FHI FOOD & HOTEL INDONESIA VIRTUALHUB 2021

Saladplate Indonesia

Hospitality, F&B Hub Week

TUESDAY - FRIDAY
21-24 September, 2021

# Barrier Packaging
# A Game Changer in Ready Meals Processed and Packaged Foods

Gerry Darmawan – Innovation Officer IPF

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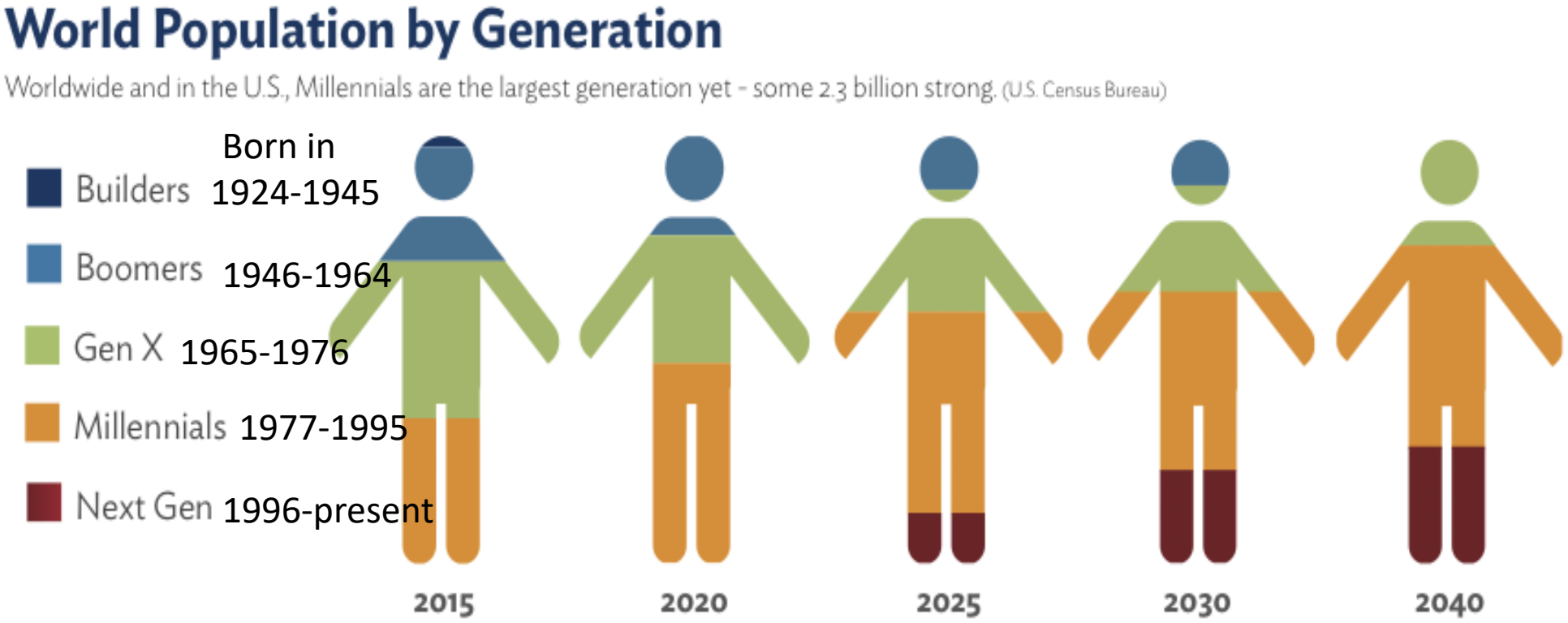
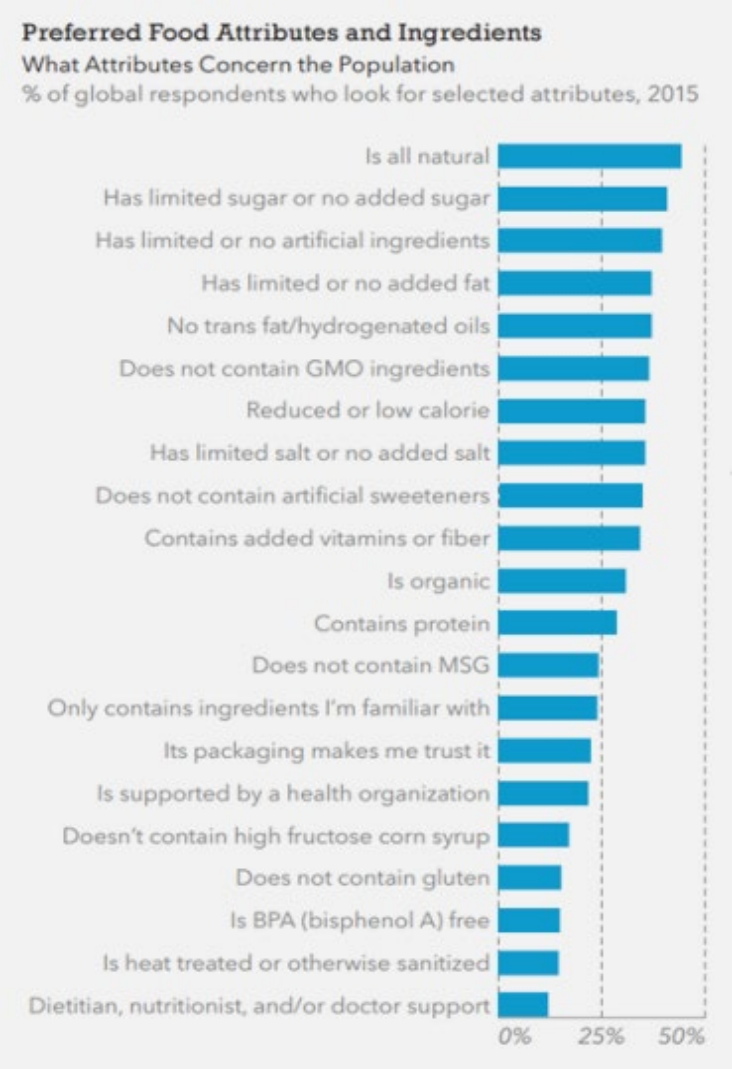
# Millenials take over…

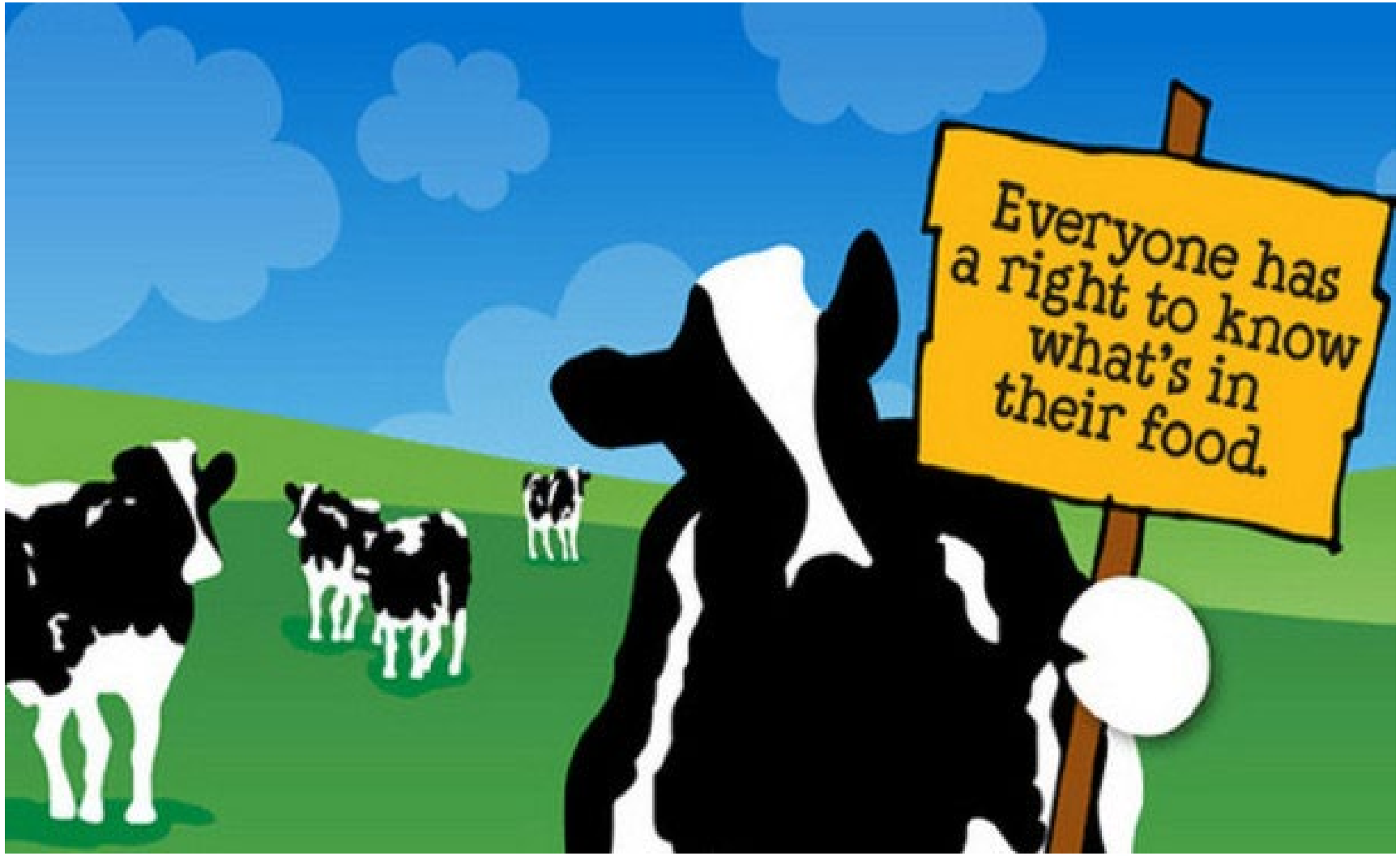





Millennials are those born in the new millennium.

# Healthy Food - Clean Labels



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# We all need to Eat (During & After COVID)!

Cook from Scratch

Ready to Eat

Ready to Prepare


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# Trends in food packaging

- Consumer preference driving growth in higher ***convenience*** formats
  - **Shelf stable, Portion packs**
- Advanced packaging technology enabling ***newer formats***
  - **Shapes, Clear, Colours**
- Novel processing technologies have the potential to revolutionize shelf stable ***quality***
  - **Nutrition, No preservatives**
- Urbanization in D&E markets driving faster adaption of consumer-friendly ***packaging***
  - **Easy to open, Heat, Eat**

# How Barrier Packaging can do it?

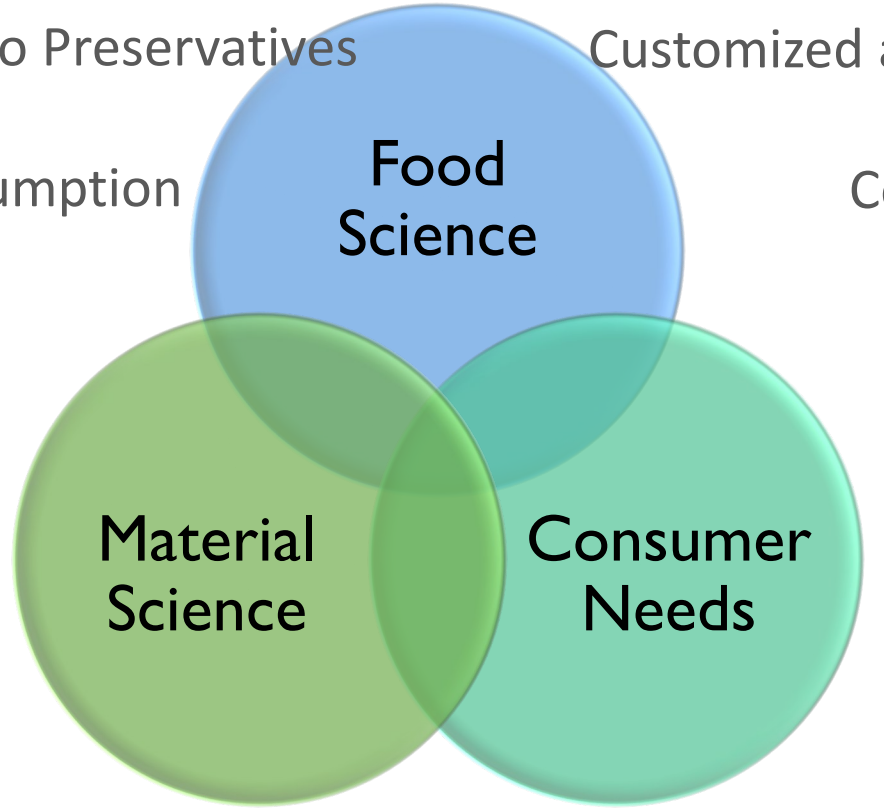
Protects Food – No Preservatives

Less Energy Consumption

Light Weight

Non-breakable

Easy to Shape




Customized and Economical

Colors and Prints

Easy to Open

Easy to Use

Recyclable

# How Barrier Packaging can do it?

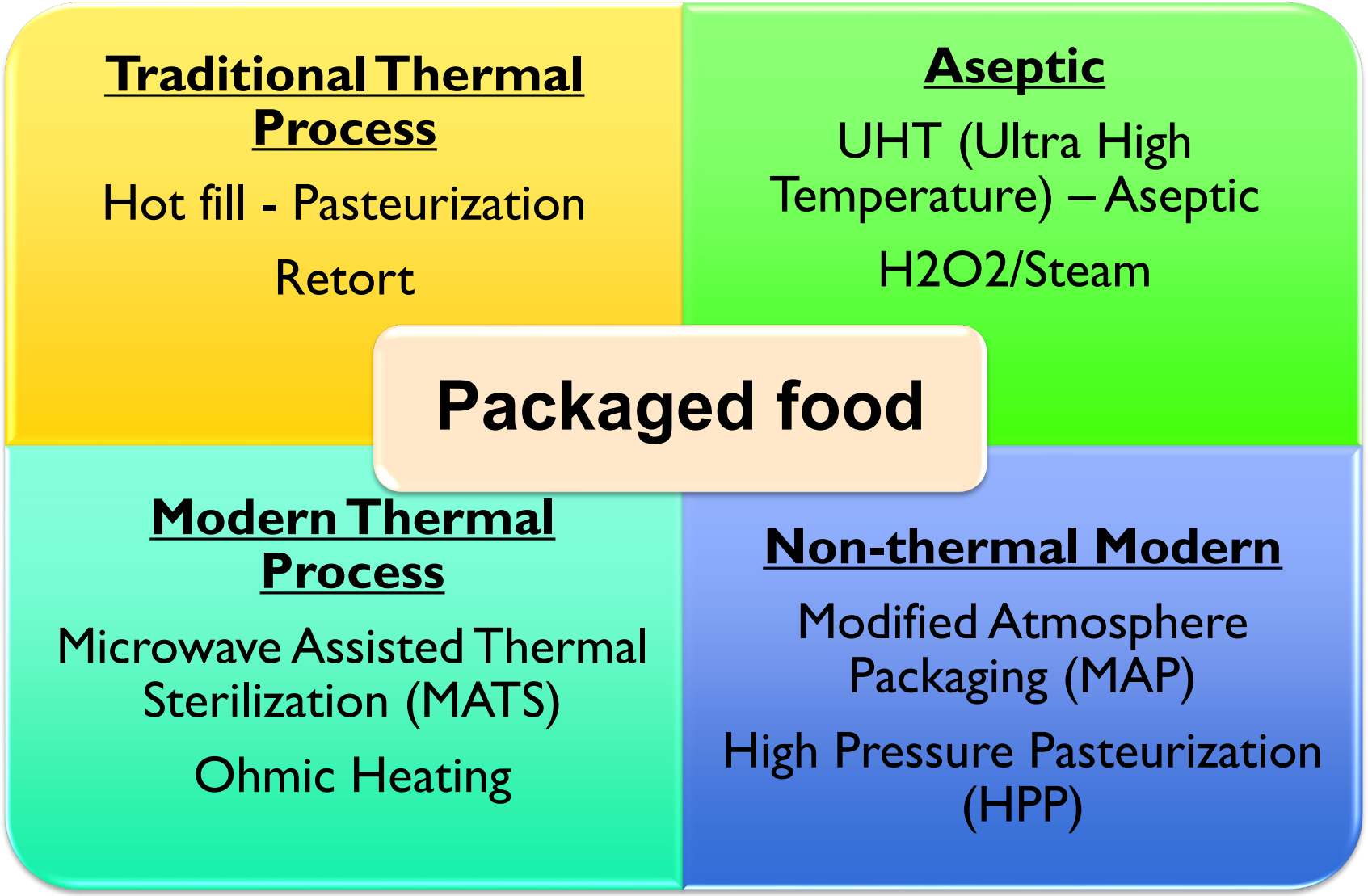



Provide ***advanced packaging*** that ***extends shelf life,*** meets ***lifestyle demands*** and improves ***sustainability***.

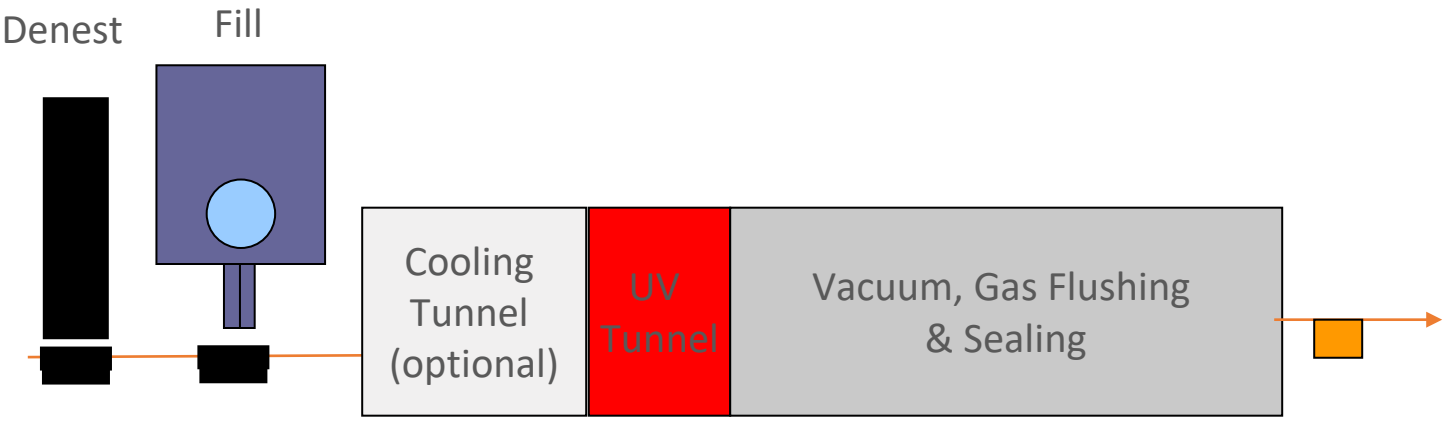
# *How can we extend shelf life of food?*

- **Kill** the bad microbes or **inhibit** their growth
- **Protect** & **Preserve** Sensory & Nutrition
- How?
  - Process: Add Hurdles
    - Temperature
    - Surrounding Atmosphere (gases)
    - Pressure
  - Packaging
    - Withstand process conditions
    - Protect what is inside for longer time: sensory, nutrition
    - Keep out external microbes, odors, gases with Hermetic Seal

# Packaged food = Process + Packaging



# Modified Atmosphere Packaging (MAP)




## Product

Low water activity dairy and non dairy sweets, nutrition powders, instant mix, snacks & savory products, dry fruits & nuts, ready meals

## Process

Product is filled, package is exposed to UV and then MAP sealed

## Package

Barrier trays & lids suitable to withstand UV and MAP gases are used

# Modified Atmosphere Packaging (MAP)







# Modified Atmosphere Packaging (MAP)



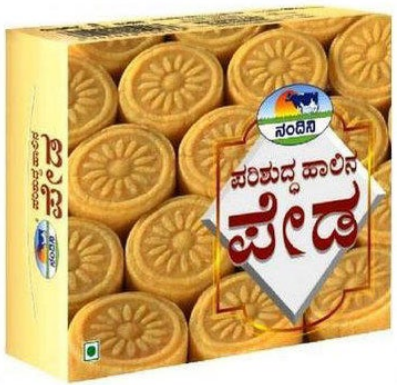




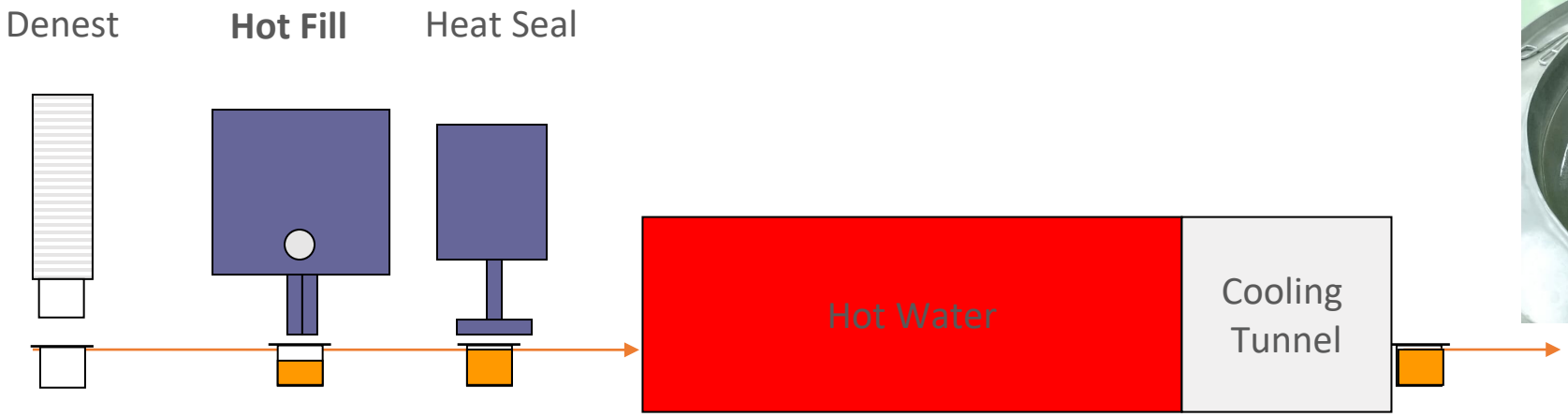
# Modified Atmosphere Packaging (MAP)





# Hot Fill and Pasteurization




## Product

High acid foods: Ph < 4.2
Hot fill: without particulates
Pasteurization: with particulates

## Process

Sterilization is achieved by hot product fill (~84 to 90 C) and then sterilized in hot water bath at 85C to 90C

## Package

High barrier cups & lids suitable to withstand filling temperature and vacuum panel are used

# Hot Fill and Pasteurization

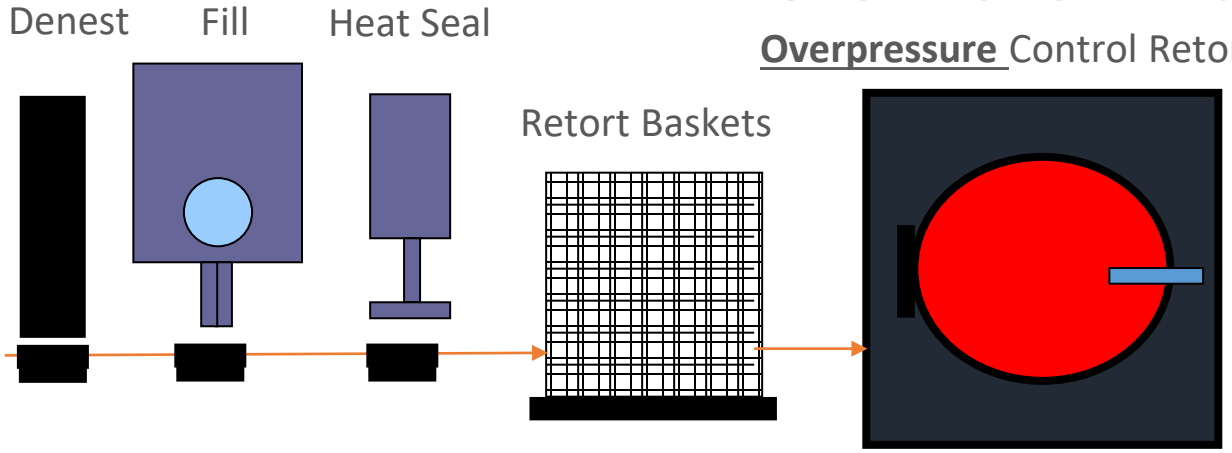



# Hot Fill and Pasteurization






# Retort Sterilization




**Overpressure** Control Retort

## Product

Low acid foods (PH > 4.6)
Meats, vegetables, RTE meals, soups & dairy

## Process

Product is filled, package is sealed and then sterilized by retorting process

## Package

High barrier cups & lids suitable to withstand retort are used

Air overpressure control is critical to maintaining plastic package integrity. Ideally control vessel pressure to within 0, +3 psi of container pressure

# Retort Sterilization








markets
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# Retort Sterilization




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Beverage


# Retort Sterilization





# Retort Sterilization





# Retort Sterilization

happibo

Healthy, natural baby food



100% Natural, No Additives, preservatives, No added sugar, salt, no colors

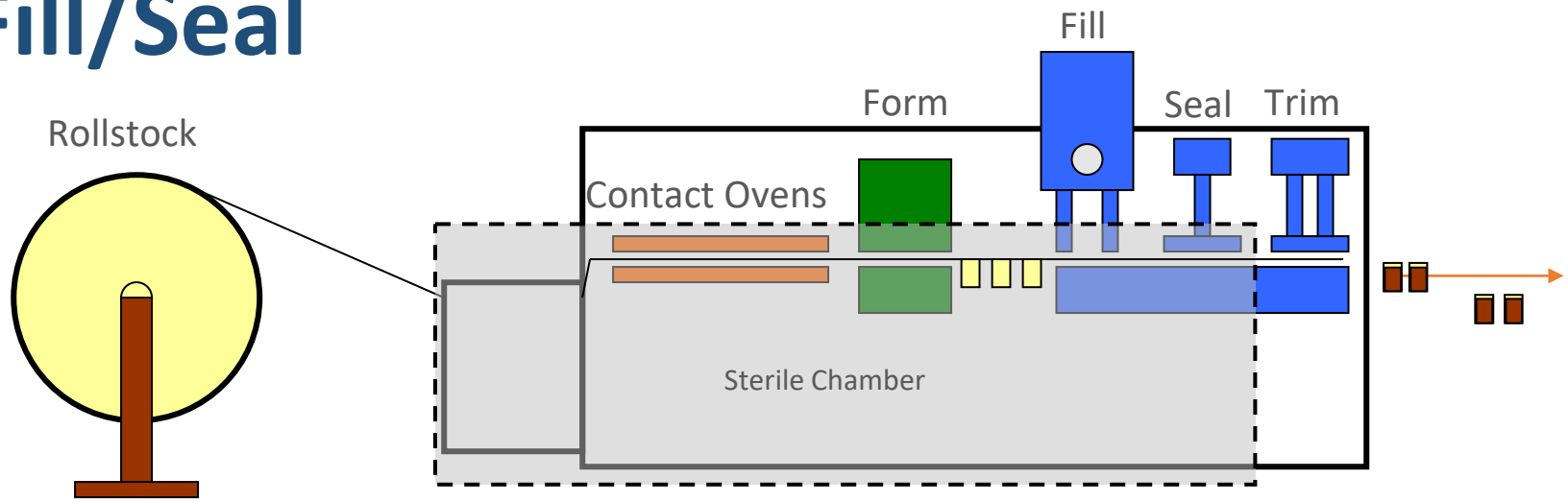



# Retort Sterilization



# Retort Sterilization


# Aseptic Form/Fill/Seal




## Product

Low-acid dairy, puddings, gelatins, and fruit, vegetable & meat purees

## Process

Machine surfaces are sterilized using H202
Product is heat sterilized then cooled for fill
Package is sterilized by steam or H202

## Package

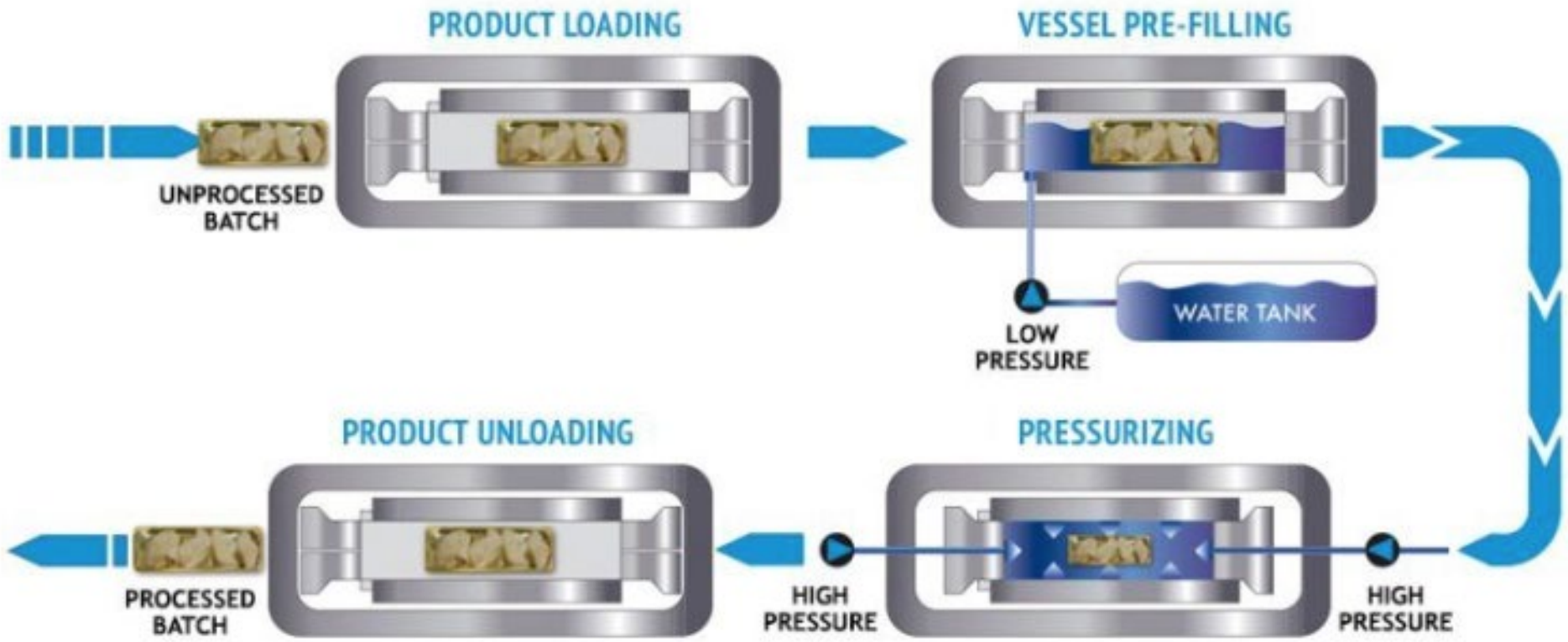
High barrier sheet is used as bottom web
High barrier lid film is used as top web

# Aseptic Form/Fill/Seal





# High Pressure Processing



# High Pressure Processing

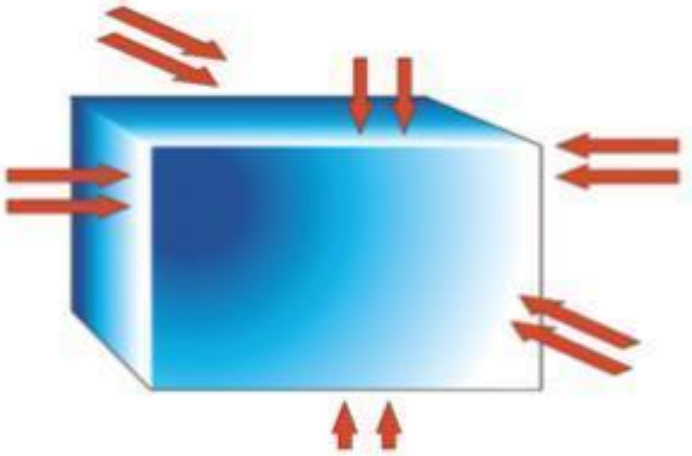




# Microwave Assisted Thermal Sterilization (MATS)

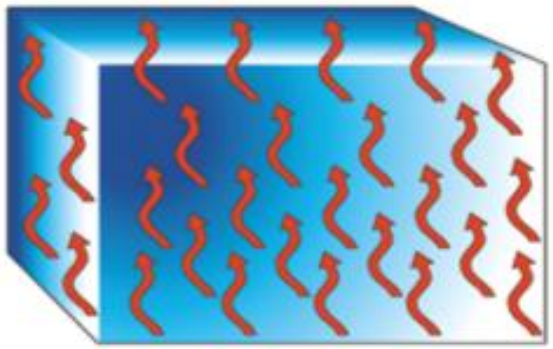
**What makes the MATS better than Retort?**

**Retort**
**Conductive Heating**



**Slower and Differential Heating Pattern**

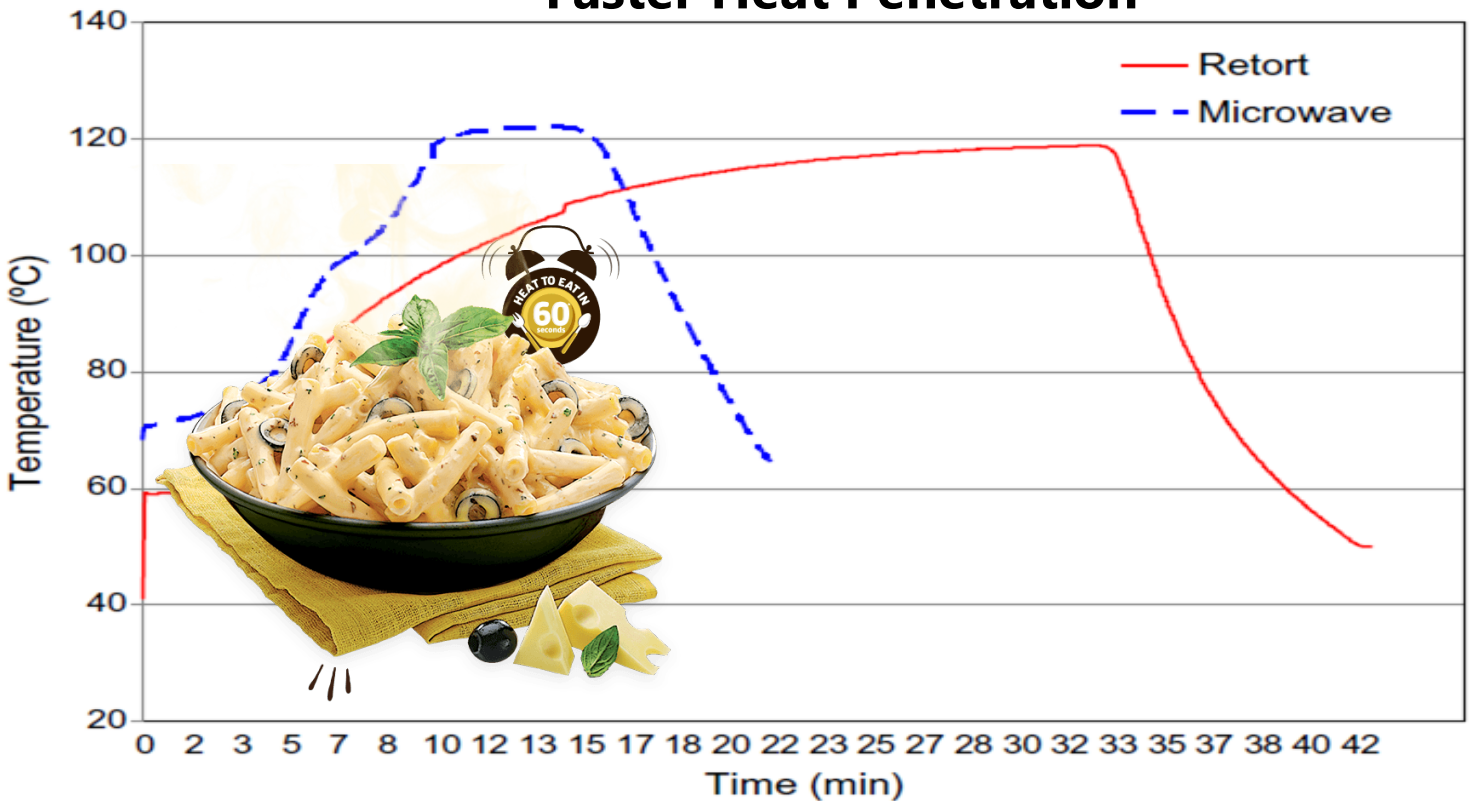
**MATS**
**Volumetric Heating**



**Faster and Uniform Heating Pattern**

# Microwave Assisted Thermal Sterilization (MATS)

## Faster Heat Penetration




Representative temperature profile for the cold spot of smashed potato in trays during microwave and retort treatments ($F_0$=6min)

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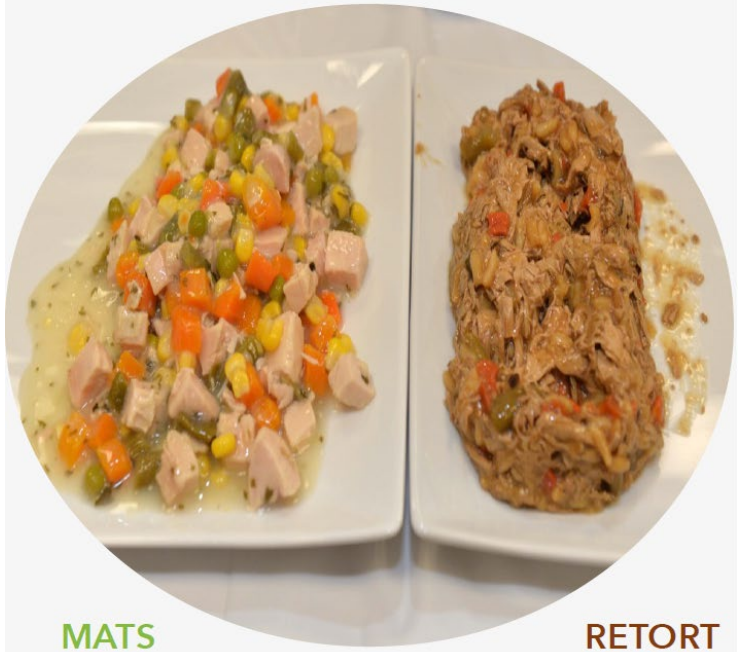
# Microwave Assisted Thermal Sterilization (MATS)

Chicken Pot Pie Filling



MATS RETORT

***"MATS processing results in product quality that is better than any other sterilization technology ever developed. MATS-processed soups require no preservatives and taste home-cooked or white tablecloth-restaurant-prepared."***

*John Kowalchik*
*President and CEO, Wornick Foods*


**Retort Frittata**

Scrambled eggs (pasteurized whole eggs, non fat milk, soybean oil, modified food starch, salt, xanthan gum, citric acid, butter flavor (maltodextrin, natural butter flavor, annatto and turmeric (added for color), pepper), eggs, potatoes, water, cooked sausage crumbles (pork water, salt, spices, sugar, flavoring), butter, milk, contains 2% or less of pasteurized process American cheese (American cheese (milk, salt, cheese, cultures, enzymes) water, sodium phosphate, cream, salt, lactic acid) corn oil, sugar, citric acid, modified potato starch, salt, modified cornstarch, potato starch, yeast extract, sodium bisulfite, soy lecithin, xanthan gum, spices, flavoring, yeast autolyzate.


**MATS Frittata**

Liquid egg mix (eggs, whey, skim milk, xanthan gum, citric acid), green peppers, sausage (pork, water, salt, spices, dextrose, sugar), cheddar cheese (pasteurized milk, cheese culture, salt, enzymes, annatto), potatoes, milk (vitamin D3), red peppers, onions, butter (cream salt), corn starch, salt, white pepper.

***"With MATS, I can take a culinary approach to creating a new dish, using a recipe much like my grandmother would have used."***

*Chef Michael Kuefner*

Source: U.S Grocery Shopping Trends, FMI and Hartman Group, 2016.

***"MATS is a game-changer because you don't have to develop the product for the process like you do with retort. The result is great food that tastes better than homemade."***

*Chef Michael Kuefner*

# Microwave Assisted Thermal Sterilization (MATS)

CHICKEN TENDERS WITH RICE PILAF AND VEGETABLES

# Microwave Assisted Thermal Sterilization (MATS)

SHRIMP, VEGETABLES AND MANGO WITH RICE NOODLES

# Microwave Assisted Thermal Sterilization (MATS)

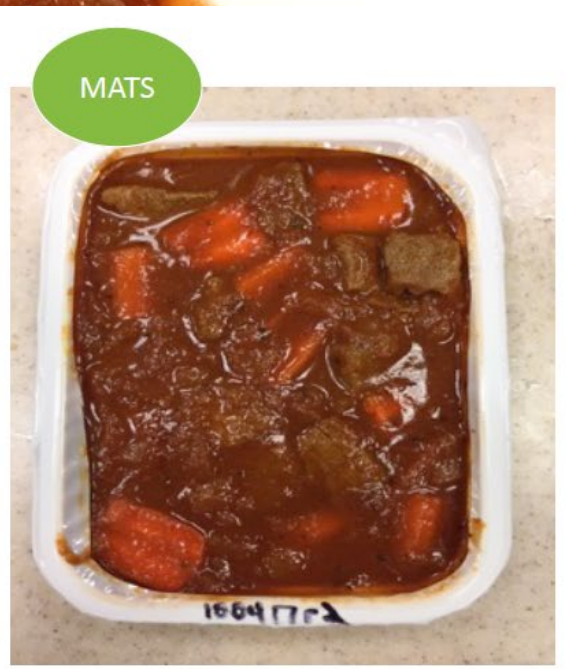
SEAFOOD PASTA WITH TOMATO SAUCE

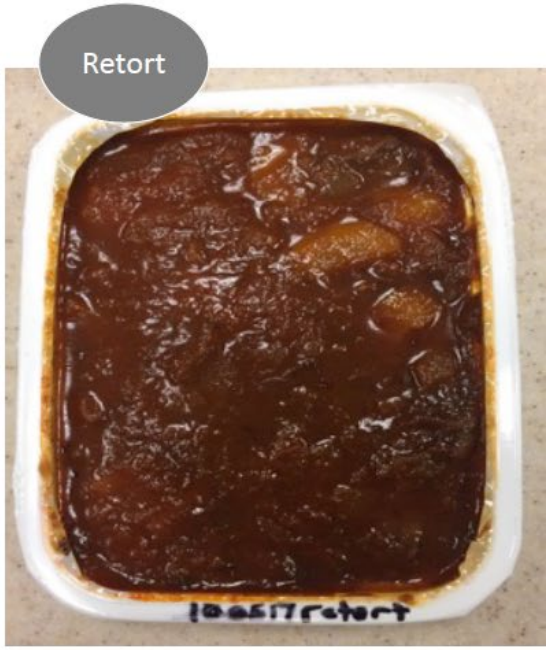
BEEF GOULASH WITH RICE

# Microwave Assisted Thermal Sterilization (MATS)







# Microwave Assisted Thermal Sterilization (MATS)

FILET OF SALMON IN COMPOUND BUTTER

# Microwave Assisted Thermal Sterilization (MATS)

LOBSTER OVER RICE AND VEGETABLES

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# Microwave Assisted Thermal Sterilization (MATS)

MUSSELS IN CREAM SAUCE


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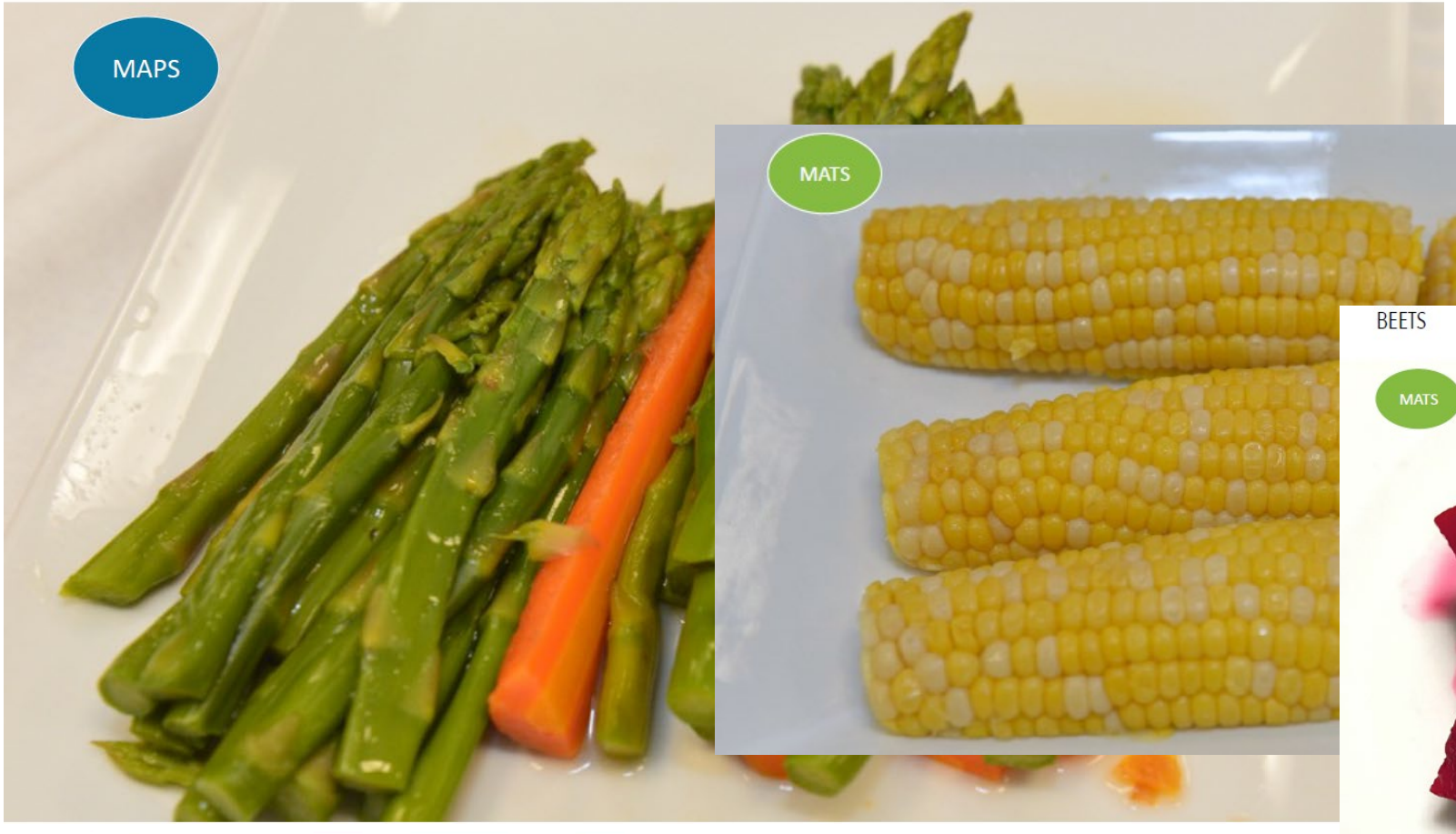
# Microwave Assisted Thermal Sterilization (MATS)

WHITE CHEDDAR MAC 'N CHEESE

# Microwave Assisted Thermal Sterilization (MATS)

ASPARAGUS AND CARROTS





BEETS

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# Microwave Assisted Thermal Sterilization (MATS)

CHICKEN IN TERIYAKI SAUCE


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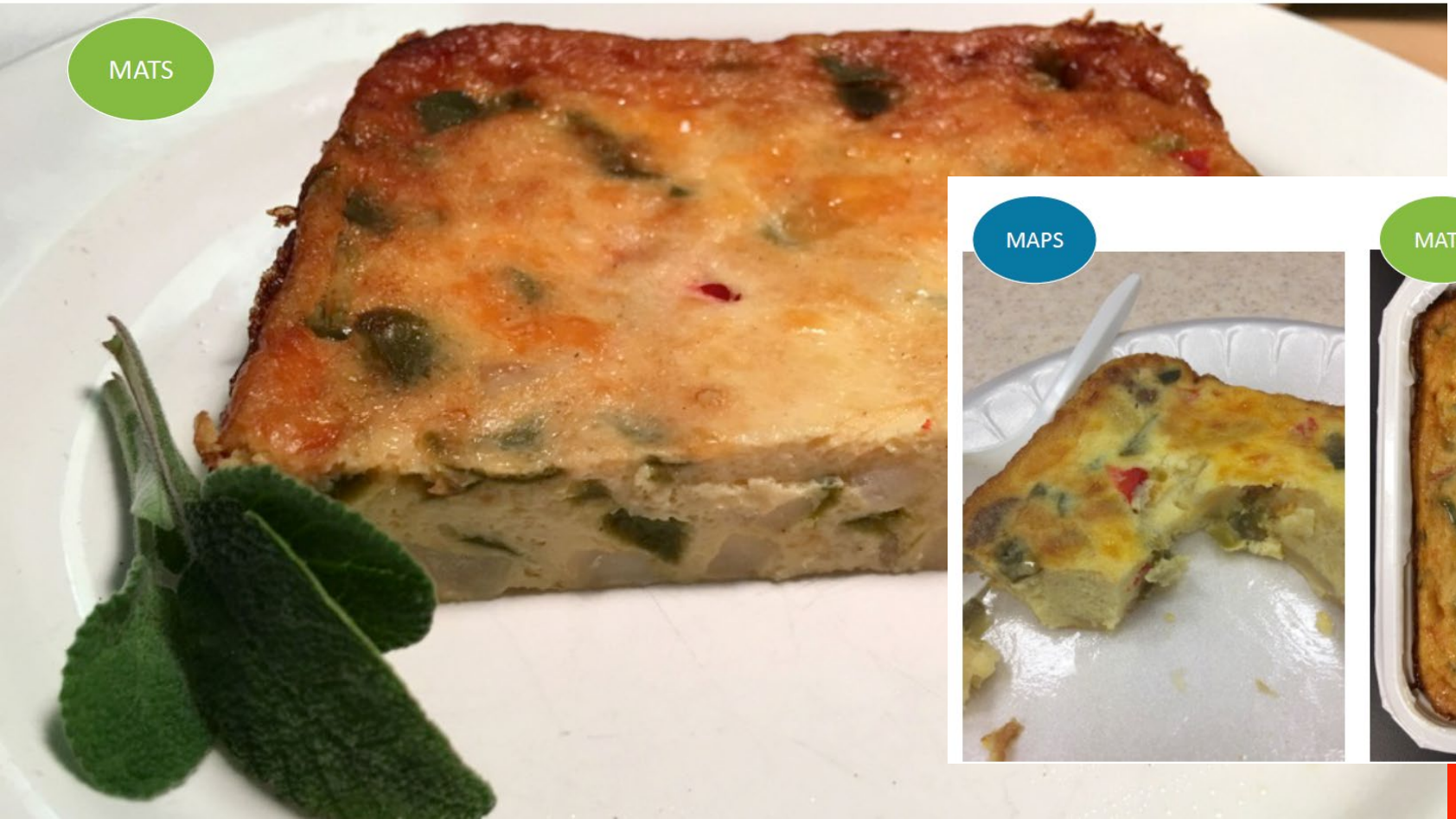
# Microwave Assisted Thermal Sterilization (MATS)

VEGETABLE FRITTATA WITH PEPPERS AND POTATOES





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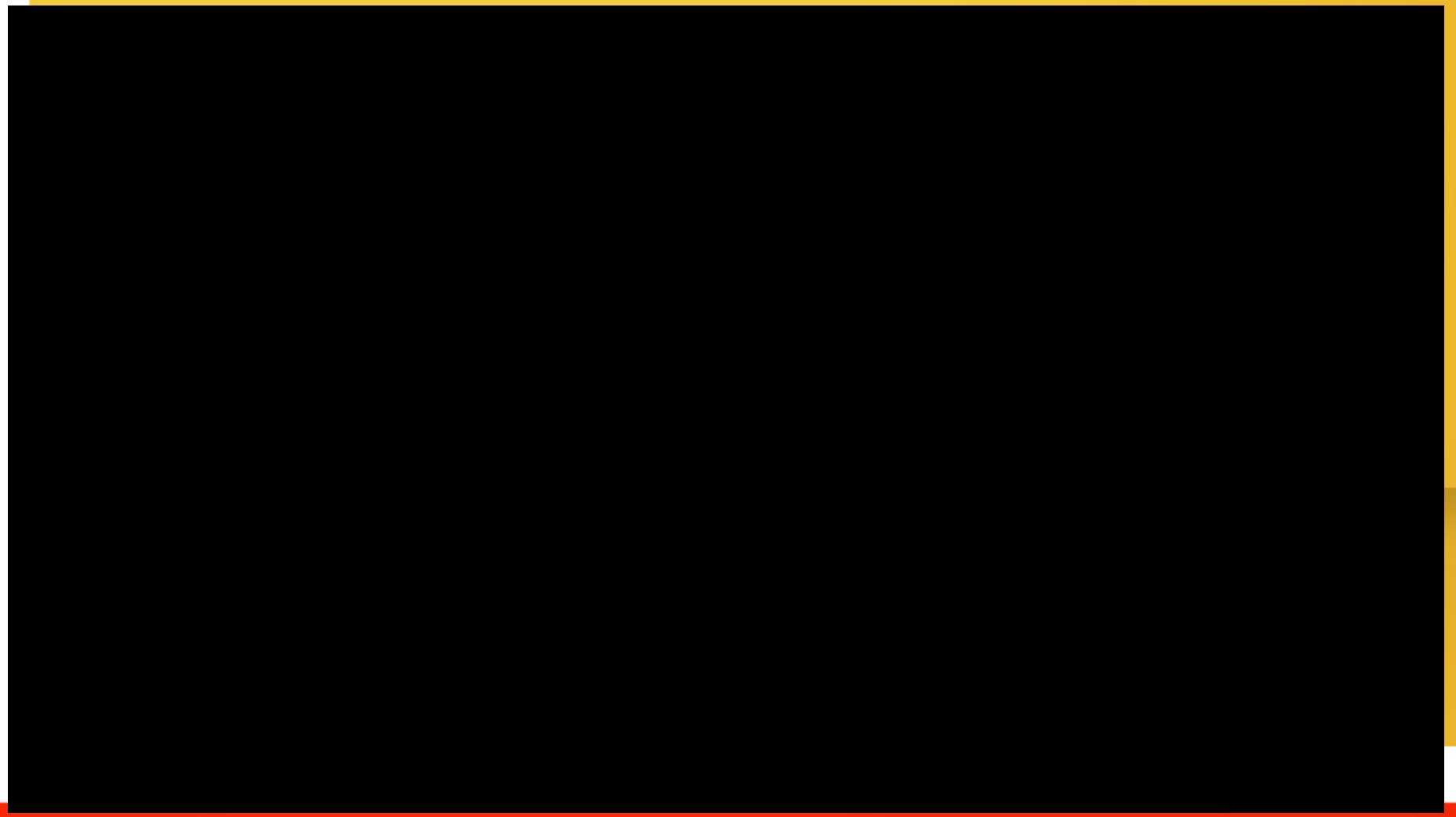
# MATS Products in Market



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# MATS Products in Market

## Longer shelf life for in-flight meals: Sats' ready-to-eat meals that can be kept up to 24 months

SINGAPORE - After every flight, extra meals end up in the bin.

To reduce waste, Sats, a major player in the food industry and Changi Airport's main airline caterer, has invested in new technology to extend the shelf life of cooked food, which, as a result, helps to cut wastage.

Fresh meals that are immediately chilled can now be stored for up to 90 days without added preservatives, instead of the typical 48 hours.

It is also possible for ready-to-eat-meals, including braised chicken rice, chicken briyani, beef stroganoff, pasta alfredo and black pepper chicken udon to be stored, without refrigeration, for between six and 24 months.

This can be done with no adverse impact on food safety, nutrition or taste, Sats stressed, adding that shelf life is extended with pasteurisation and sterilisation.

Pasteurisation is the process of treating food with mild heat for a short time to reduce microbial growth in the food.

With sterilisation, heat and pressure are applied to eliminate all forms of bacteria and enzyme activity.

Sats showcased the new technology on Monday (March 11) at the launch of its extended kitchen facility at Changi North, which is part of a $25 million investment.

https://www.straitstimes.com/singapore/transport/ready-to-eat-meals-that-can-be-kept-for-6-to-24-months-part-of-25m-investment-by

# Going to the Past or Future?...

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