



Introduction of New and Improved Food Aid Products, 2011-2015: Lessons Learned and Recommendations

A Report from the Food Aid Quality Review

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Acronyms

AMS	Agricultural Marketing Service (USDA)
CIS	Continuous Improvement System
Codex	Codex Alimentarius (International Food Standards)
CRD	Commodity Requirements Documents
CSB	Corn Soy Blend
CSB+	Corn Soy Blend Plus
CSWB	Corn Soy Whey Blend
FACG	Food Aid Consultative Group
FAQR	Food Aid Quality Review
FAR	Federal Acquisitions Regulations
FAS	Foreign Agriculture Service (USDA)
FBF	Fortified Blended Food
FDA	Food and Drug Administration
FFP	Office of Food for Peace (USAID)
FGIS	Federal Grain Inspection Service (USDA)
FNS	Food Nutrition Service (USDA)
FSA	Farm Service Agency (USDA)
FSMA	Food Safety Modernization Act
FY	Fiscal Year
GAO	Government Accountability Office
GF&N	Global Food & Nutrition Inc.
KCCO	Kansas City Commodity Office (USDA)
LOE	Level of Effort
LRP	Local and Regional Procurement
MAM	Moderate Acute Malnutrition
MFFAPP	Micronutrient-Fortified Food Aid Products Pilot Program (USDA/FAS)
MGD	McGovern-Dole International Food for Education and Child Nutrition Program (USDA/FAS)
MSF	Médecins Sans Frontières (Doctors without Borders)
NIFA	National Institute of Food and Agriculture (USDA)
OAA	Office of Acquisitions and Assistance (USAD/FFP)
PL480	Public Law 480
PVO	Private Voluntary Organization
POD	Program Operations Division (USAID/FFP)
REFINE	Research Engagements on Food Innovation for Nutritional Effectiveness
RUF	Ready-to-Use Food
RUSF	Ready-to-Use Supplementary Food
RUTF	Ready-to-Use Therapeutic Food

R&D	Research and Development
SFB	Soy-Fortified Bulgur
SC+	Super Cereal <i>Plus</i>
SFSG	Soy-Fortified Sorghum Grits
SNP	Specialized Nutrition Products
SOW	Scope of Work
TOR	Terms of Reference
UNICEF	United Nations Children’s Fund (formerly United Nations International Emergency Fund)
U.S.	United States
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WBSCM	Web-Based Supply Chain Management (System)
WFP	World Food Programme
WHO	World Health Organization
WSB	Wheat Soy Blend

Executive Summary

This report examines the best practices and lessons learned from the rollout of 25 new and upgraded food aid products in United States Agency for International Development (USAID) Office of Food for Peace (FFP) programs during the period 2011-2015, with the goal of achieving greater impact, being more evidence-based and better “fit for purpose.” Systems have been quickly evolving and this document is intended to help preserve institutional memory of product introduction. These past processes should be captured in order to inform future product introduction and rollout and to make approaches more efficient and effective for food aid stakeholders and recipients.

The report discusses six steps in the rollout process: 1) product specifications development; 2) production scale up; 3) establishment of product testing and quality assurance systems; 4) procurement of product and shipping (through solicitation); 5) shipping and delivery of product; and 6) storage, handling and distribution of product. Each step was reviewed in terms of key stakeholder involvement and roles; successes and challenges were identified.

Three types of product rollouts are detailed in the report: 1) product upgrades, 2) product adaptations, and 3) new product introductions. Two case studies are included on: 1) the introduction of fortified rice and 2) the harmonization of product specifications for Ready-To-Use Foods (RUF) among UN agencies and U.S. Government requirements.

Interviews with United States Government Staff provided insights about the strengths and challenges of the Interagency experience from the various government agencies involved in product introduction and rollout. Stakeholders saw the latest phase of interagency collaboration as very positive, with improved communication among colleagues in other departments as key to the improvements.

Interviews with Suppliers investigated perceived strengths and tensions during the new and upgraded product rollouts. Stakeholders involved in the production of food aid products are proud of their high quality products and the benefits they provide to recipients, and they have found the increased communication with USAID and USDA to be helpful. Suppliers highlighted three major challenges: the supply chain is inefficient due to low demand and problems with rollout; long intervals between orders lead to lengthy and costly production interruptions; and discrepancies among different agency specifications do not allow time for necessary production modifications for the Suppliers to comply. There is concern from Suppliers and U.S. agencies over the shift to local and regional procurement of food aid products and the resultant drop off in demand for U.S. sourced products.

Local and Regional Procurement practices were reviewed to identify benefits and challenges. Local and regional procurement can save time and money while building local capacity, but it is not without its drawbacks. Local and regional suppliers face the same issues with compliance and costs that the U.S. producers do, and there is concern that they will not be able to meet American Food Safety Modernization Act (FSMA) or Codex requirements for quality control and food safety. To address the issue of food safety, USAID developed a Memorandum of Understanding with the Agricultural Marketing Service (USDA) so that missions abroad have the tools to ensure that local producers are complying with product requirements and are taking food safety regulations into account.

The report makes six key recommendations:

1. Food aid product rollout must be made more commercial-sector friendly.
2. Communication between U.S. Government and suppliers should continue to strengthen.
3. Multi-stakeholder and interagency input and collaboration must be solicited throughout the process, from the start of product development to rollout and delivery to the consumer.
4. The harmonization of specifications across U.S. Agencies and international organizations should be continued and formalized.
5. A formal framework and institutionalization of U.S. Government interagency groups must be developed to address issues in rollout and coordinate processes over the long term.
6. A Continuous Improvement System should be introduced and implemented to update product specifications and food safety and quality testing requirements regularly to better adapt to new evidence and changing needs.

Improvements have been made to the rollout process over the last five years, including interagency collaboration and harmonization between U.S. Government agencies and international organizations, but challenges persist. With the demand for U.S. food aid diminishing and programs shifting to different methods of procurement and programming, the rollout process will have to be further streamlined, with the addition of an institutionalized Continuous Improvement System and Interagency Process. This Continuous Improvement Process will help build a food aid basket that is easy to modify and increases flexibility in the face of changing needs, advances in technology, and breakthroughs in nutrition science. This process requires institutionalized interagency groups, harmonization efforts, and multidisciplinary input. This report recommends that the Continuous Improvement Process review and revise specifications for all products yearly, continue to solicit Supplier feedback regularly, communicate with Suppliers about updating their systems, hold annual end user meetings to request feedback, create and distribute information on food aid product use, institutionalize the interagency processes, and harmonize product specifications across U.S. Government and international agencies.

I. Introduction

The United States Agency for International Development's (USAID) Food for Peace Office (FFP) has been providing food assistance for relief and development under Public Law 480 (PL480) Title II programming since 1954. The commodities and fortified food aid products originally were designed to combat hunger and malnutrition after World War II; they have been updated over the years, as priorities and needs have changed. The last five years have seen intensified demand for a versatile, efficient, and highly-nutritious food aid basket as emergencies have become more complex, modalities for addressing them more diverse and programs targeting vulnerable groups are increasingly tailored to specific needs.

While the food aid basket continues to provide a basic assortment of commodities, its composition, nutritional content, and the form of the offerings, have changed significantly. It now includes new and upgraded fortified products designed to meet the elevated nutritional needs of priority groups in a variety of settings (e.g., supplementary and therapeutic nutrition of mothers and children in the “first 1,000 days,” displaced and refugee populations, etc.).

USAID/FFP modernized and upgraded its food aid products in the past five years, based on a thorough review of the latest nutrition science, food technology and food aid programming needs (USAID FFP, 2013b). Recommendations from the review included: 1) significantly improving food aid **products**, in particular improved and more bioavailable forms of fortificants used under FFP, where specific nutrition goals are part of the field-level **programming**; 2) enhancing guidance on the use of such products in the field; and 3) strengthening institutional coordination and streamlining interagency government **processes** involved in food aid products ([Webb et al, 2011](#)).

The purpose of this report is to highlight best practices and lessons learned from stakeholders involved in the rollout of food aid products that were modified or introduced during the period from 2011-2015 so as to have greater impact, be more evidence-based and better “fit for purpose.” Systems have been quickly evolving and this document is intended to help preserve institutional memory of product introduction. These past processes should be captured in order to inform future product introduction and rollout and to make approaches more efficient and effective for food aid stakeholders and recipients.

The achievements of the U.S. Government in making new and updated Specialized Nutrition Products (SNP) available to food aid programs in a relatively short period, despite numerous challenges and constraints, is commendable. In three years, USAID introduced or upgraded 25 products to modernize its food aid basket, which required new forms of intra- and interagency collaboration and coordination across and beyond U.S. Government agencies. The product rollouts occurred while other U.S. Government systems were being modernized, including: 1) procurement reform affecting contracting and expansion of the web-based supply chain management system (WBSCM) for food aid product procurement; 2) the initiation of the Food and Drug Administration (FDA) Food Safety Modernization Act (FSMA), which shifted from responding to food contamination to approaches to preventing it; 3) USAID becoming more of an agent of change in food aid quality (USAID, 2014); and 4) USAID's commitment to collaborate on product harmonization with World Food Programme (WFP) and United Nations Children's Fund (UNICEF), and other key international food assistance organizations.

Like research and development (R&D) of food assistance products, their harmonization and the broader product rollout process evolve as issues arise during product modification or introduction to reflect converging nutrition and program strategies as well as advances in nutrition science and food technology.

This report reviews the six main stages of product rollout, the roles of key stakeholders, and the product rollout landscape: first, the features of product upgrades are described; second, recent product adaptations and new product introductions are presented; third, two case studies are offered, on the introduction of fortified rice and the harmonization of Ready-to-Use Foods (RUF), as examples of recent practice; and finally, recommendations are presented under each section to inform improvements in future product rollout.

The report also presents emerging themes about product introduction and rollout identified during stakeholder interviews: 1) interagency collaboration and institutionalization; 2) the experience of suppliers of U.S. food aid products; and 3) challenges with local and regional procurement (LRP) of food aid products. The last section of the report offers overarching recommendations and way forward and conclusion. The Appendix provides additional detail with a list of key specification documents (Table A), and commodity requirements documents (Table B), relevant testing for the new and updated products (Table C), a comparison of USAID and the World Food Programme specifications (Table D), Stakeholder Interview questions (Table E) and a matrix of all Report Recommendations ranked in terms of the cost, time, priority and feasibility of their implementation (Table F).

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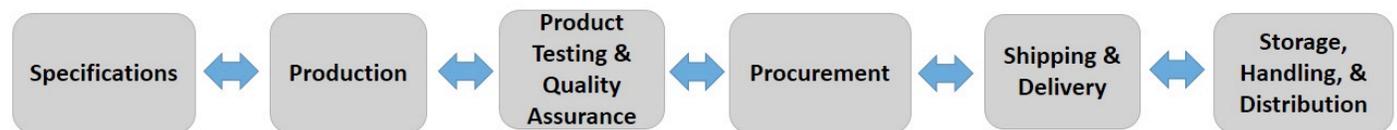
KEY RECOMMENDATIONS:

1. Make food aid product rollout more commercial-sector friendly
2. Continue to strengthen communication between U.S. Government and Suppliers
3. Solicit multi-stakeholder and interagency input and collaboration from the start of product development and rollout
4. Continue to harmonize product specifications across U.S. Government agencies and international organizations
5. Develop a formal Framework and institutionalize the U.S. Government interagency groups that work on product rollout issues and coordinate processes
6. Introduce and implement a Continuous Improvement System (CIS) to regularly update product specifications and food safety, and quality testing requirements as new evidence and priorities emerge

II. Product Rollout Phases and Process

Product introduction begins with the research and development of a product prototype; typically at the prompting of Suppliers, but increasingly at the initiative of USAID/USDA. The rollout process consists of six main phases that the U.S. Government oversees once the product has been selected for introduction or upgrade. As shown in Figure 1, the phases of the rollout process include: 1) product specifications development; 2) production scale up; 3) establishment of product testing and quality assurance systems; 4) procurement of product and shipping (through solicitation); 5) shipping and delivery of product; and 6) storage, handling and distribution of product.

Figure 1: USAID Food for Peace/USDA Product Rollout Process



The final step is customer experience and feedback once there has been more familiarity with the new products, which will be addressed elsewhere. Product rollout is an iterative process, and movement in both directions between the separate phases and official product introduction is common, so as to take into account feedback from later phases. Descriptions of each phase follow.

1. Product Specifications

The development of technical specifications is the first step in being able to source and procure a food aid product to be programmed in the field. Specifications detail mandatory ingredients, macro and micronutrient composition, production requirements, packaging, branding, and food safety and quality standards. The U.S. Government dictates these elements and writes the technical documents for use by Suppliers in producing standardized international food aid products, as governed by appropriate U.S. regulations (and Codex standards as needed). The United States Department of Agriculture (USDA) Farm Service Agency (FSA) publishes specifications, developed with USAID/FFP input from food technologists and nutritionists and other stakeholders as needed. Specifications make up Commodity Requirements Documents (CRD) used for procurement of food aid products. (See Table A in the Appendix for more information on specification technical documents and Table B for a list of U.S. commodities and CRD publication dates.)

2. Production

The production process relies on commercial manufacturers who are registered with the U.S. Government as vendors to supply approved products. While specifications serve the same purpose for food aid products as they do for commercial ones, the demand for food aid products differs. U.S. Government purchase contracts are intermittent, commodity amounts per contract are lower, and specifications are externally derived by food aid stakeholders. Different types of adjustments in the production process are required for food aid product production and scaling up to full capacity. For example, plants may be required to have special certifications so products and plant facilities can meet more extreme food safety and quality requirements. Additionally, shelf life and packaging requirements for food aid products are more stringent and shipping deadlines are stricter.

3. Product Testing and Quality Assurance

Product testing and quality assurance processes serve to ensure that the products meet the requirements of the specifications at the time of production and throughout the products' shelf life. The results of these tests provide feedback for both the specification development and production steps. Suppliers test their own products and also provide third party testing evidence on sourced ingredients, as required by the buyer. The USDA Federal Grain Inspection Service (FGIS) makes available third party testing results for grains and cereal blends, including fortified blended foods (FBF), and the USDA Agricultural Marketing Service (AMS) provides third party testing for Ready-to-Use Food (RUF) products. (For descriptions of product testing and quality assurance tests carried out, see Table C in the Appendix.)

4. Procurement

Procurement is the purview of the USDA Kansas City Commodity Office (KCCO), which purchases all the food aid commodities and products for the USAID and USDA food assistance programs. The process includes the following the steps:

1. A Private Voluntary Organization (PVO) implementing partner, responsible for implementing a FFP activity, is approved to request commodities for a specific period
2. Awardees/partners enter their request(s) (*call forwards*) in the Web-Based Supply Chain Management system (WBSCM) as sales order(s)
3. FFP/Program Operations Division (POD) reviews, approves and routes sales orders to USDA/Farm Service Agency (FSA)/Washington
4. USDA/FSA/Washington reviews, approves and routes sales orders to USDA/FSA/KCCO
5. USDA/FSA/KCCO issues a solicitation for the commodity based on approved sales orders
6. USDA/KCCO issues a companion solicitation for shipping the commodity for registered freight forwarders

USDA/KCCO procures the requested commodities according to Federal Acquisition Regulations (FAR) by issuing a tender to commodity suppliers and processors. All food aid commodities are purchased on the open market by this method. Prospective bidders submit offers electronically through WBSCM. Bids are selected based on the lowest price offer that meets product specifications and other terms of the solicitation. Shipping tenders follow a parallel process. All commodity bids must have a companion shipping bid or the commodity bid will not be eligible for purchase. The product specification (CRD) production and shipping dates are included in the tenders and the awards.

5. Shipping and Delivery

Once the shipping tender has been awarded, the PVO implementing partner arranges with its freight forwarder (who is already registered with the U.S. Government) for the cargo to be picked up at a scheduled time (as specified in the tenders) from the manufacturer's plant for transportation to a U.S. port (or a loading port if already prepositioned) and finally shipped to the recipient country. On arrival, the shipment clears country customs, and sometimes is required to pass additional local food safety and phytosanitary requirements. Finally, the implementing partner takes possession of the goods and transfers them to its warehouse. For landlocked countries, cargo is delivered to nearby ports and then transported inland to the country of final destination. In emergencies, USAID can tap into up to 100,000 tons of food that has been prepositioned in warehouses at U.S. Gulfport and additional sites overseas to expedite response (USAID/FFP, 2013a; USGAO, 2014).

6. Storage, Handling, and Distribution

Implementing partners take possession of the commodity at the delivery port and are responsible for storage, handling and delivery of food aid commodities to the recipient consumers – “to the last mile”. Stakeholders in this phase include:

- **In-country officials:** those involved in customs, local standards and testing
- **Private Voluntary Organization (PVO)** program implementers and logistics staff, such as warehouse staff and truck drivers
- **Beneficiaries,** the consumers and final end users of food aid products

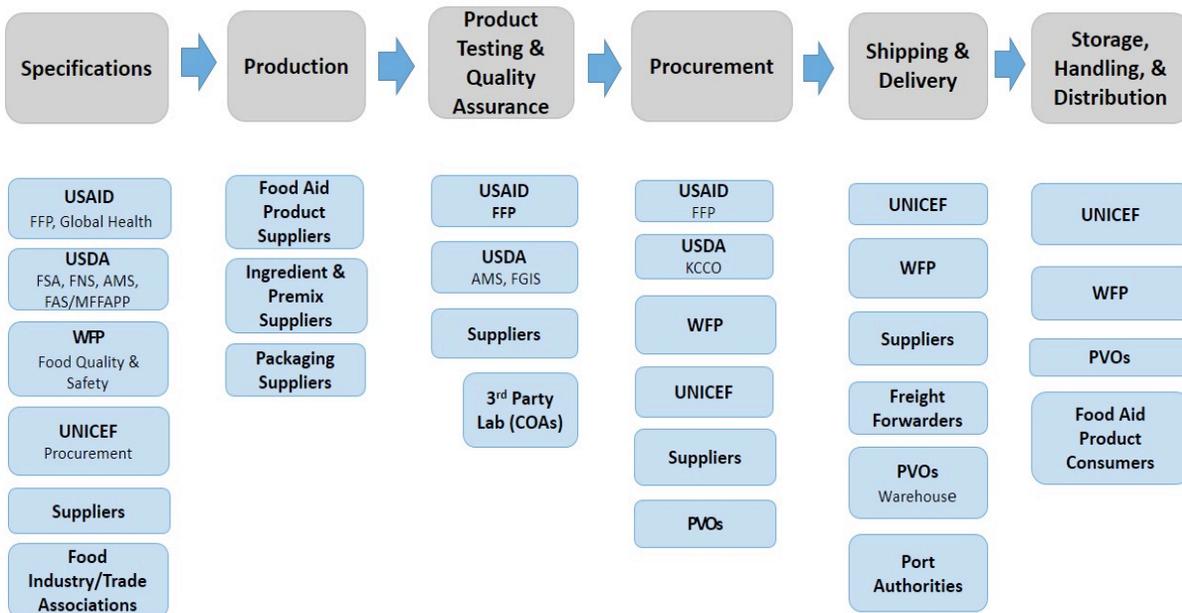
End user issues for implementing partners or beneficiaries, such as in-country product spoilage, deterioration or infestation during storage, handling and delivery can result in feedback affecting any previous phases of product rollout.

III. Product Rollout Stakeholders

Stakeholders in the product rollout process are diverse and have differing missions, yet they all collaborate for the same goal: to produce and deliver safe, effective food aid products to meet the needs of recipients. For example, while USAID FFP’s mission is to reduce hunger and malnutrition, ensuring that all people at all times have access to sufficient food for a healthy and productive life, USDA aims to promote U.S. agriculture production that better nourishes Americans while also helping to feed people around the world. Figure 2 highlights the major stakeholders involved in each phase of product rollout; they often have different and competing mandates, missions, and priorities.

- MAJOR STAKEHOLDERS IN PRODUCT ROLLOUT**
- USAID-FFP, Global Health
 - USDA-FSA, AMS, NIFA,FNS, FAS/Micronutrient-Fortified Food Aid Products Pilot Program (MFFAPP), KCCO, FGIS
 - WFP-Food Quality & Safety
 - UNICEF-Procurement
 - Suppliers-Products, Ingredients and Premix, Packaging
 - PVOs- Implementing Partners, Warehouses,
 - Freight Forwarders, Local Transporters
 - Port Authorities
 - Product Consumers

Figure 2: USAID Food for Peace/USDA Product Rollout Process: Stakeholders



IV. The Product Rollout Landscape

In Fiscal Year 2015, the U.S. Government provided 893,260 metric tons (MT) of US-purchased food aid commodities, through USAID/FFP and USDA/McGovern-Dole International Food for Education and Child Nutrition programs (MGD) (see Table I). These tonnages represent the crucial work of Suppliers, commodity trade groups, USAID and USDA, as food aid programs rely on the capacity, commitment and collaboration of U.S. suppliers with the other product rollout stakeholders.

	Metric Tons
Beans	4,200
Bulgur	6,490
Bulgur, Soy-Fortified	3,620
Corn	15,680
Cornmeal	7,580
Cornmeal, Soy Fortified	14,150
Corn-Soy Blend	5,040
Corn-Soy Blend Plus	64,860
CSB Super Cereal Plus	3,000
RUSF	7,080
Flour, All Purpose	9,230
Flour, Bread	4,530
Lentils	15,250
Oil, Soybean	23,190
Oil, Sunflower Seed	70
Oil, Vegetable	58,140
Peas	70,420
Potatoes, Dehydrated	370
Rice	41,220
Sorghum	277,660
Soybean Meal	11,490
Wheat	249,860
Wheat-Soy Blend	130
TOTAL	893,260
<i>(USDA/IFSA, 2015; USDA WBSCM, 2015)</i>	

However, many aspects of food aid product rollout lead to an inefficient supply chain putting participating Suppliers at risk. Reasons include low and inconsistent demand for food aid products, intermittent solicitations and few long-term procurement mechanisms or contracts. Low demand results in Suppliers unable to buy ingredients and packing materials in bulk at better prices, thereby hindering competition with international suppliers. Economies of scale are not reached. The efforts from 2011 to 2015 have been to improve the nutritional quality of the food basket with better fortificants and introduce SNPs as well as improving supply chain performance.

Figures 5, 6 and 7 and Tables 2 and 3 compare procurement volumes of fortified food aid commodities in 2011 and 2015. Fortified food aid commodities include SNP, which are Ready-to-Use Foods (RUF) and fortified blended foods (FBF). RUF, such as RUTF and RUSF, are food aid products that do not need to be prepared prior to consumption and are typically used to prevent or treat severe and moderate acute malnutrition (SAM and MAM). RUF are commonly made from peanuts, sugar, milk powder, vegetable oil and a micronutrient premix and come in a paste or bar form, packaged in individual sachets.

FBFs are cereal blends that also include ingredients such as soy, beans or pulses, fortified with a micronutrient premix. FBFs, such as Soy-Fortified Bulgur, Soy-Fortified Cornmeal, Corn Soy Blend, Corn Soy Blend Plus/Super Cereal, Super Cereal

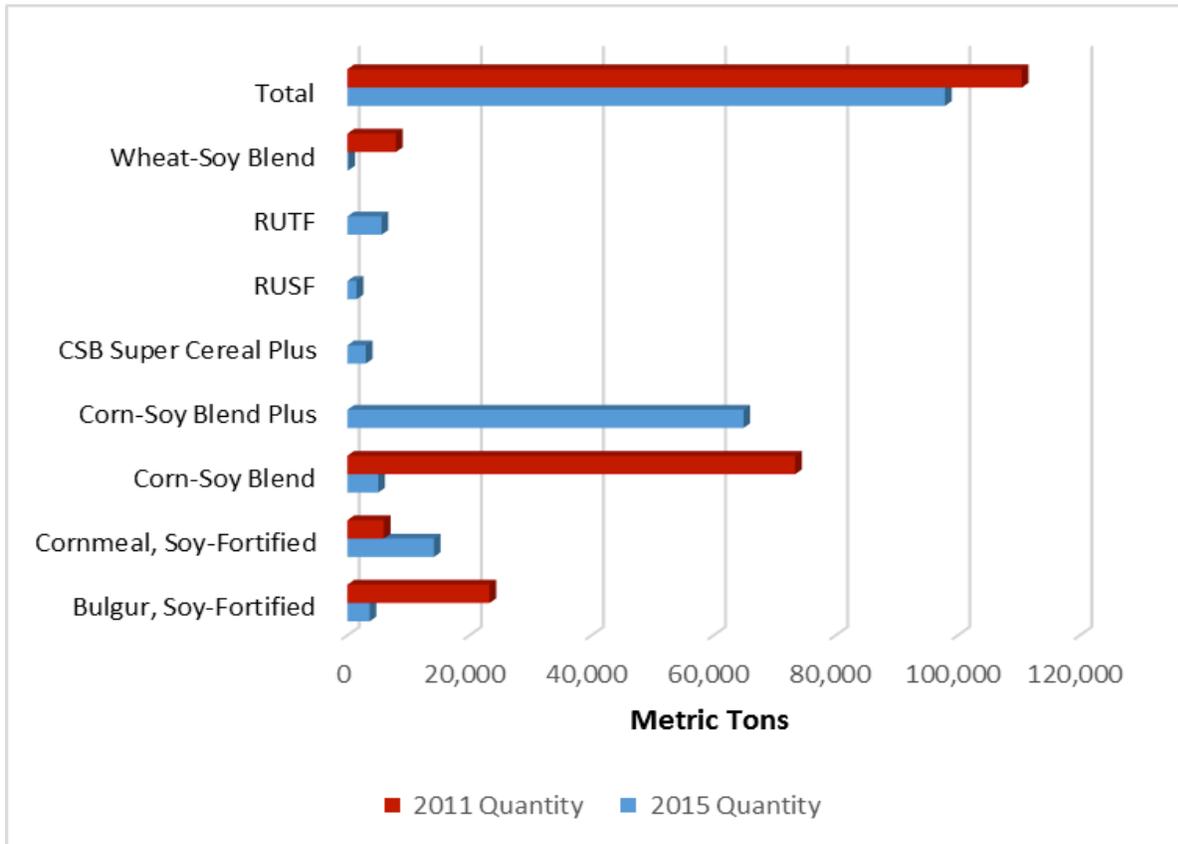
Plus and Wheat Soy Blend, must be cooked prior to consumption using potable or boiled water. Newer versions of FBFs can also include dairy ingredients, oil and sugar.

Total tonnage of **fortified** food aid commodities purchased fell from 110,540 metric tons in 2011 to 97,880 metric tons in 2015. Soy-Fortified Bulgur and Soy-Fortified Cornmeal and CSB procured from

U.S. suppliers in 2011 largely were replaced by an upgraded product, CSB+, in 2015. USDA purchased just 7,080 metric tons of RUTF and RUSF in 2015, both newly-available products introduced for preposition only, so there is little experience of PVOs in programming the new US-sourced SNPs. Even before the 2015 decrease in procurement of FBFs and introduction of RUFs, suppliers were not producing at capacity due to falling demand.

These constraints and issues in the product rollout process are further explored in stakeholder interviews later on in this report.

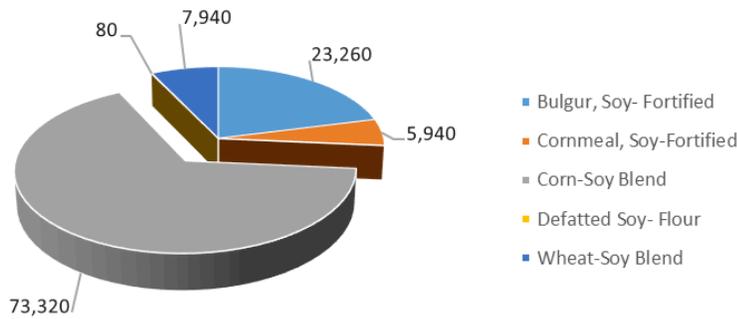
Figure 5: FY 2011 vs. FY 2015: Tonnage of Fortified Food Aid Commodities (FBF, SNP) Purchased from U.S. Suppliers



(USDA FSA, 2015; USDA WBSCM, 2015)

Figure 6: FY 2011 Fortified Food Aid Commodities (FBF) Tonnage, by Type

(Total: 110,540 Metric Tons)



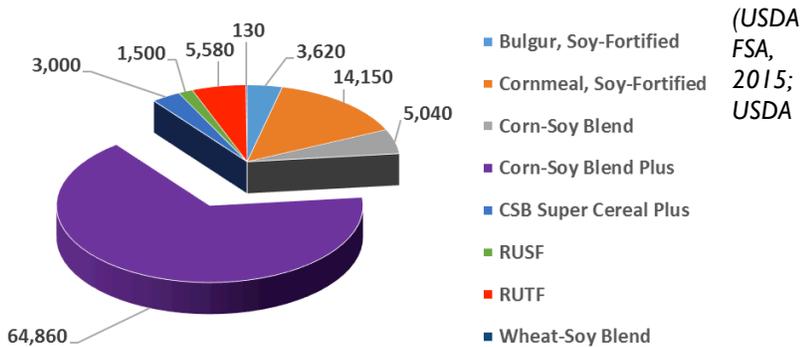
(USDA FSA, 2015; USDA WBSCM, 2015)

Table 2: FY 2011 Fortified Food Aid Commodities (FBF)

FY 2011 Food Aid Commodities (FBF)	
Item Description	Metric Tons
Bulgur, Soy Fortified	23,260
Cornmeal, Soy Fortified	5,940
Corn Soy Blend	73,320
Defatted Soy Flour	80
Wheat Soy Blend	7,940
Total:	110,540

Figure 7: FY 2015 Fortified Food Aid Commodities (FBF, RUF) Tonnage, by Type

(Total: 97,880 Metric Tons)



(USDA FSA, 2015; USDA WBSCM, 2015)

WBSCM, 2015)

Table 3: FY 2015 Fortified Food Aid Commodities (FBF, RUF)

FY 2015 Food Aid Commodities (FBF, RUF)	
Item Description	Metric Tons
Bulgur, Soy-Fortified	3,620
Cornmeal, Soy-Fortified	14,150
Corn Soy Blend	5,040
Corn Soy Blend Plus	64,860
CSB Super Cereal Plus	3,000
RUSF	1,500
RUTF	5,580
Wheat Soy Blend	130
Total:	97,880

V. Product Upgrades and Adaptations

Product Rollouts fall into three categories:

1. **Product Upgrades**—existing fortified, milled and blended products in the FFP basket, upgraded with fortificants/premixes and/or modified to take advantage of food technology advances in fortification, improve bioavailability of nutrients and harmonize with similar WFP products
2. **Product Adaptations**—products new to USAID and USDA, based on products already in use and supplied by WFP and UNICEF, with specifications adapted by the U.S. Government agencies to meet U.S. regulations and standards and U.S. supplier practices
3. **New Product Introductions**—products developed, created and tested by U.S. Government agencies to fill new or perceived needs and gaps in the FFP food aid basket (detailed in the next section)

FAQR Phase I addressed category 1, and the key recommendations from that report are listed below:

Recommendations from the FAQR Phase I Report included upgrades of food aid products in the food aid basket. In particular, product upgrade recommendations were to:

- Upgrade the macronutrient content of the precooked, fortified cereal blends (Corn Soy Blend (CSB), Wheat Soy Blend (WSB) and similar fortified blended food (FBF) products)
- Upgrade the micronutrient composition of Corn Soy Blend (CSB), Wheat Soy Blend (WSB) and similar fortified blended food (FBF) products
- Upgrade the micronutrient composition of soy-fortified enriched blended cereals (soy-fortified bulgur (SFB), soy-fortified grits (SFG) and similar products) and of fortified milled grains
- Upgrade the micronutrient profile of current vitamin A-fortified vegetable oil to include vitamin D

(FAQR Phase I Report available at: http://pdf.usaid.gov/pdf_docs/PNADZ841.pdf)

Categories 2 and 3 include adapted and new SNPs designed to meet the needs of vulnerable groups—to prevent and treat acute malnutrition in children, prevent stunting and/or replace meals for children and adults during emergencies.

1. Product Upgrades

Product upgrades target all fortified or fortifiable products and involves improving the fortification of premixes to enhance micronutrient composition and bioavailability. The time it takes to upgrade and enhance products varies widely.

Simple Changes: Micronutrient Premix Only

Some changes were simple and needed just a short time. For example, adding vitamin D to the vitamin A fortified vegetable oil took less than six months from completing specifications through a plant production trial, since the same processing equipment and procedures were used and only the premix was modified to include both vitamin A and D in a predetermined ratio. Upgrading the micronutrient

composition of soy-fortified enriched blended cereals and fortified milled grains also required only a premix upgrade, which required discussion with the millers; it took less than a year.

Upgrading the Corn Soy Blend (CSBI3, the version in production at the time) to harmonize with WFP's Corn Soy Blend Plus/Super Cereal (CSB+/SC) specification also required only a change in premix; however, this upgrade took over a year to implement. This was due to testing methodology differences between the manufacturers and the outside laboratory (e.g., use of the Bostwick measure of cooked porridge viscosity), differences in how tests were carried out by WFP compared to the USDA Kansas City labs (FGIS), and waiting for WFP Food Technologists to be available to visit FGIS for technical consultation.

Developing the Specifications

To document the changes in the formulations, specifications (CRDs) were updated to reflect upgraded product specifications. This included updating the CRDs for products that are ingredients in more complex products, such as fortified wheat flour or dry dairy ingredients. The revision and publication of CRDs for updated FFP products involved 10 products simultaneously: cornmeal, bulgur, dry dairy ingredients (nonfat dry milk and whey protein concentrates WPC 34 and WPC 80), soy-fortified cornmeal, bulgur, and sorghum, soy-fortified wheat flour, and fortified vegetable oil. The updates required a facilitated process of formal and informal interagency coordination and cooperation among the U.S. Government agencies (USAID; AMS, FSA, KCCO, and FGIS) and facilitated consultations with supplier stakeholders. FAQR Phase I served as the catalyst for coordination and cooperation and FAQR Phase II facilitated this process, which will be institutionalized during FAQR Phase III.

Key systemic considerations that contributed to delays in completion of specifications included:

- Technical concerns based on different standards by different agencies, e.g. with particle size, fortification levels, how to specify requirements and required product tests
- Initial trial and error period required for companies to consistently meet new technical requirements that had not been anticipated and therefore was not built into the expected timeline for product rollout
- Introduction and refinement of the new WBSCM system
- Other systemic, bureaucratic realities that prevented easy collaboration among various U.S. Government and external agencies, including communication delays and competing project priorities and deadlines, many of which have been resolved and streamlined through the productive relationships built among key staff.

Non-systemic reasons included:

- Retirement of key staff in KCCO and other USDA agencies and the year-long interval between the departure and hiring of a FFP Food Technologist, resulting in capacity gaps in the approval process
- Time required for new staff to familiarize themselves with the products and process.

2. Product Adaptations (From UNICEF, WFP, and Others)

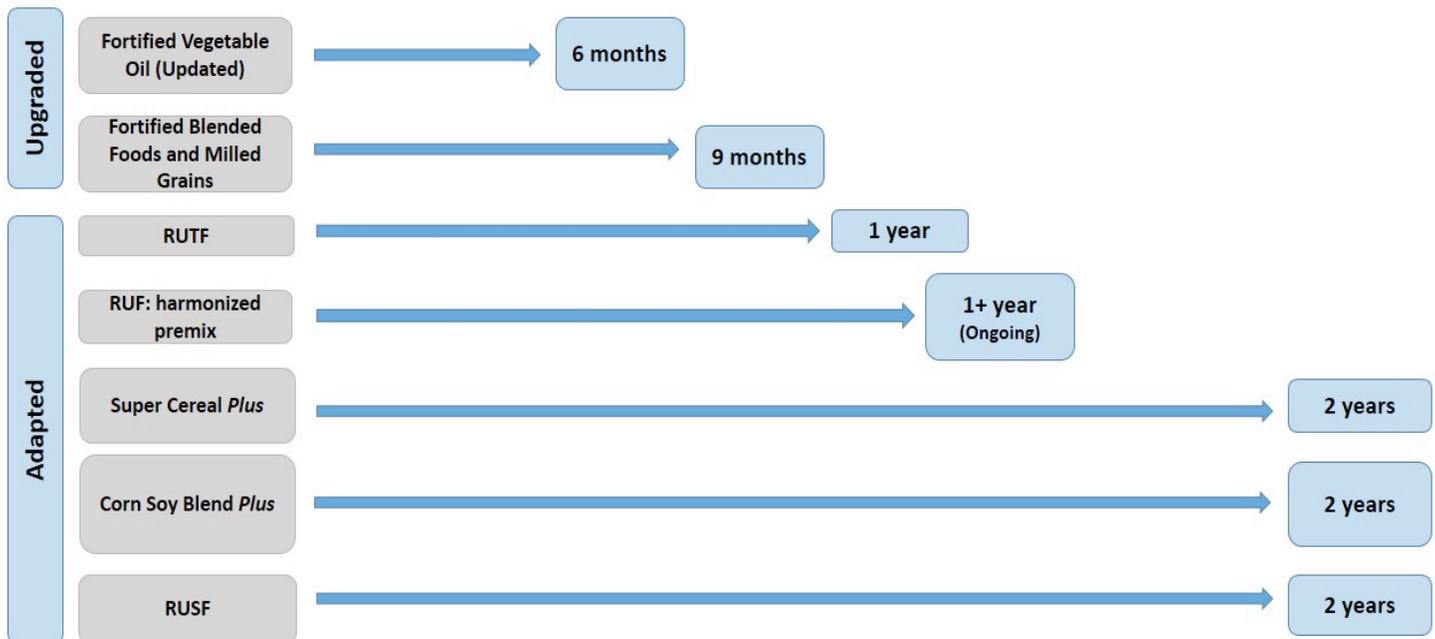
In the case of CSB+, SC+, RUSF and RUTF, the U.S. Government adopted for its own programming food aid products that had already been developed, produced and distributed by WFP or UNICEF. Creating U.S. specification documents for these products involved revisions and adaptations of WFP/UNICEF specifications to conform to U.S. Government regulations, standards and common U.S. supplier practices and the creation of U.S. specifications/CRDs. These adapted products took time to incorporate into the U.S. Government food aid basket for a variety of reasons, including harmonization of ingredient forms and levels of micronutrients and macronutrient ingredients (major

differences between U.S. Government and WFP specifications can be found in Table D of the Appendix). They all required seeking new suppliers in the United States. By 2014, the U.S. specifications for all four products were posted as CRDs on the USDA/FSA/Commodity web pages and USDA began procurement of CSB+ and RUTF. In 2015 (a year later), procurement started for RUSF and SC+.

3. New Product Introductions

Product rollout issues in product upgrades and adaptations most commonly relate to modifying the specifications and implementing those changes, while issues in new product introductions are more complicated, as they can involve issues that emerge at any stage during the product rollout process. Corn Soy Whey Blend (CSWB/CSB14) and SC+ were more complex to develop because they required introducing a dairy ingredient (non-cereal based ingredient) to an existing fortified blended food, CSB (version CSB13). Manufacturers that handle dairy ingredients must comply with USDA's dairy certification, however, the CSB suppliers at the time did not handle dairy ingredients in the plants where CSB was made. The CSB suppliers sought to work with new co-packers who were certified in and experienced with the added dairy ingredients. Therefore, it took time to establish a reliable supply chain for this product.

The process for CSWB also involved prototype development, consumer testing and identifying potential suppliers not normally in the CSB business or registered to work with U.S. Government vendors. This R&D phase took about two years before the product could be procured for the FAQR cost-effectiveness trials to test the product's impact on nutritional status in a program setting. The CSBW will not be adopted or considered for introduction by USAID/FFP until the results of the effectiveness trials are available. This illustrates that it can take a minimum of six years to bring a new evidence-based product to the food aid market, especially when new research on product effectiveness is required. Figure 3 shows rollout timelines for various products. At the end of this Section, we highlight the new product introduction experience with two Case Studies; 1) Fortified Rice Introduction; and 2) Ready-to-Use Food (RUF) Harmonization.

Figure 3: USAID Food for Peace/USDA Product Rollout: Product Timelines**Lessons Learned**

Many of the changes to the food aid basket have been driven by advances in nutrition science, evidence from the field in the form of pilot studies and research projects, and changes in food safety and food quality testing requirements. Challenging conditions, specific to the food aid product supply chain, include longer supply chains, time delays between production and consumption of products by beneficiaries and exposure to heat. In the commercial food industry, the new product development process has to take into account scaling up from the laboratory bench, through the pilot plant and finally to the full scale. It is often based on reliable contracts and known projected quantities for future purchase. This process can take several months for simple product design changes to much longer for new product design. Based on a review of the last five years of FFP experience, if new production technologies such as thermal processing, new packaging to extend shelf life, etc. are required in the future, the development process could take significantly longer, from one to three years, and even longer if product and cost effectiveness studies are necessary.

Lessons Learned

The early engagement of private sector food suppliers in the new product development process is critical to reduce the product development time from concept to use in the field.

Any proposed upgrades and improvements must consider the practical requirements of food science and technology in the translation of nutritional profiles to actual commercially viable products.

New products need to meet the shelf life and supply chain management requirements of food aid products in emergency as well as development settings and applications.

Recommendations: New, Updated and Adapted Products

Broad recommendations for product adaptations and new product introductions, especially given the potentially long timeline for product rollout, include the need for multidisciplinary and interagency input and collaboration, updating specifications and food safety and quality testing requirements as new evidence emerges and increasing communication between the U.S. Government and suppliers.

Recommendations are listed below, with the stakeholders responsible for their implementation, in parentheses:

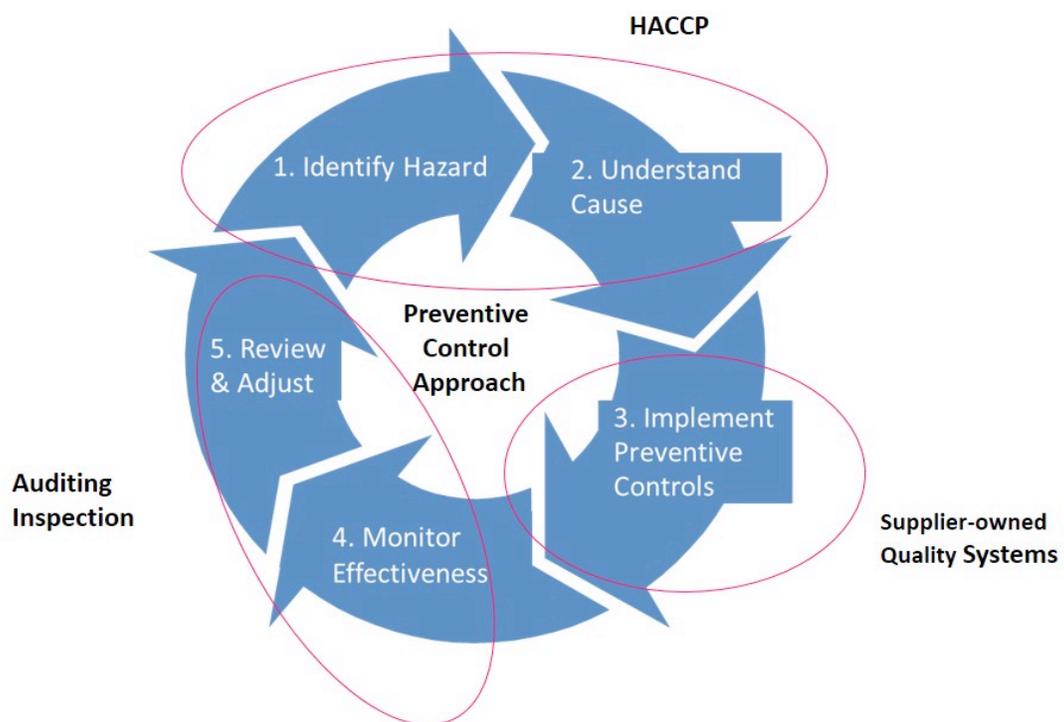
1. Collect needed multidisciplinary input for new, updated and adapted product introduction, including from food and food safety technologists, production personnel, nutritionists, program implementers and product consumers, each of whom brings a different set of concerns and priorities to the process, for relevant stages of the new and updated product development process (*USAID, USDA, WFP, UNICEF, suppliers, PVOs, product consumers*)
2. Develop new product specifications with appropriate input from suppliers on technical feasibility and other concerns with an evaluation period (6-12 months depending on complexity of products or changes required) and a grace period during which to make adjustments (*USAID, USDA, suppliers*)
3. Undertake accelerated shelf life and stability testing on all new products using methodologies and systems that are required by WFP, UNICEF and other United Nations agencies (where applicable) (*USDA, suppliers*)
4. Draft new and modified specifications based on evidence from shelf life testing (to validate stability of nutrient levels (Schlossman et al, 2015)), effectiveness trials, consumer testing, cost and cost-effectiveness trials and lab testing and analysis (*USAID*)
5. Create updated product testing methodology with standardized procedures and cutoff values in product specifications for manufacture, as validated methodology and analytical technology make testing better and faster (*USDA*)
6. Require a certified food quality system, such as Hazard Analysis and Critical Control Points plan, during the start-up phase for each product that is drafted by Suppliers and validated by the relevant U.S. Government agency—e.g., USDA, FDA (*USAID, USDA, FDA, suppliers*)

A best practice is underway, with USAID and USDA collaborating on a preventative control approach as part of FSMA implementation (see Box and Figure 4).

Best Practice Food Quality & Testing

A USAID/USDA working group is developing a Preventative Control Approach as a result of FSMA implementation. Interagency meetings allowed US agencies to discuss and share new developments. FSMA served as a catalyst for interagency collaboration surrounding food safety and quality topics. The draft Preventative Control Approach model follows.

Figure 4: USAID/USDA Draft Preventative Control Approach



(USAID-USDA 9th Interagency Meeting, April 2nd, 2016)

Case Study I: Fortified Rice Introduction

FORTIFIED RICE INTRODUCTION

Background

FAQR Phase I recommended upgrading staples (milled flour and vegetable oil) to include additional vitamins and minerals to the premix and introducing fortified rice as an addition. The method for fortifying rice is different from that of fortifying or enriching wheat and maize flours. Rice is a milled kernel while wheat and maize are flours. Rice is an ideal vehicle for fortification as it is currently consumed by nearly 50 percent of the world's population with 90 percent in Asia. The rate of increase in consumption is fastest in sub-Saharan Africa and rice remains an important staple in Central and South America.

The FAQR Phase I did not address the complex issue of rice fortification since the US already had a standard in the US FDA Code of Federal Regulations (CFR) for Enriched (Fortified) Rice for domestic consumption

(<http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?fr=137.350>) and a USDA project that included effectiveness trials of fortified rice (with WFP in Cambodia) was underway.

The following methods are currently used to fortify rice:

1. Dusting powder containing micronutrients
2. Adhesive dusting powder containing micronutrients
3. Coated kernels containing micronutrients
4. Hot extruded kernels containing micronutrients
5. Cold extruded kernels containing micronutrients

Challenges of Rice Fortification

The following challenges need to be addressed for effective rice fortification, independent of the process used:

- **Consumer Behavior:** In the major rice-consuming countries, rice is milled in small village-based mills with basic dehulling technology. Rice is traditionally washed and sorted by hand prior to cooking in most parts of the world because the dehulling and polishing process does not remove all of the foreign material present and might include stones, colored kernels and dust. Washing can remove any added micronutrient powders that are used in fortification.
- **Fortificant Forms:** The number of micronutrients that can be added to rice is limited because some have distinct colors, such as riboflavin and vitamin A (yellow), which affect the appearance of the rice and therefore cannot be added. Folic acid (tan) and most iron compounds (brown) do not alter the appearance and have been successfully added to fortify rice.
- **Cost and Bioavailability:** Forms of iron and zinc (white or nearly white) used to prevent consumers from washing the rice, are more expensive to add, and the bioavailability of these forms is lower.

Addressing the Challenges

Expanding Production, Technology and Supplier Base: There are two extruded kernel technology methods used for rice fortification: hot extrusion and cold extrusion process. Both manufacture a “rice kernel” made from rice flour and the added micronutrients. The hot extrusion process was developed in Asia. To make this technology available in the USA, the USDA funded Kansas State University to develop a hot extrusion process for rice fortification. The cold extrusion process was developed under license by PATH using the UltraRice technology, and has been introduced in include India, Brazil, Burundi, Cambodia, Mali, and Vietnam.

Recently a USA-based fortificant supplier developed a new form of “rice kernel” using a coated kernel containing a fortificant blend, which is currently under assessment. This supplier is a major supplier of rice fortificant to the US rice industry and to overseas clients.

Reviewing New Evidence: An international rice fortification conference held in Bangkok in 2014 reviewed the current state of rice fortification. One of the key issues addressed was the widely held position that only extruded rice fortificant kernels were effective, to the exclusion of other potential rice fortification technologies such as coated kernels (http://www.sightandlife.org/fileadmin/data/Magazine/2015/29_I_2015/SAL_WFP_Suppl.pdf)

A Rice Fortification Workshop held in August 2015, hosted by USDA and Department of Grain Science at Kansas State University, reviewed the current status and best practices of rice fortification around the world including the ongoing feeding project with school children in Cambodia funded by USDA in partnership with WFP.

Rice fortification using current extrusion methods is more costly than the fortification of other cereal flours. This is due to the higher cost of micronutrient compounds (to avoid changing the color of the fortificant kernel), additional food processing technology and more expensive production equipment. The demand volume for fortificant kernels is low in the major rice-consuming countries; China, India, Indonesia, Pakistan have not introduced mandatory rice fortification.

Response: The USDA published a Commodity Reference Document MR24 for Milled Rice (effective July 8, 2014) which includes fortified rice. Specific requirements are listed, referencing the suitability and stability of the rice kernel fortificants, but do not specify fortification technique (e.g., extruded or coated), aside from banning dusted rice due to the common practice of rinsing rice prior to cooking it. Fortificant levels are verified through vitamin stability trials. Therefore, the fortificant kernels are “fit for purpose.” Technical documents on rice fortification from the Food Fortification Initiative can be found at: <http://www.ffinetwork.org/implement/Rice.html>.

Recommendations: Recommendations are listed below based on this Case Study (followed by the individual or entity responsible for their implementation, in parentheses):

1. Immediately adopt, purchase and begin to program Fortified Milled Rice based on July 2014 CRD form 24 (USAID, PVOs)
2. Update products and CRDs once results from the USDA-funded effectiveness trials on the extrusion fortified rice in Cambodia and other new research come out on the effectiveness of various fortification technologies (USAID)
3. Carry out comparative nutrition effectiveness trials between extruded fortificant kernels and coated kernel technologies (USAID, WFP, others)
4. Carry out a cost effectiveness assessment comparing extruded fortificant kernels and coated fortified kernels in various programming scenarios (USAID)

Case Study II: Ready-to-Use Foods (RUF) Harmonization

READY-TO-USE FOODS (RUF) HARMONIZATION

Background

Ready-to-Use Foods (RUF) for food aid have been developed over the past 20 years, based on the need for safe, individually-packaged foods that could be used for community-based treatment of severe acute malnutrition (SAM) and later to prevent moderate acute malnutrition (MAM). Presently there are now two basic types of RUFs that are used to address malnutrition:

- *RUTF*: Ready-to-Use Therapeutic Food
- *RUSF*: Ready-to-Use Supplementary Food

These shelf-stable, lipid-based paste products use a protein source such as nuts or pulses together with milk powders, vegetable oil, sugars and a multiple micronutrient premix, the most common use ground nuts and soy. The World Health Organization (WHO) issued guidelines (specifications) for these products for their use in the prevention or treatment of SAM and MAM (WHO, 2012). Nutriset, a French-based company, initially developed and patented the RUTF and several RUSF, and licensed manufacturers in Africa, Asia and later, the USA, to produce these RUFs for regional and national programs. In response to the dominance of Nutriset in this market, a number of suppliers developed RUF variations, in collaboration with UNICEF, WFP, WHO, other government agencies and PVOs.

The proliferation of similar products resulted in different formulations of the main ingredients and micronutrient premixes. Since the relative production volumes of these products were not large, economies of scale for production of the products themselves and the vitamin/mineral premixes were not achieved. These circumstances increased cost and limited volumes of RUF available for addressing MAM. The economic downturn in donor countries caused financial constraints, limiting the supply of RUF products to those in need.

A number of technical meetings facilitated by FAQR Phase II were held from 2014 to the present, with USAID FFP, FAQR team members, UNICEF, WFP, and Doctors without Borders (MSF) to work on harmonization of the different specifications of RUSF and RUTF. The USAID food technologist, in collaboration with WFP nutrition and food quality technologists and UNICEF nutritionists, has been leading efforts towards a harmonized standard to permit efficiencies and economies of scale in production for all agencies.

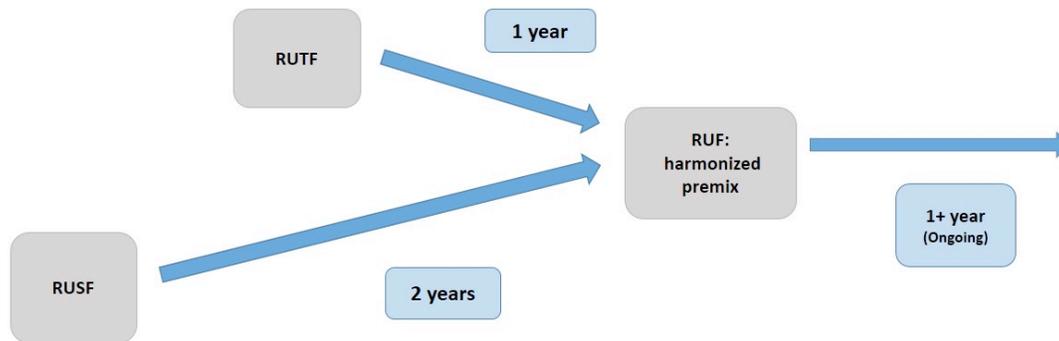
The USAID food technologist and USDA AMS increased collaboration within the U.S. Government by instituting meetings with suppliers at critical stages of the RUF harmonization rollout process, focusing on issues related to specifications, facilities auditing, quality assurance, testing and procurement. Main areas requiring significant attention have been:

- Harmonization of the micronutrient premixes (number of micronutrients and quantities)
- Harmonization of the microbiological standards and methods
- Development of a system of specification reviews based on the latest published nutritional science on the effectiveness of RUFs in the field.

The harmonization of microbiological standards and methods has been streamlined by adopting Codex Alimentarius (Codex) sampling and analytic methodology, and finalized and implemented. The micronutrient premixes and specification review system are nearing completion.

The RUF harmonization timeline is provided in Figure 5 and illustrates that it can take as long to harmonize specifications and requirements as it does to introduce and roll out a product. With more streamlined harmonization processes, the harmonization phase can be integrated into the specifications development phase.

Figure 5: RUF Harmonization and Product Rollout

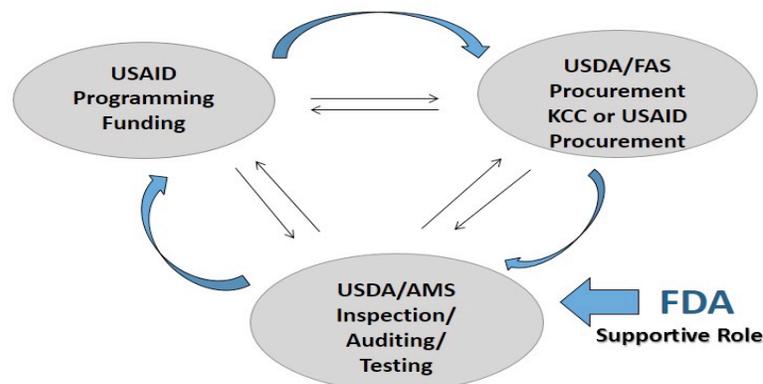


Outstanding Issues

Several issues were raised during the stakeholder interviews conducted as part of the evidence gathering for this report:

- The U.S. Government has provided products and placed them into prepositioning warehouses without the commitment of program implementers to call them forward to use in field programs.
- RUFs have a limited shelf life; if these prepositioned products are not used by the Best Use By Dates (BUBD) then they will have been wasted.
- Suppliers have collaborated with the U.S. Government to make changes to their production systems and factories, at their own expense, in order to produce RUFs, yet they have not been procured.
- PVO implementing partners were unaware that newer products such as RUFs could be purchased directly through the U.S. Government. Instead, they bought products from the WFP, which were not of US origin. The U.S. Government RUF purchasing system is illustrated in Figure 6, below.

Figure 6: U.S. Government RUF Purchasing System



(USAID-USA 9th Interagency Meeting, April 2nd, 2016)

Recommendations

Based on the RUF Harmonization Case Study, recommendations are listed (followed by the stakeholders responsible for their implementation, in parentheses):

1. Establish an information system to advise US-based PVOs that new products are available and for PVOs to provide estimates of future usage volumes (*USAID*)
2. Place products with limited shelf life into preposition only with firm commitments that they will be used by international agencies such as WFP and UNICEF and other PVOs prior to their BUBD (*USAID*)
3. Implement a minimum order quantity for new products that will allow suppliers to cover any additional development and manufacturing costs for new products (*USAID*)

VI. Stakeholder Emerging Themes

Methodology

Stakeholders represent decades of experience working in product rollout. In order to develop evidence-based recommendations and lessons learned about the various aspects of product introduction, upgrade and rollout, our team, in consultation with USAID/FFP, identified key stakeholders with diverse backgrounds to interview about their experience. Stakeholders included veteran and new product suppliers/vendors, Commodity groups that represent farmers who grow the ingredients used in products, USAID/FFP, USAID Global Health, USDA FSA, USDA AMS, economists, nutritionists and food technologists. The GF&N team of Nina Schlossman, Leah Koeppl and Quentin Johnson developed the interview guides, conducted stakeholder interviews and reviewed written comments. Thirteen stakeholders participated. Interviews followed a set of questions prepared by the FAQR Team (see Table E in the Appendix). FAQR was well positioned to carry out these interviews as an independent non-government third party and team members who have built up trust among stakeholders through consultations during FAQR Phases I and II.

Stakeholders described their involvement in product rollout, specific successes and challenges, and provided recommendations for strengthening the product rollout process as well as any comments they chose to provide. Stakeholders consented to interviews and to being recorded with the understanding that: stakeholders would not be identified by name/company nor quoted directly in the report and that information they deemed as confidential during or after the interview would not be used in the report nor would interview transcripts be shared outside of GF&N.

Suppliers in particular expressed concern about maintaining confidentiality, since they compete closely with other U.S. suppliers for bids and have proprietary information regarding product research and development. Nonetheless, they trusted their interviewers and appreciated the opportunity to engage and provide constructive and honest feedback to support public sector priorities while protecting their relationships with USAID and USDA.

GF&N recorded and transcribed interviews, reviewed transcripts, organized content by strengths, challenges, tensions and recommendations, and identified common themes. Emerging themes and best practices are based on the synthesis and analysis of unifying comments from diverse stakeholders or on stand out concepts highlighted by one type of stakeholder.

Emerging themes are explored in the following sections: VII. Interagency Experience, Collaboration and Institutionalization; VIII. The Supplier Experience; IX. Local and Regional Procurement; and X. Instituting a Continuous Improvement Process.

VII. Interagency Experience, Collaboration and Institutionalization

Introduction

The importance of interagency collaboration as a critical element of wins and successes is the major emerging theme from the interviews. Enhancing coordination across the U.S. food aid system, in particular the establishment of a mechanism for U.S. Government interagency (USAID and USDA) communication and collaboration for the purpose of reviewing food aid products and quality assurance systems and resolving issues in a timely manner was a recommendation of the FAQR I report. FAQR hosted and facilitated nine Interagency Meetings during Phases I and II and this process has matured. In addition to these formal meetings, working groups have formed to deal with specific issues and relationships have developed among key staff. Interagency collaboration is ongoing, and FAQR will continue to host and facilitate Interagency Meetings during Phase III as long as needed. Interagency stakeholder perceptions regarding these efforts follow.

Strengths

Stakeholders agreed that this latest phase of activities to modernize the food aid basket, with updated and new food aid products, represents a new era of interagency collaboration. Interagency stakeholders described strong and solidifying communication among colleagues and partnerships between and among groups that have grown over the last five years, to deal with issues and work on solutions and procedures as they emerged, at any stage of the introduction and rollout process. Stakeholders mentioned FAQR as an effective catalyst and objective voice in facilitating partnerships and improving communication, in part as a result of the interagency meetings and the relationships strengthened during collaborative work undertaken during FAQR Phase II. Interagency meetings have evolved from being a forum for agencies to share their independent activities around food aid quality, to a place to concentrate on and move forward with specific issues, projects and priorities, with increased focus in the last year on the path forward to institutionalize the interagency collaboration and membership.

Challenges and Tensions

Some U.S. agency staff do not necessarily see the need to institutionalize interagency relationships and ad hoc working groups that they feel are working well and developing on their own. They recognize the importance of ensuring sustainability of the interagency process but are at capacity working on interagency projects and cannot take the time away from their projects to formalize successful working relationships and trust that developed through personal interactions working through issues and crafting solutions. Some expressed concerns about the loss of institutional memory when key staff retire or move to other positions and wonder what will happen when FAQR no longer independently facilitates interagency collaboration at the end of Phase III (the final phase of FAQR). In particular, concerns were raised about how to transfer all the information from working relationships behind product rollout and harmonization (e.g., the background, history, activities, issues and how solutions were reached) to new colleagues when current staff members retire.

While interagency collaboration has improved, at times it has occurred too late to proactively address challenges and catch errors in specifications and CRDs prior to solicitation and production. In the case of RUTF, product ingredients and sourcing issues during the first solicitations resulted in feedback

loops that delayed product rollout. Palm oil, originally listed as an RUTF ingredient, could not be sourced in the U.S. and therefore could not be used. Once changed, the alternative domestically sourced oil separated in the product and caused delays in production. Earlier interagency involvement during the specifications development phase could have prevented or addressed these issues proactively and avoided rollout delays.

Recommendations

The overarching recommendation is to develop a formal framework to institutionalize interagency collaboration in the product introduction and rollout process, with multidisciplinary input so as to ensure that, going forward, capacity is available in nutrition, food technology, food safety and processing, as well as logistical capacity to manage technical aspects of the supply chain and rollout process. This would involve developing Terms of Reference (TOR) for membership and a formalized discussion platform or mechanism that has buy-in from senior management and which provides the resources and incentives to insure that all parties are actively engaged and have the means for sustained participation the interagency process.

USAID/FFP has begun this effort with a draft “*Terms of Reference for A Government Food Aid Coordination Group*,” presented at the Ninth USAID/USDA Interagency Meeting, in Washington, D.C., which was held on February 1, 2016 (Perez, 2016).

Specific Recommendations are listed below (followed by the individual or entity responsible for their implementation, in parentheses):

Continue developing and establishing the framework, instituting a clearly-defined and accountable interagency mechanism responsible for new and upgraded food aid products with issue-based working groups. Focusing on specific issues enables “quick wins,” highlights specific achievements over an ongoing process and facilitates successful solution working relationships. (USAID, USDA, KCCO, AMS)

The framework should:

1. Specify membership of different agencies, and define member roles and responsibilities (USAID, USDA, KCCO, AMS)
2. Document each of the product rollout steps, identifying responsible entities and decision points, including a short report for new staff so they understand the complexity of working with different stakeholders (USAID, USDA)
3. Clearly identify feedback loops needed from later steps to earlier steps of the supply chain which can be utilized to improve the product rollout process (USAID, USDA)
4. Include a checklist the USAID and USDA can follow for the development and introduction of new and updated products (USAID, USDA)
5. Examine the structure and mechanisms of the Interagency Harmonization Group involved in food aid product harmonization as a model to help inform the interagency framework (USAID, USDA)

VIII. The Supplier Experience

Introduction

This section draws upon the input obtained from the interviews held with suppliers, agency staff, and other stakeholders. In the last 15 years, the number of U.S. producers of in-kind food-aid has declined dramatically for a variety of reasons. Suppliers are crucial to ensure a quality food aid basket, with a mix of products available with suppliers at the ready. The number of U.S. suppliers may be at a tipping point. US-produced food aid products cannot exist without U.S. supplier participation. Highlights from stakeholder interviews follow.

Strengths

Stakeholders involved in producing food aid products expressed great pride and dedication to their contributions to prevent and treat malnutrition, and address hunger and food insecurity worldwide. Commodity groups remain proud of their 60-year history of providing high quality food aid products made from American ingredients to the Food for Peace program. Many aspects of product rollout have improved during the period covered by this report. A variety of stakeholders highlighted increased communication among USAID, USDA and suppliers, through formal and informal meetings and working groups. Formal supplier meetings (in person or conference calls) provide more regular opportunities to solicit feedback from suppliers and share new developments such as draft quality by USAID/USDA jointly and safety systems under development by interagency groups and updated product specifications. Additionally, suppliers involved in producing products tested during FAQR Phase II received clear information about the quantity requested, allowing them to create a more efficient supply chain. Suppliers also appreciate the effort made by U.S. Government agencies to try alternative solicitation mechanisms as a longer term procurement method.

Challenges

The food aid product supply chain is inefficient due to low demand and issues at various phases of product rollout. Even before the decrease in procurement of FBFs and SNP by 2015, suppliers were no longer producing at capacity, in response to falling demand. Suppliers highlighted, in particular, the effects of low demand and resultant small-scale production on their business models. Companies must carefully weigh the costs associated with keeping production lines open for products with low production levels, and low production does not encourage Suppliers to maintain their production lines.

Long intervals between orders lead to lengthy production interruptions, which increase the cost of producing food aid products and delay production. Suppliers are hesitant to invest, often heavily as would be needed, in product R&D, production and packaging capacity, specialized labor and equipment, given the low demand for products and no guarantee of winning a contract or recouping fixed costs. Additionally, suppliers are unable to use their experience in commercial product rollout to innovate or improve upon products (e.g., better production methods, improved ingredient forms, or utilizing industry best practices) due to the strict product specifications put out by USAID and USDA. These documents clearly specify production methods, ingredient forms and other production details for upgraded FBF and SNP.

Suppliers have noticed discrepancies in specifications for the same product among different agencies and specification modifications that do not take into consideration the sizable production adjustments necessary for compliance (such as those required when dairy ingredients are subject to USDA certification). These discrepancies and changes lead to confusion and compliance difficulty. Most suppliers do not just produce food aid products, and the transaction costs of manufacturing food aid products, including start-up costs and establishing and maintaining relationships with ingredient and packaging suppliers and U.S. Government contacts, can be high. Lastly, while communication with USAID has improved, suppliers have struggled with the disconnect between USAID's stated demand for certain food aid products and USAID's actual purchases of those products. This also relates to the fact that WFP does not always purchase the products they have requested. If WFP is the only buyer, the demand base is not sufficiently high enough for some suppliers to stay in the business.

Tensions

Suppliers identified several areas of tension in product rollout related to their experiences. Given the low demand for food aid products, they are concerned about the shift to local and regional procurement of food aid products, which would further weaken their supply chains for food aid products and make them less competitive with suppliers in Europe, India and elsewhere around the world. Since demand is low and inconsistent and the costs of participating in food aid production are high, some suppliers have decided to get out of the food aid market entirely in the last five years, and the number of suppliers of food aid products reflects that. If USAID envisions in-kind food aid being part of projects for another decade, product sourcing in the United States will become an issue as suppliers disappear. As fewer and fewer U.S. suppliers choose to participate, the United States loses its capacity to produce these products and becomes reliant on international producers, raising issues of food safety and quality assurance and enforcement.

Additionally, stakeholders identified issues around demand creation for food aid products. As it stands, there is a lack of uptake of RUFs by WFP and PVOs. The product rollout process started with perceived need for new and updated products without input from USAID customers (PVOs, WFP, UNICEF) and consumers (food aid recipients). USAID and USDA invested time and money in new product research and development, and production capacity (new U.S. vendors) without knowing in advance how much demand existed for specialized/higher level products that require better targeting and placement in FFP (and MGD) projects. USAID did try to decrease the risk to suppliers who invested in the ability to produce new products, by requesting orders for prepositioning, but these are somewhat limited amounts. The awareness of and demand for new products within the PVO community is low, so prepositioned products may reach the end of their shelf life without ever being used.

Recommendations

Broad recommendations to improve the supplier experience include: 1) implementing changes to better align food aid product practices with generally accepted commercial practices within the food industry; 2) lessening the effects of low and inconsistent demand; and 3) creating conditions to increase the competitiveness of U.S. suppliers. Specific recommendations are listed (followed by the individual or entity responsible for their implementation, in parentheses).

Recommendations for the Specifications Process

1. **Streamline Specifications:** Modify CRD specifications to be more private-sector friendly, including streamlining instructions for the manufacturing process, using appropriate markers such as Certificates of Analysis (COAs) for quality assurance purposes, and having performance-based specifications as opposed to both micronutrient premix or restrictive

ingredients specifications and end product specifications (*USAID/FFP, USDA/FSA/AMS (with suppliers)*)

2. **Continue Harmonization:** Continue harmonization of specifications via meetings and previously established technical working groups. Determine what can be harmonized, what cannot and how to handle and work with suppliers in case of conflicting instructions among organizations (i.e. UNICEF, USAID, WFP) (*USAID/FFP, USDA/FSA/AMS, international organizations*)
3. **Continue to Enhance Communication:** Continue to strengthen communication among suppliers, USAID and USDA especially during specification development, such as continuing with supplier meetings facilitated by USAID/USDA and revamping the focus of the Food Aid Consultative Group beyond reporting on activities to include a working group structure to foster communication among the stakeholders listed above (*USAID, USDA, and Suppliers*)

Recommendations for Improving Procurement and Demand

1. **Procurement Mechanisms:** Expand long-term procurement mechanisms that are more predictable and projectable, such as Blanket Purchase Agreements and Indefinite Delivery/Indefinite Quantity contracts (*USAID/FFP/OAA, USDA/KCCO*)
2. **Monitoring and Documenting Technical Issues:** Establish a new mechanism for documenting technical and other constraints to smooth supply chain processes including feedback loops (*USAID/FFP, USDA/KCCO*)
3. **Shipping Flexibility:** Increase flexibility in shipping dates, without penalties for minimal delays, due to the supply chain inefficiencies that result from low and inconsistent demand (*USAID/FFP, USDA/KCCO*)
4. **Increasing Transparency Competition in Solicitations:** Include, in the “Sources Sought” solicitations, factors that will contribute to supplier selection and which clearly state if international companies will also be solicited and eligible to bid (*USAID/FFP, USDA/KCCO*)
5. **Sourcing Ingredients:** If there will be an international tender, allow suppliers to source ingredients from outside of the U.S. when they are competing with international companies that are not required to source from the U.S. (*USAID, USDA*)
6. **Creating Demand:** Survey and work with PVOs/end users at the start of a product rollout process to ensure that new and updated products meet the needs of the PVO community and will be used in projects (*USAID*)

IX. Local and Regional Procurement

Stakeholders across the board brought up local and regional procurement (LRP) during informal conversations and stakeholder interviews. Therefore, we included a separate section on this issue.

Strengths and Challenges

The benefits of LRP of food aid products for USAID compared to in-kind food aid can include shorter delivery times, less expensive transport, shipping and handling costs and building local capacity in food production (GAO, 2009). However, local and regional suppliers face many of the same challenges as suppliers in the United States. Unless governments or organizations commit to meeting the needs of populations requiring food aid products, smaller countries will not have high enough demand to allow small-scale suppliers to reach efficient levels of production. Startup costs and the cost of doing business for local international suppliers are also very high, and they too risk investing in costly facilities, production equipment and product quality control without knowing if demand will be sufficient. LRP of food aid products increases competition for U.S. suppliers. Different standards in terms of quality assurance, food safety requirements, and sourcing of ingredients for suppliers overseas and in the United States create an unlevelled playing field and make it difficult for U.S. suppliers to be competitive on price and increase the risk of losing more U.S. suppliers.

Tensions

U.S. suppliers, USAID and USDA expressed concerns about locally and regionally-produced food aid products meeting American FSMA and/or Codex requirements for quality control and food safety standards. They were worried about the capacity to monitor food quality and enforce food safety requirements, and the potential effects on the health of food aid product beneficiaries. Other concerns include the quality and safety of ingredients, such as high aflatoxin levels in locally-available food aid product ingredients (for example, local maize or groundnuts stored improperly) and if there is local capacity to test product ingredients.

Recommendations

Due to concerns regarding food safety, USAID has developed a Memorandum of Understanding with USDA/AMS so that missions abroad can provide audits which ensure that local processors are in compliance with the FSMA and also take into account local food safety regulations. Building local capacity to monitor food safety and quality in local and regional procurement is desired since USAID missions and countries do not currently have that capacity. If U.S. food aid shifts toward more LRP and less in-kind food aid from the United States, the following areas will require careful consideration. Recommendations are listed (followed by individual or entity responsible, in parentheses).

1. **Review LRP Issues from a Food Safety Perspective:** LRP USAID labeled food aid may not be produced according to the strict guidelines and requirements of U.S. Government/FSMA (USAID/FFP, USDA/KCCO (with suppliers, WFP and UNICEF))
2. **Conduct an Economic Analysis on the Impact of LRP on U.S. Suppliers:** U.S. suppliers will be at a disadvantage if they must produce according to different food safety requirements compared to international suppliers (USAID/FFP, USDA/KCCO (with suppliers, WFP and UNICEF))
3. **Investigate Adding US-Sourced Ingredients to LRP Products:** For example, source in-kind dairy components from FFP basket to complement local production of RUF and SC+ made

from local ingredients (e.g. groundnuts and pulses) *(USAID/FFP, USDA/KCCO (with suppliers, WFP and UNICEF)*

X. Instituting a Continuous Improvement Process

Building a food aid basket that is easy to modify so it remains fit for purpose as needs change, food technology advances and science progresses, requires a continuous improvement process. As discussed earlier, product rollout requires an institutionalized group of interagency stakeholders and processes for coordination and in order to solicit the timely, multidisciplinary and multi-sector input for successful and efficient specification and/or harmonization efforts throughout the product rollout timeline. The U.S. Government and suppliers gain from increasing opportunities for feedback and communication among stakeholders and shifting toward a more commercial-friendly production process, including harmonized specifications and long-term purchasing agreements.

The commercial food industry and commercial food processors have established instituted systems of continuous improvement that address the entire supply chain. The food aid industry and food aid stakeholders should adopt this industry best practice, where applicable. Many elements of a Continuous Improvement System (CIS) already exist within the food aid industry, or are being introduced in requirements to meet the FSMA regulations. Food aid suppliers, as US-regulated food companies, are required by FSMA to adopt these best practices and new technology that relates to food quality and food safety testing methods in order to maintain the required quality and safety of food and ingredients. FSMA requirements are being phased in over a three- year period for all U.S. food manufacturers.

General recommendations for product rollout are encompassed in the CIS section that follows.

Recommendations

Implementers for each aspect of the CIS are included in parentheses below.

1. Review and revise specifications for all products on an annual basis (*USAID/FFP/Global Health, USDA/FSA/AMS/FAS*)
 - Incorporate new and updated nutrition and food technology science advances into revised specifications
 - New product introductions: communicate with suppliers and solicit feedback on new product specifications for each specification update until specification is finalized
2. Continue to solicit supplier/vendor feedback on a regular basis (*USAID/FFP*)
 - Hold suppliers/vendors advisory group meetings on an annual basis
 - Increase the functions of the Food Aid Consultative Group to include supplier/vendor feedback
 - Create online feedback form, anonymous if requested, for suppliers to suggest discussion topics for meetings and/or provide timely feedback as issues arise

3. Communicate with suppliers that they must continuously update their own quality system to meet FSMA requirements (quality assurance, quality control, process control and food safety) *(USAID/FFP, USDA/AMS/FDA (with suppliers))*
 - Actors within USAID and USDA must be made aware as well, through interagency meetings and FDA involvement
4. Hold customer/end user annual meetings to request feedback on:
 - Products that have been rolled out, from food aid end users/consumers and PVOs *(USAID/FFP)*
 - Emergency and non-emergency product uses, needs, projected demand for procurement *(USAID)*
5. Create and distribute food aid product usage information *(USAID/FFP)*
 - Review existing product usage information and distribution methods
 - Develop a tool to extract and update PVO product usage information
6. Continue institutionalization of the interagency processes *(USAID/FFP, USDA/KCCO/AMS/FSA/NIFA)*
7. Harmonize product specifications across U.S. agencies and international organizations *(USAID/FFP, USDA/FSA/AMS, WFP, UNICEF)*

XI. Conclusion

In the past five years, key staff at the USAID/FFP have developed strong working relationships with key staff in the USDA and international agencies which lay the foundation for continued effective collaboration. USAID and USDA recognize the need to institutionalize intra-agency and interagency involvement in product rollout in order to solidify and maintain workflows and responsibilities as staff members change. On the path to agency and interagency institutionalization, key stakeholders leading the process are developing a framework with terms of reference for crucial positions and memorandums of understanding for interagency collaboration. This ongoing effort to increase dialogue and institutionalization around processes and positions ensures that interagency agreements are solidified and will be sustained beyond specific staff member tenure. These ongoing changes integrate into the continuous improvement process, parts of which USAID already has in place, including reviewing and revising specifications, soliciting supplier/vendor feedback, communicating with suppliers regarding FSMA, institutionalizing interagency collaboration and harmonizing specifications across U.S. agencies and international organizations.

The continuous improvement and interagency collaboration process are crucial to an efficient, timely, product rollout process and ensuring a quality food basket that stays fit for purpose as needs, priorities and conditions change. The food aid basket requires product harmonization in order to be more cost effective and nutritionally valid. Stakeholders are committed to the ongoing dialogue needed to continuously improve food aid products as nutrition science advances and food technology improves. Interdisciplinary input to ensure rapid response as new evidence emerges must be embedded in this system in order to accelerate the process of product rollout and get needed new, updated or adapted products into the field faster.

As a next step, we reviewed all of the report recommendations in terms of estimated cost, timeline, feasibility of implementation and implementation status. These are summarized in Table F in the Appendix. Based on a review of the recommendations, most would require low to medium cost, while feasibility of implementation varies from medium to high. Some recommendations are already in the implementation phase, but most are new or newly-initiated efforts. All this means that the recommendations are practical and feasible to implement within a short to medium timeframe (see Appendix 6).

While interagency collaboration, harmonization and the overall product rollout process improve, one outstanding challenge remains. The demand for U.S. food aid is steadily dwindling and food aid reform efforts are shifting supply modalities and mechanisms along with the traditional suppliers and supporter base for U.S. food aid efforts. Without increasing the U.S. market share of food aid products, the rollout process will continue to face many of the challenges highlighted in this report. The future of U.S. food aid rests on streamlining the product rollout process to enhance USAID and USDA's ability to respond to new science and technology advances and allow for future increased U.S. production of food aid products.

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XIII. Appendix

Appendix 1: Table A-Key Specification Documents

Appendix 2: Table B-Export Commodities and Commodity Requirement Documents (CRDs)

Appendix 3: Table C-Relevant testing for New and Updated Product Rollout

Appendix 4: Table D-Major Differences between U.S. and WFP Specifications

Appendix 5: Table E-Food Aid Quality Review (FAQR) Product Introduction and Rollout Interview Questions

Appendix 6: Table F-Ranked Product Rollout Recommendations

Appendix 7: List of All Report Recommendations

Appendix I: Table A-Key Specification Documents

Name	Description
Commodity Requirements Document (CRD)	The Kansas City Commodity Office (KCCO) of the Farm Services Agency (FSA) of the USDA maintains the list of CRDs, which contain the requirements for each agricultural commodity or food product that is procured for export or food assistance programs. This is the primary specification for commodities for purchase by the U.S. Government for food assistance programs. These CRDs cover commodity specifications for ingredients, micronutrient content, processing, microbiological quality, storage and quality assurance requirements; container and packaging requirements; and marking requirements. The list of CRDs is available at: http://www.fsa.usda.gov/FSA/webapp?area=home&subject=coop&topic=pas-ex-cr
Commercial Item Description (CID)	The Agricultural Marketing Service (AMS) of the USDA maintains the list of Commercial Item Descriptions (CID). CIDs are product descriptions that describe the most important characteristics of a commercial product , such as Emergency Food Products, RUSF and RUTF, that could be purchased by any U.S. Government agency. The CRD contains a link to the relevant CID, if applicable. The list of CIDs is available at: https://www.ams.usda.gov/grades-standards/cids
Standards	The USG follows standards developed and implemented by USDA and FDA. Most of the standards can be found in the USDA Agricultural Marketing Service www.ams.usda.gov/standards and USDA Commodity Standards and Grades www.usda.gov/wps/portal/usda/usdahome?navid...STANDARDS and Code of Federal Regulations. WFP, UNICEF and other international bodies follow the <i>Codex Alimentarius</i> . Where Codex and U.S. standards diverge, U.S. standards take precedence.
Commodity/ Product Solicitation	At USAID's request, the USDA/KCCO contracts officer issues solicitations for FFP products and commodities, following a published schedule of solicitation dates. The solicitations are issued through email subscription; vendors are often given a comment/question period and then submit offers through the USDA Web Based Supply Chain Management (WEBSCM) system. The solicitation refers to the relevant CRD or CID, but may make additional specification requirements other than those in the CRD or CID as needed.
World Food Programme (WFP) Specifications	WFP specifications include the specific requirements that vendors must follow to meet their contract requirements for producing commodities distributed by WFP. According to WFP, its food specifications for all commodities aim to align the Codex Alimentarius standards and/or the national legislations, standards or any restrictions of the destined country. Examples of standards include those about genetic modification, fortification, or microbiological levels. WFP specifications are available at: http://foodqualityandsafety.wfp.org/specifications
UNICEF specifications	The UNICEF Supply Catalogue contains specifications for the equipment and commodities used to assist in their child-focused programming. For specialized nutritious products such as RUFs and fortified foods, the Supply Catalogue generally refers to WFP specifications. The Catalogue is available at: https://supply.unicef.org/unicef_b2c/app/displayApp/(layout=7.0-12_1_66_67_115&carearea=%24ROOT)/.do?rf=y

Appendix 2: Table B-Export Commodities and Commodity Requirement Documents (CRDs)

Export Commodity Item	Technical Name	Effective Date	Previous Versions
All Purpose Wheat Flour/Bread Flour	WFBF7	July 25, 2012	6
Bagged Grain	KCBG11	August 10, 2015	8
Bulgur / Soy-Fortified Bulgur	BWSF15	August 6, 2015	9
Bulk Oil and Tallow	BOT2	November 1, 2013	1
Cornmeal	CM6	August 6, 2015	6
Corn Oil	CO6	December 31, 2009	4
Corn Soy Blend	CSB13	July 15, 2008	4
Corn Soy Blend Plus	CSBP2	September 2, 2014	3
Dehydrated Potato Products	DPP9	January 14, 2015	9
Dried Dairy Ingredients	DDI2	November 27, 2013	1
Dry Edible Beans	DEB7	August 10, 2015	8
Emergency Food Product	EFP2	November 13, 2009	1
Fortified Poultry-Based Spread	FPBS1	August 10, 2015	1
High Energy Biscuits	HEB1	May 13, 2015	0
Instant Corn Soy Blend	ICSBI	December 28, 2010	0
Milled Rice	MR24	July 8, 2014	7
Peas and Lentils	PL6	August 10, 2015	7
Ready-to-Use Nutritional Food (RUF)	RUF	December 21, 2015	0
Ready-to-Use Supplementary Food (RUSF)	RUSF	August 18, 2015	1
Ready-To-Use Therapeutic Food	RUTF	May 22, 2012	0
Refined Sunflower Seed Oil	SFSO6	December 31, 2009	2
Salmon	CPS1	September 1, 2011	0
Soy-Fortified Cornmeal	SFCM4	August 6, 2015	6
Soy-Fortified Sorghum Grits	SFSG13	February 25, 2008	3
Super Cereal Plus	SCPI	March 26, 2014	0
Value Added Soy Products	VASP4	November 5, 2007	2
Vegetable Oil Products	VO15	August 5, 2015	7
Wheat Soy Blend	WSB15	March 25, 2011	3

Most Recent CRDs can be found at: <http://www.fsa.usda.gov/programs-and-services/commodity-operations/procurement-and-sales/export/commodity-requirements/index>

Appendix 3: Table C-Relevant Testing for New and Updated Product Rollout

Supplier Testing	Suppliers do some testing of their own and are also required to provide testing evidence from their ingredients sourcers. For example, a COA from a micronutrient premix supplier is sufficient to demonstrate the products' adherence to US standards.
Third Party Testing	This is required for other quality assurance standards. For the USG, the 3 rd party testing is done by the Federal Grain Inspection Service (FGIS) Technology and Science Division (TSD), in Kansas City, Missouri, or the Agricultural Marketing Service (AMS) of the USDA. FGIS is the central laboratory for technical leadership and support for the official inspection system for the U.S. grain industry. AMS oversees testing for ready-to-use products. In-plant inspectors from FGIS are required for CSB products and AMS requires in-plant inspectors for RUSF. The U.S. Food and Drug Administration (FDA) sets the standard for food safety in the U.S. but does not directly test or inspect U.S. food assistance products.
Consumer Testing	Consumer product testing is an important part of the new product introduction process for suppliers to ensure acceptability by consumers, but is not officially required as part of the regular quality assurance process.
Micro-biological Testing	Routine microbiological testing of food aid products is required to ensure that the products are free from pathogens such as e. coli, salmonella, etc. which would make them unfit for human consumption. In addition, routine microbiological testing for total bacteria, yeasts and molds, and coliforms are carried out to verify that the foods are produced under sanitary conditions.
Nutrient Testing	Routine testing is carried out for proximate analysis, which includes moisture, ash, protein, fat, and carbohydrate on food aid commodities and foods. In addition, vitamin A, calcium, iron, potassium and phosphorus testing is carried out to ensure that the additional vitamins and minerals have been added at the correct levels.
Organoleptic Testing	Routine organoleptic testing is carried out to ensure that food aid products, when prepared for consumption, meet the standards of the beneficiaries who will consume them. These tests include cooking the products and sampling for taste, texture, appearance and smell.
Accelerated Shelf Life & Stability Testing	Shelf life testing is not normally carried out on a routine basis on each production lot. However, it is critical to carry out shelf life testing to ensure that the product remains acceptable for the duration of the specified shelf life. Shelf life testing is recommended for all new products and products with major upgraded or new specifications based on the recently completed shelf life studies.

Appendix 4: Table D-Major Differences between U.S. and WFP Specifications

Macronutrients/ Ingredients	Where European suppliers typically use tropical oils such as palm oil, American suppliers rely more heavily on soybean oil. Similarly, different forms of soy and dairy protein (whey protein in U.S. and nonfat dry milk in Europe) are commonly used in the different regions. The different ingredients have the potential to affect the product's nutritional content, behavior, and programming considerations, and must be considered in the specifications development process.
Micronutrients	The use of dicalcium phosphate in Europe instead of tricalcium phosphate as used in the U.S. requires recalculation of micronutrient premix levels. This is due to the different ratio of calcium to phosphorus in the two fortificants. Two forms of iron, Sodium EDTA and ferrous fumarate, have been used in specialized nutritious products (SNP) by American and European suppliers in order to meet their respective requirements. The levels of both forms of iron in WFP and USAID products are now aligned. The use of target nutrient levels versus ranges (minimum and maximum levels) also poses problems for the reconciliation of specification documents.
Processing	Processing conditions of Fortified Blended Foods (CSB, WSB) for regional suppliers of WFP outside of U.S. are different from those for US-based suppliers due to food processing equipment and available technology differences.
Microbiological Requirements	<p>Different microbiological requirements result from different standards and policies:</p> <ul style="list-style-type: none"> • Aflatoxins: U.S. standard at 20 ppb; Codex Alimentarius requirements at 5 ppb. <p>Harmonization of requirements:</p> <ul style="list-style-type: none"> • Enterobacter: The previous specification for <i>C. sakasakii</i> has been replaced by the Enterobacter specifications.

Appendix 5: Table E-Food Aid Quality Review (FAQR) Product Introduction and Rollout Interview Questions

Suppliers/Vendors & Commodity Groups

1. What is your position title and how long have you worked in food aid products?
2. Which new/updated products is/was your company involved with?
3. Describe the process (timeline, feedback loops, number of iterations?). How have specifications become more streamlined or closer to commercial specifications over the years? How have procurements changed or become closer to commercial procurements? What are challenges specific to specifications and procurements for food aid products?
4. What went well and why?/Can you share a success story or positive development?
5. What were the major hurdles, constraints, or issues faced and why?
6. In which areas would you prioritize improvements?
7. What recommendations for improvements do you have?
8. Do you have anything else to add?

Technologist/Nutrition Stakeholders: Specifications & Harmonization

1. What is your position title and how long have you worked in food aid products?
2. Which specification/harmonization efforts were you involved with?
3. Describe the process (timeline, meetings, etc.).
4. What went well and why?/Can you share a success story or positive development?
5. What were the major hurdles, constraints, or issues faced and why?
6. In which areas would you prioritize improvements?
7. What recommendations for improvements do you have?
8. Do you have anything else to add?

Appendix 6: Table F-Ranked Product Rollout Recommendations

Table F, below, summarizes recommendations from this report and ranks them according to the following criteria: (a) Cost--The level of resources required to implement them; *low*: little or no cost/level of effort (LOE) (no additional staff needed); *medium*: requires measurable internal staff time or funding; *high*: requires hiring external staff; (b) Timeline—The likely time horizon for achieving them on a yearly basis; *short*: days or weeks; *medium*: weeks to months; *long*: more than a year; and (c) Feasibility—Ease of implementation; *low*: least challenging, less consultation and collaboration required; *medium*: moderately challenging, moderate consultation and collaboration required; *high*: most challenging, high amount of consultation and collaboration required (d) Status—*Ongoing* or *new* activities.

Recommendations are presented in the order in which they appear in the report in the left hand column, and on the right hand column, are ranked based upon each of the criteria. Additionally, each recommendation identifies who would most likely be the lead agency for implementation as well as the implementation status.

The following recommendations received the ranking of low cost, short timeline, and high feasibility:

Product Rollout Report Recommendation	Cost	Timeline	Feasibility	Lead Agency	Status
New, Updated and Adapted Product Recommendations					
1. Collect needed multidisciplinary input for new, updated and adapted product introduction	medium	medium	high	USAID/FFP USDA/FAS/FAD	ongoing
2. Develop new product specifications with appropriate input from Suppliers	medium	medium	high	USAID/FFP USDA/FSA/AMS (with Suppliers)	ongoing
3. For all new products, undertake accelerated shelf life and stability testing	low- medium	medium	high	USAID/FFP (with 3 rd party laboratory)	ongoing
4. Base new and modified specifications on evidence from shelf life testing, effectiveness trials, consumer testing, cost and cost-effectiveness trials and lab testing and analysis	low	short	high	USAID/FFP (with PVOs)	ongoing
5. Review and adopt updated product testing methodology with standardized procedures and cutoff values in product specifications for manufacture	medium	medium	medium	USAID/FFP	new
6. Require a certified food quality system, such as Hazard Analysis and Critical Control Points plan, during the start-up phase for each product that is drafted by Suppliers and validated by the relevant U.S. Government agency	low	medium- long	medium -high	USAID/FFP USDA/AMS	ongoing (as part of FSMA)
Case Study: Fortified Rice Introduction					
1. Immediately adopt, purchase and begin to program MR 24 (Fortified Rice) based on July 2014 CRD	low	short	high	WFP, PVOs	ongoing

Product Rollout Report Recommendation	Cost	Timeline	Feasibility	Lead Agency	Status
2. Carry out shelf life testing on fortified rice to determine stability of fortificants	low	short	high	USAID/FFP (with FAQR)	new
3. Update products and CRDs once results from the USDA-funded effectiveness trials of the extrusion fortified kernels of rice in Cambodia and other new research come out on the effectiveness of various fortification technologies	low	short	high	USDA/FSA/AMS (with Suppliers)	ongoing
4. Carry out comparative nutritional effectiveness trials between extruded fortificant kernels and coated kernel technologies	high	long	medium	USDA, WFP	ongoing
5. Carry out a cost effectiveness assessment comparing extruded fortificant kernels and coated fortified kernels	high	long	medium	USAID, USDA	new
Case Study: Ready to Use Food (RUF) Harmonization					
1. Establish an information system to advise US-based PVOs that new products are available and for PVOs to provide estimates of future usage volumes	low	medium	high	USAID	new
2. Place products with limited shelf life into preposition only with firm commitments that they will be used by international agencies such as WFP and UNICEF and other PVOs	low	short	medium	USAID	new
3. Implement a minimum order quantity for new products that will allow Suppliers to cover any additional development and manufacturing costs for new products	low	short	low	USAID	new
Interagency Experience: Collaboration and Institutionalization					
1. Continue to draft and implement a framework establishing clearly-defined and accountable interagency mechanisms/working groups responsible for new and upgraded food aid products that is issue-based	low	medium (draft), long (implementation)	high	USAID/FFP USDA/KCCCO/ AMS/FSA/NIFA	Ongoing
The Supplier Experience					
Specifications Process					
1. Modify specifications to be more private-sector friendly	medium	medium	high	USAID/FFP USDA/FSA/AMS (with Suppliers)	ongoing
2. Continue harmonization of specifications via meetings and previously established technical working groups	medium	medium	high	USAID/FFP USDA/FSA/AMS international organizations	ongoing
3. Continue to strengthen communication among Suppliers, USAID and USDA	medium	medium	high	USAID, USDA and Suppliers	ongoing
Procurement and Demand					

Product Rollout Report Recommendation	Cost	Timeline	Feasibility	Lead Agency	Status
1. Expand long term procurement mechanisms that are more predictable and projectable	low	medium-long	medium	USAID/FFP/OAA USDA/KCCO	ongoing
2. Establish a new mechanism for documenting technical and other constraints to smooth supply chain processes	low	medium-long	medium	USAID/FFP USDA/KCCO	new
3. Increase flexibility in shipping dates, without penalties for minimal delays	low	medium	medium	USAID/FFP USDA/KCCO	new
4. Include, in the Sources Sought solicitations, factors that will contribute to Supplier selection and if international companies will also be solicited and eligible to bid	low	short	low-medium	USAID/FFP USDA/KCCO	new
5. If there will be an international tender, allow suppliers to source ingredients from outside of the United States when they are competing with international companies that are not required to source from the United States	low	short	medium	USAID, USDA	new
6. Demand creation: survey and work with PVOs/end users at the start of the product rollout process to insure new and updated products meet the needs of the PVO community and will be used in projects	medium	medium-long	medium	USAID	new
Local and Regional Procurement					
1. Review LRP issues from a food safety perspective	medium	medium	high	USAID/FFP, USDA/KCCO (with Suppliers, WFP and UNICEF)	new
2. Conduct an economic analysis on the impact of LRP on US Suppliers	medium	medium	high	USAID/FFP, USDA/KCCO (with Suppliers, WFP and UNICEF)	new
3. Investigate adding US-sourced ingredients to LRP products	medium	short	high	USAID/FFPD, USDA/KCCO (with Suppliers, WFP and UNICEF)	new
Instituting a Continuous Improvement Process					
1. Review and revise Specifications for all products on an annual basis	low	short-medium	high	USAID/FFP/ Global Health, USDA/FSA/AMS/ FAS	ongoing
2. Continue to solicit Supplier/Vendor feedback on a regular basis	low-medium	short	high	USAID/FFP	ongoing
3. Communicate with Suppliers that they must continuously update their own quality system to meet FSMA requirements (quality assurance, quality	low	short	high	USAID/FFP USDA/AMS/FDA (with Suppliers)	ongoing

Product Rollout Report Recommendation	Cost	Timeline	Feasibility	Lead Agency	Status
control, process control and food safety)					
4. Hold Customer/End User annual meetings to request feedback on: <ul style="list-style-type: none"> • products that have been rolled out, from food aid end users/consumers and PVOs • emergency and non-emergency product uses, needs, projected demand for procurement 	low-medium	medium (startup), short (once established)	high	USAID/FFP	new
5. Create and distribute food aid product usage information	low-medium	medium	medium-high	USAID/FFP	new
6. Continue Interagency Institutionalization	low	medium-long	high	USAID/FFP USDA/KCCO/ AMS/FSA/NIFA	ongoing
7. Harmonize product specifications across US Agencies and International Organizations	medium-high	long	medium-high	USAID/FFP USDA/FSA/AMS WFP, UNICEF	ongoing

Based on the rankings listed above, the following recommendations are high priority and feasibility and could be implemented fairly readily with little time and at low cost:

- Base new and modified specifications on evidence from shelf life testing, effectiveness trials, consumer testing, cost and cost-effectiveness trials and lab testing and analysis
- Immediately adopt, purchase and begin to program MR 24 (Fortified Rice) based on July 2014 CRD
- Carry out shelf life testing on fortified rice to determine stability of fortificants
- Update products and CRDs once results from the USDA-funded effectiveness trials of the extrusion fortified kernels of rice in Cambodia and other new research come out on the effectiveness of various fortification technologies
- Communicate with Suppliers that they must continuously update their own quality system to meet FSMA requirements (quality assurance, quality control, process control and food safety)

Appendix 7: List of All of Report Recommendations

Recommendations from each section of the report are listed here (followed by the individual or entity responsible for their implementation, in parentheses):

New, Updated and Adapted Product Recommendations

1. Collect needed multidisciplinary stakeholder input for new, updated and adapted product introduction, including from: food and food safety technologists, production personnel, nutritionists, program implementers and product consumers, each of whom brings a different set of concerns and priorities to the process, for relevant stages of the new and updated product development process (USAID/FFP, USDA/FAS/FAD))
2. Develop new product specifications with appropriate input from suppliers on technical feasibility and other concerns with an evaluation period (6-12 months depending on complexity of products or changes required) and a grace period during which to make adjustments (USAID/FFP, USDA/FSA/AMS [with suppliers])
3. For all new products, undertake accelerated shelf life and stability testing, using methodologies and systems which are acceptable by WFP, UNICEF and other relevant United Nations agencies in order to prepare for future product harmonization efforts where applicable (USAID/FFP (with 3rd party laboratory)
4. Base new and modified specifications on evidence from shelf life testing (e.g., to validate stability of nutrient levels (Schlossman et al, 2015), effectiveness trials, consumer testing, cost and cost-effectiveness trials and lab testing and analysis (USAID/FFP [with PVOs])
5. Review and adopt testing methodology with standardized procedures and cutoff values in product specifications for manufacture, as validated methodology and analytical technology make testing better and faster (USAID/FFP)
6. Require a certified food quality system, such as hazard analysis and critical control points plan, during the start-up phase for each product that is drafted by suppliers and validated by the relevant U.S. Government agency--e.g., USDA, FDA (USAID/FFP, USDA/AMS)

Case Study: Fortified Rice Introduction

2. Immediately adopt, purchase and begin to program MR 24 (Fortified Rice) based on July 2014 CRD (WFP, PVOs)
3. Carry out shelf life testing on fortified rice to determine stability of fortificants (USAID/FFP [with FAQR])
4. Update products and CRDs once results from the USDA-funded effectiveness trials of the extrusion fortified kernels of rice in Cambodia and other new research come out on the effectiveness of various fortification technologies (USDA/FSA/AMS (with suppliers))
5. Carry out comparative nutritional effectiveness trials between extruded fortified kernels and coated kernel technologies (USDA, WFP)

6. Carry out a cost effectiveness assessment comparing extruded fortified kernels and coated fortified kernels (USAID, USDA)

Case Study: Ready to Use Food (RUF) Harmonization

1. Establish an information system to advise US-based PVOs that new products are available and for PVOs to provide estimates of future usage volumes (USAID)
2. Place products with limited shelf life into preposition only with firm commitments that they will be used by international agencies such as WFP and UNICEF and other PVOs (USAID)
3. Implement a minimum order quantity for new products that will allow suppliers to cover any additional development and manufacturing costs for new products (USAID)

Interagency Experience: Collaboration and Institutionalization

1. Continue to draft and implement a framework establishing clearly-defined and accountable interagency mechanisms/working groups responsible for new and upgraded food aid products that is issue-based (USAID/FFP, USDA/KCCO/AMS/FSA/NIFA)

The Supplier Experience

Recommendations for the Specifications Process

1. **Streamline Specifications:** Modify CRD specifications to be more private-sector friendly, including streamlining instructions for manufacturing process, using appropriate markers such as Certificates of Analysis (COAs) for quality assurance purposes, and having performance-based specifications as opposed to both micronutrient premix or restrictive ingredients specifications and end product specifications (USAID/FFP, USDA/FSA/AMS [with Suppliers])
2. **Harmonization:** Continue harmonization of specifications via meetings and previously established technical working groups. Determine what can be harmonized, what can't and how to handle and work with suppliers in case of conflicting instructions among organizations (i.e. UNICEF, USAID, WFP) (USAID/FFP, USDA/FSA/AMS, international organizations)
3. **Communication:** Continue to strengthen communication among suppliers, the USAID and USDA especially during specification development, such as continuing with supplier meetings facilitated by the USAID/USDA and revamping the focus of the Food Aid Consultative Group beyond reporting on activities to include a working group structure to foster communication among the stakeholders listed above (USAID, USDA, and suppliers)

Recommendations for Improving Procurement and Demand

1. **Procurement Mechanisms:** Expand long-term procurement mechanisms which are more predictable and projectable, such as Blanket Purchase Agreements and Indefinite Delivery/Indefinite Quantity contracts (USAID/FFP/OAA, USDA/KCCO)
2. **Monitoring and Documenting Technical Issues:** Establish a new mechanism for documenting technical and other constraints to smooth supply chain processes (USAID/FFP, USDA/KCCO)

3. **Shipping Flexibility:** Increase flexibility in shipping dates, without penalties for minimal delays, due to the supply chain inefficiencies that result from low and inconsistent demand (USAID/FFP, USDA/KCCO)
4. **Transparency of Competition in Solicitations:** Include, in the 'Sources Sought' solicitations, factors which will contribute to supplier selection and that clearly state if international companies will also be solicited and eligible to bid (USAID/FFP, USDA/KCCO)
5. **Sourcing Ingredients:** If there will be an international tender, allow suppliers to source ingredients from outside of the United States when they are competing with international companies which are not required to source from the U.S. (USAID, USDA)
6. **Creating Demand:** survey and work with PVOs/end users at the start of a product rollout process to insure new and updated products meet the needs of the PVO community and will be used in projects (USAID)

Local and Regional Procurement

1. Review LRP issues from a food safety perspective (USAID/FFP, USDA/KCCO (with suppliers, WFP and UNICEF)
2. Conduct an economic analysis on the impact of LRP on U.S. suppliers (USAID/FFP, USDA/KCCO (with suppliers, WFP and UNICEF)
3. Investigate adding US-sourced ingredients to LRP products (USAID/FFP, USDA/KCCO (with suppliers, WFP and UNICEF)

Instituting a Continuous Improvement Process: General Recommendations

1. Review and revise specifications for all products on an annual basis (USAID/FFP/Global Health, USDA/FSA/AMS/FAS)
 - Incorporate new and updated nutrition and food technology science advances into revised specifications
 - New product introductions: communicate with suppliers and solicit feedback on new product specifications for each specification update until specification is finalized
2. Continue to solicit supplier/vendor feedback on a regular basis (USAID/FFP)
 - Hold suppliers/vendors Advisory Group meeting on an annual basis
 - Increase the functions of the Food Aid Consultative Group to include supplier/vendor feedback
 - Create online feedback form, anonymous if requested, for suppliers to suggest discussion topics for meetings and/or provide timely feedback as issues arise
3. Communicate with suppliers that they must continuously update their own quality system to meet FSMA requirements (quality assurance, quality control, process control and food safety) (USAID/FFP, USDA/AMS/FDA (with suppliers)

- Actors within USAID and USDA must be made aware as well, through Interagency meetings and FDA involvement
4. Hold customer/end user annual meetings to request feedback on:
 - products which have been rolled out, from food aid end users/consumers and PVOs (USAID/FFP)
 - emergency and non-emergency product uses, needs, projected demand for procurement (USAID)
 5. Create and distribute food aid product usage information (USAID/FFP)
 - Review existing product usage information and distribution methods
 - Develop a tool to extract and update PVO product usage information
 6. Continue Institutionalization of the Interagency processes (USAID/FFP, USDA/KCCO/AMS/FSA/NIFA)
 7. Harmonize product specifications across U.S. agencies and international organizations (USAID/FFP, USDA/FSA/AMS, WFP, UNICEF)