

UNDERSTANDING THE LINKS BETWEEN AGRICULTURE AND HEALTH

Agriculture and Nutrition Linkages: Old Lessons and New Paradigms

CORINNA HAWKES AND MARIE T. RUEL

FOCUS 13 • BRIEF 4 OF 16 • MAY 2006

Agriculture is fundamental to achieving nutrition goals: it produces the food, energy, and nutrients essential for human health and well-being. Gains in food production have played a key role in feeding growing and malnourished populations. Yet they have not translated into a hunger-free world nor prevented the development of further nutritional challenges. Micronutrient deficiencies (for example, of vitamin A, iron, iodine, and zinc) are now recognized as being even more limiting for human growth, development, health, and productivity than energy deficits. Hunger among the poor also increasingly manifests itself through excessive consumption of energy-rich but nutrient-poor foods. The result is a double burden of undernutrition (deficiencies of energy, micronutrients, or both) and “overnutrition” (poor diet quality leading to obesity and other diet-related chronic illnesses).

LESSONS FROM THE PAST: HOW CAN AGRICULTURE BEST CONTRIBUTE TO NUTRITIONAL GOALS?

Agriculture is often viewed as a predominantly economic activity. But in the 1960s and 1970s, concerns about food shortages and growing populations led to an increased focus among policymakers, researchers, and donor agencies on maximizing agriculture’s nutritional potential. These efforts initially focused on staple food production and the generation of income among agricultural households and, in later decades, took account of the key role of micronutrient-rich foods and women to good nutrition. The experiences provide some key lessons on how the agricultural sector can help address undernutrition:

1. Increasing the availability and affordability of staple foods.

In the 1960s and 1970s, governments made major investments in increasing the yields of staple food crops. In this Green Revolution, farmers’ adoption of high-yielding varieties increased cereal availability by nearly 30 percent per person in South Asia and reduced the price of wheat and rice globally. But production gains did not automatically translate into equally large nutritional gains, since staples lack several essential micronutrients needed for child nutrition, and households could not necessarily access and afford the increased food supply.

2. Raising incomes in households engaged in agricultural work.

Higher incomes increase households’ ability to gain access to food, an especially important concern for poor agricultural households at risk from undernutrition. In the 1970s and 1980s, as agriculture became more commercialized in many developing countries, research found that new agricultural strategies, such as cash cropping, led to higher cash incomes and spending on food. Yet these income gains had a relatively small impact on energy intake and little or no impact on childhood malnutrition. In Kenya and the Philippines, for example, the adoption of cash cropping doubled household income, but children’s energy intake rose by only 4–7 percent. Rather than buying more of the same foods, households tended to spend extra income on higher-quality foods and other basic needs.

3. Increasing access to micronutrient-rich foods. Early efforts to increase agriculture’s contribution to nutrition neglected the role of micronutrients. To help address this gap, the nutrition community

began to engage in agricultural strategies to promote household and community production of micronutrient-rich foods, such as fruits, vegetables, fish, meat, and dairy. These interventions have been shown to effectively increase micronutrient intake and status, especially when combined with effective behavioral change and communication interventions. In northeast Thailand, for example, production of green leafy vegetables in home gardens—combined with social marketing—increased vitamin A consumption among the poor. Some efforts have been less successful, highlighting the need for appropriately designed strategies; there are also likely to be trade-offs between income gains from selling home-produced products and dietary gains from own consumption. Currently, a much larger-scale agricultural approach to micronutrient malnutrition is being developed: breeding micronutrients into staple crops through biofortification. The program is beginning to see some positive nutritional outcomes through the development and dissemination of vitamin A-rich, orange-fleshed sweet potatoes.

4. Empowering women. One of the major lessons to emerge from these decades was the critical role women play in providing nutrition to their children. Consequently, efforts were made to increase the participation of women in agricultural development strategies while also recognizing the need to facilitate women’s continued involvement in household management and childcare. Such strategies have been found effective. For example, a successful intervention from Kenya showed that support for production of orange-fleshed sweet potatoes among women increased consumption, but the nutritional outcomes were greatly improved when accompanied by strategies to promote appropriate child feeding and caring practices.

There are clearly several pathways through which agriculture can help address undernutrition, but each one has its limitations. To help improve nutrition more effectively, agricultural policies and practices need to foster synergies between the pathways, balancing the contributions of staple foods, micronutrient-rich foods, income, and women, as well as the trade-offs involved. Additional complementary measures are needed to foster links between the agriculture and health sectors to ensure adequate maternal and child care, feeding, and hygiene practices in agricultural households, as well as access to and use of health services.

CHALLENGES AND OPPORTUNITIES FOR THE FUTURE: WHAT IS CHANGING ABOUT THE RELATIONSHIP BETWEEN AGRICULTURE AND NUTRITION?

Over the past 20–30 years, two related processes have had particularly important effects on the linkages between agriculture and nutrition—globalization and urbanization. Processes of globalization have increased the market orientation of the global agrifood system, unleashing new dynamics in food production, trade, and governance. These dynamics have reverberated throughout the food supply chain, affecting not just production, but also the quantity, quality, price, and desirability of food available for consumption. In addition, close to 40 percent of populations in developing countries currently live in

urban areas, a figure projected to rise to 60 percent by 2025. In cities, households have different livelihoods: they are less likely to produce their own food, are more dependent on cash income, and have greater access to a wider variety of goods and services. Both women and men work but often become less physically active. Together, globalization and urbanization are altering how agriculture interacts with nutrition in the following ways:

1. Creating environments conducive to obesity and diet-related chronic diseases. Globalization and urbanization are associated with greater supply of and demand for energy-dense, nutrient-poor foods, leading to obesity and related diseases in countries that have yet to overcome childhood undernutrition. In Mexico, for example, overweight and obesity among the poor nearly doubled over 10 years to reach 60 percent in 1998, while stunting still affected almost half of the preschoolers from low-income groups. The emergence of this double nutritional burden calls for policymakers to rethink how to use agricultural policy as an instrument for good nutrition. The lesson from the past—that agriculture can best meet nutritional needs by providing as cheap a source of abundant calories as possible—may no longer be appropriate. For example, Brazil's past policies promoting increases in the production, export, and consumption of soybean oil led to soaring consumption of soybean oil, which today contributes to excessive fat intake in Brazil. Agriculture thus faces a new challenge: ensuring a sufficient supply of staples and micronutrient-rich foods without encouraging excessive consumption of energy-dense, nutrient poor foods.

2. Elevating the role of agricultural marketing in nutrition linkages. Earlier efforts to improve the links between agriculture and nutrition focused on production. Today, the more market-oriented nature of agricultural policies means agricultural markets play a more important role in determining food availability and access—a shift reinforced by the role of urbanization in increasing the ratio of market consumers to market producers. One example of this shift concerns horticultural products. Production of fruits and vegetables has increased over recent years, yet inadequate consumption remains a problem worldwide. This gap exists partly because of failures of the market supply chain, such as postharvest losses and lack of market access by small producers, which constrain access and availability. To help address micronutrient deficiencies and chronic diseases, the horticultural and health sectors therefore need to focus not only on production, but also on leveraging and adapting aspects of the market supply chain to make fruits and vegetables more available and affordable for poor households, while also ensuring small producers' access to markets. This challenge applies to the global supply chains linking fruit and vegetable producers in Africa and Latin America to consumers in Europe and North America, as well as to smaller local markets throughout the developing world.

3. Increasing the impacts of food and nutritional demands on agriculture. The greater market orientation of food production and consumption has increased the bidirectional links between agriculture and nutrition: agriculture still affects nutrition, but food and nutritional demands increasingly affect agriculture. It is a twofold process.

First, the increasing importance of the cash economy arising from globalization and urbanization is increasing the power of consumers in the marketplace. Second, the rise of the food-consuming industries (processors, retailers, restaurants) is subordinating the power of agricultural producers, especially smallholders. In China, for example, rising incomes, urbanization, and population growth have rapidly increased consumer demand for meat. Demand from supermarkets and restaurants is now growing even faster and includes new demands for volume and specific quality attributes. This situation affects traditional backyard producers of pork (the dominant meat), who have trouble responding to such demands, and large-scale industrial producers, whose share of pork production is rising despite associated negative environmental and health impacts. The challenge for the agricultural sector is to respond to the increasing power of consumers and the food-consuming industries without leaving behind smaller, poorer farmers. At the same time, as diets change, the challenge for the health sector is to encourage consumers—and the food-consuming industries—to demand nutritious foods from agriculture. As past experience has shown, more income and greater market orientation is not always associated with good nutrition—a lesson reinforced by the rise of obesity and chronic diseases.

INCREASING THE SYNERGIES BETWEEN AGRICULTURE AND NUTRITION

The changing interaction between agriculture and nutrition in a globalizing and urbanizing world demands new policy responses: old lessons need to be applied and adapted to new realities; emerging challenges and opportunities must be recognized and addressed. To improve the synergies, institutional barriers preventing closer coordination between agrifood and health systems must be broken down. Inflexible governance structures hindered progress in the past and, unless confronted, will continue to do so in the future. At a basic level, capacity building is needed in developing countries to allow more coordinated approaches, while in regional and global institutions, nutritional considerations should become part of multinational agricultural policymaking and agricultural considerations should be built into efforts to improve nutrition and health. ■

For further reading see H. E. Bouis, *Special Issue on Improving Nutrition through Agriculture, Food and Nutrition Bulletin 21, no. 4 (2000)*; L. Schäfer Elinder, "Obesity, Hunger, and Agriculture: The Damaging Role of Subsidies," *British Medical Journal* 331 (3 December 2005): 1333–1336; C. Hawkes, "Uneven Dietary Development: Linking the Policies and Processes of Globalization with the Nutrition Transition, Obesity, and Diet-Related Chronic Diseases," *Globalization and Health* 2:4 (28 March 2006); P. Pinstrup-Andersen, A. Berg, and M. Forman, *International Agricultural Research and Human Nutrition (Washington, DC, and Rome: International Food Policy Research Institute and UN Administrative Committee on Coordination/ Sub-Committee on Nutrition, 1984)*; M.T. Ruel, *Can Food-Based Strategies Help Reduce Vitamin A and Iron Deficiencies? A Review of Recent Evidence*, IFPRI Food Policy Review 5 (Washington, DC: International Food Policy Research Institute, 2001).

Corinna Hawkes (c.hawkes@cgiar.org) is a research fellow in the Food Consumption and Nutrition Division (FCND) at IFPRI. Marie T. Ruel (m.ruel@cgiar.org) is director of FCND at IFPRI.



International Food Policy Research Institute

2033 K Street, N.W. • Washington, D.C. 20006-1002 • U.S.A.

Phone: +1-202-862-5600 • Fax: +1-202-467-4439 • Email: ifpri@cgiar.org

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