RICE FORTIFICATION RESEARCH INITIATIVES USING EXTRUSION TECHNOLOGY: PHILIPPINES

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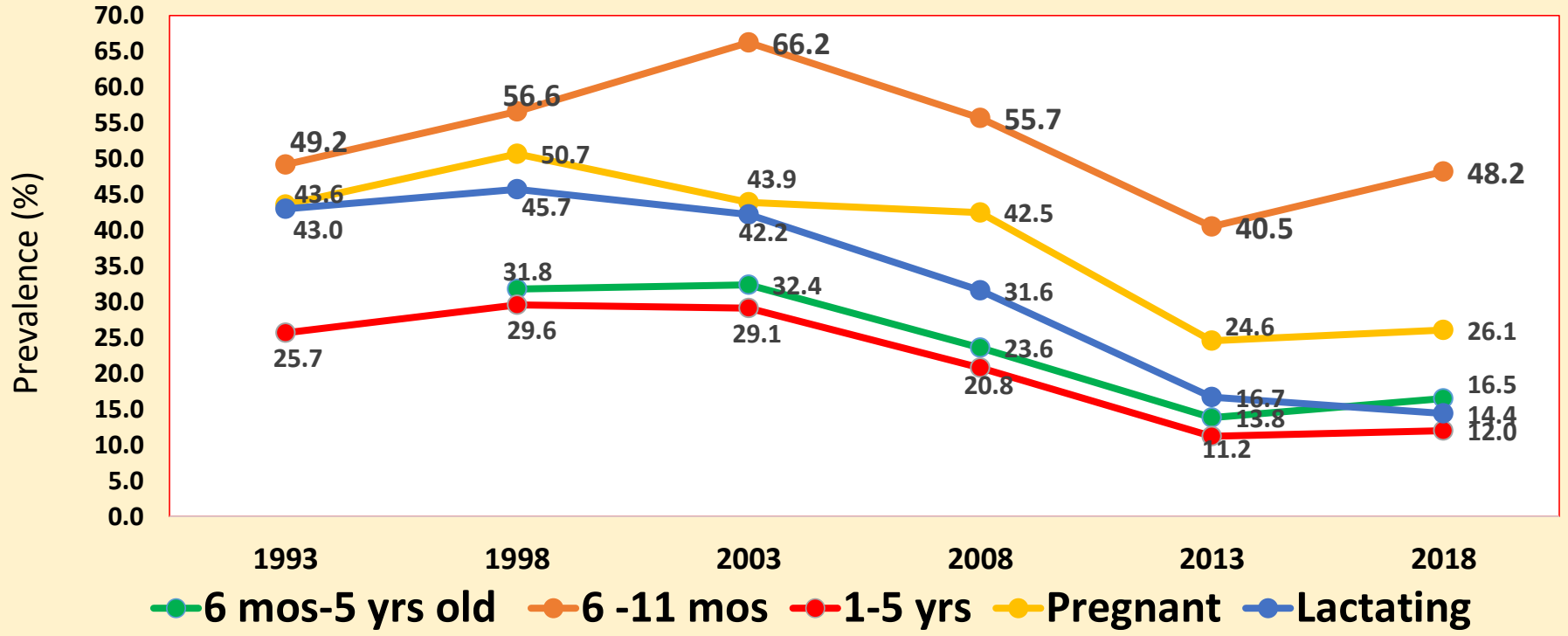
Presentation Track

- The DOST - FNRI
- The Problem
- The Solution: The IFR technology
- Signicant findings of research initiatives
- Scaling – up the implementation of IFR

Premier research arm of the government in food, nutrition, technology and other S & T services

THE PROBLEM

Trends in anemia prevalence among Filipinos



- **The best way to prevent micronutrient malnutrition is to ensure consumption of a balanced diet that is adequate in every nutrient.**

- **Unfortunately, this is far from being achievable everywhere, since it requires universal access to adequate food and appropriate dietary habits.**

THE SOLUTION...

- **Food fortification has the dual advantage of being able to deliver nutrients to large segments of the population without requiring radical changes in food consumption patterns.**

In Year 2000 The Philippine Food Fortification Law was signed (Republic Act 8976)

"An Act Establishing the Philippine Food Fortification Program and for other Purposes"

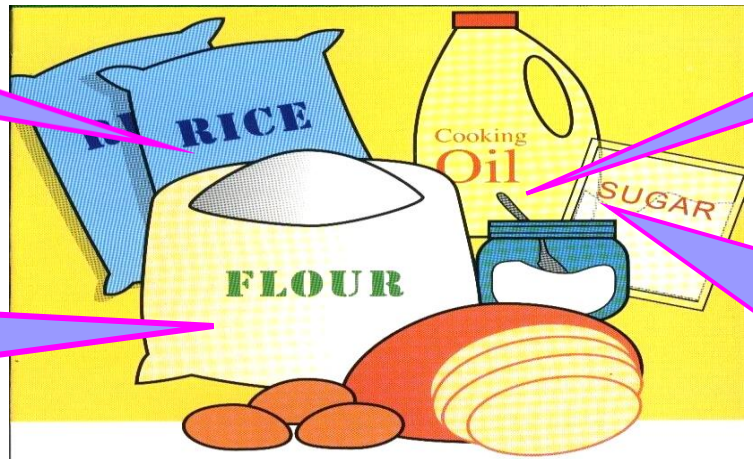
Required full implementation on the fortification of staples in 2004 including rice with iron

Republic Act 8976 Components

1. Mandatory Fortification by November 7, 2004

Rice with Iron

Flour with Vitamin A and Iron



Edible Oil with Vitamin A

Sugar with Vitamin A (still on moratorium because of technological issue)

Republic Act 8976 Components

2. Voluntary Fortification Processed Food thru Sangkap Pinoy Seal

Canned goods

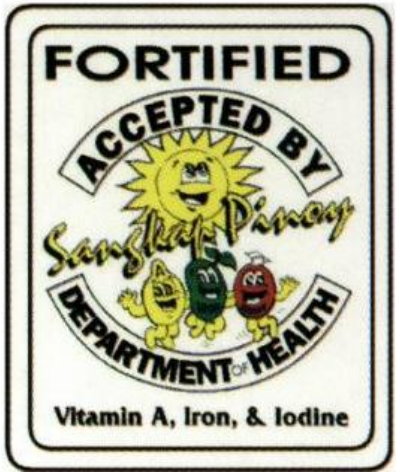
Snack foods

Noodles

Baby Food

Fruit juice/drinks & other beverages

Margarine



- Must meet 30% of the RNI
- Vitamin C - not less than 100% of the RNI

What have we been doing in rice fortification since then?

1. Technology generation
2. Product development
3. Research and development

Generation of Technology and product development

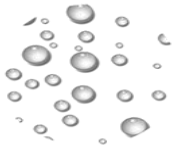
- **Hot Extrusion Technology**

- **Premix Development:**
  - ✓ uses broken rice a low value rice which is used sold at USD 0.48/kg
  - ✓ Broken rice to whole grain rice – Php. USD 1/kg
  - ✓ Increase in rice supply by about 20- 30%.

HOT EXTRUSION


rice flour


fortificant


water

other ingredient

FNRI Processing Facility

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ADVANTAGE OF EXTRUSION TECHNOLOGY

simple operation

High temeperature, short time

High productivity and low cost

Produce more acceptable and stable premix

Versatile

Better retention of nutrients

FERRIC PYROPHOSPHATE POWDER 8% FE

Uses super-dispersion technology

Readily dispersible in liquid

Mask objectionable iron flavor

No precipitation

GRAS

Mild on the stomach

Non-irritating

Stable against pH, heat, salt & oxidation

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IRON RICE PREMIX

no powdering

grain like

hard texture

ease of addition

no discoloration

locally produced

long shelf-life

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PRODUCTION OF IFR USING BLENDING MACHINE

FNRI designed cheaper machine….

The fabricated blending machine has an acceptable flow rate capacity of 30kg/min, with high percent whole grain retention of 95.1%

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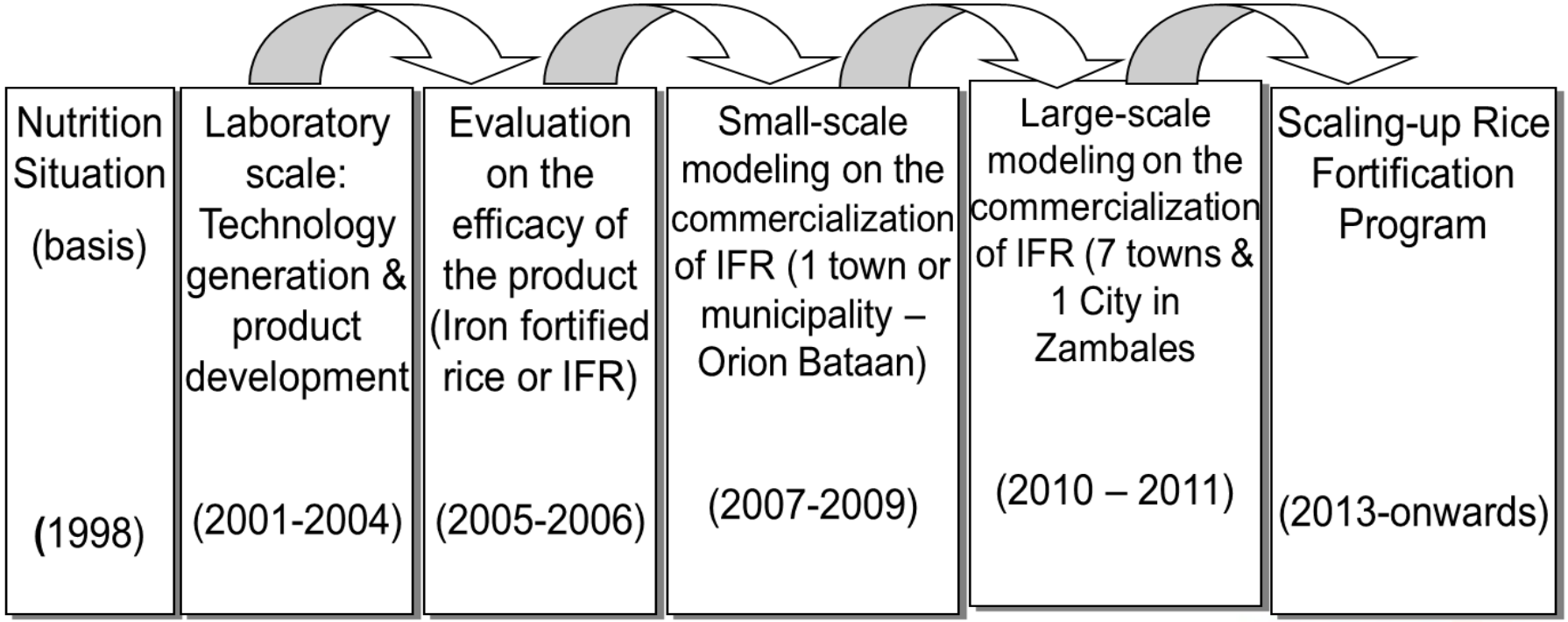
Research Initiatives:

1. **Efficacy trial**
2. **Pilot scale commercialization with social marketing**
3. **Large-scale commercialization with social marketing**
4. **Scaling –up the technology for more supply of IFR**

✓ **Release of local ordinance for the sale of IFR – is the key for commercialization**

The Philippine Model On IFR Implementation



As a result of the different significant results of R & D last 2016 Scaling –up of the IFR technology was became nationwide

The Technology received several prestigious awards:

2017 CIVIL SERVICE COMMISSION PAGASA AWARD- individual category

2017 ALBERTO ROMUALDEZ OUSTANDING HEALTH RESEARCH AWARD (AROHRA) FOR BIOCHEMINALRESEARCH CATEGORY

2017 FINALIST BENITA & CATALINO YAP FOUNDATION (BCYF) INNOVATION AWARD- Government and SME Group Category, Finalists

2019 FINALIST TAPI- GAWAD DAGISIK Award, Outstanding and Most Promising Technicom Project in the Health Sector

THANK YOU