



SESAME GAP OPENS THE DOOR

TO BETTER PRICES AND MARKET LINKAGES FOR SMALLHOLDER FARMERS

USAID'S VALUE CHAINS FOR RURAL DEVELOPMENT

March 24, 2019

This study is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of Winrock International, prepared under contract by Lorene Flaming, with contributions by the VC-RD team, including Nimish Jhaveri, Nyein Chan, Khun Soe Moe Aung, Anne-Claire Degail, Tim May, Julio Noguera, and Lay Thida, and do not necessarily reflect the views of USAID or the United States Government.



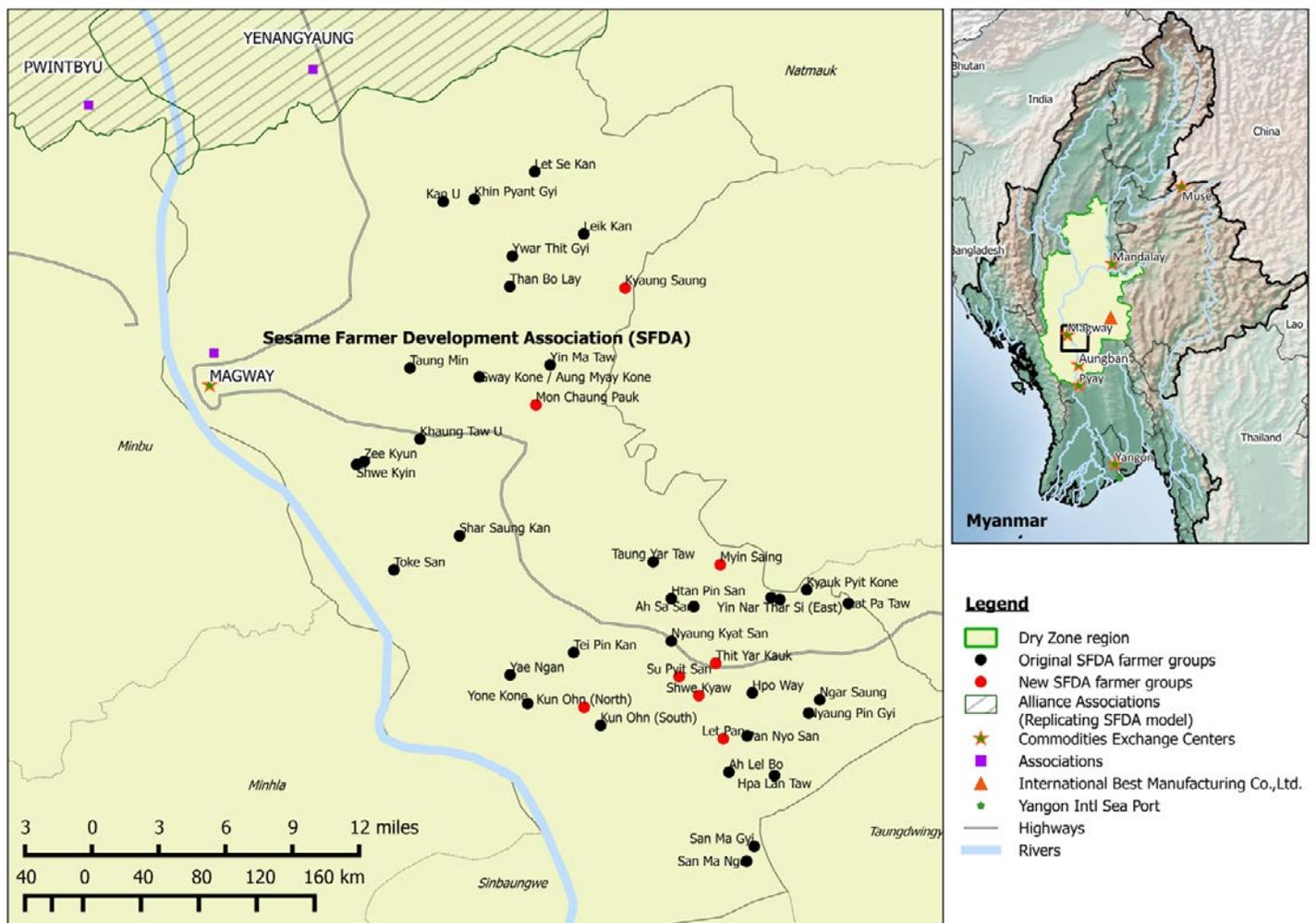


INTRODUCTION

USAID/Burma's Value Chains for Rural Development project ("the project") is helping sesame farmers, processors, and exporters in Magway Township change the way they do business to increase sesame value and transact more efficiently. This report highlights achievements and learning over a 2-year period (2017-2018) through collaboration between the project and newly established Sesame Farmers Development Association (SFDA), a dynamic Department of Agriculture (DoA), and progressive market actors – input suppliers, buyers, and a social impact investor.

The most significant successes are the establishment of a Sesame Good Agricultural Practices (GAP) standard and protocol with high levels of farmer participation, linking farmers to buyers who are willing to pay price premiums for higher quality sesame and GAP-related traceability, and co-designing and piloting an association-managed sesame collection center that reduces transaction costs, improves transparency, facilitates buyer-farmer collaboration, and enhances access to quality inputs and service providers.

Figure 1: VCRD-Assisted Sesame Farmer Groups and Associations



BACKGROUND

Myanmar is among the top five sesame producing countries in the world, along with India, China, Nigeria, and Tanzania. Weather patterns, disease outbreaks, *aflatoxin* contamination, and other factors shift this order from one year to the next.

Sesame and other oilseeds have long been a priority for the Government of Myanmar. Sesame is high value and one of a small number of crops that are generally well suited to the types of marginal soils and dry conditions found in Myanmar's Central Dry Zone. The Myanmar Agriculture Strategy and Investment Plan (2018-2023) notes that sesame is largely produced by smallholders and states: "Smallholder farmers are the backbone of Myanmar agriculture; linking associated smallholder farmers to agri-food enterprises within organized value chains will enhance their capacity to meet the more demanding requirements of growing urban populations in Myanmar and abroad."

Magway Township is the primary edible oil producing region in Myanmar, earning it the name "the oil pot" (refer to map).

Most Magway farmers produce sesame and groundnuts (peanuts) in alternating seasons. Poor agronomic practices and weather-related crop failures result in low yields and large pre- and post-harvest losses. Farmers struggle to meet the high standards required to export to Japan, the European Union, and other markets.

Global demand for sesame is projected to grow. Sesame oil is rich in minerals, polyunsaturated fatty acids, and antioxidants – making it a healthy alternative to palm and other oils. In addition, after the oil is extracted, the meal retains high levels of protein and calcium and is used as an ingredient in animal feed. Myanmar sesame has unique flavor notes that are prized in Japan, Korea, and China – giving it a competitive advantage over sesame from other countries.

VCRD expanded into the Dry Zone in early 2016, initially led by two non-governmental organizations (NGOs) funded under the project's grant program: Sustainable Action for Rural Advancement (SARA), a local organization, and TAG International, an international NGO with expertise in dry zone agriculture.

PROJECT APPROACH AND EVIDENCE OF MARKET SYSTEMS DEVELOPMENT

“Quality over quantity” and “organic organizational growth” strategies. The project started by working with sesame farmers in Magway to identify relatively simple solutions that addressed priority constraints related to achieving and rewarding higher sesame quality. The Sesame SFDA was established in April 2017 to aggregate production for the purpose of negotiating better prices. It attracted participants by providing tangible benefits and evolved as needed to facilitate market linkages (refer to Box 1). This allowed participants to test new approaches, achieve early “wins”, build trust in new relationships, and set the stage for scaling up at a pace that is sustainable. Starting small and VCRD facilitating an iterative process of continuous improvement proved successful. It is essential for charting a path to higher quality and inclusive market development outcomes -- signifying that smallholder farmers are empowered to benefit from new value created in the sesame value chain. Across all project-supported activities, participants achieved important **“firsts”** in the sesame value chain that helped create value for smallholder farmers and others. Successful models will now be **replicated and expanded** to achieve greater scale.

The most significant evidence of improved sesame quality, organizational capacities, and farmer’s empowerment include:

Improved Sesame Quality, Traceability, and Farm Records

- The Project’s sesame Farmer Field School (FFS) curriculum was developed in 2016, adapted in consultation with Mitsubishi Corporation, an important buyer/exporter, to address export market requirements, and subsequently adopted as the **Myanmar Sesame GAP Protocol** (March 2018). The protocol operationalized the Sesame GAP Standard (2017), thereby providing a mechanism for GAP certification. The Ministry of Agriculture, Livestock and Irrigation (MoALI) selected Magway as the first region to implement the Sesame GAP Protocol due to the level of commitment of the DoA, Chief Minister, Project, and local sesame farmer associations.
- **SFDA was Magway’s GAP participation “champion”** in 2018: 88% of SFDA members applied for a GAP certificate their first year (2,026 farmers)¹. DoA was not prepared to process the number of applications they received and as of early March 2019 had not formally issued sesame GAP certificates; however, an important buyer/customer of SFDA’s, International Best Manufacturing Co. (IBM), deemed SFDA’s internal controls and farmers’ records sufficient to pay a **GAP price premium of 2 percent**, representing the value for the buyer of traceability and record-keeping.
- **SFDA members achieved Grade A for the first time in 2018** for over half of volume sold (57% of 220 MT).² Almost all volume sold was Grade B or higher (89%). **Farmers earned another price premium of 3-5 percent for each grade increase.** Before, the same farmers produced a mix of B and C grade. This points to the high quality of Lead Farmers’ training delivery and follow-up support to farmers.

1 Source: Magway DoA 11/14/2018 response to a request for data from VCRD.

2 Grades A and B for white sesame share the following criteria: oil content (48% min), foreign matter (2% max), moisture (8% max), free fatty acid (2% max), and damaged seeds (2% max). In addition, seeds of another color can be no more than 5% for Grade A and no more than 10% for Grade B. Source: Ministry of Commerce, Department of Trade Promotion, Standard Specifications for Myanmar Pulses, Beans, Oil Seeds, and Maize.

BOX 1. INCENTIVES TO PARTICIPATE IN SFDA’S COLLECTION CENTER

The following benefits increase profits irrespective of market price fluctuations.

For Farmers

- 2% GAP premium.
- 3-5% price increase per grade.
- Reduced sales transaction fees, from an estimated 5% with Magway traders to zero with SFDA.
- Interest free-fertilizer loan saves 15% on the cost of fertilizer.
- Greater transparency.

For SFDA Leaders

- Labor compensated using commission from bulk fertilizer (500,000 MMK) and 1% GAP premium.
- Intangible benefits associated with leadership and successful problem solving.

For Buyers

New arrangements neither reduce nor increase the prices they pay for sesame (efficiency savings from cutting out traders off-set price premiums and transport costs); however, the following benefits accrue:

- Higher washing and cleaning yields: 97% for sesame from SFDA compared to 95% from traders.
- GAP traceability.
- Farmer loyalty, higher quality, and better production planning and estimates.

Table 1: 2018 SFDA Sesame Volumes (MT), by Variety and Grade

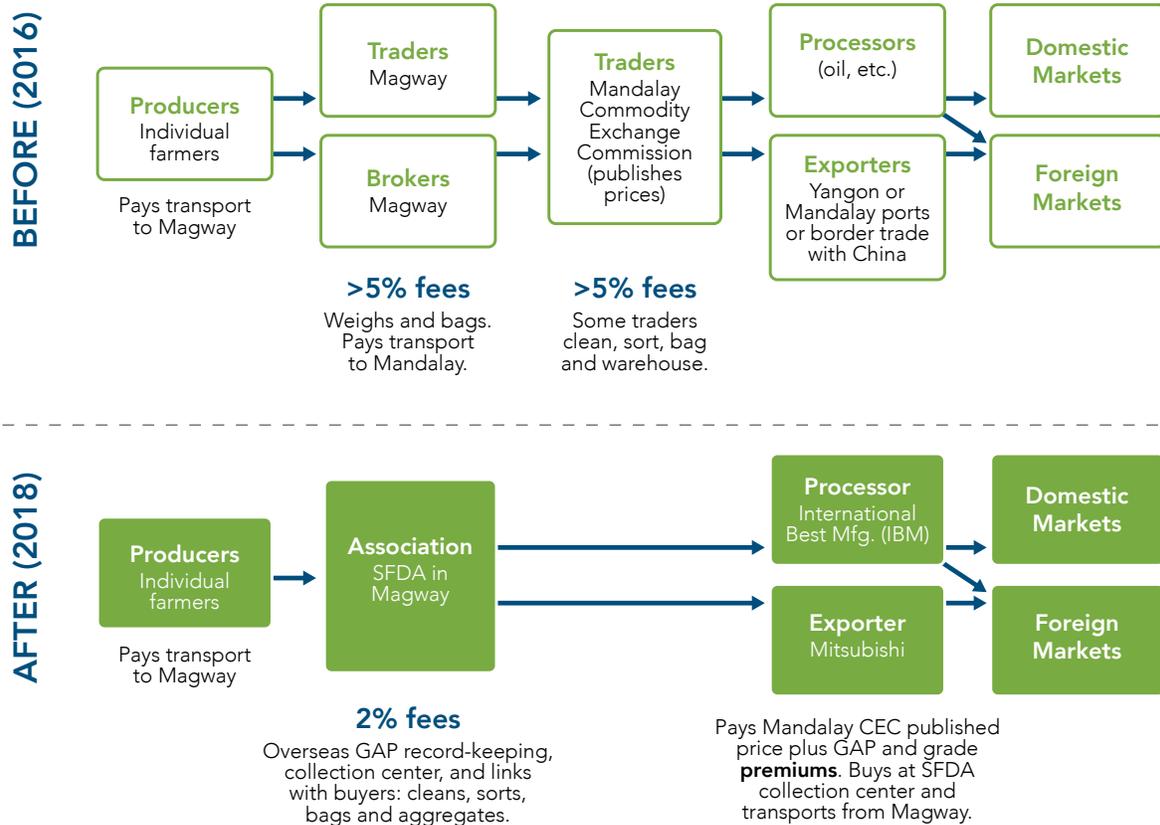
Grades	Variety			Total Volume ³	Grade Percentage
	White	Red	Black		
Grade A	97	0.8	28.5	126.3	57%
Grade B	64	1.7	4.1	70	32%
Grade C	13.6	7.3	3.2	24.1	11%
Total Volume	176.6	9.8	35.8	220.4	100%
Variety Percentage	80%	4%	16%	100%	n/a

- **Post washing and cleaning yields from SFDA's sesame are 97 percent**, compared to 95 percent from traders who sourced from non-SFDA members, according to IBM.⁴ The Korean buyer and oil processor invited SFDA leaders to a New Year's Eve party and presented an award, recognizing them as IBM's largest supplier of grade A and B sesame from an association in 2018.

Improved Organizational Capacities Promote Efficiency and Collaboration

- The project helped establish SFDA and **pilot a simple collection center** in collaboration with IBM, Mitsubishi, and Infraco Asia (a social impact investor). Aggregating, cleaning, sorting, and grading services allowed its members to sell directly to buyers. SFDA transacted efficiently and transparently and reduced farmers' selling fees by cutting out the approximate 5 percent charged by Magway traders.⁵ (Refer to Figure 1). In addition, buyers save approximately 5 percent by cutting out Mandalay traders, which offsets the cost of the GAP price premium.

Figure 2: Sesame Sales Transactions Before and After SFDA



3 The total volume of 220 MT was less than the 600 MT planned due to adverse weather in 2018.

4 Interview conducted by Rick Ody and Lorene Flaming, Winrock, with Win Phey, IBM on 10/11/18.

5 Traders' fees: 500 MMK/basket broker's fee (bagging and carrying from the bus to the sales house), 1,000 Myanmar Kyat (MMK) per transaction for weighing, and 100 MMK/basket cleaning fee.

- In addition, clear agreements⁶ about how to set prices and assess grades and transaction fees eliminated losses associated with trader cheating, such as recording the wrong weight or grade (refer to Box 2). The efficiency and transparency impacts on farmers' incomes exceeded GAP and grade price premiums. This achievement established the relevance of SFDA for farmers and a financially sustainable **business model** for the association, as SFDA's 1 percent GAP premium (paid by the buyer) helps cover SFDA's operating costs. SFDA is now poised to expand membership and reports they have received requests from communities from within and outside the project area. They are also exploring expanding to groundnuts, as most sesame farmers alternate sesame with groundnuts on their plots.
- The collection center pilot helped InfraCo test elements of its proposed **sesame warehouse receipts project**. The success of the pilot solidified the investor's interest and the proposal is moving forward, though modified to 1) start with simpler, decentralized structures in a larger number of communities, and 2) introduce the warehouse receipts component at a later time. At the investor's request, VCRD and SFDA have worked closely with the investor to develop the project budget. Upon further demonstration of feasibility and impact, the investor anticipates replicating the model across several other commodities.
- At the end of the 2018 sesame season (in October), buyers, producers, and DoA jointly conducted their **first post-harvest review and production planning session** to align sector activities with demand-side requirements. Together they produced a Sesame Business Calendar.
- The project team and SFDA jointly developed a sound **plan for project exit and SFDA sustainability**. SFDA is now poised to take over critical project roles and tasks, including hiring Lead Farmers to provide ongoing support to members, facilitating market linkages with buyers, and conducting reviews and planning sessions. In addition, SFDA will expand its membership, services, and advance purchase agreements in the coming year, and continue to work with other market actors to expand access to inputs, finance, and infrastructure for its members.

The following tables describe recent value chain developments (2017-2018) in greater detail and contrasts them with prevailing market conditions in 2016, before SFDA. The tables are organized under the following themes:

- Buyers, GAP Standard, and price premiums create a focus on quality;
- New organizations and market linkages empower farmers; and
- Improved practices lead to higher quality sesame and traceability.

6 Sesame Purchase Agreement between SFDA and IMB, dated 8/8/2018.

BOX 2 GREATER TRANSPARENCY

SFDA sesame prices

- Verified in a daily joint buyer-seller market price data collection process: average of posted prices at the Magway, Aungban, and Mandalay Commodity Exchange Centers (CEC)
- Fixed price premiums paid for 1) grades A and B and 2) farmers' GAP records
- Payment terms specified in an agreement signed by both parties

Standards and verification

- Ministry of Commerce and Myanmar Pulses, Beans, and Sesame Seeds Merchants Association (MPBSMA) Standard for Exports provides clear criteria for assessing sesame grades
- Accurate tests for moisture and acidity levels conducted at the point of sale verify if farmers meet the standard





Table 2: Buyers, GAP Standard, and Price Premiums Create a Focus on Quality

Market Features	2016	2017-2018
	<i>Price premiums for quality unrealized</i>	<i>Path to quality clear. Price premiums achieved.</i>
Grades and Standards	<ul style="list-style-type: none"> Myanmar market had three sesame grades based on acidity, moisture, and purity (A, B, C) 	<ul style="list-style-type: none"> Myanmar Sesame GAP Standard and Protocol was published in late 2017 and March 2018. It instructs farmers how to achieve higher quality; it also spurs healthy competition between associations and between regions
Price Premiums for Quality	<ul style="list-style-type: none"> Market signals were undermined by lack of farmer awareness and lack of transparency in transactions (described below) 	<ul style="list-style-type: none"> GAP premium: 3% (2% for farmer, 1% for SFDA) Incremental price increase per grade for Myanmar sesame grades A&B: USD 0.05/kg (about 3-5%)
Sesame Prices Differentiated by Variety	USD 0.80/kg White USD 0.60/kg Red USD 1.30/kg Black	USD 1.30/kg White (80% of volume was white) ⁷ USD 1.10/kg Red (4% of volume) USD 1.70/kg Black (16% of volume)

⁷ 2017-2018 market prices reflect those paid to SFDA members. Weather-related crop failures in 2018 reduced supply, resulting in higher prices (not a function of quality). Price and volume data shows how prices vary between sesame varieties and the corresponding share of the total volume produced by SFDA (220 MT).

Table 3: New Organizations and Market Linkages Empower Farmers

Market Features	2016	SFDA 2017-2018
	<i>Two farmer associations supported by NGOs. Limited market linkages.⁸</i>	<i>Aggregation and vertical integration empowers farmers. Market linkages with buyers and input suppliers is strengthened.⁹</i>
Farmer Groups and Associations	<p>For the first time after a long-standing ban, the Government of Myanmar allowed community-level groups, such as farmer associations, to register starting in June 2015. Prior to this, groups operated informally. Two sesame associations operated in Magway Township:</p> <ul style="list-style-type: none"> ▪ Regional Farmers Development Association (RFDA) ▪ Myanmar Sesame Farmers Association (MySFA) 	<ul style="list-style-type: none"> ▪ SFDA was established with 2,356 members in late 2017 (making it the third association in Magway Township).¹⁰ SFDA's business model and value drives sustainability and scalability. Members elect dedicated board members with a diverse and relevant skill set. ▪ The project's formation of 34 Farmer Groups makes it easier for trainers and service providers to connect with farmers, and provides farmers a gateway to apply for GAP certification (not individual farmers). ▪ The Association is steadily expanding; as of March 2019, the group had 3,172 members and had spread to eight new villages. In addition, SFDA is helping two associations in neighboring townships train their members on GAP practices and certification requirements and replicate their collection center model (refer to map).
Links to Buyers and Investors	<ul style="list-style-type: none"> ▪ Individual farmers sold to traders in regional commodity centers 	<ul style="list-style-type: none"> ▪ SFDA members build and pilot a simple, temporary collection center to aggregate production and sell directly to buyers (processors and exporters). ▪ The project helps facilitate Business to Business (B2B) events that link SFDA to two major buyers who placed bulk orders for 500 MT white sesame (IBM, an oil and powder processor) and 100 MT of black sesame (Mitsubishi, a Japanese exporter). In 2019, SFDA will take over B2B facilitation. ▪ InfraCo Asia and SFDA begin developing a sesame warehouse receipts project, to be jointly owned by three parties: the investor, SFDA, and a sesame buyer. Related to this, IBM and Infraco provide a grant and labor to help SFDA build the temporary collection center, viewed as an opportunity to test key assumptions in their warehouse investment proposal. ▪ Buyers, producers, and DoA jointly conduct production planning and post-harvest review sessions to align sector activities with demand-side requirements.
Transaction Costs	<ul style="list-style-type: none"> ▪ Farmers were "price takers" when selling sesame and buying inputs. ▪ Traders charged fees of 5% or more to weigh, bag, carry, and clean. ▪ Farmers incurred additional costs associated with traders cheating (inaccurate weight and grade). ▪ No standards. No grading. No attention to quality or consistency. 	<ul style="list-style-type: none"> ▪ SFDA leaders manage the collection center. Their labor is paid using SFDA's share of the GAP premium paid by buyers (1%) and commission paid by input supplier for SFDA's bulk purchase of 1,119 bags of compound fertilizer (USD 309). Sesame selling fees for members are zero. Disrupts market by cutting out traders. ▪ Trust. Absence of cheating.

8 Sesame market conditions prior to the project, for farmers that do not participate in an association. The two sesame associations that existed in Magway Township in 2016 are listed, but the column summarizes general market conditions for sesame farmers (not conditions for association members).

9 Data based on reports by SFDA members. Does not reflect results in the broader population of sesame farmers in the Dry Zone, nor all sesame farmers trained under the project (the sample frame for the project's annual results survey).

10 Membership in the other sesame associations is 4,718 (RFDA) and 600 (MYSFA).

Market Features	2016	SFDA 2017-2018
Sesame Training and Extension	<ul style="list-style-type: none"> ▪ Network Activity Group (local NGO) ▪ Progetto Continenti (Italian NGO) 	<ul style="list-style-type: none"> ▪ 21 Lead Farmers trained approximately 4,000 farmers using the project's initial Sesame Farmer Field School curriculum. ▪ Upon publication of the GAP Standard, the project team and DoA jointly expanded the FFS curriculum to include other GAP requirements, such as record keeping. MoA adopted it as the Sesame GAP Protocol. ▪ Lead Farmers and DoA jointly delivered GAP Certification training to 2,356 SFDA members¹¹ (April 2018), a subset of the farmers previously trained. ▪ Lead Farmers participated in monthly knowledge-sharing meetings to assess challenges related to adoption of GAP recommendations and potential solutions. ▪ The Magway Regional Chief Minister allocated additional funds to the DoA to provide sesame GAP training to other farmers in the Dry Zone.
Access to Inputs and Credit	<ul style="list-style-type: none"> ▪ Informal lenders charged interest rates of 10-15% per month with in-kind collateral and up to 20% per month with no collateral 	<ul style="list-style-type: none"> ▪ SFDA buys 1,119 bags of fertilizer at wholesale prices for its members from Good Brothers Co.. Tests quality. ▪ Good Brothers provides micro-loans to approximately 400 SFDA members of 100,000 MMK/acre (\$63) for seeds and land preparation at 2.5% per month (30% per annum), and 50,000 MMK/acre (\$31) for fertilizer at 0% interest until harvest. SFDA manages the loan and assumes risk. If the sesame crop fails due to weather, the loan period will be extended and interest accrues. For farmers who come to Good Brothers' show room to repay, the interest rate is reduced to 2.4%. ▪ The Government Agriculture Bank provides loans of 50,000 MMK/acre (\$31).

¹¹ This training focused on the certification process, as farmers had already been trained on improved on-farm practices. SFDA did not document farmer participation, but attempted to roll the training out to all members via Lead Farmers using a multi-touch farmer-to-farmer process. Certification is done on a Farmer Group basis, not an individual farmer basis. Although some farmers missed some of the Lead Farmers' visits, they could be caught up through peers in their Farmer Group. Group basis, not an individual farmer basis.



Table 4: Improved Practices Lead to Higher Quality Sesame and Traceability

Market Features	2016	2017-2018
	<i>Poor practices produce low quality</i>	<i>SFDA members embrace GAP and achieve higher quality</i>
Sales Volume and Quality	<ul style="list-style-type: none"> ▪ High acidity levels (bitter) ▪ High moisture levels ▪ Aflatoxin ▪ Colors not pure and uniform 	<ul style="list-style-type: none"> ▪ SFDA members produced and sold 220 MT sesame in 2018 and sold to IBM.¹² ▪ Achieved Grade A for the first time -- for over half of volume sold (56%). Moisture levels dropped from 13% to 8-10%. ▪ 89% of volume sold was Grade B or higher. ▪ IBM's post washing and cleaning yields from SFDA's sesame were 97 percent, compared to 95 percent from traders.
On-Farm Practices	<ul style="list-style-type: none"> ▪ Farmer's own seed ▪ Different colors (white, red, black) grown in proximity on the same plot ▪ Excessive use of pesticides and fungicides ▪ Dried on bare ground, for excessive lengths of time ▪ Stored in bags with agro-chemical contaminants (reused fertilizer bags) 	<ul style="list-style-type: none"> ▪ SFDA is Magway's Sesame GAP participation champ: 2,206 SFDA members applied for a GAP certificate their first year (88% of total). SFDA alone accounted for 78% of all Sesame GAP applications in Magway Township in 2018. In contrast, RFDA and MySFA members applied for 38 and 332 GAP certificates, respectively. All three associations used the curriculum developed jointly by the project and DoA. SFDA's GAP participation points to the high quality of SFDA's training delivery, follow-up support to farmers, and internal controls. ▪ Key practices for Myanmar Sesame GAP include: <ul style="list-style-type: none"> ▪ Seeds washed in hot water prior to planting to prevent disease ▪ Quality commercial fertilizer or compost applied in correct amounts ▪ Bundles stacked in upright, cross-hatched, X patterns for drying ▪ Shorter drying periods (two days) ▪ Stored in clean bags (reused rice bags) ▪ Maintenance of farm records

PROJECT LEARNING, REFLECTIONS, AND CONTINUOUS IMPROVEMENT

Success factors.

In addition to the "quality over quantity" strategy, the most significant sesame value chain development success factors are:

- **GAP Standard.** The MoALI's publication of the Sesame GAP Standard in 2017 created momentum for reaching agreement on the path to better quality, specified in the subsequent Protocols.
- **Focus on sesame quality and buyers' requirements.** Project facilitated farmer-buyer linkages and purchase agreements convinced farmers that buyers would be willing to pay more for higher quality sesame. In parallel, review of sesame GAP farm records and lab tests for moisture and acidity levels conducted at the point of sale established a transparent way to verify if farmers met buyer's requirements. Prior to GAP, DoA's attempts to promote vertical drying had been unsuccessful for over 20 years. Farmers were reluctant to adopt because vertical stacking is more labor-intensive than the conventional method of leaving stalks to dry on the ground. VCRD and buyers promoting it as a requirement for GAP Certification and earning a GAP price premium proved to be the major impetus for wide-scale adoption.

¹² Sesame farmers suffered substantial crop losses from adverse weather in 2017 and 2018.

- **Quality partnerships.** At Project-facilitated stakeholder meetings and market linkage events, highly motivated and skilled individuals from producer groups and firms (buyers) stepped forward to participate in and lead collaborative problem solving and innovation.
- **Social media and smart phone use.** Rural Burmese are avid users of Facebook and other social media apps, which they use in lieu of e-mail. SFDA, DoA, the Chief Minister of Magway, and other project partners have all posted information about sesame production, extension, and/or selling activities on their Facebook pages. SFDA receives multiple hits on its Facebook page, and was invited by two other townships to share what SFDA leaders have learned from their experience with GAP certification. In addition, SFDA uses Viber to share information with its Lead Farmers and members.
- **Effective farmer-to-farmer training and learning.** Lead Farmers met monthly to discuss what is working and not working related to adoption of improved practices. In addition, it's common for village members to meet on each other's farms to trade labor. This helps address the shortfall of labor within households due to youth migrating out. It also gives them an opportunity to observe and discuss differences between farms.

Sesame warehouse project adaptations.

InfraCo Asia and SFDA started with a fairly ambitious warehouse receipts project design. As the proposal progressed through InfraCo's review process, including a KPMG pre-feasibility study, SFDA and its buyers realized that they needed a more immediate solution for the coming harvest season. The idea for a simple, temporary collection center was hatched in this context. Based on the pilot's success, SFDA members have reconsidered the warehouse costs and benefits and decided that they prefer a smaller structure that houses cleaning, sorting, and weighing equipment and allows them to aggregate daily collection volumes – thereby addressing their highest priorities at much lower cost and avoiding the debt they would incur as warehouse owners/co-investors. SFDA submitted a modified proposal and budget to InfraCo in late 2018 and is waiting for a response. This experience highlights the importance of co-designing interventions with end users in an incremental process that allows new ideas to emerge and be tested, leading to better solutions.

VCRD shifts to facilitating a market systems approach.

VCRD's initial interventions focused largely on training farmers on improved practices and technologies. In 2017 USAID/Burma advised the team to make the following important changes: 1) Shift from directly delivering services to facilitating a market systems approach, and 2) focus this approach in Magway to achieve more significant market development outcomes, rather than expanding into new areas to reach more farmers. The sesame team subsequently focused on facilitating market linkages and identified buyers through B2B events. In parallel, they promoted

BOX 3 EVOLUTION OF MAGWAY SESAME WAREHOUSE PROJECT

Initial design and benefits

- The warehouse would allow farmers to securely store sesame and groundnuts and sell after the harvest period at higher prices.
- Reduce post-harvest losses.
- Sesame inventory receipts would provide collateral for loans at lower interest rates.
- An on-line sales platform would lower transaction costs.
- Services: weighing, drying, cleaning, sorting, grading, bagging, fumigation, security.
- Anticipated starting with a warehouse in Magway (5,000 MT storage capacity) and expanding to eight sites (70,000 MT total storage capacity, equivalent to 11% of annual production in Magway).
- Proposed owners/investors: InfraCo, SFDA, and a consortium of buyers and traders. Land donated by the regional Government.

Modifications

- Shift from warehouses to collection centers: smaller, lower-cost structures to house equipment and facilitate aggregation. Not designed for longer-term storage. No inventory receipts.
- May consider leasing an existing warehouse.





a buyer-lead approach. Buyers welcomed assistance with supply chain management and expressed interest in GAP certification, quality control, and aggregation. The establishment of SFDA and the collection center pilot emerged from this and now serves as a successful, replicable model.

Side selling.

Some SFDA farmers engaged in side-selling to brokers rather than through SFDA. This affects SFDA's ability to meet agreed volumes with established buyers and reduces SFDA revenues from the GAP premium that help ensure financial viability. Farmers do not benefit from side-selling. It occurs because traders and brokers have historically been a primary source of pre-season financing for farmers, and they typically obligate farmers to sell to them as a condition of the loan. SFDA is currently seeking to facilitate access to finance for its members to avoid this (described in the following section).

DoA collaboration on sesame GAP extension.

The Magway DoA and Regional Chief Minister have demonstrated an unusually high level of commitment to GAP extension. As stated earlier, MoA selected Magway as the first region to implement the Sesame GAP for this reason. The Regional Chief Minister allocated additional funds for GAP training, and DoA actively participated in adapting the project's FFS to create the GAP Protocol and conducting joint training of Lead Farmers and DoA extension agents. In addition, DoA participated in SFDA's first multi-stakeholder Pre-Planting session for its joint 2018 Post-Harvest Review and 2019 Planning Session (October 2018). DoA has developed its 2019 Extension Work Plan accordingly. The Magway DoA is a significant asset for market systems development that is unparalleled in other regions; however, DoA noted that it requires that farmers be organized into groups as a prerequisite to receiving DoA extension services. Additional GAP collaboration includes mapping sesame GAP farm plot locations and collecting data on the number of acres and seed varieties to assess input requirements, photographing new Farmer Groups (a GAP certification requirement), conducting township and community level GAP certification training, and disseminating GAP farm record books to farmers. Looking ahead, it appears that DOA will need to dedicate additional staff resources to processing GAP applications. In addition, SFDA will engage in joint problem-solving with DoA to identify ways to improve the approval process.



Resilience.

Consistent with USAID recommendations to “adopt a resilience lens”, the Project recognizes that sesame farmers are extremely vulnerable to climate risk. It will continue to advocate for research on and investment in climate-smart technologies and practices with MOALI – such as more resilient sesame seed varieties and inter-cropping practices. New seed varieties will be vetted with buyers, recognizing that they may forfeit the unique flavor notes of Myanmar sesame. In addition, the project is facilitating links between Proximity Designs and SFDA to expand access to climate-smart irrigation technologies designed and priced for small-plot growers, such as sprinkler and drip irrigation, sensors, and precision planting.

GAP record keeping solution.

Both farmers and buyers have noted that farm record-keeping, a GAP certification requirement, is the task farmers have the most difficulty with. Identifying an Information Technology solution to improve the GAP farmer's record keeping experience and provide a “work aid” for Lead Farmers and extension agents is a high priority. Ideally, a simple application could be adapted from existing farm apps for recording both farm practices and outcomes. Smartphone ownership is not a con-

straint in Myanmar. However, the app must support the Burmese language. Lead Farmers shared information on existing apps with farmers during the initial FFS sessions. Adoption has been mixed to date, as some farmers have difficulty with Internet connectivity and software updates. Efforts to identify a record keeping app will focus on the user experience to ensure that user constraints are addressed.

New or expanded access to inputs, services, and purchase agreements planned for 2019

SFDA

- Expand membership from 2,356 to 4,000 and geographic coverage by six new villages in Magway Township.
- At the invitation of two farmers associations in Pwintphyu and Yaynanchaung Townships, SFDA is forming strategic alliances to help 1,000 sesame farmers in 25 villages become GAP compliant. SFDA will provide Training of Trainers (TOT) on GAP extension and oversee GAP registration and seed distribution. In return SFDA will receive a commission on their sales (the amount to be determined before the harvest season), plus income from agro-mechanization services.



- Increase annual membership fee from 500 to 2,000 MMK (\$1.24).
- Facilitate B2B linkages.
- Hire Lead Farmers formerly employed under the project.
- Secure a pre-season Loan from A bank (Ayeyarwaddy Farmers Development Bank) for SFDA.
- Expand the use of corporate service agreements to enlist local tractor owners in providing tractor services using a model that is similar to Uber or Grab. SFDA will charge an administrative fee. Prior to SFDA's initial pilot last year, most sesame farmers used cattle rather than tractors. Good Brothers and the DoA Agro-mechanization Department may also participate in this initiative.

Buyers

- Mitsubishi has requested a higher volume advance purchase agreement with SFDA for **black sesame** for the 2019 season (up to 1,000 MT in 2019, compared to 100 MT in 2018). Noting that Japanese buyers are only interested in pure black sesame seeds, the buyer's rep will help SFDA source **quality black sesame seed** for its members.

Infraco Asia

- Complete the feasibility study for the modified collection center project (refer to Box 3).
- Construct the re-designed, permanent collection center in Magway and eventually replicate across seven additional locations.

BOX 4. EVIDENCE OF EXPANSION AND POTENTIAL SCALE

Demand

- IBM's two oil processing plants alone require 34 MT/day Grades A and B (8,840 MT/year based on a 5-day work week).
- Mitsubishi and other buyers and traders are approaching SFDA to source sesame.

Supply

- IBM's demand represents 40 times the volume sold by SFDA members in 2018.
- Myanmar produces about 860,000 MT of sesame annually, with Magway Division producing about 80% of this total.

Competitiveness

- Myanmar sesame has unique flavor notes that are preferred by Japan, Korea, and China.

Participation in Sesame Associations

- Magway Township: In 2018, 18% of 42,563 sesame farmers were a member of SFDA, RFDA, or MYSFA. Non-members can be mobilized to expand the production of quality sesame.
- SFDA will increase its membership in Magway Township by expanding from 34 villages in 2018 to 42 villages in 2019.
- At the invitation of two farmer associations in Pwintphyu and Yaynanchaung Townships, SFDA is forming a strategic alliance to provide GAP extension training and services. The associations aim to help 1,000 sesame farmers in 25 villages become GAP compliant. Refer to map.

Good Brothers, a "360 Degrees Agricultural Solutions Provider"

- Increase SFDA's bulk fertilizer sale from 1,119 bags in 2018 to 3,000-4,000 bags in 2019.
- Establish at least six sesame demonstration plots.
- Facilitate farmer exchange gatherings in SFDA's member villages.
- Provide a mobile app based free farm advisory service on pest and disease management.
- Provide extension through SFDA's Viber group.
- Expand agro-mechanization services for land preparation by dedicating more tractors to cover wider areas and more members.
- Offer fertilizer lab tests.

Banks

- LOLC Myanmar Microfinance Company Ltd. is poised to provide smallholder financing through a USAID Development Credit Authority-guaranteed loan. They recently opened a branch in Magway to serve SFDA members.

Charting a path to sustainability and scale.

A lesson can be drawn from the establishment of SFDA. The first year it was formally established (2017), 59 percent (2,356 of 4,000) of the farmers trained by project-supported Lead Farmers elected to join the association, even though the membership fee was only 500 MMK (0.31 cents). The association had not yet demonstrated its value to members. By the end of the 2018 sesame season, word spread quickly about the GAP price premium earned by 88 percent of members and SFDA charging no transaction fees. Farmers in the area are now lining up to join, and communities beyond the project area have approached SFDA and expressed interest in joining or replicating. **With less than two years of project support, SFDA is poised to quickly scale up and replicate the model.** Refer to box 4.

