Driving Innovation

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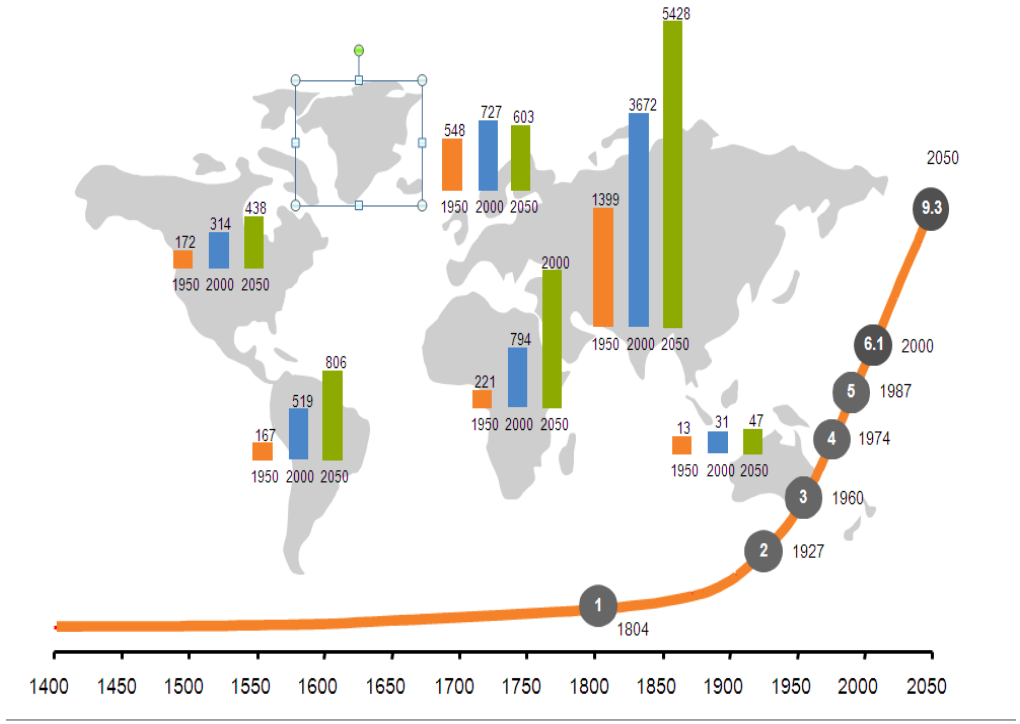
Agenda.

1. The challenges in food production
2. Innovations in technology and equipment
3. Innovations in nutrition
4. New Buhler Nixtamal process
5. The prerequisites for innovation

The challenges in food production.

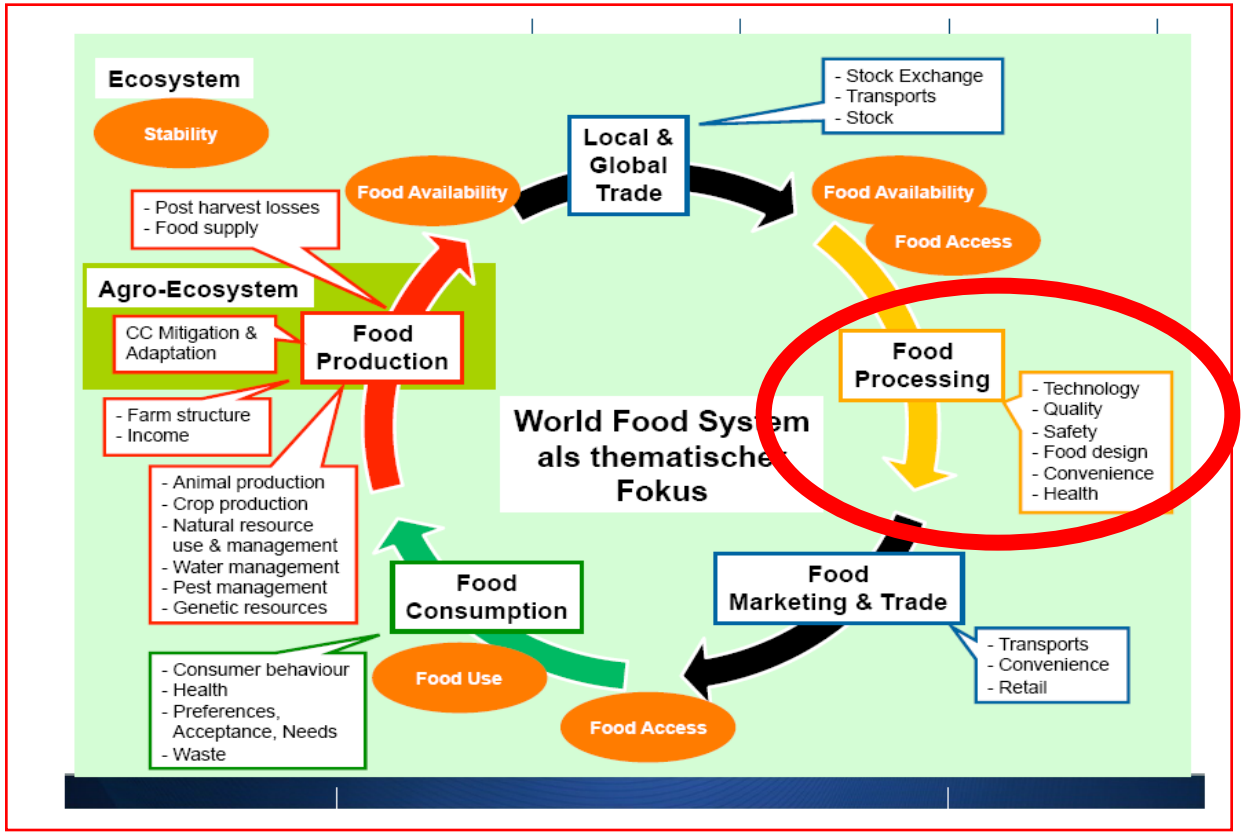
- World population is projected to rise to 9.1 billion in 2050 from a current 6.7 billion, requiring a 70% increase in farm production and food availability.

  How to Feed the World 2050 - FAO Forum 2009



World Food System.

- Mission:
  Develop sustainable agro and food systems
  - Macroeconomics of food systems
  - Food resource management and supply
  - Sustainable food production and processing



World Food Systems.

Key questions on role of grains in the challenge 2050.

Impact of challenges on grain value chain?

Grains →

New business opportunities to respond to challenges?

- Sustainabiliy
  - How is the world population going to be fed?
  - Which are the challenges for the food industry (Nutrition, health, preference, etc.)
- Growing scarcity of resources
  - How is climate going to impact the grain production?
- Competition for energy
  - Will food crop be used for fuel production?
  - Which sources of energy will be employed for food production?

Food

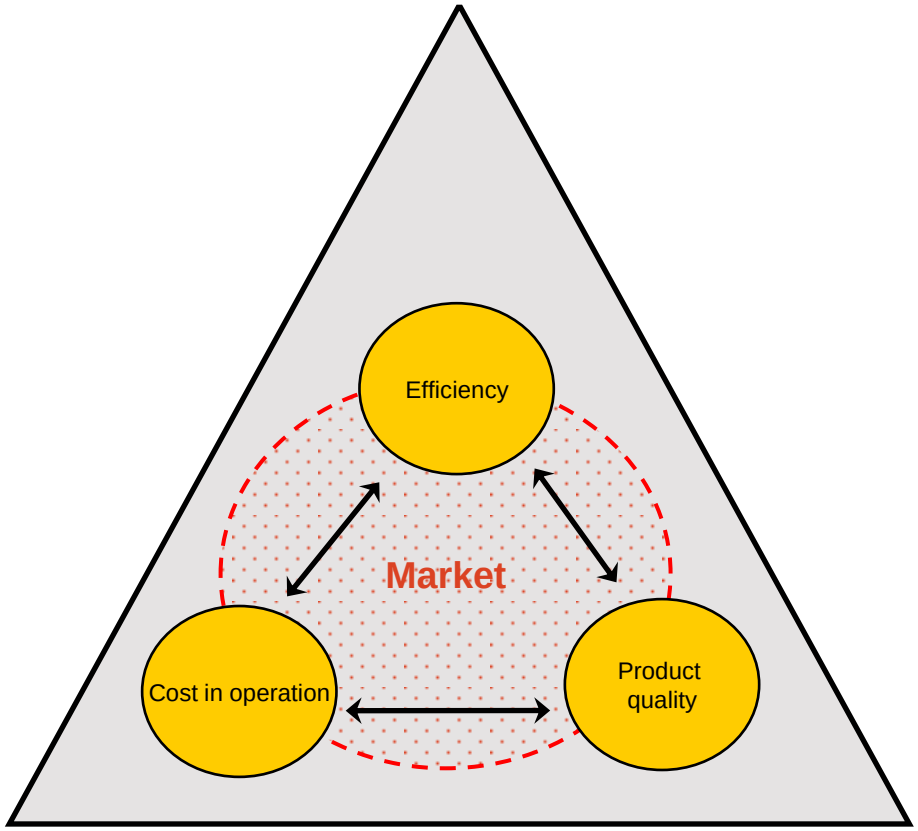
Feed

Biofuel

BÜHLER

Innovation in technology and equipment.

- Every new development has clear targets in:
  - Efficiency
    → high yield, accuracy, etc.
  - Finished product quality and consistancy
    → pure and low ash flour
  - Cost in operation with best „Cost of ownership“ TCO
    → low energy, maintenance and manpower demand



Example of equipment - innovation.

Antares – Four-Roller Mill MDDR

→ Efficiency
→ Quality and consistency
→ TCO

From the design concept → **to reality**

We strive to exceed your expectations in terms of:

- **Reliability**
  by rugged components
- **Sanitation**
  by easy cleaning
- **Product safety**
  by using stainless materials
- **Power and precision**
  by stable roll pack

➔ The new roller mill ANTARES

New Purifier Polaris – MQRG.

→ Efficiency
→ Quality and consistency
→ TCO

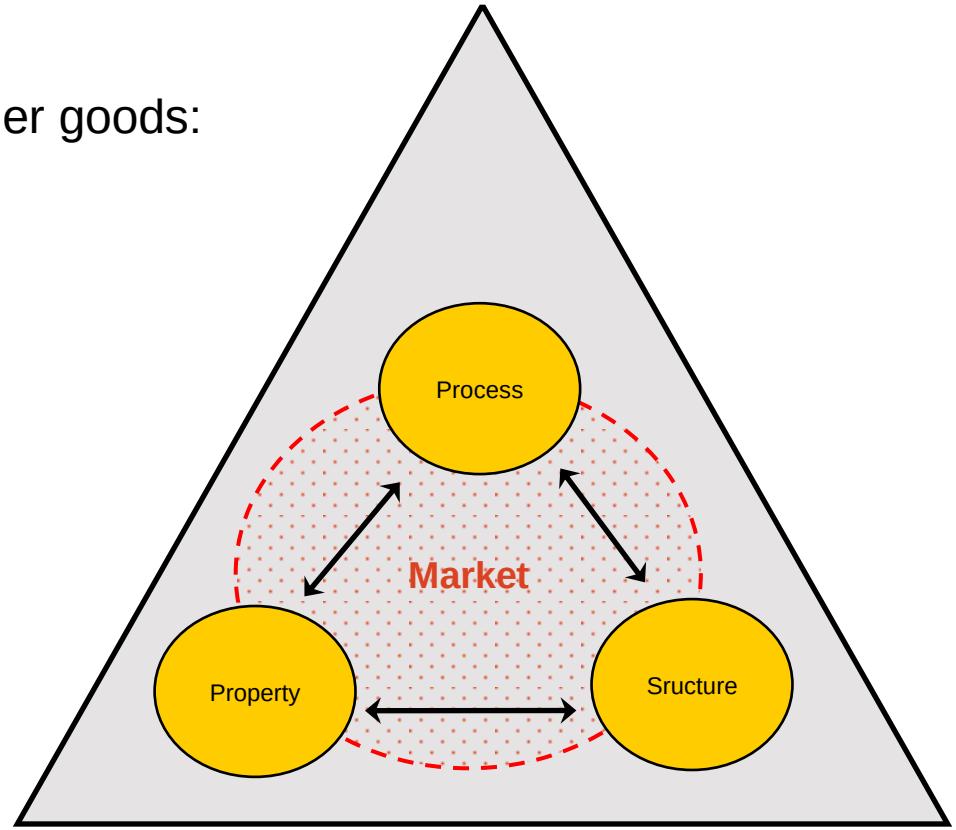
New Purifier Polaris – MQRG.

- Fulfills International Food Standards (IFS)
- Fully enclosed design
- Efficiency with patented pre-classifying and enlarged sieve surface

➔ Ultimate purity, efficiency and product safety

Innovation in nutrition.

- Understanding market needs in consumer goods:
  - Analyse and understand property
  - Analyse and understand structure
  - Develop the process



Trends in Nutrition.

Efficient Nutrition

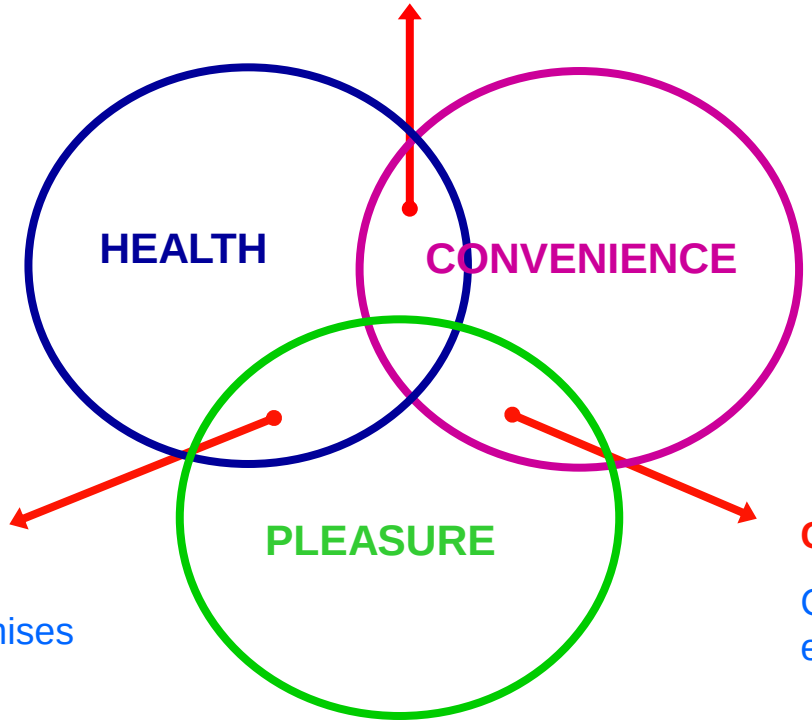
Fast but nutritious and healthy

The hypochondriac factor

More information and evidence for health

The time factor

More control over time and quality of preparation



Guilt free indulgence

Low & light – without compromises on taste and texture

Convenience plus

Convenience with quality and entertainment value

The sensory experience

More premium and indulgent

Nutrition Solutions.

Ingredient Services
Flour Correctors & Food Ingredient Business

NutriRice™
Vitamin & Mineral enriched Rice Kernels

LEURON™
Functional ingredient from wheat

VALUE ADDING PROCESSES
Stabilized Germ and Bran

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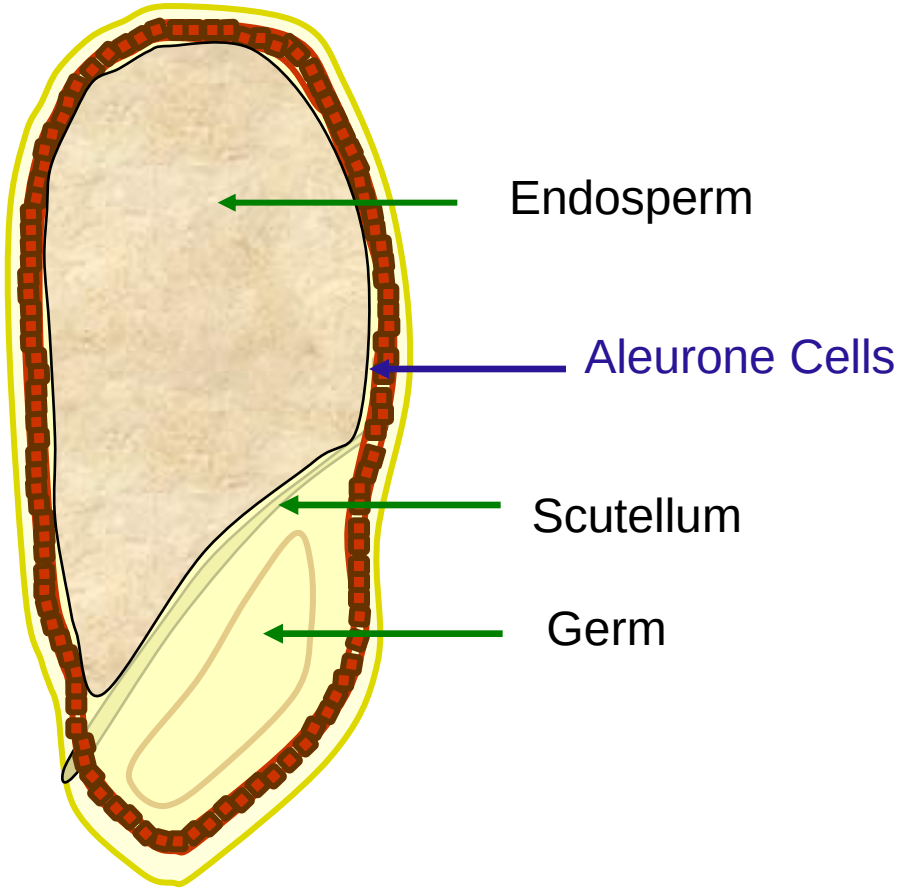
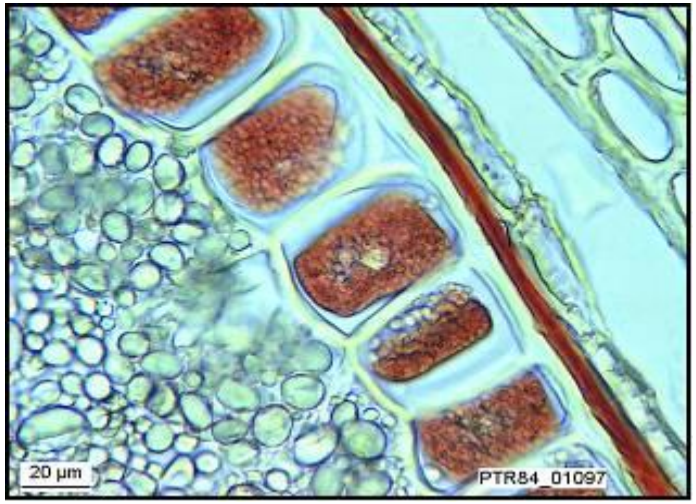
LEURON™

LEURON®: Wheat Aleurone.

Aleurone Cells the Best from Wheat





LEURON®.

A Key Ingredient of 80% purity.

- Excellent source of a good fermentable Dietary Fiber
- Contains Naturally B1, B6, Niacin, Pantothenic Acid, Folic Acid
- Good Source of Magnesium
- Contains Naturally Iron and Zinc
- Natural Source of Phenolic Acids
- Natural Source of Lignans

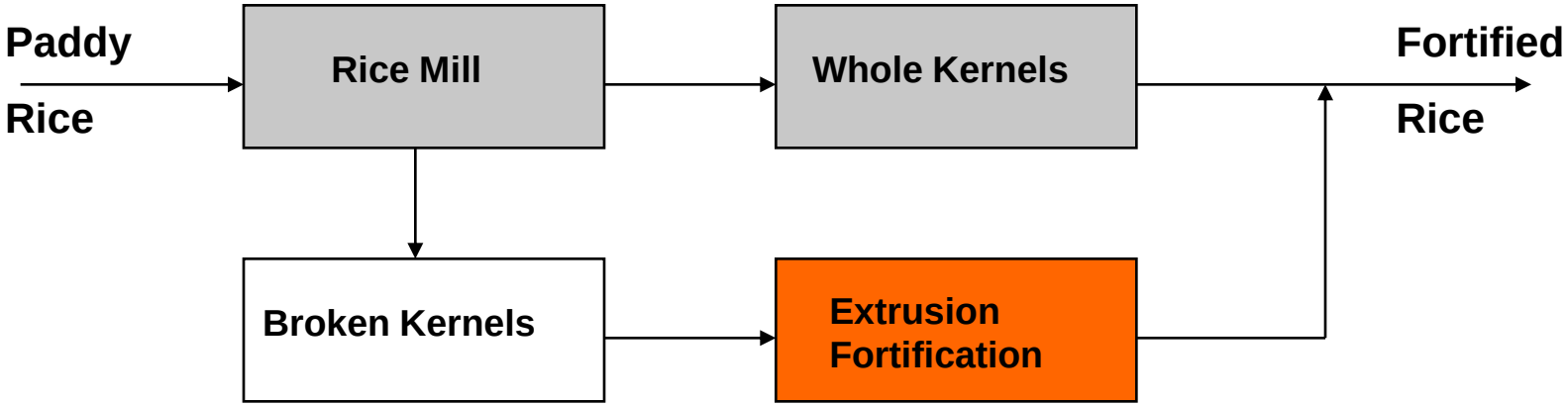
By: Oy Foodfiles 2005


NutriRice™

Bühler fortified rice process.

Rice milling causes up to 20% of broken kernels

→ Bühler proprietary fortified rice process allows to use the low cost by-product from rice milling



Bühler rice fortification process.

Through extrusion cooking the mixture of rice flour and premix (vitamins and minerals) is formed into kernels resembling natural rice. Shape can be flexibly adjusted according to different natural rice shapes

NutriRice.

A JV of Buhler and DSM.

- Production of fortified rice kernels (**NutriRice**).
- Adaptation of shape and micronutrient formulation to requirements of customers.

New Buhler Nixtamal process

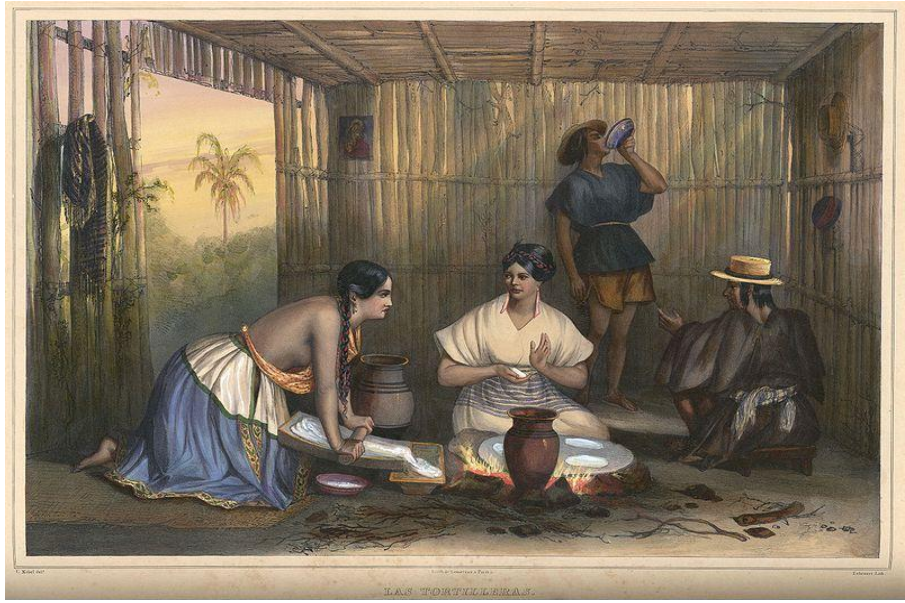
Green Technology for the production of Masa Flour

150 YEARS innovations for a better world.

BÜHLER

Masa (Nixtamalization) History.

- The nixtamalization process using maize (corn) with lime and ash was very important in the early Mesoamerican diet.
- A population depending on untreated maize as a staple food risks malnourishment, and more likely to develop deficiency diseases such as pellagra.



Consumption of Masa flour.

Geographical extension
Mexico, Centr.Americas, USA

Typical Products made of Masa flour

Tortilla

Chips

Market demand for Masa flour
- 19.5Mio of Maize
55% traditional processed
45% industrial processed

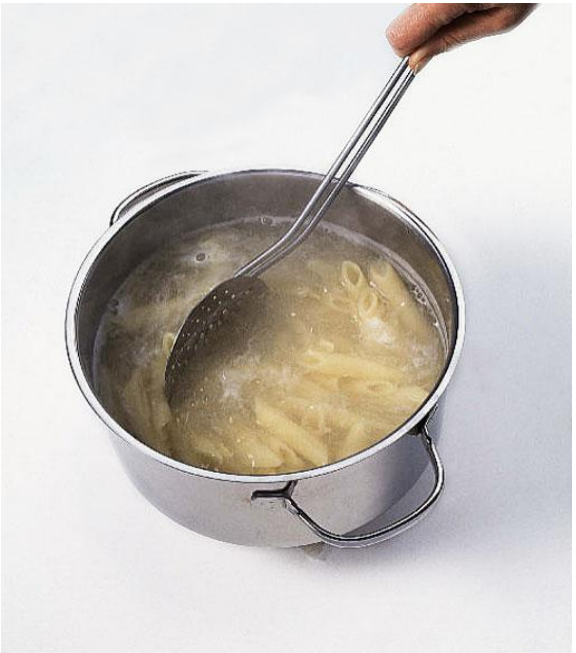
Market requirements – Elimination of waste water.

- Massa flour processing industries needs a huge quantity of fresh water.

  Customer expectations:
  - Reduction of waste water with alkaline pH
  - reduced production costs
  - final product (tortillas) with same
    - appearance
    - elasticity
    - smell and taste

The main difference between today's and future process.

today's method



Cooking of maize in water excess

new Buhler process

Cooking of maize in a steamer

Closing comments.

- Water and energy saving creates value for the industry and protects environment
- Solution complies with Food Safety Aspects

The prerequisites for innovation are:

- Company culture and spirit
- People and know-how
- Infrastructure

			
Grain Technology Center	*Bakery Innovation Center*	*Training Center*	*Swiss Milling School*
Innovation in Process and equipment Product Innovations	Deep processing Application consulting Basic Courses in Bakery	Short courses in - technology - maintenance - milling for executives	Education of milling engineers

Thank you!