Addressing Hidden Hunger Through Agriculture: Progress with Biofortification in West Africa
OUTLINE

1. Introduction
2. Biofortification
3. Food fortification
4. Q&A Session
5. Closing
Introduction
Opening Remarks - Dr. Martin Fregene

Director, Agriculture and Agro-Industry at the African Development Bank
What is your understanding of biofortification?

How many countries in West Africa have released biofortified crop varieties for use by farmers?
Addressing Hidden Hunger Through Agriculture: Progress with Biofortification in West Africa

Speaker: Dr. Howarth Bouis

ALN Champion, founder of HarvestPlus and 2016 World Food Prize Laureate
Linking Agriculture and Nutrition: An Overview of Biofortification and HarvestPlus

Howarth Bouis
Emeritus Fellow
International Food Policy Research Institute
September 15, 2021
Layers of investments in overcoming malnutrition

Reach more people at lower cost by tackling the foundation of the diet of everyone.

Vision, perseverance, patience are required.

The payoff is resilience and sustainability

Addressing Hidden Hunger Through Agriculture: Progress with Biofortification in West Africa
Excerpt From Recent UNICEF Brochure

Cost Per Vitamin A Capsule: $US 1-2

Addressing Hidden Hunger Through Agriculture: Progress with Biofortification in West Africa
A Primary Role of Agriculture Is To Provide Nutrients for Healthy Populations

Supply of Nutrients From Agriculture

Unreached Populations

Supplementation And Fortification

Nutrient Gap

Supplementation And Fortification

Unreached Populations

Present

Future

Addressing Hidden Hunger Through Agriculture: Progress with Biofortification in West Africa
Nutrition-Smart Agricultural Strategies

• **Food Staples** – Increase *Density* of Nutrients
  • Biofortification
  • Fertilizers and sprays
  • No extra cost to consumers

• **Non-Staple Foods** – Increase *Quantities*
  • Milk, Eggs, Small Fish, Specific Green Leafy Vegetables
  • Home gardens, hybrid seeds (multiple nutritious foods)
  • Requires higher incomes and/or lower food prices
### Percent Contribution of Rice to Nutrient Intakes in the Philippines, 2015

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<td>41%</td>
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Biofortified crops released in **40 countries**

Testing for releases in these and another **20+ countries**

- Zinc Rice
- Zinc Wheat
- Vitamin A Maize
- Iron Pearl Millet
- Sorghum
- Vitamin A Cassava
- Vitamin A Sweetpotato
- Potato
- Banana
- Lentil
- Iron Beans
- Cowpea
Breeding and Crop Release

Biofortified Crops Around the World

Biofortified crop varieties have been released and/or are in testing in the countries shaded dark blue on the map. See the table below for crop details by country.
### Breeding and Crop Release

#### Biofortified Crop Varieties Released (R) or in Testing (T) by Country

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</table>

Nearly 400 Biofortified Varieties Released; 10 Million Farm Households are Producers*

* Statistics are for CGIAR Biofortification Strategy which includes International Potato Center (CIP) activities
Nutrition Evidence: Improved Functional Outcomes

• Efficacy trials with vitamin A, iron, and zinc biofortified crops have also shown improved functional outcomes:
  • Improved cognitive function (iron)
  • Better work performance (iron)
  • Reduced morbidity (zinc and provitamin A)
  • Better sight adaptation to darkness (provitamin A)
Increasing Intakes of Non-Staple Foods

• Increase supply of *specific key foods* that can contribute importantly to nutrient intakes and where *supply can be increased cost-effectively* through public policy and investments.
  • The primary objective is to *lower the price* of these specific foods
  • These specific foods will vary greatly by country
Increasing Intakes of Non-Staple Foods

• “Food Systems” is a very broad and complex concept that can be paralyzing in terms of determining specific actionable interventions.
  • Start with the specific foods that can make a difference, then do what is necessary within particular food systems to relieve constraints to expanding supply and lowering the price.

David Baguma, West Nile team leader for East-West Seed Knowledge Transfer, inside the recently constructed seedling house
Key Issues Moving Forward

• Staple food staples offer advantages under the COVID pandemic
  ▪ Continued high levels of consumption of food staples
  ▪ Government focus on ensuring food staple supplies
  ▪ Extra nutrients at no extra cost, as incomes fall and dietary quality worsens

• Optimal mix of short-run nutrition-direct and long-run nutrition-smart interventions

• More funding under the overall nutrition umbrella
Key Issues Moving Forward

• Long gestation periods for implementation of nutrition-smart agricultural interventions
• Will agricultural policymakers give priority to human nutrition objectives?
• Positive examples are required for encouraging further investments in additional nutrition-smart agricultural interventions.
Plaque in Lobby of FAO Headquarters

“In this building, 16th of October 1945, representatives of 44 nations met and established the FOOD AND AGRICULTURAL ORGANIZATION, first of the new United Nations Agencies. Thus, for the first time, nations organized to raise levels of nutrition and to improve production and distribution of food and agricultural products.”
In Conclusion …

“Such intimately related subjects as agriculture, food, nutrition and health have become split up into innumerable rigid and self-contained little units, each in the hands of some group of specialists. The experts, ...soon find themselves...learning more and more about less and less...The remedy is to look at the whole field covered by crop production, animal husbandry, food, nutrition, and health as one related subject and...to realize...that the birthright of every crop, every animal, and every human being is health.”
Sir Albert Howard, 1873-1947

“The Soil and Health,” 1945

Addressing Hidden Hunger Through Agriculture: Progress with Biofortification in West Africa
THANK YOU

(some suggested reading and links follow)
Biofortification Reference


• Link to copy of paper:

• Link to Webinar (paper release at World Food Prize):
  • https://youtu.be/PqWk47a7db0
Biofortification Reference

• “Multiplying the efficiency and impact of biofortification through metabolic engineering,” October, 2020

• Link to paper (open access):
  • https://rdcu.be/b8yvp
References on Income/Food Prices → Diets

• **Macro shocks and micro outcomes: child nutrition during Indonesia's crisis**
  
  *Steven Block, Lynnda Kiess, Patrick Webb, Soewarta Kosen, Regina Moench-Pfanner, Martin W. Bloem and Charles Timmer*
  
  *Economics & Human Biology, 2004, vol. 2, issue 1, 21-44*


On the point about the long gestation (lag) times for agricultural investments and the complexity of food systems, I have written the following blog:
Speaker- Dr. Yusuf Dollah

Harvestplus Nigeria, Crop Delivery Manager/Nigeria
Maize Specialist with focus on biofortified crops in the North of Nigeria
Biofortification in West Africa: Progress and Prospects

Yusuf Dollah
HarvestPlus Nigeria

Presentation by Dr. Yusuf Dollah, HarvestPlus Nigeria Maize Specialist

HarvestPlus.org

Addressing Hidden Hunger Through Agriculture: Progress with Biofortification in West...
Biofortification Targets a Global Health Crisis: Micronutrient Deficiency, or “Hidden Hunger”

More than 2 BILLION people are affected—primarily in low- and middle-income countries
W. Africa Micronutrient Deficiency Burden: Anemia

Prevalence of anaemia among women of reproductive age

- All
- Pregnant women
- Non-pregnant women

Addressing Hidden Hunger Through Agriculture: Progress with Biofortification in West Africa
W. Africa Micronutrient Deficiency Burden: Stunting

Burden of malnutrition

Infant and young child nutrition status

Prevalence of stunting, wasting and overweight in children under 5 years of age
Biofortified Crops Developed by HarvestPlus and Partners

Iron

- Pearl Millet: Provides up to 80% of daily iron needs
- Beans: Provides up to 80% of daily iron needs
- Wheat: Provides up to 50% of daily zinc needs
- Rice: Provides up to 40% of daily zinc needs
- Maize: Provides up to 70% of daily zinc needs

Zinc

- Sweet Potato: Provides up to 100% of daily vitamin A needs
- Cassava: Provides up to 100% of daily vitamin A needs
- Maize: Provides up to 50% of daily vitamin A needs
- Pearl Millet: Provides up to 80% of daily iron needs
- Beans: Provides up to 80% of daily iron needs
- Wheat: Provides up to 50% of daily zinc needs
- Rice: Provides up to 40% of daily zinc needs
- Maize: Provides up to 70% of daily zinc needs
Biofortified varieties released (R) or in Testing (T) in 13 West African countries as of the end of 2020

<table>
<thead>
<tr>
<th>Africa</th>
<th>HIB</th>
<th>IPM</th>
<th>ZIM</th>
<th>ZIR</th>
<th>ZIW</th>
<th>ABP</th>
<th>VAC</th>
<th>VAM</th>
<th>OSP</th>
<th>IZC</th>
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</table>

HIB = Iron Bean
IPM = Iron Pearl Millet
ZIM = Zinc Maize
ZIR = Zinc Rice
ZIW = Zinc Wheat
ABP = Vit. A Banana/Plantain
VAC = Vit. A Cassava
VAM = Vit. A Maize
OSP = Vit. A Orange Sweet Potato
IZC = Iron/Zinc Cowpea
IZP = Iron/Zinc Irish Potato
IZL = Iron/Zinc Lentil
ZIS = Zinc/Iron Sorghum

Source: HarvestPlus, International Potato Center (2020)
Iron Pearl Millet: A Nutrition Source for Arid Regions

- “Chakti” iron pearl millet variety released in Niger in 2018

- ECOWAS rules allow this variety to be cultivated in any member country w/o further approval

- Introduced in Senegal through l’Institut Sénégalais de Recherches Agricole (ISRA), delivered through U.S. Feed the Future Senegal Kawolor project.
Addressing Hidden Hunger Through Agriculture: Progress with Biofortification in West Africa
Scaling in Nigeria: Increasing SME Investments Along the Value Chain

- **Seed companies:** Premier, Valueseeds, Advantaseeds, SeedCo, GoldAgric, Techniseeds, Jirkur, etc.
- **Aggregators:** Babangona, Thrive Agric, Afex, etc
- **Food processors:** Cassanova, Cropshares Africa, Grandios Pap, Krunch Foods, Esomchi, etc)
- **Investors in grain/tuber production:** Brent Farms, Niji Farms, Odeda Farm Institute, Kellogs

**Challenges** – insecurity affecting production and distribution, inflation
Scaling in Nigeria: Value Chain Partnerships in Action

Kellogs Tolaram
- 2 varieties (Oba Super 6 and Sammaz 52) proposed
- 250MT procured from Niger & Kaduna supplied to Lagos factory
- Sammaz 52 found suitable
- Purchased 1200kg of seeds for direct production of 400ha
- Working with outgrowers in Kaduna, Nasarawa, and Kano states to ensure sustained supply
- Targeting 3000Mt of Sammaz 52 grains for 2022 production year

Cassanova
- 6 varieties proposed; 120kg of tubers sourced & supplied to Abuja
- 2 varieties (164773 & 164776) found suitable
- Facilitated outgrower partnership with Cropshare
- New product development using VAC flour
- ToT for 18 extension agents to cascade to outgrowers

Brent Farms
- Identify suitable variety
- Linkage to seed company
- Procured 20,000kg of Sammaz 52
- Identification and training of field staff
- Linkage to HarvestField for Aflasafe, Syngenta for herbicides
Scaling in Nigeria: Strengthen the Enabling Environment

Sen. Bima Muhammad Enagi, Vice Chairman, Senate Committee on Agriculture & Rural Development & Vice Chairman Senate Committee on Local & Foreign Dept.

Dr. Adeola Odedina
Commissioner for Agriculture
Ogun State
Host, Nutritious Food Fair, 2021
Thank You!

Yusuf Dollah
HarvestPlus Nigeria

d. yusuf@cgiar.org
Speaker- Dr. Rose Omari

Senior Research Scientist at the Science and Technology Policy Institute, Council for Scientific and Industrial Research (CSIR-STEPRI), Ghana
Biofortification in Ghana

A Presentation at the Webinar on “Addressing Hidden Hunger Through Agriculture: Progress with Biofortification in West Africa

15 September 2021 11:00 – 13:00 UTC/GMT

By
Dr. Rose Omari
CSIR-STEPRI, Ghana
Outline

1. Nutritional status in Ghana
2. National Strategies for combating micronutrient deficiency
3. Biofortification as an intervention strategy
4. Challenges with scaling up biofortified products
5. Conclusion
Nutritional status

Fig 1 Prevalence of underweight and stunting in the < 5s

Source: Multiple Indicator Cluster Survey (2011); GDHS (2014); CAADP Malabo Declaration (2014)
Micronutrient status

- Vit A. deficiency 20% among children and rarely present in women
- Iron deficiency is responsible for >50% of anaemia


GDHS 2003-2014; Ghana MN Survey 2017
Interventions contributing to improvements

- Food fortification e.g. 2008 LI on mandatory fortification
  - Veg. oils with Vit A – 56% usage
  - Wheat flour with iron, folic acid, zinc, and B vitamins – 2% fortified due to organoleptic problems
- Supplementation: e.g. Vit A, GIFT- Girls Iron Folate Tablet (Adolescents in school & out of school)
  - high cost, low coverage
- Other Public health interventions- deworming, malarial treatment
- Diet diversification –
  - High cost, limited availability, low micronutrient content of staple
- Biofortification – an option to be considered based on nutrition evidence from other countries
Biofortification as an intervention in Ghana

• Production of OFSP was promoted under Reaching Agents of Change (RAC) project
• Due to limited food uses and the quest to promote OFSP, efforts are being made to
  • diversify OFSP menus at the household level
  • Produce processed and more shelf stable products
• Through extensive research and product development and funding from the ‘Jumpstarting orange fleshed sweet potato in West Africa through diversified markets’ project
  • OFSP products and recipes developed and transferred to actors
  • A TOT module for OFSP utilization and processing developed
  • Stakeholders trained to use the manual.
  • Several products including complementary foods produced and found to be nutritionally enriched as a result of biofortification
• Through a new project, AGRA will
  • support promotional campaigns on OFSP
  • mobilise political will and support for OFSP to combat malnutrition
• Promote lesser known biofortified staples - Vit A Cassava & Maize, High iron & zinc cowpea.

Addressing Hidden Hunger Through Agriculture: Progress with Biofortification in West Africa
Some Challenges in scaling up Biofortified crops

• Public perception that all biofortified crops are GM crops
• Inability of consumers to differentiate between some biofortified crops and traditional crops e.g. beans and maize
• Concerns about loss of nutrients during post-harvest handling & cooking
• Low awareness and availability of biofortified crops
• Short shelf-life of OFSP
• Lack of testing facilities for micronutrient content
Conclusion: We Support the Holistic Approach

- **Dietary Diversification**
  (Eating a variety of nutritious, healthy and **safe** foods)

- **Supplementation**
  (Administering doses of concentrated micronutrients)

- **Food Fortification**
  (Adding micronutrients during processing/preparation)

- **Biofortification**
  (Increasing micronutrient content of staple crops)

- **Public Health Interventions**
  (Treating underlying health conditions e.g. deworming, malarial treatments, diarrhoea)

- **Supportive policies, standards, legislations, investment plans**

- **Sustained Nutrition Education**
  (Production, preparation, food choice)

- **Post harvest, Food Safety and Quality Management**

*These interventions are most effective when combined*

Addressing Hidden Hunger Through Agriculture: Progress with Biofortification in West Africa
Thank you
Distinguished Senator Bima has over the past two years promoted the cause of biofortification at the Nigerian Senate.
Speaker- Seth Osei-Akoto

Director, Directorates of Crops Services (Crop fortification), Ghana
Speaker- Dr. Jonas Chianu

TAAT Program Manager at the African Development Bank
Speaker- Dr. Ramadjita Tabo

Dr Ramadjita Tabo, Regional Director, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) West and Central Africa

Addressing Hidden Hunger Through Agriculture: Progress with Biofortification in West Africa
Addressing Hidden Hunger through Agriculture

**Progress with biofortification in West and Central Africa: Scaling Up Strategy along the Value Chain**

Dr Ramadjita Tabo, Regional Director
ICRISAT-West and Central Africa

15th September 2021
ICRISAT STRATEGY FOR IMPROVING NUTRITION
A 4 STEP-STRATEGY

1. Biofortification through crop breeding and release of biofortified varieties
2. Seed system development with diverse partners
3. Upscaling improved seed and agronomic practices
4. Partnering with the private sector for product development, processing and wider upscaling
1. Biofortification through crop breeding and release of biofortified varieties

Sorghum variety with higher iron (Fe) and Zinc (Zn) content released in Nigeria

**SAMSORG 45** has 60% increase in grain Fe concentration while **SAMSORG 46** has 62% increase in grain Zn compared to the Fe concentration of 35.0ppm/1g and Zn 25.0ppm/1g average in sorghum grain.
Chakti already has over 65mg/kg iron content compared with popular farmer varieties with about 47mg/kg, breeding efforts continue to make it even more nutritious.

Pearl millet varieties GB 8735 and ICTP 8203 have been selected for fast track improvement and release in Niger, Ghana and Senegal.
2. Seed system development with diverse partners
Improving the availability and accessibility of seeds in rural areas

- Production of certified seed
- Use of local media to communicate on variety characteristics and seed availability
- Use of outlets developed by FOs for seed sale in remote villages
- Training of farmers, seed companies and farmers organizations on seed production techniques
3. Upscaling improved seed and agronomic practices

Demonstration plots of biofortified varieties and hybrids
Hybrid seed parents research consortium - West Africa
Innovation Platforms for sustainability
Boosting seed sector - Genetic potential in the hands of the farmers

Achievements of the Sorghum and Millet Compact

Breeder seeds
Sorghum: 8.58 t
Millet: 4.04 t

Foundation seeds
Sorghum: 261 t
Millet: 157 t

National Research institutions in RMCs

Certified seeds
Sorghum: 1,448 t
Millet: 828 t

National Research institutions & Seed companies

Seed companies & Farmers seed growers

Addressing Hidden Hunger Through Agriculture: Progress with Biofortification
Varieties in seed production in Mali and Burkina Faso analysed for Fe, Zn and proteins content (10 varieties identified as biofortified)

<table>
<thead>
<tr>
<th>Varieties</th>
<th>Proteins (%MS)</th>
<th>Fe (ppm)</th>
<th>Zn (ppm)</th>
<th>Yield and maturity</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jakunbe</td>
<td>15</td>
<td>66</td>
<td>37</td>
<td>2 t/ha; 95 days</td>
<td>High Proteins, Fe &amp; Zn</td>
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<tr>
<td>Jiguikala</td>
<td>15</td>
<td>71</td>
<td>35</td>
<td>2.5 t/ha; 110 days</td>
<td>High Proteins, Fe &amp; Zn</td>
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<tr>
<td>Soumba</td>
<td>15</td>
<td>79</td>
<td>32</td>
<td>3 t/ha; 100 days</td>
<td>High Proteins, Fe &amp; Zn</td>
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<tr>
<td>Fambé B</td>
<td>65</td>
<td>30</td>
<td></td>
<td>2 t/ha; 100 days</td>
<td>High Fe &amp; Zinc</td>
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<tr>
<td>Pablo</td>
<td>16</td>
<td></td>
<td></td>
<td>4 t/ha; 100 days</td>
<td>Rich in proteins</td>
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<tr>
<td>Fadda</td>
<td>62</td>
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<td></td>
<td>4.5 t/ha; 120 days</td>
<td>Rich in Fe</td>
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</tbody>
</table>
4. Partnering with private sector for product development, processing and wider upscaling

We promote the value of underutilized climate smart food crops, nutri-rich and resilient varieties (good for the consumer, the planet and the farmer)
Showcasing millet nutritional value

Dr. Lalla Malika Issoufou, First Lady of Niger, named Smart Food Ambassador of Goodwill in 2019

Encouraging industrially Processed Products in Nigeria

Collective cooking of whole grains in Mali

Addressing Hidden Hunger Through Agriculture: Progress with Biofortification in West Africa
Recent studies on millet by ICRISAT & partners

- Millet-based diet to lower risk of type 2 diabetes and help manage blood glucose levels
- Millets to reduce risk of developing cardiovascular disease
Africa Food Prize 2021
And the winner is...

ICRISAT
INTERNATIONAL CROPS RESEARCH INSTITUTE FOR THE SEMI-ARID TROPICS
MERCI,  
THANK YOU!
Addressing Hidden Hunger Through Agriculture: Progress with Biofortification in West Africa

Food Fortification
Speaker- Dr. Richard Pendame

Regional Director Africa, Nutrition International
Food Fortification in Africa

AfDB/ALN/HP Addressing Hidden Hunger Webinar

Richard Pendame, MBBS, MPH
Regional Director, Africa

SEPTEMBER 15, 2021
Outline

1. Micronutrient deficiency in Africa
2. Why food fortification
3. Current coverage and compliance
4. Challenges and opportunities
5. Key considerations
6. Nutrition International’s support
7. Conclusion
Micronutrient malnutrition (also known as “hidden hunger”) remains a massive problem in Africa and Asia.
And in Africa, micronutrient malnutrition is increasing!
Strategies to reduce micronutrient malnutrition

- Micronutrient powders
- Dietary diversification
- Supplementation
- Biofortification
- Disease control
- Large-scale fortification

“One of the most compelling investments is to get nutrients to the world's undernourished.”

– Copenhagen Consensus

Nobel Laureate Vernon Smith’s recommendation
Fortification is a low-cost, high-return investment

Every $1 invested in fortification generates $27 in return from averted disease, improved earnings & enhanced work productivity

<table>
<thead>
<tr>
<th>Fortification Product</th>
<th>Incremental Cost per Person per Year</th>
<th>Benefit Cost Ratio</th>
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<tbody>
<tr>
<td>Iodized salt</td>
<td>$0.05</td>
<td>30:1</td>
</tr>
<tr>
<td>Wheat and maize fortified with iron and folate</td>
<td>$0.12</td>
<td>46:1 for folate, 8:1 for iron</td>
</tr>
</tbody>
</table>
Large-scale fortification works – at scale

- 34% reduction in anaemia
- 74% reduction in the odds of goiter
- 41% decrease in odds of neural tube defects
- Reduction in vitamin A deficiency for 3M children, significantly reducing risk of mortality

Anaemia prevalence (WRA) and staples fortification legislation in Africa

• 27 countries in Africa have mandatory legislation for at least one cereal grain and/or oil
• Of these, the majority have reached scale (> 75%) (n=17)
• However, 10 countries have less than 75% coverage of fortified food vehicle and can still benefit from better enforcement, accountability, coverage
• 53 countries in Africa have severe and moderate anaemia prevalence
• Of these, 26 have mandatory legislation (mainly in West Africa)
Many countries in Africa have mandatory or voluntary fortification of at least one type of oil (GFDx 2020).

IDD and salt iodization legislation in Africa

- 44 countries in Africa have mandatory legislation for salt iodization
- However, 29 countries have less than 90% coverage of iodized salt and can still benefit from better enforcement, accountability, and coverage
- 7 countries in Africa have insufficient iodine intake
- Of these 6 have mandatory legislation
Population coverage of fortified oil

Most recent data available for a country

3 of 18 countries with mandatory fortification of oil have population coverage data of the fortified food

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Population Coverage</th>
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<tbody>
<tr>
<td>Tanzania</td>
<td>2015</td>
<td>53.6%</td>
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<tr>
<td>Uganda</td>
<td>2015</td>
<td>54.4%</td>
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<tr>
<td>Senegal</td>
<td>2017</td>
<td>34.1%</td>
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</tbody>
</table>

Salt flow throughout sub-Saharan Africa and household consumption of iodized salt

Source: UNICEF Global Database on Iodine, accessed in June 2021
Fortifiable versus fortified grains – global

- Only 22% of industrially-milled grains and a much-lesser proportion of industrially-milled oil are currently fortified*
- There is a huge opportunity to improve fortification in industrially-milled grains

* Source: Data/estimates received by FFI (for cereal grains) and GAIN (for oil)

<table>
<thead>
<tr>
<th>Grain Type</th>
<th>Fortified Percentage</th>
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<tbody>
<tr>
<td>Wheat flour</td>
<td>32%</td>
</tr>
<tr>
<td>Maize flour</td>
<td>34%</td>
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<tr>
<td>Rice</td>
<td>1%</td>
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</tbody>
</table>

![Bar chart showing industrially-milled and fortified grains in metric tons](chart)

- Industrially milled grains
- Industrially milled and fortified (all grains) in metric tons
- 568
- 193
Fortification and quality gaps (coverage & compliance) – Global

Fortification challenges

- Lack of political will and fortification legislation
- Inadequate fortification standards, also not harmonized across regions or sub regions
- Limited coverage, compliance and impact assessment data
- Poor regulatory enforcement
- Low capacity of medium and small-scale industry partners to comply with standards
- Challenges with premix accessibility and availability
Fortification opportunities

- Evidence and need-based advocacy and support for strengthened policy/governance
- Assessment of feasibility and scope of fortification from an optimal mix of interventions perspectives, including complementarity between food fortification and biofortification
- Harmonization of standards
- Establishment/strengthening of fortification data and monitoring systems
- Context-specific capacity building support to government and industry for enforcement and compliance
- Better coordination and accountability between public and private players
- Innovation, research and development to promote fortification
Nutrition International’s support in addressing fortification technical and program gaps

Strive to support design and delivery of sustainable in-country programs in eight countries – through open market and social protection platforms:

• Supporting enabling environment with government and fortification alliances
• Working with mills/industry partners

In 2020, Nutrition International reached 250M additional people with adequately fortified staples and 460M with adequately iodized salt
Conclusion

Large scale food fortification supports stronger and resilient food systems that contribute to nutritious, safe, affordable and sustainable diets for all, everywhere.

Programmatic priorities for LSFF
1. Consolidating progress and protect gains
2. Promoting situation analysis and data generation
3. Supporting collaboration - effective public and private sector engagement and better governance, greater accountability
4. Facilitating capacities
5. Strengthening monitoring and surveillance
Thank you!
Addressing Hidden Hunger Through Agriculture: Progress with Biofortification in West Africa

Speaker- Dr. Ahmed Kablan

Senior science advisor at the Food Safety Division /Center for Nutrition/Bureau for Resilience and food Security at USAID
Improving Diets in the Food System

Ahmed Kablan, Senior Science Advisor, USAID/RFS/CN
15 September 2021
Complementary Approaches to Delivering Micronutrients

- **Optimal breastfeeding**
- **Diet diversification**
- **Supplementation**
- **Biofortification**
- **Large-scale food fortification**

*Photo: GAIN, HarvestPlus*
Unique Features of Large-Scale Food Fortification

● Proven potential to **improve the diets and nutritional outcomes of vast populations**, inclusive of low-, middle-, and high-income communities at a **very low cost**

● Once up and running, the vast majority of costs covered by industries and consumers

● Provides a **safety net against micronutrient deficiencies** that often occur seasonally or during times of crisis when food supply is low and/or not diverse

● Ease of uptake among target populations, since LSFF **does not require** consumer behavior change

● With trend of **increased processing of foods by industries**, LSFF has the potential to become more impactful over time
On the Horizon for Large-Scale Food Fortification at USAID

- Cross-bureau LSFF Working Group
- LSFF Results Framework & Programming Guide
- New Central LSFF Support Mechanism

Note: if you have any questions about USAID work on LSFF please contact Tim Quick tquick@usaid.gov, Omar Dary odary@usaid.gov, and Ingrid Weiss iweiss@usaid.gov
THANK YOU!

MERCI !
Q&A Session
Speaker- Paulina Addy

Director, Women in Agricultural Development
Directorate, Ghana
Addressing Hidden Hunger Through Agriculture: Progress with Biofortification in West Africa

Speaker and Moderator- Esi Amoaful

A Public Health Nutritionist Director of Nutrition and Country-lead for nutrition at the Ghana Health Service, HarvestPlus Board Member
What makes biofortification a reliable technology to address micronutrient malnutrition?
THANK YOU