

Agricultural extension and advisory services: Frontline contributors to the Nutrition Decade

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INTRODUCTION

There is growing interest in better leveraging agricultural extension and advisory services (AEAS) for nutrition-sensitive agriculture (Fanzo et al. 2015; GFRAS 2016a). Pluralistic AEAS (defined in Box 1) includes public, non-governmental organization (NGO), and private sector entities that regularly interact with millions of farmers. For readers who are more familiar with health programming, AEAS play a role similar to community health workers (CHWs). It should be noted, however, that AEAS typically engage farming households with the potential to produce a marketable surplus (USAID 2016), whereas CHWs focus on populations most vulnerable to poor health. Enlisting AEAS as vital partners in the UN Decade of Action on Nutrition is essential to realizing the Sustainable Development Goals and 2025 World Health Assembly targets. They are the foot soldiers positioned to play a key role in realizing healthier food systems. Their specific contributions, however, must build on their core competencies and will only be realized when there is alignment between programmatic, market and policy incentives.

Discussions related to nutrition-sensitive agriculture, understood here as efforts to maximize agriculture's contribution to nutrition, have at times considered agriculture in the absence of the market forces to which it responds. This paper outlines opportunities for AEAS to continue their vital role in supporting the production decisions of farming households, while calling attention to incentives that may facilitate AEAS contributions to nutrition. It is organized into three parts: Part I explores the context of AEAS and opportunities for incentivizing nutrition-sensitive action; Part II discusses the role of partnerships, and Part III reviews concrete ways that AEAS can work to improve nutrition.

PART I: THE CONTEXT OF AGRICULTURAL EXTENSION AND ADVISORY SERVICES: OPPORTUNITIES AND CHALLENGES TO INTEGRATING NUTRITION

Box 1. DEFINITION OF PLURALISTIC AGRICULTURAL EXTENSION AND ADVISORY SERVICES

"All the different activities that provide the information, [goods] and services demanded by farmers and other actors in rural settings to assist them in developing their own technical, organizational, and management skills and practices so as to improve their livelihoods and well-being." (GFRAS 2012, p. 2).

AEAS stakeholders

AEAS are responsible to the farming households whom they serve, and to their funding organization. Institutions of higher learning that are responsible for training the next generation of AEAS staff play a key role in shaping the scope of AEAS activities. Public and private sector actors contribute to the policy and market environments in which farming households operate. Finally, consumers demanding

agricultural goods play a key role in determining the market pull for various products. Each stakeholder group influences the environment in which AEAS operate in ways that can facilitate or impede nutrition-sensitive action.

The new extensionist concept

The new extensionist concept put forth by the Global Forum for Rural Advisory Services (GFRAS) envisions AEAS staff equipped to facilitate dynamic problem solving among rural populations (GFRAS 2012). The new extensionist is responsive and effective in the face of rapid changes impacting global markets, and enables agricultural actors, including farmers, producer organizations, and researchers, to overcome barriers and leverage existing resources. The new extensionist contrasts historical AEAS models wherein staff acted as conduits of agricultural information under the assumption that knowledge would lead farmers to adopt new agricultural practices.

Despite the momentum to modernize AEAS, activities to maximize market linkages, diversify production, and empower women and marginalized groups continue to receive limited attention (MEAS 2014). AEAS staff have many competing responsibilities, and nutrition may add to an already lengthy list. In many countries, public sector AEAS budgets are severely constrained and high vacancy rates are the norm (Fanzo et al. 2015). AEAS staff often possess little nutrition knowledge themselves, and have limited familiarity with local health and nutrition issues and attitudes. These challenges call into question whether it is reasonable to task AEAS staff with nutrition promotion (MEAS 2015).

Opportunities for incentivizing nutrition-sensitive extension

By identifying appropriate incentives and aligning policies, training and cross-sectoral priorities, AEAS may be able to institutionalize a nutrition-sensitive approach that leads to lasting change. Several promising approaches follow.

Donor leadership

Donor initiatives increasingly require agricultural development projects to deliver both increased productivity as well as improved nutrition outcomes, for example, USG Feed the Future Initiative, the Gates Foundation's Nutritious Food Systems Initiative, Comprehensive Africa Agriculture Development Programme (CAADP) Nutrition Task Force. Non-governmental organizations (NGOs) and some national

AEAS are responding, but it is unknown whether these changes will persist should donor priorities shift away from nutrition-sensitive agriculture.

Financial and programmatic accountability measures

The Scaling Up Nutrition (SUN) Movement has trained member countries to conduct budget analyses that estimate financial commitments to nutrition interventions (SUN Movement 2016). Coupled with SUN's common results framework, countries are equipped with tools to plan, track and evaluate their progress on nutrition across government ministries. When SUN funds are available to ministries, the common results framework can serve as a tool for incentivizing ministry's respective efforts to improve nutrition. This could even translate into opportunities for greater pay for AEAS staff performing more nutrition related activities.

Market pull

Market-based demand for nutritious foods can incentivize nutrition-sensitive AEAS. Creating demand for more nutritious foods is often a function of multiple socio-economic functions, including income growth and efforts to change food preferences. Many nutrient-dense foods already exact a higher price at the market (e.g. dairy, meat, fruits and vegetables), yet the perishability of these products and barriers to market entry can make it difficult for smallholder to compete. AEAS can support the production of these commodities and can partner with efforts to improve demand for nutrient-dense foods, as discussed further in Part II.

Nutrition's role in broad-based, gender-equitable economic growth

A productive workforce is key to growing the GDP of low- and middle-income countries, yet human capital is severely constrained by poor nutrition. Nutrition was an underlying cause of death in 45 per cent of child deaths in 2011 (Black et al. 2013); this statistic evokes moral outrage, and also provides a compelling argument for addressing the drag that poor nutrition imposes on the growth potential of countries shouldering the greatest burden of child deaths and stunting. Efforts to translate nutrition-related costs into economic figures are having an impact on the fiscal priorities of some high-burden countries (e.g. Guatemala) and should continue.

Women's roles as food producers, consumers and family caregivers can also function as an economic incentive for

better integrating nutrition and AEAS. Typically underserved by AEAS (Jiggins, Samanta and Olowoye 1997), women farmers often stand to increase agricultural productivity more substantially than male counterparts (FAO 2011). Due to women's traditional responsibility for family meals, in many instances they have played an outsized role in selecting foods. Although economic analyses are lacking, there is a logical argument to be made for greater marginal returns to investing in women's agricultural productivity and in creating demand for nutrient-dense foods.

Training and Institutional Capacity Development

AEAS staff are typically trained at technical colleges, where the curriculum rarely includes nutrition. Efforts to include nutrition in the core curriculum of all trainees are underway at four-year institutions including the Zamorano Pan-American Agricultural School, and the Food and Agricultural Organization of the United Nations (FAO) is developing modules appropriate for pre-service AEAS training (FAO in press).

Integrating Gender and Nutrition within Agricultural Extension Services (INGENAES) is a United States Agency for International Development (USAID) funded project assisting institutions to implement AEAS that responds to the needs of women and men farmers, and that improve the supply and consumption of nutritious foods. The project developed the Institutional Review and Planning Framework (IRPF), which guides institutional management through a process of reflecting on the roles that food and nutrition play within their own lives, responding to case studies that depict nutrition challenges confronted by rural households in their local context, and contemplating how their organizational mission provides the basis for a commitment to nutrition. It moves nutrition from an implicit component of an organization's work to an explicit priority. Organizations can access action-based training and on-the-job support for staff at all levels to gain the conviction, skills, and behaviours necessary to support improved nutrition. Brief fact, tip and activity sheets guide AES staff through either information or specific practices and activities that support improved nutrition.¹

PART II: COORDINATING AND COLLABORATING WITH OTHER SECTORS

Multisectoral collaboration can facilitate shared understanding about which roles are most appropriate for AEAS and which are better left to other sectors. Relationships among diverse organizations should be built on a clear understanding of each partner's respective needs and desires.

AEAS staff typically receive limited training and support in how to conduct appropriate nutrition education or to use Social and Behaviour Change Communication (SBCC). In some programmatic settings, staff might have the latitude to expand their mandate to influencing food preferences. In Malawi, a package of nutrition education materials geared toward AEAS included labelled pictures of hundreds of locally available foods intended to broaden thinking about production, marketing and consumption (FAO 2015).

In other situations, nutrition education may be better left to the health sector. In Ethiopia, a process review collected consistent descriptions of the respective roles of home economics workers (HEWs) and development agents: these agents share services and information related to producing a more diverse diet, while HEWs create demand for these foods and share nutrition-specific information (SPRING 2014a). Challenges to coordination were similar to those encountered by other projects: although a National Nutrition Plan existed, the commitment of some signatory entities to nutrition was not evident. National-level coordination was better than that observed at the regional level, and greater commitment to nutrition was associated with increased levels of funding.

Breastfeeding is an example of a nutrition-related practice that includes aspects relevant to the roles of AEAS as well as others that are best addressed by health sector staff. AEAS staff can facilitate conversations about the importance of ensuring that lactating women who work in agriculture are encouraged to take breaks to either express their milk or breastfeed their children. AEAS staff are not typically trained to provide lactation support, however, which may be better provided by frontline health workers.

¹ Available at: <http://ingenaes.illinois.edu/library> [last access 26 April 2017].

PART III: HOW TO INTEGRATE NUTRITION WITHIN AEAS

Work towards gender equity

The gender norms that permeate decision-making around agricultural production, consumption, and income allocation play an outsized role in determining whether nutrition interventions achieve impact (Malapit and Quisumbing 2015). Gender-transformative approaches that prioritize both women's rights and increased agricultural productivity can foster more equitable decision-making and labour allocations. Providing women with tools, technology and training to reduce on-farm time and labour burdens can have a positive impact on empowerment (GFRAS 2015). Positive nutrition outcomes can also be achieved through non-food approaches, such as increasing opportunities for off-farm employment that raise women's income, given women's propensity to invest a significant portion of their available resources in family food security and nutrition (GFRAS 2016a).

AEAS staff can positively engage men and women in conversations regarding gender equitable decision-making, expenditures of agricultural earnings on nutritious foods, and intra-household food distribution. Such conversations challenge the assumption that nutrition is a "women's topic", and is therefore less important than other production-related topics (Fanzo et al. 2015).

Recognition of men's roles in nutrition has expanded, and nutrition projects that involve men are becoming more numerous (Kuyper and Dewey 2012; GFRAS 2016b). Household methodologies, for example, engage both men and women in addressing challenges that arise when household members make decisions independently, pursue competing goals and ultimately remain poor when better cooperation could improve their livelihoods. Similarly, the Household Agriculture-Nutrition Doable Actions (HANDS) framework implements activities that strengthen family relationships, improve communication, and facilitate joint decision-making (Clemmons 2015). ACDI/VOCA's Agricultural Growth Program-Agribusiness and Market Development Project in Ethiopia trained men in farmer cooperatives on dietary diversity, growth stages and hygiene, who then went on to train other cooperative members. This programme purposely targeted men due to their role as decision-makers for food selection and income allocation (SPRING 2014a).

Building on strengths: contributing to food and nutrition security

Discussions of specific nutrition-sensitive contributions appropriate for AEAS have previously been explored (Fanzo et al. 2015; GFRAS 2016a). It may be useful to conceive of these contributions within the context of the four pillars of food security (FAO 2006), an established core competency of AEAS. Although AEAS activities historically prioritize the pillars of availability and access, they can be expanded to encompass the dimensions of utilization and stability (FAO 2006).

Improving the availability of diverse, nutrient-dense foods

AEAS efforts to improve the availability of diverse, nutrient-dense foods would represent a major contribution to improved nutrition, since rural people in low-income countries are more likely to consume monotonous diets with inadequate diversity (FAO, IFAD and WFP 2013). Farming households typically consume and sell the food they grow, and are unlikely to cultivate crops or raise animals that are unfamiliar, not preferred, or for which there is no market demand (Timmer 1997; Remans et al. 2011). Where market linkages are strong, AEAS can support farmers to specialize by producing nutrient-dense foods demanded by the market (e.g. livestock, legumes, nuts, fruits, etc.) (MEAS 2014). Conversely, where geography and other factors impede market linkages, as in the mountains of Nepal, diversified homestead food production with an emphasis on nutrient-dense foods such as dark green leafy vegetables and animal-source foods may be a more effective means to improve diet diversity for farming households (Bushamuka et al. 2005; Olney et al. 2009).

Improving access to a diverse diet

Food access is a function of social, economic, and physical aspects that mediate the ability to secure the foods required to meet dietary needs. AEAS have traditionally supported food access by increasing agricultural productivity of farming households, but in order to achieve nutrition security, the concept of food access must also consider whether accessible foods meet nutritional requirements (Pingali 2015). AEAS staff can address food access in multiple ways, including: increasing production of diverse foods for the household's own consumption; improving access to markets; improving availability of nutrient-dense foods in the marketplace; reducing food prices; and promoting gender-equitable decision making related to agricultural production and income. Although market-oriented approaches need to be monitored to ensure that they do not reduce food access and livelihoods for the

rural poor, multi-country research suggests that smallholders' diets are more likely to diversify when they access greater quantities of foods in the marketplace than when increasing on-farm diversity (Sibhatu, Krishna and Qaim 2015).

Safeguarding stability

The stability dimension of food security represents the ability of a household to access diverse foods required for healthy, active living of all members, throughout the year. The concept of a "lean" or "hungry season" is familiar in many agricultural communities (Bardhan 1980; Moore et al. 1997). AEAS can advise households on how to produce diverse foods that are agro-ecologically appropriate, extend production seasons (e.g. through water management practices and varietal selection), extend the storage life of foods, and identify wild and/or indigenous foods available throughout the year. AEAS are increasingly using seasonal calendars as a means to assist families in planning for cycles of food availability vis-à-vis labour and health constraints (SPRING 2016). AEAS are increasingly engaged in efforts to support improved production and post-harvest practices, including processing and storage methods that can improve food safety and greatly reduce losses, e.g. by reducing the growth of aflatoxin and other pathogens.

Optimal utilization of nutrients

Food processing, preparation, diet quality and health status all influence the utilization of – or the body's ability to absorb and metabolize – nutrients (FAO 2006). Awareness of the unique nutritional needs of household members and sensitivity to potential gender inequities can enable AEAS to identify how agriculture impacts food utilization and to propose solutions.

A nutrition-supporting environment: Water, Sanitation and Hygiene (WASH)

Food utilization is constrained by infectious disease, which can arise from insufficient access to clean water, inadequate sanitation, and lack of appropriate hygiene practices (WHO 2015). Certain agricultural activities have significant implications for WASH.

Water

Farming households require water for household multiple uses, including household drinking, cooking and bathing needs, in addition to irrigation and livestock. A growing body of work

supports planning for these diverse uses in a coherent way in order to reduce conflict and unintended consequences to either human health or livelihoods (SPRING 2014b). AEAS can work with farmers to eliminate or reduce pollution of water sources by advising on appropriate practices for the application of pesticides and fertilisers (both organic and inorganic). Improved irrigation practices, such as rainwater harvesting and drip irrigation where feasible, can reduce depletion and degradation of water resources. Good animal husbandry practices (e.g., minimizing grazing near water sources used by humans) and proper manure management can help reduce water contamination (Hubbard, Newton and Hill 2004).

Sanitation

Sanitation interventions endeavour to create clean environments for people, where exposure to disease is limited (UNICEF 2016). The presence of animal faeces in a home environment are associated with slower linear growth among children (Headey et al. 2016). AEAS staff can support environmental hygiene by demonstrating how animals should be kept away from where children play and from where food is prepared and consumed.

Hygiene

Good hygiene encompasses practices that promote and preserve health (WHO 2016). Handwashing should be promoted after using the toilet, and handling animals and their manure, fertilizers and/or other chemicals, particularly before cooking and feeding children. Containers in which food and water are stored and eating utensils should also be washed thoroughly. Hygiene should be an important component of AEAS interactions with farm household members that relate to fertilizers, pesticides and livestock management.

CONCLUSION AND IMPLICATIONS

When agriculture optimizes its contribution to food and nutrition security, both rural and urban populations will benefit from a more nutritious and affordable food supply. This contribution will not be automatic, however, and will only result when effective incentives are in place. The intensity required in order for incentives to lead to action and impact is only beginning to be explored. It is hoped that cross-sectoral efforts will identify context-specific ways to optimize the platform of AEAS for building healthy food systems that are accessible to all, an essential contribution to the UN Decade of Action on Nutrition.

Feed the Future

Feed the Future is the U.S. Government's initiative to alleviate hunger and food insecurity in 19 priority, high-burden countries, listed here: www.feedthefuture.gov/countries.

The Integrating Gender and Nutrition within Agricultural Extension Services (INGENAES) project supports AES institutions in improving their capacity to implement gender-responsive, nutrition-sensitive services.

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