



COPENHAGEN
CONSENSUS
CENTER

FOOD SECURITY AND NUTRITION

V I E W P O I N T P A P E R

*Benefits and Costs of the Food Security and Nutrition
Targets for the Post-2015 Development Agenda*

ACDI/VOCA

Benefits and Costs of the Food Security and Nutrition Targets for the Post-2015 Development Agenda

Post-2015 Consensus

Ladd
ACDI/VOCA

Charlotte Block
ACDI/VOCA

INTRODUCTION	1
BENEFITS OF IMPROVED PHH PRACTICES.....	2
CONSUMPTION SMOOTHING THROUGH IMPROVED PRESERVATION AND STORAGE	3
INCREASED INCOMES	3
PREVENTION OF AFLATOXIN CONTAMINATION.....	4
CONCLUSION	4

Introduction

One of the targets of Millennium Development Goal (MDG) 1 is to halve the proportion of people who suffer from hunger by 2015. Globally, there has been some improvement in children's nutritional status, including a decrease in stunting in children under 5 years old from 40 percent to 25 percent between 1990 and 2012. Asia has reached the MDG target of halving the number of children who are stunted, but in Africa the number has increased from 45 million to 59 million children.¹ As we head into 2015, according to UNICEF-WHO-World Bank joint estimates, there will be still 154 million children worldwide who are stunted.²

While the percentage of children suffering from stunting has decreased, the overall numbers continue to grow globally, especially in Africa, where birthrates are high. Over the past several years there has been a push for a more focused emphasis on reduction of stunting. As we look forward to setting new development goals, there has been significant support for including stunting as a stand-alone indicator. Because stunting is a chronic condition and can reflect the long-term impacts of agriculture programs, it can serve as a proxy for measuring their sustainability. A key challenge is agriculture projects with nutrition-sensitive activities focusing on reduced stunting as an outcome and then measuring this outcome in an environment where they often do not target individual households.

IFPRI developed and put forth seven pathways for agriculture to influence nutritional health within an enabling environment,³ which have been widely discussed and adoption begun among agriculture and nutrition communities. ACDI/VOCA considers post-harvest handling (PHH) to be a critical part of agriculture that should also be considered in this context, and has added it as an eighth pathway.

Nutritionists often focus on nutrient-rich crops, biofortification, or fortification as the only means to improve nutrition. To make an impact on undernutrition, however, we need to find creative ways to achieve and measure improvements in each of the eight agriculture-to-nutrition pathways and to support enabling environments that improve nutritional status, particularly reduced stunting.

Eight Agriculture-to-Nutrition Pathways:

- **Post-harvest handling/processing**
- On-farm food production
- Income generation
- Food prices
- Women's nutritional status

¹ http://www.who.int/topics/millennium_development_goals/hunger/en/

² http://www.who.int/nutgrowthdb/jme_infosheet.pdf

³ Gillespie, S., J. Harris, S. Kadiyala. 2012. "The Agriculture-Nutrition Disconnect in India, What Do We Know?" IFPRI Discussion Paper 01187

- Women's childcare management
- Women's socioeconomic status
- Allocation of income

Post-harvest activities are an integral part of the food production system. The main aim is to promote best practices for PHH along the entire value chain, focusing on a broad spectrum of operations and stakeholders in marketing systems. The ultimate goal of the system is to decrease losses from the field, increase incomes, and not overburden women's labor, while delivering safe and high-quality food to consumers. PHH activities have an impact on each pathway and therefore are crucial to decreasing stunting rates.

PHH is important for improving nutritional status, but it has often been overlooked. It is estimated that 1.3 billion tons of food, or one-third of all that is produced in the world, is lost every year through inadequate PHH.⁴ In developing countries, 40 percent of the loss occurs at harvest and immediate handling stages.⁵ Improving PHH at the smallholder farmer level will increase quantities of harvested crops, decrease costs, improve quality, and improve year-round availability. At the same time, it will help increase farmers' incomes by helping them make more efficient use of inputs, time, and labor. Improved PHH will also provide creative techniques for improving consumption and smoothing year-round access to and availability of quality foods.

The development community should also ensure that it does not miss opportunities to increase incomes and consumption of crops improved by PHH practices, such as improved storage, off-farm handling, transportation, and improved processing, including value-added fortification. PHH encompasses a vast array of activities across all eight pathways that can significantly improve nutritional status. For example, PHH improvements can save labor and time, thus, in the case of women, reducing workloads and allowing more time for family care practices and other income generating activities. They can also increase incomes, allowing families to make more nutritious food choices. For example, in Ethiopia, the Agriculture Growth Program-Agribusiness and Market Development project, which is managed by ACDI/VOCA, is working with smallholder farmers of chick peas and with Pepsico and Guts-Agro to produce chickpea shirro, a variation on a traditional Ethiopian food. Because the chickpeas are pre-roasted, this shirro has a cooking time that is 50 percent shorter than traditional shirro, and it is cheaper to make in terms of time and labor. Reducing food preparation time frees up women's time for other activities.

Benefits of Improved PHH Practices

Three important outcomes of improved PHH that have the potential to reduce stunting are improved handling and storage, increased incomes, and decreased aflatoxins. All of these can be addressed in an agriculture value chain or market development project.

⁴ Gustavsson, J., C. Cederberg, U. Sonesson, R. Van Otterfijk, A Meybeck. 2011. "Global Food Losses and Food Waste: Extent, Causes and Prevention" United Nations, Food and Agriculture Organization. Rome, Italy.

⁵ <http://www.fao.org/save-food/resources/keyfindings/en>

Consumption Smoothing Through Improved Preservation and Storage

If a woman is pregnant at a vulnerable time during the lean season, inadequate or low-quality food can lead to intrauterine growth restriction. Or if a child is starting complementary feeding during the lean season, the lack of high-quality food could stunt growth. Smoothing consumption by addressing lean-season gaps is crucial to the reduction of stunting. This means that pregnant and lactating women and children under two years old would have access to and availability of adequate nutrients year round. Stable stores of food can go far in addressing the 1,000-day window-of-growth opportunity, the time from conception to age two when a child's growth is most vulnerable.

Improving PHH includes adopting handling techniques such as improved drying and storage, as well as preservation practices such as drying or canning. Successful storage and preservation has several important outcomes. The first is food safety: Improper handling of food can lead to food-borne illness, which can contribute to chronic malnutrition or be life threatening. When a household is already impacted by malnutrition, any illness from a food-borne pathogen is more likely to result in poor outcomes. Proper storage and preservation also prolongs the availability of food throughout the year, thus smoothing out the caloric and nutritional disparities between lean and post-harvest seasons. Food can be sold and consumed more consistently throughout the year, contributing to better household health and more-consistent sources of both food and income.

Increased Incomes

Improved PHH increases income in two ways. First, decreasing the quantity of cash crops lost to diseases, pests, and poor storage allows producers to sell more to the market. Second, decreasing losses (from poor handling and aflatoxin) of food kept for home consumption reduces the amount of money households must spend on supplemental food. The combination of increased income from sales and reduced expenditures on supplemental food increases overall household savings or net income. These savings can be invested back into agriculture and other livelihoods, used to diversify the family diet, or used for other household expenses such as education.

Knowledge, behavior and gender roles in addition to opportunity costs play key roles in increasing and using incomes to improve nutritional status. For example, participating in growing a cash crop may affect a household's overall resources. A family may reduce the area on which it grows nutrient-rich crops for home consumption in order to grow more cash crops. Or they may give up off-farm activities if involved with a crop that requires more labor and time. So while income from a specific crop may increase, overall household income or access to nutritional food may decrease. One way to measure project impact is to compare net household income with the cost of a minimally nutritious diet to see whether a household has been pushed or pulled out of poverty enough to afford a nutritious diet. In addition, nutrition behavior change and women's empowerment are also crucial for influencing nutritional practices and household income allocation, which translate to more income going toward household purchase and consumption of nutritious foods.

Prevention of Aflatoxin Contamination

One of the most common causes of post-harvest loss among staple crops is aflatoxin contamination. Aflatoxin can be combatted in the field with biocontrol agents, but the practice is not widespread, and poor processing and storage can further support the growth of the toxin-producing fungus after harvest. In high concentrations, aflatoxin can be fatal. At lower concentrations, its toxicity slowly affects consumers through cancer, immune suppression, and stunting in children.⁶ Many rural farmers in less-developed countries eat a diet composed primarily of staples such as maize and are therefore exposed to high levels of toxins. Children are exposed to toxins in utero, through breast milk, and through maize-based complementary foods during the first 1,000 days. Women and children also are exposed to aflatoxins through dairy and other products from livestock fed contaminated feed. Improved handling and storage will minimize the amount of aflatoxin exposure at the household level and further along the value chain.

The ACDI/VOCA's AflaSTOP project in Kenya is testing innovative technologies to promote full commercialization and adoption of effective, low-cost storage and drying options to combat aflatoxin. These practices will reduce the contamination levels of aflatoxin in post-harvest staple crops, which will increase the amount of these crops sold to market and decrease toxin exposure in both animals and consumers.

Conclusion

It is critical that we reduce stunting to allow millions of children to reach their full potential, and improved PHH practices can greatly support this effort at a variety of points along the value chain. We need to keep in mind, that while PHH activities are important to reducing stunting and thereby improving nutrition, it may not be possible to accurately evaluate successes by measuring stunting rates alone. PHH interventions work several steps away from direct implementation at the household level, and are therefore unlikely to have an immediate, direct impact on stunting. Rather, to measure these interventions' effects on stunting, we need to develop indicators that measure the intermediate outcomes that affect nutritional status. Nutrition-sensitive indicators capturing these outcomes, when combined with those of nutrition-specific interventions, will be able to demonstrate greater impact on reducing stunting.

Investments in PHH are a key component to reducing stunting. As a community of implementers, we need to find creative ways to address PHH in all eight of the agriculture-to-nutrition pathways. Similar to a whole being greater than a sum of its parts, we need to define and begin measuring the intermediate outcomes of agriculture programs that affect stunting and acknowledge that a combination of interventions along the value chain are necessary to improve nutritional status.

⁶ http://www.ifpri.org/sites/default/files/publications/focus20_04.pdf

This paper was written by Ladd, MS RD, Senior Technical Director, Nutrition and Charlotte Block, MS RD Technical Director, Nutrition on behalf ACDI/VOCA an economic development organization that fosters broad-based economic growth, raises living standards and creates vibrant communities. The project brings together 60 teams of economists with NGOs, international agencies and businesses to identify the targets with the greatest benefit-to-cost ratio for the UN's post-2015 development goals.

For more information visit post2015consensus.com

COPENHAGEN CONSENSUS CENTER

Copenhagen Consensus Center is a think tank that investigates and publishes the best policies and investment opportunities based on how much social good (measured in dollars, but also incorporating e.g. welfare, health and environmental protection) for every dollar spent. The Copenhagen Consensus was conceived to address a fundamental, but overlooked topic in international development: In a world with limited budgets and attention spans, we need to find effective ways to do the most good for the most people. The Copenhagen Consensus works with 100+ of the world's top economists including 7 Nobel Laureates to prioritize solutions to the world's biggest problems, on the basis of data and cost-benefit analysis.

