Nutrition-Sensitive Agriculture: What Works and Why
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Toolbox of Proven Solutions

- Improved BF
- Complementary Feeding
- Behavior change
- Food supplementation
- Vitamin A
- Iodized Salt
- Disease prevention & control
- Pneumonia and diarrhoea
- WASH
- Agriculture
- Women’s Empowerment

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The ‘F’ Diagram

Sanitation and Clean Environment

Feces

Fluids

Fingers

Flies

Fields/Floors

Safe Drinking Water (collection, transport, storage, treatment)

Food

Handwashing and Food Hygiene

Source: revised from WSP, 2012

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WASH-Nutrition Conceptual Framework

- Water source far from home
- Inadequate storage
- Water pricing
  - High amount spent on water
  - Low water quantity
  - Unimproved sanitation
  - Poor hand-washing
    - Faecal contamination of home
      - Nematode infection
      - Environmental Enteropathy
      - Diarrhea
      - Poor nutritional status
    - Poor water quality
      - Unprotected water source
      - Less money for food
      - Less time for food preparation

Source: O. Cumming, London School of Tropical Medicine and Hygiene, 2013

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# How Does Agriculture Affect Nutrition?

## Food Consumed
- Calories
- Protein
- Micronutrients

## Income Invested in...
- Diverse diet, nutrient-rich foods
- Health care
- Sustainable livelihood for year-round food and health care access

## Gender in Agriculture
- Maximizing women’s control of income
- Managing time and energy demands

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Main Agriculture & Nutrition Pathways

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Key components of the enabling environment:
- Food market environment
- Natural resources environment
- Health, water, and sanitation
- Nutrition/health knowledge and norms
Agriculture as a source of food

- Production decisions are influenced by market prices, relative costs and risks, productive assets, preferences and cultural norms
- Processing and storage impact food access and nutrient content
• Household food production, esp. nutritious foods
Ghanaian children in HH keeping poultry twice as likely to have minimum dietary diversity
In Burkina Faso, HHs collecting wild foods and those producing food rather than cash crops had better dietary diversity; also in Burkina, women’s BMI improved in a project promoting micronutrient-rich food consumption.

• In Rwanda, hemoglobin and serum ferritin both improved among those consuming high-iron beans. OFSP, vitamin A cassava, and iron pearl millet also have some positive results.
Evidence on Food Production Pathway

Processing & Storage

• Micronutrient Fortification

• Good management, processing and storage can increase food access and reduce stunting (perhaps by 1 SD!)

• Occupational risks:
  - *E.coli* and *Salmonella* in agricultural wastewater
  - Increased malaria where water is stored
  - Risks in value chains (e.g., zoonosis)
Agriculture as a source of income

- Improved year-round income and cash flows to meet household needs, including diverse, nutritious foods, and health care
- Assumes nutritious foods and health services are accessible – reflects the importance of generating demand and need for nutrition behavior change
Evidence on Income Pathway

- Income correlated with stunting reduction at macro level, but evidence at micro level is sparse.
- Increased obesity in rural areas.
- Household income correlated with household dietary diversity, especially for female-headed households.
- Role of non-agricultural income during lean season.
- Correlation between income and diet diversity, but not evidence of effects on nutrition at household and individual level.
Agriculture as a means to women’s empowerment

- Women are more likely to spend added income on the health and nutritional needs of the household
- Women’s access to income is more often considered than time and energy use
Evidence: Women’s Empowerment Pathway

Control over assets and use of income

- Women’s control lead to better diets for women and children

Time Use & Child Care

- Tension between earning income and caring for child

Female Energy Expenditure

- Physical work compromises pregnancy and lactation nutrition

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Enabling Environment: Food Market

- Intra-household decisions on food production, expenditure and savings, and power dynamics are influenced greatly by the enabling environment
- Availability and affordability of diverse, nutritious foods in local markets drive choice, preferences

- Time and energy availability are influenced by ease of food preparation
- Disease burden influenced greatly by food safety environment, and environmental sanitation
Design nutrition-sensitive agriculture activities, outcomes, and indicators that link with nutrition-specific activities in co-located areas.

Reference the frameworks, principles, and pathways.


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Multi-Sectoral Nutrition Strategy 2014-2025
Technical Guidance Brief

BACKGROUND
Agriculture is essential to improve nutrition. Recently, the term “nutrition-sensitive agriculture” has emerged as a way to define agriculture investments made with the purpose of improving nutrition. However, without appropriate thought and planning these investments will not have a large impact on nutritional status, and consequently good health and wellbeing. This technical guidance brief focuses on nutrient-rich value chains as a nutrition-sensitive agriculture investment.

Investments in agriculture help alleviate poverty, improve food security, and may prevent undernutrition, especially since 75% of the world’s poor are rural and working in agriculture. For a majority of the rural population in East and Southern Africa countries, agriculture is the main livelihood and main source of income. Most of these rural areas are in various stages of transition from subsistence farming to commercial farming. Most of the rural dwellers depend on producing at least some of their food and depend on the market for buying the remainder, most still relying heavily on monotonous, nutrient-poor staple foods for their diets. Particularly vulnerable households also engage in daily labor on other households’ farms. Rural households also depend on income from agriculture for other expenses that affect physical and cognitive development, such as health care, water and sanitation, shelter, school fees, clothing, fuel, and transport.

PROGRAMMING PRINCIPLES
Several pathways have been identified showing how nutrition-sensitive agriculture interventions can more directly impact nutrition and food security. Interventions should be designed considering the pathways most relevant to the value chain and the most relevant underlying causes of undernutrition. Special attention should also be paid to the globally recognized programming principles (see Table 2). More

Table 1: Entry Points for Nutrient-Rich Commodities

- Target production of nutrient-rich commodities, ideally those that include nutrients lacking in diet
- Include social and behavior change components specifically aimed at consumption of targeted foods and food products within the context of a diversified diet, food safety and other important nutrition behaviors.
- Ensure target commodity and product availability in local markets and support consumption education
- Measure outcomes, including intermediate targets such as consumption and market availability

https://www.usaid.gov/what-we-do/global-health/nutrition/technical-areas
<table>
<thead>
<tr>
<th>Value Chain Examples</th>
<th>Entry Points for nutrition-sensitive interventions</th>
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<tbody>
<tr>
<td><strong>Roots and Tubers</strong></td>
<td>• Bio-fortified including sweet potato and cassava</td>
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<tr>
<td></td>
<td>• NOTE: starchy staples (e.g., cassava, white potatoes) are not nutrient-dense as defined in Table 3 but many dark colored root vegetables are</td>
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<td>• Nutrition sensitive value chain work on starchy staples is still possible, but will entail additional analysis</td>
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<tr>
<td><strong>Legumes:</strong> Groundnuts</td>
<td>• Increase availability and consumption</td>
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<tr>
<td>Soybeans</td>
<td>• Mycotoxin (e.g., aflatoxin) control</td>
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<tr>
<td>Chickpeas</td>
<td>• Soybean as an ingredient in animal food increasing availability of animal sourced protein</td>
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<tr>
<td>Beans</td>
<td>• Processing of soy into flour that can fortify traditional foods</td>
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<tr>
<td><strong>Livestock:</strong> Cattle (meat, dairy)</td>
<td>• Ensure nutrient value of animal-source foods is understood and encourage consumption</td>
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<td>Poultry (meat, eggs)</td>
<td>• Ensure safe handling of manure to avoid contaminating food</td>
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<td>Goat (meat, milk, cheese)</td>
<td>• Promote high standards of hygiene, sanitation, and food safety in handling, preserving and processing milk, meat, cheese, and eggs</td>
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<td>Sheep (meat, milk, cheese)</td>
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<td>Camels (meat, milk, cheese)</td>
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<td>Micro-livestock (e.g., guinea pigs, rabbits)</td>
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<tr>
<td><strong>Aquaculture</strong></td>
<td>• Integrate vegetable production around fish pond</td>
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<td>• Promote polyculture that favors home consumption</td>
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<td></td>
<td>• Ensure ponds do not become malaria mosquito breeding sites</td>
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<tr>
<td><strong>Horticulture:</strong> Vegetables (e.g., carrots, kale, cabbage, sweet green pepper, okra)</td>
<td>• Promote foods that are nutrient-rich</td>
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<td>Fruit (e.g., mango, avocado, citrus, passion fruit)</td>
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<tr>
<td><strong>Bio-fortified tubers, legumes and cereals</strong></td>
<td>• Vitamin A-rich maize</td>
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<td></td>
<td>• Iron-rich beans</td>
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<td>• Iron-rich pearl millet</td>
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<td>• Zinc-rich rice</td>
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<td></td>
<td>• Vitamin A-rich sweet potato</td>
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<td>• Vitamin A-rich cassava</td>
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