

Second Technical Workshop on Wheat Flour Fortification: Practical Recommendations for National Application



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



General Observations

Flour fortification:

- Should be considered whenever industrially produced flour is regularly consumed
- Is most effective if mandated at a national level
- Will achieve optimal results when is monitored
- Is an approach to improve micronutrient status over time
- Is only one food-based intervention; others should be considered as applicable



Fortification Considerations

- Nutritional needs and deficiencies of the population
- Consumption of flour
- Sensory and physical effects of the fortificant
- Fortification of other food vehicles
- Population consumption of vitamin and mineral supplements
- Cost



When appropriate type and sufficient levels of the fortificant are used, flour fortification:

- Improves folate status and reduces neural tube defects
- Improves iron status and reduces anemia
- Enhances vitamin A status
- Boosts zinc status
- Could be a feasible approach to improve B12 status



Fortification Programs Should Include:

- Quality Assurance and Quality Control (QA/QC) programs at mills
- Regulatory and public health monitoring of the nutrient content of fortified foods
- Assessment of the nutritional/health impacts



Fortification Recommendations: Process

- FFI established a Steering Committee
- 5 expert work groups: Fe, Zn, Folic Acid, B₁₂ and vitamin A, prepared technical background papers and draft recommendations
- 4 day workshop convened in Atlanta Georgia, USA
- Background documents served as basis for workshop discussions and consensus



Leading Experts



Nearly 100 leading nutrition, pharmaceutical and cereal scientists, public health experts, specialists from regulatory agencies, international development and non-governmental organizations and representatives from the premix and milling sectors worldwide met to harmonize advice on flour fortification.



Scientifically Sound & Operationally Feasible

Expert groups considered:

- Nutritional needs and deficiencies
- Broad ranges of flour consumption
- Low- and high-extraction flour
- Efficacy, effectiveness and safety
- Sensory and physical effects of the fortificant
- Cost



Recommendations

Nutrient	Flour extraction	Fortificant	Level of nutrient to be added (parts per million) By per capita wheat flour intake (g/day)			
			<75	75-149	150-300	>300
Iron (Fe)	Low	NaFeEDTA	40	40	20	15
		Sulfa/Fumarate	60	60	30	20
		Electrolytic	NR	NR	60	40
	High	NaFeEDTA	40	40	20	15
Zinc (Zn)	Low	Zn oxide	95	55	40	30
	High	Zn oxide	100	100	80	70



Recommendations

Nutrient	Flour extraction	Fortificant	Level of nutrient to be added (parts per million) By per capita wheat flour intake (g/day)			
			<75	75-149	150-300	>300
Folic Acid	Low/High	Folic Acid	5.0	2.6	1.3	1.0
Vitamin B ₁₂	Low/High	Cyanocobalamin	0.04	0.02	0.01	0.008
Vitamin A	Low/High	Vitamin A palmitate	5.9	3.0	1.5	1.0



Final Remarks

- The selection of the type and quantity of vitamins and minerals to add to flour, lies with the national decision makers in each country
- Papers will be published in the Food and Nutrition Bulletin in June 2009
- FFI has provide WHO with the summary of the deliberations and recommendations and WHO has started the formal procedure to consider the adoption by UN agencies.



For more information, see:
www.sph.emory.edu/wheatflour/atlanta08/



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