

Integrating Gender and Nutrition within Agricultural Extension and Advisory Services

Extension & Advisory Services in Zambia: Understanding Structures, Services, Roles & Incentives for Reaching Farmer Households as a Basis for Discussing Potential for Scale

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Cover photo credit: Katy Mosiman.

Ms. Nelia Banda, pictured in the cover photo, is the head of her household and owner of the Small Small Agro store in Sinda County, Eastern Province, Zambia. Nelia is one of the women farmers assisted by the USAID Feed the Future PROFIT+ project to become a community agro-dealer. “If people learn about gender, they can learn to work together, they can both understand the work they can do,” Nelia said, explaining some of the changing roles of women and men in her community now that more women are leaders in the community.

Interviewed by Katy Heinz (Mosiman), Nikki Grey Rutamu, Vincent Akamandisa, March 2015, and as seen in *Learning for Gender Integration and Women’s Empowerment: The Feed the Future PROFIT+ Project, Zambia* (www.acdivoca.org).



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AUTHORS' NOTE

This paper is an attempt to both give a snapshot of some extension approaches utilized in Zambia as a basis for learning and comparison and is intended to provide resources to field practitioners and organizations wanting to further explore approaches, including integration of topics like gender and nutrition. This is NOT intended to judge or criticize; every model has different advantages and challenges. The aim is to note and share these as a basis for discussion and learning – to improve joint approaches and maximize impact for intended audiences.

To assist the reader in keeping track of an immense array of acronyms, terms, and details outlining the various models described in this paper, we have included a number of items in the appendices. We encourage you to familiarize yourself with the information available in those sections prior to reading so that you may refer to them to provide clarity as you read.

Model overviews: Each of the nine organizations reviewed has a distinct **model** of providing services to smallholder farmers. These models are grouped into three different extension **approaches or categories**, information-focused, service-provider and integrated market, based on the combination of services, roles and incentives present in the model. Additional information outlining each model can be found in Appendix 2.

Glossary of acronyms: The glossary is provided as Appendix 1 for your reference. The glossary of acronyms also notes the organization to which a specific acronym applies.

Glossary of terms: The glossary is provided as Appendix 5 for your reference and defines or describes many of the terms used in this paper.

Note on reading tables: Shaded boxes denote absence of activity or no information available.

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EXECUTIVE SUMMARY

One of the challenges of agricultural extension is how to reach remote, rural farmers with information in a form they can understand, apply with relative ease and by so doing reap benefits. Farming involves more than information; it requires inputs, credit, production practices, post-harvest management and markets. It is imperative that public, private, and non-governmental organizations working in extension and advisory services (EAS) consider the needs of farmers, then structure services to respond to them, providing farmers with information and skills necessary to make informed decisions and take actions that result in economic, nutritional and social benefits for *all* members of the household.

This paper reviews the extension approaches used by nine organizations¹ operating in Zambia. The aim is to understand the many structures, services and mechanisms used to reach farmers with an eye towards building on strengths. We begin by defining the services, roles and incentives each model uses to provide relevant extension services to farmers. This analysis allowed us to group the different extension models into three categories, based on the most prominent focus of the services provided, namely:

1. **Information-focused** models: organizations use institutional or project funding to provide information at no cost to the farmer;
2. **Service-provider** models: organizations provide some service (e.g., selling fertilizer) and in association with sales may provide information to the farmers; and
3. **Integrated-market** models: farmers provide product to a buyer and receive various forms of support as part of the buyer-seller relationship.

The various programs in each of the three categories were differentiated by the package of five primary services they offered to farmers:

1. **Farming advice:** access to information and skills to upgrade production systems
2. **Inputs:** provision or sale of diverse seed, fertilizer and other crop products
3. **Credit:** access to financial services through community savings groups or linkages to financial institutions and/or products
4. **Product aggregation:** bulking and transport of products for sale at markets
5. **Markets:** market advice and/or facilitated or guaranteed markets for sale of products

Because of the growing awareness of the benefits and need for approaches that better address gender and nutrition outcomes, we also look at how – and to what extent – the organizations involve nutrition-sensitive and gender-aware approaches in their models. What incentives exist to motivate extension providers to reach the most underserved groups, such as women and the ultra-poor, or for integrating topics such as gender and nutrition into their services?

The information presented in this paper is intended to furnish EAS providers with guiding factors to assist them as they adapt practices to better meet the diverse needs of smallholder farmers. To this end, we have added project examples, web links and references for continued reading. With an understanding of the different services, roles and incentives within extension models, this paper attempts to provide guiding questions to allow an analysis of the question: **What are the characteristics of these extension approaches that lend themselves to scaling up of agricultural services and technologies?**

Considerations on Scale

In this paper, scale is considered from four angles:

1. **Outreach:** How many farmers does the model reach?
2. **Outcomes:** What are the outcomes of services delivered to farmers?
3. **Equity:** Does the model support equitable outreach to men and women, as well as under-served or more vulnerable households?
4. **Sustainability:** Can the services offered endure without additional human, financial and technical resources?

¹ Organizations include: ACIDI/VOCA (PROFIT+), Catholic Relief Services (Mawa), COMACO, Good Nature Agro (formerly Zasaka), Heifer Zambia, iDE, Ministry of Agriculture, Self-Help Africa, We Effect

INTRODUCTION

In Zambia, the Ministry of Agriculture (MoA) supports pluralism of extension and advisory services (EAS). Pluralism implies diversity – not only in the organizations that provide services to farmers, but also in the models and services offered or available to farmers. In farming, people need a combination of advice, inputs (including credit) and income (markets) to realize the full social, economic and nutritional benefits of agricultural production for men, women and children. Organizations' extension approaches differentially respond to these needs. This paper describes EAS models used across nine select public, private and non-governmental organizations in Zambia and builds on an earlier review of extension services in Zambia (Tucker et al., 2015).

The objectives of the study were to understand extension approaches with specific emphasis on:

1. **Roles and services.** What are the distinct roles of workers at the different levels in the various organizations and what services (e.g., advice, credit, inputs, markets) does each provide to farmers?
2. **Information flow.** Who is involved and how does information flow to farmers? What are the ratios between the different extension agents and the farmers (e.g., the ratio between supervisor, field agent or lead farmer and farmers, etc.)?
3. **Incentives and motivation.** What incentives do the different extension agents receive to provide services to farmers and what motivates farmers to participate in the different models?
4. **Integration of nutrition and gender in extension.** Because of the growing awareness of the benefits and need for approaches that better address gender and nutrition-positive outcomes, we also used this opportunity to see how – and to what extent – the organizations involve nutrition-sensitive and gender-aware approaches in their extension model.
5. **Scalability.** With this information, EAS providers – public, private and NGO – may adapt practices to inform the future direction of their extension to better meet the diverse needs of smallholder farmers while considering the characteristics of each model that facilitate scaling of promising practices and technologies.

METHODOLOGY

The approaches of nine organizations were reviewed, outlined and included in this study (Appendix 2). The information presented was collected through a combination of desk reviews plus interviews with organization staff² (Appendix 3). Both in-person and telephone interviews were conducted with conversations mostly structured around a set of basic questions (Appendix 4). Information for each organization was documented and reviewed to draw out similarities and differences across the nine extension models. The organizations interviewed were invited to review the information in Appendix 2 prior to finalization and distribution.

EXTENSION MODELS: MORE THAN INFORMATION

Each organization described a changing role for EAS providers, which demands not only technical expertise, but the ability to interact, learn and adapt with farmers in response to challenges, particularly climate change and uncertain markets. EAS providers increasingly apply participatory approaches, moving beyond simple knowledge transfer on appropriate agricultural technologies, to support farmers in developing farm management strategies to strengthen productivity and facilitate more effective and equitable engagement with markets.

Rather than prescribing a course of action for farmers, the organizations view the role of extension as providing farmers with the information and support necessary to make informed decisions on agricultural production and farm management in consideration of his or her resources (e.g., land, labor) and needs (e.g., consumption, income). These observations align with the Food and Agricultural Organization's (FAO) definition of extension, which describes systems that "facilitate access of farmers to knowledge, information

² We spoke directly with eight of nine organizations to discuss their extension approaches. For the remaining organization, COMACO, we relied on documented information about the organization's extension model to support this work.

and technologies; facilitate their interaction with partners in research, education, agri-business; and assist them to develop their own technical, organizational, management skills and practices.”

The various organizations hold similar views on the need for EAS providers to offer more participatory and responsive services to farmers. In implementation, however, each organization chooses distinct models to deliver those services, with models influenced by factors such as:

1. donor priorities,
2. business interests,
3. farmers’ demands,
4. the organization’s mandate and goals,

and the issues the EAS provider focuses on such as:

5. economic growth and increasing farmer incomes,
6. protection of natural resources,
7. intensification of production, and/or
8. diversification of consumption.

Regardless of the model, each organization recognized the benefit in aligning with the overall goal of EAS in Zambia, as defined by the MoA, namely “to improve production and productivity of small scale farmers for sustainable livelihoods and food security” through a participatory extension approach (Ministry of Agriculture and Livestock³, 2013). To varying degrees, the organizations reviewed coordinate with the MoA and ensure approaches support MoA strategies and information is technically accurate and consistent with MoA policy and guidance.

CHARACTERIZATION OF SERVICES, ROLES AND INCENTIVES

Each organization shared the traits of their extension models, describing how information, skills or products flow from and through the organization to farmers. The models – though different on paper – have common characteristics that lend themselves to categorization and related elements that incentivize performance of extension agents and attract farmers (see Appendix 2 for details on each model).

This section describes three primary categories identified across extension approaches. Categorization was determined based on the **services** offered at each “level” in the extension structure, the **roles** assumed by extension providers, and **incentives** associated with these roles. Each model is assigned to a category based on its most dominant features. The three categories of models, described in more detail on pages 5-9, are:

More than One Model

When looking across the models, the reality seems that no single model will fill the service void that many farmers face. Mixed models delivered through a diversity of organizations support the information, resource, social, nutritional and market needs of farm households.

1. **Information-focused models** where information is the *primary* element and organizations rely on other groups to provide additional services, such as credit, input and market access.
2. **Service provider models** where organizations strengthen commercial input suppliers who sell products (with associated information) and/or services (embedded into the service or provided at cost) to the farmers; and
3. **Integrated market models** where markets are assured and various forms of information, credit and inputs are available or supplied to participating farmers.

Though each extension model is categorized into one of these groups, models can have common characteristics, not only in the types of services provided to farmers, but in the structures used to deliver

³ In 2016, the Ministry of Agriculture and Livestock split into two ministries: the Ministry of Agriculture and the Ministry of Fisheries and Livestock.

those services and the extension agents who provide them. For example, most models rely on some form of farmer groups, such as study circles, farmer field schools and producer groups. Also, one model – though characterized as “information-sharing” – may offer financial services and basic market advice through extension agents or link farmers to such services offered by other actors. Again, this categorization is intended to capture the *predominant* characteristic of the extension models.

Table 1 shows the organizing structures used under each model to deliver services to farmers. Notably, each organization either establishes or links to existing groups to coordinate service delivery. For women, in particular, participation in groups can expand their production, increase sale of products and boost household income (Swanson, 2010). Groups are a powerful means of delivering farm advice to farmers, but can also serve as the locus for a wide range of information, including basic health, nutrition and hygiene information. Indeed, several of the reviewed organizations piggy-back on existing producer and/or savings groups to deliver their services.

Each organization also provides some degree of support directly to individual farmers. For instance, lead farmers may visit a farmer at his or her field to provide crop-specific advice or a service provider may market and sell inputs directly to one farm household.

Table 1: Organizing structures to deliver services to farmers and names used by each organization

| | Farmer groups | Cooperatives |
|-----------------------------------|-------------------------------------|-------------------------------|
| Information-focused models | | |
| CRS | farmer group | |
| MoA | farmer field school study circle | |
| Self Help Africa | livelihood enhancement group | |
| We Effect | study circle | |
| Service provider models | | |
| ACDI/VOCA | | agri-business groups |
| iDE⁴ | | |
| Integrated market models | | |
| COMACO | producer group | producer group cooperative |
| Good Nature | producer group | cooperative |
| Heifer | producer group | milk collection center |

SERVICES FOR FARMERS

Each organization described efforts to provide relevant and inclusive services to farmers. Each model offers a unique combination of services based on farmer needs and organizational priorities. Five primary types of services emerged from the review of the nine extension models. The services are illustrated in the sidebar and summarized by organization in Table 2 and described in greater detail in Appendix 2.

⁴ iDE identifies existing groups of, or individual, farmers within communities to whom farm business advisors market services.

PRIMARY SERVICES FOR FARMERS



FARMING ADVICE

access to information and skills to upgrade production systems



INPUTS

provision or sale of diverse seed, fertilizer and other products



CREDIT

access to financial services through community savings groups or linkages to financial institutions



PRODUCT AGGREGATION






Bulking and transport of products for sale at market



MARKETS

market advice or guaranteed markets for sale of products

Table 2. Types of services offered under extension models reviewed

| Organization | Farming advice  | Inputs  | Credit  | Product aggregation  | Markets  |
|--|---|---|---|--|--|
| Information-focused Models | | | | | |
| Catholic Relief Services | X | | X | | X |
| Ministry of Agriculture | X | X | | | X |
| Self Help Africa | X | | | | X |
| We Effect | X | | X | | X |
| Service Provider Models | | | | | |
| ACDI/VOCA | X | X | X | X | X |
| iDE | X | X | X | | |
| Integrated Market Models | | | | | |
| COMACO | X | X | | X | X |
| Good Nature Agro | X | X | X | X | X |
| Heifer Zambia | X | X | X | X | X |

ROLES OF EXTENSION PROVIDERS

Across the three extension categories, we identified eight predominant roles of extension agents. Table 3 describes the function of each role along with the incentives received for providing services to farmers.

Table 3: Eight typical roles played across the extension models and the associated incentives

| Role | Incentives | ACDI/VOCA | CRS | COMACO | Good Nature | Heifer | iDE | MoA | SHA | We Effect |
|---|---|-----------|-----|--------|-------------|--------|-----|-----|-----|-----------|
| Core-funded staff provide support such as training, expertise and organize activities. | Salaries and benefits from the organization to coordinate and monitor services and provide technical expertise and trainings to extension agents. | X | X | X | X | X | X | X | X | X |
| Input providers receive commission for selling inputs and may provide embedded farming advice. | Financial profits through product sales. | X | | | X | | X | | | |
| Service providers receive commission or fees from farmers for providing services to farmers. | Financial payments for specific services, such as savings group formation, financial education, market advice. | | X | | | | X | | | X |
| Farmer cooperatives provide members with access to credit, inputs, markets and/or learning. | Cooperative leaders receive advanced training in business management and leadership experience with exposure to private sector | X | | X | X | X | | | | |
| Farmer groups come together for training and at times other forms of support (e.g., input access). | The groups are usually run by people paid or compensated by a parent organization. Farmers participate to get | X | X | X | X | X | X | X | X | X |

| Role | Incentives | ACDI/VOCA | CRS | COMACO | Good Nature | Heifer | iDE | MoA | SHA | We Effect |
|---|--|-----------|-----|--------|-------------|--------|-----|-----|-----|-----------|
| | information, training or other inputs. | | | | | | | | | |
| Lead farmers often provide demo fields and/or advice for other farmers. | Diverse incentives across organizations, but frequent incentives include inputs for demonstration plots, t-shirts, bicycles, etc., in addition to trainings in new technologies. | X | X | X | | | | X | X | |
| Product aggregators collect product from farmers and pass to the marketing body. | Receive some form of commission for product aggregation | X | | X | X | X | X | | | |
| Product purchasers buy product from the farmers or from the product aggregators. | Financial profits through the buying and selling of the product. | | | X | X | X | X | | | |

INCENTIVES ACROSS MODELS

How do organizations incentivize performance of extension agents to ensure delivery of relevant, accurate advice; access to quality inputs; and market access? Below we consider incentives firstly for people to provide information or services to farmers and secondly incentives that attract farmers to the services.

Incentives for extension providers

The incentives for extension staff and volunteers to participate in the extension process (Table 4) fall into three categories (below); understanding these incentives helps us understand the potential for scaling through the models.

Table 4. Incentives for extension workers to provide services

| Organization | Form of Incentive | | |
|--------------------------|---|--|--|
| | Organization-provided compensation ⁵ | Commission on sales | Fee-for-service (paid by farmers) |
| ACDI/VOCA | Core staff ⁶ Demo host farmers Lead farmers | Community agro-dealers (CADs) (from private companies) | |
| Catholic Relief Services | Core staff Field supervisors Field agents Lead farmers | | Private service providers (PSPs) |
| COMACO | Core staff District Extension and Area Managers | Lead farmers (for farmers recruited and trained) Commodity purchasing agent (from commodities sold to COMACO) | |
| Good Nature Agro | Core staff Field Supervisor Private extension agents (PEAs) | PEAs (from Good Nature) | |
| Heifer International | Core staff | | Community agro-vet entrepreneurs (CAVEs) |

⁵ Compensation is not always monetary; instead it can be in kind, such as provision of bicycles, products or inputs.

⁶ Core staff refers to management and technical staff who design, oversee and/or provide service delivery to farmers.

| Organization | Form of Incentive | | |
|------------------|--|--|-----------------------------------|
| | Organization-provided compensation ⁵ | Commission on sales | Fee-for-service (paid by farmers) |
| | | | Community facilitators |
| iDE | Core staff | Farm business advisers (FBAs) <i>(from private companies)</i> | |
| MoA | Block extension officer (BEO) Camp extension officer (CEO) | | |
| Self Help Africa | Core staff Lead farmers | | |
| We Effect | Core staff Local organization staff Study circle (SC) organizers | | |

Compensation from the parent organization. Compensation came from the implementing organizations in at least three forms, namely: 1) salaries or stipends, 2) non-monetary/cash compensation (e.g., inputs or bicycles, etc.), and/or 3) skills development training.

Organizations use **salaries** for core staff or **stipends** for community “volunteers” to incentivize their effort to establish demonstration plots, mentor lead farmers, train farmers and collect data. Organizations often invest significant resources in training extension officers and rely on them to establish strong relationships with farmers and communities. Organizations acknowledged that stipends are intended to retain high-quality facilitators with agricultural expertise to protect this investment. CRS provides 26 field agents, each responsible for supporting 20 lead farmers across a wide geographic area, a stipend of ZMW 300 per month (USD 30). Good Nature’s private extension agents (PEAs) receive a stipend of ZMW 200 (USD 20) per month in their first year to organize and manage services to 40 farmers.

Some extension workers receive **non-cash compensation**, benefiting from non-financial resources and tools provided by organizations to facilitate their work. CRS and local organizations using study circles provide lead farmers with bicycles to allow them to reach farmers in their communities and on their fields. While iDE does not provide bicycles to farm business advisors (FBAs), it negotiates reduced prices with suppliers for direct purchase of bicycles by FBAs. Some extension officers benefit from their management of demonstration plots. CRS’ lead farmers and the study circle organizers receive seed and other inputs from private companies to establish demonstration plots and also benefit from the consumption or sale of the crops grown in the demonstration plots. CRS receives seed from companies at no cost in exchange for marketing the seed in rural communities.

While no specific data exists, some organizations identified the development of technical, management and leadership skills as incentives for extension officers to support to farmers. Regardless of the organization, extension officers receive training on a diversity of topics: agronomic practices, farm management, financial education, participatory facilitation and enterprise development. Some organizations described a “high-touch” approach to training and mentoring extension officers, in which project staff visit extension officers on a monthly basis to support learning and provide mentorship. One organization noted that the visits provide recognition to lead farmers as valuable members of the extension team. Frequent and consistent opportunities to develop skills has also led to growth opportunities for the most successful and motivated of extension officers. For example, a selection of unpaid lead farmers under USAID Feed the Future Mawa Project have become PEAs under Good Nature, receiving financial rewards for their support to farmers. When extension officers use knowledge and expertise to assist farmers increase farm productivity and incomes, this builds self-confidence and motivation to continue reaching farmers with quality extension services.

Commission. Commissions come in two forms: 1) people earn a commission on product sales as input suppliers (e.g., community agro-dealers selling fertilizer or seed), and/or 2) for product aggregation (e.g., COMACO purchasing crops).

ACDI/VOCA and iDE embed commissions within the services provided to farmers. Community agro-dealers (CADs) and FBAs, respectively, receive commission from the sale of inputs and products. Both receive inputs on partial credit through seed companies and other suppliers, with companies providing a

commission on the inputs sold. Similarly, commodity buyers provide commissions to CADs and FBAs based on the quality and quantity of produce sold. Commissions depend on the quality of the relationships between farmer and FBA, for example, and FBA and private company. With commissions, these organizations aim not only to strengthen the quality of services to rural farmers, but also build the stronger, viable markets and value chains.

Good Nature Agro embeds a commission within the services that PEAs provide to farmers only after the PEA's first year of work with the company. In their initial year with Good Nature, as mentioned, PEAs receive a monthly stipend of ZMW 200 (USD 20). To date, ten of fifty PEAs receive a commission from the sale of farmer-produced seed to Good Nature Seeds. Higher-quality seed attracts higher prices at sale, thus incentivizing PEAs to provide relevant and regular agricultural advice and support to farmers throughout the growing season. PEAs earn a commission of 2% on the revenue generated by Good Nature. The shift from stipends to commission shows promise, with PEAs earning greater income through commission than the subsidy from the company.

Fee-for-service. Whereas We Effect's study circle organizers receive a monthly stipend paid by the local organizations (e.g., Cotton Association of Zambia) for the duration of their service, CRS and Heifer have processes for extension officers to operate under a fee-for-service payment model. CRS' field agents are certified as Private Service Providers to promote and facilitate development of financial, basic business and marketing skills and amongst farmers. This market-based strategy enables PSPs to expand fee-based services in rural communities (see text box, *PSPs: Sustaining and Expanding Services*). PSPs negotiate fees directly with farmers to earn an income by providing farmers with desired information and skills. Heifer International's extension model also uses fee-based services, in which farmers pay community agro-vet entrepreneurs (CAVEs) negotiated fees for in-demand services.

Sustaining and Expanding Services

CRS recruits, trains and deploys field agents who become certified PSPs with the intent to saturate a geographic space over time. If demand for PSP services exceeds the capacity of PSPs or PSPs discontinue services, CRS proposes apprenticeships to continue offering and expanding services. As described in the [Private Service Provider Implementation Manual](#) (Bavois, 2013): "PSPs organized in the network take responsibility for recruiting, training and certifying apprentices. This is a strategy for PSPs to respond to their market, and for PSP networks to ensure service delivery in their coverage area. From the project perspective, it is a sustainable way to ensure ongoing coverage of an area with qualified SILC providers."

Gender-based Constraints

Restrictions on men's or women's access to resources or opportunities that are based on their gender roles or responsibilities. The term encompasses both the measurable inequalities that are revealed by sex-disaggregated data collection and gender analysis as well as the processes that contribute to a specific condition of gender inequality.

Source: INGENAES Gender Glossary, Rubin and Manfre, 2015.

Incentives for farmers

What motivates farmers to participate in different extension models? In some cases, farmers may not have a choice; extension services are often sparse in rural communities. Additionally, in cases where only one farmer per household might be included, women farmers often can get left out because of time constraints or lack of formal or traditional land title (see text box, *Gender-based constraint*). But, where different organizations offer diverse services to meet farmers' needs, what factors contribute to their decision to participate in the models? The information below is based solely on the perspective of the organizations interviewed and does not draw from discussions with farmers. From the interviews, four benefit types emerged.

High-quality information. All organizations state that farmers receive high-quality training with consistent support from capable extension officers. These extension officers have the technical capacities to promote appropriate and relevant agricultural technologies spanning from climate change adaptation to value chain development, paired with the leadership skills required to mobilize farmers, facilitate learning, solve problems and negotiate relationships. Farmers benefit from extension officers who have the diversity of capacities required to meet their complex needs and also from the frequency of farm visits. Good Nature Seeds describes their outreach to farmers as "high-touch": not only are PEAs expected to work directly with their 40 farmers every three weeks, they also offer different services either directly or through linkages

to other service providers. The package of services includes group management support, agronomic advice, financial education and aggregation and sale of products. Through close and frequent relationships with farmers, extension officers are able to provide individualized services based on farmer needs and interests. **Access to high-quality inputs.** Low quality, high costs, and limited availability of inputs limit farmers' agricultural productivity. Six of nine organizations offer quality-assured inputs – seed, fertilizer and chemicals – to farmers as a loan or through sale, bridging the geographic distance between farmers and input suppliers. Good Nature's PEAs provide seed to farmers and expect payment in seed at the end of the agricultural season; farmers “pay” two kilograms of seed for every kilogram received from the organization. Good Nature works with ZANACO, Zambia National Commercial Bank, to provide credit to farmers for fertilizer and chemical packages valued at 2,400 USD per group of forty farmers. Farmers pay back the loan with interest after harvest. iDE facilitates access to seed through linkages between FBAs and private companies, bringing the input market closer to farmers, while Heifer allows farmers to borrow against future earnings to “purchase” livestock feed and other supplies sold through the cooperative. For farmers who have little or no access to inputs, local provision is an attractive benefit of participation in these extension models.

Access to financial services. Many organizations facilitate access to financial services ranging from community-based savings and lending groups to microloans from financial institutions. Financial education complements these services to help farmers understand the need to save money, track financial records and invest in farm businesses. Access to financial services helps farmers meet needs during pre-harvest and crop marketing season, times when they often resort to selling immature crops – or selling crops when prices are low – for quick cash. Financial services, when coupled with agricultural advice, can lead to profitable market linkages.

Savings and lending groups offer risk-adverse farmers without access to formal financial services an opportunity to establish a secure way to save money and take loans. These groups help farmers manage finances and smooth income throughout the calendar year, accessing funds when they are most needed and hopefully making them less prone and more resilient to shocks. Group members earn interest on savings and reinvest profits to support farm production or other household needs. Five of the nine organizations interviewed either establish savings groups or facilitate linkages to such support. ACDI/VOCA focuses farmers on using savings and loans for trade.

Other organizations facilitate access to formal financial services. Zambia National Farmers Union (ZNFU), which uses study circles in conjunction with We Effect training, offers agricultural credit to farmers through the Union's lima credit scheme. Similarly, as mentioned above, Good Nature has built a relationship with ZANACO to provide credit to farmer groups – registered as cooperatives – who are able to repay loans with income earned on the sale of products to Good Nature. Farmers need flexible financial products to support investments in agricultural production and grow incomes and appreciate the diversity of financial services offered through these extension models.

Increased commodity prices. Four of nine organizations described the benefits that farmers derive from increased incomes from the sale of commodities. This was achieved through access to input suppliers and output markets as well as development of business and marketing skills and group participation. Farmers learn how to manage money, save and invest wisely, improve their productivity in a sustainable way, and build long-term and profitable market linkages. These organizations explain that farmers are realizing greater profits from the sale of commodities through a greater understanding of markets. Farmers are producing what customers want to buy and planning businesses to make a profit. While Good Nature and COMACO are the market for farmers and therefore able to control – to some extent – the prices that farmers receive on products, other organizations work with farmers to identify profitable markets and aggregate products for sale on behalf of farmers. Regardless, these organizations explain that farmers are receiving better prices through production of sufficient quantities of high-quality crops that meet market demand. Coupled with access to financial services and knowledge of markets, farmers are better equipped to negotiate confidently with buyers and manage commercial relationships.

CATEGORIZATION OF EXTENSION MODELS

INFORMATION-FOCUSED MODELS

Four of the nine organizations focused primarily on the delivery of information. These organizations, Catholic Relief Services (CRS), MoA, Self Help Africa (SHA) and We Effect, work through organized farmer groups as a conduit for sharing information and promoting learning amongst farmers in the same community. Each of the four organizations promotes intensification and diversification of crop production through the application of conservation agriculture practices including minimum soil disturbance, permanent crop cover, crop rotations or intercropping. Organizations expand or adapt information based on farmer needs and interests, organizational priorities or project objectives. For example, We Effect, through study circles (see text box, *We Effect's Study Circles*), develops study plans tailored to specific crops or products, including honey, cotton, pigs and poultry. Projects managed by CRS (see text box, *Aligning Nutrition and Agriculture*) and SHA focus on increasing availability, access and consumption of diverse, safe and nutritious foods for household nutrition and therefore integrate relevant nutrition messages into agricultural extension.

While some organizations may also support access to credit and input or output markets, others may rely on additional existing or emerging service providers to fill other farming needs, such as credit, input and market needs. CRS developed savings and internal lending communities (SILCs), in addition to farmers groups, and has mapped these groups to ACDI/VOCA's CADs. This linkage is mutually beneficial for farmers and CADs; CADs link to customers with access to savings and credit, while farmers benefit from access to input and output markets. One study circle organization supported by We Effect, the ZNFU, has linked study circles to the lima credit scheme. Under this scheme, membership in a farmers' cooperative acts as a form of collateral to support farmers' access to input credit. As shown in Table 5, each model reviewed combines information with other services to bolster participant success. Senior level extension staff in each organization provide technical expertise, as needed, to groups and lead farmers.


Aligning Nutrition and Agriculture

Under the USAID Feed the Future Zambia Mawa project, CRS' agricultural lessons integrate messages on high-impact nutrition actions relevant to agricultural production and rural livelihoods. To support the balance between production for family consumption and production for markets, the lessons also include messages focused on gender dynamics in planning, budgeting and decision-making within households. CRS has observed that households are connecting agriculture and nutrition by growing diverse and nutritious foods, using production and income for better nutrition and health, and making joint decisions that affect agriculture and nutrition outcomes.

We Effect's Study Circles

Under the Regional Study Circle Support Project (RESP), We Effect supports seven local organizations to introduce study circles (SCs) as a tool for solving farmer-identified challenges. The Zambia National Farmers Union, Zambia Honey Council and Cotton Association of Zambia identify study circle organizers (e.g., lead farmers) to train and support study circles. The self-governing groups hold regular meetings to carry out a study plan with support, as requested, by the study circle organizer. We Effect works with the local organizations to develop and tailor content of study circle materials to the needs of the farmer, allowing the circle of farmers to guide their own learning by marrying local knowledge and experience with scientific facts. The study circle organizers work with the local organizations to define additional services to farmers, based on their priorities and interests. Through this approach, the local organizations have formed 11,654 study circles of 116,453 farmers who have directed their own learning and practices with facilitated support.

Table 5. Overview of Information-focused models

| Organization | Farming advice | Inputs | Credit | Product aggregation | Markets |
|---|---|---|--|---|---|
| |  |  |  |  |  |
| Information-focused Models | | | | | |
| Catholic Relief Services (CRS) | Field supervisors, field agents, lead farmers: Conservation agriculture, post-harvest handling and storage, small livestock, food and nutrition | | Field agent, private service provider: <i>Savings and loans through savings and internal lending communities</i> | | Private service provider: basic marketing principles |
| Ministry of Agriculture, Zambia (MoA) | BEO, CEO: Conservation agriculture, farm management <i>through Farmer Field Schools</i> | CEO: coordinate delivery of inputs under FISP | | | BEO, CEO: basic marketing principles, farm management, access to markets <i>through study circles</i> |
| Self Help Africa (SHA) | Facilitators, lead farmers: sustainable agriculture practices and technologies, food and nutrition | | | | Facilitators: enterprise development |
| We Effect | Study circle organizer: skills to improve production, productivity and quality of crops (e.g., cotton, honey, maize) | | Local organization staff: identify and link farmers to financial services (e.g., lima credit scheme) | | Study circle organizer: basic marketing principles |

SERVICE PROVIDER MODELS

Of the nine organizations, ACDI/VOCA and iDE rely on the development of local entrepreneurs or service providers to provide differing access to quality inputs, advice and market support. The intent is to build market-oriented approaches to sustainably provide farmers with access to farm management skills and to facilitate access to inputs and markets. The private sector plays a prominent role in the service provider models (see text box, I. *Facilitating private sector investment in value chains creates economic opportunities for farmers*, with the potential for farmer profitability intended to drive farm productivity.

With the service provider approach, local entrepreneurs are trained to become agro-dealers who supply inputs to farmers and provide some form of information and connection to viable markets. Information is often associated with the products marketed to farmers. For example, sale of agro-chemicals is accompanied by information on the safe use and application of fertilizer or pesticides. Financial services also figure in both of these models. ACDI/VOCA has trained some CADs, for example, in internal savings and lending within agri-business groups, while iDE has worked with microfinance institutions to develop financial products tailored to the needs of smallholder farmers.






Local Entrepreneurs Connect Farmers to Markets

Two organizations address the geographic distance between farmers and markets through development of entrepreneurs who bring knowledge, inputs and markets closer to rural farmers through specialized training and facilitated connections to private companies.

iDE's **Farm Business Advisors (FBAs)** generate demand for, and extend agricultural products and services to, rural communities to help farmers grow market-oriented crops. With facilitated relationships with private companies, such as NWK, CropServe and ATS, FBAs are trained to market inputs and bulk farm products for sale.

ACDI/VOCA's **Community Agro-Dealers (CADs)**, mobilized under the USAID Zambia Feed the Future PROFIT+ project, are local entrepreneurs who bridge the gap between private companies and rural community members. CADs form agri-business groups and facilitate rural access to, and availability of, improved seed varieties and other inputs and services by building relationships with input companies and commodity buyers. Successful CADs have formed private companies that generate profit at the level of a cooperative, thus attracting additional private sector interest.

Table 6. Overview of service provider models

| Organization | Farming advice | Inputs | Credit | Product aggregation | Markets |
|---------------------------|--|---|---|---|--|
| |  |  |  |  |  |
| Service Provider Models | | | | | |
| ACDI/VOCA | <p>Demo host and lead farmers: conservation agriculture, including fertilizer application, pest management, crop rotation, aflatoxin mitigation</p> <p>CADs: embedded advice specific to inputs sold</p> | <p>CADs: market and sell inputs to farmers</p> | <p>CADs: facilitate formation of savings groups and internal lending <i>within agribusiness groups</i></p> | <p>CADs: aggregate products for sale at market</p> | <p>Staff, CADs: link farmers to high-value output markets, train in business management</p> |
| iDE | <p>FBAs: advice embedded in sale of inputs</p> | <p>FBAs: generate demand for and facilitate sale of inputs</p> | <p>FBAs: facilitate access to credit from microfinance institutions</p> <p>Staff: negotiate financial packages/services with MFIs</p> | | |

INTEGRATED MARKET MODELS

Three organizations provide advice, inputs and credit to farmers along with some form of guaranteed markets. Heifer, COMACO and Good Nature each act as both the supplier and the market, providing agricultural inputs and extension advice and inserting themselves in the value chain as private sector actors. Through extension, the companies exert a degree of control over the farm system, products and sales to create a reliable supply of quality product. Meanwhile, farmers benefit through agricultural advice, input provision and access to reliable and often higher valued markets. With COMACO, farmers realize premium prices if they adhere to practices that conserve natural resources and refrain from poaching. Similarly, Good Nature offers economic incentives to farmers who produce high-quality seed for resale (see text box, *Good Nature's Private Extension Agents*). The role of the extension officer under COMACO and Good Nature is not limited to provision of technical advice, but expands to provider of inputs and connector to markets in support of the organization's business.

Good Nature's Private Extension Agents

Good Nature Agro (<http://goodnatureagro.com>) is a private company with the goal of working with smallholder farmers to increase incomes through agricultural production. Through trained Private Extension Agents (PEAs), Good Nature provides seed and other input loans to farmers and offers a guaranteed market for the certified legume seed – cowpea, groundnut, soybean – that farmers produce. With skills in financial education, agronomic practices, group management and farm planning, PEAs train farmers throughout the growing season, providing personalized extension support. PEAs facilitate seed purchase at the end of the season, which is sold under the company's brand.

Table 7. Overview of Integrated Market Models






| Organization | Farming advice  | Inputs  | Credit  | Product aggregation  | Markets  |
|---------------------------------|--|---|---|--|--|
| Integrated Market Models | | | | | |
| COMACO | Lead farmers: provide training and instruction in sustainable agriculture, natural resource management Producer group cooperative: field days to exchange knowledge | COMACO: Provide inputs that support productivity | | Commodity purchasing agents: aggregate and purchase crops | COMACO: provides guaranteed market |
| Good Nature | Field supervisors, PEAs: sustainable agriculture, natural resources management | PEAs: loan seed to producer groups | Field supervisors: facilitate financing of non-seed inputs | Field supervisors, PEAs: facilitate and process sale of farmer-grown seed | Good Nature: provides guaranteed market PEAs: provide business management advice |
| Heifer | Milk collection center (MCC), community facilitators, CAVEs: offer livestock production advice and basic veterinary care | MCC: provides small livestock producer groups; sells inputs to farmers | MCC: provide products on credit | MCC: aggregates milk for sale to private sector | MCC: purchases milk |

Table 8. Outreach Ratios: Information-focused models

| | Catholic Relief Services (CRS) | | | Ministry of Agriculture (MoA) | | | Self Help Africa (SHA) | | | We Effect | | |
|----------------|--------------------------------|-------------------|-----------------------------------|-------------------------------|---------------------------|---------------------------|------------------------|-------------------------------|-----------------------|-----------|--------------------------|-------------------------|
| | No. | Title | Ratio | No. | Title | Ratio | No. | Title | Ratio | No. | Title | Ratio |
| Staff | 5 | field supervisors | 1 FS: 5-6 FAs | 349 | BEO | 1 BEO: 5-6 CEOs | 6 | facilitators | 1 facilitator: 62 LFs | 1 | study circle coordinator | 1 coordinator: 7 staff |
| | 26 | field agents | 1 FA: 20 LFs | 1,786 | CEO | 1 CEO: 16 study groups | un-known | frontline workers | unknown | 7 | SC organization staff | 1 staff: 327 organizers |
| Field | 517 | lead farmers | 1 LF: 1 group 1 LF: 20 farmers | n/a | lead farmers ⁷ | | 372 | lead farmers | 1 LF: 45 farmers | 2,290 | study circle organizers | 1 SC organizer: 5 SCs |
| | n/a | PSPs ⁸ | | n/a | contact farmers | | | | | | | |
| Groups | 517 | farmer groups | 1 FG: 20 farmers | 28,576 | study groups | 1 study group: 25 farmers | 372 | livelihood enhancement groups | 1 group: 45 farmers | 11,654 | study circles | 1 SC: 5-15 farmers |
| Farmers | 21,471 | farmers | | 714,410 | farmers | | 16,740 | farmers | | 116,453 | farmers | |

BEO Block Extension Officer
 CEO Camp Extension Officer
 FA field agent
 FG farmer group
 LF lead farmer
 PSP private service provider
 SC study circle

⁷ Under MoA, lead farmers and contact farmers have no direct relationship with study groups.

⁸ Under CRS, PSPs may provide services (e.g., market advice, business skills) to farmer groups if requested and paid a negotiated fee by the farmer group; PSPs may also provide services directly to an individual at his or her request.

Table 9. Outreach Ratios: Service provider models

| | ACDI/VOCA | | | iDE | | |
|----------------|------------------|----------------------|--------------------|--------|-----------------------|-------------------|
| | No. | Title | Ratio | No. | Title | Ratio |
| Staff | n/a ⁹ | | | 45 | Field staff | 1 staff: 5-6 FBAs |
| Field | 339 | CADs | 1 CAD: 10-15 ABGs | 270 | farm business advisor | 1 FBA: 80 farmers |
| | 690 | demo host farmers | 1 DHF: 5 LFs | | | |
| | 3,011 | lead farmers | 1 LF: 25 farmers | | | |
| Groups | 863 | agri-business groups | 1 ABG: ~20 farmers | | | |
| Farmers | 193,000 | farmers | | 23,000 | farmers | |

ABG agri-business group
 AM area manager
 CAD community agro-dealer
 CAVE community agro-vet entrepreneur
 CF community facilitator
 DEM district extension manager
 DHF demo host farmer
 FBA farm business advisor
 LF lead farmer
 MCC milk collection center
 PEA private extension agent
 PG producer group

Table 10. Outreach Ratios: Integrated market models

| | Heifer Zambia | | | COMACO ¹⁰ | | | Good Nature Agro | | |
|----------------|---------------|-------------------------|---------------------------------------|----------------------|-----------------------------|---------------------------|------------------|-------------------|--------------------------|
| | No. | Title | Ratio | No. | Title | Ratio | No. | Title | Ratio |
| Staff | n/a | | | 6 | DEM | 1 DEM: 8-10 AMs | 5 | field supervisors | 1 FS: 10 PEAs |
| | | | | 56 | area manager | 1 AM: 15-20 LFs | | | |
| Field | 18 | extension staff (GRZ) | 1 MCC: 3 staff | n/a | commodity purchasing agents | | 50 | PEAs | 1 PEA: 4 producer groups |
| | 240 | community facilitators | 1 MCC: 40 CFs 1 CF: 10 farmers | 1,700 | lead farmers | 1 LF: 3-5 producer groups | | | |
| | 240 | CAVEs | 1 MCC: 40 CAVEs 1 CAVE: 10 farmers | | | | | | |
| Coops | 6 | milk collection centers | 1 MCC: 20 PGs | 46 | cooperatives | 1 coop: 10 PGs | 50 | cooperatives | 1 coop: 4 PGs |
| Groups | 120 | producer groups | 1 PG: 20-25 farmers | 4,800 | producer groups | 1 PG: 15-20 farmers | 200 | producer groups | 1 PG: 10 farmers |
| Farmers | 2,400 | farmers | | 89,000 | farmers | | 2,000 | farmers | |

⁹ Insufficient information

¹⁰ Tucker et al. 2014 serves as the source of information for COMACO's extension structure. However, recent information available on COMACO's website indicates 164,300 registered farmers reached through COMACO's extension structure, nearly double the number of registered farmers over a three-year period: www.itswild.org/our-impact/hunger-poverty.

A NOTE ON LEAD FARMERS

Five of the nine models identified lead farmers or contact farmers as a way to model production techniques, provide technical expertise to farmers, and support neighboring farmers to upgrade their production systems. Identified by, and living within, communities, lead farmers are often innovators, motivated and willing to apply and demonstrate new agricultural practices. Such people are often early adopters in what might otherwise be a risk-adverse environment. With training in agricultural practices and in some cases, facilitation skills, lead farmers are equipped to host demonstrations that facilitate on-farm learning and exchange amongst farmers with the aim of helping them diversify and intensify production. Lead farmers often provide both one-on-one support to farmers as well as support to farmers' groups. Some of these groups direct their own learning, relying on the lead farmer to connect them to additional learning resources or services. However, the question of lead farmer incentives looms large, especially in terms of their willingness to continue providing services when a project closes.

Some organizations have sought to address the issue of incentives, by boosting skills of lead farmers in order to transition to fee-for-service entrepreneurs who market services to farmers. For example, CRS, offers lead farmers and field agents an opportunity to become private service providers (PSPs) who are trained and paid directly by groups of farmers to develop an understanding of farm management and help organize savings groups. Thus, the PSPs help farmers move beyond improvements in the quantity, quality and diversity of their products to selling at markets for increased profits. Farmers may contract PSPs to transport products to market or source inputs for production. Similarly, Heifer's community agro-vet entrepreneurs (CAVEs) not only share information about appropriate livestock production practices, but are also trained to provide basic veterinary care, including provision of animal care products, for negotiated fees paid directly by farmers. This approach to developing lead farmers bridges the gap between rural farmers and input and output markets.

CRS' Private Service Providers

[Research from East Africa](#) indicates that private service providers, originally trained to expand fee-based savings and lending services within rural areas, offer promise for sustaining outreach beyond funding limits. Within one year of project end, PSPs were 70-90 percent as productive as field agents receiving stipends – despite working in competition with others offering the same services for free.

Under the Mawa Project, CRS expanded the role of PSPs to include fee-based financial education, marketing and natural resource management services. Despite the glut of service providers offering these services for free, research conducted by Murdoch University in Zambia (Boyd and Mthinda, 2015) indicates that some farmers are willing to pay PSPs for services, including preparation of business plans, market identification and brokering access to inputs, if they are able to negotiate favorable terms of payment and have access to savings and credit.

For organizations, lead farmers help expand outreach; often helping them reach established targets. For example, with 517 lead farmers, CRS is able to reach more than 20,000 farmers in two districts through demonstrations and visits focused on crop production, small livestock management and post-harvest handling and storage. These lead farmers provide prescribed trainings to farmers, but also provide individualized advice during farm visits. The MoA also uses lead farmers, capitalizing on the success of innovative farmers who have adopted good agricultural practices. Unlike most donor-supported projects that provide direction, advice and inputs to lead farmers, the MoA identifies farmers who are using existing knowledge and skills and their own resources to excel in crop production. Camp Extension Officers (CEOs) rely on the community-selected lead farmers to showcase successful production practices to neighboring farmers.

Lead Farmer Ratios

One question relevant to the outreach models is: How many farmers can an extension officer reasonably reach with extension services? While the ratios of extension agents to farmers varies across the organizations from 1:5 to 1:400 (Tables 8-10), perhaps the most telling point is the ratio of lead farmers to farmers amongst the five organizations deploying them. This ratio consistently sits around 1:15 to 1:25 when services at this point focus on information transfer to farmers. If we assume an average of 1:20 was developed based on empirical evidence and offers an effective ratio for communication, then it explains why many extension organizations, particularly national extension systems, are seriously challenged to address the diverse needs of large populations.

More positively, though, this ratio also explains why a pluralistic extension system is valuable and why, for example, a public extension system not only benefits from, but needs, augmentation through other partners. For example, an interview with a service provider in Chipata, Zambia, indicated that he offers regular extension advice on crop varieties, fertilizer use and pest control throughout the growing season. However, at critical times during the agricultural season (e.g., land preparation, harvest), hundreds of farmers visit his input shop daily for advice. Building from these nodes and using them as points of contact for credible, relevant information is critical. The ability of credible sources of information, such as the MoA, to link with these nodes can go far to better meeting farmer information needs.

INTEGRATION OF NUTRITION AND GENDER IN AGRICULTURAL EXTENSION

NUTRITION INTEGRATION

Encouraged by the Scaling Up Nutrition (SUN) movement, organizations increasingly acknowledge and design strategies to achieve better nutrition through agriculture. With their role in providing services focused on diversification of production in rural communities, extension agents offer a potential platform for delivering nutrition messages to farmers (Fanzo, 2013). The degree to which the different extension models integrate nutrition into agricultural extension services varies and is often dependent on organizational and/or donor priorities, such as value chain development or prevention of under-nutrition.

All of the organizations reviewed use food-based approaches that focus on at least one of the following practices/activities that *can* support improved nutrition:

1. crop diversification;
2. linking farmers to markets to sell and buy nutritious foods;
3. better food processing and preservation techniques; and
4. food safety through post-harvest handling and storage.

However, amongst the organizations reviewed, not all make the connection between these agricultural approaches and their practical adoption to improve household nutrition. Mainstreaming relevant nutrition messages into agricultural extension is essential to ensure that households use nutrient-rich foods grown or purchased and prioritize use of increased incomes from market engagement to improve diets and nutrition.

We recommend that agricultural extension providers complement, not replace, nutrition services typically provided by the Ministry of Health and other health partners. Extension workers typically neither have the time nor training to fully and adequately provide the complete nutrition education required for supporting good health and nutrition within households.

The following provides examples from three organizations of how to help households connect agriculture and nutrition:

Nutrition education for behavior change. The goal of the Feed the Future Mawa Project, led by CRS, is to have lead farmers extend agricultural knowledge and skills to diversify and intensify production on the family farm. Nutrition volunteers provide peer-to-peer nutrition education to caregivers of children under two, focusing on essential nutrition actions and infant and young child feeding practices. The intent is that families have access to health and agriculture expertise from two different sources. Understanding the potential for mixed messages, Mawa developed consistent lessons for both agriculture and nutrition. The integrated nutrition lessons include agricultural practices that help families increase and maintain the quality and quantity of diverse food. They also include messages focused on gender dynamics in planning, budgeting and decision-making in relation to home consumption versus market sales.

Better processing and preservation of nutritious foods. Self Help Africa worked with farmers to produce indigenous legume varieties, which in turn are promoted as part of a nutritious diet. SHA worked with the National Food and Nutrition Commission (NFNC) to develop a recipe book that guides families on how to process and prepare legumes in order to maintain the nutritional value. SHA is currently working with the University of Zambia (UNZA) to research the “shelf-life” of African indigenous vegetables,

particularly leafy greens, after drying and storage to identify best practices in processing and preservation to maintain the quality of these nutrient-rich vegetables. The future hope is to extend this research into increased home consumption practices.

Engage women across value chains: When women are engaged in production, making choices and investing incomes, it can make a difference in household nutrition. A decent body of evidence exists (Zakaria, 2017) that when women have access to, control over, incomes and voice in household decision-making, the family benefits economically and nutritionally. Under the USAID Feed the Future PROFIT+ project, the example of CADs described in the section entitled “Women extensionists reaching women farmers” (page 20) is a good example of this approach to empowering women to support household production and nutrition.

GENDER INTEGRATION

Gender integration should address the needs of both women and men by enabling equitable:

- **participation** of men and women as farmers,
- **meaningful service delivery** that leads to adoption of promising technologies and practices, and
- **leadership or membership and decision-making** at multiple levels, including – for example – in the home, as an extension agent or on the board of a cooperative.

Some estimates indicate women contribute as much as 80% of agricultural production in Zambia (GRZ, 2012), but continue to face gender-based constraints that limit their ability to access agricultural information and opportunities. More equitable agriculture extension offers a path to facilitate women’s empowerment for gains in agricultural productivity and incomes that translate into benefits for the entire smallholder household. A number of studies have shown significant production and nutrition gains when women are empowered as decision makers in spending and food choices (Smith et al., 2003, Smith and Haddad, 2000). The organizations reviewed described their efforts to create gender-responsive agricultural extension.

Gender equality: The ability of both men and women to have equal opportunities and life chances. This may require changes in the lives of both men and women, and a comprehensive understanding of what measures should be taken to assure equality of opportunity. Since gender roles change over time, development programming can have an impact on gender equality, either supporting it or inhibiting it.

Gender equity: Equity involves fairness in representation, participation, and benefits afforded to men and women. It recognizes that in order to achieve equality a “leveling of the playing field” must first be done to compensate for gender gaps and the legacy of discrimination. This usually involves a focus on women, because women are typically in a disadvantaged position within society.

Source: INGENAES Gender Glossary, Rubin and Manfre, 2015.

The Global Forum for Rural Advisory Services (GFRAS) defines **gender-responsive agricultural advisory services** as those that are “specifically designed and implemented to effectively address the needs (practical and strategic), interests and concerns affecting men, women, male and female youth farmers in rural areas” (GFRAS, 2012).

At the most basic level, organizations mentioned the need to ensure women’s participation in agricultural extension services – as staff, lead farmers and farmers. Women’s participation ranged from 20% to 100%¹¹ depending on the purpose of the extension services. For example, SHA described a women’s value chain project that only provides direct support to women. Women’s inclusion in farmer groups or cooperatives, often provides valuable access to information and skills required to be more knowledgeable and productive farmers. The organizations who focus exclusively on women’s inclusion in agricultural extension directly explained the value in recognizing women as farmers and ensuring that credible and relevant information flows to them.

Beyond representation, several organizations described designing projects to address the needs and interests of both men and women farmers. This begins with equipping staff and extension officers with the

¹¹ Based on available information from organizations.

skills and resources to assess and appreciate the differing needs of, and barriers confronted by, men and women, then design responsive activities. Several approaches stand out:

Women extensionists reaching women farmers. By building a cadre of women as CADs, ACDI/VOCA has not only helped the CADs develop confidence through leadership as entrepreneurs in the community, but also built a network of women farmers who are able to access inputs, information and markets. According to ACDI/VOCA, the inclusion of women in agricultural extension – as CADs and farmers – has led to greater leadership roles for women, increased knowledge of agricultural practices and increase asset ownership. Women are typically under-represented in agricultural extension, but their presence as service providers is one way to attract women farmers to extension activities (Swanson et al., 1997)

Building staff capacity to respond to men and women. To design gender-responsive agricultural extension, staff must understand local gender and social norms and how these norms can affect men’s and women’s access to and participation in extension. Heifer develops staff and extensionists’ understanding of gender (in)equality and builds skills in conducting social and gender analyses to design and deliver equitable services that consider the needs and interests of men and women.

Engaging households and communities in dialogue. CRS’ community facilitators, who work in integrated teams alongside agriculture and nutrition field supervisors, facilitate discussions within households and communities focused on the rights, roles and responsibilities of men and women – and how unequal and inequitable gender and social norms *can* undermine the agricultural livelihoods and health and nutrition of families. Community facilitators support men and women to shift roles and responsibilities in order to realize the full benefit of intensified and diversified production.

Reaching women through nutrition education. Projects that connect agricultural extension with nutrition and health education have shown efficacy in reaching women (Manfre, 2013). CARE’s activities focus on prevention of undernutrition in children and thus CARE targets caregivers, mostly mothers, through nutrition support groups. Nutrition education through these groups affords an opening to reach women with information about agricultural practices and technologies that support nutrition outcomes.

SUMMARY: NUTRITION AND GENDER INTEGRATION

Recently the MoA replaced their stated audience from one farmer per family to the “farm household” in the National Agriculture Extension Services Strategy. This subtle change is a great example of gender sensitivity, widening the lens of who is seen as a farmer; it has the potential to expand service reach to all farmers, regardless of gender.

In terms of nutrition, simple nutrition messages can be included in extension workers’ toolkits. Several projects in Zambia are working with the MoA to adapt and develop this content. For example, the MoA’s Planning and Resource Guide for Agricultural Extension Officers now includes nutrition messages, while the European Union-funded Productivity Enhancement Project II will work with MoA to develop food and nutrition materials and pre-service training for extension officers across the country.

Cultivating Women’s Participation: Guidance

A variety of materials outline ideas for gender integration into projects that could be valuable in Zambia. One great example is the [WEAI Implementation Guide](#), created by ACDI/VOCA through the Leveraging Economic Opportunities (LEO) project.

GFRAS’ [New Extensionist Learning Kit](#) focuses on the functional skills and core competencies for extension agents and includes a learning module on [Gender in Advisory Services](#). This module includes practical guidance on how to engage women through agricultural extension.

We highly recommend that agricultural extension providers embrace gender-responsive elements and play a complementary role in providing nutrition education.

EXTENSION AND ADVISORY SERVICES: POTENTIAL FOR SCALING UP

To understand the potential of the three extension approaches in facilitating the scale up of promising agricultural technologies amongst farmers and other value chain actors, we begin by defining “scaling up,” then propose four elements of scale – outreach, outcomes, equity and sustainability – as a lens through which to review the potential for scale across extension approaches.

FRAMEWORKS FOR SCALING UP

The concept of scaling up is well-represented in literature. Two frameworks offer a lens through which to reflect upon the potential of the extension models to facilitate scaling up of technologies to farmers.

For Hartmann and Linn (2008), scaling up means “expanding, adapting and sustaining successful policies, programs or projects in different places and over time to reach a greater number of people.” This definition contrasts with the definition proposed by the International Institute for Rural Reconstruction (IIRR): “Scaling up brings more quality benefits to more people over a wider geographic area, more quickly, more equitably and more lastingly.” Both definitions of scaling up focus on quality (i.e., outcomes, impact), reach (i.e., numbers of farmers) and sustainability, but differ in their view of the speed under which scaling happens. Whereas Hartmann and Linn describe a gradual, iterative process that requires painstaking and meaningful cooperation between different actors and projects, IIRR emphasizes speed: How can we reach more farmers more quickly? Notably, IIRR also focuses on equitable benefits for men and women, as well as more vulnerable households often unreached by extension agents and, therefore, the potential benefits of their services.

More Reading on Scaling Up

Link to the following resources to appreciate the complexities, lessons learned and guidance on scaling up.

[Taking Innovations to Scale: Methods, Applications and Lessons](#)

[Going to Scale: Can We Bring More Benefits to More People More Quickly?](#)

[Scaling Up in Agriculture, Rural Development and Nutrition](#)

[MSI Scaling Up Toolkit](#)

In a blog post, [Scaling: To Be or Not to Be?](#), Bell and Hill (2016) set aside the complicated semantics surrounding the definition of scaling up to focus on its purpose: What do we want to achieve through scaling up? They conclude that if scaling up is about “getting promising technologies to millions of farmers...through the value chain in commercially sustainable ways,” (USAID, 2013), then the bottom line is that at least five factors have to be in order for scalability, namely:

1. A broad and clear need,
2. Easily understood, tested and relevant technology,
3. Supportive policies,
4. Affordable access to required inputs, and
5. Access to markets with adequate prices.

Scaling up is a complex issue that provokes rich discussion (see text box, *More Reading on Scaling Up*, for additional reading). For field-based practitioners, we would recommend simplifying analysis of scale to four elements¹² - outreach, outcomes, equity and sustainability – and offer guiding questions (Table 11) that practitioners can consider when designing or reviewing extension approaches:

¹² These are the same elements used to define scaling up in *Scaling Impact: Extending Input Delivery to Smallholder Farmers at Scale*, LEO Report No. 7 (Fowler and White, 2015).

Table 11. Four elements of scale and guiding questions

| | |
|----------------|---|
| Outreach | <ul style="list-style-type: none"> • How many farmers does the model reach? |
| Outcomes | <ul style="list-style-type: none"> • What are the outcomes of services delivered to farmers? • Are farmers applying and adopting promoted technologies and practices? • What social, economic or nutritional benefits have farmers realized through participation in the extension model? |
| Equity | <ul style="list-style-type: none"> • Does the model offer equitable outreach to men and women based on their needs and interests? • Does the model include mechanisms for men and women to benefit from agricultural value chains? • Does the model promote and recognize the value of women in the role of extensionist? • Does the model create opportunities for vulnerable, under-served households to benefit from services? |
| Sustainability | <ul style="list-style-type: none"> • Is there a sustainable source of funding for the services? • How does the model link to existing structures and systems, such as government extension and advisory services? • Does the model integrate with or link farmers to viable markets? • Does the model offer relevant and credible information and services that respond to farmers' needs? • Is the model simple or complex? |

After review, we chose to look at sustainability as an essential component of scaling up, as opposed to a separate issue. The definitions, above, support this decision. Sustainability not only asks the question of durability of services over time, but also requires that the services offered are relevant, credible, accurate and responsive to farmers' needs; integrated within viable and equitable markets; and situated within enabling policies and systems. As indicated by Bell and Hill (2016), sustainability and, thus, scale is difficult to achieve in the absence of these conditions.

REFLECTION ON SCALING UP ACROSS EXTENSION MODELS

The following summarizes our reflection on the potential of the extension models to facilitate scaling up, according to the three categories of models, including information-focused, service provider, and integrated market models, in consideration of four elements of scale (Table 11). Again, this reflection is not intended to criticize any extension model or approach, but rather to provide practitioners with a lens through which to consider the characteristics that lend themselves to scale.

Information-focused Models

Information about promising agricultural technologies remains a major need for many farmers and should be a component of any program. Information alone, though, without access to other services such as inputs, credit and markets, often results in fewer farmers applying new skills and knowledge. Farmers, particularly more vulnerable, risk-averse farmers, are unable to be flexible with land, labor and resources. Thus, without the connection to complementary services – like input provision, market advice or credit access – farmers may be challenged to adopt new practices. This said, some of the models reviewed *are* seeing positive changes in farmer behaviors, including the adoption of good agricultural practices and changing gender roles within households (see text box, *From Information to Impact*).

Information-sharing models offer a means of reaching large numbers of farmers, unencumbered by the complexities of multiple services and partnerships required of service provider and integrated market models. The focus on

From Information to Impact

CRS (2016) has noted that households with access to information about good nutrition and sustainable agriculture practices have more diversified *production* and family diets. Joint decision-making between family members on the use of income and production further increases dietary diversity. For example, savings groups members who make joint financial decisions with spouses are more likely to grow vegetables (51.5%) than those who do not share decisions with spouses (34.1%). These positive changes are perhaps a result of a deliberate effort to understand the audience, their motivations and their needs before shaping relevant, credible and accessible messages for farm households.

information has allowed each of the organizations using this model have reached significant numbers of farmers (16,000 to 714,000) directly with relevant information relying on simple structures. The simplicity of the approaches allows for easy replication, as seen through We Effect's study circles, successfully used by different organizations, including the Cotton Association of Zambia, Zambia National Farmers Union and the MoA – to respond to farmers' demands for information on a range of topics. Information-communication technology (ICT) offers another means of expanding reach to farmers, particularly those living in remote areas who may not be served by extension and advisory services (see text box, *ICT: Expanding Reach*).

In the absence of donor resources or a strong connection to, or integration into, government extension structures, it is uncertain how information flow through the extension network to farmers could be sustained. Even for those altruistic lead farmers under CRS and SHA, for example, who provide continuing advice to farmers without incentives from projects or organizations, the need for new technical information remains. Reflecting upon the sustainability of the farmer-to-farmer approach, Simpson et al. (2015) posit that once lead farmers saturate an area with information, they “simply exhaust opportunities for offering additional benefits to their communities,” particularly when “not connected to enduring programs capable of introducing new information, technologies and practices.” Without explicit plans to link to government extension and advisory services or integrate services within viable markets, the lack of continued funding may result in unsustainable information services for farmers.

ICT: Expanding Reach

Some farmers may rarely, if ever, see an extension worker. For these farmers, in particular, ICT – from radio to mobile phones – is an extension tool to share credible, relevant information, while also helping “farmers farm better” (Bell, 2016). In Zambia, COMACO's Farm Talk radio program promotes discussion between lead farmers and producer groups about conservation technologies. Listening sessions with farmers, coupled with practical on-farm advice, amplifies farmers' access to credible, relevant information, which is explained in simple terms farmers can understand. With three programs every week, reaching 1.2 million listeners, Farm Talk is a valuable source of information for farmers (COMACO, 2017).

Farmers in Zambia with mobile phones are now able to access free, on-demand agricultural information through Human Network International's [3-2-1 Service](#). Farmers access the information they need, when they need it. In Zambia, HNI worked with Self Help Africa and the MoA to develop accurate guidance for crop production and partnered with MTN, a telecommunications company, to make the service available to their 5.2 subscribers free of

Service Provider Models

Service provider models can ensure the supply of high-quality inputs, access to credit and market advice, while also incentivizing performance of service providers through fees. Importantly, the services that entrepreneurs offer, linking farmers to competitive input and output markets, have the potential to impact the agribusiness infrastructure in more equitable ways. Also, as shown by ACDI/VOCA, the model can reach significant numbers of farmers through, while achieving significant results. Under the USAID Zambia Feed the Future PROFIT+ Project, CADs achieved inputs sales valued at ZMW 20 million, which – combined with other services – drove a 40% increase in household incomes and a 50% increase in household productivity (ACDI/VOCA, 2017).

However, it is unclear how service provider models could grow and expand without sufficient external support, particularly without funding. Who will train new agro-dealers or facilitate linkages with private companies? How will entrepreneurs access credit to continue investing and expanding services? Significant technical, financial and managerial resources are required. One possibility for expansion includes adoption of the model by other stakeholders with more certain sources of funding. Cargill, a private, multinational company, chose to adopt the CAD model to deliver services to farmers. The apprenticeship model, whereby existing private service providers train and deploy new service providers, is another opportunity to continue services to rural farmers (see text box, page 9, *Expanding and Sustaining Services*). The desire of entrepreneurial service providers to make income on the sale of inputs and service provision may also support lasting service delivery to rural farmers. Though, Fowler and White (2015), discussing microentrepreneur-driven models for input delivery, discuss the ideal enabling environment as one the

demand for diverse inputs is growing, but businesses are not yet established to meet this demand. “Where such full-time businesses exist, the efficiencies of such businesses can crowd out microentrepreneurs,” limiting their market for input sales and, thus, income growth.

Inclusion of women as service providers is relevant to the scalability and sustainability of integrated market models. Yet, with pressure to create profit for entrepreneurs (and drive sales for private companies), is such a model able to support underserved farmers? Where farmers require capital to purchase inputs, knowledge of markets and social capital, such a model has the potential to exclude the poorest and female farmers. Concerted effort to train women – who are able to speak to and understand women’s needs as service providers – is essential in order to engage women in more profitable value chains. ACDI/VOCA also found that marketing services to savings groups was an effective way to reach more vulnerable individuals, including women. Where there is strong potential to capture a predominantly male audience, these efforts are necessary, as illustrated in the research conducted on the FBA model in Cambodia (see text box, page 23, *Design with Women in Mind*).

Integrated Market Models

Integrated market models are akin to a “one-stop shop” for farmers, offering them access to inputs, farm advice, and credit – often necessary, valuable preconditions for engaging with output markets. Yet, these models are complex, requiring significant logistical management to integrate services, meaning scale can be trickier to achieve. Scale depends on individual business acumen of the marketing body and profitability of the integrated system. Without profits, these organizations may be unable to sustain the quality or degree of services offered to existing farmers and limited in their ability to expand services to new farmers.

When strong oversight ensures integration of the different services, these models provide differentiated services to a wide group of farmers, based on their needs, as evidenced by impressive outreach by COMACO¹³. The model, which offers farmers access to inputs and a reliable market, taps into the diversity of farmers’ needs and, therefore, attracts significant numbers of farmers. Good Nature, though in its infancy, has reached 2,400 farmers and generated keen interest from others, driving the company to create growth plans – not only to reach more farmers, but expand into new value chains.

Design with Women in Mind

Research conducted in Cambodia (Santoyo and Lindström, 2011) offers lessons on the inclusivity of the Farm Business Advisor model, which may be applicable to similar service provider models. The research concludes that the needs and expectations of wealthier, more resourceful (and often male) farmers are served above the needs of more vulnerable, less entrepreneurial (and often female) farmers: “While FBAs are trained to service all farmers, their own incentives are biased towards servicing richer farmers who will more likely buy inputs and equipment from them regularly and increasingly over time.” The research emphasized the need to design services offered by FBAs according to the specific needs and interests of female farmers.

Integrated market models tend to focus on select crops marketed by seed companies, typically hybrid maize, sunflower and groundnuts in Zambia. While the focus on limited (and generally cash) crops may ease training of extension agents and farmers, thoughtful planning is required to ensure inclusion of more underserved groups, including women, in these models. Evidence indicating that men tend to dominate cash crop production is plentiful. Further, women smallholders face systematic inequality in access to resources and markets stemming from overt aspects such as lack of land ownership or intra-household decision-making to more latent aspects such as being more homebound while caring for family that require assistance. This said, the organizations reviewed, particularly COMACO, have demonstrated inclusive business practices intended to reach smallholder farmers, including women. More than 50% of COMACO’s farmers are women.

Integrated market models beg the question: Can services be sustained without significant and direct facilitation from the company to offer extension services, source inputs and purchase and buy commodities? In a similar review focused on extending inputs to farmers at scale, the LEO project (Fowler and White,

¹³ Recent information accessed in June 2017 on COMACO’s website indicates that the company has 164,300 registered farmers reached through COMACO’s extension structure, nearly double the number of reported in 2014 (Tucker et al.): <https://www.itswild.org/our-impact/hunger-poverty/>.

2015), referring specifically to cooperatives, concludes that sustainability is challenged when external facilitators withdraw assistance. For farmers who rely entirely on the collective to meet their needs, the consequences of a dysfunctional cooperative can be devastating.

CONCLUSION

This paper began by providing a snapshot of the agricultural extension models used by nine organizations in Zambia, with a view toward understanding the elements that support the scaling up of services to smallholder farmers. We began by describing the services, roles and incentives of the models, using this to define three categories of extension approaches:

1. **Information-focused** models: organizations use institutional or project funding to provide information at no cost to the farmer;
2. **Service-provider** models: organizations provide some service (e.g., selling fertilizer) and in association with sales may provide information to the farmers; and
3. **Integrated-market** models: farmers provide product to a buyer and receive various forms of support as part of the buyer-seller relationship.

To meet the diverse needs of households, extension approaches must be designed to incorporate gender-responsive and nutrition-sensitive approaches. Each of the models has the potential to address gender and nutrition through extension services - by reaching men and women, designing services responsive to unique needs and interests and carving out roles for women along value chains. Addressing women's agricultural needs – and the nutritional needs of the household – through extension services is one way to make services more relevant to *all* members of the household. More equitable agriculture extension offers a path to facilitate women's empowerment for gains in agricultural productivity and incomes that translate into social, economic and nutritional benefits for the entire smallholder household.

We conclude the paper proposed four elements that can provide a lens through which to consider the potential for achieving scale:

1. **Outreach:** How many farmers does the model reach?
2. **Outcomes:** What are the outcomes of services delivered to farmers?
3. **Equity:** Does the model support equitable outreach to men and women, as well as under-served or more vulnerable households?
4. **Sustainability:** Can the services offered endure without additional human, financial and technical resources?

Each of the models described in this paper holds value and offers useful features that can be applied in different regions and countries to strengthen extension services and create benefits for smallholder farmers. The needs of smallholder farmers are diverse and complex. It is possible that no single model – however simple or complex – will respond to the whole needs of farmers and their households. Indeed, across countries and, specifically, in Zambia, government's embrace of pluralistic extension systems acknowledges the importance of diverse models working in deliberate complementarity to support the financial, social and nutritional needs of male and female farmers and their households.

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APPENDIX I. GLOSSARY OF ACRONYMS

| Acronym | Meaning | Associated Organization |
|----------------|--|--------------------------------|
| ABG | agri-business group | ACDI/VOCA |
| AM | area manager | COMACO |
| BEO | block extension officer | MoA |
| CAD | community agro-dealer | ACDI/VOCA |
| CAVE | community agri-vet entrepreneur | Heifer |
| CAZ | Cotton Association of Zambia | |
| CDO | community development officer | MCD |
| CEO | camp extension officer | MoA |
| CF | community facilitator | |
| CRS | Catholic Relief Services | |
| COMACO | Community Markets for Conservation | |
| DACO | District Agriculture Coordination Office | |
| DAZ | Dairy Association of Zambia | |
| DEM | district extension manager | COMACO |
| DHF | demo host farmer | ACDI/VOCA |
| EAS | extension and advisory services | |
| FAO | Food and Agriculture Organization | |
| FBA | farm business advisor | iDE |
| FFS | farmer field school | |
| GFRAS | Global Forum for Rural Advisory Services | |
| HNI | Human Network International | |
| ICT | information communication technology | |
| IIRR | International Institute for Rural Reconstruction | |
| INGENAES | Integrating Gender and Nutrition within Agricultural Advisory and Extension Services Project | |
| LEO | Leveraging Economic Opportunities Project | |
| LF | lead farmer | |
| MAL | Ministry of Agriculture and Livestock | |
| Mawa | | CRS |
| MCC | milk collection center | Heifer |
| MCD | Ministry of Community Development | |
| MFL | Ministry of Fisheries and Livestock | |
| MoA | Ministry of Agriculture | |
| MoH | Ministry of Health | |
| NAIS | National Agriculture Information Service | |
| NGO | non-governmental organization | |
| PAO | provincial agriculture officer | MoA |
| PEA | private extension agent | |
| PG | producer group | |
| PROFIT+ | Production, Finance and Improved Technology Plus | ACDI/VOCA |
| PSP | private service provider | CRS |
| SAO | senior agriculture officer | MoA |
| SC | study circle | We Effect |
| SCO | study circle organization | We Effect |
| SG | study group | MoA |
| SHA | Self Help Africa | |
| SUN | Scaling Up Nutrition | |
| USD | United States Dollar | |
| VA | Veterinary Assistant | MFL |
| ZHC | Zambia Honey Council | |
| ZMW | Zambian Kwacha | |
| ZNFU | Zambia National Farmers Union | |

APPENDIX 2. ORGANIZATION MODELS FOR INFORMATION AND SERVICE DELIVERY

The following organizations (in alphabetical order) were considered in this review: ACDI/VOCA, Zambia, Catholic Relief Services, COMACO, Good Nature Agro, Heifer International, iDE, Ministry of Agriculture, Self Help Africa, We Effect.

ACDI/VOCA

| | |
|------------------------------|--|
| Type of organization: | International Non-Governmental Organization |
| Project: | USAID Feed the Future Zambia PROFIT+ Project |
| Category: | Service provider model |
| Funding source: | USAID Zambia |

The USAID PROFIT+ project, led by ACDI/VOCA, aims to increased food security by developing market-system solutions to create opportunities for farmers and agribusinesses to increase agricultural productivity and access high-value markets while facilitating private-sector investment in value chains. PROFIT+ partners with key market system stakeholders to form and train Community Agro-dealers (CADs), who establish links between service providers (e.g., seed, fertilizer, chemicals, markets) and smallholder farmers. For ACDI/VOCA, CADs are a means to accelerate progress of farmers, localize access to training, inputs and technologies, and reduce the cost of business for private sector partners. Beyond CADs, PROFIT+ also relies on community-based demonstration host farmers (DHF) and lead farmers – with oversight and management by MoA’s extension officers – to demonstrate and promote appropriate production practices. PROFIT+ works across four provinces in Eastern Province, Zambia: Chipata, Katete, Lundazi, Petauke.

Practices and Technologies: PROFIT+ promotes adoption of conservation agriculture in farming communities and through public private partnerships, with emphasis on the following topics: soil sampling, minimum tillage, early planting, integrated pest management, fertilizer application, aflatoxin mitigation, crop rotation and use of certified seed.

Nutrition and Gender: PROFIT+ reviews agricultural technologies from a nutrition perspective, but focuses primarily on the market potential of crops grown by smallholder farmers. ACDI/VOCA’s gender strategy aggressively identified women through, for example, women’s agriculture associations to become DHFs and CADs and participate in agri-business groups (ABGs). According to a qualitative survey conducted by INGENAES project, “women have become leaders in their communities and reach an extended network of women with farming skills.” As entrepreneurs in their communities, these women leaders have created opportunities for other women to benefit from access to agricultural markets.

Table 12. ACDI/VOCA extension structure

| Actor | Number | Ratio | Responsibilities | Incentives |
|-------------------------------|------------------------|---|---|---|
| ACDI/VOCA staff | | | Provide training in business management, community facilitation, and agricultural service provision Negotiate contracts with private sector to provide inputs on credit to CADs | Paid by ACDI/VOCA. |
| Community Agro-dealers (CADs) | 339 (35% women) | 1 CAD: 10-15 agri-business groups ¹⁴ | Generate demand and provide inputs to rural farmers with embedded technical advice Maintain relationships and build trust with private sector partners for access to inputs Mobilize farmers or existing groups (e.g., savings groups, district women's associations, etc.) into agri-business groups | Receive extensive training in business management practices; receive commission on sales from private sector partners. |
| Agri-business groups (ABGs) | 863 groups (85% women) | 1 ABG: 20 farmers average | Solicit agricultural and business services from CADs Mobilize savings and issue internal credit Invest in gender sensitive initiatives – crops, processing, value addition, etc. | Formed or strengthened by CADs and PROFIT+ staff to focus on trade as a mean to mobilize higher savings |
| Demo-Host Farmers (DHF) | 690 | 1 DHF: 5 lead farmers | Host and manage demonstration plot to showcase improved agricultural practices Transfer skills and knowledge specific to conservation agriculture | Strong training performance leads to selection as CAD. Some inputs for host farm. |
| Lead Farmers | 3,011 | 1 lead farmer: 25 farmers | Transfer skills and knowledge learned from DHFs to farmers | Unpaid |
| Farmers | 193,000 ¹⁵ | | | Access to inputs and services within communities; facilitated access to markets; access to agronomic skills and practices |

¹⁴ Number of groups varies by CAD, according to his/her capacity and effort.

¹⁵ Represents farmers reached by lead farmers and agri-business groups.

CATHOLIC RELIEF SERVICES

Type of organization: International Non-Governmental Organization
Project: USAID Feed the Future Zambia Mawa Project
Category: Information-focused model
Funding source: USAID Zambia

Mawa Project is an integrated food security project funded by USAID Zambia under the Feed the Future Initiative. The project aims to intensify and diversify production for nutrition and markets with a combination of agricultural production, nutrition, savings and lending and gender interventions. To strengthen agricultural production, the project relies on a lead farmer approach to engage local farmers, organized into farmer groups, in trainings on agricultural practices and technologies. Lead farmers maintain demonstration plots to show farmers how to apply these technologies and practices and engage farmers in discussions of household assets, needs and constraints that affect adoption. Lead farmers also conduct farm visits to support specific needs of farmers. Mawa operates in Chipata and Lundazi districts in Eastern Province.

Practices and Technologies: Through practical demonstrations and farm visits, lead farmers facilitate discussions to support the adoption of conservation agriculture; use of appropriate post-harvest handling and storage practices; and production of small livestock.

Nutrition and Gender: Households with pregnant and lactating women and children under two may also receive household visits from nutrition volunteers who support the adoption of essential nutrition and hygiene actions¹⁶. To reinforce and/or introduce nutrition messages, the project has integrated nutrition messages into the agriculture lessons and farmer guides. Messages focus on production of nutritious foods; increased dietary diversity and food consumption patterns; and appropriate PHHS to reduce economic and nutritional losses.

Agriculture lessons include practical activities that facilitate joint decision-making and budgeting prior to the start of the agricultural season, allocation of labor and access to resources, with emphasis on how decisions, roles and resources affect not only agricultural production, but also the health and nutrition of the family. The project aims to ensure representation of women amongst project staff, volunteers and project participants. Women are represented equally in technical and management positions under the project – from the Chief of Party to field supervisors.

¹⁶ 18% of households participating in agricultural production activities also receive peer-to-peer counseling from nutrition volunteers in essential nutrition and hygiene actions.

Table 13. CRS extension structure

| Actor | Number | Ratio | Responsibilities | Incentives |
|-------------------|----------------------|---|--|---|
| Field Supervisors | 5 | 1 field supervisor: 5-6 field agents | Train field agents in project-promoted practices: conservation agriculture, post-harvest handling and storage, small livestock production. Monitor and support activities of field agents and lead farmers Participate in DACO coordination meetings to harmonize extension services with other actors | Staff; paid by Caritas Chipata. |
| Field Agents | 26 | 1 field agent: 20 lead farmers | Deliver and discuss monthly lesson, aligned with agricultural season, to each lead farmer and his/her group of farmers. Coach lead farmers during farm visits | Receive stipend of 35 USD per month with submission of monthly report; receive bicycle to facilitate support to lead farmers and their farmer groups. |
| Lead Farmers | 517 | 1 lead farmer: 20 farmers ¹⁷ | Participate in community agriculture committee to coordinate activities with other actors Maintain group register and record activities (e.g., farm visits) using project report forms | Receive bicycle to facilitate farm visits; benefit from demonstration plot production. |
| Farmers | 21,471 ¹⁸ | | | |

¹⁷ Lead farmers supports a maximum of 20 lead farmers over a two-year period; as farmers “graduate,” lead farmers form new groups of 20 farmers.

¹⁸ Represents farmers served since project inception through participation in farmer groups.

COMMUNITY MARKETS FOR CONSERVATION

Type of organization: Private company
Category: Integrated market model
Funding source: public and private funds

COMACO is a non-profit company with the stated mission to “provide marketing services, trade benefits and extension support for farm-based and natural resource-based commodities as a basis for small-scale farmer adoption of improved land use practices that promote natural resource conservation.”

COMACO’s extension structure relies on COMACO staff with support from lead farmers organized into producer groups and producer group cooperatives to promote adoption of farming practices that protect natural resources. COMACO targets food insecure households and individuals involved in environmentally destructive livelihoods such as poaching or charcoal production and supports them to improve their food and income security in exchange for their commitment to conservation. Using a market-driven community-based approach to conservation, COMACO trains these small-scale farmers in sustainable agricultural practices and provides them access to high-value markets for commodity surpluses as a reward for conservation compliance and preservation.

Practices and Technologies: The foundation of COMACO’s approach is based in the principles of conservation agriculture. Improved farming practices supported by COMACO include home-based fertilizer making with compost, mulching, crop thinning, weed control, crop rotation, minimum and zero-tillage, agro-forestry and water management.

COMACO relies on the Better Life Book, developed by technical staff, to transfer knowledge and skills to farmers. The Better Life Book includes information on conservation agriculture, land management, wildlife conservation, health and nutrition and savings and lending activities.

Nutrition and Gender: COMACO’s Better Life Book includes information on household nutrition with emphasis on consumption of nutrient-rich crops with attention to balancing consumption and income needs of the household. COMACO also has a gender advisor who supports gender-responsive interventions.

Table 14. COMACO extension structure¹⁹

| Actor | Number | Ratio | Responsibilities | Incentives |
|-----------------------------------|--------------------|------------------------------------|--|---|
| District Extension Managers (DEM) | 6 | 1 DEM: 8-10 Area Managers | | Paid by COMACO. |
| Area Managers (AM) | 56 | 1 Area Manager: 15-20 lead farmers | Monitor and verify adherence to conservation and farming practices promoted by COMACO by checking farmer cards used in farmer groups. Coordinate activities with public extension officers | Paid by COMACO. |
| Commodity Purchasing Agents (CPA) | | | Chosen from amongst the lead farmers based on performance standards (e.g., farmers recruited, land conserved, crop diversification, yields), commodity purchasing agents: Aggregate produce for sale to COMACO | Receive commission for commodities sold to COMACO. |
| Lead Farmer (LF) | 1,700 | 1 lead farmer: 3-5 producer groups | Maintain field as demonstration plot Provide instruction to producer groups/farmers in conservation of natural resources and agricultural practices | Receive commission for every farmer recruited and trained. |
| Producer Group Cooperative | 46 ²⁰ | 1 PGC: 10 producer groups | Organize field days (4-8 per year) to encourage exchange of ideas and skills related to crop production, nutrition, livestock management Support adherence to conservation norms amongst producer groups Build farmer loyalty in growing crops suitable for soils and supportive of COMACO products Provide administration of community trading depots which serve as market and training centers for farmers | Receive training in leadership and management of trading depots, climate smart agriculture, conservation and entrepreneurship; generates income to support lead farmers' extension activities |
| Producer Groups (PG) | 4,800 | 1 producer group: 15-20 farmers | Monitor performance of farming practices, crops, yields and sales using farmer cards (twice per year) | Access to secure market (COMACO); premium (up to 20%) on crops if following conservation principles (e.g., no poaching) and applying conservation agriculture |
| Farmers | 89,000 (52% women) | | Follow land management and conservation principles to benefit from COMACO markets Elect leaders of producer groups | |

¹⁹ All information in the table, except where noted, is taken from Tucker et al., 2014.

²⁰ From COMACO website: <https://www.itswild.org/teaching-over-the-radio-waves-cooperative-leaders-receive-breakthrough-education/> Accessed: June 15, 2017.

GOOD NATURE AGRO

Type of organization: Private for profit company

Category: Integrated market model

Funding source: private and public

Good Nature Agro is a private company with the stated goal of working with smallholder farmers to increase incomes through agricultural production. Through trained Private Extension Agents (PEAs), Good Nature provides seed and other input loans to farmers and offers a guaranteed market for the certified legume seed (cowpea, groundnut, soybean) that farmers produce. With skills in financial education, agronomic practices, group management and farm planning, PEAs train farmers throughout the growing season, providing personalized extension support to farmers. Good Nature markets and sells high-quality farmer seed under the company's Good Nature Seeds brand.

Nutrition and Gender: Good Nature does not refer to gender-sensitive agricultural extension, but tries to ensure equal representation of men and women in its extension model. Nutrition outcomes are not an explicit objective of their support to rural communities. Good Nature expects that increased incomes and diverse seeds will contribute to a more diverse and healthier diet.

Table 15. Good Nature Agro extension structure

| Actor | Number | Ratio | Responsibilities | Incentives |
|---------------------------------|--------|------------------------------------|---|--|
| Field Supervisors | 5 | 1 FS: 10 PEAs 1 FS: 400 farmers | Select 1 PEA to support each cooperative of 40 farmers Facilitate formation of cooperatives (comprised of 40 farmers) Facilitate financing for non-seed inputs from ZANACO | Paid by organization. Receive training valued at \$1,000; certified as seed inspectors according to Seed Control and Certification Institute standards; motorbike to facilitate work. |
| Private Extension Agents (PEAs) | 50 | 1 PEA: 40 farmers | Support farmers throughout the agricultural season through farm visits and bi-weekly trainings Monitor farmer progress and provide individualized support Deliver seed and other input loans; facilitate/process sale of seed to organization | Participate in "PEA College" to learn agronomic, financial education and group management skills; receive commission on farmer seed sales to Good Nature (while first-year PEAs receive monthly stipend of K200 from organization); |
| Cooperative | 50 | 1 coop: 4 PGs (40 farmers) | Cooperative produces one commodity | Receive high-quality seed (and other inputs upon request) on loan; access to guaranteed market for seed produced and premium for "sufficient" quality seed; knowledge and skills for better soil health and greater productivity; access to input packages (non-seed) through Zanaco financing |
| Producer Groups | 200 | 1 PG: 10 farmers | Registered with MoA as cooperative | |
| Farmers | 2,000 | | Produce legume seed with input loans and repay to organization at rate of 2.5 kg per 1.0 kilogram received Nominate one member of farmer group to become PEA | |

HEIFER ZAMBIA

Type of organization: International Non-Governmental Organization

Category: Service provider model

Project(s): Increasing Smallholder Farmers' Agency in Leadership and Rural Livelihoods, Integrated Livelihoods and Agricultural Support Project, Livestock Development Program

Funding Source(s): DfID, Oxfam, IrishAid, Bothar, Heifer International, Self Help Africa, Government of Zambia, Africa Development Bank

Present in Zambia since 1988, Heifer International works with communities to develop self-governing cooperatives that serve as business hubs where farmers receive extension support, purchase inputs and bulk and sell products. Heifer relies on government extension agents from the MoA, Ministry of Fisheries and Livestock (MFL) and Ministry of Community Development (MCD) – CEOs, veterinary assistants (VAs) and community development officers (CDOs) – to oversee services to rural farmers or members of each cooperative, with a network of trained community facilitators, community agro-vet entrepreneurs providing additional outreach in rural communities. In addition, the core of Heifer's support to rural farmers is the "Passing on the Gift" concept. Heifer provides individuals with livestock – goat, cow or poultry – and asks them to pass on the first female offspring of their livestock along with training and support to other community members in need. This helps to build social capital and expands the Heifer's outreach and grows cooperative membership, which drives profits for farmers.

Practices and Technologies: Heifer has traditionally promoted livestock production, including dairy and draught cattle, meat goats, dairy goats, local poultry and bees. The organization promotes environmentally-friendly technologies, including conservation agriculture and biogas production.

Nutrition and Gender: Heifer offers "family-focused services" to rural households while actively targeting participation of women in cooperative services. All extension staff – public and project – receive training in basic nutrition to appreciate the value of animal source protein in the diet. Heifer actively tracks changes in household dietary diversity. Extension officers also receive training in gender to appreciate the linkages between household decision-making, resource allocation and labor allocation and the family's ability to create profitable family businesses.

Note: Information is specific to the six Milk Collection Centers (i.e., cooperatives) in Copperbelt and Central Provinces.

Table 16. Heifer Zambia extension structure

| Actor | Number | Ratio | Responsibilities | Incentives |
|--|--------|---|---|--|
| Milk Collection Center | 6 | | <p>Board members: Manage financial and technical operations of the MCC; manage relationships with buyers; make connection with private companies for additional services (e.g., equipment, loans)</p> <p>Extension: Provide oversight of each cooperative; train CFs and CAVEs to provide services to producer groups; serve as link to respective ministries</p> | <p>Board members: Training in board and business management; leadership experience; exposure with companies and at conferences</p> <p>Extension: Fuel and lunch allowance to facilitate support to groups²¹</p> |
| Extension Officers (CEOs, VAs, CDOs) | 18 | 1 MCC: up to 3 extension officers ²² | | |
| Community Facilitator | 240 | 1 MCC: 40 CFs | <p>Two CFs and two CAVEs selected from each producer group respond to immediate needs for extension support and immediate needs within communities: Offer livestock production advice and basic veterinary care Consult extension officers if additional support is required</p> | <p>Training in participatory education approaches Basic veterinary skills Cash or in-kind payment for services</p> |
| Community Agro-Vet Entrepreneur (CAVE) | 240 | 1 MCC: 40 CAVEs | | |
| Producer Groups | 120 | 1 MCC: 20 producer groups | <p>Communicate needs to MCC through CFs and CAVEs As members of cooperative, hold Board accountable for effective management and service provision</p> | <p>Access to quality inputs and guaranteed market for products and products on credit through cooperative Livestock (one animal per farmer, if needed) Pride in supporting neighbors through pass-it-on</p> |
| Farmers | 2,400 | 1 producer group: 20-25 farmers | | |

²¹ After the initial year of support to Heifer’s farmers, government extension officers begin to receive direct payment from the farmers.

²² Extension officers are government employees and thus the number depends on whether or not the position is filled.

IDE

Type of organization: International Non-Governmental Organization

Category: Service provider model

Donor: SIDA

iDE relies on a network of Farm Business Advisors (FBAs) – small-scale, independent entrepreneurs who support client farmers – to generate demand for, and extend agricultural products and services to, rural communities with the aim of encouraging and equipping farmers to grow market-oriented crops. With facilitated relationships to private companies (e.g., NWK, CropServe, ATS), FBAs are trained to market inputs to farmers, bulk farm products for sale and facilitate access to financial services.

Nutrition and Gender: Women represent a minority of FBAs and farmers, and iDE is taking measures to increase women’s participation. iDE is bringing in new products, namely horticulture and cowpeas, which are often produced by women. iDE acknowledges that the primary goal of the FBA model is to support income growth for farmers and anticipates that increased incomes will lead to better diets.

Table 17. iDE extension structure

| Actor | Number | Ratio | Responsibilities | Incentives |
|-------------------------------|--------------------|---------------------------------|--|---|
| iDE Staff | | 1 staff: 4-5 FBAs | Train FBAs in facilitation, business and agricultural skills to prepare for role in community Negotiate deals with private sector retailers, suppliers and MFIs to increase commission for FBAs | Paid by iDE. |
| Farm Business Advisors (FBAs) | 270 (15% women) | 1 FBA: 80 farmers ²³ | Generate demand for and facilitate the sale of inputs, including chemicals, fertilizer, seed, as well as access to credit. Provide technical advice (as embedded service) to farmers based on specific needs throughout the growing season. | Receive training in entrepreneurship, agricultural skills and support from iDE in linking to suppliers and microfinance providers; earn commission (K3,000 per month on average) on inputs and produce sold to suppliers and buyers; receive product-specific training from input suppliers |
| Farmers | 23,000 (25% women) | | | Access to inputs – often on credit – and technical advice from trained entrepreneur; access to financial products designed for smallholder farmers through mFinance and other financial service providers |

²³ iDE plans to grow numbers from 80 to 120 farmers per FBA.

MINISTRY OF AGRICULTURE

Type of organization: Government
Category: Information-focused model
Funding source: government, multi- and bi-lateral donors

The Ministry of Agriculture (MoA) extension services fall under the Department of Agriculture. The MoA offers extension services through a network of blocks, camps and zones organized under Provincial and District Agricultural Coordinator's Offices. The MoA adopts a participatory extension approach (PEA) as the vehicle to deliver extension and advisory services. The MoA builds capacity among farmers through (1) technology transfer, (2) problem-solving, (3) education, and (4) human development (MAL, 2013). MoA's network of extension officers, organized in a network of blocks and camps, use several strategies to engage farmers. Extension officers bring farmers together into one of two types of study groups: Farmer Field Schools or Study Circles. CEOs identify lead farmers or "early innovators" who manage demonstration plots. These demonstrations, established on the farmer's farm, are referred to as Farmer Field Schools (FFS), where individual farmers or groups can observe, discuss and learn agricultural technologies. Farmers organized in study circles self-direct learning and problem-solving related to a specific commodity. FFS are focused on production practices, whereas Study Circles are market-oriented. Farm Training Centers and Farm Training Institutes complement the network of extension officers, providing learning opportunities for farmers and groups. Through these extension channels, the MoA aims to improve production and productivity of small scale farmers for sustainable livelihoods and food security (MAL, 2013).

Nutrition and Gender: Health and Nutrition Officers work alongside the Senior Agriculture Officers in each district to support integration of health and nutrition messages within extension and advisory services, while also serving as a resource to extension officers on these issues. Areas of focus include production and consumption of diverse, nutrient-rich foods, including livestock and fish; post-harvest handling and storage; food consumption patterns, particularly for pregnant and lactating women and children under two; and gender sensitization (MAL, 2015).

Table 18. MoA extension structure

| Actor | Number | Ratio ²⁴ | Responsibilities | Incentives |
|--------------------------------------|---------------------|---------------------------------------|--|--------------------------------------|
| Provincial Agriculture Officer (PAO) | 10 | 1 PAO: 1 SAOs | Coordinate development of provincial work plan to articulate strategies and activities implemented by all EAS providers toward common MoA objectives. Develop annual budget to support priority agricultural activities across the province. | Paid by MoA |
| Senior Agriculture Officer (SAO) | 105 | 1 SAO: x BEOs | Collect information on types of services provided by organizations in the district; share with PACO. Establish and manage committee comprised of all EAS providers – public, NGO, private – to develop work plans and coordinate, monitor and evaluate outputs of different activities. | Paid by MoA |
| Block Extension Officer (BEO) | 349 ²⁵ | 1 BEO: 5-6 CEOs | Supervise CEOs and support/lead extension services within the block | Paid by MoA |
| Camp Extension Officer (CEO) | 1,786 ²⁶ | 1 CEO: 16 study groups or 400 farmers | Provide extension services to disseminate information and technologies for improved agricultural production and productivity with assigned camps. Specifically, according to the Agriculture Diary for Extension Officers (ADEO): Train farmers and provide technical support in appropriate agriculture technology. Develop individual and camp work plans in order to monitor and evaluate agricultural performance. | Paid by MoA |
| Study Groups | 28,576 | 1 study group: 25 farmers | FFS: Learn and practice production technologies. Study Circles: Focus on production for market, farm management, | |
| Lead Farmers | Not available | | Manage fields as demonstrations Provide agricultural advice to farmers, as extension of CEOs, on their fields | Recognition for innovative practices |
| Farmers | 714,410 | | | |

²⁴ Ratios are based on the number of available positions, not the actual number of extension staff currently filling those positions.

²⁵ Of which 50% of the positions are filled.

²⁶ Of which 92% of the positions are filled.

SELF HELP AFRICA

Type of organization: international non-Governmental organization

Project: diverse projects

Funding source(s): private resources, public donors (IrishAid, World Bank, African Development Bank)

Discussion focused on Self Help Africa's Local Development Project, based in Luwingu and Mbala districts in Northern Province. The five-year project aims to improve the livelihoods, health status and food and nutrition security of 16,000 households with a focus on women and vulnerable groups²⁷.

Self Help Africa's program in Zambia focuses on sustainable agriculture, enterprise development and household nutrition. SHA receives funding from diverse public and private donors and works with government and local partners to provide services to rural smallholder farmers and families. Under the Irish Aid-funded Local Development Project in Northern Province, SHA relies on district-level staff, called facilitators, to liaise with and train government frontline workers in providing training and support to households and communities in two districts. Agriculture facilitators pair with, for example CEOs to train lead farmers in appropriate agricultural practices and technologies; these lead farmers, in turn, train farmers organized into groups at established demonstration fields. Agriculture facilitators (one per district) work closely with food and nutrition and enterprise development facilitators who also work with government counterparts (e.g., community development assistants, health facility staff) to provide nutrition education and market support to the same groups of farmers and/or their households.

Nutrition and Gender: SHA supports the Scaling Up Nutrition effort in Zambia and, as such, focuses on the diversification of agricultural production and adoption of appropriate agricultural practices in support of improved health and nutrition outcomes. SHA infuses agricultural trainings with nutrition messages, explaining connections between agricultural practices and healthy, nutritious diets for the households. In lean months, for example, SHA focuses on support to households in value addition and food preservation as means to maintain quality and quantity of available foods. SHA is currently conducting research on degree to which green leafy vegetables maintain nutritional value after drying, and also focuses on production of local land races of legumes with associated content in preservation and preparation of beans for household consumption.

SHA adopts a gender transformative approach to engaging with households and communities, and further supports the family life model that focuses on the needs of the whole family. SHA facilitates dialogue on household decision-making, access to/control over resources, roles and responsibilities. SHA explained that it aims for 60% female membership across farmer groups under all of its projects; under a women's value chain project, 100% of farmers are women.

²⁷ From SHA website: <https://selfhelpafrica.org/ie/zambia/>. Accessed: June 28, 2017.

Table 19. SHA extension structure

| Actor | Number | Ratio | Responsibilities | Incentives |
|--|---|-------|---|--|
| Self Help Africa | 6 3 facilitators per district to coordinate: (1) agriculture, (2) food and nutrition, (3) enterprise development | | <p>Manage implementation of services to communities in coordination with government</p> <p>Work with government and communities to identify lead farmers and project participants</p> <p>Train ministry frontline workers (e.g., CEO) in agricultural practices, nutrition, enterprise development, as relevant</p> <p>Develop training content</p> | Salary and benefits |
| MoA, MCD, MOH frontline workers (e.g., CEO, BEO, CDA) | Ministry frontline workers (e.g., CEO, BEO) | | Train lead farmers in agricultural production practices; management of demonstration plots | Motorbikes, fuel |
| Lead Farmers | 372 | | Manage demonstration plots and conduct farmer visits to provide on-site support to farmers | Bicycle Inputs for, and produce, from demonstration plots |
| Livelihood enhancement groups SHA works through existing community groups; only develops new groups where structures do not exist | 372 | | 1 group: 45 farmers | |
| Farmers | 16,740* (61% women, 39% men) | | 1 group: 45 farmers | |

WE EFFECT

Type of organization: International Non-Governmental Organization

Category: Information-focused model

Project: Regional Study Circle Support Project (RESP)

Donor: SIDA

We Effect manages the Regional Study Circle Support Project (RESP), which uses study circles as a tool for communities to learn and work together in solving farmer-identified problems. We Effect does not directly implement study circles, but provides support to local organizations, including Zambia National Farmers Union (ZNFU), Zambia Honey Council (ZHC), Dairy Association of Zambia (DAZ) and the Cotton Association of Zambia (CAZ), in implementing the study circle approach with smallholder farmers. The self-governing groups hold regular meetings to carry out a study plan with support, as requested, by a study circle organizer. We Effect, together with the partner organization, develops study materials that circle group of farmers use to guide learning by marrying local knowledge and experience with scientific facts. Study circle organizers – sometimes referred to as lead farmers or contact farmers – are identified by the local organization and trained to provide technical support to study circles. The local organizations define additional services based on their priorities and interests. For example, ZNFU's study circles not only receive technical advice in crop production, but also access to finance through the organization's lima credit scheme. Regardless of the types of services offered to farmers, We Effect ensures fidelity to the study circle model.

Practices and Technologies: Discussions in study circles will depend on the self-identified needs of farmers in the study circle. We Effect works with local organizations to develop study materials. For example, farmers working with CAZ will develop skills to improve production, productivity and quality of cotton, in addition to receiving agricultural loans and/or guaranteed market for the commodity.

Nutrition and Gender: Local organizations that use study circles promote nutrition through value addition, process and utilization in the study circle materials. For example, under a cotton-based farming system, one local organization promotes the production of edible legumes and teaches skills in processing and utilization of groundnuts and soybeans.

Study circles offer women opportunities to assume leadership roles, which We Effect reports has led to greater self-esteem and confidence amongst women. Of the approximate 116,000 farmers participating in study circles across local organizations, 55% (64,000) are women.

Table 20. We Effect extension structure

| Actor | Number | Ratio | Responsibilities | Incentives |
|--------------------------|--------------------------------------|---|--|--|
| We Effect | 1 | 1 We Effect staff: 7 partner organization staff | Train local organizations and study circle coordinators in the approach Develop study materials based on needs and interests of study circle farmers Provide funding for local organizations to facilitate the study circle approach | Develop capacity of local organization to deliver services to its members |
| Local organization staff | 7 | | Supervise study circle organizers Identify additional services for farmers based on interests | Paid by local organization. Stipend |
| Study Circle Organizer | 2,290 | 1 SC organizer: 5 study circles | Provide support, as requested, to study circles Manage demonstration plots and conduct farmer visits to provide individualized support | Bicycle Promotional materials such as posters, caps, T-shirt Inputs for, and production from, demo plots |
| Study Circles | 11,654 study circle groups in Zambia | 1 study circle: 5-15 farmers | Identify topics of interest Develop study plan and regular study schedule | Greater self-efficacy Increased knowledge and skills |
| Farmers | 116,453 farmers | | Communicate needs and interests to study circle organizer | |

APPENDIX 3. INDIVIDUALS INTERVIEWED

ACDI/VOCA

Alex Pavlovic, Chief of Party

AgriSmart Zambia

Emil Van Wyk

Catholic Relief Services

Erin Baldrige, Chief of Party

Good Nature Agro

Carl Jensen, Co-Founder

Heifer International

Joyce Phiri, Training Coordinator

iDE

Melanie Wilkinson, Country Director

Kenneth Chelemu, Technical Director

Ministry of Agriculture

Katupa Chongo Chief Agricultural Extension Officer

Moffat Khosa, Principal Agriculture Officer, Eastern Province

Martin Muyunda, Deputy Director, Extension²⁸

We Effect

Martin Sekeleti, Study Circles Coordinator

²⁸ Mr. Martin Muyunda now serves as the Managing Director of Golden Valley Agricultural Research Trust.

APPENDIX 4. DISCUSSION GUIDE

According to FAO (2010), “Extension is defined broadly to include...

- all systems that facilitate access of farmers, their organizations and other market actors to knowledge, information and technologies;
- facilitate their interaction with partners in research, education, agri-business, and other relevant institutions;
- and assist them to develop their own technical, organizational and management skills and practices.”

Objectives

- **Understand the extension approach** or model used by different actors – public, private and NGOs – in providing services to farmers.
- **Understand the incentives** and motivations embedded in the approach to inform potential for scale, defined as “expanding, replicating, adapting and sustaining successful...projects in geographic space and over time to reach a greater number of people” (Cooley, 2014).

What are the **incentives** – rewards, payment, competition, etc. – that drive the potential for scale and what are the model characteristics that would enable (or undermine) the potential for scale?

1. Understand approach to extension

- 1.1. Can you describe your general extension model? (*Ask specific questions about actors who support/provide extension services, ratios, etc.*)
- 1.2. What incentives do actors in the model, including farmers, receive through participation?
- 1.3. What are the core services provided to farmers through the extension model, specific to each actor in the model?
- 1.4. How do you (1) package your message for farmers (i.e., resources, tools, guides used by extension agents), (2) deliver the message to farmers (e.g., radio, field days, demonstrations, etc.), (3) facilitate adoption?
- 1.5. How do you collect feedback to (1) adapt your approach based on farmers’ needs and (2) assess outcomes or impact of work?

2. Understand priorities in extension

- 2.1. How are farmer needs or issues identified and prioritized?
- 2.2. How do these needs or issues affect the (1) services offered to farmers, (2) type of participants/farmers served, and (3) extension model?
- 2.3. How do you integrate gender considerations into your extension model?
- 2.4. How do you integrate nutrition messages into your extension model?

3. What do you see as the pros and cons of your extension model?

- 3.1. What are the challenges you face in exchanging knowledge with farmers?
- 3.2. What is the one thing you would change about your extension model?
- 3.3. What do you feel are the best characteristics of your extension model?
- 3.4. What makes your extension model unique?

4. Sustainability and scale

- 4.1. How is your extension model financed? (Donor, government, fees, public-private partnership)
- 4.2. How do you involve other actors (public extension, private sector, NGOs) in your extension model?
- 4.3. What elements of the extension approach do you feel are sustainable (beyond – most likely – end of project)? What are the reasons you feel this way?
- 4.4. What relationships or resources are required to sustain *and replicate or scale* the extension model? How might these costs need to be adapted to sustain this outreach to farmers?

APPENDIX 5. GLOSSARY OF TERMS

Compensation: Payment for goods and services rendered which can be in the form of monetary earnings such as compensation, non-monetary, such as supplies like bicycles, inputs, land improvement, and more.

Complementary Feeding: The transition from exclusive breastfeeding to complementary feeding – typically covers the period from 6–24 months of age. This is a critical period of growth during which nutrient deficiencies and illnesses contribute globally to higher rates of undernutrition among children under five years of age. The SUN Movement aligns with the World Health Organization (WHO) recommendation that infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. Thereafter, infants should receive nutritionally adequate and safe complementary foods, while continuing to breastfeed for up to two years or more.

Credit: Access to financial services through community savings groups or linkages to financial institutions.

Dietary Diversity: Dietary diversity is a measure of the number of individual foods or food groups consumed in a given time period.

Gender based constraint: Restrictions on men’s or women’s access to resources or opportunities that are based on their gender roles or responsibilities. The term encompasses both the measurable inequalities that are revealed by sex-disaggregated data collection and gender analysis as well as the processes that contribute to a specific condition of gender inequality. (INGENAES Gender Glossary)

Gender disparity or Gender gap: Measurable differences in the relative conditions between men and women, especially (but not only) as they relate to the ability to engage in economic or political opportunities, e.g., illiteracy rates, level of education reached, levels of ownership of productive assets such as land or access to finance, or ability to participate in politics (see also gender equality). (INGENAES Gender Glossary)

Gender equality: The ability of both men and women to have equal opportunities and life chances. This may require changes in the lives of both men and women, and a comprehensive understanding of what measures should be taken to assure equality of opportunity. Since gender roles change over time, development programming can have an impact on gender equality, either supporting it or inhibiting it. (INGENAES Gender Glossary)

Gender equity: Equity involves fairness in representation, participation, and benefits afforded to men and women. It recognizes that in order to achieve equality a “leveling of the playing field” must first be done to compensate for gender gaps and the legacy of discrimination. This usually involves a focus on women, because women are typically in a disadvantaged position within society. (INGENAES Gender Glossary)

Gender responsive: Being aware of how gender identities and roles influence the opportunities of men and women in society and designing activities and policies that are structured and operate to demonstrate a commitment to gender equality. This means ensuring that women are among the participants and beneficiaries, whether as the extension agents hired, the farmers reached, or the scientists trained. It also means ensuring that both men and women have the appropriate training and skills to understand and support women farmers, extension agents, employees, and entrepreneurs. (INGENAES Gender Glossary)

Gender transformative: Where both men and women are helped as more gender-equitable relationships are promoted. A transformative approach identifies ways of engaging men and women to examine, question, and change institutions and norms that perpetuate inequalities. (INGENAES Gender Glossary)

Information focused model: Organizations focused primarily on the delivery of information. These organizations, CRS, MoA, SHA and We Effect, work through organized farmer groups as a conduit for sharing information and promoting learning amongst farmers in the same community. Each of the four organizations promotes intensification and diversification of crop production through the application of

conservation agriculture practices including minimum soil disturbance, permanent crop cover, crop rotations or intercropping. Organizations expand or adapt information based on farmer needs and interests, organizational priorities or project objectives.

Inputs: Provision or sale of diverse seed, fertilizer and other products.

Markets: Market advice or guaranteed markets for sale of products.

Nutrition-Sensitive Approaches: Address the underlying and systemic causes of malnutrition.” (USAID 2014). Interventions or programmes that address the underlying determinants of fetal and child nutrition and development—food security; adequate caregiving resources at the maternal, household and community levels; and access to health services and a safe and hygienic environment—and incorporate specific nutrition goals and actions. Nutrition-sensitive programmes can serve as delivery platforms for nutrition-specific interventions, potentially increasing their scale, coverage, and effectiveness. Examples: agriculture and food security; early child development; women’s empowerment; social safety nets; and water, sanitation, and hygiene. (Ruel and Alderman) (SPRING)

Product aggregation: Bulking and transport of products for sale at markets.