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The Coca-Cola Company

TechnoServe Initiative for Inclusive Agricultural Business Models

The Coca-Cola Company: A Model for Promoting Sustainable Agriculture Practices in Smallholder Supply Chains

EXECUTIVE SUMMARY

Multinational companies have made bold sustainability commitments with potential to effect substantial poverty reduction. Through a grant from the Ford Foundation and matching company investment, TechnoServe supported four multinational companies in designing win-win approaches to meet their sustainability commitments related to smallholder farmers. This involved developing inclusive and sustainable business models that could both improve farmer livelihoods and reduce their vulnerability, while creating commercial value for the company. This case study documents the experience of one of these four companies, The Coca-Cola Company, including the company's specific opportunity, the model designed to capture this opportunity and key takeaways that can be applied by other industry players.

Developing sustainable smallholder supply chains can improve farmer livelihoods and reduce their vulnerability while enhancing The Coca-Cola Company's license to operate and security of supply. The Coca-Cola Company's Sustainable Agriculture Guiding Principles (SAGPs) are a cornerstone of its strategy for achieving its commitment to sustainably source its key ingredients by 2020. These principles promote sustainable social policies, such as eliminating forced labor on farms, as well as conservation practices including water saving techniques and soil protection, which can reduce farmer vulnerability in the face of climate change. They also promote practices that can improve farmer livelihoods by increasing yields and quality and optimizing inputs and crop maintenance. In addition to improving farmer livelihoods and reducing vulnerability, adoption of SAGPs can help to secure Coca-Cola's supply of agricultural ingredients, which comprise an estimated 50 percent of procurement expenditure in the company's system. Coca-Cola faces increasing risks of higher costs and security of supply for key agricultural ingredients due to a combination of growing demand alongside reduced productivity resulting from changing weather patterns and other market dynamics. These forces also pose potential food security risks to communities around the globe.[2] Smallholder-dominated supply chains represent a significant portion of Coca-Cola's agricultural sourcing and are particularly vulnerable to these risks given their inherently complex and non-transparent nature, as well as smallholder farmers' limited knowledge of and access to modern production techniques. As a global leader in the food and beverage industry, Coca-Cola has a unique opportunity not only to build resilience across a broad set of smallholder supply chains within its own system, but also to influence those of its peers by setting an example for others to follow.

Using mango in India as a platform, TechnoServe supported Coca-Cola and one of its key pulp suppliers in designing a tailored, supplier-led model for promoting sustainability within smallholder supply chains. The unique complexities of smallholder supply chains make traditional approaches to promoting sustainability with global suppliers and large commercial farmers unviable. Therefore, Coca-Cola focused on developing a tailored, supplier-led model for smallholder supply chains that could be piloted within its mango supply chain in India, and then replicated across other key smallholder crops and geographies in its full sourcing system. After identifying gaps between the prevailing practices of smallholder mango farmers in India and The Coca-Cola Company's SAGPs, gaps were prioritized taking into consideration economic benefit to farmers and farmer risk mitigation. TechnoServe then helped Coca-Cola and its supplier to design a four tenet model to address priority gaps. First, hands-on training with a focus on farming as a business would be provided to both male and female farmers through Farmer Field Schools. Second, additional strategies would be implemented to mitigate smallholder risk and boost farmer adoption of sustainable practices promoted in training. Third, traceability to the farm level would be improved by formalizing key roles within the existing supply chain structure using record-keeping and supporting economic incentives. Finally, smallholder impact would be monitored and evaluated utilizing Coca-Cola's standard program metrics, and independent audits would be performed to evaluate continuous improvement of SAGP adoption.

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1. http://www.coca-colacompany.com/stories/our-approach
2. Coca-Cola Annual Report on Form 10-K, February 2016

BACKGROUND

In recent years, an increasing number of multinational companies have made bold sustainability commitments with the potential to effect substantial poverty reduction. In recognition of this great potential, the Ford Foundation and TechnoServe have partnered to support multinational companies in achieving their sustainability commitments related to smallholder farmers. Through a grant from the Ford Foundation and matching company investment, TechnoServe supported four multinational companies in developing inclusive and sustainable business models that could improve farmer livelihoods and reduce their vulnerability, while creating commercial value for the company. This case study documents the experience of one of these four companies, The Coca-Cola Company, including the company's specific opportunity, the model designed to capture this opportunity through Coca-Cola's partnership with TechnoServe, and key takeaways that can be applied by other industry players.

The Coca-Cola Company has committed to sustainably source its key agricultural ingredients by 2020.[3] These key ingredients are: cane and beet sugar, corn (high fructose corn syrup), stevia, tea, coffee, palm oil, soy, oranges, lemons, grapes, apples, mangoes, and pulp and paper fiber for packaging. Coca-Cola's sustainability commitment is built on principles that protect the environment, uphold workplace rights, and help build more sustainable communities. The company's programs are focused on economic opportunity, with an emphasis on female farmers and environmental sustainability. Because smallholder farmers constitute a sizable proportion of Coca-Cola's sourcing in various countries and commodities, supporting improved livelihoods and reduced vulnerability among smallholder farmers is a critical component of this sustainable sourcing commitment.[4]

Coca-Cola defines sustainable sourcing through its Sustainable Agriculture Guiding Principles (SAGPs). This comprehensive set of principles, focused on human and workplace rights, environmental stewardship and responsible farm management systems, lays out expectations for suppliers and benchmarks supplier performance. While SAGPs are Coca-Cola-specific standards, the company also accepts and encourages equivalent, cost-effective third party certifications that have been evaluated for parity and are globally recognized. Such third party certifications for smallholder farmers include, but are not limited to, Rainforest Alliance, Fairtrade, and the Sustainable Agriculture Initiative (SAI) Platform.

Exhibit 1: Coca-Cola Sustainable Agriculture Guiding Principle (SAGP) requirements by category*

Human and Workplace Rights

1. Freedom of Association and Collective Bargaining
2. Prohibit Child, Forced, or Abuse of Labor
3. Eliminate Discrimination
4. Work Hours and Wages
5. Provide a Safe and Healthy Workplace
6. Community and Traditional Rights

Environmental Protection

7. Water Management
8. Energy Management and Climate Protection
9. Conservation of Natural Habitats and Ecosystems
10. Soil Management
11. Crop Protection

Management Systems

12. Harvest and Post-harvest Handling
13. Reproductive Material Identity, Selection, and Handling
14. Management Systems, Record-keeping, and Transparency
15. Business Integrity

**A subset of these criteria is applicable to smallholder farmers. Each principle includes a number of specific underlying criteria. Out of a total of 31 criteria applicable for smallholders, they must achieve 22 to be SAGP compliant.*

3. Coca-Cola 2014/15 Sustainability Report
4. Coca-Cola defines smallholder farmers as those who cultivate less than 2 hectares of land

COCA-COLA'S OPPORTUNITY

SECURE FUTURE SUPPLY AND LICENSE TO OPERATE WHILE IMPROVING SMALLHOLDER LIVELIHOODS AND REDUCING VULNERABILITY

Sustainable agricultural supply chains are vital to the continuity of Coca-Cola's future business operations. An estimated 50 percent of the procurement expenditure in Coca-Cola's system goes toward agricultural ingredients.[5] Moreover, the company faces increasing risks of higher costs and security of supply for key agricultural ingredients due to a combination of growing demand alongside reduced productivity as a result of changing weather patterns and other market dynamics. These forces also pose potential food security risks to communities around the globe.[6]

Improving the resilience of smallholder-dominated supply chains enhances Coca-Cola's license to operate and supports security of supply for its key ingredients. Crops that are grown predominately by smallholder farmers represent a significant portion of Coca-Cola's sourcing for its five priority fruits, with an estimated 750,000 smallholder farmers contributing to Coca-Cola's key fruit supply chains.[7] Smallholder-dominated supply chains are particularly vulnerable to sustainability and related food security issues given their inherently complex and non-transparent nature, as well as smallholder farmers' limited knowledge of, and access to, modern production techniques. Given Coca-Cola's position as a global leader in the food and beverage industry, it has a unique opportunity not only to build resilience across a broad set of smallholder supply chains within its own system, but also to influence those of its peers by setting an example for others to follow.

Adoption of Coca-Cola's SAGPs can improve smallholder livelihoods and reduce their vulnerability through improved social, environmental and economic sustainability. Coca-Cola's SAGPs promote sustainable social policies, such as eliminating forced labor and hazardous child labor on farms, as well as conservation practices including water saving techniques and soil protection. Coca-Cola's SAGPs can also help farmers to realize higher incomes by optimizing inputs and crop maintenance, which can reduce farmer expenditure. In addition, the SAGPs include practices that can improve productivity and quality, enabling farmers to increase income by selling greater quantities of higher quality fruit that can garner better market prices. Finally, the SAGPs encourage smallholders to establish business rigor in their farm operations, which can help sustain these gains over the long term.

5. http://www.coca-colacompany.com/stories/our-approach
6. Coca-Cola Annual Report on Form 10-K, February 2016
7. TechnoServe analysis

CAPTURING THE OPPORTUNITY

DEVELOPING A MODEL FOR PROMOTING SUSTAINABLE AGRICULTURE PRACTICES IN SMALLHOLDER SUPPLY CHAINS

Promoting sustainable agricultural practices within smallholder-dominated crops requires a different approach from that which Coca-Cola and many of its peers have employed within its more traditional supply chains involving global suppliers and large commercial farmers. Some of the unique complexities of smallholder-dominated supply chains include:

- **Lack of traceability to farm level:** Smallholder farmers often sell their fruit to intermediaries (i.e., multiple layers of traders and wholesalers), who in turn sell to local processors or suppliers from which Coca-Cola primarily purchases. Intermediaries generally mix supply from multiple farmers, reducing traceability to individual farms and resulting in significant variation in Coca-Cola's underlying farmer base each season.
- **Large variations in fruit quality and yield:** Smallholder farmers often do not employ best agricultural practices due to lack of knowledge or limited access to finance and quality inputs, such as fertilizer tailored to soil needs. However, even when employing best agricultural practices, farmers may fail to meet company quality requirements due to factors outside of their control, such as changing weather and rainfall patterns.
- **Limited visibility into sustainability practices:** Processors select fruit based on quality specifications without knowing details of practices utilized on farms.
- **Competing fresh markets:** For crops like mango in which there is a market for fresh produce alongside a market for processing, smallholders often get the best price from the fresh market; therefore, if quality alone improves without simultaneous increases in yield, processor security of supply risks could be aggravated.
- **High degree of farmer risk:** Smallholder farmers face tremendous risk. Any additional or new practices that they are asked to adopt should promote environmental and social sustainability while also improving farmer livelihoods and reducing their vulnerability.

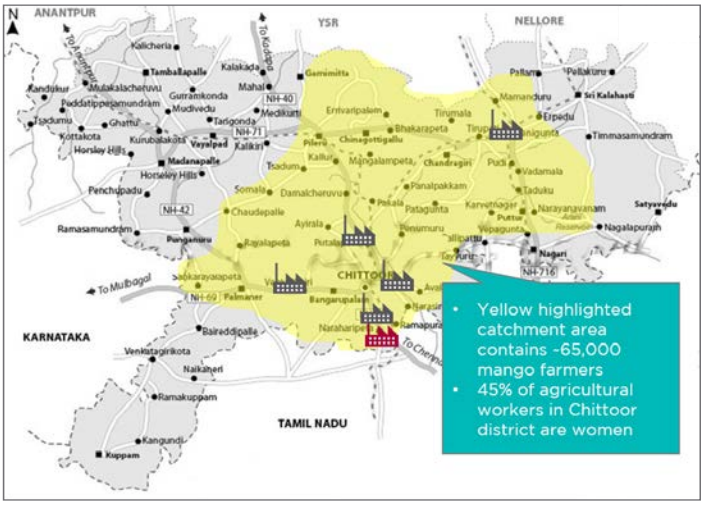
Furthermore, many of the smallholder-dominated value chains within Coca-Cola's priority fruits fall outside of existing certification schemes, which in many cases provide a solution to addressing the challenges above.

Coca-Cola selected mango sourcing in India as a platform to develop a tailored model for promoting sustainability in smallholder supply chains. Mango in India is one of Coca-Cola's largest smallholder-driven supply chains. Coca-Cola identified one of its top mango pulp suppliers located in the Chittoor District of South India to work closely with TechnoServe to conduct the analysis required to inform development of the approach. The findings from the research carried out in India form the basis of a broader model that can be replicated across other crops and geographies to support widespread SAGP adoption in other smallholder-dominated supply chains, with the understanding that nuances across different geographies and crops necessitate appropriate customization.

THE ANALYSIS

Determining gaps between prevailing smallholder practices and Coca-Cola's SAGPs was the first step in developing the model. TechnoServe supported Coca-Cola's pulp supplier to assess the mango value chain in its sourcing region through a combination of in-depth primary interviews and orchard visits with local smallholder farmers, as well as interviews with local experts and other

Exhibit 2
Chittoor District catchment area for India mango supplier



Partner TCCC mango pulp-processing facility

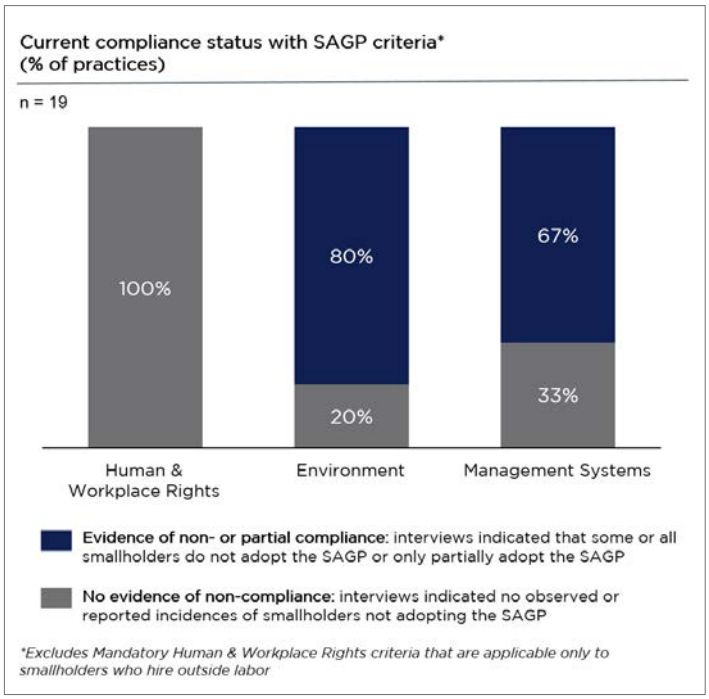
Other mango pulp processing facility

value chain actors including traders, retailers and government agriculture officers. Existing published research and government databases complemented the interviews.

The analysis included defining the geographic parameters of the supplier's sourcing area (i.e., catchment area) in the Chittoor District and estimating the number of smallholders and share of women in this area (*Exhibit 2*).

The next step was assessing smallholder practices in this catchment area against SAGPs applicable to smallholders to determine their current compliance status (*Exhibit 3*), and identifying potential risks to smallholder livelihoods and resilience as a result of adopting SAGPs. An understanding of the local market dynamics, including the role of women, was used to identify barriers to achieve Coca-Cola's sustainable sourcing commitment, as well as existing value chain structures that could be built upon to promote sustainable practices.

Exhibit 3
Smallholders' current SAGP compliance status



SAGP gaps were then prioritized taking into consideration economic benefit to farmers. TechnoServe supported Coca-Cola and its supplier in assessing the degree to which each SAGP identified as a gap would deliver economic benefit to smallholder farmers in order to mitigate any unintended risks farmers might face in adopting the SAGPs, and to increase likelihood of practice adoption. While a total of 20 SAGP gaps were identified, 17 were ultimately prioritized for Coca-Cola to address. *Exhibit 4* provides a summary of the current smallholder practices in the categories of Environment and Management Systems, for which farmers either do not currently employ the corresponding SAGP or only employ it partially.

Exhibit 4: Current Smallholder Practices for High Priority SAGP Gaps

SAGP category	SAGP criteria	Current practice
Environment	Crop protection • Storage/application • Safe disposal • Protective clothing • Integrated Pest Management (IPM)	• Limited protective gear during agrochemical application • After washing empty containers, pouring water back onto field • Burying or burning of containers • Application of agrochemicals even if no actual presence of pests
	Water management • Record volumes • Comply with local laws • Efficient irrigation • Water savings • Runoff management	• Furrow or flood irrigation instead of drip • Broken drips not repaired • Water usage not closely monitored or recorded • Unawareness of local environmental and water laws
	Soil management	• Under or over application of fertilizer due to absence of soil testing
Management Systems	Harvest/post-harvest handling	• Lax enforcement by smallholders of proper food safety and hygiene processes • Harvesting/post-harvest handling practices learned informally from family members or neighbors
	Record-keeping and management systems	• No written records of practices or procedures • No objectives set

THE MODEL

TechnoServe supported Coca-Cola and its supplier in developing a four-tenet model to address priority gaps.

First, hands-on training with a focus on farming as a business would be provided to both male and female farmers through Farmer Field Schools (FFS). Farmers' lack of knowledge of practices, how to apply them on their farms, and the value that could be derived within their farm operations from their application were key drivers behind priority SAGP gaps. Therefore, TechnoServe worked with Coca-Cola and its supplier to design a tailored training program, using a FFS delivery model, as the foundation of Coca-Cola's approach to promoting sustainability in the value chain. Under the FFS model, groups of 30 to 35 farmers are formed

Exhibit 5: Summary of Farmer Training Topics

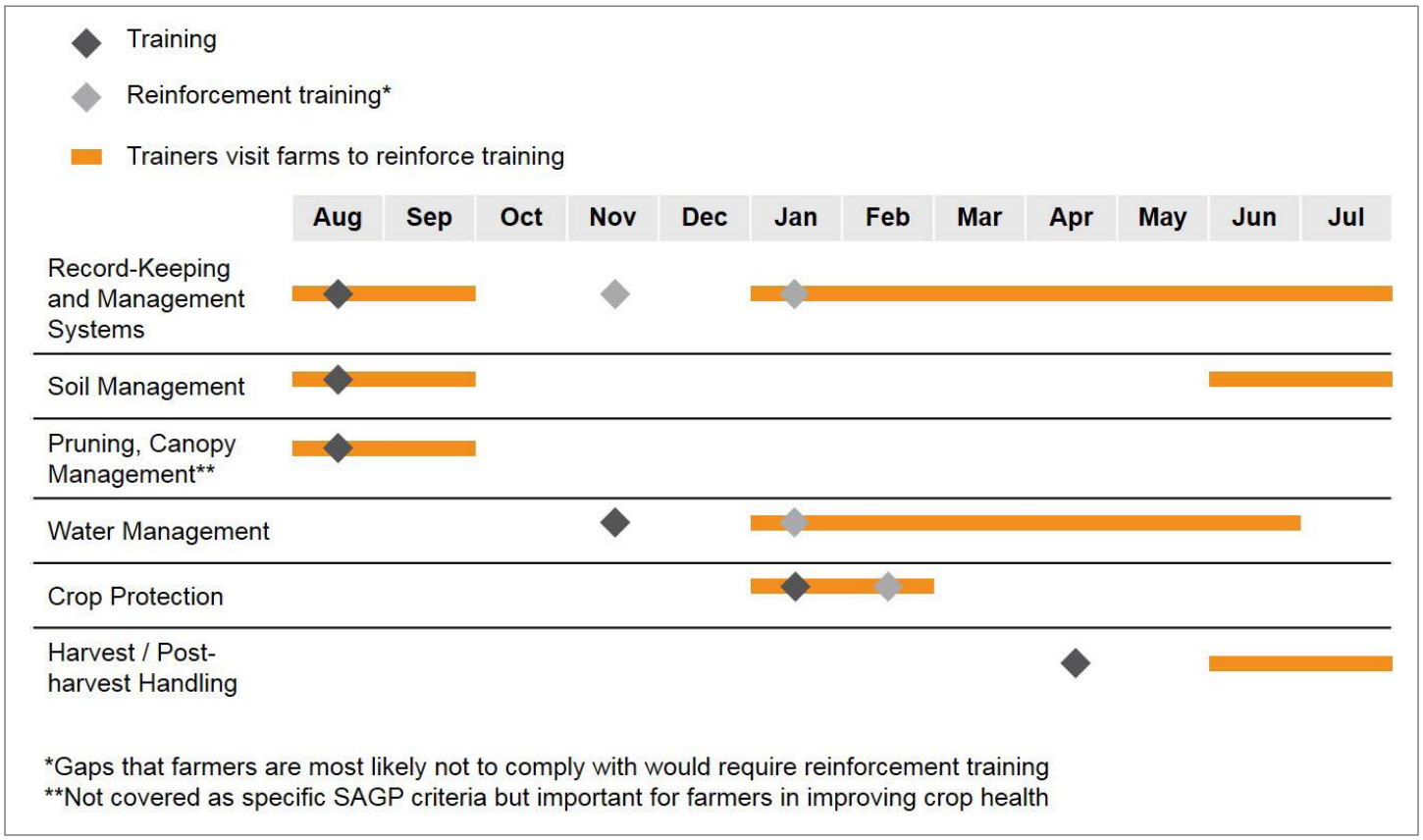
SAGP criteria	Training needed	Expected behavior change	Additional strategies to encourage adoption
Crop protection	• Provide list of illegal agrochemicals • Identification of pests and the correct pesticide dosage based on need • Safety precautions on purchase, transport, storage, disposal • Proper protective gear for chemical applications • IPM principles • Value proposition to smallholders from adopting practices	• Apply only legal pesticides • Apply applicable pesticide to the specific pest and at the correct dosages • Apply and dispose of agrochemicals with minimal negative impact to the environment • Pest management will minimize environmental and human impact	• Partner with Department of Horticulture on IPM • Encourage suppliers to provide smallholders with protective gear and access to proper chemical disposal
Water management	• Methods to improve irrigation, conserve water, manage runoff • Best practices for irrigation system maintenance • Explanation of local environmental/ water laws • Value proposition to smallholders from adopting practices	• Increase adoption of drip irrigation or correct usage • Employ water conservation practices	• Furrow or flood irrigation instead of drip • Broken drips not repaired • Water usage not closely monitored or recorded • Unawareness of local environmental and water laws
Soil management	• Value and purpose of soil analysis; soil analysis interpretation • Proper identification of nutrient deficiency and corrective measures • Correct measurement and application of fertilizer, general Integrated Nutrition Management (INM)	• Implement practices to improve soil health and reduce fertilizer usage	• Under or over application of fertilizer due to absence of soil testing
Harvest / post-harvest handling	• Best practices for food safety and hygiene • Proper identification of mature fruit • Proper harvesting technique, post-harvest handling	• Harvest fruit at correct maturity with proper technique and no contamination	• Lax enforcement by smallholders of proper food safety and hygiene processes • Harvesting/post-harvest handling practices learned informally from family members or neighbors
Record-keeping and management systems	• "Farming as a Business" course to catalyze mindset change for smallholders	• Make appropriate adjustments on expenditures for farm activities based on understanding of key drivers • Smallholders will view themselves as professional farmers	• No written records of practices or procedures • No objectives set

and a demonstration plot is developed on an aggregator or lead farmer's land to showcase best practices and allow for hands-on training. Local trainers meet with several farmer groups regularly at demo plots to train farmers using practical activities at critical points during the season. They then visit farmers individually during the season to provide additional guidance. "Farming as a Business" training lies at the heart of the FFS model and drives high retention and practice adoption rates; farmers not only learn how to apply practices, but also why — the value that each practice can provide for a farmer's business. Women farmers would be targeted for training alongside men, as they are responsible for many of the tasks related to priority SAGP gaps but are often excluded from formal agricultural training. Therefore, incorporating women directly into farmer field schools would not only improve SAGP adoption, but also support women's empowerment by expanding their knowledge of best practices. While Coca-Cola and its supplier considered several training models, they ultimately selected FFS due the higher likelihood of achieving practice adoption through a hands-on model with a focus on farming as a business.

TechnoServe designed a curriculum tailored to Coca-Cola by focusing on good agronomic practices that facilitate farmers to become SAGP compliant while improving farmer livelihoods and reducing their vulnerability. (See *Exhibit 5* for an overview of training topics.) For example, many farmers in the catchment were over-applying inputs such as fertilizer and water, as well as chemicals for crop protection. Therefore, by understanding and applying SAGPs related to crop protection, water management and soil management, farmers could optimize their use of these inputs, thereby lowering costs without sacrificing output. Additionally, by understanding and applying SAGPs related to harvest and post-harvest management, farmers could realize higher sales by picking fruit at the correct stage of maturity and preventing contamination. As part of the Farming as Business training, farmers also learn to keep farm records to enable effective tracking and planning, protect resources by monitoring water usage, and operate responsibly through compliance with local laws, all of which can help sustain gains over the long term.

The training topics were then organized into a year-long program that includes formal training sessions as well as ongoing reinforcement through additional training and individual visits to farmers' fields (*Exhibit 6*). Training would occur based on a crop-year calendar that follows pro-

Exhibit 6: Farmer training calendar



duction needs. For topics with high likelihood of persistent compliance challenges, such as water management and crop protection, additional reinforcement training was recommended to increase the likelihood of adoption. These practices are less likely to be adopted due to lack of incentives to comply with water management regulations, and generally longstanding practices such as applying blanket levels of fertilizers rather than targeted applications driven by specific requirements.

Second, additional strategies would be implemented to mitigate potential risks to smallholders and boost farmer adoption of sustainable practices promoted in training. TechnoServe supported Coca-Cola in assessing the risk level to farmers of each SAGP and developed appropriate mitigation strategies for high priority gaps that posed a potential risk to smallholders (*Exhibit 7*). Many of these strategies rely on broader ecosystem strengthening. For example, efficient irrigation might require investment in drip irrigation setup and maintenance. In order to mitigate farmer risk related to this investment, TechnoServe recommended raising smallholder awareness around how to access government subsidies for drip irrigation. Other strategies for mitigating farmer risk and boosting practice adoption included training farmers on low cost approaches to implementing practices (e.g., bucket and spout hand-washing stations to instill hygiene practices) and ensuring smallholders are not penalized if they don't have access to proper agrochemical disposal channels. The majority of priority SAGP gaps identified in India mango pose low potential risk to farmer livelihoods. However, it is important to recognize that even when smallholder farmers adopt sustainable agricultural practices, there are a number of factors affecting crop yields and quality that fall outside of farmers' control, such as climate and rainfall variation. Today, smallholders bear the brunt of risk related to these external factors; therefore, there is a need to more adequately share this risk across the value chain.

Third, traceability to the farm level would be improved by formalizing key roles within the existing supply chain structure using record-keeping and supporting economic incentives. Many mango farmers in the supplier's catchment area already aggregate from neighboring smallholder farms; therefore, Coca-Cola and its supplier decided to enhance the traditional FFS training model by formalizing the role of these farmers as

Exhibit 7: Mitigation approaches for high-priority SAGP gaps that pose potential risk to farmer livelihood if adopted

SAGP criteria	Nature/description of risk	Mitigation approach
Efficient irrigation	Smallholders who currently do not use drip irrigation will need to invest money for set up and maintenance	• Raise smallholder awareness on how to access government subsidies for drip irrigation
Proper agrochemical storage, application, disposal	Smallholders may incur additional costs for acquiring proper storage facilities	• Provide training on low cost options for chemical storage that can be made rather than purchased
Proper disposal of agrochemical waste	Smallholders may not have access to proper chemical disposal channels	• Encourage government to provide proper chemical disposal channels • Ensure smallholders are not penalized if they do not have access to proper chemical disposal channels
Hygiene and food safety for harvest/post-harvest	Smallholders may not have appropriate equipment for implementing good hygiene practices	• Provide training on low cost models for hygiene practices that can be made rather than purchased (e.g., bucket and spout handwashing stations)
No bribes or falsified records	The informal nature of smallholder farming and commercialization could be misinterpreted as failure to comply	• Ensure smallholders are not penalized for the informal nature of their operating environment

aggregators and building their capacity to keep appropriate records to improve traceability in the supply chain. The formal aggregator farmer could then be incentivized to serve as a peer extension provider, reinforcing adoption of SAGPs by his/her neighboring farmers, through a commission from the supplier that is structured around procurement volumes and appropriate record-keeping. Ultimately, the aggregator could evolve into a small business offering inputs to peer farmers as well as extension and aggregation.

Finally, smallholder impact would be monitored and evaluated utilizing Coca-Cola's standard program metrics, and independent audits would be performed to evaluate continuous improvement in SAGP adoption. One component of the model's monitoring and evaluation approach could be requiring the supplier (or other implementing agency) to track impact throughout implementation using Coca-Cola's baseline set of indicators developed in 2016 (*Exhibit 8*). A second component would be engaging a third party to conduct biennial audits of a random sample of smallholder farms involved in the model to assess continuous improvement in SAGP compliance. Monitoring, evaluation and independent audits could also inform refinements to the training curriculum and approach to address outstanding or persistent SAGP gaps.

IMPLEMENTING THE MODEL

The Coca-Cola supplier involved in developing this model agreed to pilot the model in 2017. The supplier intends to pilot the model with 20 percent of its pulp supply sold to Coca-Cola in this first year, with the goal of reaching 100 percent SAGP certification of its supply to Coca-Cola by 2020.

Exhibit 8: Coca-Cola's Core Metrics and Best Practice Metrics

Core Metrics for all sustainable agriculture programs
PROGRAM CHARACTERISTICS 1. Location* 2. Total program budget 3. Length of project* 4. Average land size under cultivation* 5. Number of male/female farmers participating in the program*
IMPACT METRICS *Sustainable Agriculture* 6. Percentage of volume validated as sustainable *Farmer Livelihoods* 7. Percentage increase in average income from crop cultivation* 8. Percentage increase in crop yield (kg/unit of land)*

Best Practice Metrics**
Crop Protection 1. Percentage of participants utilizing Integrated Pest Management techniques or other natural means to reduce agrochemical use 2. Percentage reduction in yield losses from production to sale
Soil Management 3. Percentage of farmers practicing recommended soil preservation techniques (e.g., crop rotation, cover crops)* 4. Percentage reduction of run-off from fertilizer and pesticide use (where possible)
Water Stewardship 5. Percentage of farmers using conservation practices to optimize water use efficiency (e.g., water recovery systems, drip irrigation/micro sprinklers, land leveling, chiseling of compacted soils, buffers and furrow diking)* 6. Percentage increase in water use efficiency (decrease in total water used in production)
Conservation of Natural Habitats (other metrics dependent on program objectives) 7. Percentage reduction of greenhouse gas emissions (if possible)

**Metrics taken from the Sustainable Food Lab's Recommended Indicators*

***Only metrics related to the training curriculum would be tracked*

Beyond this initial pilot, Coca-Cola aims to scale the model to other India mango suppliers. Coca-Cola plans to identify other India mango suppliers willing to apply the model in their supply chain. Alternatively, Coca-Cola could bring together multiple suppliers operating in a shared catchment area with an interest in supporting sustainability in their supply chain. In this alternative approach, Coca-Cola, suppliers and other interested parties could pool their resources to collectively apply the model across all smallholders within the entire shared catchment area. This strategy would efficiently promote adoption of SAGPs or equivalent third-party standards across the entire sourcing region.

Outside of India mango, the model can be used as a foundation and tailored to the unique context of Coca-Cola's other priority smallholder crops and geographies. Coca-Cola has identified other geographies and crops in which it aims to promote sustainable practices in smallholder agriculture in line with its sustainable sourcing commitments. After testing and refining the model in India mango, Coca-Cola hopes to replicate the model with suppliers in these other geographies and crops, using a similar process of value chain assessment and gap identification to appropriately tailor the model to each local context.

KEY TAKEAWAYS

Smallholder farmers play an important role in the sustainable sourcing commitments of many multinational companies such as Coca-Cola; however, achieving sustainability at scale in smallholder-dominated supply chains requires a new approach. Because smallholder supply chains are highly fragmented and non-transparent, many traditional approaches to ensuring sustainable sourcing at scale have limited efficacy. Even companies with significant size and footprint, such as Coca-Cola, have limited buyer power in smallholder supply chains. This dynamic is particularly acute in crops such as mango, where the presence of a vibrant fresh market constrains processor influence in the supply chain. Certification schemes also have their limits at scale, as they rely on the existence of certain infrastructure, such as farmer co-operatives, to provide traceability to the farm level. In most cases this infrastructure is present within only a small portion of smallholder supply chains.

A catchment area approach is a promising path forward in the search for a scalable solution to sustainability in smallholder supply chains. Under a catchment area approach, a coalition of multiple suppliers sourcing from the same geographic area could collaborate in systematically training all smallholders in the sourcing region over time on an agreed upon set of sustainable practices and criteria. An independent auditor would then periodically evaluate the practices of a representative random sample of farmers in the catchment area to assess continuous improvement against the sustainability criteria. By training all farmers in the catchment area and evaluating adoption among a representative sample, this model eliminates the need to create additional structures to provide traceability. India mango could be a strong test ground for this type of an approach.

Companies must recognize and take an active role in mitigating risks that smallholders could face in adopting sustainable sourcing standards. Smallholder farmers face tremendous risk. Any practices that smallholders are encouraged to adopt should promote environmental and social sustainability while also improving farmer livelihoods and resilience. Therefore, in many cases, only a subset of a company's full list of sustainability criteria can be appropriately applied to smallholder farmers. It is also important to bear in mind that smallholders in commercial supply chains are typically required to meet stringent quality requirements, and that factors outside of farmers' control (such as changing weather and rainfall patterns) can inhibit their ability to meet these standards even when employing sustainable agricultural practices. Therefore, the long term sustainability of commercial supply chains reliant on smallholders will also depend on the continued development of approaches to mitigate or distribute the risk posed to smallholders by external factors such as climate change.