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

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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

http://www.who.int/nutrition/publications/micronutrients/wheat_maize_fortification/en/
http://www.ffinetwork.org/plan/standards.html
## WHO Recommendations on Flour

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Type of flour (extraction)</th>
<th>Fortificant</th>
<th>Level of nutrient to be added (parts per million) By per capita wheat flour intake (g/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>&lt;75 g/day</td>
</tr>
<tr>
<td>Iron</td>
<td>Low</td>
<td>NaFeEDTA Sulfate/Fumarate Electrolytic</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NR</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>NaFeEDTA</td>
<td>40</td>
</tr>
<tr>
<td>Zinc</td>
<td>Low</td>
<td>Zinc Oxide</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Folic Acid</td>
<td>Low or High</td>
<td>Folic Acid</td>
<td>5.0</td>
</tr>
<tr>
<td>Vitamin B12</td>
<td>Low or High</td>
<td>Cyanocobalamin</td>
<td>0.04</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>Low or High</td>
<td>Vitamin A palmitate</td>
<td>5.9</td>
</tr>
</tbody>
</table>
For additional information, visit:

www.FFInetwork.org/standards.html