Long Life Yoghurt for Africa
Opportunities, Challenges and Solutions

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Yoghurt’s Achilles Heel – Shelf life

Yoghurt is a living biome, resulting in shelf life’s of several days / weeks
The Ideal Yoghurt – Long life yoghurt

Properties of long life yoghurt:

• does **not need to be chilled**, and is either eaten with a spoon, as **stirred yogurt**, often with added fruit), or else drunk directly from the package as **drinking yogurt**.

• maintains **9-12 months stable shelf life**

• must match the **expected structure and sensory quality requirement compared with fresh fermented stirred and drinking yogurt**

• Technically **not yoghurt** by legislative definition.
Emerging Markets driving the growth of long life yoghurts

- Increased consumer demand for diary products
- Infrastructure not in place for retail

**Sub-Saharan Africa:**
- Opportunity to penetrate additional consumer segments
- Access to nutritious, affordable and safe dairy products
- Also healthy positioning (low fat, fruited)
- Existing products indicate “no need for refrigeration” on the package

**Middle East & North Africa:**
- Opportunity to enlarge consumption occasions
- Position as convenient healthy, refreshing dairy
- Do not indicate “long shelf life” on the package, as it creates scepticism

**Asia Pacific:**
- Opportunity to continue to grow with the market
- Positioned as premium, safe, convenient, healthy natural/pure

Note! South America is also a market for ambient yogurt, but is not included in the scope of this presentation.
Long Life Yoghurt in China – since 2010

The market for this exciting product innovation has grown at a rate, accounting for **30% of the country’s total yoghurt category in 2016** and is expected to achieve sales of almost **$5 billion by the end of 2017**.

-China: Bright Dairy relaunched its Mosili’an brand drinking yogurt in 2013

**Bright Dairy**, a leading dairy player located in Shanghai, launched an ambient drinking yogurt in 2010, which in 2014 **represented about 60% of the ambient yogurt market in China**.

*Yogurt market size is an estimation based on sales from Yili, Bright Dairy, Mengniu and Others

Source: TetraPak, 2015
Ambient products from Europe already presented in the Chinese market, but are not performing well

**Germany SUKI**
Online: 89 RMB/4 cups

**Germany Ehrmann**
Online: 49RMB/8 cups

Reasons behind lack of success:
- Lack of brand awareness
- Packaging is similar to chilled spoonable yogurt (not the diamond packaging)
- Price of imported yogurt is higher than locally produced yogurt
- Taste & texture is different than local ambient yogurt – too thick
- Ambient yogurt from Chinese dairies is mostly drinking yogurt and plain
Long shelf-life drinking yogurt consumer research in Saudi Arabia and Pakistan

Objectives

- Understand which factors are important for consumers in Saudi and Pakistan when it comes to consumption of drinking yogurt products

- Evaluate the consumer interest of long shelf-life drinking yogurt-concepts in Saudi and Pakistan as a more safe and convenient alternative to fresh laban and lassi

- Have consumers test the long shelf-life product samples to evaluate product texture, benefits, as well as usage opportunities.

- Investigate best ways to communicate the category & product benefits for a successful market launch

To support dairy producers (both in Europe for export and the Middle East) in penetrating the drinking yogurt market segment with new more convenient long shelf life dairy products
Sub-Sahara Africa’s growing dairy industry

- **PZ Cussons** became the sole owner of Nigerian Nutricima, by acquiring the 50% stake of its partner Glanbia for 30 MM USD in April 2015.

- In May 2015, **Arla Foods** & Egypt-based dairy company Juhayna agreed to undergo a JV selling Arla’s products across Egypt.

- In February 2016, **Danone** acquired Egyptian Dairy (Cheese producer) Halayeb.

- In Morocco, **French Fromageries Bel** bought 69.82% of Safilait, the third largest national dairy group, in May 2015.

- RFC buys a factory in Ivory Coast. In September 2014, the dairy factory owned by Olam in Abidjan was sold to RFC for 19 MM $.

- RFC increased its stakes into Nigerian Wamaco from 54.6% to 67.6% for 200 MM $.

- **Abraaj & Danone** Buy Fan Milk. In October 2013, Abraaj sold 49% of Fan milk to Danone.

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- In July 2014, **Danone** acquired 40% of Brookside Dairy.

- Coca-Cola Acquires 40% stake Stake in Nigeria Dairy, Juice Company Chi, deepening its presence in Africa.

- **Clover** buys Dairybelle for 18 MM $ in May 2014 & in April 2015.

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General challenges in Sub-Saharan Africa

- **Population growth:** By 2030 (ref. UN), the African population will grow by 62%.

- **Malnutrition:** Western and Eastern Africa see 1/4-1/3 of children possibly permanently damaged by malnutrition and a significant number in a life-threatening condition (wasting).

- **Weather conditions:** Africa is sensitive to extreme weather because of the reliance of much of the central belt on seasonal rains. This can have immediate and severe impacts on the potential production of all kinds of food.

- **A modernized distribution network and a formal production sector is still largely under-developed** in most of Africa.

Source: Innova, Briefing Series: Report on Africa
Long Life Yoghurt already making inroads in some countries

- Dairy fermented products in selected African countries are mainly tracked in the fridge.
- Ambient fermented dairy has been mainly observed in Ghana, Nigeria, Cameroon Morocco and Egypt.

**Percentage of dairy fermented launches tracked per format (2011-2015)**

- **Chilled**
- **Ambient**
Pascual corners ambient fermented dairy in Ghana

Pascual is the main responsible for all ambient dairy fermented introductions in Ghana. Pascual is one of Spain’s leading producers of milk and dairy products, exporting to more than 60 countries including UHT yogurts.

Pascual Thick & Creamy Pineapple And Melon Low Fat Yogurt (Ghana, May 2011)

Description: Four cups of pasteurized thick and creamy yogurt with pieces of pineapples and melon.

Claims: No colorings or preservatives. Low fat. No refrigeration required unless opened. Best served chilled.

Pascual Thick & Creamy Yogurt: Strawberries (Ghana, May 2011)

Description: 4 x 125g plastic cups of pasteurized creamy yogurt with strawberries, held in a cardboard sleeve.

Claims: No colorings or preservatives. No refrigeration required unless opened. Best served chilled.
Positioning for successful ambient yogurt products in Sub-Saharan Africa

Affordability & Safety
- Products that provide “Nutrition for Money” to be able to capture full market potential
- Safe products backed by strong brands

Availability
- The possibility to transport such goods outside the home knowing they won’t get spoilt with the heat
- Supply /availability facilitated
- Access to such products all year round

On-the-Go & Snacking
- On the go solution to provide healthier snacking solution
- Key target kids as dairy considers a major aspect of a healthy upbringing

Reinforce Health Cues
- Consumers are keen to know how the product will deliver on nutrition & digestion
- They want detailed information around fat content
- Fruit linked to healthy

Note! Clearly indicate “no need for refrigeration” or “needs no refrigeration” as this is a key attribute and benefit for this region.
Technical challenges: Why does yoghurt have a short shelf life?

World population is

7.4 BILLION

i.e. 7,400,000,000 people

1 cup of yogurt contains

16x this number!

i.e. 120,000,000,000 bacteria
Technical challenges: How is long life yoghurt made?

Typical yoghurt processing
- Yoghurt contains large amounts of viable microorganisms
- Most are from starter, some may be contaminant (esp yeast and moulds)
- Results in sensory / product deterioration over shelf life

Diagram:
- Thermal treatment
- Fermentation
- Contains micro-organisms
- Filling
Technical challenges: How is long life yoghurt made?

Long life yoghurt processing
- A thermization process after fermentation inactivates viable microorganisms
- The disinfected final product is rendered microbially stable
- Advantages:
  - No refrigeration needed
  - Long shelf life is attained

Fermentation

Thermal treatment

2nd Thermal treatment

Aseptic Filling

microorganism

No micro-organisms
Technical challenges: Thermal processing

### Aseptic Fillers:
- Yoghurt passes through heat exchanger for rapid thermisation.
- Least harsh thermal treatment
- Requires specialized equipment
- 75 – 85 °C / 15-25s

### Retorting:
- Product filled into packaging, followed by thermal process
- Minimal chance of post thermal contamination.
- Good aseptic result
- Longer heat exposure, making it more challenging
- 85°C / 5 min

### Hot Fill:
- Fill product at thermisation temperature, so packaging is disinfected
- Requires least capex investment
- Handling difficulties with hot filling yoghurt
- Long thermal exposure due to slow cooling
- Moderate aseptic result
- Hot fill @ 85°C
Technical challenges: Thermal Shock Destabilization

Low quality
Clear separation
Sandy mouthfeel
Uncontrolled viscosity

What happens when yoghurt is heated at low pH?
Technical challenges: What happens to yoghurt when its heated?
Technical challenges: What happens to yoghurt when its heated?
Technical challenges: How to stabilized casein micelles

Charge of casein: Negative

pH 6.7

Steric repulsive interactions between casein micelles
→ stable protein system

Casein
Kappa casein
Specialty pectin

Charge of casein: Negative

pH 5.5

Collapse of kappa casein
→ unstable protein system

Charge of casein: Positive
Charge of pectin: Negative
Charge of casein-pectin: Negative

pH 4.0

Steric repulsive interaction restored by pectin
→ stable protein system
A shelf stable drinking yoghurt:
4ºC to 25ºC room temperature
can store for up to 180 days

Premium package, Premium price
Average Price=2.5RMB/100g,
(50%-100% higher than normal yogurt)

High sales, high growth: Launch in 2010, 2014 revenue is about 5.96billion RMB, 85% growth vs 2013

Company: Bright Dairy & Food, China
Acheiving spoonable long life yoghurt

**Hydrocolloids**

Specialised pectin

• protein stabilisation
• increase viscosity/mouthfeel
• good flavour release

**Other hydrocolloids**

• increase viscosity/mouthfeel
• resistance against syneresis
• reduce precipitation but do not improve protein stabilisation
• reduced flavour release

**Emulsifiers**

• improved creaminess
• smoother texture
• reduce acid aftertaste
• whiter appearance
Conclusion – Long life yoghurt

- Will Sub Sahara Africa follow the trends seen in other developing markets?
- How will manufactures and consumers alike embrace this trend?
Thank you!

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