

UNICEF/FFI Joint Workshop, Ankara 12-13 June 2012
Addressing Micronutrient Deficiencies Through Flour Fortification
In the CEE/CIS Region

WHO Recommendations on Wheat Flour Fortification

Quentin Johnson, Coordinator
Training & Technical Support Group
Flour Fortification Initiative



Flour Fortification Initiative
A Public-Private-Civic Investment in Each Nation

WHO FAO Guidelines on Food Fortification with Micronutrients

- Resource for governments and agencies implementing or considering food fortification
- Source of information for scientists, nutritionists, technologists and the food industry.
- General principles for effective fortification programs



Atlanta Workshop 2008

- Focused on 5 micronutrients
 - Vitamins: A, B12, Folic Acid
 - Minerals: Iron, Zinc
- 6 scientific working groups:
 - One for each micronutrient
 - One on consumption data
- Groups composed of representatives from academia, international agencies, milling industry, vitamin, mineral and premix suppliers



Nutrients to add: decisions

- Nutritional needs and deficiencies of the population;
- Usual consumption profile of “fortifiable” flour
- Sensory and physical effects of the fortificant nutrients on flour and flour products
- Fortification of other food vehicles
- Consumption of vitamin and mineral supplements
- Costs



Statement Development Process

- Statement prepared by the core group led by
 - WHO's Department of Nutrition for Health and Development in close collaboration with FAO, the nutrition section of UNICEF, GAIN, MI and FFI
 - The core group evaluated the commissioned scientific reviews prepared by expert working groups
 - Approved by WHO Guideline Review Committee in interim period year 2008
 - WHO headquarters in Geneva has initiated a review of all guidelines following formal adoption of *WHO Handbook for Guideline Development* procedures in 2010



Atlanta Workshop Recommendations: WHO Consensus Statement issued

- Following a review of the scientific papers, the findings and recommendations of the Atlanta workshop, the Micronutrient Unit of the World Health Organization issued a consensus statement on the recommendations of the Atlanta workshop in 2009.
- Proceedings published in March 2010 supplement of the *Food and Nutrition Bulletin*



Recommendations on Wheat and Maize Flour Fortification

Available in UN languages

- Arabic
- Chinese
- English
- French
- Russian
- Spanish

Also available in

- Mongolian
- Portuguese
- Vietnamese



PURPOSE

This statement is based on scientific reviews prepared for a Flour Fortification Initiative (FFI) technical workshop held in Stone Mountain, GA, USA in 2008 where various organizations actively engaged in the prevention and control of vitamin and mineral deficiencies and various other relevant stakeholders met and discussed specific practical recommendations to guide flour fortification efforts being implemented in various countries by the public, private and civic sectors. This joint statement reflects the position of the World Health Organization (WHO), Food and Agriculture Organization of the United Nations (FAO), The United Nations Children's Fund (UNICEF), Global Alliance for Improved Nutrition (GAIN), The Micronutrient Initiative (MI) and FFI. It is intended for a wide audience including food industry, scientists and governments involved in the design and implementation of flour fortification programs as public health interventions.

BACKGROUND

WHO and FAO published in 2006 the Guidelines on Food Fortification with Micronutrients (WHO/FAO, 2006). These general guidelines, written from a nutrition and public health perspective are a resource for governments and agencies

THE FFI SECOND TECHNICAL WORKSHOP ON WHEAT FLOUR FORTIFICATION

Nearly 100 leading nutrition, pharmaceutical and cereal scientists and milling experts from the public and private sectors from around the world met on March 31 to April 3, 2008 in Stone Mountain, GA, USA to provide advice for countries considering national wheat and/or maize flour fortification. This Second Technical Workshop on Wheat Flour Fortification: Practical Recommendations for National Application was a follow up to a FFI, the US Centers for Disease Control and Prevention (CDC) and the Mexican Institute of Public Health, first technical workshop entitled "Wheat Flour Fortification: Current Knowledge and Practical Applications," held in Cuernavaca, Mexico in December 2004 (FFI, 2004). The purpose of this second workshop was to provide guidance on national fortification of wheat and maize flours, milled in industrial roller mills (i.e. >20 metric tons/day milling capacity), with iron, zinc, folic acid, vitamin B₉ and vitamin A and to develop guidelines on formulations of premix based on common ranges of flour consumption. A secondary aim was to agree on the best practices guidelines for premix manufacturers and millers. Expert work groups prepared technical documents reviewing published efficacy and effectiveness studies as well as the form and levels of fortificants currently being added to flour in different countries. The full reviews will be published in a supplement of Food and Nutrition Bulletin in 2009 and the summary recommendations



WHO Recommendations on Flour

Nutrient	Type of flour (extraction)	Fortificant	Level of nutrient to be added (parts per million) By per capita wheat flour intake (g/day)			
			<75 g/day	75-149 g/day	150-300 g/day	>300 g/day
Iron	Low	NaFeEDTA Sulfate/Fumarate Electrolytic	40 60 NR	40 60 NR	20 30 60	15 20 40
	High	NaFeEDTA	40	40	20	15
Zinc	Low	Zinc Oxide	95	55	40	30
	High	Zinc Oxide	100	100	80	70
Folic Acid	Low or High	Folic Acid	5.0	2.6	1.3	1.0
Vitamin B12	Low or High	Cyancobalamin	0.04	0.02	0.01	0.008
Vitamin A	Low or High	Vitamin A palmitate	5.9	3.0	1.5	1.0

For additional information, visit:

www.FFInetwork.org/standards.html



Flour Fortification Initiative

A Public-Private-Civic Investment in Each Nation