



THE MELON VALUE CHAIN:

HOW COLLABORATION WITH THE NATIONAL HORTICULTURE TRADE ASSOCIATION IMPROVED PROSPECTS FOR FARMERS OF MYANMAR'S MOST VALUABLE FRUIT CROP

USAID'S VALUE CHAINS FOR RURAL DEVELOPMENT

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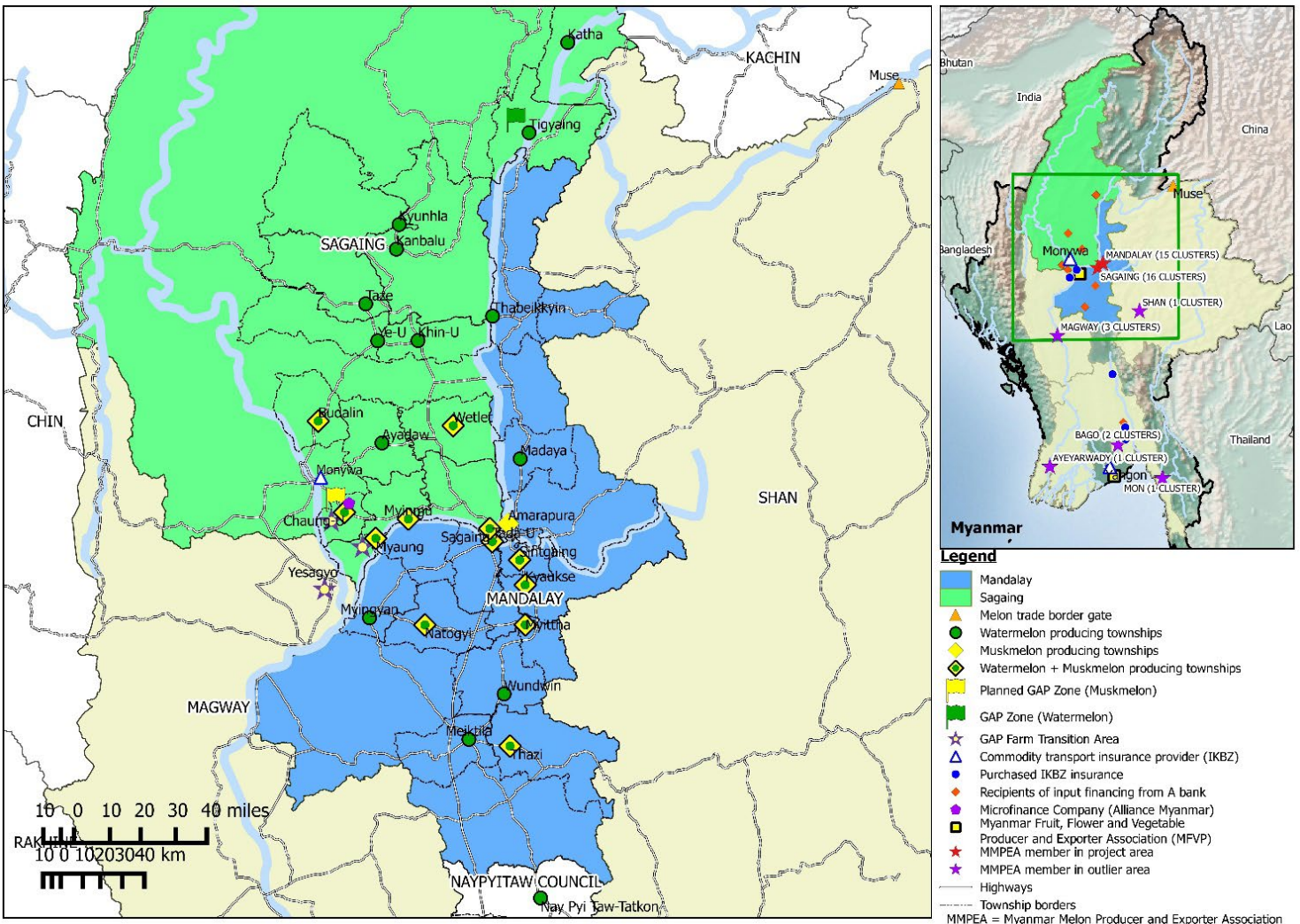


INTRODUCTION

“One hand can’t hold two watermelons.”
— Arabic proverb

Through a cost-sharing Innovative Grant to Myanmar’s national trade organization for Myanmar-produced fresh produce—the Myanmar Fruit, Flower and Vegetable Producer and Exporter Association (MFVP)— USAID’s Value Chains for Rural Development (VCRD) project **helped melon farmers build efficiencies and forge new relationships with other market actors, enabling them to begin exploring direct market channels** and stabilize or increase incomes through production of higher-quality and more sustainably farmed fruit. This document highlights melon market developments over four years (2016-2019) of project work with MFVP and key private sector actors, including the Myanmar Melon Producer and Exporter Association (MMPEA), which evolved in 2018 as a direct result of the grant to MFVP.

MFVP is the nation’s only trade association representing fresh fruit and vegetable (and flower) producers, with approximately 40,000 members. It is a non-governmental organization with 29 commodity clusters and seven branches across the country, two commodity centers in Yangon and Muse, and is headquartered in Yangon. Its goal is to provide tropical and temperate fresh and processed quality fruits, flowers and vegetables for consumers. The total value of the grant from VCRD to MFVP was \$337,130 with MFVP contributing a cost-share of \$34,293.



This map shows major watermelon and muskmelon production areas in Myanmar’s Central Dry Zone (CDZ) where farmers were engaged by the project, MFVP, MMPEA and partners.

BACKGROUND

Melons are the flagship export fruit of Myanmar and are by far the country's most valuable fruit crop. Annual volumes sold across the border to China totaled about 867,000 tons in the 2018 season—*more than 30 times greater* than those of the next most valuable fruit export, mangos—with annual export revenues averaging in excess of \$50 million. An estimated 65-80 percent of melons cultivated annually in Myanmar are sold across the border via northern Shan State at Muse to Chinese traders; the remainder is sold for generally lower prices on the domestic market (source: Muse Commodity Centre statistics). Myanmar's melons are known for being sweet, crisp and juicy with a long shelf-life, and are one of few Myanmar agricultural products that are currently competitive in regional markets, though demand and prices can fluctuate dramatically, destabilizing the value chain and increasing the risks borne by smallholder melon farmers.

MFVP's leaders sought USAID assistance in 2015 to help melon farmers because, despite their status as the nation's most important fruit export, melon farmers were struggling to organize or unify themselves, and lacked a common market vision to strengthen the value chain or change the endemic price-setting nature of the market system at the China border. Moreover, melon farmers faced many challenges that hindered market efficiency and expansion, slowing growth and profitability. At the farm level, for example, producers experienced a chronic lack of access to high-quality inputs, including seeds, fertilizers and pesticides, and had almost no access to field-based extension or demonstrations of improved, sustainable farming strategies such as Integrated Pest Management (IPM) or Good Agricultural Practices (GAP)—both of which could reduce the amount of money spent by farmers on chemical inputs. Additionally, a high percentage of in-field melon produce was lost each year to pests or diseases, exacerbated by a general lack of producer knowledge of field monitoring techniques and/or timing of remedial actions.

MMPEA'S OBJECTIVES:

- To distribute effective agricultural knowledge and technologies to members across the country.
- To uplift producers' productivity, profitability and income
- To disseminate and practice GAP standards and explore new channels for markets willing/able to reward quality with price premiums
- To access alternative export markets through freight and air, and tap in-country investment for value including for cold chain/storage and packaging infrastructure
- To share practices and technology for more sustainable production, including natural compost making and reduced use of chemical fertilizers

An estimated 150,000 farmers grow melons in Myanmar, approximately 80 percent of whom are smallholders. Of the total amount of production, about 88 percent of melons are exported through the Muse Border to China, with the balance consumed in the domestic market. Though prices for melons can (and do) fluctuate significantly from year to year, melon producers exceeded VCRD's targeted increases for farmer gross margin increases in FY2019, with muskmelon farmers averaging \$4,840/hectare (ha) and watermelon farmers averaging \$1,858/ha. Smallholders saw their profits increase in spite of rising input costs and a temporary border trade closure caused by ethnic conflict.

Off farm, systemic problems included government inaction on seed import policy, lack of access to pre-season finance, low investment in infrastructure and technology, and crippling losses (sometimes as high as 30 percent per load) incurred during transport due to overburdened trucks and the substandard condition of roads leading to the China border. **Melon farmers also had long been handicapped when attempting to negotiate with Chinese traders** due to the lack of grades and standards (until 2019) for Myanmar melons, as well as the way transactions are traditionally handled at the border, where farmers negotiate an unofficial price for their melons on the Myanmar side, pay a 2 percent tax on the total volume, and then transfer their loads to the China side of the border. There, payments are finalized—often, after downward price adjustments based on capricious criteria, including the rejection of melons upon which farmers have already been taxed.





VCRD-MFVP PARTNERSHIP:

COLLABORATION FOR MARKET SYSTEMS CHANGE

The project and MFVP coordinated with private sector partners and the Myanmar Ministry of Agriculture, Livelihoods and Irrigation's (MOALI's) Department of Agriculture (DOA) in the Central Dry Zone (CDZ) to develop solutions to some of the biggest constraints to melon value chain growth. Interventions focused on improving value chain coordination between stakeholders including farmers, melon "cluster" leaders, inputs and finance providers, traders and buyers, and connecting stakeholders more directly to key DOA personnel responsible for extension and farm certification for GAP. In addition, the project's market systems approach gradually incentivized MFVP to conceive, plan and launch a new, business services-oriented trade association (MMPEA) specifically aimed at supporting smallholder melon farmers and expanding trade, transitioning from the formerly fragmented national cluster structure to an entrepreneurial, farmer-owned organization with increased capacity to identify needs and opportunities, and respond to market requirements. Formation of MMPEA in 2018 provided a mechanism for melon farmers and other melon value chain stakeholders to deepen their engagement with government agriculture and trade personnel from MOALI, the Ministry of Commerce (MOC) and Myanmar Trade, the agency responsible for increasing Myanmar's trade and exports, and led to early-stage development of a new National Melon Export Strategy—***the first such strategy for any fruit crop in Myanmar.***

After four years of support from VCRD, ***new practices and technologies introduced by MFVP to melon farmers, including reduced use of chemical inputs, Integrated Pest Management (IPM), soil and water testing, and others were used across a total of 56,185 hectares of melon farms in the CDZ, with 7,170 farmers adopting at least one or more improved practice or technology on their farms.*** These improvements helped melon farmers supported by the project to produce more than 1.35 million tons of melons valued at more than \$627 million over the life of the project. Total exports reached more than 906,500 tons over the period from 2016 to 2019, according to project annual surveys, with the remainder consumed domestically and a small fraction lost at the postharvest stage. Though melon farming profits from year to year can be unpredictable, smallholders engaged by the project and MFVP exceeded targeted gross margin increases in the final year of grant implementation (2019), with muskmelon farmers averaging \$4,840/hectare (ha) and watermelon farmers averaging \$1,858/ha. Melon producers saw profits increase in spite of rising input costs and a temporary border trade closure caused by ethnic conflict, indicating that melon farmers are becoming resilient and better able to withstand unexpected market stressors.

EVIDENCE OF MARKET SYSTEM TRANSFORMATION:

BEFORE AND AFTER

Some of the most significant examples of change and farmer empowerment in the melon value chain over the past three years include are listed below. The table compares the current landscape, under MMPEA's leadership in the melon sector and in an era of Myanmar GAP and National Grades and Standards in place, with prevailing market conditions in 2016 under the "melon clusters" model.

Market Features	2015	2016-2019
Grades, standards and GAP	<ul style="list-style-type: none"> No published/standardized recognized grades or standards for melons – price based on size/color Muskmelons: three informally recognized grades (A, B, C) based on size No differentiated GAP melons exported from Myanmar or sold to high-end domestic markets (all sold at wholesale or at wet markets) 	<ul style="list-style-type: none"> Myanmar National Muskmelon and Watermelon Grades and Standards are approved in draft after lengthy reviews in 2018; as of mid-2019 national watermelon standards were officially approved and published, while muskmelon grades and standards were nearly ready, awaiting final/formal approval by the Department of Grades and Standards, enabling farmers to begin negotiating better prices based on clear/accepted/agreed standards Myanmar Muskmelon and Watermelon GAP Standard and Protocols are published on DOA's website in November 2017; the guidelines instruct farmers how to achieve higher quality, safer, more sustainably farmed produce and provide farmers with opportunities to differentiate their product as GAP-quality and worthy of quality premiums
Price premiums for quality	<ul style="list-style-type: none"> Market signals were undermined by lack of farmer awareness, lack of transparency in transactions (described further below), and lack of quality differentiation 	<ul style="list-style-type: none"> The first GAP premiums for high-quality, GAP-branded melons are paid in 2019 by high-end supermarket chains such as City Mart, enabling producers of certified melons to earn up to \$1.50 more (per 15 kg) than previously U Han Tun Yin, one of the first GAP-certified melon growers, links to direct-market buyers in China (supermarkets)
Delivering new services to melon farmers	<ul style="list-style-type: none"> No extension services or access to improved technology or demonstrations are offered, either by government or the private sector, for melon farmers MFVP begins organizing cluster leaders/members for learning and sharing events to discuss priorities for producers (e.g. the first National Melon Seeds Forum in Mandalay; the first Grades and Standards Workshop at Muse) 	<ul style="list-style-type: none"> MFVP invests some of its grant funding to melon Lead Farmers to conduct training-of-trainers (TOT) and "multiplier" trainings to reach melon farmers MFVP sets up drip irrigation demonstrations after linking to private sector companies (Yetagon and Sierra) MFVP and Lead Farmers work with volunteer horticulturalists to develop, review (with DOA) and finalize Myanmar's first comprehensive "Melon Growers' Handbook" later approved by DOA and translated into Burmese MMPEA organizes as a national-level farmers' association and takes over responsibility for provision of extension, GAP training, GAP multiplier activities, IPM awareness, teaching farmers about reduced inputs usage, soil and water testing MFVP/MMPEA launch Myanmar's first inputs usage survey of melon farmers as a precursor to engage private sector for bulk procurements of improved inputs MMPEA takes over organization of improved inputs and seed farm demonstrations with private sector involvement (including with Vestergaard, Big M Seeds, ABN, Yara, JJ-PUN, Seeds Energy Co., Syngenta) MMPEA begins planning with DOA and private partners the first Melon GAP Zone (Min Khuang Village, Chaung Oo Township) and Green Channel for GAP melons (Muse) MMPEA establishes an innovative private sector linkage to a commodity transport insurer, IKBZ, to help melon farmers protect themselves against losses incurred during transport to the border

Market Features	2015	2016-2019
Farmer groups empowered to explore market opportunities	<ul style="list-style-type: none"> ▪ Farmers individually grow, transport and sell to brokers at the border, usually forced to take the prices offered 	<ul style="list-style-type: none"> ▪ Farmers in Butalin Township (Sagaing) become incentivized (by new GAP knowledge) to try direct sales channels of differentiated “chemical residue free” melons to local high-end supermarkets (Ocean and City Mart) as well as direct to China supermarkets (Medihub Farms) ▪ Farmers explore collective purchases of inputs as well as collective cultivation and selling in different locations, e.g., lead farmers from Chaung Oo Township trial the first melon collective inputs purchase (Yara and JJ-PUN) ▪ Growers in Tha Yet Pin Village - (Meikhtilar Township) pilot the first “collective sale” of watermelons
Private sector engagement	<ul style="list-style-type: none"> ▪ Under clusters, engagement is focused on traders at Muse and/or the larger/established Myanmar growers 	<ul style="list-style-type: none"> ▪ Input providers outreach to MMPEA for chance to sell better inputs (Awba, JJ-PUN, Good Brothers, Yara, Syngenta, Min Mahaw, Rainbow) ▪ Banks begin to actively seek to lend to melon farmers, engaging through MMPEA and promoting loan products; several banks (Yoma Bank, Ayeyarwaddy Farmers’ Development Bank begin to make loans to MMPEA leaders for purchases of inputs; AYA Bank has also begun to seek melon farmers’ business and is offering competitive terms for pre-season finance) ▪ New microfinance options emerge for melon farmers in the CDZ (Alliance and LOLC) ▪ Insurance company (IKBZ) now offers insurance transportation package to farmers ▪ Seed companies (Rijk Zwain, Syngenta, Seeds Energy Co.) are interested in doing business with/through MMPEA
Entrepreneurial capacity building, market outreach and growth	<ul style="list-style-type: none"> ▪ Melon clusters are fragmented and loosely organized, not focused on market development or private sector engagement ▪ No trade promotion development ▪ Absence of common structure/vision or purpose/goals articulated for producers or other stakeholders ▪ No known/published or viewable extension materials available in print, video or available online ▪ Little-to-no membership recruitment or marketing/outreach 	<ul style="list-style-type: none"> ▪ MFVP and melon leaders begin engaging in regional and national-level melon trade promotion activities, including the first Southern Shan Horticulture Trade Fair in Taunggyi and the Melon/Tea/Mango Festival in Mandalay, as well as other trade promotion events in Bangkok, Muse and China ▪ MFVP and MMPEA leaders build their business, management and organizational skills and capacity through Small-Medium Enterprise trainings for melon cluster leaders as the cluster transitions into a service-oriented growers’ association ▪ Melons become the first fruit crop in Myanmar to be named a “Priority Export Crop” by Myanmar’s government, necessitating development of a National Melon Export Strategy (currently in development) ▪ Melon leaders connect and learn from other emerging farmer-owned businesses and associations supported by the project (such as the Sesame Farmer Development Association in Magway; Shwe Taung Thu Coffee Co. in Ywangan), leading to the development of MMPEA’s draft services delivery plan (including mechanization, seeds, finance and sales) ▪ News and sharing about development of the melon value chain explodes, with a Shwe FM radio show focused on melons, training videos of melon agronomy experts going viral on Facebook, production of MMPEA YouTube videos sharing information about the importance of GAP, and sharing of brochures and other information about MMPEA, GAP, reduction of plastic usage on farms, etc.; the public Melon Growers’ Facebook Group gains nearly 60,000 followers
Financial sector engagement	<ul style="list-style-type: none"> ▪ Lack of access to affordable, formal financing sector by smallholders either (including microfinancing, bank financing or credit for inputs purchases, etc.) 	<ul style="list-style-type: none"> ▪ In one of its first major deals after forming, MMPEA arranges a bulk purchase of improved inputs (legally approved fertilizers and pesticides) with financing provided by two local banks: Ayeyarwaddy Farmers Development Bank (fertilizers) and Yoma Bank (other inputs) ▪ MMPEA helps to connect its members to microfinance through Alliance for Microfinance in Myanmar

GROWTH OF THE NEW NATIONAL MELON TRADE ASSOCIATION AND EXPORT STRATEGY

*"A melon forced off its vine is not sweet."
— Chinese proverb*

Step 1: Getting organized and revitalizing the National Melon Cluster

After years of fragmentation and little-to-no communication or collaboration at the local, regional or national levels, with the inception of the USAID Innovative Grant to MFVP in late 2015, melon farmers began to re-engage and find their collective voice through a series of important trade promotion activities organized and led by MFVP. Those included the nation's first Melon Growers and Traders Forum held at Muse (the main gate for trade between Myanmar and China); Myanmar's first-ever regional Horticulture Trade Fair held in Taunggyi with more than three-dozen private sector participants and private sector sponsorships; mango and melon trade/promotion fairs held in Mandalay and Yangon; and MFVP's first National Seed Forum, focused on melon seed, held in Mandalay. As a result of these and other activities, Myanmar government agriculture and trade representatives began to pay greater attention to melon production and market issues. Previously dormant members of disparate melon clusters (groups of melon farmers loosely organized under MFVP) began to become more involved and to provide feedback and ideas to MFVP, government officials and other melon stakeholders about regional trade challenges, combatting illegal seed imports and other input problems, and other issues. As a result of the new activities and MFVP's raised profile, melon cluster membership began to increase from only 350 members in 2016, to more than 1,000 by the end of 2017.

Step 2: Clusters evolve into a national-level melon association

Former melon cluster members became incentivized to form the Myanmar Melon Producer and Exporter Association (MMPEA) in 2018 due in part to the lack of available extension, farm advisory or market development/promotion support or services from other sources (government or private sector.) Encouraged by MFVP, melon cluster leaders began developing their own, association-led services-delivery system. VCRD and MFVP provided organizational capacity building support, beginning with a

business strategy development workshop conducted by a Small and Medium Enterprise (SME) development volunteer specialist recruited by the project. As a result of this assistance, MMPEA's leaders developed the first draft statutes and organizational structures for the new association. Per the rules of Myanmar's Directorate of Investment and Company Administration (DICA), national-level associations must include at least seven regional-level member clusters, and MMPEA immediately set out to build their membership base, promoting the benefits of membership (see text box) in important melon growing areas outside the CDZ in Ayeyarwady, Mon and Shan states, aiming for greater cohesiveness across the value chain and encouraging potential members to consider the benefits of participating in cooperative activities including bulk, discounted procurement of improved inputs, improved leverage to negotiate better prices through group sales, advocating with government for better seed policies, and tackling other important issues that affect the value chain.

As of the close of 2019, MMPEA counted 3,150 registered members from 40 different townships and seven regions across the country. More importantly than numbers, however, is the association's growing influence and clout. One indicator of the association's increased leverage is the quick response from Myanmar's MOC following the abrupt closure of the main cross-border trading point at

INCENTIVES FOR PARTICIPATING IN MMPEA:

- Access to on-farm extension support and trainings focused on GAP and improved/best practices
- Access to bulk/group sales through evolving GAP Melon Zone and GAP Channel at Muse (coming 2019-2020 season)
- Access to transport insurance through IKBZ
- Access to bulk purchases of inputs (fertilizers and inputs) for estimated savings of 2 percent (fertilizers) and 10 percent (inputs)
- Easier access to finance via MFIs (Alliance, etc.)
- Benefits from MMPEA's advocacy and lobbying efforts to affect governmental oversight and action on seed policy (imports and registration); GAP certification; export strategy and ad hoc issues such as Muse border closures
- Association-sponsored demonstrations and field days including seeds, pesticides, drip-irrigation and other new technologies (sleeves, bags, packing systems) arranged in partnership with private sector companies
- Access to MMPEA extension products and tools including the Melon Growers' Handbook; detailed guides on inputs usage; IPM, soil/water testing and GAP compliance; video extension products; distribution of GAP record books and technical support for proper maintenance of records

The vision of the melon NES is to develop export-oriented, intensive melon horticulture harmonizing environmental sustainability and high value creation towards rural livelihood improvement. The NES is being designed to recognize and address major challenges affecting melon production, including land-lease and environmental impacts, price fluctuation and informal business with unofficial Chinese investment in production. Strategic objectives focus on maintaining momentum for transformation from extensive cropping to intensive horticulture, improving coordination between producers and business service providers (credit, input, and transportation), addressing land issues and environmental consequences of the use of agro-chemicals and plastic sheets. The NES focuses on Myanmar GAP standards for melons as an instrument of environmental management to safeguard smallholders against soil degradation (to make melon cultivation more sustainable,) diversify trade channels with China to create higher value, generate responsible Foreign Direct Investment, and develop a two-tier trading system (including border trade as well as direct trade with distributors in mainland China). The strategy will provide an export development framework to improve export performance and competitiveness of Myanmar melons in local, regional and international markets.

into China, at Muse in December 2018, which negatively impacted melon exports and resulted in losses of approximately 31,500 Metric Tons (MT) of melons valued at about \$6.5 million. At the onset of the crisis, leaders of MMPEA drafted a letter to MOC about the mounting losses, eliciting an immediate reply and meeting with the Minister and Vice President, who quickly took action to reopen the trading gate at Kyin San Kyawt, on the border. The episode also prompted a pledge from Myanmar government officials to examine the trading situation for melons at this gate, and **to explore the possibility of opening an expedited channel (tentatively to be called a “Green Channel”) for premium-quality, GAP-certified melons** to enter China. At the close of VCRD’s work in the melon value chain in 2019, Myanmar’s government through the MOC continued to discuss melon trade issues with China’s government, in consultation with MFVP and MMPEA.

Step 3: Innovative Public-Private Partnership (PPP) begins to deliver results

In 2018-19 Winrock developed a new PPP with MyanTrade, whose leaders are now keen to promote agriculture trade initiatives and boost export business in value chains supported by VCRD. The project and MFVP linked MyanTrade to MMPEA to boost trade in melons. As the relationship developed, MFVP and MMPEA encouraged MyanTrade and MOC to deepen their dialogue with China’s custom’s agency (the General Administration of Customs of the People’s Republic of China, or GACC) on issues affecting melon trade, including the possibility of opening additional gates at the border for melon trade to open new market channels. (For decades, melons along with only a handful of other fruit such as mangos, rambutans and lychees from Myanmar were permitted to enter into China through one of only two permitted gates at Muse. Buyers generally paid acceptable prices, but farmers faced high fruit rejection rates at these trading posts, and often lost income because it is cheaper for them to leave rejected melons there than to transport them into Myanmar.) Due to advocacy by MMPEA and MFVP, on

October 19, 2019, China agreed to open all of its trade points along the border (approximately 20) for imports of seven different types of fruits from Myanmar, including watermelon and muskmelon. This should help increase exports of melons and other fruit significantly, because **Myanmar producers will now be able sell to multiple buyers via the newly opened gates, which reach multiple markets in different geographical areas within China.** The newly opened gates should increase competitiveness and give farmers choices for where to transport and sell products.

Step 4: Melons named a priority National Export Strategy (NES) crop

MFVP data indicate that melon export volumes nearly tripled over the six-year period between 2011 and 2017, rising from 287,629 MT exported in 2011 to 837,991 MT in 2017, the last year for which full data are available (see Figure 2.) VCRD data also shows an increase in volume exported by project beneficiaries, from 226,354MT in 2017 to 906,541 MT in 2019. In recognition of the growing volume and export value, as well as producers’ efforts to become better organized, in 2017 the Government of Myanmar listed melons as a priority National Export Strategy (NES) crop—the first such fruit crop to be designated as a priority for elevated trade promotion policy in Myanmar.¹ Inclusion of a NES for a fruit crop is a milestone and achievement for MFVP, and will help the new MMPEA develop a roadmap for sustainable development of the sector through increased trade. However, it soon became clear that Myanmar’s government lacked the necessary resources (funding and/or personnel) to begin developing an export strategy for melons. After a two-year hiatus, in 2019, MFVP and MMPEA—encouraged by VCRD’s new partnership with MyanTrade—proposed to support development of a national melon strategy by recruiting an expert to conduct melon trade research and development in consultation with government counterparts including MOALI, MOC and

1 The Myanmar government initially selected seven sectors for NES development, including rice; pulses, beans and oilseeds; fish and crustaceans; textiles and garments; rubber; tourism; and forestry products.



Figure 2. Melon exports by year as reported by the Muse Commodity Exchange Center
 Note: because China does not officially recognize Myanmar melon imports, it does not track them or report statistics by volume or value.

MyanTrade. An initial workshop for the melon NES was held in August 2019 in Mandalay, facilitated by the consultant and MFVP/MMPEA, followed by a second workshop in September 2019 in Naypyitaw, led by MOC with heavy participation from DICA, DOA, and private sector actors including suppliers, traders and banking and insurance sector representatives. **The inclusion of melons as a priority NES crop is a direct result of MFVP's support for melon smallholders and means that melons have been identified as an effective engine for driving socioeconomic development** in Myanmar. While the NES development process was ongoing as of the end of the VCRD grant to MFVP in 2019, melon producers' inputs and concerns as the strategy is assembled will be communicated through MMPEA, and their feedback incorporated into the draft NES.

While the NES is under drafting (with targeted completion in March 2020), MMPEA with MFVP and MyanTrade plan to follow-up with Myanmar's government to resolve the irksome 2 percent corporate income tax (known to melon farmers as the infamous "double tax") levied on all melon exports at border trading points, imposed by Myanmar's Internal Revenue Department (IRD).² This tax is a heavy burden on melon farmers because they also are required to pay income taxes on fruit taken for export at their respective township tax departments. To resolve the issue, MFVP in coordination with MyanTrade have begun a dialogue with IRD, which, as of late 2019, requested a formal letter from MMPEA documenting the issues and competitive disadvantages posed by the levy, and promising to take action after the letter is received. This is further evidence

of the **advocacy and leadership role taken by MMPEA to resolve policy issues that impede growth and expansion of livelihoods.**

Step 5: MMPEA conducts its first trade and marketing learning mission outside the region

In July 2019, nine leaders of Myanmar's melon value chain including the General Secretary of MFVP as well as farmers, traders and MMPEA directors traveled together to Georgia and California prior to the peak summer melon season in the U.S. to study melon production, post-harvest and marketing practices. The group visited the National Watermelon Promotion Board, where they learned about the organization's history and structure for promoting sustainability of the watermelon industry in the U.S., including the



² North East Gate Public Company (NEGPC) is the owner of a large wholesale market in Muse that provides the facilities for fruit brokers, including melon buyers, to hold auctions. NEGPC's revenues mainly consist of service fees paid by the brokers that use the NEGPC's facilities. For the convenience of export procedures, NEGPC's name appear as exporter, so that IRD imposes a 2% advance income tax on NEGPC.

importance of marketing and promoting melon consumption through improved research and educational programs. Learning and trade exchanges help market actors see possibilities for growth and innovation both inside and outside their own market systems. The trip, led by MFVP and self-funded by participants (with the project providing in-country transport and accommodations) **enabled Myanmar melon market leaders to observe best practices of U.S. melon producers from farm to market, including pest and disease control and packaging.** In addition to meeting with the National Watermelon Promotion Board, the group toured a melon packaging plant and visited successful family-owned melon farms including Border Melons East and Lewis Taylor Farms in Georgia, where they observed some of the best examples of farming and packaging of melons in the southern U.S. As a result, MMPEA leaders gained new ideas and knowledge for strengthening the melon value chain in Myanmar, including best practice for packaging and shipping, as well as promotion and marketing strategies. The trip was coordinated with help from an Associate Professor at the University of Georgia who served as a VCRD volunteer in Myanmar in 2017, when he worked with MFVP and melon lead farmers to draft the first comprehensive manual of best agronomic and post-harvest practices for melon production in Myanmar (see below).

As MMPEA evolved with support from MFVP and consultants and volunteers recruited by VCRD, the association's leaders intentionally shifted to a market-orientation, focused on establishing new linkages between farmers and agri-businesses supplying seeds, inputs and financial services, and facilitating bulk purchases of fertilizers, as well as experimenting with bulk sales of melons and offering the first known commodity transport insurance for farmers.

IMPROVED ACCESS TO EXTENSION AND TECHNOLOGY HELPS MELON FARMERS LEARN ABOUT AND MEET NEW GAP QUALITY STANDARDS

*"Marriage is a little bit like buying melons, you need a little luck."
— Spanish proverb*

Step 1: Building a new extension knowledge platform focused on sustainable melon farming

Before VCRD began working with MFVP, melon farmers had no access to on-farm training or extension, either from government or the private sector. In late 2016, VCRD recruited a tropical fruit specialist, Dr. Richard Hassell, an expert in the use of Integrated Pest Management (IPM) from Clemson University (South Carolina), to work with melon farmers and MFVP. Dr. Hassell collaborated with MFVP to design a training-of-trainers (TOT) curricula that would become the first formal extension training program aimed at introducing sustainable melon production practices, including improved soil preparation techniques specifically for melon farmers. The training focused on plant nutrition management, IPM and improved post-harvest handling techniques, and was first presented to 60 selected melon lead farmers recruited by MFVP. These trainers committed to sharing information and hands-on extension techniques with other farmers in Sagaing and Mandalay regions, reaching nearly 3,000 farmers in all. When Dr. Hassell arrived in the CDZ, word quickly spread about the trainings he conducted, with dozens of additional farmers showing up, unexpectedly. His sessions were covered by national television media (later shared online) and melon producers requested permission to videotape his entire assignment, sharing the key points on a new Melon Growers' Group page on Facebook that helped to disseminate melon extension knowledge to tens of thousands of growers across the country. These trainings helped elevate MFVP's profile and drew attention from DOA, which began working on development of Myanmar's first GAP standards for melons.

Step 2: New Melon Growers' Handbook spreads improved practices

Building on the success of Dr. Hassell's first TOT assignments, in 2017, MFVP and melon lead farmers requested help assembling what would become Myanmar's first comprehensive compendium of best agronomic and post-harvest practices for melon growers. VCRD identified a top horticulturalist from the University of Georgia's Cooperative Extension Depart-



ment, Mr. Timothy Coolong, who spent nearly a month in Myanmar consulting with local growers and traders while researching and writing a manual “Commercial Production of Watermelons and Specialty Melons for Myanmar,” known as the Melon Growers’ Handbook. This guide was reviewed by DOA, translated into Myanmar language and disseminated by lead melon farmers to melon growers in different regions of Myanmar, providing practical information and solutions to issues and challenges faced by melon farmers. The **guide covers everything from nutrient-related disorders and weed management to the differences between transplanting and direct seeding and includes information on improved packing and transport methods.** MFVP collaborated with Yezin Agricultural University and MOALI to ensure a proper, scientific translation of the handbook’s content into Myanmar language, and produced/distributed copies, as well as also posting online.

During his research in Myanmar, Mr. Coolong realized that most farmers had little-to-no information about a potentially devastating, seed-borne melon disease called Bacterial Fruit Blotch (BFB), which, if undetected, can damage huge swaths of melons. Not only did melon farmers not know that the disease was seed-borne, they had no equipment or training on how to detect it. As a gesture of goodwill, upon his return to the U.S., Mr. Coolong asked the head of the University of Georgia’s Horticulture Department if the university could donate some BFB “immuno-strip” detection kits. The University agreed, and Coolong sent 50 BFB test kits to MMPEA leaders in Myanmar, helping melon farmers and extension providers begin to correctly diagnose the disease. The kits were sorely needed but difficult to procure locally and are now helping to protect

smallholder earnings and livelihoods. The donated kits are now in wide use by members of MMPEA, whose leaders are investigating potential suppliers based in Thailand.

Step 3: Development of the first national grades and standards for melons

In early 2018, to stimulate dialogue among melon value chain stakeholders on the importance of developing and maintaining quality in melon production, MFVP coordinated a major trade promotion event at the Muse border, “Upgrading Quality Standards for Melons,” bringing together government agriculture and trade officials, smallholder farmers, melon traders, cluster leaders and others to discuss standards aimed at helping melon growers earn increased prices for better-quality produce. This event encouraged the Government of Myanmar later to develop the first nationwide grades and standards for melons, in line with ASEAN standards regarding size, shape, damage, color, smell, taste, ripeness, inspections, moisture, purity, consistency, packaging, chemical residues, sample collection and testing methods. As a result, the MOC in 2019 officially approved and published Watermelon Grade and Standard Guidelines, with muskmelon grades and standards nearly completed and under review as of the end of 2019, with approval expected, soon. When both sets of grades standards are completed and published, MMPEA will work with MOC to publicize information about the guidelines across the country, with the aim of creating incentives for farmers to increase quality to meet new standards that can help them earn more consistent prices pegged to established grades.

IMPROVED AGRONOMIC PRACTICES AND ACCESS TO BETTER INPUTS AND SERVICES

“There is no light as bright as knowledge.”
— Burmese proverb

Step 1: Understanding soil quality

Prior to VCRD’s collaboration with MFVP, many melon farmers in Myanmar were unaware of the need to test their soil in order to properly amend it to address specific deficiencies (or surpluses) of nutrients. MFVP and lead farmers set out immediately to address this issue, identified as one of the most important issues facing melon farmers. The TOT provided by Dr. Hassell, which covered topics including Plant Nutrition Management, IPM and improved Post-harvest Handling Practices for melon production provided a foundation for this work. Gradually, **melon farmers began to realize and buy into the concept that that they must regularly perform soil and water testing in order to learn in detail about the mineral and chemical composition of their soils** (and water) prior to preparing their farms and/or treating melon plants with inputs, in order to develop a proper fertilizer regimen and avoid paying for and using unnecessary treatments.

As a result of this campaign, MMPEA is now encouraging its farmer-members to regularly conduct seasonal soil sample testing through the DOA’s Land Use Department across the CDZ, with samples now being sent regularly from approximately 25 townships in Sagaing and Mandalay. This new practice is helping melon farmers begin to protect against soil degradation due to overuse or improper use of agrochemicals.

Step 2: Improved fertilizers and other inputs and technology are introduced

Historically, melon farmers in the CDZ sourced inputs including fertilizers, pesticides, insecticides and fungicides from chemical suppliers in Mandalay, often purchased on credit. Input providers faced little competition and had few incentives to offer a diverse range of high-quality products, preferring instead to market low-cost, low-quality inputs in order to keep their own costs down and profits up. A handful of local input supply companies monopolized the market, reducing the number of choices available to farmers for selection of the proper fertilizer quality needed for their fields. With many fertilizers and inputs illegally imported from China or Thailand, most widely available fertilizers performed poorly. Because farmers felt these products lacked the proper nutrient punch, they often applied much higher volumes of fertilizer than required in order to treat a range of different kinds of soil deficiencies. Farmers are now making knowledgeable soil amendment choices and following fertilizer programs that more efficiently target their soil deficiencies. Knowing more about their soils and necessary amendments also prompted lead farmers and MFVP to begin exploring linkages to external inputs and fertilizer providers offering higher-quality products calibrated to meet their specific nutrient needs.

“Farmers do not take annual soil samples and really have no idea as to what benefit it would have for them. The knowledge of what to look for in plant deficiency and plant toxicity to any of the elements was limited.”
– Daw Nwe Ni Nyunt, Deputy Director of the Land Use Department, MOALI, as quoted in an article in Yadanarpon Daily newspaper in 2018.



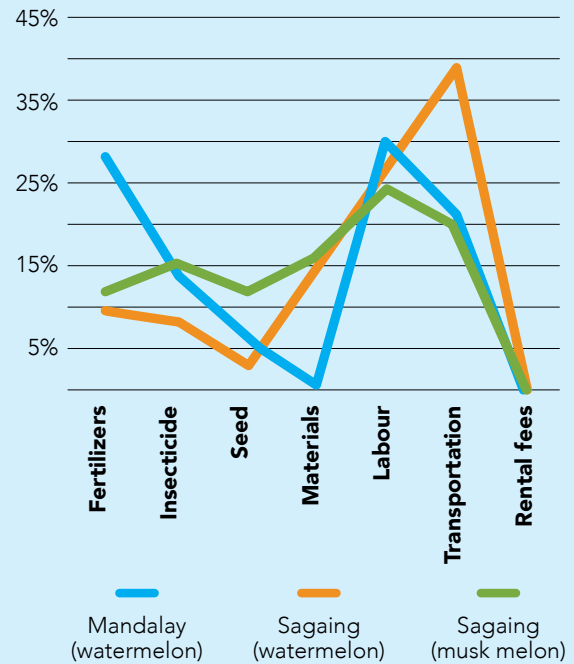
Legally approved for import, Yara fertilizers have become popular after a bulk purchase by MMPEA in 2018 enabled melon farmers to experiment with improved inputs. The fertilizer costs more, but goes further and is more effective than other, illegally imported fertilizers, according to farmers.

One of those new providers is a Norwegian company called Yara International, a global agro-inputs firm specializing in environmentally sustainable products. Beginning in 2017, Yara representatives learned about MFVP’s work with melon farmers and became interested in engaging with melon farmers in the CDZ. By invitation from MFVP and melon lead farmers, MFVP collaborated with Yara on soil management training and testing for farmers through small demonstration plots established to test the quality and adaptability of Yara products. Though cost is a factor, and Yara products are more expensive than locally available or illegally imported (Chinese) fertilizers, melon farmers were extremely interested in Yara’s products, and saw the sense in exploring the company’s fertilizers as a means to create competition in the inputs market. MFVP and MMPEA leaders recommended Yara International to MOC and began advocating to the government to legally permit imports of Yara’s inputs. This was significant because at the time, the government maintained strict controls and limitations that prevented international inputs suppliers from selling locally. Yara inputs were officially permitted to be imported and legally sold in February 2017, after the government lifted restrictions on imports of agro-chemicals by 100 percent foreign-owned companies. As a result, melon farmers began using Yara’s improved compound fertilizer products in the CDZ to immediate effect, with melon farmers reporting they needed to use only seven bags of registered Yara product to produce the same effect on their melons as 10 bags of domestically produced fertilizers. Though Yara products cost more per bag, the increased prices were offset by the smaller volume of fertilizer required as well as improved outcomes, farmers reported.

Step 3: First inputs survey adds to association knowledge

In 2018, MFVP and MMPEA undertook a joint research initiative with help from a local consultant to conduct Myanmar’s first Melon Farming Inputs Supply Survey. This survey initially had been planned for 2017 but was delayed more than a year due to issues obtaining permission from the Government of Myanmar to conduct it. The survey provided important new data on the costs of production, efficiency of various fertilizers, pesticides and other inputs and total production acres per region. It also provided a good baseline of information about suppliers, sales methods, types of products most used by farmers, volumes purchased and other information. The survey helped MMPEA leaders define the parameters of a problem that melon farmers had been reporting for years, regarding the high costs of inputs. The research revealed, for example, that melon farmers in areas of the CDZ alone use up to 5,000 MT of fertilizers for production per season, and that input costs are by far the biggest expense of melon production during the season (see Figure 3.) Other findings created a sense of urgency to address the overuse

Figure 3. Proportion of cost of production for melon



and improper use of agrochemicals, and also called attention for the first time to the widespread, unsustainable use of plastic mulch (sheets of plastic used to control weeds between vines) on melon farmland, convincing MMPEA to begin a public awareness campaign, using posters and social media, asking farmers to think about alternatives to the use of plastic, which is either burned or buried in the soil after only a season or two (at most) of use. The survey also prompted MMPEA to promote new linkages with higher-quality inputs companies like Yara, JJ-PUN and Syngenta, and begin to brainstorm ways to bring inputs costs under control through potential collective inputs purchases with bank financing.

Step 4: Seed sector development

Maintaining ready/easy access to high-quality, legally registered seeds has been among the most intractable challenges faced by Myanmar melon farmers. Largely imported unofficially from China, most seeds used by melon farmers are sown with no guarantee of seed quality, germination rates, or testing for disease. Historically, the only way for farmers to check seed quality has been to compare written information (often in Chinese) on seed packaging labels or containers used from previous seasons; i.e., seeds with relatively good germination and growth rates from previous seasons would be purchased and used again. Because the government’s efforts in support of agriculture have largely focused on non-fruit and vegetable commodity crops (such as rice, beans and pulses), very little seed production research or commercial development

of seeds for the fruit and vegetable sector has occurred in Myanmar. Thus, China continues to supply the vast bulk of melon seeds used by melon farmers. Irrespective of the potentially enormous demand, very few private sector companies have stepped up to begin legally importing melon seed. Farmers and other melon value chain stakeholders say one of the main reasons for this is the exorbitant fee (up to 800,000 Myanmar Kyat, or approximately \$532) for registration charged by the government for legal imports of various seed varieties. As a result, legally imported seeds cannot compete against the ready supply of cheap, unregistered seed from China.

To call attention to the seed problem and begin developing potential solutions, in one of its first, major initiatives, **MFVP in 2016 organized Myanmar's first National Melon Seed Forum in Mandalay. Attended by nearly 800 stakeholders—600 of whom identified themselves as melon farmers**—including input suppliers, melon cluster leaders, traders, private sector seed companies, the Mandalay Region Minister for MOALI and the Director General of the MOC met to discuss issues including the influx of Chinese investors leasing land in Myanmar to produce melons for export, Myanmar's proposed new seed law and its potential impact on introduction of new melon seed varieties. As a result of the forum, MFVP forged an important new connection with a local firm interested in the melon business: Seeds Energy Agro Group, one of the few companies in the country to have obtained legal registration for import of several varieties of melon seeds from China including varieties of HN 301, Ruby 999, SEA 549, 855, Seedless and Yellow types). Of those varieties, three are now commercialized across melon growing area in the country, while a second watermelon seed variety imported by Seeds Energy, 824, is undergoing the registration process. Another company, Bo Myint Thu Trading Co., also submitted seed registration paperwork seeking registration to import four varieties of watermelon seed and two muskmelon seed varieties (all Chinese) to DOA to obtain legal importation approval, and, in consultation with MFVP and MMPEA, began conducting variety demonstrations and trials during harvests in 2018. These demonstrations helped prove to farmers the quality of Bo Myint Thu's seeds, and in 2019, the company successfully registered three muskmelon varieties (Shwe Sin, Wu Khone and Pike) along with two watermelon varieties (A Sae Latt, and Shwe Pha Ye,) improving farmers' access to registered, tested seeds for the first time.

Despite the slow pace of registration, companies like Bo Myint Thu and Seeds Energy remain committed to opening up new seed purchase options and availability for Myanmar melon farmers, while MFVP and the new MMPEA will continue to push for more efficient government registration of imported/legal seed varieties. In 2019, Seeds Energy submitted an additional three varieties of melon seeds to DOA for registration, while another company, Big M Co. Ltd. also submitted three varieties for

registration process (all varieties preferred by the China market). Once approved, these additional six seed types should provide melon farmers with additional options. In the meantime, Seeds Energy is now engaged in contract farming schemes with melon farmers, whereby the firm provides farmers with registered/legal seed and a production schedule with different dates for growers in different melon production zones. Melons purchased under contract are then exported by Seeds Energy to Hong Kong through the Muse gate and then by freight to Singapore. The varying production schedule arranged by Seeds Energy is helping the firm provide a consistent supply to its buyer in Hong Kong. Contracted farmers are paid 0.32 cents per kilogram for their watermelon—more than double the price offered for wholesale purchases made at the Muse border.

Step 5: MIMPEA introduces commodity transport insurance service

Loss of profit due to road accidents and transport-related damage to melons incurred during the long trip to Muse over poor roads has long been cited as a major bottleneck to growth in the melon value chain. At the peak period of melon exports from December to February alone, the NEGC wholesale market accommodates 500 trucks carrying 17 tons of melons from Myanmar every day. Until 2018, melon farmers lacked any recourse to recover losses associated with road accidents or unforeseen damage to melons after they were packed and transported. However, MMPEA and a local insurance provider, IKBZ Insurance Co., co-developed a new service product in 2018, in which the association offered to promote the insurance company's commodity transport insurance to its membership of 3,150 watermelon and muskmelon growers, in exchange for a percentage of premiums paid up by members. MMPEA negotiated a 10 percent commission on premiums paid to IKBZ by melon growers, which helps support the fledgling association's operating budget. **This innovative private sector linkage is now helping about 150 melon farmers protect themselves against losses incurred during transport, up from just eight farmers who signed up in 2018** (the first season the program was available), providing insurance coverage so far for more than 800 trucks. (See Table 2, below, for details about costs of the coverage.)

Table 2: Commodity transport insurance rates and coverage for melon farmers

Premium/service fee (in kyat, per truckload)	Reimbursement by IKBZ in case of loss/damage
7,500 (\$4.90)	5 million
15,000 (\$9.98)	10 million
22,500 (\$14.98)	150 million
30,000 (\$19.97)	200 million

IKBZ representatives say they anticipate that more melon farmers will take advantage of the affordable insurance offering when the upcoming 2019 harvest season arrives. Furthermore, the successful program coordinated with MMPEA has helped motivate the firm to reach out to farmers growing and transporting other fruit crops, like mangos. The innovative transport insurance scheme, believed to be one of the first to cover a horticulture crop in Myanmar, is evidence of how market-based solutions and partnerships are helping overcome systemic problems within value chains, unlocking economic growth in Myanmar's agriculture sector.

Step 6: Linking melon farmers to new financing options

In early 2018, MFVP and MMPEA leaders set out to help smallholder melon farmers find new pre-season financing options by building a relationship with a new Microfinance Institution (MFI) that opened an office in Chaung Oo Township, near the association's headquarters. Alliance for Microfinance in Myanmar, a lending institution partnership between FIDES of Switzerland and BASIX of India supported by the United Nations Capital Development Fund, has the goal of providing micro-entrepreneurs with quality financial services to sustain businesses. What began in 2018 as a pilot program to provide melon farmers with small cash loans of around \$330 to \$645 to help cover pre-season loans has grown substantially, with **Alliance's agriculture loan specialist reporting that nearly 650 melon farmers had received loans through the program through late 2019, with more than \$409,000 in loans issued** to melon farmers alone. While the loans are small and relatively simple to access, the monthly 2.5 percent interest rate is somewhat steep for smallholders, who are expected to pay back the loans at the end of the melon season, or usually within about 4-7 months.

In the meantime, MMPEA has begun testing other forms of finance support to its members, specifically to address pre-season costs associated with obtaining high-quality inputs. Shortly after its formation in 2018, MMPEA arranged the first bulk purchase of improved inputs with financing provided by A bank for fertilizers purchased from Yara International, and by Yoma Bank for other inputs purchased through a reputable local inputs supplier, JJ-PUN. The financing deals, officially announced in September 2018 at the offices of the Union of Myanmar Federation of Chambers of Commerce and Industry in Yangon, were struck after MMPEA issued a bulk inputs purchase tendering process with support from MFVP. **These loans enabled lead melon farmers to obtain nearly 760 MT of fertilizers from Yara at a 2.5 percent discount**, with Yara agreeing to provide soil testing in a laboratory in the United Kingdom as part of the deal, and A bank providing the financing for the nearly \$395,000 fertilizer purchase. The Yoma and JJ-PUN deal was worth about \$318,000 of registered



In February 2019, a melon farmer from Bago who signed up through MMPEA and paid 7,500 Myanmar Kyats (or just under \$5) to insure one load of melons worth about \$2,950, got to test the new system, when a truck carrying his melons was involved in an accident involving partial losses in northern Shan. IKBZ paid the farmer the full value of the policy—about \$3,270.

pesticides. As a result of this first-of-its kind financing service offered by MMPEA, lead farmers from eight townships across the CDZ received inputs purchase financing for the first time, enabling them to obtain and use high-quality inputs in advance of the season, and to provide high-quality inputs for up to 100 other melon farmers. Representatives from Alliance, A bank and Yoma Bank remain engaged with MMPEA through melon trade promotion and other events, and plan to continue to provide additional forms of financing to melon farmers in the future. Terms for A bank financing to melon farmers through MMPEA for the 2019 melon season were under discussion as of the close of the MFVP grant from VCRD in September 2019, with an estimated \$660,000 in financing at stake. The involvement of these three established financing firms, and the better organization and outreach efforts being made by MMPEA have resulted in competition between potential finance providers, including AYA Bank, which reportedly was interested in lending at a similar level through the association this year. Association leaders say they'll wait to see which bank offers the most attractive terms before deciding on future financing deals.

Step 7: Exploring collective melon production and sales

MMPEA members from Meikthila Township in the CDZ organized the association's first collective production and sales initiative involving melons in late 2018. The group of seven experienced watermelon farmers gained valuable experience managing a collective procurement involving cultivation of a 40-acre area, successfully producing about 600 MT of watermelon. MMPEA later reported that the group's total inputs costs decreased by about 20 percent (compared to individual production) as a result of the

group effort, with farmers purchasing and sharing costs of inputs together. Plantation management was also more easily managed with shared resources including land, labor and pre-season capital covering costs associated with weeding and inputs application. **Yields and quality were reportedly 25 percent higher than through individual production, according to MMPEA.** Incentivized by the positive result, the same farmers will repeat the practice on 30 acres of land in the coming seasons and have begun sharing their lessons learned with other melon farmers interested in replicating the effort. MMPEA's leaders said they are committed to sharing the results of the collective sales initiative with farmers in other areas.

EXPERIMENTING WITH GAP AS A STRATEGY TO OPEN NEW MELON MARKETS

*“No melon peddler cries: Bitter melons!”
— African proverb*

Step 1: GAP standards and practices for melons become established

To lay the foundation for uptake of improved farm and post-harvest practices including potential GAP certification, MFVP began working in 2016 with lead farmers to distribute Field Record Books developed by DOA, encouraging farmers to begin keeping better, more detailed records of production practices and to carefully record their use of inputs and other information required for traceability and certification. Lead melon farmers distributed copies of the record books during TOT “multiplier” trainings conducted by farmers who had previously participated in TOT with Dr. Hassell and MFVP’s lead GAP trainer. Farmers learned that all information recorded in their books could/would be used to help them more efficiently plan to cover expenses upcoming seasons, create budgets, track trends on their farms, and more quickly identify positive or negative outcomes. Distributing Field Record Books and providing training on how to maintain may seem like an obvious first step to take to improve farm organization and management, yet prior to MMPEA’s creation, DOA had no mechanism to connect with large numbers of melon farmers to distribute the books, or to mentor or monitor farmers use of them. With the engagement of MFVP and entry of MMPEA, however, these record booklets quickly became invaluable reference points for farmers interested in learning about and applying GAP practices and, ultimately for formally applying for GAP certification for their melon farms. Now maintained by most, if not all, MMPEA farmer members, these books (produced by DOA) are now providing critical documentary evidence of improved practices adopted and used by melon farmers, including input types and volumes, application methods and schedules, seed types and sowing dates, yields and harvest schedules. Such detailed records had not before maintained previously in any kind of methodical fashion by melon farmers until their introduction by MFVP and promotion by MMPEA in cooperation with DOA.



U Win Kyaw Naing of Ma Hti Thar Village, Chaung Oo Township, Sagaing is Myanmar’s first GAP-certified producer. He cultivates muskmelon on approximately 30 acres and participated in melon GAP trainings facilitated by MFVP, eventually becoming a trainer dedicated to sharing GAP practices and promoting the use of improved technology to other farmers. In 2018, he decided to apply all GAP requirements recommended by DOA on his own farm, including submitting soil and water samples for analysis to the Land Use Department. As a result of his efforts, he became Myanmar’s first GAP-certified melon producer in May 2018. U Win Kyaw Naing said he believes becoming GAP certified will help improve his bottom line and that more farmers will follow his lead: “I think we will get better prices in the coming season.” He added that GAP, with its emphasis on reduced use of chemicals and safe on-farm practices, is the wave of the future, because it helps protect both “the producer and consumers – it’s good for humans and the environment, for farm owners and employers’ health and welfare. It’s sustainable farming.”

Step 2: MFVP and MMPEA deepen collaboration with DOA on GAP for melons

In November 2017, DOA published the first GAP protocols for fruit and vegetable crops, including muskmelon and watermelon. To help lead melon farmers grasp the basics of the new protocols, DOA arranged an initial GAP Guidelines Training in Chaung Oo Township, the heart of MMPEA's muskmelon growing area, and MFVP followed up by organizing a series of their own GAP certification workshops with melon lead farmers in partnership with DOA, reaching approximately 7,000 melon farmers. Topics covered included the rules and regulations for melon GAP developed by DOA, market incentives for reaching GAP standards, and the mechanics of how to achieve GAP for melons. Dr. Wunna Tun, DOA's Staff Officer in the Horticulture and Plant Biotechnology Division, presented information about GAP and its significance to the international trading system at the workshop, and was joined by Daw Than Hla, the Chaung Oo Township DOA officer. In May 2018, DOA issued the first Myanmar GAP Certificate for Melons to U Win Kyaw Naing, a lead melon farmer and MFVP trainer from Chaung Oo Township, followed by five additional GAP certified farmers. So far, approximately 80 melon farmers have submitted applications to DOA for inspections and hoped-for GAP certification of their melon farms.

Employing GAP can reduce farmers' production costs, enabling them to more efficiently and cost-effectively grow and sell safer food. Myanmar's melons are currently exported almost exclusively to a single market: mainland China, with a small portion also going to Singapore, Thailand and Malaysia. Obtaining GAP certification also should help Myanmar's melon farmers attract new direct-market customers in China and other countries and begin competing against other regional melon exporters from Vietnam, Thailand and Malaysia. A diversified export market will help melon farmers boost profitability and spread risk by ensuring their product is not dependent on a single market, contributing to improved livelihoods, all of which are part of the draft National Melon Export Strategy.

Step 3: Establishment of melon "Group GAP" zones

Building on the momentum and enthusiasm for GAP stemming from introduction of the protocols to melon farmers from varying production regions, association farmers U Khin Maung Tint from Mya Taung Village, Tigyain Township, and Ko Kan Htoo Aung from Sagaing region collaborated in 2019 to organize the country's first watermelon "Group GAP" production zone. As a result, melons from their farms in 2019 reached the shelves of high-end supermarket chains in Myanmar including City Mart, marketed for the first time as Myanmar-grown, GAP-certified



U Han Tun Yin (above, left) was among the first domestic producers to begin selling residue-free melons to City Mart, and has also found success selling directly to a chain of retail outlets in China (NCA Co.) which is interested only in residue-free produce. "In reality, quality is more and more important to knock (enter) potential future niche markets. I mean producing GAP products, chemical residue-free products, and others—this is what I mean by quality. We need to conduct market research in order to get the message of 'consumer preferences' simultaneously to sustain our market."

produce, and earning quality premiums of up to \$1.50 more (per 15 kg) than previously. The two pioneering farmers coordinated with DOA and MMPEA to cultivate 70 contiguous acres in Tigyain for their project. In the next season, U Khin Maung Tint said he plans to expand the system with three other farmers, who together have applied for Group GAP certification from DOA. The application was under review as of the close of the Innovative Grant period in September 2019, but once certified, the Tigyain initiative is set to become the first such group certification GAP Zone in Myanmar.

In a similar initiative, 30 muskmelon farmers from Chaung Oo Township also began planning in 2019 to collaborate to produce GAP-certified melons on 150 acres. Due to the lack of available contiguous plots in Chaung Oo, these farmers opted to first apply individually (on their own individual plots) for GAP certification in the 2019 season, with an eye toward converting to a Group GAP Zone in the next season (if land can be obtained either from government or other sources.) In addition to the high-end domestic supermarket channel for GAP melons, **MMPEA is exploring new options for GAP melon trade at the border, recently entering discussions with Myanmar's government and NEGC (the main wholesaler of melons at Muse) to open a "Green Channel" to expedite the entry of Myanmar GAP-certified melons into China**, after a reasonably consistent supply of GAP melons is

available. All these GAP pieces are beginning to fit together, as called for in the draft version of the National Export Strategy, which aims to develop GAP production as a strategy to access a more diverse and lucrative market, while promoting more sustainable and environmentally responsible cultivation and post-harvest practices.

Step 4: Farm puts consumer safety first, finds new market for GAP melons

One MMPEA leader, U Han Tun Yin, has begun to penetrate direct-sale retail markets in both Myanmar and China with several different melon varieties, including muskmelons, grown with limited chemical inputs. These products are now branded and marketed successfully as the first chemical residue free melons in the country. U Han Tun Yin, the owner of Medihub Farms, explained that his family business got its start by importing and distributing medicine (hence the name “Medihub”), and that when he launched his melon farms in 2013, consumer safety and health issues were paramount. He established a 20-30 acre melon farm in Heho (southern Shan) as well as a larger, 130-acre farm in Tatfone, near Naypyitaw, with encouragement from a Taiwanese fruit importer who had identified the lack of residue-free melons from Myanmar as a potential market opportunity. Medihub joined MMPEA (a VCRD partner) upon its establishment in 2018, and since then, its farmers have participated in GAP and other extension and trade activities, learning about soil and water testing requirements, becoming GAP compliant, and then earning GAP certification (becoming just the second GAP certified melon farm in Myanmar). Medihub is now doing business with NCA Company in Guangzhou, China, which requires its produce to be chemical residue-free and hormone free (to use no hormones for enhanced fruit size, color, or sweetness). Medihub is doing steady business now, producing around 700-800 MT of muskmelon per year.

STRENGTHENING MFVP'S CAPACITY TO LEAD AGRICULTURE SECTOR GROWTH

“Cows that do not stay as a herd become victims of the tiger.”
— Burmese proverb

Step 1: MFVP's elevated profile helps it to gain increased responsibility and legitimacy

Before MFVP began its collaboration with VCRD, the association had experience managing relatively small-scale grants to support its work in horticulture. Upon inception of the Innovative Grant from VCRD in 2016, MFVP has become recognized as a serious stakeholder in the promotion of quality practices, technologies and marketing in fruit and vegetable value chains. MFVP's General Secretary, Ma Sandar Myo, said **the experience MFVP gained managing the value chain strengthening program for melons provided the confidence it needed to take on other value chain support initiatives**, including projects supporting market linkages for avocado, coffee and yam farmers in Chin State.

MFVP's Ma Sandar Myo credits MFVP's connection to VCRD in 2016 with helping to motivate the association's leaders to begin actively implementing programs that directly impact farmers and lead to new market opportunities, such as those now becoming available to melon farmers pursuing GAP. The grant also provided the im-



Ma Sandar Myo, General Secretary of MFVP, was selected to travel to the U.S. in September 2019 to participate in the Women's Global Development and Prosperity Initiative, a U.S. Presidential initiative to advance global women's economic empowerment. During her trip to Washington, D.C., she promoted USAID's support for inclusive economic growth in Myanmar through VCRD, by highlighting examples of women's entrepreneurial leadership in melons and other value chains Ma Sandar Myo met with U.S. Senators and other high-level officials as part of the initiative, which supports increased women's prosperity in the workforce and entrepreneurial success, with the goal of enabling more women to support increased economic growth.

petus to MFVP’s leaders to pursue “national-level” trade association status from the government, which it gained in October 2018. Additionally, the Innovative Grant also helped MFVP to become perceived as something more than just a paper tiger with lists of members, evolving into an activist trade promotion association able to introduce changes and organize important value chain strengthening activities on issues including extension and farm advisory support, improved access to inputs, finance and other services like transport insurance and GAP production and sales initiatives.

The growth of MMPEA has lent MFVP’s leaders a sense of increased confidence and relevance as the association expands its portfolio and pushes for needed change on seed registration, border taxes, exports and other matters issues affecting melon trade between Myanmar and China. MFVP is leveraging its increased legitimacy to advocate for systemic improvements and market access that will benefit smallholder farmers and other stakeholders in the fresh fruits and vegetable sector, in addition to melons, starting with potentially high-value crops like mangos, avocados and coffee. MMPEA also has gained increased influence and recognition not only by its members but also from the Myanmar government. One prime example is MMPEA’s decisive action, supported by MFVP’s leadership, during the closure of the Muse trading gate in December 2018/January 2019 (cited above). Another example is MyanTrade’s eagerness to collaborate with MMPEA to develop the new melon NES.

Step 2: Increased investment opportunities

In addition, **an increasing array of firms and organizations are now approaching MFVP for expanded partnership and growth initiatives**, including the CDC Group Development Finance Institution (the United Kingdom’s government’s development finance organ), which is exploring an investment of up to \$3 million in an elephant foot yam, a tuber, processing facility. In the meantime, MFVP is attempting to engage CDC in the melon sector, since CDC is already helping to fund development of City’s Mart’s “Pride of Myanmar” local food products line. (If melons can be processed and packaged through a CDC-funded warehouse, MFVP’s leaders say, melons might be included as a “Pride of Myanmar” product, opening up a new market channel and giving melons a new platform alongside other products including pickled tealeaf and sunflower seeds). Other potential growth and investment opportunities in the mix for MFVP as of the end of 2019 include a potential impact investment from the Germany-based KfW IPEX-Bank, valued at about \$3 million.

Step 3: Moving forward: MFVP and MMPEA

MFVP’s strategic vision is to develop clear strategies and prioritization of the steps needed for accelerated development of high-value crops and value chains in the fruit and vegetable sector. As noted above, as a direct result of the Innovative Grant from VCRD, MFVP and MMPEA are now deeply engaged with Myanmar’s government in development of the melon National Export Strategy. When complete, the strategy will serve as a blueprint to aid MFVP as it sets about developing other crop export plans, such as one that has been proposed for mangos (after melons, mangos are the second highest-value fruit export of Myanmar.)

MFVP will continue to act as a sounding board to provide MMPEA’s leadership with advice and valuable connections through its growing network of government, private and public sector partners, and to help the melon association as it designs and manages the first Group GAP Zones for both muskmelon and watermelon, with the goal of linking GAP producers directly to new markets in mainland China. **MMPEA is also aware of the need to more systematically evaluate new business and investment opportunities, and plans to recruit a qualified Chief Executive Officer with experience in shareholder management**, business planning and development of strategic communications and marketing planning. In mid-December 2019, MMPEA leaders will push to finalize plans for the proposed “Green Channel” for GAP melons (as called for in the draft National Export Strategy) at the annual Melon Trade Promotion Workshop held in Muse. Representatives from MOC, the Customs Department, Muse traders, MMPEA, and melon farmers will join the event.



Melon carvers at #MarketNext, VCRD’s final learning, sharing and B2B event. MFVP and MMPEA have learned how to conduct outreach and proactively grow markets by getting all market system actors together to share information, problem solve and explore new ventures that contribute to inclusive value chain growth.



PROJECT LEARNING, REFLECTIONS AND IMPROVEMENT

*“Whether the knife falls on the melon or the melon on the knife, the melon suffers.”
— African proverb*

GAP production challenged by land leasing issues

One major reason why GAP production of melons has not accelerated as quickly as GAP production of other commodities such as sesame, avocados, chilies or mangos is due to chronic problems resolving land lease issues. Melons is such an intensively farmed crop that it requires constantly shifting cultivation, which relies on the availability of land for leasing by farmers. Overly intensive farming causes soil degradation through overuse of agro-chemical inputs, compounded by the extensive use of plastic sheeting for mulch (for weed suppression.) These issues have limited melon farmers’ capacity

to qualify their land for GAP practice and certification. Some melon farmers who produce primarily on leased lands are reluctant to invest in compliance with all GAP requirements, such as building permanent structures including toilets and installing filtered water management systems on land that they do not own. Group GAP certification may offer a potential workaround to the problems faced by farmers considering individual GAP certification, as it should help spread costs and maximize plantation management efficiencies.

To penetrate new markets, create opportunities for producers to connect directly with buyers

VCRD and private sector partners involved in other value chains such as coffee, sesame, ginger and soybeans have each found success in new markets as a result of coordinating multi-stakeholder activities and Business-to-Business (B2B) events aimed at fostering new connections and exploring new opportunities for expansion and formation of joint ventures. These events have yielded results because they all emphasized the participation of buyers or potential new customers of crop products. Nearly all of those buyers have freely offered their advice, tips, and guidance regarding end-market requirements, specifications, logistics and possibilities for exploring growth and/or piloting small procurements to test the viability of new sales channels. This has resulted in myriad initiatives in other VCRD-supported crops, ranging from new Public-Private Partnerships between private extension providers like Sein Lan Wai and DOA in the soybeans value chain, to new procurement contracts involving local spice processors and ginger farming groups with European organic produce buyers, to new, direct-sale relationships between domestic coffee retailers and Shan coffee producers, and in new investment in temporary warehousing and processing facilities in the sesame value chain. Some of these events have also led to new loans and/or other financing opportunities for producers and processors.

While MFVP and MMPEA have participated actively and enthusiastically in large-scale trade events including government-to-government (Myanmar to China) promotional activities and annual assemblies, the associations may add value to their memberships by organizing a series of smaller-scale, melon trade promotion and/or B2B events, to be held in various melon production zones. These should explicitly involve interested buyers, traders and exporters to meet directly with farmers, visit farms and explore potential opportunities for new sales deals. In VCRD's experience, creating multiple opportunities for buyers or prospective buyers to interact directly with farmers, inspect produce and visit farms, and trade information about specifications and terms, results in new communications flows and improved understanding that leads to market growth. If MMPEA co-hosted a series of melon stakeholder events, GAP-certified producers such as U



Above: MMPEA Chairman U Naing Win meets with US Ambassador Scot Marciel at VCRD's final B2B and learning event with partners in October 2019. As a result of support from VCRD and MFVP, MMPEA is now an established melon value chain leader able to use its influence to leverage new opportunities for growth of the melon sector in Myanmar.

Win Kyaw Naing and U Han Tun Yin (Medihub) could share their experiences with other growers, while buyers from City Mart and Ocean supermarkets could talk about why their outlets are interested in chemical-free and/or GAP produce. Traders and wholesalers from NEGPC, exporters like Seeds Energy, and seed providers like Bo Myint Thu and Big M, as well as importers like NCA could potentially expand their accounts. Buyers from Hong Kong, Singapore, Dubai, Malaysia and Thailand should be included. In VCRD's experience, in addition to buyers, such events unfailingly attract inputs and finance providers, as well as other potential service providers, resulting in expanding service provision possibilities.

