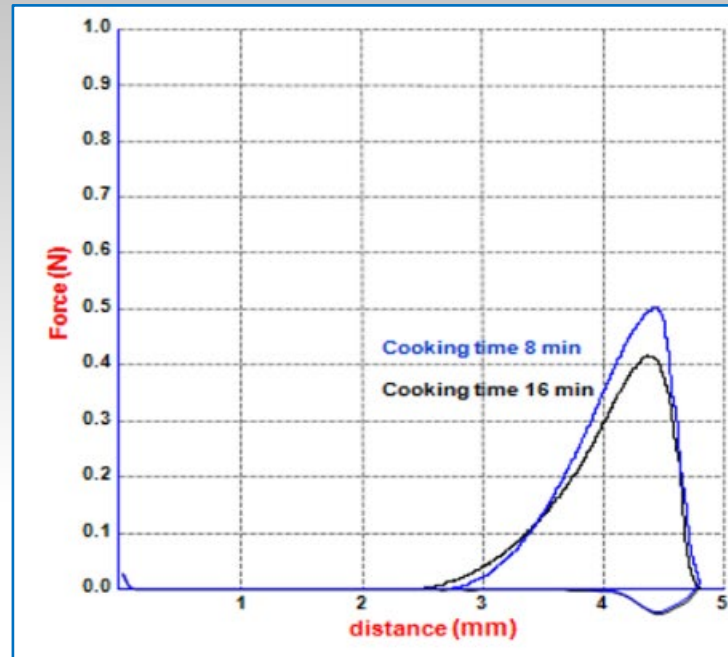


*Cooked Noodles*

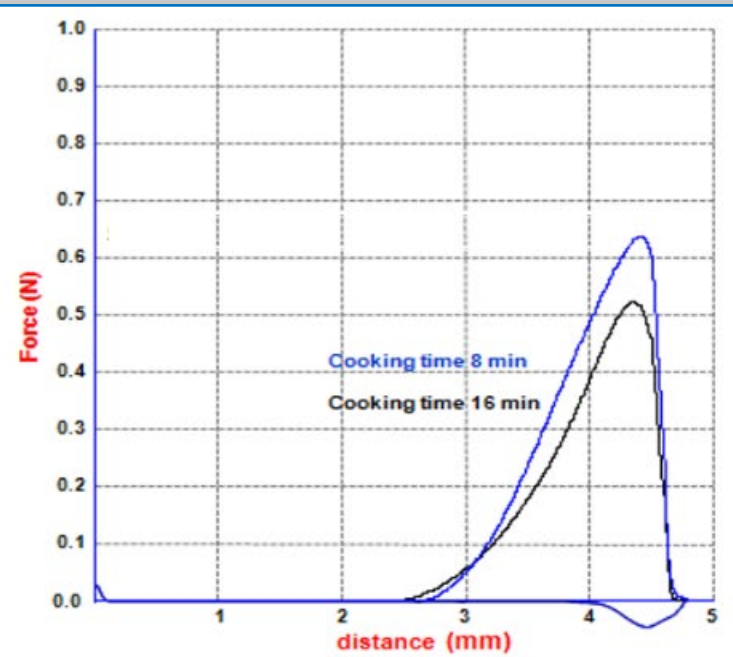


# Flour Correctors and its Impact on Finished Products.

*Noodles texture without Flour Correctors*



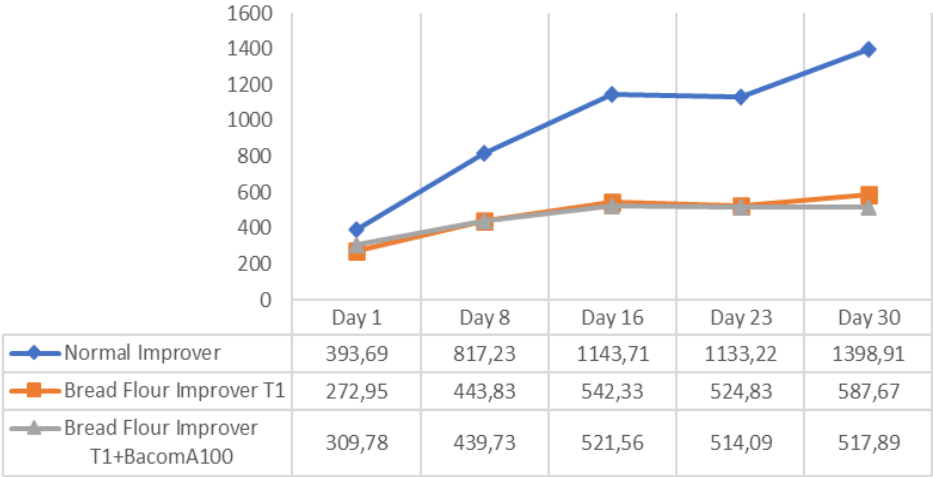
*Noodles texture with Flour Correctors*



# Bread Flour Improver System

- **BREAD FLOUR IMPROVER T1**  
designed for long shelf life bread with excellent in maintain freshness & softness of the bread during storage.

SANDWICH TOAST BREAD HARDNESS (GFORCE)

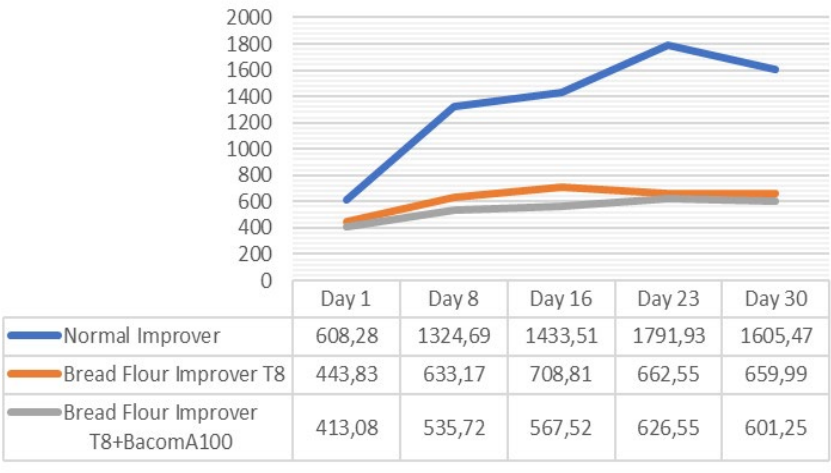


Note : Measurement of Bread Flour Improver (H) T1 & Normal Improver using Texture Analyzer in Sandwich Toast Bread Application

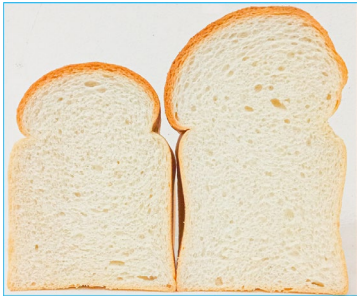
Long shelf life in bakery product become trend these recent days to reach wider distribution spread yet still maintain excellent eating properties. Bakels developed Solution system to accommodate long shelf life bread but still maintain softness & freshness.

- **BREAD FLOUR IMPROVER T8**  
designed for long shelf life sweet bun with excellent in maintain freshness & softness of the bread during storage.

Sweet Bun Hardness (gforce)



Note : Measurement of Bread Flour Improver (H) T8 & Normal Improver using Texture Analyzer in Sandwich Toast Bread Application





# Flour Fortification equipment for proper dosing at the mill.

- The most common flour fortification practice is to add multiple vitamins and minerals using a single pre-mix called a Fortificants.
- The most common way to dose fortificants into flour is using a micro feeder.
- Adding fortificants to flour, at pre-determined rates is done in the process of flour production.
- Fortificants do not affect the color of flour because premixes are added in small amounts
- **Fortification Premixes Standard example for Indonesia.**



Nutrient levels and compounds in wheat flour fortification standard in Indonesia		
Iron	Ferrous fumarate, Ferrous sulfate, NaFeEDTA All compounds are WHO recommended	50 mg/kg 83% of the maximum WHO recommended level
Zinc	Zinc oxide All compounds are WHO recommended	30 mg/kg 32% of the maximum WHO recommended level
Thiamin (B1)	Thiamin hydrochloride, Thiamin mononitrate All compounds are WHO recommended	2.5 mg/kg 83% of the maximum WHO recommended level
Riboflavin (B2)	Riboavin 5' phosphate sodium, Riboflavin All compounds are WHO recommended	4 mg/kg 200% of the maximum WHO recommended level
Folate (B9) ①	Folic acid All compounds are WHO recommended	2 mg/kg 40% of the maximum WHO recommended level

Source: National Standardization Agency. Indonesian National... [more](#)



# Conclusions.



- *Wheat price and wheat quality will remain a constant challenge.*
- *Optimizing milling processes for high efficiency with traceability is key.*
- *South-East Asia offers great market opportunities for wheat flour-based products.*
- *Consumer behaviours are changing - opportunities for new product concepts*
- *Technical application expertise at the mills and the bakeries are very important.*
- *Flour Ingredients Solutions for consistent flour quality with excellent product performance in different food applications.*



# Bakels Malaysia Customer Application Center.





# Bakels Group SEA Contacts.

## **Bakels Malaysia**

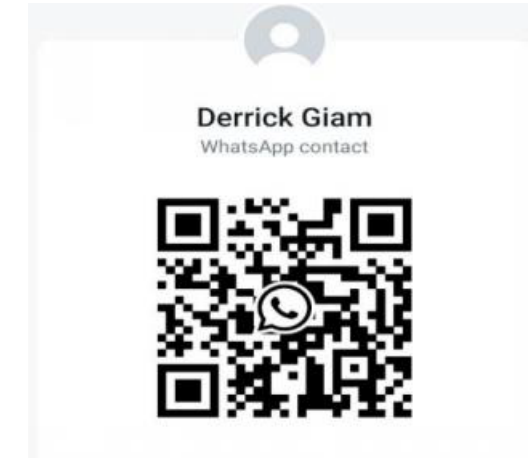
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# Grain Based products Healthy and Tasty.

