First African Flour Fortification Workshop
17-20 November 2008

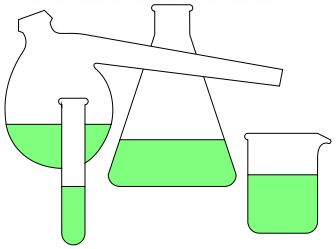
Cost Issues: What does fortification cost and who pays?

Quentin Johnson, Coordinator,
Technical Training & Support Group

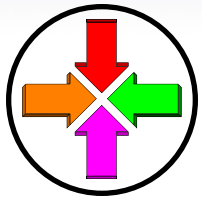
The Flour Fortification Initiative

MASS CEREAL FORTIFICATION OR ENRICHMENT

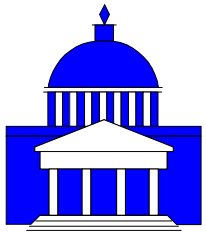
VITAMINS AND MINERALS PRODUCED BY MODERN CHEMICAL TECHNOLOGY



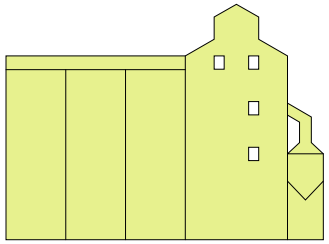
ARE BLENDED TO MAKE A PREMIX



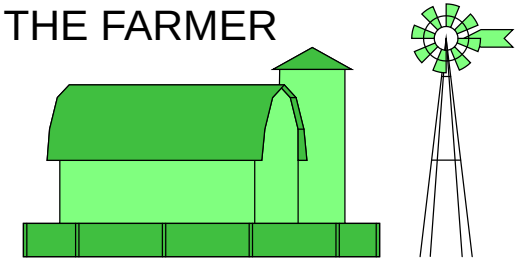
IN ACCORDANCE WITH GOVERNMENT REGULATIONS OR CUSTOMER SPECIFICATIONS



WHICH IS ADDED TO FLOUR AT THE MILL

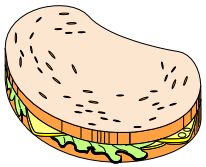


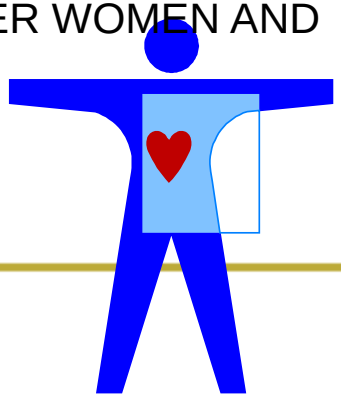
MADE FROM GRAIN GROWN BY THE FARMER



ENRICHED WHEAT FLOUR

THE FORTIFIED FLOUR OR MEAL IS EATEN AS BAKED OR COOKED PRODUCTS MAKING FOR HEALTHIER WOMEN AND CHILDREN





Cost components of fortification

- Production of fortified flour
- Quality Assurance
- Social Marketing
- Monitoring and Evaluation

Costs: Production of Fortified Flour

- Capital Costs – Feeders, control systems, automated systems
- Premix – Micronutrients and levels
- Mill QC/QA – Spot test and Quantitative Analysis

Fortification: Capital Costs

- Feeders: Simple volumetric type $3,000-$10,000
- Automated Systems Loss in Weight and computer controlled: $25,000-$40,000
- Installation costs: 10% of feeder/equip. value

Simple Feeder

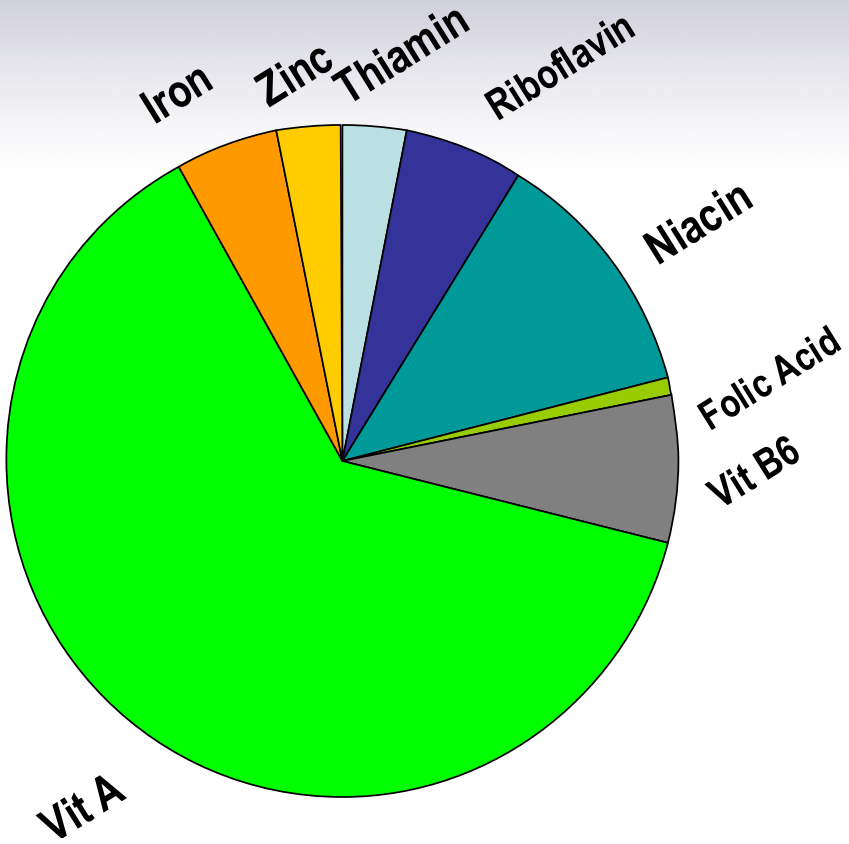
Automated system

Fortification Costs: Premix

- Largest cost component of any flour fortification programme.
- Premix Cost depends upon two variable components
  - Number and type of micronutrients to be added
  - Levels of micronutrients to be added
- Additional costs: Import duties and VAT

What are the costs for the premixes?

- Fe 60 ppm: $.45/MT
- Fe + Folic : $0.75-1.00/MT
- Fe, Folic Acid + B Vitamins: $1.50/MT*
- Multi-Nutrient Mix w/Vitamin A $2.75/MT
- For 100 kg Annual Cost: $0.03- $.35/pp/yr



Relative Premix Costs South Africa

*** <0.5% of flour price**

Source: Jack Bagriansky Quentin Johnson

Comparison of Premix costs
(includes VAT and duties)

Premix	Premix Cost $/Kg	Addition Rate g/MT	$/MT of Flour	
Ferrous Sulphate Folic Acid	$7.92	150 grams	$1.19	
Central* Asia premix	$9.15	150 grams	$1.37	
Canada USA	$11.30	150 grams	$1.67	

*ADB Project

Fortification Costs: Ongoing Other Costs for industry

- Quality Control Quality Assurance – Spot Tests and Quantitative analysis of fortified flour.
  - Using Iron as reference method
    - Spot Test $0.30 per sample
    - Iron Quantitative Cost $20 - $50 per sample
- Administrative Costs, Storage Costs etc.
- Total costs: 10% of premix value

Micronutrient Fortification Cost

(ingredient cost only)

Vitamin	1/3 RDA	Cost/Person/Year $
A (250)	1111 IU	0.073
B1	0.47 mg	0.004
B2	0.57 mg	0.013
B3	6.3 mg	0.019
Folic Acid	66.7 mcg	0.002
Iron	6 mg	0.002

Costs: National Level Quality Assurance

- Government responsibilities
  - Development of Standards, Regulations and Laws
  - Food Inspection system
  - Food Testing

- Cost Estimates per year $100,000 - $200,000

Costs: Social Marketing

- Development of Communications among stakeholders through meetings workshops etc: $100,000
- Development of Social Marketing Campaigns and Messages: $500,000 and higher
- Implementation Costs media: $200,000 per year
- Ongoing Communications costs: $100,000 per year

Costs: Monitoring and Evaluation

- Impact measurements – baseline and surveys
- Costs: $200,000 - $300,000 per survey

Country Examples

- Morocco: Annual Costs $750,000
  - Industry Costs represent 75% of the total annual programme costs:
- Egypt: Baladi Bread flour (subsidized)
  - $6 million per year paid by government
- Jordan: Mowahad flour (national bread flour)
  - $2.67 million per year

Fortification Costs: Who pays?

- Successful fortification programmes – Directly or Indirectly the consumer pays
  - Directly through the price of flour based on the market e.g. Canada, UK, Guinea, South Africa, Nigeria, Indonesia, Mexico, Philippines
  - Indirectly through government payment or subsidies e.g. Bahrain, Egypt, Jordan
- Case for fortified foods for target populations can be made for the government to pay
- Key is that the decision should be based on the Cost Benefit of the Fortification Investment to the country.