

FARMER INCOME LAB

WHAT WORKS TO INCREASE SMALLHOLDER FARMERS' INCOME?



A LANDSCAPE REVIEW

WORKING DRAFT FOR DISCUSSION – 2018

COMPLETED BY:

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COMMISSIONED BY MARS, INCORPORATED



STATEMENT FROM OXFAM

As a member of the Farmer Income Lab's first phase core team, Oxfam was engaged in the planning and execution of the 'What Works' research project. We commend Mars for commissioning this work and the University of Wageningen for leading the research. Building the Farmer Income Lab on a systematic review and analysis of existing evidence and insights is an approach we strongly support. We hope the insights of this report will help shape our collective efforts regarding how to best support farmers to earn higher incomes.

The absence of interventions that fulfill all of the assessment criteria for 'what works' (in terms of level of income change, scale, sustainability and inclusiveness) illustrates the need for new approaches to raise farmer incomes in a meaningful way. The observation that interventions addressing some of the most significant barriers to raising farmer incomes (e.g. low and volatile prices paid to farmers) scored at the lower spectrum further illustrates the need to think outside the box as we move from research to action. We look forward to accompany Mars in this journey going forward.

EXECUTIVE SUMMARY

Lead buyers are increasingly recognizing the business imperative of addressing poverty among smallholder farmers in their supply chains. There are no easy answers to addressing this challenge. Increasing farmer incomes is one key element of the solution. A farmer's income is influenced not only by how much agricultural product they can grow, but also by the market dynamics in which they operate and the broader social, economic and political context of where they live.

This paper, commissioned by the Farmer Income Lab – a collaboration between Mars Inc., Oxfam, Wageningen University & Research and Dalberg Advisors - is a first step in answering the question: *“What are the most effective actions that lead buyers can take to enable smallholder farmers in global supply chains to meaningfully increase their incomes?”* Over a three-month period, we conducted a landscape review of the publicly available evidence on common interventions that seek to address farmer incomes. We also reviewed case studies that highlighted promising practices and interviewed a number of leading practitioners.

We found that it is possible to raise farmer incomes through existing interventions to a degree. In fact, we identified compelling evidence that six of the interventions we reviewed did demonstrate income improvements at scale. These interventions - poverty graduation programs, outgrower schemes, climate change adaptation, savings led groups, access to finance and producer collectives - can form the building blocks of constructive action. In addition, we identified other interventions with positive results in specific contexts and case studies that highlighted promising practices.

Across the most successful interventions and case studies identified, we noted four critical success factors. These success factors include bundling services, connecting deeply with farmers, customizing interventions, and partnering with governments, civil society actors, and peers. Lead buyers can consider incorporating these factors as they seek to reinforce and enhance the success of their strategy.

However, this landscape review did not identify any interventions that performed strongly across all four of our selected criteria – a step-change in income, sustained over time, and reached male, as well as female farmers at scale. Across the interventions examined, three were found to raise incomes more than 50%

across contexts. Although these increases are of value, in many markets, farmers may need increases of 100-200% to achieve a decent income.

This paper serves as an initial starting point as we seek answers to our central question. Going forward, we believe that further exploration and action is needed in a number of areas, in particular:

1. To drive truly transformative increases, better understanding and more successfully addressing:
 - a. the systemic barriers farmers face, which include issues such as price levels and volatility, unfavorable public policies, and **lack of diverse income generating opportunities**
 - b. the unique sector and supply chain dynamics at a systems level and the role they play in influencing farmer incomes
 - c. the unique constraints and potential of female farmers in driving the necessary change
2. Creating actionable tools that enable lead buyers and their partners to diagnose the relevant barriers and systemic dynamics in a given supply chain and to identify and activate the most appropriate strategy and portfolio of interventions with the highest potential to drive desired impact in a given context.

CONTEXT AND INTRODUCTION

The global agricultural food industry relies on smallholder farmers. However, many smallholder farmers who produce food for global supply chains live in poverty. There are approximately 570 million farms worldwide, most of which are small and family operated.¹ An estimated 200 million of these smallholder farms are connected formally or informally to agricultural supply chains.² The unfortunate reality is that many smallholders are living in poverty. In fact, an estimated 63% of the world's extreme poor work in agriculture.³ For example, in the cocoa supply chain in Cote d'Ivoire, 37% of households live on less than \$1.25 per person per day, and 80% on less than \$2.50 a day.⁴ Farmers' incomes are clearly fundamental to understanding how best to improve the overall economic health and resilience of farmers.

For the agricultural food industry, these dynamics present significant risks to the continuity and availability of essential raw materials that are produced largely by smallholder farmers. For many farmers, the inability to earn a living income from agriculture has led them to under-invest in their farms, decrease production to focus on other activities, or for young people to leave farming all together to find other forms of work.⁵ In 2000, the ILO estimated that agriculture's total share of global employment was approximately 39%; by 2017, this share had dropped to 26.5%.⁶

There are complex barriers to decent farmer incomes. The barriers that farmers face today are multifaceted, as highlighted in Oxfam's *"Barriers to Raising Smallholder Farmer Incomes"* report, the

¹ FAO, "The Number, Size, and Distribution of Farms, Smallholder Farms, and Family Farms Worldwide." Smallholder farmers are commonly defined as those farmers operating a family farm on land holdings of less than two hectares. However, there is no consistent definition in the literature. Throughout the analysis within this document, we have accepted alternative definitions of SHFs as found in the source documents.

² World Bank, 2017

³ Olinto, P., K. Beegle, C. Sobrado, and H. Uematsu. 2013. "The State of the Poor: Where Are the Poor, Where Is Extreme Poverty Harder to End, and What Is the Current Profile of the World's Poor?" Economic Premise Paper 125. Washington: World Bank, October

⁴ CGAP, "Learning from smallholder supply chains in Cote D'Ivoire" October 2014.

⁵ The Centre for Study of Developing Societies (CSDS), *The State of Indian Farmers*, 2014

⁶ World Bank Development Indicators, Data retrieved November 2017

companion to this paper. These barriers include risks and volatility, insufficient bargaining power for farmers within supply chains and unfavorable public policies. The long-term ability of smallholder farmers to earn increased income is influenced not only by their actions on their farms, but also by social, economic, and political dynamics at the community and national level.

Lead buyers are increasingly recognizing the business imperative of addressing poverty among smallholder farmers in their supply chains.⁷ Some lead buyers recognize that these issues create risks to their business operations, brand reputation and license to operate. Several lead buyers have put forward bold commitments and taken action to address this challenge. These companies are aiming to build durable business models that will both meet the increasing pressures from stakeholders to operate more sustainably today and position the company for longer-term commercial viability in the face of growing challenges in securing agricultural supply.

FARMER INCOME LAB

In 2017, Mars, Incorporated launched the Farmer Income Lab—a collaborative think-do-tank that seeks to identify what works in improving smallholder farmer incomes and to act as a catalyst for dialogues and action that will increase impact. The Lab provides insights on the evidence base as to what works and identifies promising practices and success stories through multi-stakeholder dialogues and collaborations. In this way, it inspires action by Mars and others to test these models and to demonstrate the impacts of the highest-potential interventions. This work requires an understanding of farmers’ socioeconomic realities, of the barriers they face to progress and of the economic systems in which farmers and global companies operate.

The Farmer Income Lab is inspired by Mars’ ambition to enable smallholder farmers in its extended supply chains to earn a sufficient income to maintain a decent standard of living. Today, Mars is deploying a range of interventions in its supply chains to test what works in increasing smallholder farmer incomes. For example, in the cocoa supply chain in West Africa, rice supply chain in Pakistan, and mint supply chain in India, we are beginning to identify promising results. Mars also collaborates with the Livelihoods Fund for Family Farming, an impact investment fund, seeded by Mars and Danone that seeks to improve farmer incomes and resilience.

The Lab brings together Mars Associates and diverse stakeholders with a shared goal of identifying barriers to progress and models for change. In 2018, a group of knowledge partners has come together with Mars to generate this report:

This paper, commissioned by the Farmer Income Lab, is a first step in answering our central question: *“What are the most effective actions that lead buyers can take to enable smallholder farmers in global supply chains to meaningfully increase their incomes?”* We conducted a landscape review of the publicly available evidence on common interventions that seek to address farmer incomes. This review was supplemented by qualitative analysis of case studies and interviews with leading practitioners. This

⁷ Lead buyers are defined as large multi-national corporations that source raw materials from smallholder farmers, whether directly or indirectly through traders or suppliers.

discussion paper is not meant to provide a definitive answer to this question, but rather to provide initial insights that provoke a broader conversation about what lead buyers can learn from what has been tried in the past and where further innovation and collaboration could be impactful in the future.

OUR APPROACH

Based on a scan of the literature and consultations with industry experts, we identified 48 interventions (e.g., programs, activities, or initiatives) and we then prioritized a shortlist of 16 for further analysis. To be included in the shortlist, interventions needed to have:

- (1) been widely considered to be effective, hence widely adopted,
- (2) implemented for five or more years globally, thereby generating evidence over time, and
- (3) generated substantial research on their effect on income.

TABLE 1: INTERVENTIONS

INTERVENTION TYPE	DEFINITION & THEORY OF CHANGE
Access to Finance	Agricultural finance includes a broad range of financial services—e.g., loans, savings accounts, leasing arrangements, and insurance—that can be utilized for activities across the agricultural value chain from purchasing inputs, to renovating farms, to marketing crops. In this report, ‘access to finance’ refers to loans and savings products available for smallholder farmers.
Agro-Corridors	Agro-corridors bring together value chain actors (including producers, processors, suppliers, and financiers) in the same geographical area so that they can leverage economies of scale to facilitate cheaper and more effective access to inputs, services, and markets. Locations of agro-corridors are often selected to take advantage of an existing backbone of transport or other physical infrastructure and lower the investment required to make them accessible to market participants.
Certification	Certification is a process in which a third party monitors and validates the compliance of farmers with a set of voluntary standards. Buyers and suppliers then recognize “certified” farmers as a preferred source of higher quality and/or compliant raw material that meets an agreed-upon specification to receive premium payment. Farmers who participate may also receive technical training and other support to help them meet the certification standards.
Climate Change Adaptation	Climate change adaptation interventions help farmers adapt and build resilience to the negative effects of climate change on productivity—and, where possible, to sustainably increase productivity (i.e., in a way that minimizes further contribution to climate change). This generally involves providing financial and other support (e.g., training) to facilitate the adoption of climate-smart agricultural practices and inputs (e.g., climate-resilient seeds).
Crop Insurance	Crop insurance is a financial tool used to protect farmers against loss of crops due to natural disasters (e.g., drought, floods, blight) and pests. Farmers pay a regular fee (insurance premium) and can claim compensation in the event of a covered disaster or incident. This reduces risk and enables farmers to make investments in their farms without worrying that they may lose the entire value of that investment.
Farmer Field Schools	Farmer field schools are a form of agricultural extension that provide smallholder farmers with advanced inputs and hands-on agronomic and technical training aimed at increasing the productivity of their farms, the quality of their produce, and, ultimately, their incomes.
Input Subsidies	Input subsidies are cash transfers to farmers – most commonly provided by governments – to enable them to purchase high-quality inputs and technologies that are unaffordable at market prices—but that could improve the productivity of their farms and the quality of their produce.
Land Tenure Security	Land tenure security programs can take many forms but all support farmers in acquiring or maintaining land through land rights education, legal assistance, and/or land redistribution or titling (that is, private individuals or families receiving formal land rights).

Market information systems	Market information systems leverage traditional (e.g., radio, telephone) and digital (e.g., web and mobile) communication channels to provide farmers with information (e.g., prices, market sales, weather, and pest risks) so that they can make better decisions about what to plant, where to sell their produce, and what prices they can negotiate.
Outgrower Schemes & Contract Farming	Outgrower schemes (a term often used interchangeably with contract farming) represent an arrangement under which a farmer agrees to produce and sell a certain quantity of a commodity at a future date. This guarantees the farmer access to buyers and the buyer is guaranteed a reliable supply and may guarantee prices between farmers and buyers. Often, the buyer will also provide the farmer with technical (e.g., training on how best to use inputs) and financial support (e.g., loans to support the purchase of inputs).
Post-Harvest Loss Prevention	Post-harvest loss prevention programs promote practices and facilitate access to technologies aimed at reducing the amount of produce lost between harvest and consumption. These range from improved packaging and stacking techniques to new infrastructure for storage and refrigerated transportation.
Poverty Graduation Programs	Poverty graduation programs are a unique bundle of services deployed in a specific sequence that are designed to lift low-income farmers out of poverty. The services typically include some combination of social assistance (e.g., cash transfers, health services), financial services, skills training, seed capital or access to employment and mentoring. Services are offered in sequence, starting with direct support to meet basic needs (e.g., cash transfer, health services, etc.) and then “graduating” to the types of support that prepare households to independently earn a consistent income (e.g., training and finance). The intervention is limited to a fixed number of years (often 2-4).
Pricing Arrangements	Pricing arrangements are aimed at shielding producers from price volatility and/or ensuring that profit margins are fairly distributed among different actors in a value chain. These arrangements can take a number of forms, but they generally involve a guaranteed minimum price that is either set by the government or negotiated by representatives of producers, as well as premiums for meeting quality and other standards. This intervention refers to public and public-private pricing arrangements. Public interventions refer to cases in which the government sets legally binding price restrictions or requirements. Public-private interventions refer to cases in which marketing boards or other professional organizations comprised of representatives of the private sector (e.g., producers, processors, and exporters) are consulted in setting price levels.
Producer Collectives	Producer collectives are farmer organizations (e.g., farmer producer organizations, cooperatives) that enable farmers to take advantage of economies of scale and increased bargaining power to access inputs and financial services at lower prices, and/or sell to market at higher prices, than they might secure individually. These collectives are generally owned and controlled by producers and often must register with governments in order to operate within the formal marketplace.
Productivity Enhancement	Productivity enhancement interventions provide farmers with improved agricultural technologies (e.g., improved crop varieties and seed technology) and practices (e.g., crop diversification, planting and pruning techniques and compost and manure application). The aim is to raise crop yield and productivity and/or reduce crop loss caused by pests, diseases, or drought.
Savings-Led Groups	Savings-led groups (which include self-help groups (SHGs) and savings groups) are self-managed, community-based groups that provide their members access to basic financial services. Groups of 15 to 30 self-selected individuals meet regularly, contribute savings to “capitalize” the group and then take turns borrowing for short periods (paying interest on the loans). Groups may or may not be linked to banks. In cases where SHGs are time-bound (i.e., the groups dissolve after a specified amount of time), members divide the profits among themselves at the end of the cycle.

For the landscape review of the publicly available evidence, we searched for empirical studies on the efficacy of each of these 16 interventions from both academic and industry publications. We scanned 564 sources and they read 194 income-relevant sources in detail. As some of these sources were meta-studies, they represent 1,652 underlying individual studies. We excluded a study from detailed review if it failed to meet one of these parameters: (1) originates from a reputable organization, (2) has attributed authorship, (3) contains explicit data on increasing farmer incomes or (4) was published after 2005.

We then scored each of the interventions based on the four criteria, which for the purposes of this study helped us to specify what would constitute a meaningful increase in income:

TABLE 2: SCORING CRITERIA

	High	Medium ⁸	Low
Income Impact	>50% income increase	10 – 50% income increase	<10% income increase
Scale⁹	Strong replication of intervention taking place directly or indirectly – >5,000 beneficiaries reached	Initial replication taking place – 1,000 – 5,000 beneficiaries reached	Presumed direct interaction with majority of intervention adopters – <1,000 beneficiaries reached
Durability (Over Time)	Evidence of impact >5 years after external support ends	Evidence of impact 2 – 5 years after external support ends	Evidence of impact 0 – 2 years after external support ends
Inclusion of Female and Male Farmers	(1) Deliberate consideration and focus on women during the intervention design period AND (2) specific indications that an intervention had a positive impact on promoting women’s empowerment or inclusion	Deliberate consideration and focus on women during the intervention design period	No deliberate consideration of women during the design intervention period or during the intervention

The qualitative analysis that complemented this landscape review consisted of interviews, case study reviews and additional secondary research. We conducted 15 interviews with lead buyers, donors and other industry experts and a number of Mars Associates in different business segments. We identified 120+ case studies through desk research and input from the research team and interviewees. We then shortlisted 42 case studies for detailed review, of which 23 involved lead buyers and suppliers that focused on improving the incomes of smallholder farmers and contained data relevant to the key criteria above. This qualitative analysis enabled us to validate findings, dive deeper into success factors and challenges and advance our thinking on the implications of these findings for lead buyers.

The key limitations of our approach were the timeframe and the weakness of the publicly available evidence base. Given the intent of this report to serve as an initial scan of the existing evidence versus primary research, the analysis was time bound to a three-month period, with each intervention reviewed over a one-week period. The sources scanned in the review represent a substantial body of scientific evidence in credible publications, but there may be some resources not identified given the timeframe.

⁸ Where there was a "medium" income impact indication, but clear indication of strong performance in other proxy indicators such as production or empowerment, an M+ score was given. Conversely, when there was clear indication of limited complementary impacts we included an M-ranking.

⁹ The actual cutoff figures have been customized for specific interventions. In case of digital or government-based intervention, such as MIS, crop insurance, or access to finance, the thresholds are "High" > 100,000, "Medium" 10,000 – 100,000, and "Low" < 10,000.

There are also limitations with the evidence base itself. Two-thirds of the 564 sources considered did not meet our basic parameters for inclusion in analysis. For the qualitative analysis, we sought out interviewees and case studies that would be most relevant to lead buyers. While this bias was intentional given the focus of this paper, it does pose limitations in terms of the diversity of stakeholder perspectives considered. Lastly, a deep understanding of context, commodities, and specific segment of farmers targeted is essential to determining whether or not a particular intervention may or may not work. While we noted these nuances where data was available, identifying interventions work in different contexts was beyond the scope of this initial scan. We believe this landscape review provides a good starting point for discussion, but it does not provide definitive analysis that accounts for all nuances and applications of the interventions reviewed. Additional detail on the methodology and detailed analysis can be found in the Annexes.

KEY FINDINGS

The table below provides an overview of the 16 interventions selected for analysis in this study and the extent to which they met our criteria. The interventions can be broadly sorted into five categories based on their income effects. While these are not hard distinctions, they do allow for comparison and provide a starting point for discussion.

TABLE 3: ANALYSIS OF INTERVENTIONS

Category of Intervention	Description of Evidence	Relevant Interventions	Income	Scale	Durability	Gender
Category 1: High income impact demonstrated at scale	Evidence demonstrates income increases of 50%+ can be achieved for large numbers of farmers (5000+)	Poverty graduation programs	High	High	Medium	High
		Outgrower schemes / contract farming			Medium	Low
		Climate change adaptation			Low	Low
Category 2: Medium income impact at scale with demonstrated impact on income enabling factors	Evidence demonstrates 10-50% improvements in income across 5000+ farmers as well as strong performance of proxy indicators such as production or empowerment	Savings-led groups	Medium+	High	High	Medium
		Access to finance			n/a	High
		Producer collectives			n/a	Low
Category 3: Interventions with mixed evidence of impact across the selected criteria	Evidence demonstrates 10-50% income improvements. While these interventions may not be able to deliver 50%+ increases consistently, they can deliver positive results in specific contexts	Agro-corridors	Medium	High	High	Medium
		Productivity enhancement		Medium	Medium	Low
		Land tenure security		High	High	Medium
		Market information systems		Medium	Low	Low
		Crop insurance		High	Low	Low
		Farmer field schools		High	Low	Low
Category 4: Medium income impact with demonstrated limited impact on income enabling factors	Evidence demonstrates 10-50% income increases and limited change in other income enabling factors such as empowerment	Certification	Medium-	High	Medium	High
		Post-harvest loss prevention		Low	Low	Medium
Category 5: Interventions that did not show significant income increases	Evidence demonstrates these interventions deliver income improvements less than 10%, though they are highly scalable and could be part of a broader approach	Pricing arrangements	Low	High	Low	Low
		Input subsidies				

Bearing in mind the limitations to this evidence as highlighted above, this landscape review and the qualitative analysis provide several insights for lead firms.

It is possible to raise farmer incomes through existing interventions to a degree. The first six interventions in the table did demonstrate income improvements at scale, although they had varied performance in terms of durability and gender.

- **Poverty graduation programs** demonstrated income increases ranging from 37% to 65%, enrolling anywhere from 150 to 5 million households with typically about 45,000 per program. Their success is driven by the fact that these interventions create strategic partnerships between government and civil society actors to provide a bundle of services in the appropriate sequence (e.g., first basic support such as health services and then training). Services are often tailored to meet farmers' unique needs (e.g., some may receive job training while others receive seed capital to start businesses).

"The Producing for My Future" program, a partnership between The Government of Colombia and Fundación Capital (a Colombian social enterprise) provided a bundle of services, including consumption support (e.g., food assistance or healthcare), access to finance, technical skills training and life skills coaching to the rural poor, including farmers. The success was driven by a flexible approach to services that could be tailored to the needs of participants, strong partnerships with local organizations and robust investments in adaptive evaluation and learning. Half of participants reported an average income increase of 65%.

Esco Uganda, a cocoa and vanilla exporter, created an outgrower scheme with cocoa farmers in Uganda. Before entering into a contract with local farmers, Esco selected a number of local districts for inclusion based on an assessment of farm production practices; they also provided technical expertise and advice to farmers on how to improve practices. Key success factors for this specific program included developing an understanding of the ecosystem prior to full implementation and developing long-term relationships with farmers. Participating farmers saw a 58% to 168% increase in income from cocoa.

"Developing agricultural markets in sub-Saharan Africa: organic cocoa in rural Uganda," The Journal of Development Studies, Jones, S. and Gibbon, P., 2011.

- **Outgrower schemes and contract farming** demonstrated income increases ranging from 10% and 100% for groups of farmers as large as 32,000. These programs deliver a bundle of value-added services through close, long-term relationships with farmers. Outgrower schemes essentially operate as a service delivery platform, providing farmers with access to skills training, finance, inputs, and markets. They often have longer-term contracts and organizational models that allow for high levels of farmer-buyer interaction that facilitate trust-building and the effective transfer of knowledge and skills.

- **Climate smart agricultural** interventions demonstrated income increases ranging from 23 to 100%, with the size of programs ranging from 5,500 to 22,000 participating farmers. The highest income gains took place in mainly subsistence crops where farmers had low baseline incomes and were operating in relatively volatile climates with reliance on rain-fed irrigation models. These programs segment farmers to determine those most vulnerable to climate-induced stress, often providing highly tailored support based on climate resilience needs (specific to location, crop and common agricultural practices such as rain-fed vs. manmade irrigation).

The University of Agricultural Sciences supported farmers in Karnataka, India, to adopt the practice of intercropping maize and pigeonpea. This better leveraged the different characteristics of these crops and their impacts on the soil, which ultimately enabled these farmers to earn incomes that were 181% higher than for those who did not adopt intercropping.

"Productivity and Economics of Maize and Pigeonpea Intercropping Under Rainfed Condition in Northern Transitional Zone of Karnataka," Karnataka Journal of Agricultural Sciences, Marer, S.B.; Lingaraju, B.S.; and Shashidhara, G.B., 2007.

The National Bank of Agriculture and Rural Development and Indian NGOs helped establish a number of savings-led groups which included farmers in Uttarakhand State focused on microcredit and financial training. Key success factors include partnerships amongst the financial industry and civil society and tailoring of services to the different types of groups. These groups have demonstrated income increases up to 30%.

"Determinants and implications of rural women's participation in microfinance programme: an analysis of dairy self-help groups in Uttarakhand State of India," Livestock Research for Rural Development, Bhoj, S.; Bardhan, D.; and Kumar A., 2013.

- **Savings-led groups** demonstrated income increases ranging from 21% to 31%. Savings-led groups showed a strong ability to reach millions of people (over 33 million in India alone have been linked to such groups). These programs are found to be effective because they facilitate farmer aggregation and enable farmers to pool assets and risks so that they can save informally or access formal financial service providers and invest in on- and off-farm activities. While different groups provide different bundles of services, groups that link participants to formal financial service providers may be more likely to have an impact on economic empowerment and income. In these cases, training and support for financial management is critical.¹⁰

- **Access to finance** interventions demonstrated 15% income increases and the ability to reach between 2,100 to 400,000 clients. These programs often successfully leverage farmer groups to serve as a central loan distribution and collection point, allowing for both the providers and the users of the financial products to benefit from economies of scale that make the transactions cheaper. Successful interventions often tailor products to the unique needs of farmers (e.g., loans with flexible repayment terms that map to the crop planting and harvest cycles of farmers in the area).

One Acre Fund worked with farmers in Sub-Saharan Africa to extend credit for farm inputs, which freed up cash to allow farmers to make other productive investments. Other key parts of their program that were delivered in parallel included training on fertilizer use and creating market linkages. One Acre Fund's ability to tailor interventions around the local context and bundling multiple interventions were key success factors in these interventions.

Across countries, One Acre Fund found that farmers' incomes increased by 55%.

Comprehensive impact report: A decade of measurement and impact. One Acre Fund, 2016.

Driven by the Government of Rwanda's National Land Policy, the number of producer collective grew from 645 to 2400 between 2008 and 2013. Cooperative members in the maize and horticulture sectors earned on average 123% more than non-members. The income increases were even greater for producer collectives in the maize sector (as opposed to the horticulture sector) given the relative "tightness" of the value chain; the Rwandan maize sector has a well-established trading and intermediary system in-country as well as high levels of government support.

"Smallholder cooperatives and agricultural performance in Rwanda: do organizational differences matter?" Agricultural Economics, Verhofstadt, E., Maertens, M., 2014.

- **Producer collectives** demonstrated average income increases ranging from 5-100% (average of 16%), serving anywhere from individual groups of 10-20 farmers to larger networks of several thousand farmers. These programs enable farmers to access a bundle of value-added services by aggregating their resources. Through producer collectives, farmers can pool their assets, purchase agricultural inputs at lower rates or sell agricultural products more effectively than they could individually. In addition, members can use their collective power to access financing and exchange best practices.

Additional analysis on the other interventions can be found in the Annex.

Across the most successful interventions and case studies identified, we noted four critical success factors. Lead buyers can consider incorporating these factors as they seek to reinforce and enhance the success of their strategies. These success factors are:

¹⁰ Anderson, L. (2014). Self-Help Groups in Development: A Review of Evidence from South Asia and Sub-Saharan Africa.

1. **Bundling:** Many of the most successful approaches were multidimensional in nature. They combined a range of elements which appears to enhance and expand the likelihood of positive impact.

Through the Sunhara Walmart project, the Walmart Foundation partnered with Agribusiness Systems International to work with ~3,000 Indian women in the horticulture and handicrafts value chains to address the unique barriers they face to increasing income. The company supported the formation of women's self-help groups and provided a bundle of services such as agronomic training, access to inputs such as seeds, access to equipment and linkages to buyers. Participating women saw an average 87% increase in incomes and some saw an increase of up to 300%.

2. **Customizing:** Many of the most successful approaches tailored their activities to meet the unique needs and capabilities of farmers, often using a segmentation approach to understand these needs.

Nile Breweries Limited (NBL), a Uganda-based subsidiary of SABMiller, supported roughly 9,000 sorghum farmers through its Local Enterprise and Agriculture Program (LEAP). The program took into account the unique needs of farmers, providing extension services and inputs as well as health services such as HIV screening and access to clean water. After 10 years of continuing support, farmers saw their average annual income double compared to non-participating farmers.

3. **Connecting:** Many of the most successful approaches utilized a combination of tactics to form long-term relationships with farmers, aggregated farmers into groups, and "tightened" supply chains.

The Coca-Cola Company, the Bill & Melinda Gates Foundation and Technoserve implemented "Project Nurture" to support producers of mango and passion fruit in Kenya and Uganda. Interventions were adapted to the level of farmer organization and the nature of each supply chain. In the mango supply chain, the project focused on strengthening farmer organizations, reducing middlemen in the supply chain and connecting farmers with in-country value-added manufacturing. The program benefitted 42,000 farmers (33% women) with income increases ranging from 100 – 142%.

4. **Partnering:** Many of the most successful approaches took into account the enabling environment and the roles of various stakeholders, forming relevant partnerships and alliances with governments, civil society and/or businesses.

The Farm to Market Alliance (FTMA) brings together public and private institutions to support smallholder farmers as they move from subsistence farming to market-oriented agriculture. Partners in the FTMA include Grow Africa, AGRA, Bayer Crop Science AG, IFC, Syngenta Crop Protection AG, Rabobank, World Food Program and Yara International ASA. The FTMA model connects buyers to smallholder producers, while providing farmers with a wide range of interventions. FTMA is active in Rwanda, Tanzania and Zambia - reaching more than 136,000 farmers. The average farmer income increased by 83%.

However, this landscape review did not identify any interventions that performed strongly across all four of our selected criteria – a step-change in income, sustained over time, and reached male, as well as female farmers at scale. Across the interventions examined, only three were found to raise incomes more than 50% across contexts. Although these increases are of value, in many markets, farmers may need increases of 100-200% to achieve a decent income. In Indonesia, for instance, the average smallholder farmer

typically earns \$.68/day and would need to increase their incomes by 178% to cross the poverty threshold.¹¹ We also identified shortcomings in interventions' performance on two of the other criteria – durability and gender inclusiveness. In terms of durability of the income benefits of these interventions, few studies include long-term impact analyses and where this analysis is provided, few studies demonstrate successfully sustained benefits over time whether or not they were designed with long-term impact in mind. We also found that relatively few interventions were designed with an explicit focus on driving benefits for women and few contained gender-disaggregated data.

This paper serves as an initial starting point as we seek answers to our core research question. Going forward, we believe that further exploration and action is needed in a number of areas, in particular:

- To drive truly transformative increases, better understanding and more successfully addressing:
 - the fundamental systemic barriers farmers face, which include issues such as price levels and volatility, unfavorable public policies, and lack of income diversification
 - the unique sector and supply chain dynamics at a systems level and the role they play in influencing farmer incomes
 - the unique constraints and potential of female farmers in driving the necessary change
- Creating actionable tools that enable lead buyers and their partners to diagnose the relevant barriers and systemic dynamics in a given supply chain and to identify and activate the most appropriate strategy and portfolio of interventions with the highest potential to drive desired impact in a given context.

¹¹ Poverty line based upon World Bank definition of \$1.90 per capita/day. Data was collected from FAO's Smallholder Data Portrait. The countries selected include the following: Ethiopia, Ghana, Kenya, Malawi, Uganda, Cambodia, and Indonesia.

ANNEX 1: METHODOLOGY

We conducted a landscape review of the publicly available evidence on common interventions that seek to address farmer incomes. We also reviewed case studies that highlighted promising practices and interviewed a number of leading practitioners. The team reviewed a sample of 564 published reports, many of which were meta-studies that drew insights directly and indirectly from an additional 1652 studies. The team's additional analysis consisted of 36 interviews with Mars, Inc. Associates, other lead buyers, donors, and industry experts; a review of 42 case studies; and additional secondary research on success factors.

Landscape review

Wageningen University & Research (WUR) conducted a landscape review of publicly available research. A team of 11 WUR researchers with backgrounds in agriculture, development economics, and other relevant fields conducted the analysis.

The landscape review followed a four-step process:

Step 1 – Selection of interventions: The WUR, Oxfam, Dalberg Advisors, and Mars Incorporated research partners compiled an initial longlist of 48 interventions implemented in the Global South that directly or indirectly attempt to improve the income of farmers. The team jointly shortlisted 16 intervention types that were deemed to (1) be widely considered to be effective, hence widely adopted, (2) have been implemented for five or more years globally, and hence to have generated evidence over time, and (3) include substantial research on effect on income. This shortlist was verified via several external interviews. In addition, the case studies were reviewed to ensure that no major intervention was excluded from the shortlist.

Step 2 – Source literature: After identifying these 16 interventions, we sourced literature from academic and research databases as well as broader Internet searches.¹² We identified and virtually collated over 564 sources through this search, which represents a substantial body of scientific publications on this topic and plausibly the bulk of key relevant documents.

Step 3 – Screen literature: Of the over 564 sources considered, 370 were not used or were not considered in detail because they failed to meet further screening criteria as suitable sources. We excluded a study from detailed review if it failed to meet at least one of these criteria: (1) originates from a reputable organization, (2) has attributed authorship, (3) contains explicit data on increasing farmer incomes, or (4) was published after 2005. After this screening process, 194 sources remained and were read in detail. As some of these sources were meta-studies, they represent 1652 underlying individual studies. To account for the variation in the number of studies read in detail between different interventions, we have assessed the breadth and consistency of income data for each interventions (see Table below).

Table 1. Review of evidence base

Intervention type	Number of sources			
	Sources Scanned	Not used	Sources read in detail	Indirect studies underlying the meta-reviews and reports read in detail
Access to finance	38	25	13	N/A
Agro-corridors	15	7	8	0
Certification	3	0	3	435
Climate change adaptation	32	27	5	536

¹² Scopus, Google Scholar, WUR library database, and organization-specific databases such as the World Bank’s eLibrary

Crop insurance	16	9	7	118
Farmer field schools	1	0	1	195
Input subsidies	45	21	24	0
Land tenure	36	17	19	92
Market information systems	20	5	15	15
Outgrower schemes/contract farming	122	95	27	22
Post-harvest loss	65	46	19	38
Poverty graduation programs	21	9	12	N/A
Pricing policies	50	38	12	29
Producer collectives	25	9	16	0
Productivity enhancement	44	36	8	N/A
Savings-led groups	31	26	5	172
TOTAL	564	370	194	1,652

Step 4 – Analyze and synthesize information: For each intervention, we captured the insights from the landscape review in individual intervention summaries that included the intervention’s definition, theory of change, and barriers addressed; an assessment of the intervention; the key success factors; and questions for further research.

Each of the interventions were screened against the four criteria using the following metrics and indicators:

- **Degree of increase in income:** primarily measured as percentage of annual income increase. While proxies for income were referred to in much of the literature —typically increase in yield or productivity—we selected sources that provided data on at least farmer income¹³
- **Scale:** numbers of farmers shown to have been impacted and potential to scale to other contexts (i.e., geographies, value chains)
- **Durability:** perseverance of measured income effect beyond the direct intervention
- **Inclusivity of both male and female farmers:** demonstrated potential of intervention to positively impact women. The team tried to distinguish where there was reference to deliberate consideration and focus on women during the intervention design period, as well as clear data on gender-differentiated or women-specific impact

Income impact

The primary metric used to assess *income impact* was the percentage of annual income increase. While other similar metrics and proxies for income exist, we specifically focused our assessment on farmer income alone.

To do the scoring, researchers first identified the full range of literature that included percentage increases of farmer incomes, removed any overlapping cases between studies (e.g., the same RCT was cited in multiple studies), articulated the full range of percentage income increases, and then created summary statistics (either numeric ranges or averages).

¹³ While we preferred to base our research on household net income, this level of specificity often did not exist in the literature; we expanded our focus accordingly to include other income measures where necessary.

We rated as “High” any intervention where the income increase was shown to be more than 50%, “Medium” where evidence showed an income increase between 10% and 50%, and “Low” where there was evidence of less than 10%. In cases where there was no data directly supporting income increases (e.g., the data only explored profitability, consumption, or other areas), we rated this as “No data” but did include mention of these peripherally related metrics as a point of reference and potential further study. Additionally, in exceptional cases where there was an even split within the literature (e.g., 50% of the literature stated a certain range, while the remaining 50% provided another), we took the average of the mid-points of each range to calculate a score.

We drew upon the combined experience of the WUR research team to arrive at specific numeric thresholds that were found to indicate significant milestones and inflection points. For the bottom limit of less than 10%, researchers found that income improvements at this level may not be statistically significant and could be potentially attributed to other factors outside of the intervention. The other key threshold of 50% was based upon the researchers’ experience as another key boundary that indicated when an intervention demonstrates statistically significant, truly transformative results.

When assessing the income impact metric as a percentage change, it is useful to note what the farmer’s baseline income is, as this plays a key role in answering the question of whether a farmer is truly achieving a decent standard of living. For example, a 20% income increase is markedly different for someone making \$1.90/day as opposed to those making \$3.20/day. However, given the availability of data and the need to use simple, intuitive bases of comparisons (i.e., percentage increases in income), we opted to use this metric. Another limitation of this method is that for farmers with low incomes high % increases are easy to achieve. However, this might not be significant from the perspective of having a decent standard of living.

Scale

We assessed *scale* by first identifying the range of scale identified in the literature; importantly, we assessed this criterion based upon results achieved and not speculation regarding scale potential.

If the majority of the literature that addresses this topic indicated that at least 5,000 beneficiaries that could be served through the implementation of one intervention, we rated this as a “High”; if between 1,000 and 5,000 beneficiaries were reached, we rated it as a “Medium”; and “Low” if less than 1,000 beneficiaries were reached. If there was no literature or evidence on this, we marked this with “No data.” Additionally, in exceptional cases where there was an even split within the literature (e.g., 50% of the literature stated a certain range, while the remaining 50% provided another), we took the average of the mid-points of each range to calculate a score.

We drew upon the combined experience of our research team to arrive at specific numeric thresholds that were found to indicate significant milestones and inflection points. The first limit of 1,000 beneficiaries was established because in the experience of our researchers, this tends to be the limit of an initial pilot and the extent to which direct external assistance can support. The next major inflection point occurs at 5,000; in our researchers’ experience, it is at this numeric threshold where replication or indirect adoption of an intervention is witnessed, which demonstrates that scale is occurring or possible.¹⁴

¹⁴ The actual cutoff figures have been customized for specific interventions. In case of digital or government-based interventions, such as MIS, crop insurance, or access to finance, the thresholds are “High” > 100,000, “Medium” 10,000 – 100,000, and “Low” < 10,000.

Durability

We assessed *durability* based upon whether most of literature that addressed this question indicated that the intervention's benefits and changes remained in place after external support ended.

If a majority of literature that addresses this topic shows that there is robust evidence of sustained impact 5 years after external support ends, then we rated this as a "High"; if a majority of the literature indicated sustained impact between 2 and 5 years, it was rated as "Medium"; and "Low" if a majority of the literature noticed no statistically significant impacts 2 years beyond post-external support. In cases where there was no assessment or determination of durability, we indicated "No data." Additionally, in exceptional cases where there was an even split within the literature (e.g., 50% of the literature stated a certain range, while the remaining 50% provided another), we took the average of the mid-points for each range to calculate a score.

We drew upon our knowledge of common evaluation methods and timelines to construct specific numeric thresholds. In our experience, interventions tend to run ex-post evaluations at the two- and five-year marks. As such, we established our thresholds based around these key milestones.

Gender

Given the complexities and nuances underpinning *gender*, we utilized a broader definition and lens when assessing this area. In this vein, we interpreted this area as meaning (1) deliberate consideration and focus on women during the intervention design period and (2) specific indications that an intervention had a positive impact on promoting women's empowerment (or other metrics directly addressing the well-being of women). The rationale for choosing these criteria was to show some minimal level of intentionality inherent within an intervention and then to assess its effectiveness.

If a majority of literature that addresses this topic revealed positive results for each of these two areas, we rated it as a "High"; if female inclusion was only a component of the design process but no evidence of results exist, we rated this as a "Medium"; and "Low" if there was no evidence of any of these three facets.

We also conducted a second analysis to rate each intervention based on the strength of its income evidence base. While these criteria do not affect the income rating or overall rankings of the interventions, they do indicate the strength of the overall conclusions for each intervention and areas where additional research may be required. The criteria for breadth and consistency included:

- **Breadth:** amount of rigorous literature on the income impact of the intervention, according to the number of reports, case studies, and other publications that were included and substantiated the findings under review. Meta-studies received more weight than standalone reports.¹⁵ We chose the ranges for "high" "medium" and "low" in the table below based upon our knowledge of the wider literature and what depth it broadly entails.

¹⁵ Meta-studies are weighted based upon the number of individual studies they include in their analysis, while individual studies are considered to be single data points. A meta-study that draws on 20 underlying sources plus 2 individual reports is considered to reference 22 studies.

- **Consistency:** degree to which similar conclusions on the income impact (i.e., positive or negative) recurred across different studies

The purpose of this analysis was to simply confirm the strength of our findings, but did not alter the findings themselves. The higher breadth of sources and consistency among the sources, the stronger the findings. This analysis focused on the income criterion given that income was the primary goal of our work. For the summary of the scoring on strength of evidence indicators, please refer to Table 3 below.

Table 3. Scoring guidelines: Strength of income evidence indicators

	High	Medium	Low
Breadth	> 20 unique case studies, reports, or evaluations exist that substantiate the stated income increases	5 – 20 unique case studies, reports, or evaluations exist that substantiate the stated income increases	< 5 unique case studies, reports, or evaluations exist that substantiate the stated income increases
Consistency	> 75% of the literature that includes income increases agrees on or falls within the stated income increase	25 – 75% of the literature that includes income increases agrees on or falls within the stated income increase	< 25% of the literature that includes income increases agrees on or falls within the stated income increase

Other evidence

Beyond the landscape review, we undertook three other work streams: (1) we interviewed over 35 industry experts, (2) scanned 120 case studies and reviewed 42 in detail, and (3) conducted additional secondary research. For the first work stream, the team conducted interviews with lead buyer organizations, suppliers, civil society actors that implement programs, donors, and other subject matter experts such as academic researchers. For the second work stream, we sourced case studies through a combination of sources including desk research, interviews with Mars Inc and other buyers and sector experts, and through external research partners. The purpose of reviewing these case studies was to validate and bolster our understanding of what success factors underpin particularly promising interventions. Through the initial scan, the team identified 120+ case studies of programs. Given the objective of this report, the team shortlisted 42 case studies that had a specific focus on improving smallholder farmer incomes and available data on results (a brief description of each of the 42 case studies is included in Annex 4 of the report). These 42 case studies (out of which 23 involved lead buyers and suppliers) were then ranked across the four key criteria – income, scale, durability, and inclusion of male and female farmers. Finally, as part of the third work stream, the team conducted targeted additional secondary research to provide more details on the success factors.

Research limitations

Short timeframe: Given the intent of this report to serve as an initial scan of the existing evidence versus primary research, the analysis was time bound to a 3-month period, with 5-7 working days per intervention

scan. Thus the analysis provides a good starting point for discussion on this ambitious question, but is not the definitive answer that accounts for all nuances of these interventions and why they do or do not work.

Different metrics used: Many studies use different metrics that are not always consistent; the usage of profit, consumption, and savings are peripherally (but not exactly) related to income, which is the focus of our research. Therefore, many studies could not be benchmarked against each other.

Inherently different scales of interventions: an additional limitation is that some interventions differ from others in fundamental ways; agro-processing zones, for instance, have an inherently different scale potential than savings led groups. For example, there were some cases where studies for an intervention varied significantly in terms of the number of beneficiaries (e.g., one resource mentions 500 farmers with increased income and another mentions 16 million farmers with increased income). In these instances, the analysis was based on the number of beneficiaries across the literature and not the number of studies reporting a certain income.

Lack of clarity about the definition of “income”: researchers were specifically searching for increase in net income for smallholders; however, the reviewed literature had very limited information on this. In the studies that did focus on income, the term “income” typically was not clearly defined as net or gross.

Vague data on increase in income: some literature provided data on income increases either as a percentage or on absolute, but not both—which made comparison difficult across interventions. We opted to use percentage increase for comparisons. A limitation of this method, however, is that, while a high-percentage increase in income may be relatively easy to achieve for a very-low-income farmer, the absolute change in income may not be significant from a ‘decent standard of living’ perspective. More insights on this finding can be found in the next section.

Positive bias: Within the literature, there is a bias to focus on the more successful cases that had positive impact.

Bias towards lead buyers: the vast majority of interviewees and case studies were biased towards the lead buyer perspective and experience. While this bias was intentional given the focus of this paper, it does pose limitations in terms of the diversity of stakeholder perspectives to validate findings.

Farmer segmentation not accounted for: The final consideration with our approach is the acknowledgement that an understanding of context, commodities, and specific segment of farmers targeted is essential to determining whether an intervention may or may not work. While our research team noted these nuances where data was available, more research is needed to understand which interventions work in different contexts and whether the results of our analysis were affected by the extent to which certain interventions are or are not being applied to relevant segments of farmers – which was beyond the scope of this initial scan.

ANNEX 2: DETAILED INSIGHTS FROM THE EVIDENCE BASE

The table below provides details on how each of the interventions were scored against each of the criteria

Intervention type	Strength of impact				Strength of income evidence	
	Income impact	Scale	Sustainability	Gender	Breadth	Consistency
Poverty graduation programs	H	H	M	H	L	L
Outgrower schemes/ contract farming	H	H	M	L	H	M
Climate adaptation	H	H	L	L	H	L
Savings-led groups	M+	H	H	M	L	M
Access to finance	M+	H	n/a	H	L	L
Producer organisations	M+	H	n/a	L	M	H
Agro-corridors	M	H	H	M	L	M
Productivity enhancement	M	M	M	L	M	H
Land tenure	M	H	H	M	M	M
Market Information systems	M	M	L	L	L	M
Crop insurance	M	H	L	L	M	M
Farmer Fields Schools	M	H	L	L	H	H
Certification	M-	H	M	H	M	M
Post-harvest loss	M-	L	L	M	L	H
Pricing arrangements	L	H	L	L	L	H
Input subsidies	L	H	L	L	M	H

Detailed analysis on the interventions that demonstrated income increases at scale:

- Poverty Graduation programs** demonstrated income increases ranging from 37% to 65%, enrolling anywhere from 150 to 5 million households (averaging ~45,000). These programs are effective because they:
 - Segmented farmers: Poverty graduation programs focus on the very poorest—those living on \$1.90 or less per day—allowing programs to offer packages tailored to the needs and capacity of the ultra-poor and subsistence farmer segments.
 - Tailored solutions to farmers: Many programs are further tailored to the needs of the individual. For example, depending on participants' capabilities and interest, some may receive seed capital to start a business while others are given access to employment opportunities.
 - Bundled services: Poverty graduation programs rely on the sequenced provision of multiple services to address the different barriers participants face to improving their livelihoods.

- Strategically engaged and partnered with government and civil society to provide different types of services: Poverty graduation programs generally work best when coordinated with other social programs delivered by governments. For example, several studies noted the importance of having strong social safety nets in place prior to the rollout of the program,¹⁶ in part because these can reduce some of the up-front investment costs (e.g., collecting data for participant selection). Furthermore, partnering with an even broader set of partners—including civil society organizations (CSOs) and financial intermediaries—is critical for addressing the range of needs of poverty graduation participants, (e.g., financial services, technical training).

Poverty graduation programs – Case Study Spotlight:

The Government of Colombia, in partnership with Fundación Capital (a Colombian social enterprise), implemented a large-scale poverty graduation program, Producing for My Future. The program addressed the needs of beneficiaries through multiple components: consumption support (such as food assistance or healthcare), access to banking services (credit and savings), market research or provision of assets (farming machinery, livestock) to create or strengthen small businesses, technical skills training, and life skills coaching. The program was successful for several reasons. First the presence of a conditional cash transfer program—in this case, welfare payments that required action on the part of the recipient—meant that there was a strong enabling environment in place. Strong partnerships with local organizations helped with buy-in. Finally, the program’s flexible approach meant that participants could tailor it to their needs, while robust investments in adaptive evaluation and learning allowed the program to improve its offerings to more closely match those needs. Half of participants reported an average income increase of 65%.

Source: “Preserving the Essence, Adapting for Reach: Early Lessons from Large-Scale Implementations of the Graduation Approach,” Ford Foundation, 2016.

- **Outgrower schemes and contract farming** demonstrated income increases ranging from 10% to 100% for groups of farmers as large as 32,000.¹⁷ These programs are effective because they:
 - Segmented farmers: Given the formal contracts involved, many outgrower schemes rely on rigorous selection of suitable farmers to participate and vary their commercial expectations of farmers based on farm size and input package received.
 - Tailored solutions to farmers: To establish successful operations and recruit farmers to participate, implementers often secure buy-in and support from local authorities and community leaders.
 - Designed for “tight” vs. “loose” supply chains: Nearly all large-scale, long-standing outgrower schemes operate in cash crops, rather than staple crops. This is driven, in part, by the fact that local markets are less robust for cash crops, which strengthens the buyer-seller link because opportunities to sell outside of the arrangement are limited.
 - Developed close, long-term relationships with farmers: Implementers of outgrower schemes can employ longer-term contracts and organizational models that allow for high levels of farmer-buyer interaction, which facilitates trust building and the effective transfer of knowledge and skills. While some models can have negative impacts on farmer incomes because of repayment costs for loans and other costs of participation are too high for the

¹⁶ CGAP and Ford Foundation, 2016.

¹⁷ The lower end of this range comes from the apple sector in China; the upper end of the limit is from groundnuts in Senegal.

farmer to cover, there are many examples from which lead buyers interested in a mutually beneficial arrangement can learn.

- Bundled services: Outgrower schemes essentially operate as service delivery platforms, providing farmers with access to skills training, finance, inputs, and markets.
- Strategically engaged and partnered with government and civil society to provide different types of services: Increasingly, implementers are leveraging NGOs or third-party support in program design and implementation, and are establishing partnerships with local financial partners such as banks, microfinance institutions, or local savings groups to provide the loan or credit services often included in an outgrower arrangement.
- Invested in adaptive evaluation and learning: Close monitoring and innovative new technologies are employed to facilitate better-informed decision-making (e.g., about how to better support farmers in their planting and farm management).

Outgrower schemes and contract farming – Case Study Spotlight:

Esco Uganda, a processor and exporter of cocoa and vanilla, set up an outgrower scheme that consisted of a series of contracts between Esco and local cocoa farmers in Bundibugyo District, Uganda, who agreed to sell predetermined quantities at certain quality specifications. Before entering into a contract with local farmers, Esco selected a number of local districts for inclusion based on an assessment of farm production practices, and then provided technical expertise and advice to farmers. Farmers who did not meet the terms of their signed contract, or who did not sell to Esco, were expelled from the scheme. Key success factors for this program included developing an understanding of the ecosystem prior to full implementation and developing long-term relationships with farmers. Farmers participating in this scheme saw a 58% to 168% increase in income from cocoa.

Source: “Developing agricultural markets in sub-Saharan Africa: organic cocoa in rural Uganda,” The Journal of Development Studies, Jones, S. and Gibbon, P., 2011.

- **Climate-smart agricultural** interventions demonstrated income increases ranging from 23 to 100% within programs reaching anywhere from 5,500 to 22,000 participating farmers. The highest income gains took place mainly for subsistence crops in situations where farmers had low baseline incomes and were operating in relatively volatile climates with reliance on rain-fed irrigation models. These programs are effective because they:
 - Segmented farmers: Given that climate adaptation interventions are designed to address specific risks that farmers face, it is important to segment farmers by risk in order to better understand what package to deploy. For example, interventions related to managing rainfall variability are more effective when targeted at rain-fed farms (as opposed to those that rely on irrigation). Furthermore, focusing on households most vulnerable to climate-induced stress (e.g., large and / or female-headed households with few resources, few complementary sources of income, and poor access to extension services, markets, and credit) is most effective.
 - Tailored interventions to farmers: These interventions often provide highly tailored support based on climate resilience needs (specific to location, crop, and common agricultural practices).
 - Bundled services: Access to knowledge, resources, and finance often complements interventions and increases the likelihood of adoption and income increases. For example, access to credit and/or insurance mechanisms is shown to enhance the climate adaptation

of smallholder farming households¹⁸ by ensuring them income security as they make the necessary investments to improve their practices.

Climate Smart Agricultural Interventions – Case Study Spotlight:

The University of Agricultural Sciences, based in India, conducted an experiment to see what the effects would be of introducing new, climate-smart agricultural practices to a select group of farmers in Karnataka. Specifically, researchers sought to test the feasibility and adaptability of intercropping maize and pigeonpea. By adopting this new practice, farmers would be better positioned to increase yields, since both crops can make better use of limited natural resources when grown together. A rigorous site selection process was key to the success of this initiative, as was ensuring that efforts were aligned with the local context and ecosystem. Within this experiment, farmers demonstrated income increases of 181%.

Source: “Developing agricultural markets in sub-Saharan Africa: organic cocoa in rural Uganda,” The Journal of Development Studies, Jones, S. and Gibbon, P., 2011.

- **Savings-led groups** demonstrated income increases ranging from 21% to 31%. Savings-led groups showed a strong ability to reach millions of people (over 33 million in India alone have been linked to such groups). These programs are effective because they:
 - Tailored solutions to farmers: Savings-led groups are flexible and can be adjusted to local conditions and the specific financial needs of the women forming the group. These women often dictate and uphold the norms to which the group must adhere.
 - Leveraged farmer aggregation: Savings-led groups allow participants to pool assets and risks so that they can save informally and access formal financial service providers to invest in on- and off-farm activities.
 - Bundled services: While the composition of services provided by a savings-led group varies, those that link participants to formal financial service providers are more likely to have an impact on economic empowerment and income. In these cases, training and support for financial management is critical.¹⁹

¹⁸ Shikuku et al., 2017; UNDP/GEF, 2016

¹⁹ Anderson, L. (2014). Self-Help Groups in Development: A Review of Evidence from South Asia and Sub-Saharan Africa.

- Strategically engaged and partnered with government and civil society to provide different types of services: Savings-led groups have outstripped many other interventions in terms of their reach; government and civil society have been drivers of and partners in achieving this scale in many countries such as in India.

Savings-led groups – Case Study Spotlight:

The National Bank of Agriculture and Rural Development and Indian NGOs helped establish and cultivate a number of savings-led groups in Uttarakhand State, with a special focus on the dairy sector. Savings-led groups are viewed as a key channel for the delivery of microfinance services. Specifically, these savings-led groups provide members (predominantly women) with access to credit and training, exposure to savings products, support from fellow group members, and encouragement to develop a public voice. Key success factors for these programs included close partnerships between peer organizations, the bundling of value-added services, and tailoring to group members. A study conducted on savings-led groups in Uttarakhand State showed income increases between 21% and 31%.

Source: “Determinants and implications of rural women’s participation in microfinance programme: an analysis of dairy self-help groups in Uttarakhand State of India,” Livestock Research for Rural Development, Bhoj, S.; Bardhan, D.; and Kumar A., 2013.

- **Access to finance** interventions demonstrated income increases of 15% on average and the ability to reach between 2,100 and 400,000 clients. These programs are effective because they:
 - Segmented farmers: Most agricultural lending involves an assessment of the risk a farmer can bear and what his or her cash flows are likely to be. Financial service providers segment farmers to decide which farmers can bear the costs of borrowing and, consequently, which farmers they can effectively serve or where innovative products are needed to do so.
 - Tailored solutions to farmers: Many of those commercial banks that have been able to overcome barriers to serving smallholder farmers cost-effectively have done so by collaborating with local agriculture experts to design products that suit the needs of smallholder farm activity (e.g., loans with flexible repayment terms that map to the crop planting and harvest cycles of farmers in the area).
 - Leveraged farmer aggregation: Farmer organizations can serve as a central loan distribution and collection point, allowing for both the providers and the users of the financial products to benefit from economies of scale that lower transaction costs.
 - Bundled services: Returns from financial services are highly conditional on access to other nonfinancial services. For example, One Acre Fund found that non-financial services (e.g., agricultural training, financial education) increase farmer uptake of loans by helping

Access to finance – Case Study Spotlight:

One Acre Fund implemented a series of agricultural finance interventions (paired with other assistance offered in parallel) in Kenya, Rwanda, Burundi, Tanzania, Malawi, and Uganda. The Fund’s approach consisted of extending credit for farm inputs, which freed up cash to allow farmers to make other productive investments. In parallel, the program helped create market linkages and trained farmers in how to use fertilizers. One Acre Fund’s ability to tailor interventions to the local context and its bundling of multiple interventions were key success factors. Across all six countries, One Acre Fund found that farmers’ incomes increased by 55%.

Source: Comprehensive impact report: A decade of measurement and impact, One Acre Fund, 2016.

farmers invest their loans more productively—and that the combined effect of services is larger than that of each on its own.

- **Producer collectives** demonstrated average income increases ranging from 5% to 100% (with an average of 16%), serving anywhere from individual groups of 10 – 20 farmers to larger networks of several thousand farmers (see Amul Dairy example in Annex 3). These programs are effective because they:
 - Segmented farmers: Crop selection can play an important role in the success of a producer collective. For example, studies across three Latin American countries found that participation had no significant positive impact for farmers producing staple crops (e.g., potatoes and wheat), while those producing higher-value products (e.g., tomatoes, lettuce, and bell peppers) benefitted more.
 - Tailored solutions to farmers: Most large producer collectives aim to link farmers to markets, yet this requires that farmers have the necessary resources or assets to grow surplus products. If poverty alleviation of very low-producing subsistence farmers is the goal, the most appropriate producer groups may be the more informal ones that do not necessarily link farmers to markets to sell their products, but rather to purchase inputs.
 - Developed close, long-term relationships with farmers: Producer collectives are most effective when trust between members has been built through shared norms and social capital over time, whether during the lifetime of the group or through interactions before the group was established.
 - Leveraged farmer aggregation: Through producer collectives, farmers can pool their assets and risk to purchase agricultural inputs or sell agricultural products at scale, accessing markets in which they may not be able to participate or negotiate as low prices on their own.
 - Understood the enabling environment: Reliable public infrastructure (e.g., roads, water) and services (e.g., extension support) are important to the success of producer collectives, which often operate as businesses.²⁰
 - Bundled services: Producer collectives are often intended to be a one-stop shop of services for their members, providing access to some combination of inputs, finance, extension, and markets.

Producer collectives – Case Study Spotlight:

Between 2008 and 2013, the number of agricultural producer collectives in Rwanda grew from 645 to 2,400, largely driven by the government’s National Land Policy and the support of external actors. Producer collectives in Rwanda are most common in the horticulture, coffee, and maize subsectors; they play a special role in providing access to productive marshland areas and distributing subsidized inputs to members. Cooperative members in the Rwandan maize and horticulture sectors earned on average 123% more than non-members. The income increases were even greater for producer collectives in the maize sector (as opposed to the horticulture sector) given the relative “tightness” of the value chain; the maize sector has a well-established trading and intermediary system within Rwanda as well as high levels of government support.

Source: “Smallholder cooperatives and agricultural performance in Rwanda: do organizational differences matter?” *Agricultural Economics*, Verhofstadt, E., Maertens, M., 2014.

²⁰ Best et al., 2006; Poulton et al., 2005; cited in Markelova et al., 2009

ANNEX 3: INSIGHTS ON SUCCESS FACTORS

In this section, we provide an overview of each success factor. First, we describe the success factor in detail. Second, we summarize the evidence base. We indicate how often this success factor was relevant across the 16 interventions. Although not every intervention performed well across our four criteria, there were still individual successful programs within those interventions that could have embodied this success factor – hence we look across all 16 interventions to identify common success factors. Similarly, we indicate how often this success factor was relevant in case studies. Given the need to focus on success, we only indicate when the success factor appeared in the 19 case studies that were ranked highly either on generating increased farmer income or scale of operation. Next, we provide a few selected quotes to highlight how different stakeholders emphasized the success factor. Finally, for each success factor, we provide an in-depth case study.

1. Farmer Segmentation

A key success factor in designing effective interventions is the extent to which lead buyers understand the different needs, barriers, and capabilities of farmers in their supply chains. Suppliers and lead buyers are increasingly recognizing the importance of “segmenting” farmers to better understand both which farmers to source from and how to tailor income interventions to different groups to enhance likelihood of adoption and impact. For instance, one interviewee indicated that segmentation has better-positioned them to target farmers who have the absorptive capacity and resources to benefit from interventions and provide feedback.

“We have found that segmenting based on willingness to adopt certain practices is a good strategy.”

-Lead buyer

There are many different segmentation strategies that lead buyers can employ to better understand farmers; the relevance of each depends on the local context and the goals of the lead buyer. Some segmentation approaches focus on household characteristics, specifically looking at its asset base (e.g., size of landholdings or number of livestock), demographics, income sources, among other factors. Other segmentation strategies consider farmers’ aspirations, such as how their beliefs and values may influence their likelihood to adopt new technologies or pay for new services.²¹ Segmentation by level of commercialization and reliance on agriculture vs. non-agriculture sources of income is an often-used approach as it provides insights into the risk that farmers can absorb, what risk mitigation resources are at their disposal, and what services and programs are most relevant. For instance, evidence highlights that farmers that are more commercial typically will be more receptive to adopting upgrading interventions (e.g., climate change adaption interventions, agricultural finance interventions) and overall behave more like economic actors.²²

In one example, the Alliance for a Green Revolution in Africa (AGRA) developed an approach to segmenting farmers by their level of commercialization – they identified the following unique farmer segments:

²¹ “Segmentation of Smallholder Households: Meeting the Range of Financial Needs in Agricultural Families,” CGAP, 2013.

²² IFAMA, “Critical Success Factors for Smallholder Inclusion in High Value-Adding Supply Chains by Food & Agribusiness Multinational Enterprises.”

- **Subsistence:** Proportion of crop production sold is less than or equal to 5% of total crops produced, and the proportion of income from non-farm sources is less than or equal to one third of total income.
- **Pre-commercial:** Proportion of crop production sold is greater than 5% and less than or equal to 50% of total crops produced, and the proportion of income from non-farm sources is less than or equal to one third of total income.
- **Transitioning:** Proportion of crop production is greater than 5% and less than or equal to 50% of total crops produced, and the proportion of income from non-farm sources is greater than one third of total income.
- **Commercial:** Proportion of crop production sold is greater than 50% of total crops produced, (those for whom the proportion of income from non-farm sources is greater than one third of total income are considered 'diversified')

Interventions can then be tailored to the specific needs of each of these segments:

- Subsistence farmers are more likely to need social protection, safety nets and transfers, and support for non-farm activities;
- Pre-commercial farmers tend to require more financial and training support as well as market access as they take steps towards more commercial activity; and
- More commercial farmers need support in pursuing farming as a business. This can include more aggregated structures for marketing purposes, facilitation of linkages to large agribusinesses, and access to inputs (e.g., seeds, fertilizer, finance) on commercial terms

The evidence from our landscape review and analysis of case studies confirms that segmentation, if well-designed and utilized, can lead to more effective interventions. The evidence review found that the interventions that performed better, on average, tend to involve much more systematic diagnosis of the critical issues facing farmers in their local contexts; they are also much more tailored to specific segments of farmers based on their capabilities and resources. For example, one approach to a climate change adaptation program, the Climate Smart Agricultural Rapid Appraisal, was found particularly effective partially due to its segmentation approach. It used a multi-stakeholder participatory approach that assessed gender, household, and economic characteristics to assess the feasibility of specific climate adaptation tools and then tailored the offerings for the different households.²³ Similarly, the evidence from our landscape review of market information systems reveals that one of the best practices to implementing successful systems is classifying customers or users according to their preferred means of dissemination.²⁴

Segmentation can also enable lead buyers to more holistically consider how to refine their engagement model across different segments of farmers. At the highest-level, lead buyers can first decide which farmers to source from – likely farmers anywhere on the path from pre-commercial to commercial, as these are more likely to be interested in and able to engage in a sourcing relationship with a lead buyer based on capacity and the importance of farming to their overall income. A key area for further discussion is whether and how lead buyers can partner with other actors to ensure that those farmers from whom they do not source are also supported, and whether this support involves a continued journey towards commercial agriculture.

²³ "Climate smart agriculture rapid appraisal (CSA-RA): a toll for prioritizing context-specific climate smart agriculture technologies," *Agricultural Systems*, Mwongera, et al., 2017.

²⁴ "Evaluation study of "best practices" in agricultural marketing information systems, AMIS," Market Information Organization of the Americas, Mendoza, G., 2006.

Farmer Segmentation – Case Study Spotlight

Ecom Trading, a global commodity trading company, sources cocoa from ~15,000 smallholder farmers in Côte d'Ivoire. Ecom supports improvements in farm productivity, promotes certification through trainings (e.g., on sustainability and productivity), and provides extension services (to increase farmer productivity) and technical assistance (to enhance supply chain efficiency and increase farmers eligibility for certification). In these efforts, Ecom Trading sought to develop a nuanced understanding of its target farmers' needs and priorities to inform its own resource allocation. For example, in 2013, in collaboration with the IFC, it interviewed ~2,000 Ivorian farmers on various areas of interest such as income level, challenges, food security, relationship with buyers, land allocation across crops, and certification status²⁵. The findings allowed Ecom Trading to identify high-potential farmers, and tailor the service and delivery of support. For high-potential uncertified farmers, ECOM support model focuses on technical assistance to increase yields and improve quality, so that farmers are able to certify their production. For certified farmers, ECOM assist in acquiring seasonal financing for farm inputs and equipment, such as fertilizers, and for maintenance of coffee plants, and harvesting. As a result, farmers participating in the program were able to increase productivity by an average of 95% to 131%²⁶.

2. **Tailor interventions to farmers:** Tailoring is an important design principle that translates insights from segmentation, mappings of contextual factors (e.g., soil type, weather patterns, social norms), and other data collection activities into action. It increases the likelihood that interventions will be effective within a given context.

Tailor interventions to farmers – Case Study Spotlight

The Cargill Corporation launched Cargill Cocoa Promise in 2012 with the objective of improving the livelihoods of cocoa producing farmers and their communities. Through this initiative, the company supported more than 30,000 farmers around the world and was successful in tailoring its activities to farmers' needs and challenges. The program included specific components aiming at empowering women farmers, such as trainings and leadership skills development, and access to financial facilities. To accomplish its objectives, the company undertook a mapping of smallholder cocoa farmers in three countries - Indonesia, Cote d'Ivoire, and Ghana to gather detailed information (e.g., location, plot size, type and age of trees grown, cultivation methods, farmers' wealth). This allowed the company to better inform a broad set of activities including the provision of inputs, trainings, access to farm loans, and market linkages. As a result, participating farmers were able to improve their average yield by 23%, leading to significant increase in income²⁷.

3. **Design for 'tight' vs 'loose' supply chains**

25 <http://www.cgap.org/blog/learning-smallholder-supply-chains-c%C3%B4te-d%E2%80%99ivoire>

26 IFC, "Investing in women along agribusiness value chains", 2016

27 Cargill, "The 2015 Cargill Cocoa Promise global report Improving livelihoods for cocoa farmers and their communities", 2015

The structure of a supply chain can enable or constrain a lead buyer's efforts to improve income-generating opportunities for farmers. Effectively addressing barriers and leveraging opportunities within the supply chain depends on the degree of buyers' proximity to, interaction with, and transparency over the farmers and other actors in the supply chain. In this context, a key factor that determines how lead buyers can engage in an overall value chain is how tight vs. loose the relationships are between actors in a supply chain²⁸:

"The challenge is understanding where [lead buyer] power lies. It is complex because it depends on the commodity sector and origin and the political realities of it."

-Lead buyer

- **Tight value chains** are characterized by close relationships between actors in the supply chain and limited sales and distribution options for farmers. Tight value chains are more common in export commodities and those that require processing; there are often contracts between farmers and buyers. These supply chains enable lead buyers to develop longer-term relationships with farmers and interventions that rely on close relationships for success (e.g., agriculture finance programs, extension services) typically can work well. CGAP estimates that 7% of smallholder farmers (~35 million) operate in 'tight' value chains²⁹.
- **'Loose' value chains**, on the other hand, are more informal; farmers have a variety of marketing options and may sell to various buyers. Commercial smallholders in loose value chains are usually focused on staple crops or selected high value crops such as coffee, cocoa, oilseeds, and corn.³⁰ In a "loose" supply chain, investment is riskier because farmers are more likely to side-sell.³¹ Lead buyers can make concerted efforts to 'tighten' the relationships between actors and some interventions can facilitate this (e.g., agro-processing zones, market information systems, producer groups with formal relationships to other value chain actors). CGAP estimates that 33% of smallholder farmers (~165 million) are commercial farmers that operate in 'loose' value chains.³²

Design for tight vs. loose value chains – Case Study Spotlight

In close collaboration between Coca-Cola, The Bill & Melinda Gates Foundation, and Technoserve, the Nurture Project was launched in 2010, with the objective of supporting around 42,000 Kenyan and Ugandan smallholder farmers (33% women)³³. The program targeted farmers working in the mango and passion fruit value chains, and the program team tailored its efforts to the unique structure of the two value chains. For example, in the mango case, which presented a relatively loose value chain with small scale production and a fragmented smallholder base lacking access to markets, the project focused on strengthening farmer groups with governance and business skills trainings. This allowed farmers to increase their bargaining power, and to reach markets more cost-effectively. In the case of passion fruit, which represented a more structured and organized value chain, the project supported the development and commercialization of improved seeds and undertook campaigns to raise awareness among farmers on the benefits of shifting to the improved fruit production given its susceptibility to disease and farmers

²⁸ World Bank Group, Agrifin, AGRICULTURAL VALUE CHAIN FINANCE A GUIDE FOR BANKERS Carlos Cuevas and Maria Pagura, 2016

²⁹ CGAP, Segmentation of Smallholder Households, 2013.

³⁰ IFAMA, Critical Success Factors for Smallholder Inclusion in High Value-Adding Supply Chains by Food & Agribusiness Multinational Enterprises" 2016

³¹ IFC, "Working with Smallholders: A Handbook for Firms Building Sustainable Supply Chains."

³² Ibid.

³³ https://agriprofocus.com/upload/Chapter_4_-_Finance_and_Contracting_in_Agriculture_Value_Chains1441715351.pdf

relative organization. Ultimately, farmers saw increases in income from 100%-142% and the model has been replicated in other countries such as Haiti and India³⁴.

4. Develop close, long-term relationships with farmers.

The benefits of long-term engagement are ongoing, active support and the strength of relationships between farmers and suppliers or buyers. Long-term relationships can create conditions for improved knowledge sharing, reduced side selling, and better adaption of interventions to farmers' needs.³⁵ For example, in Thailand, Tesco Lotus – a subsidiary of Tesco PLC, a multinational groceries and general merchandise retailer, introduced certification standards for asparagus and durian farmers. Asparagus farmers, who had longer-term contractual relationships with aggregators, typically were more willing and successful in adopting the standards – unlike Durian farmers, that did not have long-term contracts and often sold to a number of other buyers.³⁶

“You can't just train farmers, leave, and then expect them to do the right thing; long-term accompaniment and coaching are critical.”

-Lead Buyer

Involving farmers in the design of interventions can improve their effectiveness. For example, the landscape review revealed that access to finance and crop insurance interventions were most effective and efficient when implementers received input from farmers themselves on how to tailor the products, as farmers can best explain their production cycles, risks and cash flow challenges. In Asia, the Nippon Foundation utilized a farmer participatory research (FPR) approach in approximately 100 villages in Thailand, China, and Vietnam to improve the sustainability of cassava production. In this approach, different technologies were utilized on demonstration plots, farmers were then able to select the technologies they preferred and test them on their plots, and then community discussions took place to discuss results and determine which technologies should be scaled further. This approach led to widescale adoption of new practices and increased net incomes of participating farmers.³⁷

Several of the more effective interventions also featured longer-term farmer engagement as means to realize higher rates of adoption of good agricultural practices and investment by farmers in the kinds of improvements that are needed in their farms. For example, out-grower schemes entail long-term contracts between a buyer or a supplier and farmers.³⁸ Some of the largest out-grower schemes in the world have been in operation for decades – 64% of the 25 largest out-grower schemes have been operating for more than two decades, supporting on average 100,000 smallholder farmers each. In Kenya, an out-grower scheme between tea farmers and over 54 tea companies, organized around the Kenya Tea Development Agency (KTDA), has been operating since year 2000, and has allowed farmers to receive 75-80% of the final tea price (a higher payout than farmers in neighboring countries) and to increase their yields by 36% on average³⁹. By packaging other interventions such as extension services and access to financing within these

³⁴IFC, “Investing in women along agribusiness value chains”, 2016

³⁵ Bijman, J., Contract Farming in Developing Countries: an Overview, 2008

³⁶ GIZ, Integrating Smallholders into Global Supply Chains - GLOBALGAP Option 2 Smallholder Group Certification Generic Manual: Lessons learnt in pilot projects in Kenya, Ghana, Thailand and Macedonia

³⁷ Howeler, R., Watananonta, W., Wongkasem, W., and Klakhaeng, K., Working with Farmers: The Challenge of Achieving Adoption of More Sustainable Cassava Production Practices on Sloping Land in Asia, 2004.

³⁸ AECF, Maximising the Impact of Outgrower Schemes: Opportunities, Challenges, and Lessons from the AECF, 2017

³⁹ IFC, IFC Inclusive Business Company Profile – Kenya Tea Development Agency, 2014.

longer-term contracts, their impacts are often greater than if they were provided as one-off spot transactions⁴⁰.

Develop close, long-term farmer relationships – Case Study Spotlight

Cafédirect, UK's largest 100% Fairtrade hot drinks company, has supported more than 600,000 cocoa, coffee, and tea farmers around the world through the re-investment of a third of the company's profits in grower-led programs⁴¹. For over 20 years, Cafédirect has cultivated long-term relationships with farmer organizations and has engaged in two-way dialogues with partners to better understand farmers' needs and challenges, and to better assess the impact of its business model. As part of these efforts, in 2009, the company established the Cafédirect Producers' Foundation (CPF) to manage these direct relationships with farmers. Through the CPF, the company has invested time and financial resources in having regular meetings and discussions with partners on the ground, which has increased the effectiveness of interventions (e.g., farm trainings, seeds and fertilizer provision, farmers' certification), and helped strengthen farmers' trust and loyalty to the company. Ultimately, farmers saw their crop quality and yields improve by an average of 90%, and their incomes increase by 50%⁴².

5. **Facilitate and leverage farmer aggregation:** When farmers are aggregated, they benefit from shared resources, economies of scale, and increased bargaining power. The landscape review and numerous interviews confirmed that working with farmer groups can be a key success factor.

"A competitive advantage is to engage with local farmer groups"

- Erin Sahan, World Fair Trade Organization

Buyers clearly benefit from more efficient interactions with farmer groups vs. individual farmers. In producer collectives, farmers can sometimes eliminate intermediaries, bargain more effectively with buyers, and can often command higher prices (due to better sorting, marketing, and cleaning). Buyers can share more information with more farmers (for example, regarding farmer practices or the need for certified crop), receive greater logistical support (because farm collectives facilitate the coordination and aggregation of farmers), and develop long-term producer-buyer relationships.

⁴⁰ ODI, Trust and value through long-term market relationships: better than a short-term focus on price, 2010

⁴¹ Cafédirect, Committed to our Gold Standard, Annual Review, 2012

⁴² Producers Direct, Impact Report, 2017

Facilitate and Leverage Farmer Aggregation – Case Study Spotlight

Amul, an Indian dairy cooperative, developed a unique business model based on the close engagement with local milk cooperatives – this was a critical challenge to the growth of the highly fragmented and diffused Indian dairy industry. As part of the program, Amul helped establish a three-tier cooperative structure in which farmers sold milk to village-level dairy cooperatives, which was then sold to affiliated processing cooperatives in the districts, and finally sold at the state level through affiliated marketing federations. This enabled the member farmers to receive 80% of the retail price through up-front payments and partake in the profits at cooperative members. In addition, the cooperatives supported farmers through the provision of cattle feed, livestock health scheme, and extension services⁴³.

- 6. Understand the enabling environment:** Successful interventions must take into account the existing infrastructure, business and policy environment^{44,45} as well as government programs. Interventions can build upon these policies or programs or advocate for change. These levers provide high potential pathways to maximize value generation from new programs and initiatives.

Understand the Enabling Environment – Case Study Spotlight

The Cadbury Cocoa Partnerships, launched in 2009 by Mondelez International in collaboration with the United Nations Development Program (UNDP), aimed to strengthen the cocoa supply chains in Ghana. The program supported over 10,000 smallholder farmers to increase yields, improve the cocoa quality, and diversify income streams. In addition, Mondelez identified the lack of essential infrastructure as a key challenge to farmer well-being⁴⁶. To address this, the company partnered with the Ghanaian government to lead the development of feeder roads in cocoa growing areas (which reduced time and costs of transporting cocoa produce from the region), develop more reliable energy and waste distribution networks, and establish educational and health care facilities for the local community. Through better infrastructure, provision of loans and trainings, community social work, and provision of inputs, farmers were able to double their yields, increase their awareness on gender equality and child labor, and participating women improved their ability to track finances more accurately⁴⁷.

- 7. Strategically engage and partner with government and civil society.** Holistically addressing the barriers to farmer income will often require coordinated action with the government or civil society – leveraging the comparative advantages of the different groups. A common success factor across several interventions and case studies was the extent to which lead buyers are able to engage with public sector institutions – national, regional and global - on ways to more effectively advance agricultural value chains through system-level improvements such as better market information systems, more supportive regulatory frameworks, and improved public extension services.⁴⁸ For example,

⁴³ FAO, “Agro-industries characterization and appraisal: Dairy in India”, 2007

⁴⁴ “Enabling environments for agribusiness and agro-industries development: regional & country perspectives”, FAO (2013)

⁴⁵ Enabling the Business of Agriculture, The World Bank (2017)

⁴⁶ Business Call to Action, “Cadbury Cocoa Partnership: Improving Productivity and Farmer’s Incomes”, 2013

⁴⁷ UNDP, “Growing Inclusive Business, Cadbury Cocoa Partnership”, 2013

⁴⁸ IFC, “Working with Smallholders: A Handbook for Firms Building Sustainable Supply Chains.”

implementers of the Cargill Cocoa Promise Program, which aims to improve the livelihoods of farmers in sourcing countries, sees partnerships with governments as critical because the state is often best positioned to improve the access to basic services such as healthcare that is necessary for farmers to fully participate in the supply chain.⁴⁹ Lead buyers can also play an important role in supporting policy dialogue with donors and public sector agencies on how to deploy their resources in ways that more effectively address systematic risks that farmers face (e.g., more effective ways for donors to address lack of access to inputs, creating more conducive business environments and investing in human capital in rural areas).⁵⁰ For example, a review of models in which corporate food processors engage with farmers through production contracts, highlights that government engagement is often necessary to ensure that outgrower schemes are developed in areas without inequalities in land holding, that good transportation or processing infrastructure exists, or that public-supported financing for farmers is in place⁵¹.

Strategically engage with government / civil society – Case Study Spotlight

The Nile Breweries Limited (NBL), a subsidiary of SABMiller, supported ~8,500 Ugandan farmers through their Local Enterprise and Agriculture Program (LEAP). The program aimed to develop the supply chain of a new low-cost sorghum-based beer, which now accounts for 50% of its sales in the country. NBL's collaboration with the Government of Uganda, and with local health institutions was pivotal to the success of the program, helping participating farmers double their average incomes and establishing long-term relationships with the company⁵². The program has been operational since 2009, and the company took proactive measures to increase women's engagement with the program after the initial phase when it recognized the potential to have an increased gender lens to its efforts. In its role as a core partner, the government established tax breaks for beer made with local ingredients, and the local institutions supported a range of initiatives to help address broader challenges in the local area – for example, leading HIV/ AIDS testing and treatment campaigns and improving access to clean water. Additional to this, NBL invested in agricultural extension services, skills trainings and subsidized input for farmers (e.g., improved sorghum seeds). These interventions helped demonstrate the company's commitment to the local community and ensure that farmers had access to the necessary public services to help maximize value generation from their agricultural activities⁵³.

- 8. Partner with peer organizations.** Partnering with other lead buyers can provide buyers with greater bargaining power with other stakeholders such as the government, can create economies of scale, and can prevent side selling or other practices that could put individual supply chains at risk. For example, the Council on Smallholder Agricultural Finance⁵⁴ (CSAF) brings together a consortium of social lending institutions through a pre-competitive alliance to exchange learning, identify best practices, and support the development of industry standards that would benefit the broader ecosystem. Similarly,

⁴⁹ Cargill, The Cargill Cocoa Promise Global Report - Improving livelihoods for cocoa farmers and their communities, 2015

⁵⁰ FAO, Promoting farm/non-farm linkages for rural development. Case studies from Africa and Latin America, 2002

⁵¹ Goldsmith, A., The private sector and rural development: Can agribusiness help the small farmer?, 1985.

⁵² Technoserve, "Technoserve Initiatives for Inclusive Agricultural Business Models", 2017

⁵³ Sustainable Food Lab, "Enabling smallholder farmers to improve their incomes", 2017

⁵⁴ Council on Smallholder Agricultural Finance (2018)

the Farm to Market Alliance⁵⁵ (FTMA) aims to leverage the collective power of buyers to increase the productivity, incomes, and overall resilience of smallholder farmers.

Partner with Peer Organizations – Case Study Spotlight

The Malawi Tea 2020 program is a coalition between Malawian tea producers, trade unions, NGOs, and large international tea buyers. The alliance is aimed at improving the competitiveness of the Malawian tea sector. In this program, buyers such as Unilever, Twinning's, and TESCO, came together and committed to achieving a competitive, profitable tea industry where workers are ensured a decent living income⁵⁶. Alongside partners from different sectors, buyers implemented interventions to develop farmers skills in tea growing and business management, designed interventions to promote worker nutrition, reduce gender discrimination, improved farmer access to financial facilities, and undertook measures to reduce the environmental impact of the business activity in the region. Since inception, 1,548 farmers have participated across 50 Farmer Field Schools (FFS), and 3,138 farmers have participated in village savings and loans groups across the country, which has allowed them to increase their tea yields by an average of 18.5%, while tea leaf quality rated 15-20% higher than non-FFS farmers, both of which led to higher payments⁵⁷.

9. **Bundle services.** Bundling is perhaps one of the most important success factors for interventions – all six interventions in our first two categories are bundles of different activities. Bundling different activities enables lead buyers to address multiple barriers. While there is a need to go further and think about interventions at the different “levels” of the farmer income system, bundling provides a useful first step in a more holistic approach.^{58,59}

Bundle services – Case Study Spotlight

The Walmart Foundation partnered with Agribusiness Systems International, under the Sunhara (“Prosperous”) Walmart project, to work with ~3,000 Indian women in the horticulture and handicrafts value chains. Started in 2011, the program aimed to promote aggregation of women farmers into groups (such as savings-led groups) and facilitate their broader social and economic empowerment. The project achieved its objectives by bundling a variety of financial and non-financial services and products that hold back empowerment of women farmers – for example, access to new technologies and farm equipment, provision of farming inputs (e.g., seeds and fertilizer), strengthening women’s groups (e.g., self-help groups) and creating linkages to buyers. By bundling these products, the program allowed participating women to increase their incomes by an average of 87% (and by up to 300% in some cases)

⁶⁰.

⁵⁵ Farm to Market Alliance, World Food Program (2018)

⁵⁶ Malawi Tea 2020 Coalition, “Investing in the Malawi tea industry”, 2015

⁵⁷ Malawi Tea 2020 Coalition, “Second Progress Report 2016-2017”, 2017

⁵⁸ “Service delivery: How to design an effective service sector to drive sustainability in smallholder dominated sectors”, IFC (2015)

⁵⁹ “Innovations in Rural and Agricultural Finance: Bundling Development Services with Agricultural Finance”, IFPRI (2015)

⁶⁰ <http://asintl.org/our-experience-sunhara-prayas-india.html>

10. Invest in adaptive evaluation and learning. Tracking progress throughout an intervention’s implementation and adjusting activities can lead to more effective targeting of barriers and leveraging of opportunities. A broad set of actors in the sector from international agencies such as the FAO⁶¹ to philanthropic foundations⁶² are increasingly recognizing the value of robust monitoring, learning and evaluation tools as part of their efforts.

Invest in adaptive evaluation and learning – Case Study Spotlight

Honey Care Africa, a private sector social enterprise promoting sustainable community-based beekeeping and producing a range of honey-based products across Kenya, supported ~8,000 smallholder farmers (43% women) by training them in commercial honey production, and providing modern beehives⁶³. A robust monitoring system based on a mobile data management tool was pivotal to the program’s success – helping farmers double their incomes. Through this mobile system, Honey Care Africa was able to connect regularly with field staff and collect real-time key data (e.g., beehives conditions, farmers’ production levels, farmers’ socio-economic conditions) which was then analyzed to inform the company’s supporting activities for participating farmers. For example, by using this approach, the enterprise was able to note that while farmers wanted to get into the honey production, very few actually wanted to become beekeepers, and many of them were afraid of bees. This led to an intervention that focused on the professionalization of farmers, by employing and training field teams that would support farmers directly to become formal beekeepers⁶⁴.

⁶¹ “The use of monitoring and evaluation in agriculture and rural development projects: Findings from a review of implementation completion reports, FAO (2010)

⁶² Guiding Principles and Practices for Monitoring, Evaluation and Learning, Packard Foundation

⁶³ UN-DESA, “Innovation for Sustainable Development: Local Case Studies, Honey Care Africa Limited, Kenya: Fighting Poverty with Honey”.

⁶⁴ Business Call to Action, “Honey Care Africa: Enabling smallholder farmers in East Africa to produce and market honey”, 2017

ANNEX 4: CASE STUDIES REVIEWED

Note: the case studies that involved lead buyers and suppliers are highlighted in blue. Case studies are presented in alphabetical order.

THESE DESCRIPTIONS ARE DRAFT FOR INTERNAL USE – THESE WILL BE REPLACED WITH HYPERLINKS

#	Case Study	Lead Agency	Description
1	2SCALE Program	Heineken	2SCALE is an agribusiness incubator that works with smallholder farmers, private enterprises, and other partners in nine countries across Sub-Saharan Africa. Heineken established this program with the objective of promoting inclusive agribusinesses and ultimately improving rural livelihoods, and food and nutrition security. 2SCALE’s strategy combines several elements including access to new technologies, training, and markets, and supporting value chain linkages to build agribusiness clusters around specific agricultural commodities – these include staple crops such as maize, rice, sorghum, cassava, fresh produce such as vegetables and potatoes or oilseeds such as soybeans, groundnuts.
2	Agricultural Technology, Crop Income, and Poverty Alleviation in Uganda	International Maize and Wheat Improvement Center	The project works specifically on groundnut production in Uganda, which has been heavily constrained by diseases and pests. In response to these challenges, national and international agricultural research organizations collaborated to develop four groundnut varieties resistant to the rosette virus. These varieties were released in Uganda between 1999 and 2002 led by the National Agricultural Advisory Services (NAADS) of Uganda. This study evaluates the ex-post impact of the adoption of improved groundnut varieties on crop income and poverty in rural Uganda by analyzing cross-sectional data of 927 households across seven districts in Uganda.
3	Burkina Faso: Agriculture as a Powerful Instrument for Poverty Reduction	World Bank, FAO, African Development Bank	The Agriculture Diversification and Market Development Project (PAFASP) was designed to promote businesses in rural Burkina Faso, where access to credit from commercial banks and microfinance institutions is limited. It is designed to contribute to raising agricultural competitiveness in sectors other than cotton, which is critical to achieving the country’s aim of diversifying its economy while continuing to draw on its natural resource base. The project supports the provision of matching grants, development of commercial infrastructure facilities with private-based management, and backs effective, small-scale irrigation schemes.
4	Cadbury Cocoa Partnership	Cadbury	The Cadbury Cocoa Partnership was started in 2008 in Ghana with the aim of ensuring thriving cocoa communities and a sustainable cocoa supply chain. The partnership presently runs in 7 districts in 4 regions and works towards promoting sustainability of cocoa production by focusing on the empowerment of cocoa farmers in rural communities. The partnership focuses on improving cocoa farmer incomes by increasing yields and cocoa quality, creating new income streams (e.g., through crop diversification), and investing in cocoa-growing communities by providing opportunities for education and infrastructure improvements (such as roads or water and energy distribution networks).

#	Case Study	Lead Agency	Description
5	CaféDirect Fairtrade Approach	CaféDirect	Café Direct is a chocolate company that supports smallholder farmers producing tea, coffee and cocoa through fair-trade prices. The company's approach is based on production enhancement and improving farmers' access to markets (e.g., through certification programs), building long-term relationships and promoting farmers' empowerment (e.g., farmers encouraged to be shareholders of the company).
6	Cargill Cocoa Promise	Cargill Corporation	The Cargill Cocoa Promise, launched in 2012, is part of the company's commitment to improve the livelihoods of farmers and their communities in ways that enable them to deliver more cocoa in the long term and secure a thriving cocoa sector for future generations. It covers a variety of support mechanisms for partner farmers, including provision of farm inputs (e.g., making sure that fertilizers are accessible and used efficiently and responsibly), delivery of trainings (e.g., personal coaching and tools that promote good agricultural, social, business, environmental, and health and safety practices), strengthening of cooperatives and farmer organizations, and mobilizing local community support.
7	Support Program for cassava and maize farmers in Mozambique	Cervejas de Mocambique (CDM) – AbinBev	Cervejas de Mozambique and ABInBev developed a new low-cost beer made of cassava and maize and designed a supporting program for local smallholder farmers interested in becoming suppliers to the company. The approach included the distribution of improved seeds and farm equipment, as well as trainings and farm demonstrations for farmers on how to grow cassava and maize more efficiently and cost-effectively.
8	Conservation Agriculture Scaling-up (CASU) project	European Development Fund	The project was established by the EU Development Fund with the overall objective of increasing crop productivity and production for the targeted farmers, of which at least 40% were to be women. The project provides trainings to build farmer skills on sustainable land preparation, has set up a SMS-based Conservation Agriculture extension system for farmers, is strengthening farmers groups (e.g., through support for regular meetings to share knowledge and exchange ideas), and strengthening of government extension services to effectively deliver agricultural advisory services.
9	Dairy Value Chain Development - Gujarat, India	Amul	Amul is an Indian dairy company which pioneered the cooperative based business model in the dairy sector in India. As part of the program, farmers can join village dairy cooperatives and sell their milk to them; the cooperatives, in turn, aggregate production and transfer it to district milk and processing unions for sale to the market. As members of their cooperatives, participating farmers receive support in the form of cattle feed, rural health scheme, and extension services.
10	Divine Chocolate-Kuapa Kopoo Support Partnership	Divine Chocolate	Divine Chocolate's is a global farmer-owned business that operates an inclusive business model in which the company works alongside smallholder farmers. The company has partnered with Kuapa Kopoo, a Ghanaian farmers' cooperative to buy their produce. It supports Kuapa Kopoo member farmers by sharing knowledge and information on the market, improved farming techniques and promoting new production technologies.

#	Case Study	Lead Agency	Description
11	ECOM Agroindustrial Corporation – IFC Partnership	ECOM Agroindustrial and IFC	Ecom Trading is a global commodity trading company that sources cocoa from ~15,000 smallholder farmers in Côte d'Ivoire. Ecom supports smallholder farmers by helping improve farm productivity, promote certification through trainings (e.g., on sustainability and productivity), provide extension services and provide technical assistance (to enhance supply chain efficiency and increase farmers' eligibility for certification).
12	Enterprise Development Program (EDP) in Colombia	Oxfam and Alpina	Oxfam partnered with the Colombian dairy company Alpina, to develop efficient small-scale dairies that can each process milk from up to 200 smallholder dairy farmers, and to improve farmers milk production and quality. The partnership has focused on knowledge sharing through trainings and capacity building, strengthening of technical capacity of communities, and support in accessing formal credit (for example, through engagement with the national agricultural bank).
13	Extending rice crop yield improvements in Lao PDR: an ACIAR–World Vision collaborative project	Australian Center for International Agricultural Research (ACIAR)	ACIAR established this project with the aim of encouraging the adoption of R&D outcomes (such as improved plant breeding strategies or approaches for improved productivity of rice-based cropping systems) that would lead to productivity gains in rainfed rice-farming systems. The project involved a combination of rice-growing trials and training activities on select, demonstration farms. This approach allowed farmers to observe and discuss the trial outcomes and adopt new, innovative rice production practices.
14	Farm to Market Alliance (FtMA)	Various partners including AGRA, Bayer, Grow Africa, Rabobank, IFC, Sungenta, WFP	The Farm to Market Alliance (FtMA) is a public-private sector led consortium of eight leading agro-businesses and institutions formed to make markets work better for smallholder farmers. FtMA provides smallholder farmers with access to predictable markets, affordable finance, quality farming inputs and effective post-harvest handling and storage (PHHS) and other agricultural technologies.
15	Fertilizer Microdosing and “Warrantage” or Inventory Credit System to Improve Food Security and Farmers' Income in West Africa	National Agricultural Research and Extension Systems	The National Agricultural Research and Extension systems studied the effects of the fertilizer microdosing technology on farmers' production and livelihoods. Recognizing that liquidity constraints often prevent farmers from increasing their production levels, the project instituted a warrantage or inventory credit system for farmers to gain easier access to the fertilizer microdosing technology. The intervention also included provision of technical assistance and demonstrations in farmers field schools.

#	Case Study	Lead Agency	Description
16	Global Gap Certification Program	TESCO Lotus	In Thailand, TESCO Lotus – a subsidiary of TESCO PLC, a multinational groceries and general merchandise retailer, adopted the GLOBAL GAP certification. The objective of the scheme was to increase quality compliance of asparagus and durian farmers, by introducing sustainable agricultural practices.
17	Honey Care Africa – Sustainable Impact	Honey Care Africa	Honey Care Africa is a private sector social enterprise promoting sustainable, community-based beekeeping and producing a range of honey-based products across Kenya, which supported ~8,000 smallholder farmers (43% women). The program also involved a training component for farmers, specifically geared towards commercial honey production and provided participating farmers with modern beehives.
18	Impact Assessment of Credit Program for Tenant Farmers in Bangladesh: Evidence from a Field Experiment	BRAC, International Initiative for Impact Evaluation	In 2009, BRAC launched the tenant farmer development project (BCUP) with financial support from the Central Bank of Bangladesh. The main objective of the program is to increase access to credit for tenant farmers, who have limited access to formal financial institutions, and therefore, rely on informal financial sources. The study examines the role of agricultural credit on productivity and livelihoods of small, marginal, and landless tenant farmers based on a randomized control trial (RCT).
19	Impact of Farm Credit on Farmers Socio-economic Status in Ogun State Nigeria	Bolarinwa Kamilu (Federal University of Agriculture Abeokuta) & E. O. Fakoya	The study recognized the lack of adequate capital as a key driver of sub-optimal productivity levels of smallholder farmers. The study's lead agency gathered information from 250 farmers who have had access to farm credit, and that were randomly selected from Ogun state in Nigeria to assess how the lack of adequate of capital is affecting farmers' capacity to increase yields.
20	Impact of Seed Voucher System on Income Inequality and Rice Income	USAID	Impact of Seed Voucher System on Income Inequality and Rice Income per Hectare among Rural Households in Nigeria: A Randomized Control Trial (RCT) Approach : In response to the global food crisis of 2008, USAID funded an emergency rice initiative (ERI) to boost rice production in Nigeria. The program included the distribution of seed vouchers for smallholder farmers and was aimed to improve rice productivity and yields. The supplementary seed voucher program, implemented alongside the ERI adopted a randomized control trial to grant randomly selected farmers access to subsidized certified improved rice seed.
21	Jain Irrigation Systems – portfolio of products for smallholders	Jain Irrigation Systems Limited (JISL)	JISL manufactures and distributes farm solutions that provide sustainable and affordable solutions to smallholder farmers in India. As of 2015, it has reached out to more than 200,000 farmers with holistic farming solutions, including agriculture, water, micro-irrigation systems, pipes, tissue culture, renewable energy-based products and appliances, food processing and other agro-technologies and technical advice for sustainable agriculture and food chain development.

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22	Kellogg's - Technoserve Supply Chain Enhancement Program	Kellogg's Company and Technoserve	Using Egypt as a platform, Kellogg designed a partnership-driven approach to strengthen the sustainability of its local supply chains involving smallholder farmers. Kellogg adopted TechnoServe's five-step approach to enhance the commercial value and social impact of local sourcing in emerging markets. The program includes trainings for smallholder farmers on agronomic practices, and provision of farm inputs such as seeds and fertilizers.
23	Livelihood Enhancement through Agricultural Development (LEAD) Project in Tanzania	BRAC and UKaid	The LEAD project was a 4-year development project funded by UK government (UKaid) and developed by BRAC. The project involved farmer trainings, providing smallholder farmers in the maize and poultry value chains with practical skills while linking them to markets, and encouraging increased enterprise through a network of input dealers, traders and agro industries.
24	Livelihoods Fund for Family Farming (L3F)	Mars, Danone, Fimernich and Veolia	The Livelihoods Fund for Family Farming (L3F) was created in 2015 by Danone and Mars, and later joined by Firmenich and Veolia. L3F target smallholder farmers that are greatly impacted by environmental, social and supply issues—such as those in cocoa, palm oil, mint, vanilla, milk, or sugar. In the dairy sector, a key focus sector for the program, the partnership supports milk production projects that aggregate smallholders, increasing reliability and quality of sourcing. In these cases, farmers are provided with training, equipment and technical assistance, while dairy project promoters are given technical assistance on project development and management, and upfront financial support for project roll-out.
25	Malawi Tea 2020 Program	TESCO, Typhoo, Twinings, Unilever, Tata Global Beverages, Marks & Spencer, Members of the Tea Association of Malawi, others	The Malawi Tea 2020 program is a coalition between Malawian tea producers, trade unions, NGOs, and large international tea buyers, such as Unilever, Twining's, and TESCO, aiming at improving the competitiveness of the Malawian Tea sector. Through a collaborative approach among peer companies and other organizations, Malawian tea farmers have been provided with a comprehensive set of services such as trainings, access to saving groups, access to nutrition programs, and gender awareness campaigns – these activities are aimed at enhancing farmer productivity levels and living incomes.

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26	Margarita Project	Danone	Danone developed the Margarita Project to support dairy farmers in Mexico to facilitate their integration within their supply chains. The project's approach is intended to develop the production capacity of milk farmers through trainings, and provision of milking equipment. It has also supported livestock health management by preparing local veterinary doctors and experts to advise farmers in their production processes.
27	M&S Mali Cotton Initiative	Oxfam and Marks & Spencer	Oxfam has partnered with Marks & Spencer to support cotton smallholder farmers in Mali with the aim of increasing their livelihoods while ensuring the adoption of Fairtrade and organic cotton production. The partnership also aimed at promoting rural women's empowerment in cotton-producing areas as well as increasing, at a national level, farmer organizations' autonomy and effectiveness. As part of the project, women farmers have been trained and given subsidized access to carts to transport organic fertilizer.
28	OLAM Farmer Information System (OFIS)	OLAM International	OLAM built a network to help improve the lives of its partner farmers by improving their productivity and sustainability. The solution depends, in large part, on using technology to collect farm data, use of data analysis and visualization tools, tracking implementation of field trainings, and extending individual farm development support – this is typically in the form of personalized, long-term plans for each farmer, based on the data collected.
29	One Acre Fund (OAF) supporting programs across East Africa	One Acre Fund	OAF developed a comprehensive bundle of services and products to improve farmers' productivity in East Africa. This bundle includes inputs on credit, training to maximize productivity, crop and life insurance, and market access, all delivered at the village level.
30	PROCAMPO in Mexico	Mexican Government	The Mexican Government set up the PROCAMPO program, now the program with the largest rural population supported, to increase income diversification for smallholder farmers in the country, especially in promoting the shift to farm production of licit products. More specifically, PROCAMPO aims to compensate farmers through subsidies and promote their competitiveness after Mexico joined the North American Free Trade Agreement (NAFTA) with the U.S. and Canada.
31	Productive and Business Services Activity of the Productive Development Project, El Salvador	FOMILENIO	FOMILENIO supported rural businesses and Salvadorian farmers through a set of trainings and technical assistance services to help develop stronger business and technical skills among participating farmers. FOMILENIO provided inputs and larger investments to support income diversification for farmers (e.g., by trying new crops) and bought their produce at higher prices than what they would be offered at local markets, and that would increase their incomes by 15%.

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32	Project Nurture in Kenya and Uganda	Coca-Cola Company, The Bill & Melinda Gates Foundation	The Coca-Cola, Bill & Melinda Gates Foundation and TechnoServe set up Project Nurture in Kenya and Uganda with the aim of increasing the average income of 50,000 small-scale mango and passion fruit farmers, while directly sourcing their produce to establish the new Minute Maid beverage in these markets. The support from the project proponents included strengthening of farmer groups through governance and business skills trainings, and increased access to improved fruit seeds to increase crops resilience to pests and climatic conditions for participating farmers.
33	Sunhara Walmart and Sunhara Prayas Projects	Walmart Foundation	The two-year Sunhara (“Prosperous”) Walmart project expanded the efforts of the Sunhara India project to facilitate women’s social and economic empowerment and fight rural poverty. Sunhara Walmart used a gender-sensitive, market-driven approach to strengthen the status of nearly 3,000 Indian women in horticulture and handicraft value chains and provided them a variety of services including access to trainings and leadership skills development groups, access to credit and savings groups, and access to farm inputs.
34	Support Program for sorghum farmers in Uganda	Niles Brewery Limited (subsidiary of SABMiller)	The Niles Brewery Limited introduced a new, low-cost beer made with local sorghum instead of imported barley and developed its entire value chain enabling Ugandan subsistence farmers to access commercial markets and improve their incomes. Farmers were introduced to a new improved sorghum seed and were trained in corresponding farm practices. Farmers were equally involved in an outgrowing scheme to supply sorghum directly to NBL, and as complementary support to enhance community and farmers resilience, health and water management campaigns were held in the country.
35	Sustainable Agriculture and Rural Development Program - Paraguay	Ministry of Agriculture of Paraguay	The project was developed by the Ministry of Paraguay to strengthen the smallholder farmer base in the country. The project supports actions to strengthen community organization, self-governance, and access to markets and value chains through community organization development and capacity building; it also provides rural extension services and adaptive research and has created a sustainable rural development fund to finance agricultural projects (e.g., to improve animal health)
36	Sustainable Tree Crops Program	USAID, Mars Corporation, Cadbury, Hershey's, KRAFT, Nestle, and World Cocoa Foundation	The Sustainable Tree Crops Program is an innovation platform that aims to improve the economic and social well-being of tree crop farmers and the environmental sustainability of their systems in West and Central Africa. As part of this project, a set of technology transfer, marketing, and institutional innovations were introduced and validated in the field through pilot projects focused on cocoa farmers.

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37	System of Rice Intensification (SRI)	Oxfam	The SRI is a comprehensive method that improves rice plant health, soil nutrition and reduces fertilizer and water consumption in wet rice cultivation. Oxfam has been supporting farmer trainings with the Ministry of Agriculture and Rural Development (MARD) of Vietnam to promote the adoption of community-based SRI since 2006, as it helps vulnerable farmers on the smallest farms to grow more rice using less seed, less water, and fewer expensive inputs such as fertilizer and pesticides. As part of this project, Oxfam has trained farmers in sustainable agriculture practices, through Farm Field Schools, and has supported the strengthening of farmers networks, as well as helped inform the policy space through close interaction with the MARD.
38	The Cambodia Agricultural Value Chain Program (CAVAC)	Australian Government	The Australian Government set up the CAVAC Program to operate from 2010–2015 with the objective of increasing productivity and incomes of Cambodian smallholder farmers, as well as trade in milled rice and other crops, by strengthening market systems and investing in irrigation infrastructure.
39	The Impact of Agricultural Technology Adoption on Poverty: The case of - NERICA rice varieties in Benin	Africa Rice Center and the Government of Benin	This study examines the relationship between agricultural technology adoption by smallholder farmers in Benin, after the deployment of the New Rice varieties for Africa (NERICA), developed by the Africa Rice Center in the 1990s, and introduced in Benin through seed dissemination projects.
40	The Learn to Grow Program	The Hershey company	The Hershey Learn to Grow program is a package of services provided to cocoa farmers in Ghana and aims to increase their production capacity and quality, and education levels. The program included training programs, in business knowledge and good agricultural practices, and support in production of groundnuts that could be sold directly to markets.
41	The Thai fish-farming project - ACIAR	Australian Center for International Agricultural Research (ACIAR)	The program aims to develop the capacity of poor Thai farmers in select targeted communities to establish and maintain a freshwater fish enterprise. The project involved a combination of participatory research and extension training activities. The project team also established demonstration sites and selected farmers to participate in training activities on the technical requirements of fish farming.
42	Tony's Chocolonely Supporting Programs	Tony's Chocolonely	Tony's Chocolonely's is a chocolate company that has put efforts to eliminate poor practices in the cocoa value chain. The company's approach has been in influencing value chain actors, such as farmers, cooperatives, government officials, buyers, and consumers, to place value and support in sustainable cocoa production. The company's support to farmers relies on paying higher primes to cocoa farmers while advocating for slave-free cocoa vale chains with other actors in the sector.

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43	Unilever - Palm Oil Support Project	Unilever	Unilever, in collaboration with Eachmile, developed a platform to connect palm oil farmers in Indonesia to buyers, and empowering them to become more sustainable in their practices. In addition to this, Facebook agreed to work with Eachmile team members to connect new subscribers to Facebook's Free Basics in rural areas on the Indosat Ooredoo network as part of the mFarmer initiative.
44	Walmart Direct Farm Program	Walmart	In October 2010, Walmart launched its sustainable agriculture initiative. One of the core pillars of this initiative is to support farmers and their communities through a combination of direct sourcing and training in sustainable agricultural practices, which became Walmart's Direct Farm Model which has been replicated in various countries (e.g., Brazil, India, China).
45	Water management in public irrigation schemes in Vietnam - ACIAR	Australian Center for International Agricultural Research (ACIAR)	The ACIAR developed the project with the objective of improving the operational efficiency and economic sustainability of publicly managed irrigation schemes in Vietnam. For this, ACIAR conducted research to demonstrate how operational performance can be improved without large investments in physical infrastructure, to then develop analytical support tools and institutional processes to assist decision-making by the managers of irrigation schemes in the country.
46	Women's Empowerment and Social Capital	Heiffer International	Heiffer International established a program with the objective of removing barriers to women's economic empowerment, by creating access to credit, basic productive resources, technical training and market opportunities. The supporting program includes a values-based holistic community development model, which combines practices that create social capital and builds an enabling environment for the company's work in the sector.