Concept Note 6

Improving the nutrient content of crops to improve micronutrient intake levels for farmers and their families

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Background

To address SPRING's mandate to improve maternal and child nutrition outcomes in the targeted Feed the Future countries, this study seeks to examine the relationship between agricultural production, crop quality, and nutritional status in order to develop informed strategies for improving diet quality and nutritional outcomes in affected regions. Systematic data collection about the farmers correlated to their consumption and agricultural output may offer valuable insight in order to understand and ultimately improve the vitamin A, iron, and zinc nutrient intake levels of local farmers and their families.

Research Objectives

1. Develop detailed profiles of farmers: their nutrition status, their cropping systems, the nutrient content of their cropping systems, the disposition of their crops, the food items they consume, the sources (own production versus purchase) of those foods, the key food sources of the essential micronutrients they consume and the sources of those key micronutrient containing foods.
2. Analyze how farmers could change their cropping systems to improve the nutrient content of the crops they produce to improve the vitamin A, iron and zinc nutrient intake levels of their families.

Methods

SPRING will focus on small holder farmers (< 2 hectares). To devise effective strategies and programs to improve the nutrition status of smallholder farming households, it is essential to understand their household- and farm-related characteristics and behaviors. HCES which contain recent, relevant and reliable data, will be used to develop these profiles. The wealth of information that HCES contain—about the household's use of extension agents, their sources of seeds, the cost of inputs, selling prices, and a variety of measures about market access and markets—will be analyzed to identify the farming households' socioeconomic context—will be used to identify programs, platforms and other potential opportunities for SPRING to devise activities and programs for integrating nutrition and agriculture.

Using the agricultural component of HCES and following McIntyre et al. (2001), estimate the current nutrient content of crops produced by smallholders. At minimum, two scenarios will be analyzed to examine how nutrient intakes might be optimized, given alternative constraints.

Scenario 1: Holding constant the quantity of land per adult consumption equivalent, and holding constant the species of crops currently planted, optimize the intakes of these 3 essential micronutrients and caloric intake.

Scenario 2: Holding constant the quantity of land per adult consumption equivalent, and allowing the species of crops currently planted to change to ones not currently planted on the farm, but restricted to ones which are agro-bio-ecologically feasible in the household's location, optimize the intakes of the 3 micronutrients and calories.

Other scenarios might be specified to take into account other constraints, e.g., the culturally dictated constraint of maintaining some minimum quantity of highland banana (matooke) in McIntyre et al.'s Uganda analysis.

Subsequently, other contextual and motivational considerations will be analyzed and used to craft a program and an SBCC strategy that will be designed to encourage smallholders to plant more a nutritious cropping system. SPRING will then decide whether or not to implement the strategy, and whether or not to monitor and evaluate it. The contextual and motivational considerations that will be investigated will include the presence of community-based organizations, farmer organizations, agricultural extension services, road availability, agricultural input markets (include seed markets), agricultural output markets. Information about these items can be collected as part of the same survey, using a community questionnaire.

References

McIntyre BD, Bouldin DR, Urey GH, Kizito F. Modeling cropping strategies to improve human nutrition in Uganda. *Agricultural Systems,* 2001;67:105-120.