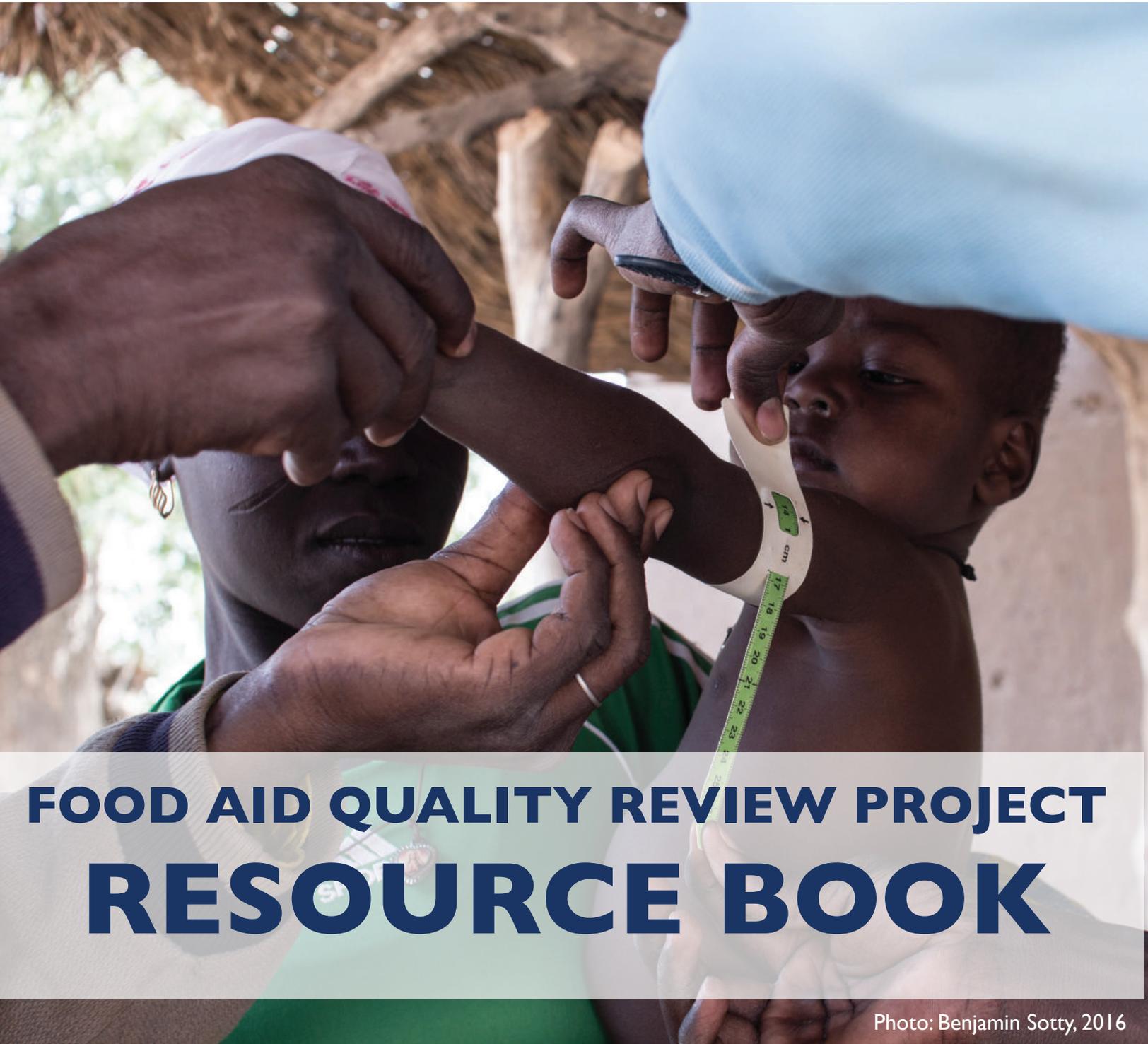




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# FOOD AID QUALITY REVIEW PROJECT **RESOURCE BOOK**

Photo: Benjamin Sotty, 2016

Food Assistance For Nutrition Evidence Summit  
June 27-28, 2018 | Washington Plaza Hotel | Washington D.C.

# **Food Aid Quality Review Project Resource Book**

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## Acronyms

ACDI/VOCA	Agriculture Cooperative Development International/ Volunteers in Overseas Cooperative Assistance
ASN	American Society for Nutrition
BMCs	Beneficiary Mothers/Caretakers
CRG	Commodity Reference Guide
CSB	Corn-Soy Blend
CSWB	Corn-Soy-Whey Blend
DON	Deoxynivalenol
FAQR	Food Aid Quality Review
FBF	Fortified Blended Food
FBF+	Fortified Blended Food with Dairy
FBF-	Fortified Blended Food without Dairy
FDP	Food Distribution Point
FFP	Office of Food for Peace (USAID)
FGD	Focus Group Discussion
FSMA	Food Safety Modernization Act
FVO	Fortified Vegetable Oil
GF&N	Global Food & Nutrition, Inc.
HHL	Health and Humanitarian Logistics
ICN	International Congress of Nutrition
ICN2	Second International Conference on Nutrition
IFAC	Inter-Agency Food Aid Committee
IFT	Institute of Food Technologists
IHO	In-Home Observation
LNS	Lipid-Based Nutrient Supplements
MAM	Moderate Acute Malnutrition
MEST	Ministry of Education, Science and Technology
MoHS	Ministry of Health and Sanitation
MSF	<i>Médecins Sans Frontières</i> (Doctors without Borders)
PHU	Peripheral Health Unit
PVO	Private Voluntary Organization
REFINE	Research Engagement on Food Interventions for Nutritional Effectiveness
RUF	Ready-to-Use Food
RUF+	Ready-to-Use Food with Dairy
RUF-	Ready-to-Use Food without Dairy
RUSF	Ready-to-Use Supplementary Food
SAM	Severe Acute Malnutrition
SBCC	Social and Behavior Change Communication
SC	Super Cereal
SC+	Super Cereal Plus
SFP	Supplementary Feeding Program/Programme
UN	United Nations
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
ViM	Victory Against Malnutrition
WALA	Wellness and Agriculture for Life Advancement
WFP	World Food Programme

# FAQR RESOURCE BOOKLET

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# FAQR Resource Booklet

## Publications

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Enhancing processes for introduction, production, quality assurance, and delivery of U.S. Title II food aid products

Nina Schlossman, Patrick Webb, Jack Bagriansky, Quentin Johnson, Beatrice Rogers, Jessica Tilahun, and Amelia Masterson

**Abstract** Enacted in 1950, Public Law 480 (PL480) dramatically increased the volume of U.S. food aid and the scope of interventions it supports. Billions of dollars have been invested, both to enhance the diets of chronically-undernourished people in development settings and to support nutritional needs during conflicts and natural disasters.

**Objective** Review the institutional processes that manage the introduction, production, quality assurance, and delivery of U.S. Title II food aid products and the extent to which they support a whole-of-government, multi-agency food aid agenda. We conducted consultations with U.S. Government employees and contractors, academics, industry representatives, donor agency staff, United Nations personnel, and field-level food aid programming technical staff from many countries. A survey of USAID implementing partners conducted among 64 responding offices in 40 countries provided data on the use and effectiveness of enriched, fortified or blended Title II commodities, the use of new commodities, and related procurement or logistics aspects. Expert panels provided input and feedback throughout the process.

**Options** include changes in product formulation, the range of products provided, and/or the modes of product approval, processing, procurement, and distribution. This research points to several improvements in processes related to food aid: 1) establish an interagency committee to oversee all government interests in the food aid agenda through an ongoing review process; 2) enhance processes and quality assurance along the product value chain including the importance of effective interaction with the private sector to incorporate industry best practices and create public-private partnerships to promote product innovations; 3) strengthen the evidence base for innovations in products, programming approaches and institutional processes. Successful programming requires knowledge and understanding of the unit cost of impact, not simply tonnage and “numbers of hungry people fed.” Empirical rigor is essential; any significant program changes, including those recommended here, should be tested and monitored.

**Keywords** food aid, fortification, fortified blended food (FBF), procurement, quality assurance

## Enhancing Process for Introduction, Production, Quality Assurance and Delivery of U.S. Title II Food Aid Products

**Authors:** Schlossman, Nina; Webb, Patrick; Bagriansky, Jack; Johnson, Quentin; Rogers, Beatrice; Tilahun, Jessica; Masterson, Amelia Reese

**Date/Journal Published:** September 2011; Sage Journals Food and Nutrition Bulletin

**Themes:** food aid, fortification, fortified blended food (FBF), procurement, quality assurance

**Abstract:** Enacted in 1950, Public Law 480 (PL480) dramatically increased the volume of U.S. food aid and the scope of interventions it supports. Billions of dollars have been invested, both to enhance the diets of chronically-undernourished people in development settings and to support nutritional needs during conflicts and natural disasters. The objective of this research was to review the institutional processes—from procurement to delivery—which support this programming. We examined the systems which govern and oversee the many components of food aid programming and the extent to which they support a whole-of-government, multiagency food aid agenda. We conducted consultations with U.S. Government employees and contractors, academics, industry representatives, donor agency staff, United Nations personnel, and field-level food aid programming technical staff from many countries. A survey of USAID implementing partners conducted among 64 responding offices in 40 countries provided data on the use and effectiveness of enriched, fortified or blended Title II commodities, the use of new commodities, and related procurement or logistics aspects. Expert panels provided input and feedback throughout the process.

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**Abstract**  
Food aid provided by the United States has saved the lives of the vulnerable for many years. Recognizing the need for a thorough review of product formulations and specifications, the United States Agency for International Development (USAID) commissioned a two-year assessment of quality issues relating to Title II food aid products. This article presents findings and recommendations of that review relating to product enhancements.

## Nutritional Enhancement of U.S. Title II Food Aid Products

**Authors:** Rosenberg, Irwin; Tilahun, Jessica; Schlossman, Nina; Bagriansky, Jack; Johnson, Quentin; Webb, Patrick; Rogers, Beatrice; Masterson, Amelia Reese

**Date/Journal Published:** September 2011; Sage Journals Food and Nutrition Bulletin

**Themes:** fortification, fortified blended food (FBF), macronutrient, micronutrient

**Abstract:** Food aid provided by the United States has saved the lives of the vulnerable for many years. Recognizing the need for a thorough review of product formulations and specifications, the United States Agency for International Development (USAID) commissioned a two-year assessment of quality issues relating to Title II food aid products. This article presents findings and recommendations of that review relating to product enhancements.

The core question addressed was: Are current commodity specifications for enriched FBFs appropriate in light of evolving nutritional science and food fortification technology or do they need to be updated? Data were derived from a number of sources, including a survey of Title II implementing partners focusing on procurement and logistics, and uses of FBFs and other foods. Input of implementing partners, civil society and donor organizations was obtained through individual consultations and small group meetings. The project convened a panel of experts in food technology and science, food policy, law, industry, medicine, development and humanitarian work, and the maritime industry, and held regular joint meetings with USDA and USAID.

The findings of this research led to the following recommendations for broad areas of improvement in U.S. Title II food aid products: 1) improve the formulation of existing FBF products used in Title II programming. (This includes the addition of a dairy source of protein to products targeted to children six to 24 months of age, pregnant and lactating women, wasted children, and wasted individuals undergoing HIV/AIDS treatment.); 2) upgrade the vitamin and mineral mixes used and diversify approaches to addressing micronutrient needs, enhance the composition of premixes used to fortify blended foods as well as milled grains and vegetable oil, facilitate shipping of fortificant premix with bulk cereals for in-country fortification, and develop micronutrient powders (sachets) and other point-of-use fortification options; and 3) develop or adopt non-cereal-based (e.g., lipid-based) products for the management of nutritional deficiencies. This research is an argument for more choice among appropriate tools, not for discarding products which have already shown their value over many years. It also does not reduce the need to maintain a focus on supplying high volumes of quality grains as the main staple in food aid baskets.

**Access:** <http://journals.sagepub.com/doi/pdf/10.1177/15648265110323S302>

**Citation:** Rosenberg, I., Tilahun, J., Schlossman, N., Bagriansky, J., Johnson, Q., Webb, P., Rogers, B., Masterson, A. R. (2011). Nutritional Enhancement of U.S. Title II Food Aid Products. *Food and Nutrition Bulletin*, 32(3\_suppl3). doi:10.1177/15648265110323s302

Patrick Webb

**Abstract**  
As part of USAID's Review of the International Development Efforts to Improve the Quality of Food Aid Products and Programs, a two-year study was commissioned to produce recommendations on ways to improve the quality of food aid products, programming and institutional processes. The review determined that while much valuable work is done in both emergency and non-emergency contexts, there is opportunity for improvement. Smarter programming, more careful targeting, greater attention to cost-effectiveness (in relation to planned human outcomes, not solely numbers of people "fed"), enhanced coordination of interagency processes, enhanced policy harmonization among international players and application of best practices in product formulation can help increase the impact of U.S. food aid resources.

**Key words** food aid, emergency, humanitarian, food security

**Introduction**  
Food aid is a critical part of the United States' foreign aid effort and the source of humanitarian relief in emergency situations. In 2010, the United States provided \$1.5 billion in food aid to 100 countries. While the United States has a long history of providing food aid, the quality of that aid has not always been optimal. This report provides recommendations on ways to improve the quality of food aid products, programming and institutional processes. The review determined that while much valuable work is done in both emergency and non-emergency contexts, there is opportunity for improvement. Smarter programming, more careful targeting, greater attention to cost-effectiveness (in relation to planned human outcomes, not solely numbers of people "fed"), enhanced coordination of interagency processes, enhanced policy harmonization among international players and application of best practices in product formulation can help increase the impact of U.S. food aid resources.

# USAID's Review of Food Aid Quality

**Author:** Webb, Patrick

**Date/Journal Published:** September 2011; Sage Journals Food and Nutrition Bulletin

**Themes:** food aid, nutrition, emergencies, food security

**Abstract:** As part of United States Agency for International Development (USAID) efforts to improve the quality of food aid products and programs, a two-year study was commissioned to produce recommendations on ways to improve the quality of food aid products, programming and institutional processes. The review determined that while much valuable work is done in both emergency and non-emergency contexts, there is opportunity for improvement. Smarter programming, more careful targeting, greater attention to cost-effectiveness (in relation to planned human outcomes, not solely numbers of people "fed"), enhanced coordination of interagency processes, enhanced policy harmonization among international players and application of best practices in product formulation can help increase the impact of U.S. food aid resources.

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Protein Quality Workshop  
Importance of Protein Quality in Prevention and Treatment of  
Child Malnutrition

Guest editors: Devika Suri, Shelley Marcus, Shibani Ghosh, Anura Kurpad,  
and Irwin Rosenberg

The Protein Quality Workshop was sponsored by the United States Agency for International Development (USAID) and was co-organized by the Food Aid Quality Review (FAQR) team at the Tufts University Friedman School of Nutrition Science and Policy and the Nevin Scrimshaw International Nutrition Foundation. The workshop was held May 16 and 17, 2012, at the Tufts University/United States Department of Agriculture Human Nutrition Research Center on Aging in Boston.

**EDITOR'S NOTE**  
This Special Section, "Protein Quality Workshop: Importance of Protein Quality in Prevention and Treatment of Child Malnutrition," is included in the journal's online edition to be available to all readers. It is available for purchase in print and electronic form. The workshop was held May 16 and 17, 2012, at the Tufts University/United States Department of Agriculture Human Nutrition Research Center on Aging in Boston.

## Protein Quality Workshop: Importance of Protein Quality in Prevention and Treatment of Child Malnutrition

**Authors:** Suri, Devika; Marcus, Shelley; Ghosh, Shibani; Kurpad, Anura; Rosenberg, Irwin

**Date/Journal Published:** June 2013; Sage Journals Food and Nutrition Bulletin

**Themes:** protein quality, child malnutrition

**Abstract:** The Protein Quality Workshop was sponsored by the United States Agency for International Development (USAID) and was co-organized by the Food Aid Quality Review (FAQR) team at the Tufts University Friedman School of Nutrition Science and Policy and the Nevin Scrimshaw International Nutrition Foundation. The workshop was held May 16 and 17, 2012, at the Tufts University/United States Department of Agriculture Human Nutrition Research Center on Aging in Boston.

The aim of the workshop was to bring together members of the research, academic, and policy communities in the area of protein and amino acids to discuss the core science and policy implications around protein quality and types of protein in relation to the promotion of child growth, the management of wasting, and maternal nutrition in developing-country settings. The workshop encompassed many different issues relevant to the uses of protein and amino acids in the treatment and prevention of child malnutrition. Topics included a review of evidence on current requirements for protein and amino acids for different vulnerable groups (e.g., children, mothers, people with HIV/AIDS), understanding concepts of protein quality and amino acid balance and current methods for evaluating protein quality, and a review of the status of research in protein and amino acids in child and maternal nutrition.

**Access:** <http://journals.sagepub.com/doi/pdf/10.1177/156482651303400211>

**Citation:** Suri, D., Marcus, S., Ghosh, S., Kurpad, A., & Rosenberg, I. (2013). Protein Quality Workshop: Importance of Protein Quality in Prevention and Treatment of Child Malnutrition. *Food and Nutrition Bulletin*, 34(2), 223-223. doi:10.1177/156482651303400211

**Delivering Improved Nutrition: Dairy Ingredients in Food Aid Products**

Nina Schlossman, PhD

**ABSTRACT**  
The United States has a long history of food assistance for humanitarian need. The Food for Peace Act of 1954 established the United States' permanent food assistance program which has fed more than 3 billion people in 150 countries worldwide through thousands of partner organizations. In 60 years, the program has evolved and will continue to do so. Recently, the program has gone from a focus on quantity of food shipped to quality food assistance from improved products, programs, and processes to effectively meet the needs of different vulnerable groups. The current debate focuses on the appropriateness of using fortified blended foods to prevent and treat malnutrition during the first 1,000 days of life. Dairy ingredients have been at the center of this debate; they were included initially in FBFs, removed in the 1980s, and now reincorporated into fortified therapeutic and supplemental foods. Improved quality food baskets and effective nutrition programming to prevent and treat malnutrition were developed through multi-sectoral collaboration between government and nongovernment organizations. The USAID has focused on improving nutrition through development programs often tied to health, education and agriculture. The years since 2008 have been a particularly intense period for improvement. The FAQR was established to update current food aid programming products, program implementation, cost-effectiveness and interagency processes. Trials are underway to harmonize the areas of multi-sectoral nutrition programming and gather more evidence on the effects of dairy ingredients in food aid products.

**Keywords**  
dairy, food aid, improved nutrition, food aid program, improved feeding, food aid quality, food for peace, food aid basket

**Introduction**  
Dairy is a source of healthy, affordable, developed food around the world. Including addressing regional disparities in distribution, availability and a lack of storage and cooking facilities. Research has shown that dairy ingredients in food aid programs at the time of the United States' food aid program. The USAID has focused on improving nutrition through development programs often tied to health, education and agriculture. The years since 2008 have been a particularly intense period for improvement. The FAQR was established to update current food aid programming products, program implementation, cost-effectiveness and interagency processes. Trials are underway to harmonize the areas of multi-sectoral nutrition programming and gather more evidence on the effects of dairy ingredients in food aid products.

## Delivering Improved Nutrition: Dairy Ingredients in Food Aid Products

**Author:** Schlossman, Nina

**Date/Journal Published:** March 2016; Sage Journals Food and Nutrition Bulletin

**Themes:** dairy, food aid, malnutrition, food aid program, supplemental feeding, food aid quality, food for peace, food aid basket

**Abstract:** The United States has a long history of food assistance for humanitarian need. The Food for Peace Act of 1954 established the United States' permanent food assistance program which has fed more than 3 billion people in 150 countries worldwide through thousands of partner organizations. In 60 years, the program has evolved and will continue to do so. Recently, the program has gone from a focus on quantity of food shipped to quality food assistance from improved products, programs, and processes to effectively meet the needs of different vulnerable groups. The current debate focuses on the appropriateness of using fortified blended foods to prevent and treat malnutrition during the first 1,000 days of life. Dairy ingredients have been at the center of this debate; they were included initially in FBFs, removed in the 1980s, and now reincorporated into fortified therapeutic and supplemental foods. Improved quality food baskets and effective nutrition programming to prevent and treat malnutrition were developed through multi-sectoral collaboration between government and nongovernment organizations. The USAID has focused on improving nutrition through development programs often tied to health, education and agriculture. The years since 2008 have been a particularly intense period for improvement. The FAQR was established to update current food aid programming products, program implementation, cost-effectiveness and interagency processes. Trials are underway to harmonize the areas of multi-sectoral nutrition programming and gather more evidence on the effects of dairy ingredients in food aid products.

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**Citation:** Schlossman, N. (2016). Delivering Improved Nutrition. *Food and Nutrition Bulletin*, 37(1\_suppl). doi:10.1177/0379572116629780

**The Role of Dairy in Effectiveness and Cost of Treatment of Children With Moderate Acute Malnutrition: A Narrative Review**

Devika J. Suri, MS, MPH<sup>1,2</sup>, Devika Moorthy, MBBS, MS<sup>1</sup>, and Irwin H. Rosenberg, MD<sup>1</sup>

**Abstract**  
Background: Dairy is recommended in specially-formulated supplementary foods to treat children with moderate acute malnutrition (MAM) but with limited evidence and added cost. To determine whether inclusion of dairy modifies the comparative effectiveness and cost of these foods we reviewed literature comparing ready-to-use foods (RUFs) versus fortified blended foods (FBFs) in treatment of MAM among children younger than 5 years in developing countries. Outcomes of recovery from MAM, weight and length gain were compared among treatment categories: FBF with dairy (FBF+), FBF without dairy (FBF-), RUF with dairy (RUF+), and RUF without dairy (RUF-). Supplement cost was compared per 500 kcal. Eight studies were included. Rations were varied in energy and type of dairy. Overall, RUF+, RUF-, and FBF+ performed similarly, with higher recovery and weight gain compared with FBF-. RUF+ had higher recovery (in five of six comparisons), weight gain (in four of four comparisons), and length gain (in one of four comparisons) versus FBF-. The RUF+ had higher recovery (in one of two comparisons) versus FBF+, with no other differences. The RUF- versus FBF+ had no differences (in zero of two comparisons). The RUF- had higher recovery (in one of two comparisons), weight gain (in two of two comparisons) versus FBF-. Four studies reported supplement costs, which averaged US\$0.15 (FBF-), US\$0.18 (FBF+), US\$0.18 (RUF-), and US\$0.37 (RUF+) per 500 kcal. The review shows that there is a consistent benefit of FBF that include dairy in treatment of children with MAM but benefits of dairy in RUF require further investigation. Evidence from rigorous quantitative analysis of existing data, cost-effectiveness, and prospective trials will be essential in determining policy on treatment for children with MAM.

**Keywords:** dairy, malnutrition, effectiveness, cost, children, moderate acute malnutrition, ready-to-use supplementary foods, fortified blended foods, children younger than 5 years, developing countries, outcomes of recovery from MAM, weight and length gain, comparative effectiveness, cost-effectiveness, narrative review, systematic review, meta-analysis, evidence synthesis, policy, nutrition, public health, global health, humanitarian aid, disaster relief, emergency response, food security, food systems, food systems resilience, food systems transformation, food systems innovation, food systems research, food systems policy, food systems practice, food systems education, food systems training, food systems capacity building, food systems leadership, food systems governance, food systems accountability, food systems transparency, food systems integrity, food systems security, food systems sustainability, food systems resilience, food systems transformation, food systems innovation, food systems research, food systems policy, food systems practice, food systems education, food systems training, food systems capacity building, food systems leadership, food systems governance, food systems accountability, food systems transparency, food systems integrity, food systems security, food systems sustainability.

# The Role of Dairy in the Comparative Effectiveness and Cost of Treatment of Children with Moderate Acute Malnutrition: A Narrative Review

**Authors:** Suri, Devika; Moorthy, Denish; Rosenberg, Irwin

**Date/Journal Published:** March 2016; Sage Journals Food and Nutrition Bulletin

**Themes:** moderate acute malnutrition, lipid-based nutrient supplements, ready-to-use supplementary foods, fortified blended foods, children younger than 5 years

**Abstract:** Dairy is recommended in specially-formulated supplementary foods to treat children with moderate acute malnutrition (MAM) but with limited evidence and added cost. To determine whether inclusion of dairy modifies the comparative effectiveness and cost of these foods we reviewed literature comparing ready-to-use foods (RUFs) versus fortified blended foods (FBFs) in treatment of MAM among children younger than 5 years of age in developing countries. Outcomes of recovery from MAM, weight and length gain were compared among treatment categories: FBF with dairy (FBF+), FBF without dairy (FBF-), RUF with dairy (RUF+), and RUF without dairy (RUF-). Supplement cost was compared per 500 kcal. Eight studies were included. Rations were varied in energy and type of dairy.

Overall, RUF+, RUF-, and FBF+ performed similarly, with higher recovery and weight gain compared with FBF-. RUF+ had higher recovery (in five of six comparisons), weight gain (in four of four comparisons), and length gain (in one of four comparisons) versus FBF-. The RUF+ had higher recovery (in one of two comparisons) versus FBF+, with no other differences. The RUF- versus FBF+ had no differences (in zero of two comparisons). The RUF- had higher recovery (in one of two comparisons), weight gain (in two of two comparisons) versus FBF-. Four studies reported supplement costs, which averaged US\$0.15 (FBF-), US\$0.18 (FBF+), US\$0.18 (RUF-), and US\$0.37 (RUF+) per 500 kcal. The review shows that there is a consistent benefit of FBF that include dairy in treatment of children with MAM but benefits of dairy in RUF require further investigation. Evidence from rigorous quantitative analysis of existing data, cost-effectiveness, and prospective trials will be essential in determining policy on treatment for children with MAM.

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## Program Changes are Effective and Cost-Effective in Increasing the Amount of Oil Used in Preparing Corn-Soy Blend Porridge for Treatment of Moderate Acute Malnutrition in Malawi

**Authors:** Rogers, Beatrice; Wilner, Lauren; Maganga, Gray; Walton, Shelley; Suri, Devika; Langlois, Breanne; Chui, Kenneth; Boiteau, Jocelyn; Vosti, Stephen; Webb, Patrick

**Date/Journal Published:** January 2017; *Maternal and Child Nutrition*

**Themes:** corn-soy blend, food aid, fortified blended food, moderate acute malnutrition, social and behavior change communication, supplementary feeding

**Abstract:** Corn-soy blend (CSB) porridge is commonly prepared with oil for treatment of moderate acute malnutrition (MAM). A recent review recommended that 30 grams of oil be used with 100 grams of CSB to increase energy density and micronutrient absorption. This study assessed the effectiveness and cost-effectiveness of program changes aimed at achieving that target oil to CSB ratio in prepared porridge. Caregivers of children in MAM supplementary feeding programs were assigned to three groups: a control group received monthly rations of 1 liter oil, 8 kilograms CSB in bulk, and social and behavior change communication (SBCC); intervention groups received 2.6 liter oil, 8 kilograms CSB provided either in bulk (Group 1) or four 2-kilogram packages with printed messages (Group 2), and enhanced SBCC emphasizing the target oil to CSB ratio. Compared to the control, both intervention groups had higher mean added oil per 100 gram CSB (18 grams and 13 grams higher in groups 1 and 2, respectively), and greater odds of meeting or exceeding the target ratio (28.4 and 12.7 in Groups 1 and 2, respectively). Cost per caregiver reaching the target ratio was most favorable in Group 1 (\$391 in Group 1, \$527 in Group 2, and \$1,666 in the control). Enhanced SBCC combined with increased oil ration resulted in increased use of oil in CSB porridge in a supplementary feeding program. Modified packaging did not improve effectiveness. However, both interventions were more cost-effective than standard programming.

**Access:** <https://www.ncbi.nlm.nih.gov/pubmed/28083927>

**Citation:** Rogers, B., Wilner, L., Maganga G., et al. Program changes are effective and cost-effective in increasing the amount of oil used in preparing corn-soy blend porridge for treatment of moderate acute malnutrition in Malawi. *Maternal & Child Nutrition*. 2017;13:e12393. <https://doi.org/10.1111/mcn.12393>



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## Complementary Foods and Global Fortification Challenges

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**Authors:** Joseph, Michael; Alavi, Sajid; Johnson, Quentin

**Date/Journal Published:** February 2017; The World of Food Ingredients

**Themes:** complementary foods, fortification, first 1,000 days

**Abstract:** The quality of nutrition in the first 1,000 days—from the start of mother’s pregnancy through the child’s second birthday—can decide the future of the child. This is a period of rapid development of brain and body, which will have a lasting effect throughout the life of the child. During the postnatal period of growth, many physiological changes occur, enabling infants to consume foods of varying composition and texture. Exclusive breastfeeding for six months is the right way of providing ideal nutrition during infants’ the early phase of life. Thereafter, to meet the additional energy and nutritional needs, complementary foods should be introduced into the diet along with breast feeding up to 2 years of age or beyond. Nutrient density is an important component of complementary foods if they are to achieve their purpose. A critical window of opportunity lies in the first two years of life wherein optimal feeding would ensure appropriate growth and development of infants. For effective infant nutrition, the food matrix must have a balance of macro and micronutrients and should be prepared in the right way to maximize the bioavailability and health benefits. Diverse and nutrient-rich dietary intake of complementary foods, either as freshly prepared or fortified processed foods, would be one of the several methods to achieve this goal. One of the primary recommendations made by the FAQR is to improve not only protein quantity but also the quality.

**Access:**  
[https://foodaidquality.org/sites/default/files/publications/Complementary%20Foods%20Feb%202017\\_0.pdf](https://foodaidquality.org/sites/default/files/publications/Complementary%20Foods%20Feb%202017_0.pdf)

**Citation:** Joseph, M., Alavi, S., & Johnson, Q. (2017). Complementary Foods & Global Fortification Challenges. *Health and Wellness*.

Preparation and presentation of corn-soy blend for moderately malnourished children in Malawi

Summary of published and unpublished research  
By Beatrice Large Rogers (Principal Investigator), Patricia Webb (Principal Investigator), Jocelyn Boiteau (Project Administrator), Breanne Langlois (Data Analyst), Gray Maganga (Chief Research Coordinator), Shelley Walton (Project Manager) and Devika Suri (Data Manager).

The authors acknowledge that this case study is made possible by the generous support of the American people through the U.S. Agency for International Development (USAID) Office of Food for Peace of the Bureau for Democracy, Conflict and Humanitarian Assistance under the terms of the Contracts AIP-C-09-08-00018-00 and AID-DAA-C-14-00033, managed by Tulsa University. The contents are the responsibility of Tulsa University and its partners in the Food Aid Quality Review (FAQR) and do not necessarily reflect the views of USAID or the United States Government.

Location: Malawi

What we know: Supplementary feeding programmes (SFPs) typically involve the provision of fortified blended foods in bulk packaging for division at distribution points.

What this article adds: A recent cross-sectional study assessed the effectiveness of changes to an SFP (increased oil provision, social behaviour change communication (SBCC) and new packaging) on caregivers compliance with recommended preparation methods of porridge. Published findings show that enhanced SBCC with an increased oil ration was the most effective and cost-effective intervention. Repackaging did not add to effectiveness but operational benefits were identified: improved hygiene; greater food safety assurance; correct amount of CSB received; and streamlined distribution/time taken. Future research on the effectiveness of repackaged food aid products is needed.

## Preparation and Presentation of Corn-Soy Blend for Moderately Malnourished Children in Malawi

**Authors:** Rogers, Beatrice; Webb, Patrick; Boiteau, Jocelyn; Langlois, Breanne; Maganga, Gray; Walton, Shelley; Suri, Devika

**Date/Journal Published:** July 2017; Field Exchange

**Themes:** supplementary feeding programmes, SBCC, oil provision, packaging

**Abstract:** Supplementary feeding programmes (SFPs) typically involve the provision of fortified blended food (FBF) in bulk packaging for division at distribution points. A recent cross-sectional study assessed the effectiveness of changes to an SFP (increased oil provision, social and behavior change communication {SBCC} and new packaging) on caregivers compliance with recommended preparation methods of porridge. Published findings show that enhanced SBCC with an increased oil ration was the most effective and cost-effective intervention. Repackaging did not add to effectiveness but operational benefits were identified: improved hygiene; greater food safety assurance; correct amount of CSB received; and streamlined distribution/time taken. Future research on the effectiveness of repackaged food aid products is needed.

**Access:** <https://www.enonline.net/fex/55/csbmalawi>

**Citation:** Rogers, B., Webb, P., Boiteau, J., Langlois, B., Maganga, G., Walton, S., & Suri, D. (2017). Preparation and presentation of corn-soy blend for moderately malnourished children in Malawi. *Field Exchange*.



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## Effective Delivery of Social and Behavior Change Communication Through a Care Group Model in a Supplementary Feeding Program

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**Authors:** Wilner, Lauren; Suri, Devika; Langlois, Breanne; Walton, Shelley; Rogers, Beatrice

**Date/Journal Published:** September 2017; Journal of Health, Population and Nutrition

**Themes:** corn-soy blend, food aid, moderate acute malnutrition, social and behavior change communication, supplementary feeding

**Abstract:** In 2014, an intervention aimed at increasing the oil in corn-soy blend (CSB) porridge prepared by caregivers of children with moderate acute malnutrition was implemented in Southern Malawi. This analysis describes the flow of key messages delivered through the Care Group model during this intervention. The intervention provided a supplementary food ration of CSB and oil and used a Care Group model in which healthcare workers were trained to deliver social and behavior change communication (SBCC) to Care Group volunteers who then delivered messages to caregivers of beneficiary children. Healthcare workers also delivered messages to caregivers directly. Interviews and focus groups were conducted with all three groups in order to determine the exchange of key messages about ingredient use, storage, and purpose, which were analyzed descriptively.

Analysis of SBCC flow and information exchange showed that 100% of caregivers reported learning about the amounts of oil and CSB to use while preparing porridge and more than 90% of caregivers, healthcare workers and Care Group volunteers reported talking about it. Focus groups confirmed an effective flow of communication among these three groups. This analysis evaluated the flow of key SBCC messages through multiple, overlapping lines of communication among healthcare workers, Care Group volunteers and caregivers; the effective transmission of these SBCC messages through this model may contribute to the success of a supplementary feeding intervention program.

**Access:** <https://www.ncbi.nlm.nih.gov/pubmed/28899434>

**Citation:** Wilner, L., Suri, D. J., Langlois, B. K., Walton, S. M., & Rogers, B. L. (2017). Effective delivery of social and behavior change communication through a Care Group model in a supplementary feeding program. *Journal of Health, Population and Nutrition*, 36(1). doi:10.1186/s41043-017-0111-3

**Making Food Aid Fit-for-Purpose in the 21st Century: A Review of Recent Initiatives Improving the Nutritional Quality of Foods Used in Emergency and Development Programming**

Patrick Webb, PhD<sup>1</sup>, Kristine Caiafa, MS<sup>2</sup>, and Shelley Walton, PhD<sup>3</sup>, for the Food Aid Quality Review Group

**Abstract**  
Important strides have been made recently in upgrading the global food aid agenda in line with evolving medical and nutrition sciences, operational experience, and innovations in food technology. A 2011 report endorsed by the United States Agency for International Development (USAID) recommended numerous enhancements to products intended to support improved survival and nutrition in humanitarian programming, as well as greater rigor and transparency in the research agenda which supports innovations in this critical field. This article reviews progress made by USAID and other global food aid providers since 2011 in developing food aid products which are fit-for-purpose and are appropriately formulated to save lives in emergencies, and to promote healthy mothers and children in nonemergency contexts. It highlights important modifications and addition made to products and identifies persisting knowledge gaps which should be prioritized in future research.

**Keywords:** Food aid, humanitarian, food technology, nutrition, food assistance, evidence-based

**Introduction**  
As of the end of 2015, the United Nations estimated that 795 million people, including 2.3 billion children, were in need of food aid. Evidence of major progress in food aid is evident. About the author, please visit [www.ncbi.nlm.nih.gov/pubmed/29046067](http://www.ncbi.nlm.nih.gov/pubmed/29046067). Correspondence: Patrick Webb, PhD, Food Aid Quality Review Group, 1000 L Street, NW, Suite 1000, Washington, DC 20004. Email: [pwebb@usaid.gov](mailto:pwebb@usaid.gov)

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## Making Food Aid Fit-for-Purpose in the 21<sup>st</sup> Century: A Review of Recent Initiatives Improving the Nutritional Quality of Foods Used in Emergency and Development Programming

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**Authors:** Webb, Patrick; Caiafa, Kristine; Walton, Shelley

**Date/Journal Published:** October 2017; Sage Journals and Food and Nutrition Bulletin

**Themes:** evidence-based, food aid, food assistance, food technology, humanitarian, nutrition

**Abstract:** Important strides have been made recently in upgrading the global food aid agenda in line with evolving medical and nutrition sciences, operational experience, and innovations in food technology. A 2011 report endorsed by the United States Agency for International Development (USAID) recommended numerous enhancements to products intended to support improved survival and nutrition in humanitarian programming, as well as greater rigor and transparency in the research agenda which supports innovations in this critical field. This article reviews progress made by USAID and other global food aid providers since 2011 in developing food aid products which are fit-for-purpose and are appropriately formulated to save lives in emergencies, and to promote healthy mothers and children in nonemergency contexts. It highlights important modifications and addition made to products and identifies persisting knowledge gaps which should be prioritized in future research.

**Access:** <https://www.ncbi.nlm.nih.gov/pubmed/29046067>

**Citation:** Webb, P., Caiafa, K., & Walton, S. (2017). Making Food Aid Fit-for-Purpose in the 21st Century: A Review of Recent Initiatives Improving the Nutritional Quality of Foods Used in Emergency and Development Programming. *Food and Nutrition Bulletin*, 38(4), 574-584. doi:10.1177/0379572117726422



## Self-report vs. Direct Measures for Assessing Corn-Soy Blend Porridge Preparation and Feeding Behavior in a Moderate Acute Malnutrition Treatment Program in Southern Malawi

**Authors:** Langlois, Breanne; Suri, Devika; Wilner, Lauren; Walton, Shelley Marcus; Chui, Kwan Ho Kenneth; Caiafa, Kristine; Rogers, Beatrice Lorge

**Date/Journal Published:** November 2017; *Journal of Hunger and Environmental Nutrition*

**Themes:** food aid, corn-soy blend, supplementary feeding, moderate acute malnutrition, self-report, in-home observation, sharing, Malawi

**Abstract:** We assessed whether caregivers’ reports about the amount of oil added to corn-soy blend (CSB) porridge were consistent with lab analysis and whether reported sharing of CSB porridge was consistent with direct observation. This was a secondary analysis of a feasibility study assessing two programmatic changes in a supplementary feeding program for the treatment of moderate acute malnutrition (MAM) in southern Malawi. Intervention groups received standard monthly rations of CSB with increased oil along with social and behavior change communications (SBCCs) to increase the amount of oil added to CSB porridge and reduce sharing. A control group received the standard CSB and oil ration. Self-reported data collected through structured interviews with caregivers were compared with laboratory analysis of CSB porridge samples and in-home observation over a five-day period. On average, participants over-reported the amount of oil they used in prepared CSB porridge; the self-reported amounts tended to be closer than the lab-assessed values to the amount recommended in the SBCC. Self-reported and observed sharing appeared consistent across groups. Objective or direct measures should be included in studies of food supplementation programs in order to better evaluate the effectiveness of these programs. Additionally, the definition of sharing should be characterized based on consistent, routine behavior versus that of a single day.

**Access:** <https://www.tandfonline.com/doi/pdf/10.1080/19320248.2017.1374902?needAccess=true>

**Citation:** Breanne K. Langlois, Devika J. Suri, Lauren Wilner, Shelley Marcus Walton, Kwan Ho Kenneth Chui, Kristine R. Caiafa & Beatrice Lorge Rogers (2017). Self-Report vs. Direct Measures for Assessing Corn-Soy Blend Porridge Preparation and Feeding Behavior in a Moderate Acute Malnutrition Treatment Program in Southern Malawi, *Journal of Hunger & Environmental Nutrition*, DOI: 10.1080/19320248.2017.1374902



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## Tufts University-based Food Aid Quality Review Activities

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**Authors:** The Food Aid Quality Review (FAQR) Team

**Date/Journal Published:** 2017; UNSCN News (P. 144)

**Themes:** inter-agency, food aid providers, evidence-based, technology

**Full Text:** The UN Decade of Action on Nutrition calls for sustained commitment to six pillars identified in the ICN2 Framework for Action, which include strengthening nutrition governance and accountability. Since 2009, the Tufts University-based Food Aid Quality Review (FAQR), funded by the United States Agency for International Development's Office of Food for Peace (USAID/FFP), has engaged with experts worldwide to accomplish this in respect to food aid. Two of FAQR's initiatives offer opportunities for decisionmakers, researchers and implementers to strengthen food aid governance supportive of nutrition through coordination, transparency and evidence-based decision-making. They are: 1) harmonization of major agencies' food aid processes, specifications, and activities; and 2) Research Engagement on Food Interventions for Nutritional Effectiveness (REFINE).

The first initiative recognizes a critical need to coordinate overlapping activities of food aid providers. In 2016, FAQR facilitated the establishment of an "Inter-Agency Working Group for Specialized Nutritious Foods" consisting of USAID, United Nations Children's Fund (UNICEF), United Nations World Food Programme (WFP), and Médecins Sans Frontières (MSF) International. Drawing from normative and scientific guidance, this group aims to ensure food aid products are formulated, produced, and used in compliance with international standards. Overall, this work takes a traditional approach, facilitating high-level problem-solving based on aggregated evidence and common experiences across agencies.

REFINE, the second initiative, supports generation of, access to, and use of rigorous evidence that fills gaps in the knowledge of how food aid can best improve nutrition. The project's website catalogs food aid-related research, aggregates gray and empirical literature, and identifies gaps in the empirical knowledge base. Its Twitter and communications activities promote the wide sharing of research conclusions. Through technology, REFINE provides neutral platforms for stakeholders to gather relevant information.

The UN Decade of Action on Nutrition is a rallying point. These two FAQR activities can (and do) serve policymakers and implementers as they contribute to the global goal of ending malnutrition. For policymakers, they harness traditional and modern approaches to bolster evidence-based nutrition governance. For implementers, they are a reminder of the importance of their work in generating good data. Over the next nine years, these groups must collaborate so that the very best evidence is applied to meeting the world's nutrition goals.

**Access:** <https://www.unscn.org/uploads/web/news/UNSCN-News42-with-Programme-News.pdf>

**Citation:** The Food Aid Quality Review Team (2017). *UNSCN News 42: A Spotlight on the Nutrition Decade*, United Nations Standing Committee on Nutrition.

# FAQR Resource Booklet Reports

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## Delivering Improved Nutrition: Recommendations for Changes to U.S. Food Aid Products and Programs

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**Authors:** Webb, Patrick; Rogers, Beatrice; Rosenberg, Irwin; Schlossman, Nina; Wanke, Christine; Bagriansky, Jack; Sadler, Kate; Johnson, Quentin; Tilahun, Jessica; Masterson, Amelia Reese; Narayan, Anuradha

**Date Published:** April 2011

**Themes:** policy-focused report, food aid, food assistance, USAID, FFP

**Abstract:** Food aid provided by the United States has saved the lives of vulnerable people in dire need of assistance for almost two centuries. The volume of such aid, and the scope of the interventions it supports, dramatically increased in the 1950s with the enactment of Public Law 480. Billions of dollars have been invested since then in protecting life during conflicts and natural disasters, and in enhancing the diets of chronically-undernourished people in development settings.

This review is part of a long-standing USAID effort to improve the quality of food aid products and programs as priorities and needs evolve. Today, however, food aid is at a crossroads. Severe resource constraints, reduced volumes of food aid shipped globally and questions posed about whether products used are “fit for purpose” all represent challenges to current food assistance practices. A spotlight has been turned on the U.S. food aid agenda. Recognizing the need for a thorough review of product formulations and specifications, USAID commissioned a two-year assessment of quality issues relating to Title II food aid products this report presents the findings and recommendations of that review.

Several broad conclusions emerge. First, USAID and its partners on the ground already achieve remarkable impact under the most challenging of circumstances imaginable. Most food aid now responds to humanitarian crises and specification of products should be framed in that context, without ignoring the valuable food-assisted work conducted outside of emergencies. But there is much scope for improvement. Smarter programming, more careful targeting, greater attention to cost-effectiveness (in relation to planned human outcomes, not just numbers of people “fed”), enhanced coordination and streamlining of U.S. Government interagency processes, enhanced policy harmonization among international players. Application of best practice in product formulation and production can markedly increase the impact of U.S. food aid resources. Second, the needs of food aid beneficiaries are not homogeneous—there is no one food product which can meet every kind of programming goal, and no single programming approach fits all needs. The right tools must be available for specific jobs on the ground, and new products which demonstrably meet defined needs in a cost-effective manner are to be welcomed. But combinations of foods are always more appropriate to the needs of beneficiaries than are combinations of nutrients in a single food. Third, improving food aid quality is more than just fine-tuning the composition of products; it is as much about ensuring appropriate programming of all products.

Putting nutrition at the heart of the food aid agenda will enhance the impact and credibility of Title II programming. Innovations must be carefully tested and processes defined to support ongoing improvements across the food aid system. The ultimate goal of high-quality food aid programming should still be an end to the need for food assistance. USAID should champion smart programming, prioritize evidence-based cost-effective strategies, and advocate for a global convergence toward quality—not just in terms of products, but in terms of the way in which business is conducted.

**Access:** [https://pdf.usaid.gov/pdf\\_docs/PNADZ842.pdf](https://pdf.usaid.gov/pdf_docs/PNADZ842.pdf)

**Citation:** Webb, P., B. Rogers, I. Rosenberg, N. Schlossman, C. Wanke, J. Bagriansky, K. Sadler, Q. Johnson, J. Tilahun, A. Reese Masterson, A. Narayan (2011). *Delivering Improved Nutrition: Recommendations for Changes to U.S. Food Aid Products and Programs*. Boston, MA: Tufts University.



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## *Improving the Nutritional Quality of U.S. Food Aid: Recommendations for Changes to Products and Programs*

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**Authors:** Webb, Patrick; Rogers, Beatrice Lorge; Rosenberg, Irwin; Schlossman, Nina; Wanke, Christine; Bagriansky, Jack; Sadler, Kate; Johnson, Quentin; Tilahun, Jessica; Masterson, Amelia Reese; Narayan, Anuradha

**Date Published:** 2011

**Themes:** food aid, food assistance, USAID

**Abstract:** Food aid provided by the United States has saved the lives of vulnerable people in dire need of assistance for almost two centuries. The volume of such aid and the scope of the interventions it supports, dramatically increased in the 1950s with the enactment of Public Law 480. Billions of dollars have been invested since then in protecting life during conflicts and natural disasters and in enhancing the diets of chronically-undernourished people in development settings. This review is part of USAID’s continuing effort to improve the quality of food aid products/programs as priorities and needs evolve.

Broad conclusions included in the review are:

- Putting nutrition at the core of the food aid agenda will enhance the impact and credibility of USAID.
- Existing products have an important value, but they can and should be enhanced.
- Quality food aid means enhanced products, but also upgrades in processes along the value chain.
- “Smart” programming of food aid will dovetail with whole-of-government global initiatives.

The review also lays out quick wins for USAID moving forward including: (1) adopt new specifications for FBFs in Title II; (2) explore new products beyond existing formulations; (3) promote new program guidance (decision tools) to facilitate improved matching of products to purposes having nutritional intent; (4) revise micronutrient profile of premixes for milled grains; (5) add bulk premix to commodities list for in-country fortification where feasible and cost-effective; (6) update reference guidance in real time, including the Commodity Reference Guide; (7) convene a new Inter-Agency Food Aid Committee (IFAC) to provide a “one-stop shop” for whole-of-government technical actions in food aid (coordination of products and processes) and interface with industry and implementing partners; and (8) establish public–private partnerships to accelerate development and testing of products.

**Access:** [https://pdf.usaid.gov/pdf\\_docs/PNADZ841.pdf](https://pdf.usaid.gov/pdf_docs/PNADZ841.pdf)

**Citation:** Webb, Patrick, Beatrice Lorge Rogers, Irwin Rosenberg, Nina Schlossman, Christine Wanke, Jack Bagriansky, Kate Sadler, Quentin Johnson, Jessica Tilahun, Amelia Reese Masterson, Anuradha Narayan (2011). *Improving the Nutritional Quality of U.S. Food Aid: Recommendations for Changes to Products and Programs*. Boston, MA: Tufts University.



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## ViM Beneficiary Taste Tests of Title II Food Aid Products

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**Author:** Saleh, Nadira

**Date Published:** 2013

**Themes:** taste test, food aid, ViM, Burkina Faso

**Abstract:** In 2011, USAID approved Food Aid Quality Review (FAQR) Phase I recommendations on improving food aid products to better meet the nutritional needs of beneficiaries. Tufts University is currently in the second phase of this review which recommended modifying the current corn-soy blend (CSB), one of the main U.S. food aid commodities, to include a dairy ingredient and an upgrade of the micronutrient premix as well as to ensure that beneficiaries prepare CSB consistently with fortified vegetable oil (FVO) in the recommended ratio of 3 FVO to 10 CSB. The FAQR report also recommended strengthening the evidence base for innovations in products and programming and testing the effectiveness and cost-effectiveness of any recommended program or commodity modifications. The objective of these taste tests was to gain feedback from Title II beneficiaries about the taste acceptability of the four food aid products when distributed and prepared as recommended by FAQR-I. These taste tests were conducted in collaboration with ACIDI/VOCA and Save the Children in Burkina Faso, District of Sanmatenga.

**Access:** [https://pdf.usaid.gov/pdf\\_docs/PA00MC4G.pdf](https://pdf.usaid.gov/pdf_docs/PA00MC4G.pdf)

**Citation:** Saleh, Nadira. (2013). *ViM Beneficiary Taste Tests of Title II Food Aid Products Sanmatenga Province, Burkina Faso. A report prepared for the Food Aid Quality Review*, managed by Tufts University's Friedman School of Nutrition Science and Policy. Boston, MA



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## Using Title II Reporting Requirements to Build an Evidence Base for Programming

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**Authors:** Rogers, Beatrice; Stokes, Harley; Marcus, Shelley

**Date Published:** February 2014

**Themes:** reporting, evidence, recommendations

**Abstract:** The United States Agency for International Development’s (USAID) Office of Food for Peace (FFP) awarded Tufts University Friedman School of Nutrition Science and Policy a contract to conduct the Food Aid Quality Review (FAQR) in 2009. Phase I of the FAQR examined the nutritional needs of beneficiary populations across the developing world and the nutritional quality of commodities currently available to meet those needs. Initial focus on product quality quickly expanded to include assessments of programming and processes of food aid deemed equally important to Title II effectiveness. The findings were published in *Delivering Improved Nutrition: Recommendations for Changes to U.S. Food Aid Products and Programs* (USAID, 2011 [foodaidquality.org](http://foodaidquality.org)).

One of the recommendations from the Phase I final report was to “strengthen the evidence base for innovations in programming approaches.” In response to this recommendation, the Tufts research team reviewed how stakeholders—awardees and FFP staff— use the data collected from reporting in the design of Title II programs. The objective of the study is to provide guidance on how to use these data optimally, not only to monitor program operations, but also to inform and improve program design. A secondary objective was to assess possibilities for streamlining data reporting requirements to make compliance easier and more useful. The input of awardee and FFP stakeholders gained from field interviews, focus groups and workshops informed recommendations to FFP on improving the use of data from Title II programs and by so doing, strengthen the evidence base for programming. The recommendations made in this report are intended to improve the use and usefulness of information collected as part of FFP reporting requirements.

**Access:** <https://foodaidquality.org/food-aid-quality-review-using-title-ii-reporting-requirements-strengthen-evidence-programming>

**Citation:** Rogers, B.L., Stokes, H., Marcus, S. (2014). *Using Title II Reporting Requirements to Build an Evidence Base for Programming*. Boston, MA: Tufts University.



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## ***Accelerated Shelf-Life Studies: Methods and Results Relating to New and Upgraded Food Aid Products, Report to USAID***

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**Authors:** Schlossman, Nina; Johnson, Quentin; Wood, Lauren; Coglianese, Nicole; Santoso, Vicky; Koeppel, Leah

**Date Published:** 2015

**Themes:** accelerated shelf-life, food aid products, vitamin and mineral stability

**Abstract:** This report presents the results of a series of accelerated shelf life and stability studies of new and upgraded food aid products. The aim of the activity was to exercise due diligence during food aid product development. The tests were conducted to determine the vitamin and mineral stability and integrity of new and upgraded products produced in the United States and included in food aid effectiveness trials which began in 2014. The accelerated shelf-life series was carried out on corn-soy-whey blend (CSWB), super cereal plus (SC+), ready-to-use supplementary food (RUSF) and fortified vegetable oil (FVO). Samples of the products were analyzed for vitamin content (Vitamins A and C), mineral content (iron, calcium and phosphorus), peroxide levels and organoleptic properties (product appearance, odor and taste and packaging appearance). The two major recommendations from the study were: (1) incorporate accelerated shelf-life testing into USAID food aid product Research and Development; and (2) seek ways to optimize Vitamin A delivery in the USAID food aid basket.

**Access:** [https://pdf.usaid.gov/pdf\\_docs/PA00MBDN.pdf](https://pdf.usaid.gov/pdf_docs/PA00MBDN.pdf)

**Citation:** Schlossman, N., Johnson, Q., Wood, L., Coglianese, N., Santoso, V., & Koeppel, L. (2015). *Accelerated Shelf-Life Studies: Methods and Results Relating to New and Upgraded Food Aid Products*. Boston, MA: Tufts University.



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## ***Comparison of Four Supplementary Foods in Treating Moderate Acute Malnutrition in Sierra Leone: An Ebola- constrained Cluster-randomized, Controlled Clinic-based Effectiveness Trial, Report to USAID***

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**Authors:** Koroma, Aminata; Manary, Mark; Marron, Bethany; Green, Jamie; Rogers, Beatrice; Walton, Shelley; Chui, Kwan Ho Kenneth; Suri, Devika; Langlois, Breanne; Jayson, Lauren; Boiteau, Jocelyn; Rosenberg, Irwin; de Pee, Saskia; Vosti, Stephen; Webb, Patrick

**Date Published:** 2015

**Themes:** MAM, Sierra Leone, Ebola

**Abstract:** This intent-to-treat study was designed to compare the relative effectiveness and cost- effectiveness of four food aid products for the treatment of moderate acute malnutrition (MAM) in Sierra Leone. While several products exist to treat MAM, including various formulations of fortified blended foods (FBFs) and ready-to-use supplementary foods (RUSFs), studies to date have provided mixed evidence on effectiveness and few studies have addressed the cost-effectiveness question in depth.

A cluster randomized effectiveness trial was started in Kenema District, Sierra Leone in January 2014. Participants received one of four supplementary foods designed to treat MAM from a supplemental feeding program (SFP) based in a clinic setting. Three of these foods—super cereal (SC), super cereal plus (SC+), and a RUSF—are commonly used. The fourth food, corn-soy blend 14 (CSB14), was developed based on nutritional recommendations of the Food Aid Quality Review Phase I.

SFP clinic sites were cluster randomized to receive one of the four foods. From January to July 2014, a total of 1,327 children with MAM were eligible for enrollment. Participating children received a ration every two weeks for up to 10 weeks or until one of the following outcomes was reached: recovered from MAM; developed severe acute malnutrition (SAM); transferred to inpatient care; default; or death. The study foods were similar in energy and protein with the exception of RUSF, which provided roughly half as much energy and protein. The foods were not isocaloric, but were consistent with normal programmatic standards of WFP.

The study originally planned to enroll participants until March 2015. However, due to an Ebola virus outbreak in the research area, the study was terminated in July 2014. Early termination of the study meant the target sample size of 5,000 was not reached, leaving 1,135 children who completed the study. Additionally, much of the planned data collection was truncated.

Treatment of MAM with food remains a priority research issue. Due to early termination of the study, it is not possible to provide strong evidence or make definitive recommendations. Cost- effectiveness of alternative foods should drive programming choices. In this study, we were unable to determine which food represents better value for money or has better recovery rates. These issues should be the top priority for future research. It is hoped that this study can be reproduced to its full intended extent in another setting.

**Access:** [https://pdf.usaid.gov/pdf\\_docs/PA00M91H.pdf](https://pdf.usaid.gov/pdf_docs/PA00M91H.pdf)

**Citation:** Koroma, A.; Manary, M.; Marron, B.; Green, J.; Rogers, B.; Walton, S.; Chui, K.; Suri, D.; Langlois, B.; Jayson, L.; Boiteau, J.; Rosenberg, I.; de Pee, S.; Vosti, S.; and Webb, P. (2015). *Comparison of Four Supplementary Foods in Treating Moderate Acute Malnutrition in Sierra Leone: An Ebola-constrained Cluster-randomized, Controlled Clinic-based Effectiveness Trial, Report to USAID*. Boston, MA: Tufts University.



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## **Feasibility and Acceptability Study of Corn-Soy Blend and Fortified Vegetable Oil in Malawi, Report to USAID from the Food Aid Quality Review**

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**Authors:** Rogers, Beatrice; Maganga, Gray; Walton, Shelley; Jayson, Lauren; Passarelli, Simone; Suri, Devika; Langlois, Breanne; Chui, Kwan Ho Kenneth; Boiteau, Jocelyn; Ignowski, Elizabeth; Rosenberg, Irwin; Vosti, Stephen; Webb, Patrick

**Date Published:** 2015

**Themes:** corn-soy blend, fortified vegetable oil, Malawi

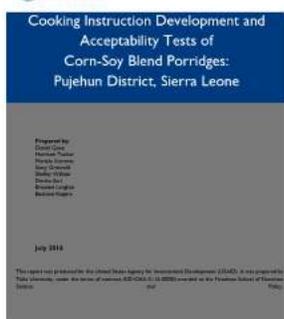
**Abstract:** Efforts to prevent and treat moderate acute malnutrition (MAM) typically rely on nutrient-dense supplementary foods, which commonly include several variations of fortified blended foods (FBFs), combinations of FBFs with other commodities, and ready-to-use supplementary foods (RUSFs). Corn-soy blend (CSB) with fortified vegetable oil (FVO) is one such combination used in Title II USAID programs to treat MAM. From July 2013 to July 2014, Tufts University conducted a repeat cross-sectional study in Southern Malawi. This study assessed whether, and the extent to which, an increased ration of FVO, delivered with social and behavior change communication (SBCC), could influence compliance with the recommended target ratio (30:100) in CSB porridge prepared by beneficiary mothers/caretakers (BMCs). The target group in this study were BMCs and the study was conducted under a MAM treatment program in Southern Malawi. This study had three main objectives: 1) assess feasibility of the interventions to increase the FVO:CSB ratio in porridge prepared by BMCs, and assess the effectiveness of interventions to achieve that goal; 2) determine the cost and cost-effectiveness of the interventions; and 3) assess potential determinants of effectiveness and cost-effectiveness of the interventions.

There were three rounds of data collection: 1) Baseline; 2) Intervention I and Control; and 3) Intervention I, Intervention 2 and Control. The Control Group received the standard, monthly Malawian supplementary feeding program (SFP) ration (one liter of FVO and eight kilograms of CSB distributed in bulk from 25-kilogram sacks). Intervention Group 1 received a monthly ration of 2.6 liters of FVO and eight kilograms of CSB in bulk, along with intensified SBCC emphasizing the importance of preparing CSB porridge at the recommended FVO:CSB ratio. Intervention Group 2 received the same intervention as Intervention Group 1 (2.6 literes FVO/month, eight kilograms CSB/month with intensified SBCC), and received the CSB repackaged into two kilogram packets with printed behavior-change messaging giving instructions on proper preparation of the porridge.

This study concludes that BMCs provided with an additional FVO ration and SBCC will, on average, prepare porridge with a higher FVO:CSB ratio, and that significantly more BMCs will prepare porridge that is at or above the 30:100 ratio recommended, compared with BMCs receiving standard programming. The study found no added impact on measured FVO:CSB porridge ratios when delivering the CSB in two kilogram packages which contained messaging and cooking instructions. As expected, the average cost per beneficiary was lowest for the control group, but on average FVO:CSB ratios were low and only a small proportion of BMCs in this group were preparing porridge at or above the recommended 30:100 ratio. Increasing the amount of FVO delivered to BMCs and providing information regarding porridge preparation increased costs, but also increased both the average FVO:CSB ratios and the proportion of BMCs preparing porridge at or above the recommended FVO:CSB ratio. When extra FVO and messaging were provided, repackaging CSB into smaller, message-containing packages did not alter the FVO:CSB ratio or the proportion of BMCs reaching or exceeding the recommended FVO:CSB ratio. While repackaging of CSB in Intervention 2 was less cost-effective in terms of increasing porridge FVO:CSB ratio, there may be other benefits such as improved hygiene and BMC preference for packaging.

**Access:** [https://pdf.usaid.gov/pdf\\_docs/PA00M9BB.pdf](https://pdf.usaid.gov/pdf_docs/PA00M9BB.pdf)

**Citation:** Rogers, B.; Maganga, G.; Walton, S.; Jayson, L.; Passarelli, S.; Suri, D.; Langlois, B.; Chui, K.; Boiteau, J.; Ignowski, E.; Rosenberg, I.; Vosti, S.; and Webb, P. (2015). Feasibility and Acceptability Study of Corn-Soy Blend and Fortified Vegetable Oil in Malawi, Report to USAID from the Food Aid Quality Review. Boston, MA: Tufts University.



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## *Cooking Instruction Development and Acceptability Tests of Corn-Soy Blend Porridges: Pujehun District, Sierra Leone*

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**Authors:** Quee, Daniel; Tucker, Harrison; Koroma, Mariatu; Griswold, Stacy; Walton, Shelley; Suri, Devika; Langlois, Breanne; Rogers, Beatrice

**Date Published:** 2016

**Themes:** cooking instructions, taste acceptability, corn-soy blend, Sierra Leone

**Abstract:** In July 2016, the United States Agency for International Development’s (USAID’s) Food Aid Quality Review Phase III (FAQR) project collaborated with Sierra Leone’s Ministry of Health and Sanitation (MoHS), Ministry of Education, Science and Technology (MEST), with support from the World Food Programme (WFP) and Project Peanut Butter to conduct formative research on proper cooking instructions and taste acceptability for three fortified blended food (FBF) products. This research was carried out in preparation for a cluster-randomized, intent-to-treat, cost-effectiveness study of four fortified food products in the treatment of moderate acute malnutrition (MAM) in the Pujehun District of Sierra Leone set to begin in March 2017 (“Four Foods Study”). The results will be used to finalize the standard packaging for the FBFs and to adapt training materials or messaging at point of distribution.

Over a one-week period, 96 female caregivers participated in standardized sensory and taste tests, controlled cooking observations, and focus group discussions to provide insight on normal cooking practices. Overall, the FBFs were well received by the female caregivers, with reported high levels of acceptability of taste and smell (i.e., “liked a lot” on the five-point Likert Scale). Factors identified as influencing proper preparation of the corn-soy blend (CSB) porridges included: literacy and exposure to a demonstration of proper procedures. From participants’ feedback, the team recommended slight changes to the pictures which will appear on the FBF packaging, including: darkening the color of the oil, changing the image for water to better represent water droplets and altering the images to be more literal (e.g., showing two cups of water pouring into a pot when two cups of water are needed). These changes will be incorporated into the instructions which will appear on the FBF packages distributed during the Four Foods Study.

**Access:** [https://pdf.usaid.gov/pdf\\_docs/PA00MM2P.pdf](https://pdf.usaid.gov/pdf_docs/PA00MM2P.pdf)

**Citation:** Quee, D., Tucker, H., Koroma, M., Griswold, S., Walton, S., Suri, D., Langlois, B., Rogers, B. (2016). *Cooking Instruction Development and Acceptability Tests of Corn-Soy Blend Porridges: Pujehun District, Sierra Leone*. Boston, MA: Tufts University.



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## ***Feasibility and Acceptability Study of Preparing Corn-Soy Blend with Fortified Vegetable Oil in Malawi: Formative Research, Report to USAID***

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**Authors:** Kumwenda, Grace; Nhlema, Basimenye; Maganga, Gray; Rogers, Beatrice; Walton, Shelley; Boiteau, Jocelyn; Webb, Patrick

**Date Published:** March 2016

**Themes:** SBCC, MAM, Malawi

**Abstract:** This report documents the steps used to develop a social and behavior change communication (SBCC) strategy focused on the preparation of fortified blended foods with the purpose of treating moderate acute malnutrition (MAM) in children age six to 59 months old. The strategy targeted several layers of communication within a preexisting United States Agency for International Development (USAID), Office of Food for Peace (FFP) program called “Wellness and Agriculture for Life Advancement (WALA),” an integrated food security and supplementary feeding program (SFP) for children with MAM in four districts in southern Malawi.

The overall aim was to change mothers/caregivers behavior in preparing a corn-soy blend (CSB) and fortified vegetable oil (FVO) porridge used to treat children with MAM. The goal was to change their behavior so that they were preparing the CSB porridge with a ratio of 30 g FVO:100 g CSB, a higher ratio than is commonly used. The SBCC materials developed were: training modules and manuals created for community healthcare workers who gave nutrition education to the lead mothers and beneficiary mothers/caregivers (BMCs); picture pamphlets for use by lead mothers in training the BMCs, as well as banners and CSB package messaging aimed at the BMCs.

Focus groups were conducted with community healthcare workers, lead mothers, and BMCs to identify key messages needed. Recipe-testing sessions were held to develop an acceptable recipe to include in the SBCC materials. Printed messages were graphical and included pictures showing the quantities to be used in local measures. The process of developing all the materials took about four months. After the materials were created, community health workers were trained on their content and how to use them for communicating the messages.

This study found that by providing sufficient FVO and strong SBCC, it is possible to get BMCs to prepare porridge with high ratios of FVO:CSB (publication forthcoming). The study also concluded that repackaging CSB in individual, sealed packets with messages (one component of the SBCC strategy) did not achieve greater compliance with the recommended FVO:CSB ratio. Programmers introducing a new specialized nutritious food or a new way of using a specialized nutritious food should consider developing a SBCC strategy to support beneficiary compliance and to achieve program objectives.

**Access:** [https://pdf.usaid.gov/pdf\\_docs/PA00M6CS.pdf](https://pdf.usaid.gov/pdf_docs/PA00M6CS.pdf)

**Citation:** Kumwenda, G.; Nhlema, B.; Maganga, G.; Rogers, B.; Walton, S.; Boiteau, J.; and Webb, P. (2015). *Feasibility and Acceptability Study of Preparing Corn-Soy Blend with Fortified Vegetable Oil in Malawi: Formative Research, Report to USAID*. Boston, MA: Tufts University.



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## Food Aid Quality Review Phase II Close-Out Report, Report to USAID from the Food Aid Quality Review

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**Authors:** Webb, Patrick; Rogers, Beatrice; Walton, Shelley; Boiteau, Jocelyn; Sclossman, Nina; Johnson, Quentin; Koeppel, Leah; Suri, Devika; Langlois, Breanne; Vosti, Stephen; Rosenberg, Irwin

**Date Published:** 2016

**Themes:** effective programming, reformulating commodities, Phase I recommendations, Phase II implementation

**Abstract:** Tufts University faculty led a worldwide team to carry out a review commissioned by the United States Agency for International Development's (USAID) Office of Food for Peace (FFP) called the Food Aid Quality Review (FAQR) Phase I. Its purpose was to address mounting calls for changes to the specifications of key Title II commodities according to: a) the latest science on nutritional needs of beneficiary populations across the developing world; and b) a growing understanding of the role of specially-formulated commodities in meeting defined nutritional needs. Key priorities for FAQR Phase II included reformulating commodities according to new specifications, generating empirical evidence on the effective programming of such products, and supporting critical interagency harmonization processes with a view to their institutionalization. It is with great satisfaction that the FAQR team reports that all of the "quick win" recommendations proposed by FAQR Phase I were accomplished during the period of FAQR Phase II implementation. These included the following:

- New specifications have been adopted for 21 food aid products during Phase II; new sorghum-pea blend and lipid-based products have been formulated and tested; ready-to-use foods (RUFs) are now included in Title II's basket of products; new packaging materials and approaches have been explored.
- Phase I decision trees helped guide USAID partners' adoption and use of RUFs and improved FBFs; field studies were initiated to determine the feasibility and cost-effectiveness of various programming, packaging and product changes in relation to treating or preventing undernutrition.
- FFP's micronutrient premixes have been fully revised (updated) for both processed and bulk flour commodities, and fortified rice has been added to the list of commodities; FFP is exploring the potential for premix inclusion to Local and Regional Purchase programs.
- The Commodity Reference Guide (CRG) has been updated quarterly. New product fact sheets were written on a rolling basis as new products were introduced.
- A process of structured, regular interagency meetings was established to promote enhanced all-of-government dialogue on food aid issues, greater communication around bottlenecks along the supply chain and improved understanding of agency-specific needs and constraints. An agreement was reached by the end of Phase II to establish an informal global working group on product, policy and process harmonization (with UNICEF, WFP, MSF and others), as well as a USAID-USDA Task Force focused on crossagency cooperation and streamlined work practices.
- During Phase II, the FAQR team worked closely with numerous commodity producers and other entities engaged in the food aid industry. These have included new product development and shelf-life testing with academic-based entities such as Kansas State University and Massachusetts Institute of Technology, as well as engagement on reformulation, packaging improvements and food safety issues with U.S. companies that produce FBFs and RUFs.

**Access:** [https://pdf.usaid.gov/pdf\\_docs/PA00M9B8.pdf](https://pdf.usaid.gov/pdf_docs/PA00M9B8.pdf)

**Citation:** Webb, P.; Rogers, B.; Walton, S.; Boiteau, J.; Schlossman, N.; Johnson, Q.; Koeppel, L.; Suri, D.; Langlois, B.; Vosti, S.; and Rosenberg, I. (2016). *Food Aid Quality Review Phase II Close-Out Report, Report to USAID from the Food Aid Quality Review*. Boston, MA: Tufts University.



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## ***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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**Authors:** Schlossman, Nina; Johnson, Quentin; Koepfel, Leah; and Wood, Lauren

**Date Published:** 2016

**Themes:** rollout of new food aid products, evidence, "fit for purpose"

**Abstract:** This report examines best practices and lessons learned from the rollout of 25 new and upgraded food aid products in United States Agency for International Development's (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 the 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. Overall, 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. This report recommends that the Continuous Improvement Process review and revise specifications about updating the systems, hold end-user meetings to request feedback, create and distribute information on food aid product use, institutionalize the interagency process, and harmonize the product specifications across U.S. Government and international agencies.

**Access:** [https://pdf.usaid.gov/pdf\\_docs/PA00MJG7.pdf](https://pdf.usaid.gov/pdf_docs/PA00MJG7.pdf)

**Citation:** Schlossman, N.; Johnson, Q.; Koepfel, L.; and Wood, L. (2016). *Introduction of New and Improved Food Aid Products, 2011-2015: Lessons Learned and Recommendations. A Report from the Food Aid Quality Review*, managed by Tufts University's Friedman School of Nutrition Science and Policy. Boston, MA.



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## Food for Peace Commodities Resource Portal: A Landscape Analysis

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**Authors:** Schlossman, Nina; Koeppl, Leah; Fisk, Rebecca; Johnson, Quentin

**Date Published:** 2017

**Themes:** Food for Peace, resource portal

**Abstract:** As part of United States Agency for International Development’s (USAID’s) ongoing improvement process and to highlight the latest advancements in its food aid programs and products, USAID’s Office of Food for Peace (FFP) is reviewing and revitalizing its online presence. In support of this process, the Food Aid Quality Review (FAQR) Phase III conducted a landscape analysis of current USAID FFP web-based resources available on its Commodities Resource Portal (“Portal”), to assess structure and content of materials available online and determine preliminary redesign recommendations for discussion with Portal users. The Portal encompasses the section of the [USAID FFP website](#) related to food aid products programmed in FFP programs. As per USAID, the Portal aims to: 1) educate the general public about USAID FFP food assistance programs; 2) provide background and context on USAID’s ongoing efforts to improve the nutrition and overall quality of the food aid commodity basket; and 3) provide guidance for Private Voluntary Organizations (PVOs) and other stakeholders to inform their FFP proposal development process. This report provides our analysis and assessment of the current Portal design, information and resources and includes preliminary recommendations for an updated portal which would provide concise, usable information within the current USAID website design and structure. Portal updates are recommended to improve Portal navigation, succinctly present relevant information, eliminate out-of-date or repetitive information and to bring the Portal in line with the latest product, programming and procurement information from USAID.

**Access:** [https://foodaidquality.org/sites/default/files/publications/Portal\\_Landscape\\_Analysis.pdf](https://foodaidquality.org/sites/default/files/publications/Portal_Landscape_Analysis.pdf)

**Citation:** Schlossman, N.; Koeppl, L.; Fisk, R. and Johnson, Q. (2017). *Food for Peace Commodities Resource Portal: A Landscape Analysis, A Report from the Food Aid Quality Review.* Tufts University’s Friedman School of Nutrition Science and Policy. Boston, MA.



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## *Maximizing Food Aid Supply Chain Cost Effectiveness: A Report from the Food Aid Quality Review Workshop at the 2017 Health and Humanitarian Logistics Conference*

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**Authors:** Ergun, Ozlem; Green, Lindsey

**Date Published:** June 2017

**Themes:** supply chain, cost-effectiveness, humanitarian assistance, development projects, economic decision-making

**Abstract:** In a time of unprecedented humanitarian need and limited resources, a key goal for the humanitarian and development community is to enhance cost effectiveness, particularly of the ongoing and emergency food aid supply chains. Food aid supply chains are deemed to be cost effective if they “deliver the right product to the right people at the right time for the right price/cost” to reach the desired impact for a beneficiary population, this will include considerations of product design, procurement, transportation and retail channels or the “last mile” for humanitarian aid.

As humanitarian and development projects struggle to reach all populations in need of food aid assistance, maximizing supply chain cost effectiveness has become an increasingly salient issue. Optimizing economic decision-making around food aid policy and programming requires crucial evidence in food aid commodities’ cost-effectiveness coupled with nutritional impact. This goes beyond price per ton of food provided to understanding the total cost of an effective intervention in relation to defined outcomes among food aid beneficiaries. Innovative tools are critical in this effort to improve predictive modeling and programmatic decision-making.

The USAID Food Aid Quality Review (FAQR) project is developing tools to maximize cost-effectiveness in the food aid value chain while also promoting efficiency gains across the U.S. Government and global food aid actors. Driven by the priorities, mission and mandate of the United States Agency for International Development (USAID)/Office of Food for Peace (FFP) to increase efficiency, maximizing USAID/FFP’s ability to provide assistance and making the most of the tax dollars. In order to promote conversation around the FAQR developed tools and other important, relevant tools, the FAQR team organized a session at the 2017 Health and Humanitarian Logistics (HHL) Conference in Copenhagen, Denmark on June 7, 2017.

Four food aid supply chain cost-effectiveness tools currently being developed and used by development and humanitarian organization decisionmakers at different levels were presented as case studies during the conference session. This report summarizes the cases and offers insight into the future strategies for maximizing food aid supply chain cost effectiveness.

**Access:** <https://foodaidquality.org/maximizing-food-aid-supply-chain-cost-report-food-aid-quality-review-workshop-2017-health-and>

**Citation:** Ergun, O., & Green, L. (2017). *Maximizing Food Aid Supply Chain Cost Effectiveness: A Report from the Food Aid Quality Review Workshop at the 2017 Health and Humanitarian Logistics Conference*. Boston, MA: Tufts University.



## USAID/FFP Partner Perspectives on Food Aid Formulation, Selection & Distribution

**Authors:** Food Aid Quality Review

**Date Published:** April 2018

**Themes:** food aid basket, improved programming, stakeholder engagement, focus group, key informant interview, webinar

**Abstract:** USAID/FFP works with a wide variety of stakeholders—from suppliers to recipient governments—which are directly involved with food aid products and programming. Through 2016 and 2017, the USAID-administered Food Aid Quality Review (FAQR) project led a two-year investigation to determine areas of improvement in the food aid basket products and programming. FAQR met with partner organizations to gather information on their operations approaches to these products and programming.

Through a series of semi-structured interviews and focus groups, a webinar, and a formal side meeting, FAQR gained input from 102 stakeholders from 61 different organizations. These engagement activities revealed a number of central themes relating to food aid products and programming. Findings were synthesized into seven key takeaways, ultimately informing 11 priority actions for USAID/FFP's consideration.

Stakeholders reported that USAID/FFP's current standard of operation allows for quick, uninterrupted food aid response and that the management tools currently provided are valuable. Responses suggested a desire for greater technical capacity, especially relating to enhanced product guidance. Stakeholders were found to have inconsistent perceptions of the food aid product information available to them—revealing a need for better communication about resources. Stakeholders also urged for increased innovation of the food aid basket to include more cost-effective and culturally-acceptable products. Partners believed that increasing collaboration during product development would help create products suited for the needs of all stakeholders. Lastly, there is a need for greater institutional learning, such as forums for experience sharing.

The memo makes direct suggestions for action, such as the creation of new tools and guidelines, as they correspond to specific key takeaways.

**Access:** <https://foodaidquality.org/usaiddffp-partner-perspectives-food-aid-formulation-selection-distribution>

**Citation:** Food Aid Quality Review (2018). *USAID/FFP Partner Perspectives on Food Aid Formulation, Selection & Distribution*. Boston, MA: Tufts University.

# FAQR Resource Booklet

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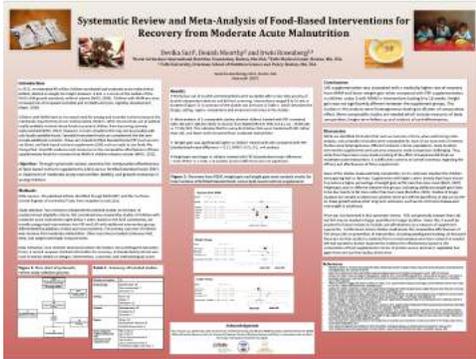
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## *Systematic Review and Meta-Analysis of Food-based Interventions for Recovery from Moderate Acute Malnutrition*

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**Authors:** Suri, Devika; Moorthy, Denish; Rosenberg, Irwin

**Date/Place of Presentation:** Experimental Biology 2013

**Themes:** moderate acute malnutrition, fortified blended foods, corn-soy blend, lipid-based nutrient supplements

**Abstract:** The rationale of this systematic review was to examine the comparative effectiveness of lipid-based nutrient supplements (LNS) versus fortified blended foods (FBFs) in treatment of moderate acute malnutrition (MAM). Data was drawn from all published articles identified through MEDLINE® and Cochrane Central Register of Controlled Trials, from inception to July 2012. Reviewers independently selected eligible comparative studies of children under age 5 with MAM. Interventions were broadly categorized as FBF or LNS. Article information was extracted using a standardized protocol into predesigned forms and reviewed for accuracy.

Thirty-four out of 12,453 screened articles were accepted. Interventions to treat MAM ranged eight to 16 weeks. Meta-analysis of five studies showed a 10 percent lesser recovery rate from MAM in children treated with FBFs as compared with LNS. This indicates that for every 48 children who are treated with FBFs rather than LNS, one child will not recover from MAM. Therefore, LNS is associated with a higher rate of recovery from MAM when compared with FBFs. The studies on children with MAM are not comparable leading to dilution of comparative effect. The clinical relevance of outcomes as well as cost-effectiveness need to be taken into consideration when interpreting the results.

**Access:** [https://www.fasebj.org/doi/abs/10.1096/fasebj.27.1\\_supplement.lb332](https://www.fasebj.org/doi/abs/10.1096/fasebj.27.1_supplement.lb332)



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## Systematic Review and Meta-Analysis of Food-based Interventions for Recovery from Moderate Acute Malnutrition

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**Authors:** Suri, Devika; Moorthy, Denish; Rosenberg, Irwin

**Date/Place of Presentation:** International Congress of Nutrition (ICN) 2013

**Themes:** moderate acute malnutrition, LNS, FBFs, therapeutic foods, children, systematic review

**Abstract:** The rationale of this systematic review was to examine the comparative effectiveness of lipid-based nutrient supplements (LNS) versus fortified blended foods (FBFs) in the treatment of moderate acute malnutrition (MAM) and their effects on growth in young children. Data was collected from all published articles identified through MEDLINE®, and the Cochrane Central Register of Controlled Trials, from inception to July 2012. Reviewers independently selected studies on the basis of predetermined eligibility criteria, considering any comparative studies of children under age 5 with MAM. Interventions were broadly categorized as FBFs or LNS. Outcomes of interest included recovery from MAM, weight and length gain. Article information was extracted using a standardized protocol into predesigned forms and reviewed for accuracy.

Twenty-two out of 13,086 screened articles were accepted, after a two-step process of double independent abstract and full text screening. Interventions ranged 2 to 24 months. Meta-analysis of six studies showed a 10 percent lesser recovery rate from MAM in children treated with FBFs as compared with children treated with LNS. This indicates that for every 48 children who are treated with FBFs rather than LNS, one child will not recover from moderate malnutrition. Weight gain was significantly higher in children treated with LNS. The change in length was higher in children treated with FBFs but this difference was not significant.

LNS is associated with a higher rate of recovery from MAM and a larger weight gain when compared with FBFs. The studies on children with MAM are not comparable leading to dilution of comparative effect. For sustained recovery, body composition and lean mass accretion outcomes need to be studied to ensure that lean mass rather than fat deposition drives the improvements in weight for height z-scores. The clinical relevance of outcomes and differences between treatments with LNS versus FBFs, as well as cost-effectiveness need to be taken into consideration when interpreting the results.

**Access:** [https://foodaidquality.org/sites/default/files/publications/Systematic Review ICN.pdf](https://foodaidquality.org/sites/default/files/publications/Systematic%20Review%20ICN.pdf)



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## *The Price of Oil: Assessing Behavior Change Communication & Increased Oil Ration on Improving Oil Use in Food Aid Preparation for Children in Malawi*

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**Authors:** Jayson, Lauren; Passarelli, Simone; Suri, Devika; Maganga, Gray; Marcus, Shelley; Webb, Patrick; Rogers, Beatrice

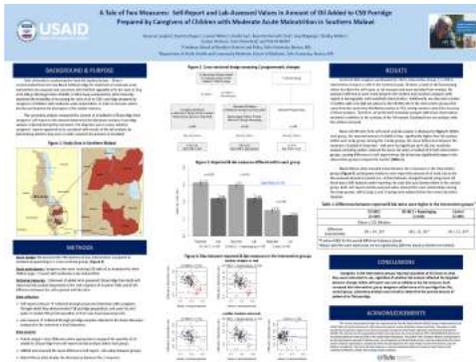
**Date/Place of Presentation:** Experimental Biology 2015

**Themes:** corn-soy blend, moderate acute malnutrition

**Abstract:** As part of USAID's Food Aid Quality Review, a study evaluated the effectiveness of providing an additional oil ration in tandem with social and behavior change communication (SBCC) to an existing supplementation program to increase the oil content and reduce the sharing of porridge prepared for children under age 5 with MAM in Malawi. Beneficiary mothers/caretakers (BMCs) of beneficiary children in the program were randomly selected at 12 intervention and four control food distribution points (FDPs) for participation in interviews and to provide samples of their porridge for analysis. The intervention group received a monthly ration of 2.6 liters of fortified vegetable oil, 8 kilograms of corn-soy blend (CSB) and SBCC. Controls received a standard ration of 1 liter oil, 8 kilograms CSB and no messaging. The proportion of BMCs preparing porridge at the target ratio of 30 grams oil to 100 grams CSB, the mean percentage of oil in porridge and rates of household sharing of porridge were compared between study groups.

There were 235 BMCs in the intervention and 160 in the control groups. Roughly 6 percent of BMCs in the intervention group met the target ratio of oil to CSB, while 4 percent in the control group met this ratio (not significant). The target ratio is equivalent to 23 percent oil; mean percentage of oil in the prepared porridge was 21 percent in the intervention group and 12 percent in the control group (significant). Sharing of the porridge with other household members was reported in 46 percent of intervention and 74 percent of control households (significant). While few BMCs met the target ratio of oil to CSB, those receiving an additional oil ration and SBCC prepared porridge with almost twice as much oil as those in the control groups and reported less sharing within the household than those not receiving the intervention.

**Access:** [https://www.fasebj.org/doi/abs/10.1096/fasebj.29.1\\_supplement.898.21](https://www.fasebj.org/doi/abs/10.1096/fasebj.29.1_supplement.898.21)



## ***A Tale of Two Measures: Self-Report and Lab-Assessed Values in Amount of Oil Added to CSB Porridge Prepared by Caregivers of Children with Moderate Acute Malnutrition in Southern Malawi***

**Authors:** Langlois, Breanne; Rogers, Beatrice; Wilner, Lauren; Suri, Devika; Chui, Kwan Ho Kenneth; Maganga, Gray; Walton, Shelley; Boiteau, Jocelyn; Rosenberg, Irwin; Webb, Patrick

**Date/Place of Presentation:** Experimental Biology 2016

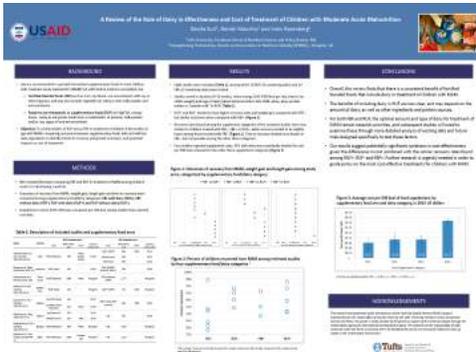
**Themes:** moderate acute malnutrition, corn-soy blend

**Abstract:** A 2014 study conducted by Tufts University examined the feasibility of increasing the ratio of oil to corn-soy blend (CSB) in porridge prepared by caregivers of children with moderate acute malnutrition (MAM), in order to increase caloric density and improve the absorption of fat-soluble vitamins. This analysis compared the amount of oil added to CSB porridge from caregivers' self-report to the amount determined by laboratory analysis of porridge samples collected during the interviews. The objective was to assess whether caregivers' reports appeared to be consistent with results of the lab analysis, by determining whether they *over* or *under* reported the amount of oil added.

This was a secondary analysis of an effectiveness study conducted in Southern Malawi in 2014 assessing two interventions designed to increase the amount of oil added to CSB porridge prepared by caregivers, with a target of 30 grams added oil per 100 grams CSB. The Control Group received standard monthly ration: 1 liter oil, 8 kilogram CSB in bulk. Intervention groups received 2.6 liter oil, 8 kilogram CSB provided either in bulk (Group 1) or in 4 2-kilogram packages with printed messages (Group 2), and social behavior change communication to meet added oil target (Groups 1 and 2). Data were collected through structured interviews with caregivers and lab analysis of porridge samples.

A total of 584 caregivers participated (n=192 in Group 1; n=196 in Group 2; n=196 in the Control Group). The mean  $\pm$  SDs of added oil (in grams per 100 gram CSB) from self-report and lab analysis, respectively, were:  $30 \pm 9$  and  $28 \pm 16$  (Group 1),  $30 \pm 9$  and  $25 \pm 15$  (Group 2),  $15 \pm 9$  and  $12 \pm 10$  (Control). Estimated added oil from self-report was significantly higher than lab analysis within each study group ( $p < 0.05$  for all). Among the study groups, the mean differences between the measures of added oil (reported – lab) were not significant ( $p = 0.56$ ). A cluster of observations in the intervention groups had abnormally high fat content in lab assessed values; sensitivity analysis excluding this cluster showed mean lab values of added oil were reduced to  $22 \pm 12$  in both intervention groups, causing differences in self-report versus lab to become significantly larger in the intervention groups compared to control ( $p = 0.002$ ). Bland-Altman plots revealed a clear bias between the two measures in the intervention groups: participants tended to over-report the amount of oil used, but as the lab-assessed amount increased (i.e. as their behavior changed towards using more oil) there was a shift toward under-reporting. This was less evident in the Control Group. Both self-report and lab-assessed values showed the same relationships among the study groups, with Groups 1 and 2 having more added oil than the Control. Caregivers in the intervention groups reported what they were instructed to do, regardless of whether lab analysis reflected the targeted behavior change. While self-report was not as reliable as the lab measure, both conveyed that intervention group caregivers added more oil to the porridge than the Control Group. Laboratory analysis was critical to determine the precise magnitude of added oil to CSB porridge.

**Access:** [https://www.fasebj.org/doi/10.1096/fasebj.30.1\\_supplement.1149.17](https://www.fasebj.org/doi/10.1096/fasebj.30.1_supplement.1149.17)



## *The Role of Dairy in the Comparative Effectiveness and Cost of Fortified Blended Foods Versus Ready-to-Use Foods in Treatment of Children with Moderate Acute Malnutrition*

**Authors:** Suri, Devika; Moorthy, Denish; Rosenberg, Irwin

**Date/Place of Presentation:** Experimental Biology 2016

**Themes:** ready-to-use therapeutic or supplementary foods, moderate acute malnutrition, fortified-blended foods

**Abstract:** Recent meta-analyses found treating young children with MAM using ready-to-use foods (RUFs) versus fortified blended foods (FBFs) resulted in higher recovery rates and weight gain. This analysis aimed to compare studies of RUFs and FBFs with and without dairy to determine whether the addition of dairy to these food supplements modified the comparative effectiveness and treatment cost.

Outcomes of recovery from MAM, weight gain and length gain were compared among study cohorts, which included FBF with dairy (FBF+), FBF without dairy (FBF-), RUF with dairy (RUF+) and RUF without dairy (RUF-). Data on recovery from MAM was pooled among the four supplement categories. Cost per 500 kcal of each food supplement category was averaged among studies reporting cost data.

Among the seven studies included, nine RUFs were tested, of which five contained dairy, and nine FBFs were tested, of which three contained dairy. Children treated with RUF+ had higher recovery rates compared with FBF- in five out of five study cohorts, higher weight gain in four out of four, and significantly higher length gain in one out of four. Children treated with RUF+ vs FBF+ had higher recovery rates in one out of two study cohorts, with no differences in weight or length gain. No differences were found in the two studies comparing RUF- and FBF+. Finally, children treated with RUF- had higher recovery rates compared with FBF- in one of two studies, higher weight gain in two out of two, and no differences in length gain. Recovery from MAM among the seven studies was 65 percent (FBF-), 79 percent (FBF+), 82 percent (RUF-), and 80 percent (RUF+). Four of the seven studies included cost data; on average per 500 kcal costs were \$0.15 (FBF-), \$0.18 (FBF+), \$0.17 (RUF-), and \$0.35 (RUF+).

Our results suggest that addition of dairy to FBFs make it comparative in effectiveness to both RUFs with and without dairy, but does not appear to be a factor between the RUF categories. RUFs with dairy was twice the cost per kcal compared with the other food supplement categories. Cost-effectiveness analysis will be useful to help determine the most appropriate food supplement for treatment of MAM.

**Access:** [https://www.fasebj.org/doi/abs/10.1096/fasebj.30.1\\_supplement.669.14](https://www.fasebj.org/doi/abs/10.1096/fasebj.30.1_supplement.669.14)



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## Accelerated Shelf-Life Studies: Testing Micronutrient Stability of New and Upgraded Food Aid Products

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**Authors:** Schlossman, Nina; Johnson, Quentin; Wood, Lauren; Coglianesi, Nicole; Santoso, Vicky; Koeppel, Leah

**Date/Place of Presentation:** International Congress of Nutrition (ICN) 2017

**Themes:** humanitarian supply chain, shelf life trials

**Abstract:** Food aid products can be exposed to conditions throughout the humanitarian supply chain that can potentially affect or degrade products, including nutritional properties, taste, odor and packaging integrity and appearance. For these reasons, understanding how products behave through the supply chain is critical to ensure that optimum nutrition and quality are delivered to food aid consumers. Shelf-life trials are a vital part of product research and development, and introduction of new/upgraded food aid products, to determine how product nutrients and characteristics are maintained throughout the supply chain. They can also be used to determine the shelf-life implications of new or modified packaging or combinations of ingredient and packaging parameters. Studying product and packaging performance in real time would require a two to three year period of observation under storage conditions. Accelerated shelf-life studies are designed to mimic real-time conditions found in the humanitarian supply chain in a fraction of the time for a cost-effective, efficient alternative to real-time studies.

**Access:** <https://foodaidquality.org/sites/default/files/publications/AcceleratedShelfLifeStudies.pdf>



# Accelerated Shelf-Life Studies and Micronutrient Stability of Food Aid Products: Implications for the Humanitarian Supply Chain

**Authors:** Schlossman, Nina; Johnson, Quentin; Wood, Lauren; Coglianesi, Nicole; Santoso, Vicky; Koepfel, Leah

**Date/Place of Presentation:** Health and Humanitarian Logistics Conference 2017 and IFT 2017

**Themes:** accelerated shelf-life, micronutrient stability, humanitarian supply chain

**Abstract:** Food aid products can be exposed to conditions throughout the humanitarian supply chain (e.g., sustained exposure to high levels of heat and humidity) which can potentially affect or degrade products, including nutritional properties, taste, odor and packaging integrity and appearance. For these reasons, understanding how products behave through the supply chain is critical to ensure that optimum nutrition and quality are delivered to food aid consumers. Shelf-life trials are a vital part of product research and development and introduction of new/upgraded food aid products, to determine how product nutrients and characteristics are maintained throughout the supply chain. They can also be used to determine the shelf life implications of new or modified packaging or combinations of ingredient and packaging parameters. Studying product and packaging performance in real time would require a two to three year period of observation under storage conditions. Accelerated shelf-life studies are designed to mimic real-time conditions found in the humanitarian supply chain in a fraction of the time for a cost-effective, efficient alternative to real-time studies.

**Access:** <https://foodaidquality.org/shelf-life-hhlc-2017>



## Costing Methods for a Cluster-Randomized Cost-Effectiveness Trial Comparing the Performance of Four Supplementary Foods in Treating Sierra Leonean Children with Moderate Acute Malnutrition

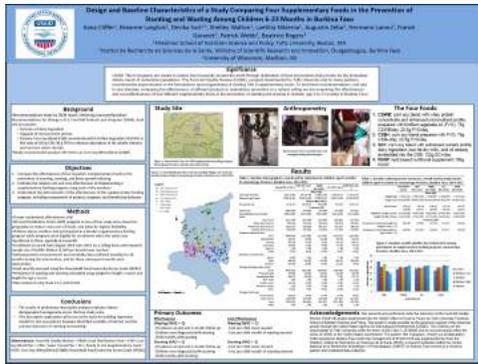
**Authors:** Shen, Ye; Griswold, Stacy; Suri, Devika; Vosti, Stephen; Rogers, Beatrice

**Date/Place of Presentation:** Experimental Biology 2017

**Themes:** cost-effectiveness, Sierra Leone, MAM

**Abstract:** Policymakers need cost-effectiveness evidence to support better decision-making in food assistance policy and programming for greater nutritional impact. Therefore, proper planning and implementation of cost data collection and cost-effectiveness analysis is needed. As part of the Food Aid Quality Review (FAQR) Project at Tufts University's Friedman School of Nutrition Science and Policy, a comprehensive cost-effectiveness research protocol was designed for a cluster-randomized field trial in Pujehun District, Sierra Leone. The study objective is to evaluate and compare the cost-effectiveness of four isocaloric supplementary foods in treating MAM. The purpose is to strengthen and to make more consistent cost-effectiveness research methods undertaken alongside field-based nutrition trials. In this poster we present the costing methodology designed by the FAQR team.

**Access:** <https://foodaidquality.org/salone-20-ce-methods-eb-2017>




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## *Design and Baseline Characteristics of a Study Comparing Four Supplementary Foods in the Prevention of Stunting and Wasting Among Children 6-23 Months in Burkina Faso*

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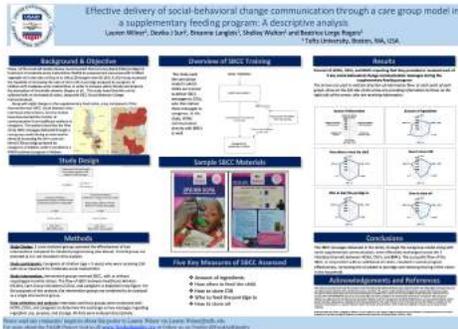
**Authors:** Cliffer, Ilana; Langlois, Breanne; Suri, Devika; Walton, Shelley; Ouedraogo, Laetitia; Zeba, Augustin; Lanou, Hermann; Garanet, Franck; Webb, Patrick; Rogers; Beatrice

**Date/Place of Presentation:** Experimental Biology 2017

**Themes:** corn-soy blend, corn-soy-why blend, fortified vegetable oil, Burkina Faso, effectiveness, cost-effectiveness

**Abstract:** USAID Title II programs are meant to reduce food insecurity around the world through distribution of food aid products which provide for the immediate dietary needs of vulnerable populations. The Food Aid Quality Review (FAQR), a project implemented by Tufts University and its many partners, recommended improvements in the formulation and programming of existing Title II supplementary foods. To test these recommendations and add to rare literature comparing the effectiveness of different products in malnutrition prevention in a natural setting, we are examining the effectiveness and cost-effectiveness of four different supplementary foods in the prevention of stunting and wasting in children age 6 to 23 months in Burkina Faso. The objective of this poster is to describe the study methods and baseline characteristics of the sample, including baseline measures of stunting and wasting. This descriptive exploration will serve as the basis for building regression models to test associations between identified variables of interest and the primary outcomes of stunting and wasting.

**Access:** [https://www.fsebj.org/doi/abs/10.1096/fasebj.31.1\\_supplement.640.18](https://www.fsebj.org/doi/abs/10.1096/fasebj.31.1_supplement.640.18)



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## Effective Delivery of Social-behavioral Change Communication Through a Care Group Model in a Supplementary Feeding Program: A Descriptive Analysis

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**Authors:** Wilner, Lauren; Suri, Devika; Langlois, Breanne; Walton, Shelley; Rogers, Beatrice

**Date/Place of Presentation:** Experimental Biology 2017

**Themes:** corn-soy blend, moderate acute malnutrition, social behavior change communication

**Abstract:** A USAID/FFP-Funded study implemented by Tufts University's Food Aid Quality Review in Southern Malawi found that intensified social and behavioral change communication (SBCC) in combination with an augmented oil ration resulted in an increase in proper preparation of corn-soy blend (CSB) porridge so much so that the full intended nutritional content reached the target population of children with moderate acute malnutrition (MAM). This analysis describes the flow of key SBCC messages delivered through a Care Group model during an intervention aimed at increasing the oil in porridge prepared by caregivers of beneficiary children, as well as the flow of these key messages among sub-groups in this intervention—health care workers, Care Group volunteers and caregivers of beneficiary children.

The intervention provided a supplementary food ration of CSB and oil and used a Care Group model in which healthcare workers were trained to deliver SBCC to Care Group volunteers who then delivered messages to caregivers of beneficiary children. Healthcare workers also delivered messages to caregivers directly. Interviews and focus group discussions were conducted with all three sub-groups in order to determine the exchange of key messages about ingredient use, storage, and purpose, which were analyzed descriptively. The analysis tracked the flow of information between the groups, and ultimately to the beneficiary caregiver.

Analysis of SBCC flow and information exchange showed that 100 percent of caregivers reported learning about the amounts of oil and CSB to use while preparing porridge and more than 90 percent of caregivers, healthcare workers and care group volunteers reported discussing it. Information flowed to caregivers along multiple lines of communication. The reported information exchange was high among all groups. Focus groups confirmed an effective flow of communication among the three sub-groups.

Key SBCC messages were provided and received according to healthcare workers, care group volunteers and caregivers. In addition, caregivers received information from multiple sources, contributing to the overall effectiveness of the intervention. While increasing the ration likely contributed to increasing the oil content in prepared CSB porridge, this analysis found that the SBCC was also an important component of the intervention.

**Access:** [https://www.fasebj.org/doi/abs/10.1096/fasebj.31.1\\_supplement.957.18](https://www.fasebj.org/doi/abs/10.1096/fasebj.31.1_supplement.957.18)



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## Experiences and Perceptions of Beneficiary Caregivers in a Supplementary Feeding Program in Southern Malawi

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**Authors:** Langlois, Breanne; Suri, Devika; Shen, Ye; Walton, Shelley; Alvarez, Gloria; Moses, Katie; Rogers, Beatrice

**Date/Place of Presentation:** Experimental Biology 2017

**Themes:** corn-soy blend, Malawi, supplementary feeding program

**Abstract:** The objective of this analysis was to identify factors affecting successful implementation of a Supplementary Feeding Program (SFP) for treatment of moderate acute malnutrition (MAM), based on beneficiary caregivers' perceptions and experiences assessed through qualitative findings of a USAID/FFP funded Tufts University study in Southern Malawi.

Qualitative data were collected as part of a 2014 feasibility study assessing programmatic changes designed to increase the amount of oil added to corn-soy blend (CSB) porridge prepared by caregivers of beneficiary children receiving the food for treatment of MAM. Nine focus group discussions (FGDs) were conducted using semi-structured guides, with between seven to ten caregivers participating in each. An inductive, thematic content analysis approach was used to identify common conceptual themes from the data.

Themes emerged relating to benefits and barriers of participating in the SFP, and its effects within the community. Commonly identified challenges with the SFP described by participants were: 1) poor communication—not knowing when to expect the distribution (e.g. having no fixed date or time, having no advance notice of when the distribution will arrive or not everyone receives the message about the distribution); and 2) problems with distribution—long wait time at the distribution site, distribution not arriving at the planned date or time or ration not received by the intended beneficiary caregiver. Additionally, it was commonly described that the ration does not last until the next distribution because the child eats the CSB porridge more often than the recommended daily dosage. Among benefits, improvement in the health of the beneficiary children was cited often, as well as happier, more active children and increased caregiver knowledge of good feeding practices. Participants also described resentment within their community: that the CSB is “better than other available flours, that beneficiaries are unfairly favored and that others (not just the beneficiary child) are also entitled to receive the porridge. Several participants described experiencing confrontation with other community members as a result of not sharing their CSB ration.

The study identifies important contextual issues which may affect implementation of a supplementary feeding program that may be relevant in other settings and helpful in avoiding potential challenges and unintended consequences. Programs should be designed to address barriers to collecting supplementary food rations (i.e. distance to distribution site and reliable means of communication). Community perceptions, norms and economic status of other households potentially creating resentment and the pressure to share with non-beneficiary households should also be considered.

**Access:** [https://www.fasebj.org/doi/10.1096/fasebj.31.1\\_supplement.640.20](https://www.fasebj.org/doi/10.1096/fasebj.31.1_supplement.640.20)



## Methods for Rigorous In-Home Observation Conducted During a Food Aid Cost-Effectiveness Trial in Burkina Faso

**Authors:** Cliffer, Ilana; Ouedraogo, Laetitia; Garanet, Franck; Suri, Devika; Langlois, Breanne; Shen, Ye; Walton, Shelley; Webb, Patrick; Rogers; Beatrice

**Date/Place of Presentation:** International Congress of Nutrition (ICN) 2017

**Themes:** in-home observation, cost-effectiveness, Burkina Faso

**Abstract:** In-home observation methods help satisfy the need for direct assessments of feeding behaviors, to complement self-report by mothers/caretakers. We describe a multi-day approach to in-home observation aimed at understanding food preparation and feeding practices during a study comparing the cost-effectiveness of food aid products in Burkina Faso. We conclude that multi-day in-home observations can provide rigorous data on observed food preparation and feeding practices and reduce the Hawthorne effect. Techniques, including using tablets, which may streamline data collection, should be further refined to address noted challenges.

**Access:** <https://foodaidquality.org/sites/default/files/publications/MethodsforRigorous.pdf>



## Research Methods Used to Determine Cost-Effectiveness of a Supplementary Feeding Trial to Prevent Child Undernutrition in Burkina Faso

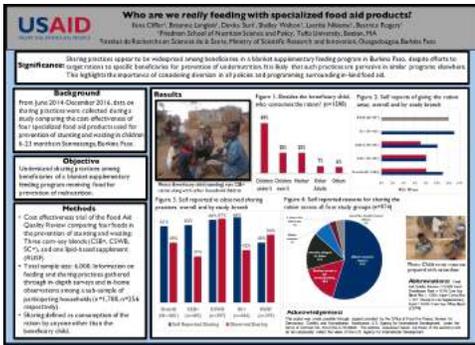
**Authors:** Shen, Ye; Cliffer, Ilana; Suri, Devika; Vosti, Stephen; Webb, Patrick; Rogers, Beatrice

**Date/Place of Presentation:** International Congress of Nutrition (ICN) 2017

**Themes:** cost-effectiveness, supplementary feeding trial, Burkina Faso

**Abstract:** Policymakers increasingly call for evidence of cost-effectiveness in international food assistance and nutrition programming. Guidance on tailoring methods to policy-relevant questions is limited, making it challenging to determine cost-effectiveness in programmatic settings. As part of the Food Aid Quality Review (FAQR) funded by USAID/Food for Peace Office (FFP), we describe cost-effectiveness research methods applied to a supplementary feeding trial comparing four specialized nutritious food aid products for prevention of stunting and wasting.

**Access:** <https://foodaidquality.org/sites/default/files/publications/ResearchMethodsUsed.pdf>



## Who are We Really Feeding with Specialized Food Aid Products?

**Authors:** Cliffier, Ilana; Langlois, Breanne; Suri, Devika; Walton, Shelley; Ouedraogo, Laetitia; Rogers; Beatrice

**Date/Place of Presentation:** Action Against Hunger (ACF) Research for Nutrition Conference, November 2017

**Themes:** food aid, food assistance, Burkina Faso, sharing, children, malnutrition

**Abstract:** Sharing practices appear to be widespread among beneficiaries in a blanket supplementary feeding program in Burkina Faso, despite our efforts to target rations to specific beneficiaries for prevention of undernutrition. It is likely that such practices are pervasive in similar programs elsewhere. This highlights the importance of considering sharing and diversion of products in all policies and programming surrounding in-kind food aid.

**Access:** <https://www.enonline.net/resources/researchfornutrition/faqr4nut>

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## *A Mobile Data Collection Tool Using Android Tablets for In-Home Observations in Sierra Leone Improves Data Quality*

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**Authors:** Langlois, Breanne; Griswold, Stacy; Sawi, Memuna Kadie; Suri, Devika; Shen, Ye; Rogers, Beatrice

**Date/Place of Presentation:** ASN, June 2018

**Themes:** supplementary feeding, mobile data collection, in-home observation

**Abstract:** In-Home Observations (IHOs) help understand behaviors surrounding use of supplementary food rations in the household. Paper-based methods used in prior studies were prone to data quality issues. We describe a tablet-based IHO data collection tool developed by the Food Aid Quality Review Project. An ongoing field trial in Sierra Leone is studying the effectiveness of four specialized foods for treatment of moderate acute malnutrition in young children. IHOs are conducted over five consecutive days on a sample of participating households (target n=448). We developed a tablet-based data collection tool using Open Data Kit and Enketo Webforms to record information about the following activities: ration porridge preparation; ration consumption (by anyone, in any form); consumption of other foods by the beneficiary child; breastfeeding; giving away or selling the ration; household visitors; other uses of the ration. Timestamps record activity durations; a repeat function allows time recording of multiple activities occurring at the same time. Questions about each corresponding activity appear by selecting a separate button. After each activity, data are stored in the web browser and the form is refreshed. Data are collected offline and uploaded to a server at the end of the observation when internet is available.

The tool has been used in 114 participating households of a planned sample size of 448. Benefits of the tool include easier collection of activity durations, allowing for a larger sample size; reduced error through a simplified form with built-in logic; improved data management by avoiding cumbersome double data entry; a raw dataset requiring fewer manipulations. Research Assistants report liking the tool. Immediate access to data allows the team to troubleshoot more effectively and manage issues during data collection. Challenges encountered include device malfunction and freezing of tablets requiring replacement in the field. In addition, any notes apart from the tool must be hand-written.

Use of a tablet-based offline platform for IHOs facilitated data collection and improved data quality. The tablets had a number of benefits over paper forms used in our prior studies. With more experience, further improvements are possible.

**Access:** <https://foodaidquality.org/resources>

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## ***Behaviors Surrounding Ration Use in a Blanket Supplementary Feeding Program in Burkina Faso***

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**Authors:** Langlois, Breanne ; Cliffer, Ilana ; Suri, Devika; Shen, Ye; Ouedraogo, Laetitia; Webb, Patrick; Rogers, Beatrice

**Date/Place of Presentation:** ASN, June 2018

**Themes:** supplementary feeding, corn-soy blend, lipid-based nutritional supplements, stunting, wasting, burkina faso

**Abstract:** We aimed to understand the factors that influence comparative effectiveness of four supplementary food aid products by exploring behaviors surrounding use of the foods.

From July 2014 to December 2016, FAQR studied the effectiveness of corn-soy blend plus with oil (CSB+), corn-soy-whey blend with oil (CSWB), super cereal plus (SC+), and ready-to-use supplementary food (RUSF) in a blanket supplementary feeding program (SFP) for prevention of stunting and wasting in Burkina Faso. This was a geographically clustered, four-pronged longitudinal study of children enrolled at about 6 months of age and followed for 18 months. Subsamples of beneficiaries participated in in-depth interviews and in-home observations.

A total of 1463 caregivers were interviewed, and 209 households were observed in their homes for four consecutive days. By arm, 43 percent to 75 percent reported that the ration does not last the entire month as intended, with the highest percentage reported in CSWB. Observations were consistent: the ration was present in 53 percent to 92 percent of households, with the lowest percentage in CSWB. Reported sharing of the ration (consumption by anyone other than the beneficiary child) was common in all four arms—the lowest in RUSF and the highest in SC+ (52 percent to 73 percent). Observed sharing was highest in CSWB (36 percent) and was similar among the other arms (24 percent). Reported consumption of the ration in the recommended form was lowest in CSWB (61 percent) and highest in RUSF (82 percent). CSWB had the lowest observed consumption by the beneficiary child (22 percent). We observed only two households giving away the ration (RUSF) once, compared with 8 percent to 13 percent of households who reported giving the ration away. Twice, we observed ration porridge being shared with other households (in the CSWB arm). Eighteen percent to 21 percent reported and 9 percent to 20 percent were observed using the ration oil for other household cooking in CSWB and CSB+, respectively. There was no reported or observed ration selling.

Diversion of foods was common, indicating that foods are not used as intended. CSWB was shared more and eaten less frequently by the beneficiary child. These findings are important in understanding the effectiveness of these products. Challenges to proper use should be well understood and supplementary feeding programs should focus on beneficiary adherence to achieve intended impacts.

**Access:** <https://foodaidquality.org/resources>

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## ***Community Cluster Approach: Its Added Value in Surveys Conducted at Rural Community Level***

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**Authors:** Langlois, Breanne; Cliffer, Ilana; Suri, Devika; Shen, Ye; Nikiema, Laetitia; Webb, Patrick; Rogers, Beatrice

**Date/Place of Presentation:** ASN, June 2018

**Themes:** community Cluster, community-based survey

**Abstract:** A longitudinal study is being implemented in Sierra Leone comparing the effectiveness and cost-effectiveness of four different supplementary foods in a supplementary feeding program (SFP) for treatment of Moderate Acute Malnutrition in children age 6 to 59 months. The study is funded by USAID and implemented by Tufts University in partnership with the Sierra Leone Ministry of Health and Sanitation, Washington University in St. Louis, Project Peanut Butter and Caritas Bo. Household surveys are managed by Caritas Bo using tablet-based electronic data collection and qualitative interviews.

Caritas Bo is using a community cluster approach to conduct household surveys of SFP participants. Sample peripheral health units (PHUs) are organized into geographic clusters and research teams for each cluster live in the community. To effect the placement of Research Assistants in coordinating clusters, community structures were assessed to evaluate security and availability of basic social services. Team selection was based on a review of the strength and weakness of individual team members to ensure the formation of a balanced team in each cluster with a leverage on potential for effective logistical support and level of community engagement. Research Assistants are trained in community engagement strategies and managing community curiosity while using tablets during interviews in rural communities.

As an innovation, the cluster approach provides an advantage of managing community curiosity which is attracted by the use of high technology devices (e.g. smart phones and tablets) in rural communities. The use of the cluster approach in staff deployment increases community trust since interviewers live in the communities, reduces operational cost, increases efficiency in data collection and improves coordination.

**Access:** <https://foodaidquality.org/resources>

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***Comparative Effectiveness and Cost-Effectiveness of Four Supplementary Foods in the Prevention of Stunting and Wasting in Children 6-23 Months in Burkina Faso***

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**Authors:** Cliffer, Ilana; Langlois, Breanne; Suri, Devika; Shen, Ye; Ouedraogo, Laetitia; Webb, Patrick; Rogers, Beatrice

**Date/Place of Presentation:** ASN, June 2018

**Themes:** stunting, wasting, effectiveness, cost-effectiveness, supplementary feeding, corn-soy blend, lipid-based nutritional supplements, Burkina Faso

**Abstract:** The Food Aid Quality Review (FAQR) recommended improvements in the formulation and programming of Title II supplementary foods. To test these recommendations, we examined the effectiveness and cost-effectiveness of four supplementary foods in the prevention of stunting and wasting in children age 6 to 23 months in Burkina Faso.

This geographically-clustered, four-pronged trial with random assignment compared monthly rations of ~500 kcal per day: corn-soy blend plus (CSB+) and oil (the reference food), corn-soy-whey blend (CSWB) and oil, super cereal plus (SC+), and lipid-based ready-to-use supplementary food (RUSF). Data were collected from July 2014 to December 2016. Children participating in a blanket supplementary feeding program were enrolled at age 6 months and measured monthly for 18 months during the intervention. Primary outcomes were stunting at end-line (length-for-age z-score  $\leq -2$ ), and total monthly measurements of wasting (weight-for-length z-score  $\leq -2$ ). Adjusted models were evaluated with and without lost-to-follow-up and assessed for collinearity and influential outliers. Average costs per child reached were calculated using an activity based “ingredients approach.” Both program and societal cost perspectives (the latter including beneficiary opportunity cost) were examined. Sensitivity analyses of key cost parameters were conducted.

A sample of six,112 children were enrolled; 15 percent were lost-to-follow-up. Compared to CSB+, children in the CSWB arm experienced higher rates of stunting (OR=2.07; 95 percent CI = 1.46, 2.94) and wasting (OR=1.25; 95 percent CI = 1.05, 1.49), while outcomes in the SC+ and RUSF arms were not significantly different. Adjusted percentages of end-line stunting ranged from 20-28 percent, and adjusted monthly measurements wasted ranged from 2.62-3.29. In all sensitivity analyses scenarios, CSB+ with oil was the most cost-effective product from the program perspective (\$116/child reached), as well as from the societal perspective (\$290/child reached).

CSB+ was similar in effectiveness to RUSF and SC+, more effective than CSWB, and the most cost-effective. This was an effectiveness, not an efficacy trial. CSWB is not likely biologically less efficacious, but factors relating to its use may contribute to it being less effective in a real-world setting.

**Access:** <https://foodaidquality.org/resources>

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***Evaluating Opportunity Cost of Caregivers' Time and Its Impact on Comparative Cost-Effectiveness of Supplementary Foods to Prevent Child Undernutrition in Burkina Faso***

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**Authors:** Shen, Ye; Cliffer, Ilana ; Vosti, Stephen ; Suri, Devika ; Langlois, Breanne; Rogers, Beatrice

**Date/Place of Presentation:** ASN, June 2018

**Themes:** caregivers' opportunity cost, cost-effectiveness, supplementary feeding

**Abstract:** To run an 18-month blanket supplementary feeding program for children 6 to 24 months old, the cost of caregivers' time to participate could be substantial in addition to costs incurred from the program perspective. We evaluated opportunity cost of caregiver time and its impact on relative cost-effectiveness of four supplementary foods in preventing stunting and wasting as part of a Tufts-led USAID Food Aid Quality Review study in Burkina Faso.

Caregivers traveled monthly to the nearest Food Distribution Point to collect one of four isocaloric foods: three fortified blended foods (FBFs) and a ready-to-use supplementary food (RUSF). Daily preparation and feeding also required their time. Surveys and in-home observations assessed time use. Hourly opportunity cost of caregivers' time was derived from national mandated minimum wage for domestic workers at \$0.21/hour. Caregiver opportunity cost per child reached was calculated for each arm and summarized into cost from the societal (program plus caregiver) perspective. Its impact on overall relative cost-effectiveness of the four arms was assessed. Sensitivity analyses of caregiver's time amounts and values were conducted.

Food preparation led to the major difference in opportunity cost between the three FBFs and RUSF. Unlike the FBFs, RUSF requires no preparation. FBF porridge making was often combined with other activities. Based on observational data, 65.5 percent of preparation time was attributable to the study flours, equivalent to 22 minutes per meal. Caregivers' opportunity cost per child over 18 months of age ranged from \$152 to \$179 for the three FBFs, and was \$99 for RUSF. This addition of caregiver time cost shifted RUSF from most expensive arm to second most expensive and therefore affected some comparative rankings of the overall cost-effectiveness. Sensitivity analyses showed that changing values of the hourly wage or time attribution to study food preparation could alter relative cost effectiveness ranking of RUSF to different extents. In the most extreme cases, RUSF became comparable to the most cost-effective arm.

Caregivers' time was a substantial part of total societal cost, with differences among study foods due mainly to food preparation time. Time valuation could affect some relative cost-effectiveness rankings.

**Access:** <https://foodaidquality.org/resources>

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***Formative Research to Tailor Counseling Messages for a Supplementary Feeding Program in Sierra Leone Reveals Link between Knowledge, Social Stigma and Recipe Adherence***

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**Authors:** Griswold, Stacy; Suri, Devika; Langlois, Breanne; Shen, Ye; Walton, Shelley; Webb, Patrick; Rogers, Beatrice

**Date/Place of Presentation:** ASN, June 2018

**Themes:** behavioral change communication; SBCC; supplementary feeding

**Abstract:** Moderate acute malnutrition (MAM) in children under age 5 is treated with specially-formulated supplementary foods such as corn-soy blended flours which require the addition of oil and/or water in specific ratios. While trained personnel carry out MAM screening and health monitoring at health facilities, the burden of preparing food and providing MAM treatment falls to caregivers at home. We aimed to understand barriers to knowledge uptake and recipe adherence among caregivers and to identify messages that clinic staff and community health workers could communicate when counselling on proper food preparation.

We conducted eight focus group discussions (FGDs) of twelve participants at four locations in Pujehun District, Sierra Leone. Participants were purposively selected by community role. Using a Mende or Krio-adapted semi-structured guide, four FGDs discussed malnutrition causes, common complementary food preparation methods and barriers to changing those methods; four discussed modes of communication and community entry points. All participants were not currently participating in the supplementary feeding program (SFP). Interviews were recorded and translated to English. Subsequently, a workshop convened nutrition and health community experts to review barriers to change and propose messages which were pre-tested among current SFP beneficiaries. The messages were revised based on results. Final messages were tested on current SFP beneficiaries.

Ninety-six individuals participated in FGDs. We found that MAM children were not perceived as ill even among health workers. In addition, food was not viewed (in any form) as a mode of treatment and health workers often considered caregivers “lazy.” These perceptions influenced caregiver behavior around sharing, dosage and recipe preparation. Though caregivers were recognized as the primary cooks in households, husbands, neighbors, secondary caregivers and mothers-in-law influenced their sense of power to prepare the food as instructed by SFP staff. Final messages were framed in a way to relate “malnutrition” with “illness” and the “food” with “treatment.”

It was determined that gaps between SFP messaging and community knowledge created barriers to recipe adherence among caregivers.

**Access:** <https://foodaidquality.org/resources>

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***U.S. Food Safety Modernization Act Standards Now Being Applied to Food Aid Products for Nutrition and Humanitarian Response***

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**Authors:** Schlossman, Nina; Weeks, Elizabeth

**Date/Place of Presentation:** ASN, 2018

**Themes:** food safety; food aid

**Abstract:** The Food Safety Modernization Act (FSMA) of 2011 improved food safety requirements across the United States (U.S.) food system. Instituting preventive approaches to catch tainted foods before they reach the consumer and reduce foodborne illness saves lives and spares public health resources. FSMA is the first major overhaul of us food safety legislation since 1938; all manufacturers, including those who produce food aid products for USAID must comply with preventive practices.

The objective of the the Food Aid Quality Review Phase III (FAQR III, implemented by Tufts University) team's work is to introduce modern food safety and microbiology standards into the specifications for food aid products to address and prevent moderate acute malnutrition (MAM) as part of the United States Agency for International Development (USAID) efforts to improve nutrition quality and safety of food aid products.

The standards have been researched and applied to the manufacturing specifications for each product, starting with the micronutrient fortified blended flour (FBF) products. The deoxynivalenol (DON) test for vomitoxin has been developed and added to the specifications for all grain based food aid products.

Specifications for corn-soy blend plus, super cereal plus (SC+), and fortified milled rice now include FSMA-appropriate microbiological testing. Improved formulations deliver bioavailable forms for iron and enhanced micronutrients and SC+ includes a dose of animal protein from dairy. These foods are widely consumed as part of a humanitarian ration and targeted to mothers and children in the first 1,000 days to address MAM. These vulnerable populations will benefit most immediately from improved food aid safety measures.

The application of FSMA to the food aid supply chain, including the DON testing, can be applied globally and will be essential to ensure safety as more and more local and regional manufacturers supply the humanitarian food aid basket.

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