



**Food  
Fortification  
Initiative**

Enhancing Grains for Healthier Lives

## **IAOM Southeast Asia Region Conference and Expo**

October 2023

# What is food fortification?

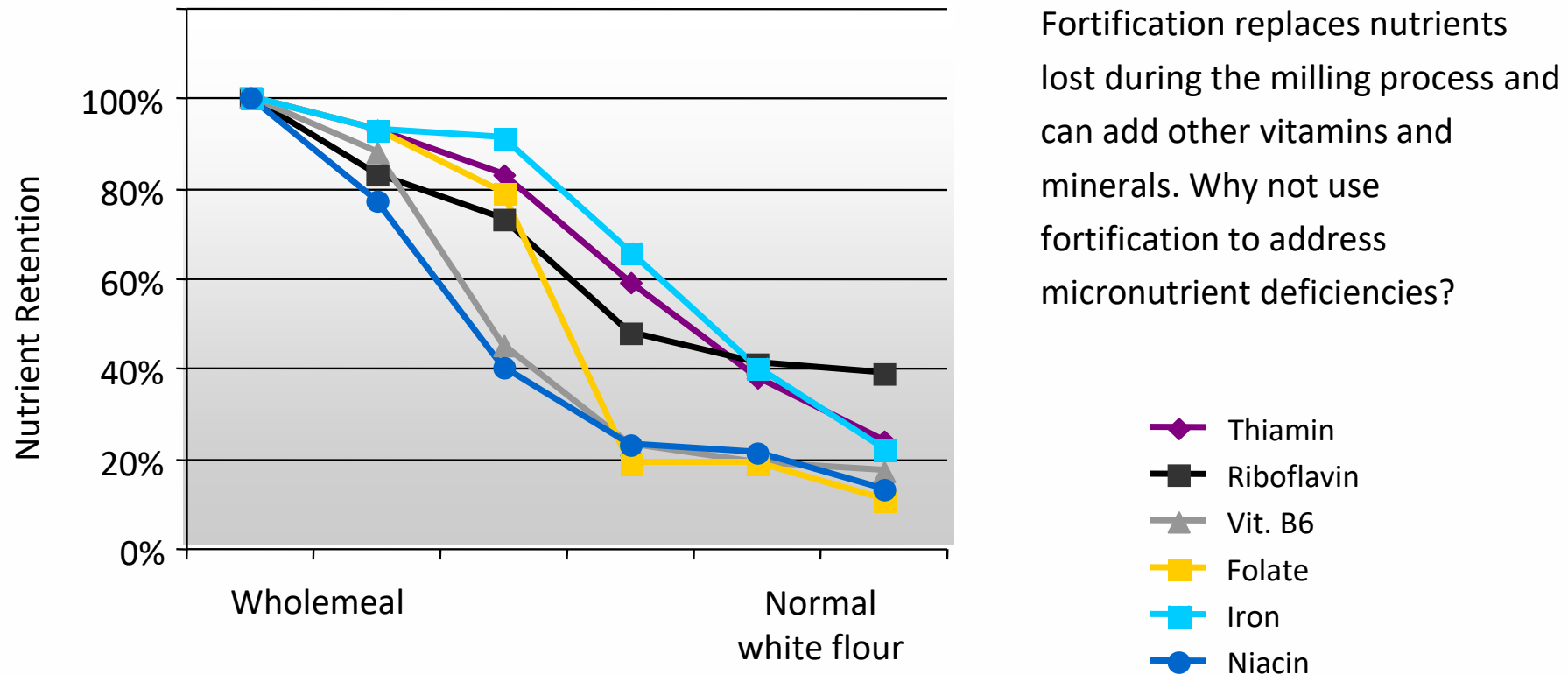
Fortification adds vitamins and minerals during processing so that foods are more nutritious.

Vitamins and minerals are combined in a powdery premix to add to flour during the milling process.  
Photo: CDC Foundation



# The case for flour fortification

*Loss of vitamins and minerals during milling of wheat*



**Fortified refined flour is more nutritious than whole wheat flour when considering micronutrient content.**

# Why do millers fortify?

*Because it improves the health of our people.*

**2 billion +**

People worldwide suffer from the effects of micronutrient malnutrition.<sup>1</sup>

**372 million**

Half of all preschool-aged children have at least one micronutrient deficiency.<sup>1</sup>

**1.2 billion**

Women of reproductive age have at least one micronutrient deficiency.<sup>1</sup>

**218,270**

Babies were born with folic acid-preventable birth defects of the brain and spine in 2020.<sup>2</sup>

<sup>1</sup> Stevens, G., et al. Micronutrient deficiencies among preschool-aged children and women of reproductive age worldwide: a pooled analysis of individual-level data from population-representative surveys. The Lancet Global Health. 2022.

<sup>2</sup> Kancherla, V., et al. A global update on the status of prevention of folic acid-preventable spina bifida and anencephaly in year 2020: 30-Year anniversary of gaining knowledge about folic acid's prevention potential for neural tube defects. Birth Defects Research. 2022.



Spina bifida is a malformation of the baby's spine. It causes permanent disability.



Anencephaly is malformation of the baby's brain. It is always fatal.

# Why do millers fortify?

*Because it makes business sense.*

Increased disposable income to  
spend on food



Increased GDP + productivity



Flour fortification



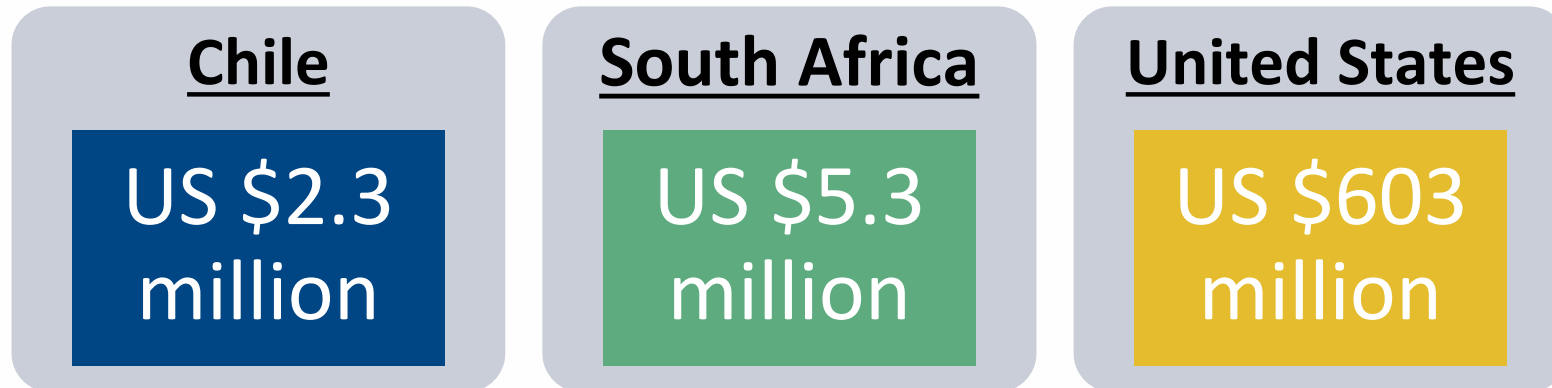
Micronutrient deficiencies + reduced  
productivity



# Why do millers fortify?

Cost of fortification: \$1.50 - \$2 per metric ton.

Annual net savings from adding folic acid to wheat flour:



*These are conservative estimates!*

Llanos et al. 2007  
Sayed et al. 2008  
Grosse et al. 2016

# Ongoing global consensus on flour fortification over past 20+ years

- WHO World Health Assembly Resolution (2023)
- WHO Recommendations on Wheat Flour Fortification (2022)
- Copenhagen Consensus (2004, updated 2008)
- Sustainable Development Goals (2015-2030)





# Why do millers fortify?

- Flour fortification is good for everybody
- Doable
- Good business sense
- It's going to happen anyway



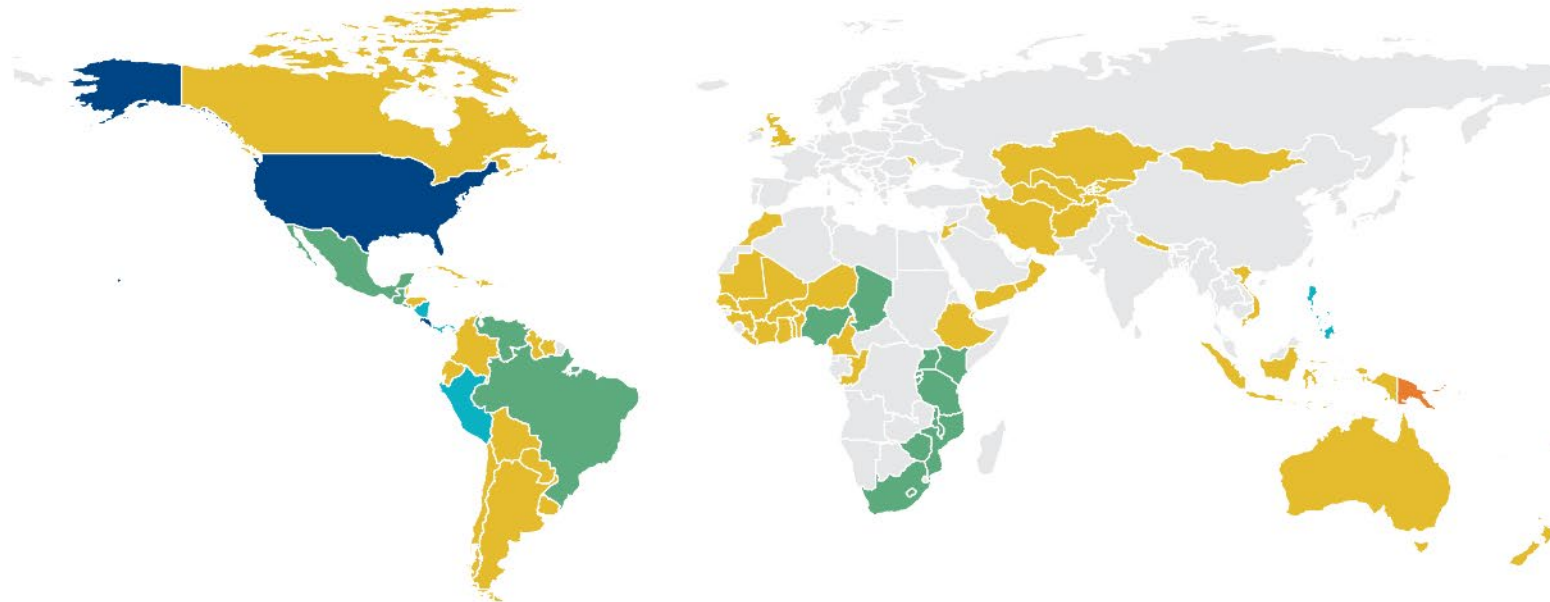
## UNMET POTENTIAL




**Most of the world's industrially milled grains are not yet fortified.**




	WHEAT FLOUR	MAIZE FLOUR	RICE
	million metric tons	million metric tons	million metric tons
Available for human consumption	414	70	320
Industrially milled	338	25	126
Industrially milled and fortified	105	10	11
<b>% industrially milled and fortified</b>	<b>31%</b>	<b>42%</b>	<b>9%</b>

# 92 countries with legislation to fortify industrially milled flour and/or rice

Legislation in 91 countries mandates fortification of wheat flour alone or in combination with maize flour and/or rice. One country (Papua New Guinea) has legislation to only fortify rice.



	<b>Wheat flour alone – 67 countries</b>
	<b>Rice alone – 1 country (Papua New Guinea)</b>
	<b>Wheat flour and maize flour – 17 countries</b>

	<b>Wheat flour and rice – 5 countries (Nicaragua, Panama, Peru, Philippines, Solomon Islands)</b>
	<b>Wheat flour, maize flour, and rice – 2 countries (Costa Rica and the United States)</b>
	<b>No mandatory fortification legislation or data not available</b>

Legislation has effect of mandating grain fortification with at least iron or folic acid.

Legislation status from the Food Fortification Initiative ([www.FFInetwork.org](http://www.FFInetwork.org)) July 2023.

# How can millers help?

- For those with mandatory fortification, comply to national standards
- For those without mandatory fortification, support your country's efforts to fortify

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VALLEE  
50 KG

## For more information:

- [www.FFInetwork.org](http://www.FFInetwork.org)
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- [@FFInetwork on Facebook](#) / [Twitter](#) / [LinkedIn](#) / [Instagram](#)

