

THE LIFE SAVING POWER OF WHEAT FORTIFICATION

by The Food Fortification Initiative

Cameroon's national, mandatory wheat flour fortification program has led to an improvement in iron, zinc, foliate, and vitamin B12 status among women and children in urban areas, according to a study recently published in *The Journal of Nutrition*. Maternal anaemia prevalence was also significantly lower after fortification.

While fortifying flour with vitamin B12 has been shown to have an impact in controlled settings, this is the first evidence that fortifying wheat flour with vitamin B12 is effective in a mandatory, national programme. It is only the second effectiveness study of fortifying wheat flour with zinc in a country with mandatory wheat flour fortification. The first was in Fiji where the percent of women of childbearing age with zinc deficiency dropped from 39.3 percent before fortification to zero percent after fortification.

For the Cameroon study, researchers conducted surveys two years before and one year after fortification began. Indicators of inflammation and malaria were included.

What makes fortification successful?

Food fortification in Chile, Costa Rica, and Guatemala has improved nutritional outcomes in those countries. What do the programs have in common? Researchers examined the programs to answer that question. Their conclusions were published in the January 2017 *Food and Nutrition Bulletin*.

They found the following for each country:

- An influential individual supported fortification.
- An institution with research capacity helped monitor impact.
- Food industry participation was essential.
- Programmes were well designed, including choice of food(s) that would reach the vulnerable population.
- Fortification was mandatory nationwide.
- Bioavailable fortificants were used at appropriate levels.
- Monitoring to ensure compliance was enforced.

Industrially milled flour entering rural Pakistan

Tausif Akhtar Janjua, Technical Director for the Food Fortification Programme in Pakistan commented that, "Rural people in Pakistan are relying more on industrially milled flour. Traditionally people in rural areas stored wheat at home and had it milled in village chakki mills where fortification is difficult to sustain. Now they are purchasing more industrially milled flour because it is less expensive than chakki-milled flour."

Noor Ahmad Khan, Nutrition International Senior Technical Advisor, Nutrition in Food Systems, agreed that industrially milled flour is entering the rural markets in Pakistan.

"The volume of flour produced in chakki mills has decreased in the past 10 to 15 years. In addition to cost savings, Noor said bakers prefer industrially milled flour because it kneads and bakes better than chakki-milled flour. If the Pakistan example becomes common in other areas, fortification of industrially milled flour will have the potential to reach the rural population as well as urban residents."

Improving nutrition: Solution with high return on investment

Balance the budget. Improve national security. Limit unemployment. Build infrastructure. These are examples of challenges that demand the attention of country leaders.

Rather than focusing on the problems however, Bjorn Lomborg, Director of the Copenhagen Consensus Center suggested looking for the smartest solutions.

"We can't do everything; there's not enough money or time."

Bjorn remarked during a Regional Summit for Improving the Health of Women and Children Through Flour Fortification in Kazakhstan earlier this year to look for solutions that yield the best return on investment.

For example, improving nutrition will have a cost, but he said the benefits of better academic performance, more productivity, and higher future salaries make it one of the smartest solutions available.

In a review of the World Bank report *An Investment Framework for Nutrition*, authors made the same argument. They noted that

investing US\$10 per child per year above current spending for nutrition-specific interventions would have ‘enormous impacts’ including:

- 65 Million cases of childhood stunting prevented in 2025
- 265 million cases of anaemia in women prevented in 2025
- 91 million more children under five years of age would be treated for severe wasting
- 105 million additional babies would be exclusively breastfed during the first six months of life
- 3.7 million child deaths averted in 2025

The authors noted, “Every dollar invested in this package of

interventions would yield between US\$4 and US\$35 in economic returns, making investing in early nutrition one of the best value-for-money development actions.”

The cost effectiveness of flour fortification in particular was illustrated in Haiti when a research project called Haiti Priorise commissioned cost-benefit researcher papers to suggest the best way for the country to expand its economy. A panel of three Haitian economists and a US Nobel laureate economist considered 85 proposals and interviewed the authors. The panel determined that the government’s first priority should be to reform the electricity utility. The second top priority should be to fortify wheat flour. The research was funded by the Canadian government and led by the Copenhagen Consensus Center,

The Haiti example is consistent with the 2012 Copenhagen Consensus global findings. That report found that every dollar spent on multiple interventions to reduce chronic under-nutrition has a US\$30 payoff.

Pakistan and Mongolia move toward wheat flour fortification

In April, 117 participants from eight countries – Afghanistan, Azerbaijan, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Tajikistan, and Turkmenistan – made pledges to improve their wheat flour fortification programs. While their first commitment was not expected to be complete for six months, Pakistan and Mongolia already report progress toward their goals.

The commitments were made during a Regional Summit for Improving the Health of Women and Children Through Flour Fortification held in Almaty Kazakhstan. The event was funded by the US Agency for International Development (USAID) and co-hosted by the Government of Kazakhstan and the Global Alliance for Improved Nutrition (GAIN).

FFI was a core organiser, along with the Copenhagen Consensus, International Federation for Spina Bifida and Hydrocephalus, Nutrition International, United Nations Children’s Fund (UNICEF), and the World Food Programme.

At the conclusion of the Summit, country leaders were asked to identify two actions they could take to improve wheat flour fortification programs.

When asked for progress a month later, Pakistan reported that it had launched its Food Fortification Strategy on April 13, 2017, with WFP support.

Mr Janjua explained, “The Pakistan Food Fortification Program is currently engaging with relevant departments of National and Provincial Governments to create enabling environments for wheat flour fortification”

He added that implementation is expected to begin soon in Punjab Province. This support program is funded by the United Kingdom’s Department for International Development and implemented by Mott MacDonald in partnership with Nutrition International. Additional support is provided by WFP and GAIN.

A long-term goal in Pakistan is to create a sustainable supply for premix – the blend of vitamins and minerals that is used to

fortify food. A competitive process will result in a memorandum of understandings for premix for wheat flour and edible oils.

Tausif continued, “As a result of this exercise, millers will get premix at their doorstep at a price less than the current market rates.”

It was also reported that Bühler would supply more than 1,000 micro-feeders to the wheat flourmills in Pakistan. This will allow about half the mills in Pakistan to add iron, folic acid, vitamin B12, and zinc to wheat flour.

Additionally, the fortification of edible oil and ghee (a hydrogenated form of edible oil), formally started in districts of Lahore, Rawalpindi and Islamabad in May 2017.

Also at the Summit, a representative from the Mongolian Health Initiative, a non-governmental organisation (NGO) advising the government on large-scale fortification, committed to sharing lessons learned during a national workshop in Mongolia. That workshop was the Central Eurasian Nutrition Forum held June 7-9, 2017.

Leaders from Kazakhstan and Tajikistan who had attended the Summit in Almaty spoke at the Mongolia meeting about nutrition and public health, the role of the flour milling industry, international organisations’ involvement in nutrition, and progress on large-scale fortification legislation and action in Central Eurasia.

Invited guests and experts discussed with local delegates from the Mongolian government and other sectors about the scientific and policy aspects of improving nutrition, implementing large-scale fortification, and opportunities for international partnership. At the conclusion of the conference, a declaration was assigned by the conference participants to resolve to work together on a set of short- and long-term goals related to regional nutrition research and advocacy.

Of the countries represented at the Summit, Turkmenistan is the only country that is fortifying most of its industrially milled flour. Consequently, its goal is to improve its monitoring system by using a tool called FORTIMAS (Fortification Monitoring and Surveillance). Also, Turkmenistan currently fortifies with iron and folic acid. Within 12 months, the country will study whether to add other nutrients to its flour fortification standards.

Other country commitments made during the Summit

Afghanistan will finalise wheat flour fortification legislation within six months – possibly in just two months. It will also ensure that at least 30 percent of wheat flour imports are fortified.

Azerbaijan will organise a multi-sector round-table discussion within six months to renew efforts to fortify wheat flour. Within one year, it will study the experiences of countries that have had positive experiences with flour fortification.

Kazakhstan will be ready to export wheat flour according to regionally harmonised standards within six months. Within a year, it hopes to find financial support for fortification.

Kyrgyzstan will create a plan for procuring wheat flour fortification premix within six months; leaders from GAIN plan to visit Kyrgyzstan in July to establish a revolving fund for premix purchases. Within 12 months, the country will have involved more stakeholders in fortification discussions to work toward gaining political and public support.

Tajikistan’s flour fortification law is being reviewed by parliament. It is hoped that the law will be passed within six months. After that, national leaders will create an awareness campaign for the public and plan internal and external monitoring programmes. ☹