



NUTRITION-SENSITIVE AGRICULTURE

WHAT is nutrition-sensitive agriculture?

Nutrition-sensitive agriculture is a food-based approach which looks at agriculture with a specific “nutrition lens”. It puts nutritionally rich foods, dietary diversity, and food fortification at the heart of overcoming malnutrition. The main objective of nutrition-sensitive agriculture is the promotion of farming and food systems, which battle nutritional deficiencies in a sustainable way.

WHY is it important?

Agricultural advances can provide more and better quality food, as well as income (Figure 1). However, this does not automatically result in improved nutrition for individuals and households. Agricultural interventions must be thought about in a holistic and multi-sectorial way, and take potential negative side-effects on the nutritional situation of women and children into account. There is a missing link between improved agriculture and nutritional outcomes. Bridging this gap through the promotion of nutrition-sensitive agricultural production will contribute to adequate and appropriate household food consumption and increased income for the purchase of nutritious foods

Relevance of nutrition-sensitive agriculture for Welthungerhilfe

The primary goal of Welthungerhilfe’s Strategy 2012-2016 is to improve on Sustainable Food and Nutrition Security (SFNS) as part of its overall mandate to fight hunger and poverty. One of the principles in order to deepen the focus on SFNS consists in bridging the link between nutrition and agriculture by implementing nutrition-sensitive agriculture.

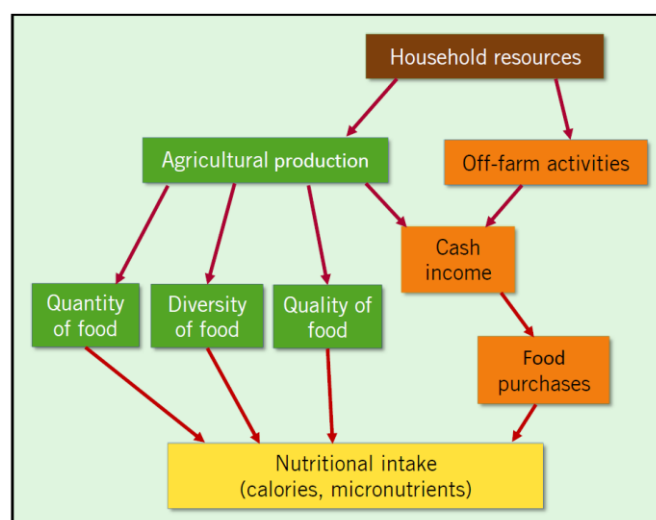


Figure 1: The Linkages between Agriculture and Nutrition (Qaim, 2013)

HOW does it work? The 10 principles of nutrition-sensitive agriculture

1. **Diversify local production & increase production of nutrient-dense crops & livestock** (e.g. through kitchen gardens). Diversified production (e.g. mixed cropping patterns, integration of crop and livestock production) can enable diversified consumption which is strongly associated with nutrient adequacy. Diversified consumption can also lead to greater income generation. Please see Example 1, 4 & 5.
2. **Enable resilience to climate & price shocks & seasonal food fluctuation:** enhance preparedness in face of climate-related shocks and seasonal hardship and manage climate-related risks (e.g. droughts, floods).
3. **Improve processing, storage & preservation** to retain nutritional value, shelf-life and food safety and to reduce seasonality of food insecurity and post-harvest losses and to make foods convenient to prepare. Please see Example 3.
4. **Improve nutrition knowledge to enhance dietary diversity, food preparation & feeding practices.** Nutrition knowledge can enhance the impact of production and income and increase demand for nutritious foods (crops & animal source foods). Please see Example 1.
5. **Invest in women:** safeguard and strengthen the capacity of women to provide food security, health and nutrition to their families. Please see Example 6.
6. **Incorporate explicit nutrition outcomes, objectives & indicators into agricultural project & policy designs,** while seeking synergies with economic, social and environmental objectives and prioritise areas and groups worst effected by undernutrition.
7. **Maintain or improve natural resource base** (water, soil, air, climate, biodiversity), critical to the livelihoods of vulnerable farmers. Manage water resources in particular to reduce vector-borne illness and to ensure safe household water sources. Please see Example 2.
8. **Expand markets & market access to vulnerable groups, particularly for marketing nutritious foods.** This can include promotion, value addition, and access to price information and farmer associations.
9. **Collaborate and coordinate with other sectors** (health, environment, social protection, water and sanitation, education, energy) to address underlying and basic causes of malnutrition.
10. **Analyse the context at local level to properly address the causes of malnutrition & most vulnerable groups.** Context analysis can include potential food resources, agro-ecology & seasonality of production and income and market opportunities (FAO, 2013).

EXAMPLE 1: LANN

LANN, “Linking Agriculture, Natural Resource Management and Nutrition”, is a community-based multi-sectorial training approach to improve family nutrition for remote areas. It focuses on improved agriculture, sustainable use of natural resources as well as improved family nutrition, including mother and child nutritional needs. The training approach integrates a lot of participatory “action learning” such as theatre, role plays, joint cooking classes and recipe development. LANN was developed in 2009 together with other NGOs in Laos and has been applied in WHH projects in Asia (Laos, Cambodia, Myanmar, Sri Lanka, India); since 2013 Sierra Leone has adopted LANN. Regarding the impact of LANN, “diet diversity” has in many cases improved which is associated with improved dietary adequacy.



Picture 1: LANN in India (Odisha): Collecting foods from the forest.

EXAMPLE 2: MIXED CROPPING

Mixed cropping is a system of sowing or planting two or three crops together on the same land, one being the main crop and the others the subsidiaries (OECD). Apart from increasing total farm productivity, mixed species cropping can bring many important benefits such as improvement of soil fertility and suppression of pests and/or diseases. Mixed cropping of plants with different root depth and structure results in optimal utilization of water and nutrients and higher resilience against environmental stress. Mixed cropping patterns can also be promoted to increase food diversity. Traditional cropping patterns can be revived that often included mixed farming systems reducing risks of crop failure, extreme weather events or droughts.



Picture 2: Woman applying mixed cropping. WHH project in Peru.

EXAMPLE 3: INTEGRATED CROP & ANIMAL HUSBANDRY

In an integrated system, crops and livestock interact to create a synergy, with recycling allowing the maximum use of available resources. Crop residues can be used for animal feed while livestock and livestock by-product production can enhance agricultural productivity by intensifying nutrients that improve soil fertility, reducing the use of chemical fertilizers (FAO, 2001). Animal source foods are an important source of high-quality protein and micronutrients. Aquaculture traditionally exists in many parts of Asia (e.g. in integrated systems for rice). Farmers need knowledge, assets and inputs to manage this integrated system in a sustainable way (FAO, 2001). Attention should be paid to possible negative effects of animal production on environmental degradation and climate change.



Picture 3: Integration of crops and livestock. WHH project in Bangladesh.

EXAMPLE 4: WOMEN EMPOWERMENT

Women play a vital role in agricultural development and food security, yet they face persistent obstacles (IFPRI, 2012). In most farming systems, females participate in all phases of agricultural production, although they often lack access to technology and resources such as credit, seed supply and labor saving devices (OECD). Increasing opportunities for women can have a powerful impact on agriculture. The FAO estimates that if women had the same resources as men, they could increase yields by 20–30%. When women's productivity and incomes increase, the benefits amplify across generations as they devote a larger income fraction to children's health and nutrition (USAID, 2012). WHH is supporting gender equality in numerous projects. In the Millenniumsdorf Sarwan, the societal status of women has improved through several activities, including discussion meetings that have changed people's mindset. Sonamuni Murmu experienced the importance of being able to take on responsibility: "In the past I could not take any decisions and I had to accept whatever my husband wished. But now we both decide what we should do for our family." Now Murmu and her husband jointly decide about the family's farming activities, nutrition and health expenditures.



Picture 4: Discussion meeting for women empowerment. WHH project in India.

EXAMPLE 5: FOOD PROCESSING

Premature harvesting, poor storage and lack of processing facilities contribute to high food and nutrient losses. Especially the conservation of perishable foods such as fruits and vegetables pose a challenge in this regard (FAO, 2010). Traditional processing methods can be improved to enhance the bioavailability of micronutrients in plant-based diets and to extend the shelf life. Methods include thermal and mechanical processing, soaking, fermentation and drying. Preservation techniques have the potential to increase the physiochemical accessibility of micronutrients and decrease the content of anti-nutrients or poisonous elements such as phytate or cyanide (Hotz and Gibson, 2007).



Picture 5: Drying of fruits and vegetables as processing technique. WHH project in Burkina Faso.

EXAMPLE 6: ALLEY CROPPING

Land degradation is a major problem in many parts of the tropics. The challenge is to increase the sustainable agricultural productivity of the land, while maintaining the soil resource base and minimizing environmental degradation. One technology that can meet those needs is alley cropping. This technology integrates trees and shrubs in spatial zonal arrangements with food crops in the production system. The presence of woody species in the alley cropping system has been shown to contribute to nutrient recycling, reduction in soil nutrient leaching losses, stimulation of higher soil faunal activities, soil erosion control, soil fertility improvement and sustained levels of crop production (Kang, 1997).



Picture 6: Alley cropping. Source: ICRAF

Hidden Hunger and nutrition-sensitive agriculture

This year's report on the Global Hunger Index focuses on a critical aspect of hunger that is often overlooked: hidden hunger. Also known as micronutrient deficiency, it affects some 2 billion people globally. This shortage in essential vitamins and minerals can have long-term, irreversible health effects as well as socioeconomic consequences that can erode a person's well-being and development. This demonstrates why not only the right to food, but also the right type of food is important for both individuals and

Strategies to overcome hidden hunger include:

1. Micronutrient supplementation
2. Food fortification
3. Bio-fortification
4. Diversification of diets
5. Nutrient-protective food preparation, storage & conservation

Nutrition-sensitive agriculture has the power to address hidden hunger through 4 out of the 5 approaches:

Fortification: Addition of single or multiple essential nutrients are added to foodstuffs regardless whether it already contains this or these nutrients.

Bio-fortification: Increase of the proportion of one essential nutrient in a staple food by either conventional plant breeding or genetically techniques.

Diversification of diets: Increasing the diversity of the diet is the simplest and only sustained measure to provide sufficient essential nutrients to the body. The more diverse foods are consumed regularly, the bigger the chance that the need for all essential nutrients is covered.

Nutrient-protective food preparation, storage & conservation: Many micronutrients are sensitive to heat, light and oxygen. Nutrient losses can be reduced by adequate storage and processing facilities, conservation techniques and cooking practices (FAO, 1996).

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Source material

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