

Global and Regional Overview of Flour Fortification



Enhancing Grains for Healthier Lives

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What is Grain Fortification?

- Fortification adds vitamins and minerals during the milling process so that foods made with fortified grain products are more nutritious.

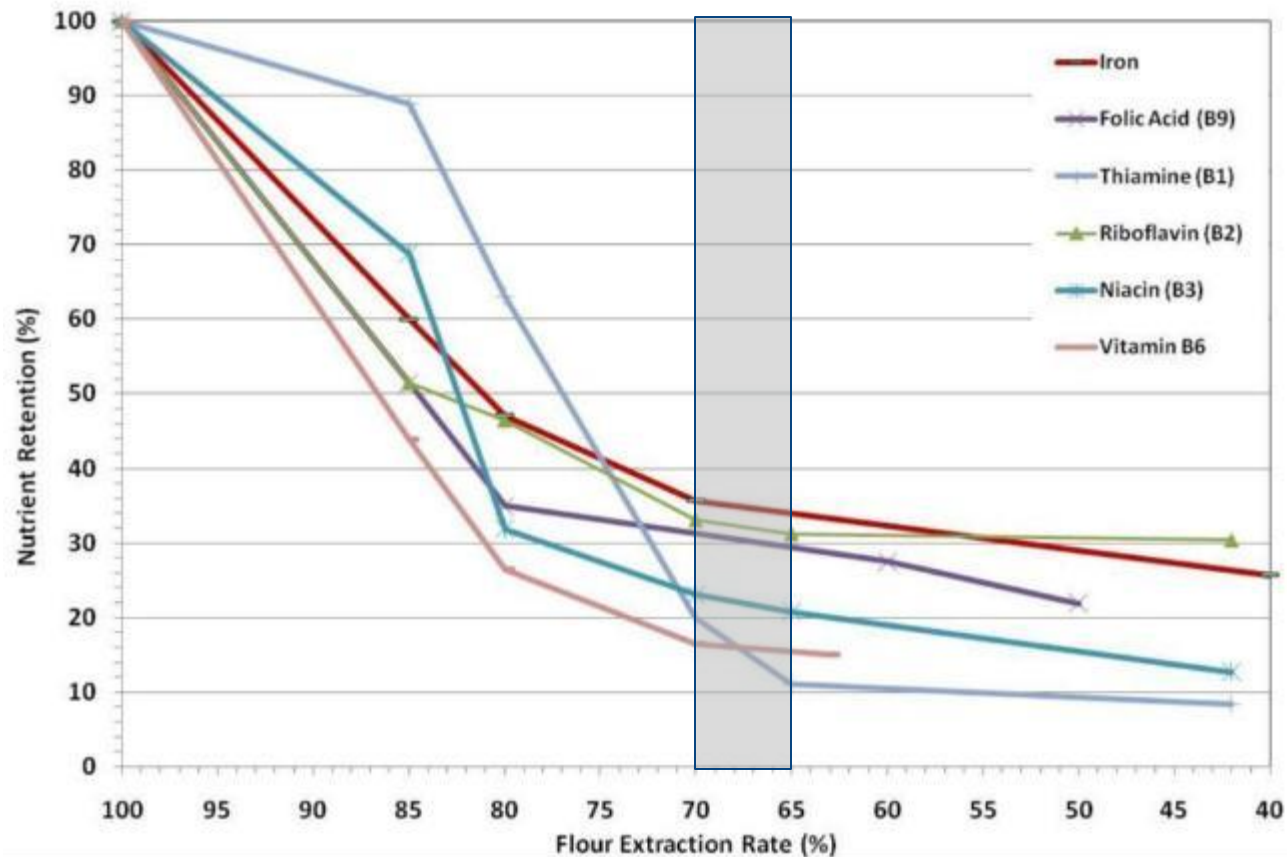


Vitamins and minerals are combined in a powdery premix to add to flour during the milling process. Photo from Mühlenchemie.



Nutrients Lost in Flour Milling

Wheat loses nutrients in the milling process, usually at levels indicated in the gray box.





Nutrients Included in Mandatory Grain Fortification Standards

Iron

**Folic acid
(vitamin
B9)**

**Thiamin
(vitamin
B1)**

**Niacin
(vitamin
B3)**

**Riboflavin
(vitamin
B2)**

Zinc

**Vitamin
B12**

**Vitamin
B6**

**Vitamin
A**

Calcium

**Vitamin
D**

Selenium



Wheat Flour Fortification Progress

	2002	2017
Countries with mandates to fortify wheat flour with at least iron or folic acid	44	86
Percent of wheat flour fortified in industrialized mills worldwide	18	34.1





Reasons for Mandatory Legislation

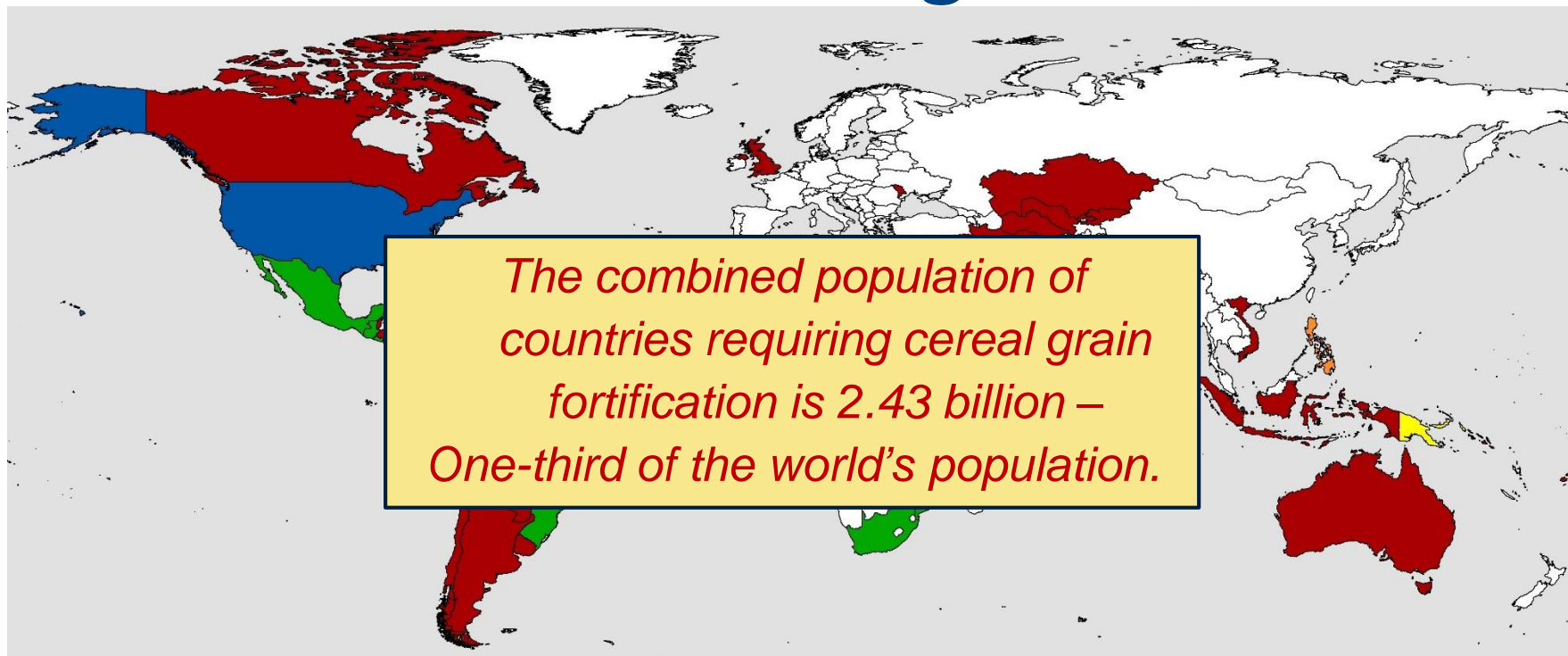





Osmonbek Artykbaev, left, former Parliamentarian in the Kyrgyz Republic, helped the country pass legislation to require flour fortification.




- Equalizes costs for millers
- Sets appropriate standards including:
 - Best iron compound
 - Nutrient levels
- Can be more easily monitored than voluntary fortification
- Provides more equitable access to fortified foods
- Does not require consumer behavior change



Industrially Milled Flour and Rice Fortification Legislation



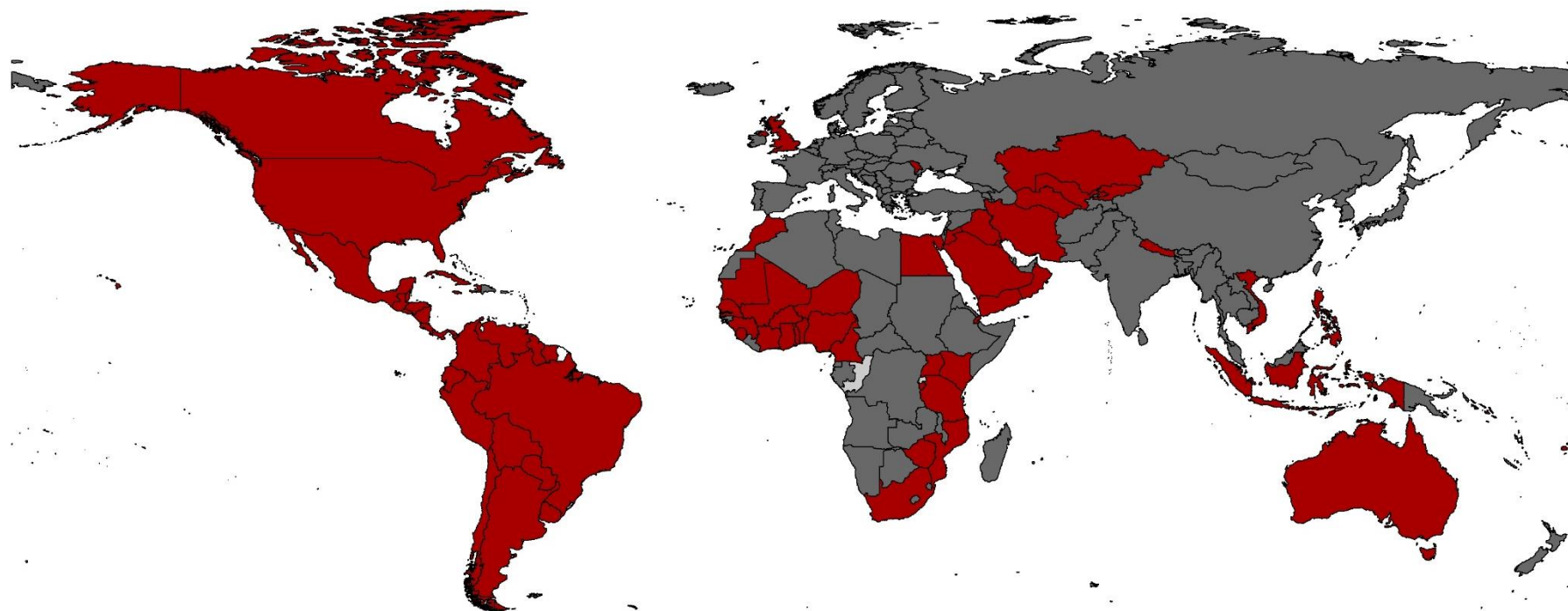
	Wheat flour – 67 countries
	Rice – 1 country (Papua New Guinea)
	Wheat flour and maize flour – 14 countries





	Wheat flour and rice – 3 countries (Nicaragua, Panama, Philippines)
	Wheat flour, maize flour, and rice – 2 countries (Costa Rica and the United States)
	No grain fortification legislation

* Legislation has effect of mandating grain fortification with at least iron or folic acid.
Legislation status from the Food Fortification Initiative (www.FFInetwork.org) March 2017



Wheat Availability and Fortification Legislation

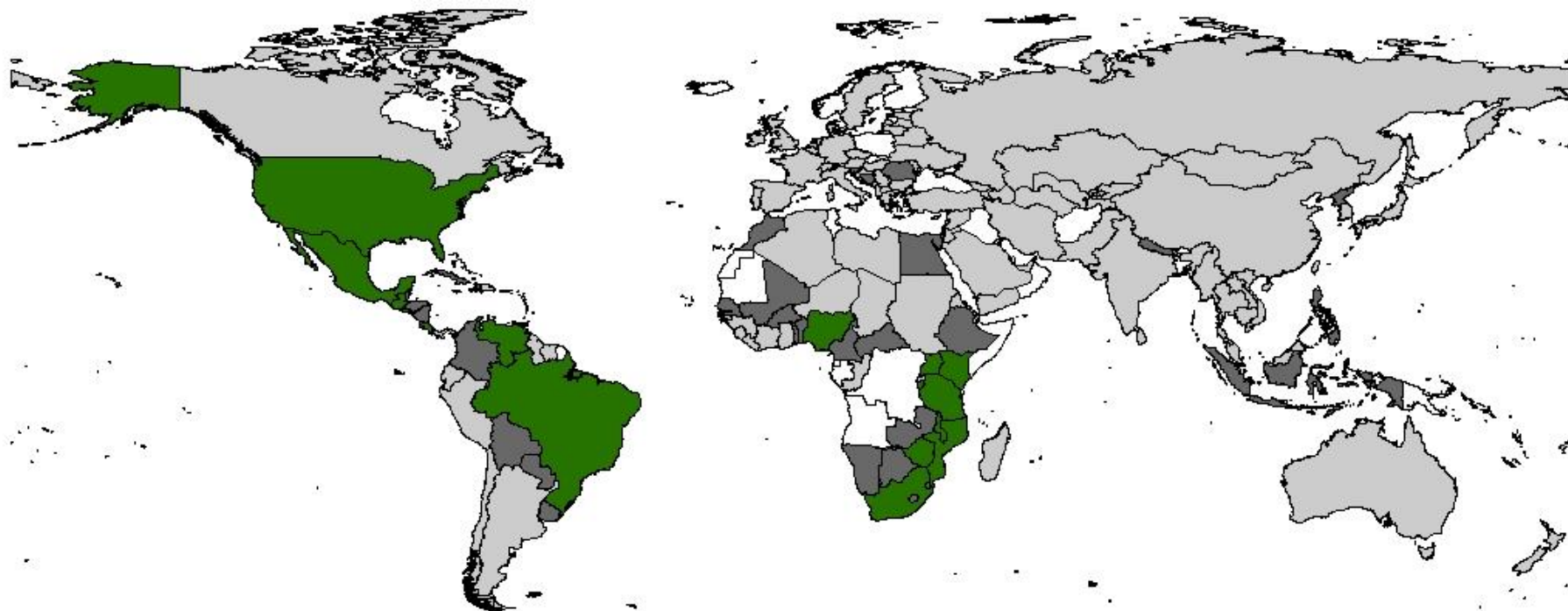






 75 or more grams available per person per day	 Mandatory fortification legislation * 86 countries
 Less than 75 grams available per person per day	 No availability or legislation data

* Legislation has effect of mandating grain fortification with at least iron or folic acid; does not reflect how much grain is available. Grain availability data from the Food and Agriculture Organization (2011). Legislation status from the Food Fortification Initiative (www.FFInetwork.org) March 2017



Maize Availability and Fortification Legislation

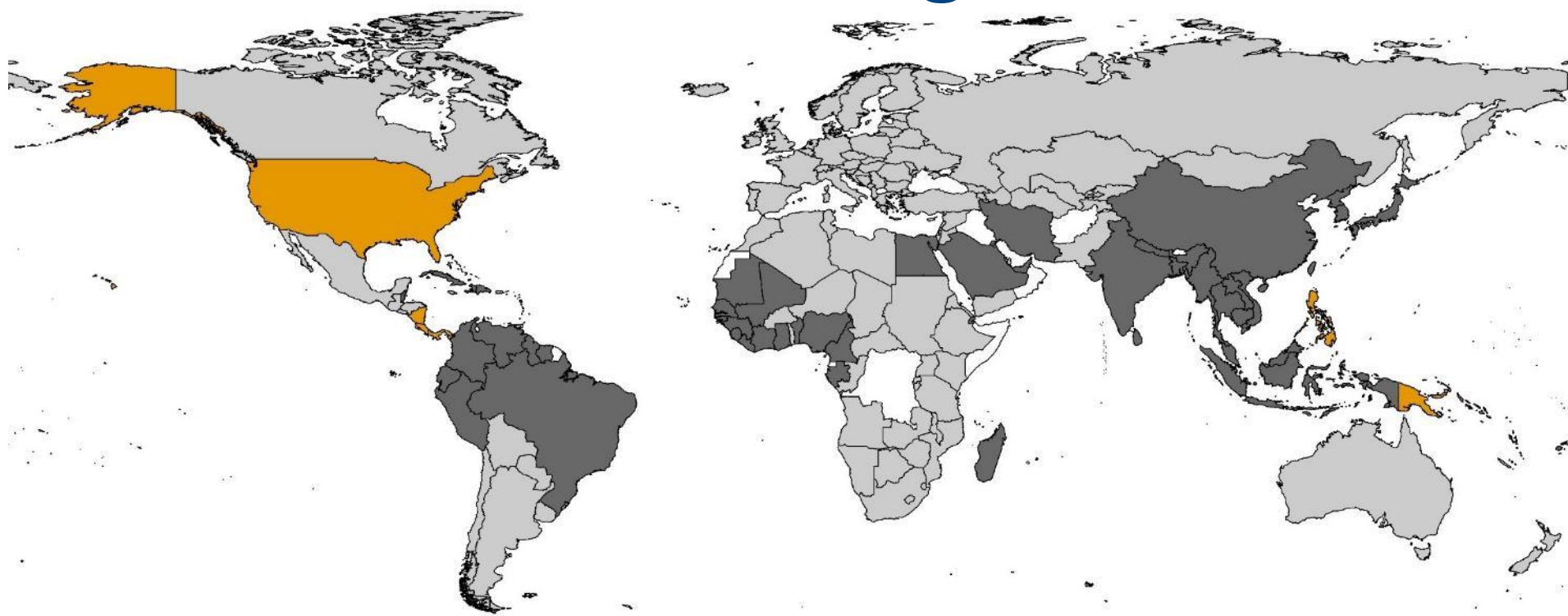


	75 or more grams available per person per day		Mandatory fortification legislation * 16 countries
	Less than 75 grams available per person per day		No availability or legislation data

* Legislation has effect of mandating grain fortification with at least iron or folic acid; does not reflect how much grain is available. Grain availability data from the Food and Agriculture Organization (2011). Legislation status from the Food Fortification Initiative (www.FFInetwork.org) January 2017



Rice Availability and Fortification Legislation



	75 or more grams available per person per day		Mandatory fortification legislation * Costa Rica, Philippines, Papua New Guinea, Nicaragua, Panama, US
	Less than 75 grams available per person per day		No availability or legislation data

* Legislation has effect of mandating grain fortification with at least iron or folic acid; does not reflect how much grain is available.
Grain availability data from the Food and Agriculture Organization (2011).
Legislation status from the Food Fortification Initiative (www.FFInetwork.org) January 2017



Fortification Opportunities

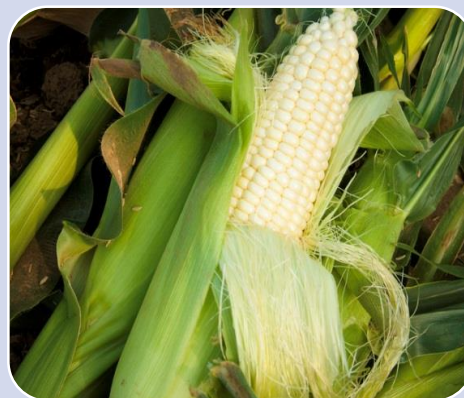
	Wheat Flour	Maize Flour	Rice
Global amount available for human consumption ¹	354,721,259	89,620,352	377,239,122
Amount industrially milled ²	250,420,980	26,230,222	170,622,034
Total fortified industrially milled ²	85,433,775	14,952,354	1,160,545
% industrially milled that is fortified	34.1	57.0	0.7

¹ metric tons; Food and Agriculture Organization of the United Nations (FAO) for 2013, the most recent year with data from the majority of countries.

² metric tons; FFI calculations. Food Fortification Initiative. Say Hello to a Fortified Future. 2016 Year in Review. FFI: Atlanta, USA 2017. Accessed at: http://www.ffinetwork.org/about/stay_informed/publications/documents/FFI2016Review.pdf



2016 Estimates



Industrially
milled
wheat flour

27.9%
fortified

Industrially
milled
maize flour

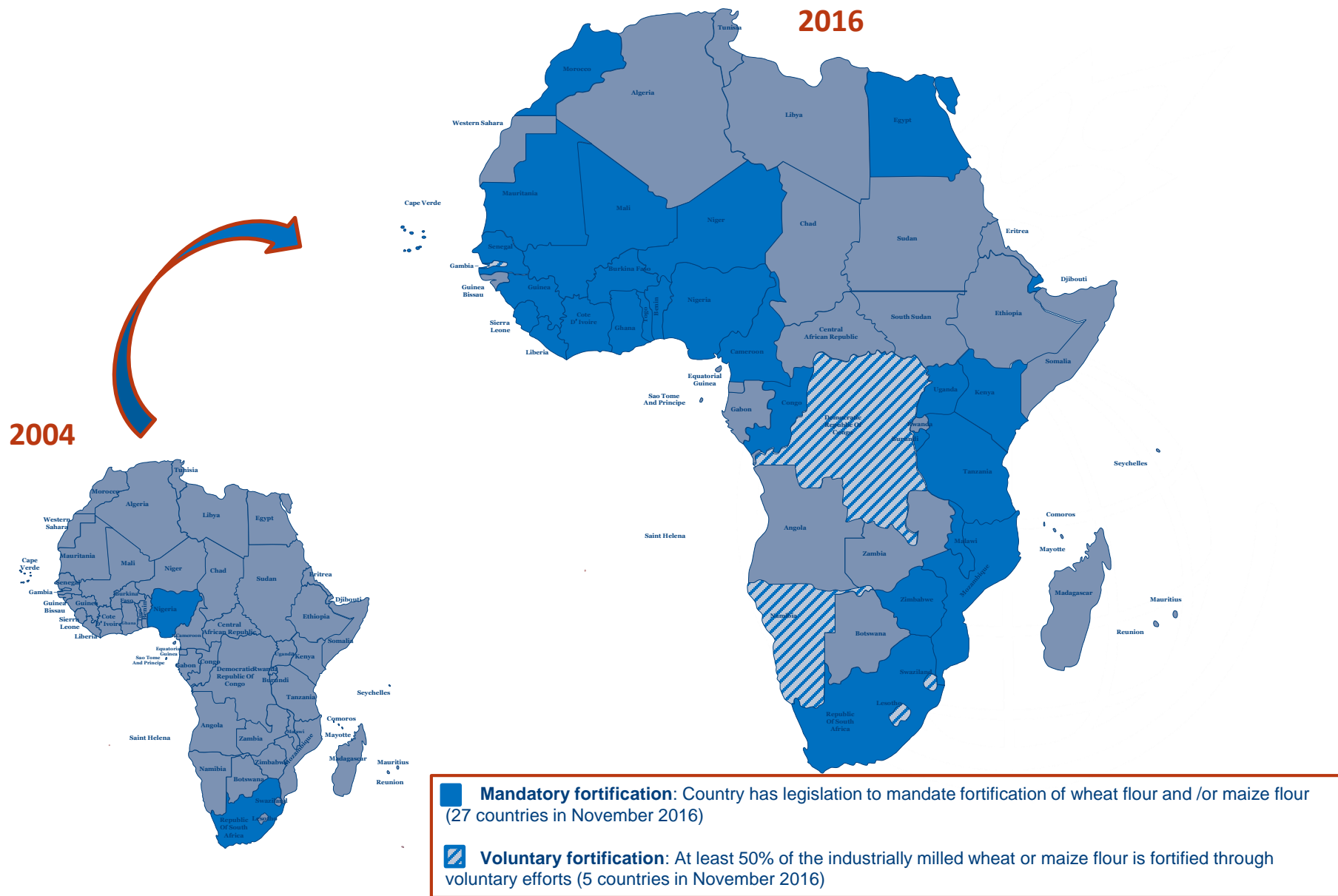
58.0%
fortified

Industrially
milled
rice

0.8%
fortified



Flour Fortification in Africa: 12 Years of Progress



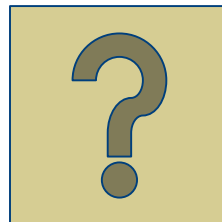


In Summary

The Problem:

One-third of the world's population suffers from vitamin and mineral deficiencies. In many countries, both lower and higher income populations are affected

– World Bank 2006



Part of the Solution:

Within countries, FFI stimulates interaction among partners so that together we can achieve results that none of us could achieve independently.



For More Information

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