



# ***FLOUR FORTIFICATION***

## ***A Miller's Perspective***



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# *Seaboard Corporation History*

- Started milling flour in 1918 in Kansas
- Built 5 new flour mills in the USA from 1962 to 1975 along with other acquisitions
- Acquired first overseas venture in 1966 in Guayaquil, Ecuador
- First flour mill in Africa built in 1968 in Freetown, Sierra Leone
- Sold all US flour mills to Cargill in 1982 but kept overseas operations, transition to poultry, marine transport, and later pork processing as well as expansion of milling and trading operations



# *Seaboard Overseas Today*

- Affiliated mills in 12 countries – 8 countries within Sub-Saharan Africa
- Capacity to process more than 10,000 metric tons of grain and feed daily
- Trading affiliates in 6 countries
- Total annual trading volumes exceeding 5 million metric tons
- New venture into rice trading and processing in 2007





# *Fortification*

- Seaboard currently fortifying 100% of production in:
  - Guyana
  - Ecuador
  - Haiti
  - Sierra Leone
  - Nigeria
  - Lesotho
  - Congo-DRC



## ***What ISN'T a problem for Millers***

- Sourcing
  - Suppliers of fortificants already supply other flour ingredients to many millers
  - Transport performed along with other flour ingredients
- Incorporation of fortificants
  - Millers are often accustomed to adding micro ingredients
  - Millers accustomed to testing for daily presence (qualitatively) of other micro ingredients



# *What IS a problem for Millers*

- Cost
- Public education, awareness and preference
- Equitable enforcement of national standards
- Corruption
- Attending meetings
- Pursuit of the ideal “kitchen sink” solution
- Reluctance of advocacy groups to pursue commercially-driven avenues
- Imports



## *Economic Cost of Fortification to the Miller*

- New 300T flour mill
- 260 days/year of full operation
- 60,000 metric tons/year of flour production
- USD 10 million capital investment assumed
- 15% return on capital investment required
- USD 1.5 million annual cash flow required to sustain a rational investment





## ***MYTH – fortification is “cheap” to the miller***

- 300T/day mill processes 78,000 T of wheat per year, 60,000 T/year of flour
- $78,000 \text{ T} \times \$350/\text{T} = \$27.3 \text{ million}$
- $\$50/\text{T}_{(\text{Flour})}$  processing costs = \$3 million
- \$360,000 of fortification cost (1.1% of cost of goods sold) is therefore “nothing” to the miller

## *Economic Cost of Fortification to the Miller*

- Some standards including Vitamin A (e.g. Nigeria) cost around \$6/metric ton of flour or \$360,000 per year
- If a miller fortifies by only 50% of the required rate, the ROI on a new investment increases from 15% to nearly 17% with almost no risk
- If a miller fortifies by 50% of the required rate, net cash flow increases by 12%

$$(\$360,000 / 2) / \$10,000,000 + \text{original } 15\% \text{ ROI} = 16.8\%$$

$$(\$360,000 / 2) / \$1,500,000 = 12\%$$



## *Economic Cost of Fortification to the Miller*

- Assume Iron + Folic Acid costs around \$1/metric ton of flour or \$60,000
- Cutting the addition by 50%, the ROI on a new investment increases by only 0.3%

$$(\$60,000 / 2) / \$10,000,000 = 0.3\%$$

- If a miller under fortifies by 50%, net cash flow increases by only 2%

$$(\$60,000 / 2) / \$1,500,000 = 2\%$$



# Potential *VALUE* of Fortification

- $\$1,500,000 / 60,000 \text{ T} = \$25/\text{T}$  cash flow
- $\$30/\text{T}$  fixed costs (overheads and fixed mfg costs)
- $\$55/\text{T}$  contribution margin
- $\$60,000$  fortification cost /  $\$55/\text{T}$  contribution = 1,091 T of incremental sales required to “pay” for fortification – just a 1.8% increase in sales volume
- Milling company can build local goodwill
- The small investment in public health will also help to increase prosperity in the country in due course

# What about an “old” mill?

- Existing mills operate without the economic advantages of a new mill
  - 1% extraction = \$234,000 disadvantage
  - Energy efficiency is less = \$135,000 disadvantage
  - Repairs and maintenance requirements are higher = \$120,000
  - Labor requirements higher = \$180,000
- Total disadvantage = \$669,000
- annual cash flow = \$831,000
- Now, fortification cost is as much as 43% of cash flow (Nigerian standards for example)
- Mill will operate in the short term if variable costs are covered
- Mill will only operate in the long run if annual overheads AND fixed costs are fully absorbed





# ***THE GOOD NEWS***

## ***Millers are willing to...***

- Absorb nominal costs (I believe) associated with establishing fortification programs
  - Feeder
  - Quality assurance
  - Storage & logistics considerations
- Work with advocacy groups and public health officials to increase efficacy and awareness

# How to fortify? It Depends

- Industry Structure – are there one, two, or many milling companies? Imports?
- Public perception of fortified products
- How is flour consumed
  - is it a significant part of the local diet for the masses?
  - Do consumers realize they are consuming fortified product(s)?
  - Do they recognize labels/companies supporting fortification efforts?
  - Are they purchasing flour directly or a product containing flour?
- The reliability and ability of regulatory authorities





## *Millers would like to...*

- Make sure all ingredients are:
  - Appropriate for flour
    - Can withstand ambient moisture for several months
    - Do not degrade the quality of the end product
  - Easy to detect and quantify in flour
  - Are not exorbitantly expensive to ensure cheating is not of great economic interest
- Dialogue with fellow industry participants
- Sell more flour!
- Find a solution that the market ultimately demands and requires for its own well being







***Thank You!***