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FINAL REPORT

MOLDOVA AGRICULTURAL COMPETITIVENESS AND ENTERPRISE DEVELOPMENT (ACED) PROJECT

MARCH 2016

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MOLDOVA AGRICULTURAL COMPETITIVENESS AND ENTERPRISE DEVELOPMENT (ACED) PROJECT

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ABBREVIATIONS

AAF	Access to Agricultural Finance Activity
ACED	Agricultural Competitiveness and Enterprise Development
AGEPI	State Agency for Intellectual Property
ANSA	National Food Safety Agency
APESM	Table Grape Producers Export Association
BSP	business service provider
CIBER	Competitiveness Impacts of Business Environment Reforms
CIS	Centralized Irrigation System
COP	Chief of Party
DCOP	Deputy Chief of Party
ESOMAR	formerly known as The European Society for Opinion and Market Research, now global and retaining the acronym as their name
EU	European Union
FDI	foreign direct investment
HDP	Horticulture Development Program
IFAD	International Fund for Agricultural Development
IFS	International Featured Standard
ISPM	International Standard for Phytosanitary Measures
HVA	high-value agriculture
MAFI	Ministry of Agriculture, Food, and Industry
MCC	Millennium Challenge Corporation
MDL	Moldovan Leu
MIEPO	Moldovan Investment and Export Promotion Organization
MOU	memorandum of understanding
MSME	micro, small, and medium-sized enterprise
NAG	Network Advisory Group
NBS	National Bureau of Statistics
NII	Scientific Research Institute
PHH	post-harvest handling
PMEP	performance monitoring and evaluation plan
RFP	request for proposals
RIA	regulatory impact analysis
RTSP	regional training service provider
SO ₂	sulfur dioxide
SPS	sanitary and phytosanitary
STTA	short-term technical assistance
TA	technical assistance
TAMIS	Technical and Administrative Management Information System
THVA	Transition to High-Value Agriculture Project

UK	United Kingdom
UNDP	United Nations Development Programme
VCSC	Value Chain Support Center
WAN	Women in Agriculture Network
WUA	water user association

I. EXECUTIVE SUMMARY AND HIGHLIGHTS

The need to diversify export markets is broadly accepted throughout Moldova. The Agricultural Competitiveness and Enterprise Development (ACED) project supported this imperative—including improving Moldova’s sanitary and phytosanitary standards compliance and its ability to meet international food safety standards. The project improved Moldova’s high-value agriculture (HVA) sector, working initially in value chains such as tomatoes, table grapes, treefruit, and vegetables to improve production and post-harvest handling. The project, which operated from April 2011 through March 2016, achieved significant results in Moldova, in some cases exceeding indicators by 200 percent or more. Monitoring and evaluation played an essential role in tracking the progress of ACED, allowing for ongoing learning and program adjustments. The ACED project was a historical first in that it received joint funding from USAID and the Millennium Challenge Corporation (MCC), leveraging US\$102 million in irrigation investments made by MCC to help foster transformational change in the Centralized Irrigation System (CIS) zones. ACED was also the first private sector project to work at scale in the break-away region of Transnistria, surprising both banks of the Nistru by achieving strong cross-bank results and building increased trust and cooperation among individuals. The project’s systemic approach developed the capacity of actors within value chains to respond to end-market demand, leading to sustainable change at scale. The skills farmers learned through ACED allowed rural Moldovans to increase their incomes, create jobs, and remain in Moldova instead of emigrating in search of economic opportunities.



A picture of the first Moldovan apples sent to a customer in Bangladesh. ACED facilitated this first sale, which was followed by four more container-loads of apples.

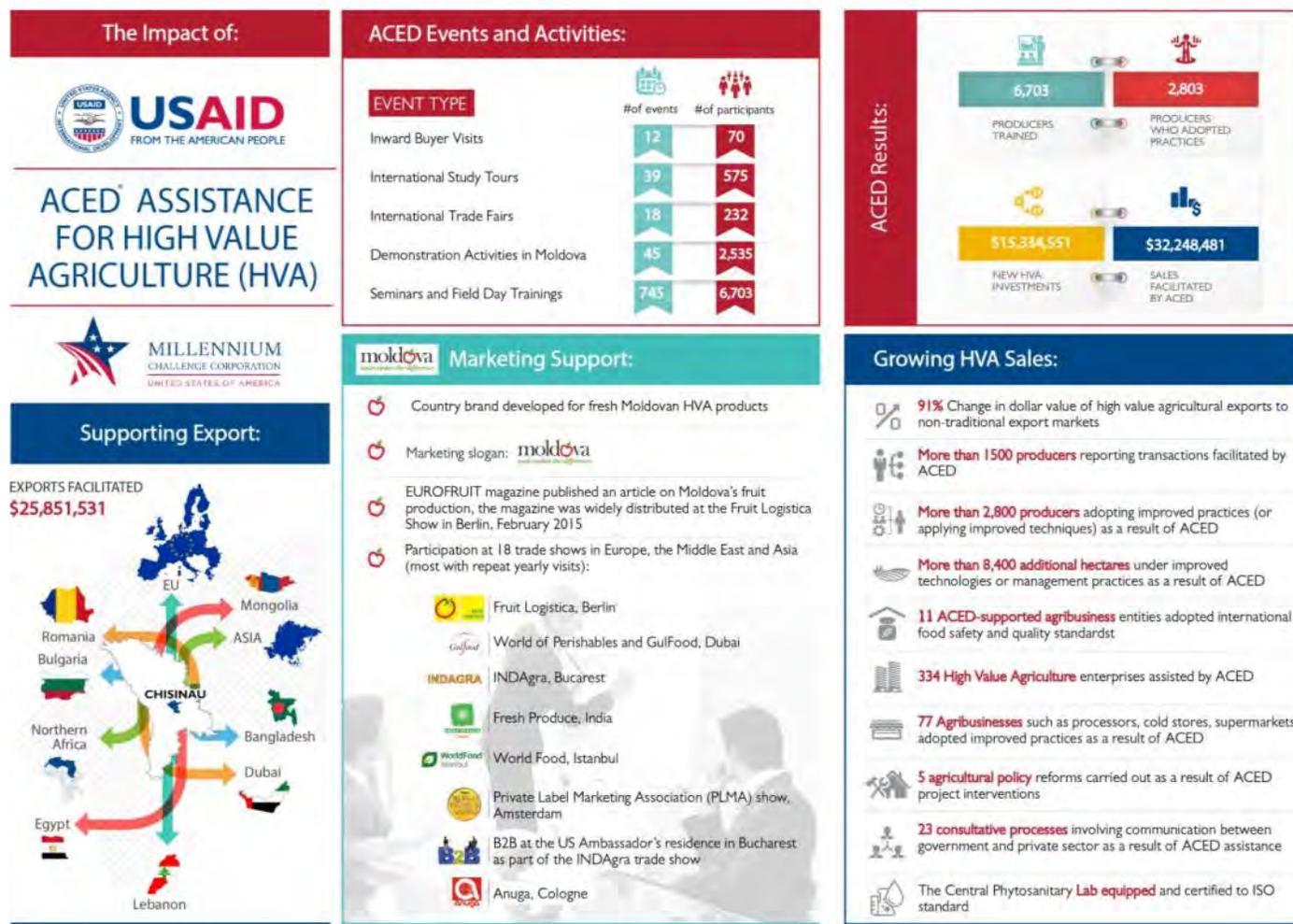
Highlights of the project’s **effective impacts** include:

- By the end of Year 5 (January 2016) the total value of **sales facilitated by ACED had risen to more than \$32 million**, which exceeds the cumulative sales results target set for the entire project (\$21 million) by more than eleven million dollars. This was driven by the sophisticated marketing campaign “**Moldova: Taste Makes the Difference**” delivered at 19 international trade fairs.
- ACED facilitated \$3 million in exports to new non-traditional markets, with sales of targeted products to 20 new countries, as well as demanding international chains such as Lidl and Carrefour in Romania. Moldovan government statistics show that in 2015 the change in **dollar value of HVA exports to non-traditional export markets increased by 86 percent** compared to 2010.
- ACED provided **training to 6,877 farmers**, exceeding the life-of-project target of 4,300 by 60 percent, leading to **8,611 hectares under improved practices and 2,947 farmers reporting having adopted improved practices**.
- ACED provided **significant assistance to 397 agribusinesses (more than 200 percent above the target of 150 companies)** to help them make new investments, mainly to finance post-harvest

handling (PHH) infrastructure. ACED client companies made value chain investments totaling more than **\$16 million** during the project, and processing company Orhei Vit achieved **International Featured Standard (IFS) certification** based on German end-market demand.

- ACED has successfully carried out **extensive private enterprise development assistance in the Transnistrian region**. ACED organized **153 cross-bank activities** with participants from each bank learning from each other and building trust and communication on an individual basis. ACED organized more than 100 events for HVA producers, put in place 11 production and post-harvest demonstrations, and provided 13 training events for business service providers (BSPs) in the region.

FIGURE I: ACED RESULTS IN HVA INFOGRAPHIC AS OF DECEMBER 2015



*Agricultural Competitiveness and Enterprise Development Project implemented from April 2011 to March 2016

ACED achieved Sustainable Transformational Changes such as:

- The ACED **Value Chain Support Center**, at *AGROconnect.md*, has provided technical assistance to **194 HVA entities**, including **19 producer groups**.
- Out of 19 producer groups who received assistance, nine (47 percent) legally registered their organizations: **Eight marketing cooperatives and one marketing association were created**.
- A new **Transnistrian treefruit association "Dneistrovskii Fruct"** was formed with a formal cooperation agreement with the **Right Bank's Moldova Fruct**.

- The Transnistrian Belii Most Small Farmer’s Association grew its membership base by 110 members, due to assistance from ACED, and registered on the right bank.



Ambassador James D. Pettit meets Larisa Colomicenco, President of the Belii Most Small Farmer Association, together with USAID COR Rodica Miron in Chisinau at the ACED final event

- **25 ACED clients made investments in construction or expansion of cold storage facilities that increased the storage capacity in the country by 21,020 MT.** As others followed suit, the typical pattern of exporting HVA crops mainly during the harvesting season changed into a more balanced one, thus **decreasing the downward pressure on prices during the peak season**, and allowing producers to benefit from higher off-season prices.
- ACED introduced and promoted **critical inputs and technological innovations** to value chains that **increased productivity and quality and reduced per unit production costs**, including **gibberellins** (growth hormones), chemical thinning, high tunnels for berry production, weather stations, anti-hail nets, blueberries as a new crop, double-layer greenhouses, use of mulch on row beds in greenhouses, use of Frostbuster machines, and micro sprinklers.
- As an example of a positive change available for entire value chains, gibberellins have now become an accepted part of the fruit production systems for most of the larger fruit producers in the country, due to ACED assistance with the introduction of gibberellins to Moldovan fruit farmers. **Gibberellins are now legally registered in Moldova**, and continue to improve Moldova’s competitiveness in grape and apple production.
- ACED also introduced and promoted **critical inputs and innovations** for PHH that **increase shelf life and quality, reduce post-harvest losses, and respond to end-market demand**, including harvesting bags, cardboard box custom tray formers, packing and sorting lines, pre-cooling becoming the norm at all new cold stores, hydro-cooling for cherries, sulfur dioxide (SO₂) pads for table grapes, and bunch-sized plastic bags for retail-packing grapes.

- After an extremely complicated technical procurement process, ACED provided **\$800,000 in critical equipment and extensive assistance to the Moldovan Central Sanitary and Phytosanitary (SPS) Laboratory in Chisinau**. As a result, the laboratory has **received international accreditation in the complex ISO 17025 standard**, a much more difficult and appropriate result than the ISO 9000 family of standards mandated by the ACED contract. The high level of service and analysis from the new lab **protects Moldova’s farms from phytosanitary threats** that would decimate productivity and exports, and it **reduces the risk of frivolous export bans**. ACED also outfitted the lab with pesticide residue-testing equipment that protects human health.
- ACED facilitated the creation and capacity building of five regional **Women in Agriculture Networks (WANs)** that operated in the North, Center, South, Gagauzia, and Transnistria regions, and consisted of 750 members nationally. This program has had tremendous success in assisting female entrepreneurs in the HVA sector to increase their confidence and productivity. Woman-led agribusinesses invested **\$2.1 million in upgrades** and reported **\$7.8 million in sales facilitated** by ACED.
- ACED made inroads in **import substitution** through a partnership with Linella / Moldretail group stores. Whereas growers had previously shied away from supermarkets due to paperwork and taxes, **15 new Moldovan suppliers signed long term contracts** with Moldretail, and Linella has begun spending advertising dollars highlighting local producers and their products. Moldretail store **sales in produce are up over 60%** compared to the year before ACED began assistance.

ACED was able to Leverage U.S. Government investments:

- The value chain team assisted the Costesti Table Grape Producer Group to design, obtain, and have the capacity to manage a packing house for a group of small table grape producers. ACED was able to help **leverage the U.S. Government technical assistance (TA) investment several times by attracting investments from the regional development fund (\$1.2 million), the producer group (\$800,000), and the Romanian Embassy (\$80,000)** to make this public-private partnership come to life. Costesti, like the Basan Agro Coop, both serve as **models for other small producers that can successfully work together to fill larger orders**.
- ACED continued to offer opportunities to **local service providers (BSPs) to increase their capacity to provide development services to both the private and public sectors**. The project contracted with 8 of the 10 **water user associations (WUAs)** that were created with support from the MCC Compact program, to act as regional training service providers (RTSPs) to support implementation of the ACED training and demonstrations in CIS zones. As a result, the WUAs are seen as more than just dues collectors, but as **a source of expert information and assistance**.
- ACED oversaw **the launch of the Post-Harvest Handling Lab in partnership with the Technical University of Moldova and Moldova Fruct**. This lab accelerates the piloting and adoption of modern post-harvest techniques and solutions that are required for the Moldovan HVA sector to be competitive in export markets.
- Through extensive public-private dialogues, including teaching the Ministry of Agriculture, Food, and Industry (MAFI) how to carry out regulatory impact analysis and teaching Moldovan BSPs how to quantify the impacts of and lobby for reforms, **six agricultural policy reforms** were enacted. Cost-benefit analysis of those six reforms estimates that **the net benefit to Moldova will be more than \$104 million over the next 10 years**.



Linella advertisement of Moldovan locally grown produce, highlighting a Moldovan farmer.

II. BACKGROUND ON THE PROJECT

ACED is a five-year project (2011–2016), which was jointly funded by USAID and the MCC. The contract vehicle for ACED was a cost-plus-fixed-fee, term, level-of-effort contract that was awarded to DAI at the end of March 2011. The project’s main objective (Component 1: Growing HVA Sales) was to increase the competitiveness of the Moldovan agricultural sector with a focus on the production, processing, and marketing of HVA crops. Activities within this component were national in scope, with a special emphasis on those areas that would benefit from the MCC-financed rehabilitation of centralized irrigation systems under the MCC Transition to High-Value Agriculture (THVA) Project. With a budget modification approved in late 2014, about 86 percent of the ACED budget was devoted to Component 1 activities, with a little less than 30 percent of that being funding from MCC.

ACED’s second element (Component 2: Enterprise Development in Transnistria) was allocated approximately 14 percent of the total budget. This was for activities and events focused on economic development in the Transnistria region (also commonly referred to as the “Left Bank”). Under Component 2, the ACED project worked to improve the competitiveness of micro, small, and medium-sized enterprises (MSMEs) and relevant BSPs in Transnistria. The main objective was to support the development, and enhance the competitiveness, of Transnistrian MSMEs in both HVA and non-HVA agricultural value chains. Associated with this was assistance to Transnistrian BSPs that can provide essential technical and managerial services to these MSMEs. This component, in turn, will lead to the creation of jobs and increased incomes in the region and facilitate cross-Nistru business linkages that promote the integration of Transnistrian private enterprises into the broader Moldovan economy.

A. VALUE CHAIN APPROACH

The ACED project design team settled on a value chain approach as the most effective way to address the ambitious objectives set out for Component 1 (Growing HVA Sales). The value chain approach requires a comprehensive description and analysis of what happens to a product throughout its production, processing, distribution, and marketing cycle. This approach examines the production process, as well as relevant external factors—such as government policy, credit availability, and input supplies—necessary to support and sustain the production, distribution, and marketing processes. In the case of agricultural products, it also includes an analysis of post-harvest practices and post-harvest infrastructure availability (the cold chain, storage facilities, grading and packaging systems, transportation, etc.). An examination of target markets also identifies specific governmental and end-market requirements that producers will have to meet to be successful in those markets.

Consistent with the value chain approach, the ACED project began with summary assessments of the main HVA value chains active in Moldova and staff initially selected three value chains that in combination best satisfied these criteria:

- They have a strong current production base and good prospects for increasing the volume and the quality of production.
- There is strong actual or potential international and/or domestic demand for any increased production of the products.
- Increased production does not present an unmanageable environmental risk to the natural environment or to farm workers or others.

- The value chains involve a large number of small farmers, including women.

The apple, table grape, and tomato value chains were initially selected as the focus of ACED development activities, with stone fruits (sweet cherries, peaches, and plums), other greenhouse vegetables, and strawberries to be added in later years.

The second step was to conduct a series of end-market studies in high-priority markets to identify commercial, technical, or regulatory barriers to entering or expanding producers' presence in those markets and provide guidance on what would need to be done to penetrate those markets successfully. Russia, Romania, and the Moldovan market itself were the initial markets researched, followed by the Baltic States and Germany. The results of the end-market studies were then integrated with other information gathered from value chain participants, and key informants in Moldova, to prepare comprehensive value chain assessments for each of the targeted crops. These studies were then discussed with producers and farmers, and other value chain participants, to develop a strategic action plan for each value chain.

Carrying out the end-market studies and identifying investors and potential buyers interested in Moldovan HVA products helped ACED define the production and marketing requirements. The result is that stakeholders now have a better understanding of the requirements of specific markets and can adjust their operations accordingly. These adjustments make it possible for Moldovan producers and traders to expand into new markets at home and abroad, and thereby increase their incomes along the value chain and strengthen Moldova's position internationally.

The project's activities and outcomes form a feedback loop so that market requirements inform both the producer training team (Component 1, Activity 2) and the value chain team (Component 1, Activity 3), and this allowed the project to provide training to more than 6,800 farmers and producers in improved production practices and new technologies. In addition, value chain enterprises will be able to upgrade their facilities (or build new ones) based on increased access to finance and increased awareness of post-harvest best practices. At the "outcome" level, these will generate increased production and better-quality products from the farms and higher-value products being supplied by packers and traders. The "impact" is that new investments are made, sales of HVA products both within Moldova and abroad are generated, and local incomes are increased.

ACED's Component 1, Activity 4 team worked hard to improve the regulatory environment for the development of HVA activities. Improving the ability of government agencies and private sector groups to analyze the potential or actual impact of government policies, regulations, and procedures led to policy reforms and a closer partnership between government and the private sector. Providing new equipment and supplies for the Central Phytosanitary Laboratory and the Phytosanitary Inspection Service, as well as preparing new reference materials and providing associated training for phytosanitary inspectors facilitated the process of harmonizing Government of Moldova policies with those of the European Union (EU). This should lead to increased exports with enhanced food safety at home.

ACED's Component 2 activities strengthened BSPs and MSMEs in Transnistria. This work began with an analysis of MSME activities in Transnistria and an assessment of the capacity of local BSPs to assist them. Following these assessments, a targeted set of enterprise development and BSP training and TA activities were designed to increase their production capacity and promote cross-bank business-to-business linkages. At the "outcome" level, these activities resulted in increased sales by Transnistrian MSMEs and increased commercial interactions and linkages with the greater Moldovan market. The impact is that Transnistrian businesses are more competitive and sustainable, and better integrated within the overall Moldovan private sector.

B. TWO COMPONENTS OF THE ACED PROJECT

The original design of the ACED project included two separate components, with very little connection between them other than a shared management structure and operational infrastructure. Component 1 (Growing HVA Sales) was aimed at increasing the production and sale of HVA products by small and medium-scale commercial farmers on the so-called “Right Bank” of the Nistru River. The set of activities to be carried out under Component 1 would be based on a thorough analysis of the selected HVA sectors, and include:

- Technical training for producers to improve their production practices.
- Technical assistance to value chain actors to improve post-harvest practices.
- Improvements in the regulatory environment for HVA value chains.
- Creation of linkages between value chain enterprises and new markets.

These activities and assistance elements are consistent with the technical approach for ACED.

Component 2 was designed to improve the operations of private MSMEs in Transnistria, in any productive industrial sector, by providing direct training and TA to those enterprises and by enhancing the capacity of local BSPs to provide technical services for those MSMEs. It was foreseen that while agricultural enterprises might be included in the mix of MSMEs that were assisted, the program would have no particular focus on that sector. The design of the activities in Transnistria was left flexible, which was logical given the dearth of real knowledge about private sector business activities in the region. A late start in implementation of Component 2, for reasons beyond the control of DAI, led to the planned assessment of needs in the targeted program areas getting under way in February 2011.

The results of the needs assessment on the Left Bank led DAI to determine that a larger than expected portion of ACED’s work in the region would be focused on the same sort of HVA development work that was to be carried out under Component 1, with an additional focus on increasing cross-river trade and other economic interactions. Over the course of Year 2, project staff continued to learn more about the business landscape in the Transnistrian region, and plans for Component 2 for subsequent years focused almost entirely on HVA and other agricultural sectors and capacity building of BSPs, also with a focus on services that are relevant to the agribusiness sector.

C. ACED CAUSAL MODEL

The causal model illustrates the logical flow from the activities identified in the request for proposals (RFP) through the “output,” “outcome,” and “impact” stages, to the final objective of increasing long-term economic growth in Moldova. The original causal model was refined and sharpened as the project evolved with implementation.

ACED staff split out the original causal model into a separate one for Component 1 (see Figure 2) and Component 2 (see Figure 3). In reality, Activity 2.2 mirrors the causal model for Component 1, because ACED focused on HVA. However, an important difference is that ACED avoided work on the business enabling environment in the region for a variety of reasons, including the fact that this would require heavy interaction with local authorities.

FIGURE 2: ACED COMPONENT I PERFORMANCE-BASED MANAGEMENT SYSTEM CAUSAL MODEL

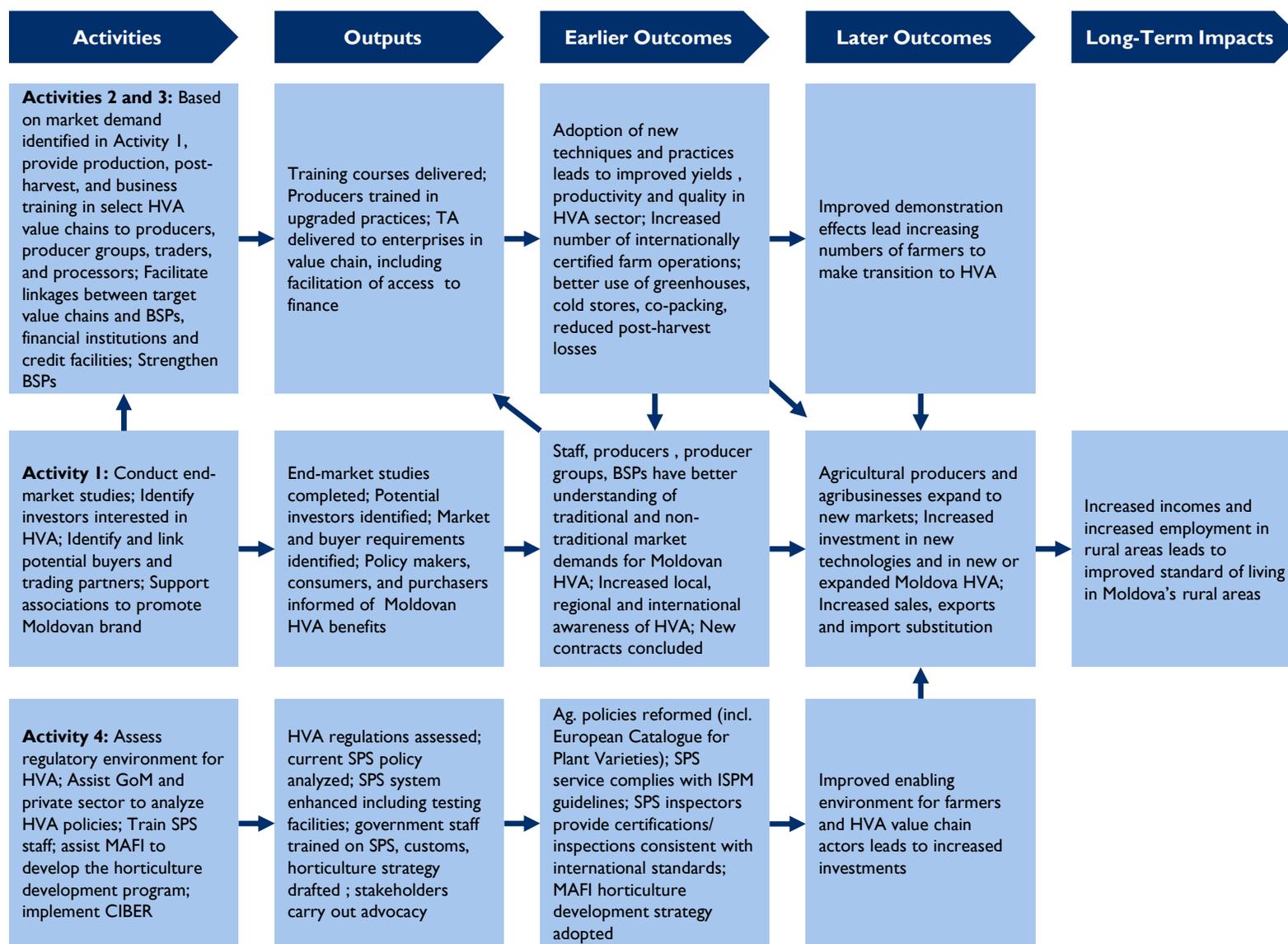
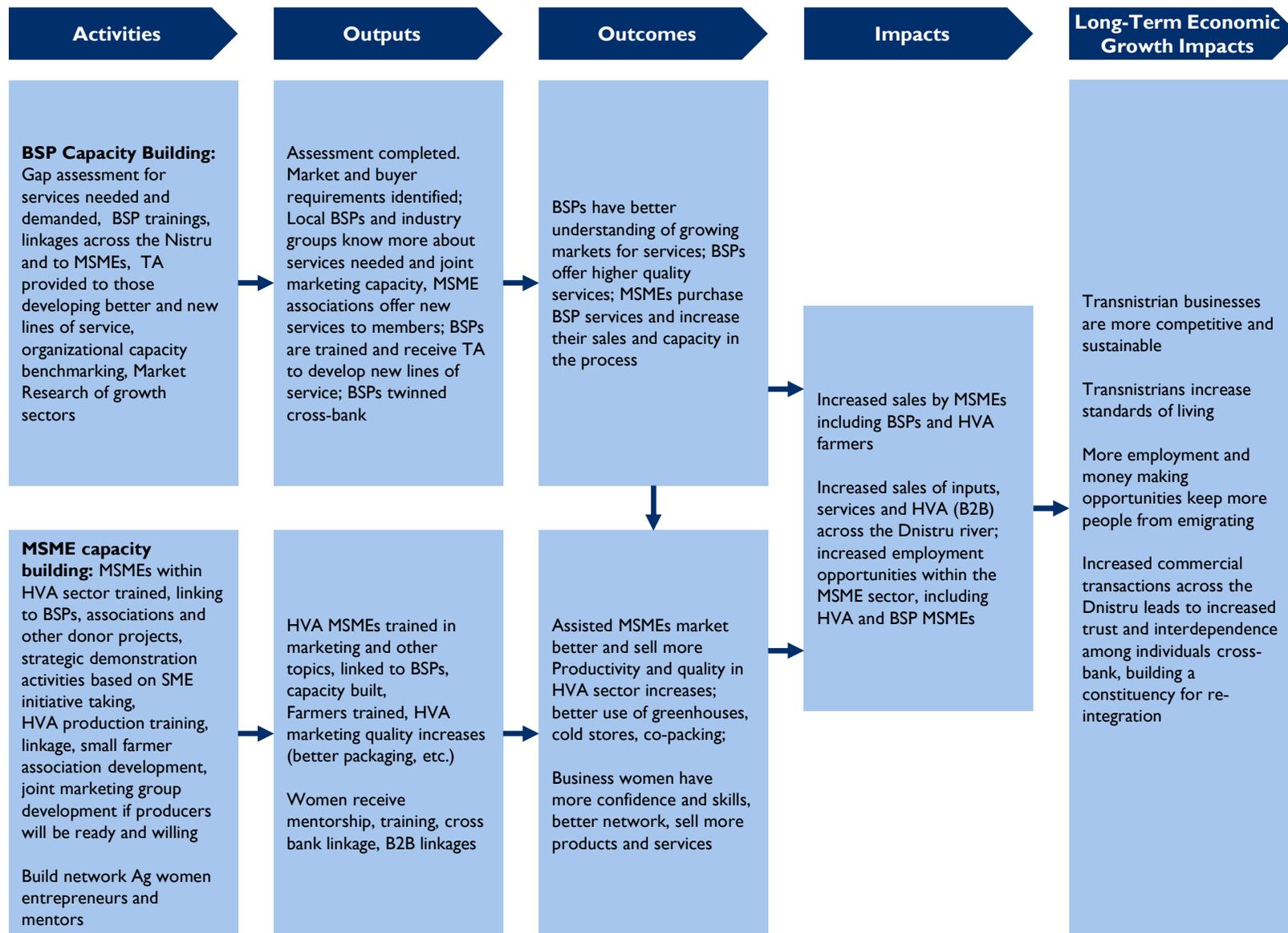


FIGURE 3: ACED COMPONENT 2 PERFORMANCE-BASED MANAGEMENT SYSTEM CAUSAL MODEL



III. RESULTS AGAINST OBJECTIVES BY ACTIVITY

COMPONENT I, ACTIVITY I: RESULTS AGAINST OBJECTIVES

Overall Objective: The objective of Activity I, Develop and Expand Markets for Moldovan HVA, is to support the HVA value chain to increase sales of HVA and improve farm profitability with a particular focus on small and medium-sized commercial farms

The main marketing goal was to develop and expand markets for Moldovan HVA. This was done successfully. ACED facilitated cumulative sales of more than \$32 million, far exceeding the life-of-project target of \$21 million. The vast majority of beneficiaries with transactions facilitated were micro, small, and medium-sized commercial farms: 1,631 producers in total.

Exports to New Non-Traditional Markets

From the start of the project, it was an ACED goal to help Moldovans be ready to diversify their exports to new markets, considering the fickle, but lucrative Russian import market, dominating consumption of Moldovan fruit exports (see Figure 4) showing that sales in 2013 to Russia were more than 90 percent of exported apples. Russia has traditionally been the main market for exports for a number of reasons, including a “lingua franca,” upfront cash payment terms, preferential tariff treatment, and low demands on varieties, sizes, and quality. When the project started, Moldovans mainly sold their treefruit by truck at the Pokrovca open-air wholesale market in Russia, in bulk, with small-sized fruit, counting on low prices, based on preferential tariff treatment.

The Moldovan agricultural sector has little choice but to invest in and upgrade its production and post-harvest standards in order to sell to supermarkets and export to a more diverse set of countries. This is because of the decline in preferential treatment given to Moldovan exports to Russia, gains by new supermarkets in market share, the growing importance of consumer purchases of fresh fruit and vegetables, and the Russian import ban. ACED provided critical support and guidance to producers and industry associations to help them make changes that allowed them to access new markets while continuing to export significant quantities of fruits and vegetables to traditional markets. Meanwhile, Russian imports of fresh apples decreased during 2013–2015 by 35 percent (volume) and 51 percent (value) according to UN Comtrade.

Moldova has over-dependended on the Russian market, creating vulnerability as experienced from 2005 to 2007 and starting again in July 2014 with the ban of fruits and vegetables.

While there are impressive results diversifying to new markets under ACED, including an 86 percent increase in sales to new markets compared to the project’s baseline year of 2010, the process of diversifying to new markets is both difficult and overwhelming to Moldovan producers.

In July 2014, Russia imposed a ban on import of Moldovan apples, plums, peaches, and canned fruit. ACED mobilized the producer community in an effort to quickly find alternative markets. ACED staff responded to the ban with a series of meetings and new activities such as international trade fairs in new markets such as Dubai, new inward buyer visits, new rapid end-market studies, and spearheading the pest risk analysis needed for bilateral trade agreements with India. ACED staff worked quickly to add a stand at the Indagra show in Bucharest, as well as to organize a business-to-business meeting with major

Romanian retail chains at the residence of the U.S. ambassador in Bucharest. Farmers who participated heavily in ACED activities have begun to change their behavior, something that will continue beyond the end of the project.

The Russian ban created a lot of tension and confusion within the producer community. Since the inception of the ACED project, the marketing team conveyed to the producer community the importance of diversifying their markets. The traditional Russian market, and the long-standing relationships and the other nuances of that market (cash payments and easy payment terms), is a very difficult thing for producers to move away from. Even in the face of the ban, many of the producers were only listening to ACED’s diversification strategy with one ear and still thinking that Russia was the best way to proceed. Many also took a risk-adverse approach, with lesser returns, with product reaching the Russian market through alternative routes such as Belarus. False documents, greater freight costs, and indirect freight routes all came at the expense of the Moldovan producers who significantly reduced their margins. The closing of the Pokrovka market in Russia, a 10 percent worldwide surplus of apples in 2014, the devaluation of the Ruble, less consumer discretionary income in Russia, and two poor production years in 2014 and 2015 all created difficult years for Moldovan treefruit sales. The commercial landscape in Russia has now changed indelibly. This is gradually sinking in with the reluctant producer community. Toward the end of Year 4, the situation changed somewhat as 10 producers from the Right Bank and all of the Transnistrian producers got clearance to ship to Russia, which has enabled most of the remaining apples to be pushed through the system via the approved companies.

Although many producers did not shift their strategy to focus on market diversification, along with the post-harvest changes necessary to meet new market requirements, there is a growing number of forward-thinking producers who did. ACED has worked with these producers with training and seminars, international trade shows, trial shipments to new markets, assistance in identifying negotiating joint procurement of necessary export packaging, and inward buyer visits. Many of these producers have been successful in penetrating new markets in the face of a very competitive market.

There were 12 inward buyer visits over the life of the project. After the ban, there were inward buyer visits from Thailand, Romania, Lebanon, the United States, and India. One inward buyer visit, from a representative of Lidl Romania, resulted in multiple repeat sales of apples and grapes to Romania.

During the project, a “Quality Club” concept was established within Moldova Fruct. This is a group of larger apple producers who want to establish themselves with a brand that provides their products with a distinction and recognition from consumers that in each box is a high-quality product. They use boxes printed with the logo “Moldova: Taste Makes the Difference,” as well as trays and stickers with the logo on each individual fruit (usually apples). These apples are oriented toward export, but can be seen on display with stickers in Moldovan supermarkets such as Linella and N1. As an indication of the attractiveness of this branding, the company that prints the Moldova: Taste Makes the Difference stickers was asked to print them for a third party (they

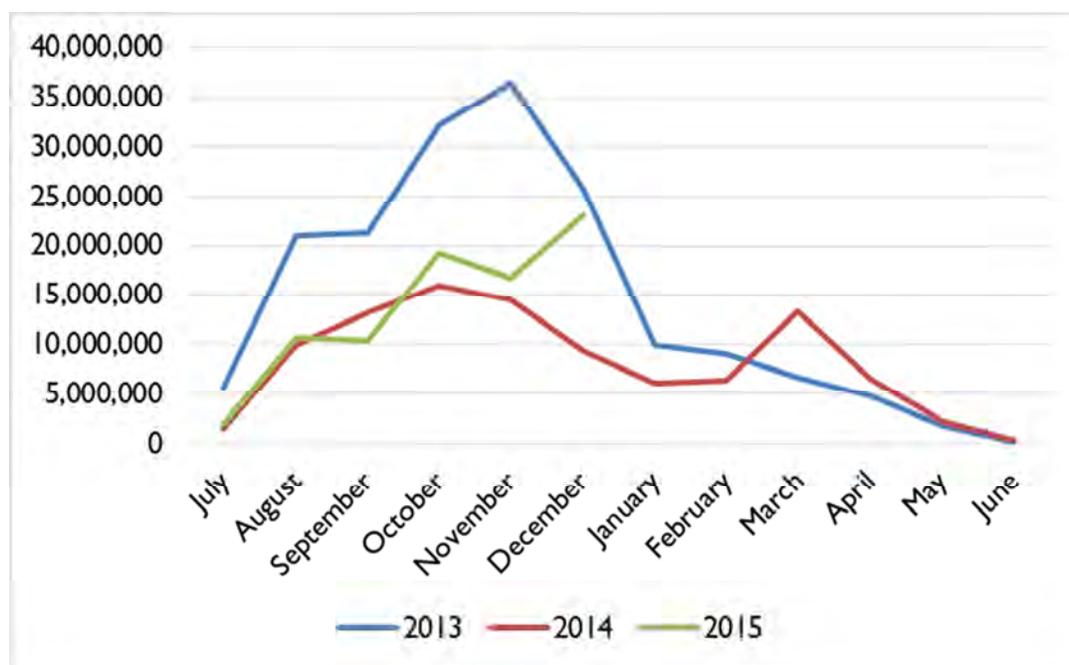


declined as they understood it was proprietary). There are currently a group of 10–12 top-quality producers in the quality club that will grow in number over time.

During the project ACED also generated some positive print media coverage; the most important of which appeared in *EUROFRUIT* magazine. ACED agreed to purchase a series of three quarter-page ads in the magazine, which came out before the World Food and Fruit Logistica shows. Following direct contact with the Managing Director of the company that publishes the magazine, and ACED’s support for a brief visit to Moldova for him, he prepared a four-page extensive article on Moldova and its fruit industry, which appeared in the January issue of *EUROFRUIT*. This article described the commitment that Moldova has made to the HVA sector and many of the advances that have been made, and it described the taste profile of many of its wonderful products. This was a follow-up to the visit to Moldova by Chris White (Managing Director of *EUROFRUIT*), who spent three days with various producers, the Moldovan Minister of Agriculture, the American Ambassador to Moldova, and ACED personnel.

Overall, the Russian ban created huge economic losses for Moldova. Figure 4 is based on the Belarus and Russia import data available on UN Comtrade. It graphically depicts the sharp fall in exports to these two markets, as well as the recovery trend in 2015.

FIGURE 4: MOLDOVAN EXPORTS DESTINED TO RUSSIA AND BELARUS 2013, 2014, AND 2015

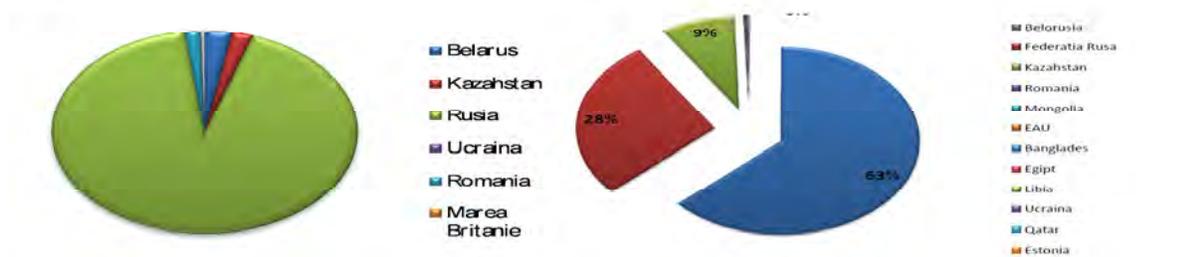


The combined Belarus and Russian data on UN Comtrade suggests a partial recovery of Moldovan exports. In the first six months of the 2015 marketing season, Moldovan shipments increased by 27 percent in volume over 2014. Many growers had their cold stores full in early January 2016, expecting high prices on the Russian market later in the season (Moldova Fruct estimated the stores at 60,000 tons). Together, this will bring the total volume of exports to the pre-ban level (2013).

Figure 5 shows in green that apple exports in 2013 by and large went to Russia. In the 2015 marketing season, the majority went to Belarus, most likely for re-export to Russia. However, also striking is the change in the number of countries receiving Moldovan apple exports, with large percentages going to Egypt (28 percent) and to a lesser extent Kazakhstan (9 percent).

FIGURE 5: TRANSITION OF APPLE EXPORTS FROM 2013 (194,000 TONS) TO JULY 1, 2015–JANUARY 31, 2016 (88,000 TONS), ACCORDING TO MOLDOVA FRUCT STUDY

Source, Moldova Fruct Report Presentation “Moldovan Orchardists Advantages and Benefits for European Integration” 2013



Source, Moldova Fruct Report Presentation “Moldovan orchardists Advantages and benefits for European integration” Chisinau, 2016

Even in 2015, the great bulk of exports (82 percent) went to traditional markets which are Belarus, Russia, and Ukraine. Meanwhile, exports to non-traditional markets are nearly 12 percent of the total exports facilitated by ACED (and the remaining amount was designated by producers as “unknown destination”). During the life of the project, ACED recorded an export growth to non-traditional markets from \$100,000 in 2012 to \$1.5 million in 2015 (see Figure 6).

FIGURE 6: CHANGE IN ACED-FACILITATED EXPORT SHARE BETWEEN TRADITIONAL AND NON-TRADITIONAL MARKETS DURING THE PROJECT INTERVENTION



The chart above shows that exports facilitated to new markets increased steadily each year of ACED, increasing more than 10 times between 2012 and 2015. The number of destination countries also increased exponentially in that time.

TABLE 1: LIST OF NEW MARKET COUNTRIES TO WHICH ACED FACILITATED EXPORTS BY YEAR

Year	Countries of Export
2012	Kazakhstan, Estonia, Latvia
2013	Kazakhstan, Saudi Arabia, United Kingdom (UK)
2014	Kazakhstan, Germany, Romania, Serbia, Egypt, Israel, Iraq, Bangladesh, USA
2015	Kazakhstan, Mongolia, Georgia, Spain, Italy, Poland, Romania, Bulgaria, Egypt, Bangladesh, UAE

(bold = first-time newly added markets during the project)

ACED helped Moldovan producers export sales into 20 new non-traditional markets over the life of the project. The number of new countries that ACED facilitated exports to increased from 3 in 2012 to 11 in 2015 (see Table 1), with other countries being added in the interceding years. In 2013, exports went to Saudi Arabia and the UK. In 2014, export sales increased by more than 30 percent with 10 non-traditional markets penetrated, including Egypt, Germany, and Israel. In 2015, export sales increased again by 42 percent, totaling \$1.4 million with 11 non-traditional countries receiving facilitated shipments as per Table 1.

Moldova opened up many new export markets in the face of external impediments. New sales markets by product include:

- Apples (more than \$2 million in sales facilitated to non-traditional markets): The Gulf, Egypt, Mongolia, Bangladesh, Romania, Bulgaria, the Baltics, UK, and Germany.
- Grapes (more than \$420,000 in sales facilitated to non-traditional markets): Poland, France, Romania, and the Baltics.
- Honey: Sales to Poland, Spain, Italy, and the Gulf.
- Processors: Orhei Vit—sales to Maldives, Alfa Nistru—sales to Georgia.
- Rifero: Sales in Germany and Romania, and expanded retail expansion in domestic market (Linella/Moldretail).

As ACED continued to look to new markets to test and further diversify Moldova’s markets, the team took appropriate steps within the enabling environment relative to the markets in India and Egypt. It is important that Moldova establishes all of the necessary contacts and secures the needed approvals to commercially ship products. Unfortunately, this seems to be a long process. ACED has jump-started this process with completion of the Indian Pest Risk Analysis form for apples. ACED staff then reviewed this form with ANSA and, together with ANSA, had a meeting with the Moldovan Ministry of Foreign Affairs to explain the importance of creating a bilateral agreement and to present the Pest Risk Analysis for submission to the Indian Government. The ministry confirmed that they sent the Pest Risk Analysis, and ACED learned that the Indian plant protection agency received it and began to evaluate it. In addition, ACED maintained ongoing contact with governmental agencies to expedite it through diplomatic channels, including holding a meeting with the Indian phytosanitary inspector in December to follow up on the matter. Finalizing this should be a priority in the next project due to the enormous demand for Moldovan apples in India.

During the project, with the focus on market expansion, ACED took a very strong position with international trade shows, which is briefly outlined below.

Supply Country Visibility

ACED beneficiaries attended a number of international trade shows over the life of the project. Key shows include Fruit Logistica, Gulfood, World of Perishables, World Food Moscow, Anuga, World

Food Turkey, Prodexpo, Indagra, and World of Private label. ACED was very selective due to the costs involved, however, the international platforms provided ACED an effective way to promote the country and its great-tasting fresh and processed products. No other vehicle has created as great an impact as these. Now buyers come to look for the Moldovan booth, and consider Moldova a supply country that must be considered because of the unique taste proposition their products offer. These shows provide the producers/traders and all involved a non-filtered way of benchmarking how Moldovan products compare to other supply countries and the much needed input directly from the buyer. Moldova has something special with the taste of both fresh and processed products. Moldovan producers need to take full advantage of this and diversify into new markets, and the best way to accomplish this is to promote Moldova through these trade shows. Training with producer/traders and association members is necessary to maximize the output from these trade shows by having an energetic, well-informed, cohesive group to staff the booths, projecting the best image possible on behalf of the country.

There were several publications related to marketing that helped build local capacity. ACED carried out full reports on the following countries: Domestic (Moldova), Romania, Germany, Russia, and Baltic's (Estonia, Latvia, Lithuania), and brief informal studies for critical information with key contacts and notes for India, Poland, and Dubai markets. These end-market studies have been critical in informing the project training and TA design, as well as making producers aware of their necessary investments and upgrades.

In addition to the end-market studies for seven export markets, other marketing publications included:

- An export guide.
- The agroconnect.md website for information dissemination on marketing events and results, and success stories.
- A Facebook page was used to disseminate information on market prices from retailers located in the cities where trade shows took place.

Domestic Marketing in Supermarkets

From ACED's inception, a key objective was to work with domestic supermarkets to have quality fresh produce that was increasingly sourced locally. This import substitution would provide Moldovan consumers the option to secure high-quality locally grown products with built-in convenience. While some supermarkets were willing to receive training and TA from a U.S. expert, there was a lack of commitment from retailers to push the fresh produce category and utilize this section of the store as a driving vehicle of retail differentiation. The produce section was filled with imports even when this could have been locally sourced product. Personnel at the supermarket store level were always changing and upper management in many of the retailers were not committed to investing in the fresh produce category and simply treated the category as something that they had to do, and did not have a vision of improving it.

ACED brought in an American expert from Safeway (Don Harris) who provided training to supermarkets on merchandising/handling of product. He wrote and distributed a reference manual for merchandising and managing the produce category. While ACED invited all Moldovan supermarkets, only a select group participated actively, all with a mistrustful and competitive stance toward the others. After this, ACED worked with IMC to promote Moldovan-grown produce and Moldovan farmers using a flat screen TV in the produce section on a trial basis.

Starting at the end of 2014, ACED started to develop a relationship with one retailer (Linella/Moldretail group) though numerous meetings with upper management and consensus that they were eager to enhance their produce category and promote locally sourced products. ACED conducted many strategic meetings with them and finally agreed in April/May 2015 to help Moldretail defray the salary for a

produce category manager for 10 months who would work closely with ACED in increasing locally sourced products at the store level and improve the shopping experience of consumers in the produce aisle.

Since the partnership with Moldretail began, a number of positive things have taken place. In summer 2015, they ran a promotion featuring locally sourced products from different regions and highlighting select Moldovan producers in print advertisements to promote local farmers in the minds of consumers. This proved to be a successful campaign, and the volume and amount of sales increased throughout the year. Since the beginning of the 10 months of support, produce sales have increased by 60 percent year on year. In addition, a number of meetings have taken place with ACED, various producers, and Moldretail in an attempt to set up contractual agreements for key products. From the initial wave of nine producers that conducted meetings with Moldretail all of them have signed contracts, followed by another six in a second wave, with meetings and negotiations ongoing. This activity will have a demonstration effect with other supermarkets, and it will be possible for the next USAID project to work with new supermarket chains.

Key results with Linella include:

- Sales volume growth for the first two months of 2016 compared to last year is up 60 percent. This can be broken out between organic growth of 40 percent and nine new stores being added.
- Incremental sales value is up €2 million (45 million Moldovan Leu [MDL]) compared to the same period last year. The produce category is the fastest growing category for the chain, which has now expanded to 70 stores. These sales numbers are indeed impressive considering that the average market basket purchase is only 65 MDL or approximately \$3.40.
- Fifteen new long-term contracts have been signed with producers this year across multiple products such as apples, carrots, and potatoes. The new contracts are a different level of partnership between producer and retailer whereby the retailer guarantees volumes based on agreed upon market-based price points.
- This different partnering approach enables the smaller producer to have an anchor account on which he/she can depend to take guaranteed volumes, helping the producer to attack and analyze other potential opportunities.

Activity 1.1 Lessons Learned and Recommendations

- The “Moldova: Taste Makes the Difference” campaign was received very well by alternative markets, and future market diversification efforts should continue under this brand.
- It is important to align Governmental trade policies with private sector market diversification efforts. Currently, access to a number of potential markets is restricted by tariff and SPS barriers that can be removed only through interventions by the government or its institutions.
- The limited range of modern varieties available in the country and known by the growers is a constraint to developing alternative markets (for example, sales to Lidl retail chain by Farm-Prod involves only Gala apples, because Lidl is not interested in the varieties traditionally grown by Moldovan apple producers). The conclusion is that there is a need to diversify production to a wider range of modern varieties.

SUCCESS STORY: MOLDOVAN APPLES NOW IN CARREFOUR ROMANIA



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SUCCESS STORY

Moldovan Apples now in Carrefour Romania

The ACED Project offers opportunities to Moldovan fruit exporters through its market linkage program.



Photo: ACED Staff member

Aliona Mandatii, the owner of Domulterra SRL, discusses the quality of her apples and her efforts to develop new markets with the Moldovan Ambassador to Germany (center) and the Deputy Director of the ACED project (right). This picture was taken at the Fruit Logistica 2014 trade show in Berlin, where Aliona first met with representatives of Carrefour Romania.

The biggest challenge for Domulterra – and for most Moldovan fruit exporters – is the lack of adequate packaging, according to Aliona Mandatii. “We found boxes made in Romania for our apples. Unfortunately, the Moldovan packaging is not very suitable. We also ordered polyethylene cells from Italy. Now our apples look like genuine European products.” Ms. Mandatii expects sales to grow during the first months of 2015.

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Finding new markets, soon after Russia imposed a ban on Moldovan fresh fruit early in 2014, looked like an impossible dream at the time. But, selling apples to the largest foreign supermarket chain in Romania only a few months later really stimulates one's imagination, says Aliona Mandatii, an energetic businesswoman from northern Moldova. Her company, Domulterra SRL in Floresti District, has just supplied 47 tons of Moldovan apples to Carrefour Romania and is prepared to ship even more. Her 12-month contract is a result of participation at the Fruit Logistica 2013 show in Germany, where ACED supported a group of Moldovan fruit producers to generate business contacts and market linkages with new buyers.

Domulterra's apples have gained wide visibility and notoriety in Moldova, thanks to their appearance and quality. "The size of more than 70% of the fruit is 80mm or larger, and the taste is excellent. The boxes are properly marked and every apple has an individual country/company branding," Mrs. Mandatii noted. Her company has implemented a number of the technologies recommended by ACED including anti-hail nets, cold storage, grading and sorting, modern pruning techniques and chemical thinning. They also have an iMetos weather station to predict bad weather in the orchard.

Selling to a western supermarket chain is a new experience for Aliona, as Domulterra has also continued to export into the opposite direction - Belarus now absorbs much of her apple shipments to the east instead of Russia. "Romania is a key market for our sales strategy for western markets. Carrefour is our first international client and negotiations were ongoing with two additional Romanian supermarket chains in early 2014. We also held discussions on apple deliveries to a Swedish wholesale market," Mrs. Mandatii disclosed. In Moldova, Domulterra works with all of the local supermarket chains in Chisinau – IMC, Green Hills, Linella and Nr. 1.

Aliona says Romania is just the beginning for her. Domulterra has registered a limited liability company in Romania in order to build a logistical base for its operations in the neighboring country. She is now preparing for the upcoming 2015 Fruit Logistica show, which takes place in February 2015. Her hope is that she will be able to take advantage of additional new opportunities which the ACED Project provides access to via its marketing program.

ACED Success Story 19 – Moldovan Apples now in Carrefour Romania (Aliona)

SUCCESS STORY: MOLDOVAN APPLES SELLING IN BANGLADESH



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SUCCESS STORY

Moldovan Apples Selling in Bangladesh

Mobile SRL sent a second shipment of Moldovan apples to Bangladesh, and a third is in preparation.



Photo: ACED

Yeahia Mir estimates the consumption of apples in Bangladesh at 145,000 tons a year. This Asian nation, with a population of 166 million people, imports apples mainly from its neighbors - India in the west and China in the east - as well as from South Africa and Brazil. Moldova could join the ranks should it be able to sort out a number of export-related issues including the apple size requirements, volumes, prices, and packaging.

"This was my first experience with food exports. Until recently, Mobile SRL traded in ready-made clothes, such as robes, coats, shirts, suits and other garments. Based on this experience I am looking forward to sending more apples to Bangladesh. I have two advantages - the taste of Moldovan apples, which is great, and the vast competence of the ACED team, whose support can turn a novice in the food trade into a thriving enterprise." Yeahia Mir

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For one day in Moldova, the news of the day was the story of how the first Moldovan shipment of apples made its way to Bangladesh. This was the first time that a Moldovan food product had traveled to that part of South-East Asia. For many Moldovan fruit producers it was a clear sign that they had a chance to find new markets, and for the ACED Project – which facilitated the shipment – it validated the ACED marketing program. It took five weeks for the two 20-ton containers, filled with Jonagold and Golden apples, to complete an 8,000-kilometer journey. The buyer in Chittagong, a food wholesaler, said the apples arrived in good condition and they were sold off within three days.

"This was a successful sales deal and the buyer was satisfied with our products" said Mr. Yeahia Mir, a Bangladesh-born businessman whose trading company, Mobile SRL, had arranged the shipment of the apples to his home country. "For the past 40 years I have lived and worked in Moldova and the Bangladeshi food market was something which I didn't know too much about. Despite this lack of knowledge things have gone well for us thanks to the crucial assistance from the ACED project."

The project's marketing team advised Mr. Mir at all stages of the process. ACED helped Yeahia develop the necessary linkages with suppliers by organizing visits to Moldovan apple producers and the ACED team provided information on export certification procedures, prices and payment conditions. "Before I made up my mind, ACED showed me several cold stores, and I was able to discuss the conditions with the growers, and then ACED helped with the logistical arrangements." Yeahia noted.

Bangladeshi customers want to buy 100 more containers this season alone. "I have received many orders and I plan to send more apple shipments to Bangladesh, but Moldova may not have the sufficient volumes right now in order to cope with the demand. Also, it looks like the Asian buyers want small-sized, red and fully colored apples, which are packed in 18-kilogram boxes, with 130 to 160 apples in each box. This is quite different from what the European customers are looking for, isn't it?" he said.

ACED Success Story 20 – Moldovan Apples Selling in Bangladesh (Mobile SRL)

SUCCESS STORY: MOLDOVAN APPLES IN MIDDLE EASTERN MARKETS



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SUCCESS STORY

Moldovan Apples in Middle East Markets

Codru-ST has 250 workers and the company grows apples, plums and cherries, and it has a tree nursery and a grape nursery.



Photo: ACED

In the picture above, Mr. Mihai Chilianu (on the left), son of the company's manager (far right), explains to visiting USAID officials from Washington how US assistance has been used to help Codru-ST, and other Moldovan apple growers, to enter new markets.

Codru-ST has actively participated at ACED organized export marketing events to identify new marketing opportunities and to reduce their dependence on the Russian market. Codru-ST staff participated with representatives from other Moldovan producers at the GulFood and World of Perishables international trade shows in Dubai, as well as at the Fruit Logistica show in Germany, and the IndAgra expo in Romania. Company managers also took part in an ACED organized international study tour on *Advanced Apple Production and Post-Harvest Technologies* in Italy.

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Agricultural innovations and new technologies are helping to reduce costs and increase crop quality – necessary prerequisites for Moldovan producers wishing to enter new markets following the Russian ban on Moldovan fresh fruit. A number of the fruit production technologies and orchard management techniques which the ACED Project promotes have enabled Codru-ST to begin exports to Middle Eastern markets. Company manager Ion Chilianu says that there were two fortunate events in the history of his company, and that both events were related to the support provided by USAID-funded programs. “Our company operates the first ever Controlled Atmosphere (CA) cold storage facility in Moldova. The 2,000-ton facility was built in 2002 with assistance from a USAID agricultural development project. The other key assistance program is ACED – it helped us gain new experience in fruit production and marketing,” Mr. Chilianu stated.

In 2012 and 2013, as result of participation at ACED training events and other ACED technical assistance, Codru-ST was the first Moldovan producer to implement chemical thinning in their entire orchard. The combination of the use of gibberellins (also promoted by ACED) and chemical thinning, followed by manual corrective thinning, allowed the company to obtain a fruit harvest with more uniform sizing, better color and fewer defects. The impressive results achieved by Codru-ST led to wider adoption of this technology in Moldova: by 2014 more than 40 apple growers were using it. In 2012 Codru-ST installed two *iMetos* weather stations in its super-intensive apple orchards. The stations cover an area of 140 hectares and they allowed the company to reduce their costs for agricultural chemicals and other inputs by 10%.

In 2013, ACED linked the company with the “Access to Agricultural Finance” loan program of the MCC Compact and guided the company in achieving compliance with necessary environmental management procedures. The company used two loans, for a total of \$800K, to extend their cold store, add a packing and grading area, and install an apple grading line and tray former. These facilities have enabled Codru-ST to sell 1,000 tons of apples in Kazakhstan and to send sample shipments of apples to Iraq – around 100 tons – for market diversification. Codru-ST has also sent apples to Lebanon, Egypt and Romania this year.

ACED Success Story 21 – Moldovan Apples in Middle East Markets (Codru-ST)

COMPONENT I, ACTIVITY 2: RESULTS AGAINST OBJECTIVES

The objective of Activity 2: Training to Upgrade Production and Ability to Meet Buyer Requirements is to increase HVA farmers' incomes by lowering production costs, increasing marketable output, reducing marketing margins, and capturing better prices as producers adopt new technologies and practices that allow them to better satisfy the market demands identified in Activity 1.

ACED's Activity 1.2 was designed to help farmers and producer organizations upgrade their production and PHH skills and techniques based on training that addressed the gaps in their skills. These are the gaps that were identified in the ACED value chain studies while looking through the lens of demands from the end-market studies. Training modules were developed in detail in yearly ACED training and demonstration plans for the main HVA value chains that were assisted during the project: Apples, table grapes, sweet cherries, plums, peaches, tomatoes, and cucumbers and other vegetables. Training also focused on other issues such as greenhouse operations and irrigation management, and transition to HVA in the CIS zones.

The training plan included a multitude of knowledge and technology transfer techniques such as production seminars, field days, local and international study tours, and technological guides and bulletins. The training activities covered practical subjects throughout the season in seminars coinciding with needs during the production cycle.

The large number of training and knowledge transfer activities can be seen in the textbox to the right.

New technologies and practices adopted by farmers in each of the value chains lowered production costs, and increased marketability output of vegetables, fruits, table grapes, and berries produced locally. More value chain-specific results can be seen in Section IV.

Activity 1.2:

- 357 seminars
- 97 training field days
- 11 production guides
- 45 technological bulletins
 - Strawberries – 6 issues
 - Cucumbers – 6 issues
 - Apples – 16 issues
 - Stone fruits – 5 issues
 - Tomatoes – 12 issues
- 24 innovation bulletins
 - Vegetables – 10 issues
 - Fruit – 14 issues
- 66 study tours
 - International – 39
 - Local – 27
- Demonstrations
 - Demonstration sites – 45
 - Training field days – 97

TABLE 2: TRAINING RESULTS AGAINST TARGETS

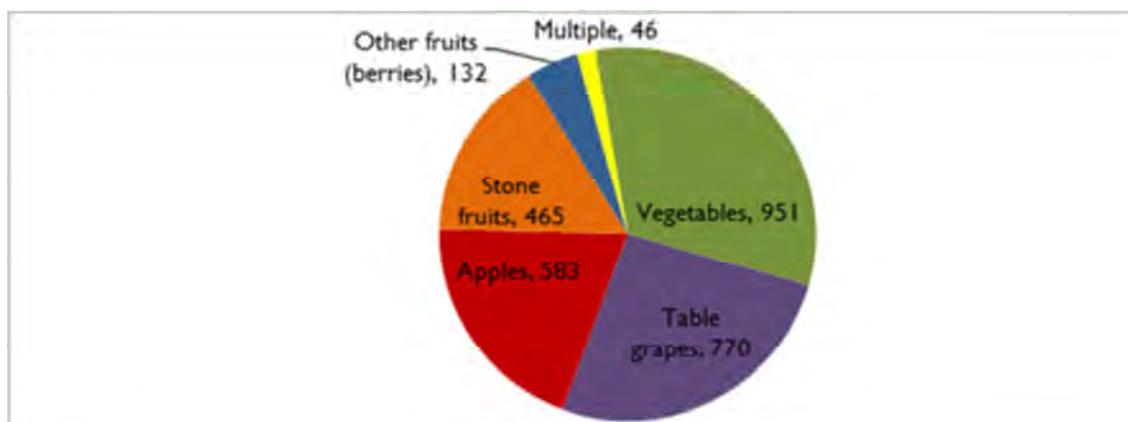
Indicator	Result	Target
Producers trained	6,877	4,300
Producers adopting improved practices	2,947	2,800
Additional hectares under improved technologies	8,611	8,400

Initially, the training program focused on three value chains (tomatoes, apples, and table grapes) and later expanded to several other value chains: Cucumbers, peaches, plums, and strawberries. The CIS and WAN added ample training in Years 4 and 5 of the project. This contributed to boosting the number of

discrete participants, including women. Women represented 36 percent of the total ACED training participants, exceeding our performance monitoring and evaluation plan (PMEP) target of 30 percent.

Producers adopting improved techniques and practices rose to 2,947 through February 2016. Most adopters were in the vegetable value chain (32 percent), followed by table grapes (26 percent) and apples (20 percent) (see Figure 7). Women represented 36 percent of the adopters, mirroring their participation rate.

FIGURE 7: PRODUCERS ADOPTING IMPROVED TECHNIQUES AND PRACTICES BY VALUE CHAIN



The training received by farmers serves to increase productivity, quality, and shelf life of produce. Whereas anecdotally farmers report higher productivity, little data is available. A study done by Moldova Fruct shows an average increase in productivity in apples in the last two years of the project from 5 tons/hectare in 2013 to 6.4 tons/hectare in 2015.

Role of Demonstrations

In line with the adoption technology principle “seeing is believing,” ACED created a focused value chain demonstration plan based on end-market requirements and value chain action plans. The purpose of ACED demonstrations was to show the positive impact of an innovative technology or practice that enhances the grower upgrading process and contributes to the development of the targeted value chains.

Demonstration activities were set up to permit a comparison of the implemented improved practice/technology with what would have happened in the absence of utilizing the new technique (the “control”). For example, in the case of putting in place a Kim Green Bush canopy in a sweet cherry orchard, the demonstration site compared results: 1) using a Kim Green Bush canopy; and 2) using a traditional canopy. At each stage of the production season, observation and data collection were performed. At the end of the production season (after the harvest) the indicators were compared across 1) and 2): The average weight of one fruit, amount of yield from one tree, color level of the fruit, and commercially viable percentage of fruit. In the case of the Kim Green Bush demonstration in Criuleni, the demonstration was highly successful. As a result, 46 companies have reported adoption of improved canopies for intensive sweet cherry orchards.

ACED used demonstrations to build the capacity of national consultants to support industry-wide adoption of improved practices and techniques. In the case of the Kim Green Bush demonstration mentioned above, international consultant Lynn Long designed the demonstration, and trained national consultants, who were then able to integrate this into the ACED training program and ACED Sweet Cherry Production Guide and disseminate the findings from the demonstrations.

The demonstrations were intricately linked to the training and TA activities, and enhanced dissemination of innovative practices and technologies. Most production training sessions in the communities included visits to the demonstration sites for practical instruction.

Application of the Integrated ACED Training Approach to Promote Key Production Technologies

Intensive Fruit Production

ACED value chain studies identified adoption of intensive fruit production as a key strategy to produce quality fruit that meets the requirements of both traditional and alternative markets.

ACED established partnerships among industry associations, international technology suppliers, and local consultants that brought to Moldova a series of technologies that were not previously available, such as gibberellins, chemical thinning, weather stations, late spring frost protection, and harvesting platforms.

Demonstrations for intensive cherry and grape canopies, grape crop nutrition, weather stations, FrostBusters, anti-hail nets, harvesting platforms, and reflective film were set up across the country with input from international and national consultants to demonstrate and quantify the positive impacts from adoption of these improved technologies, with ACED sharing some of the costs to set up the demonstrations. In the case of gibberellins and chemical thinning, an alternative strategy was used: The participating pilot companies covered all the costs to adopt the technology, and ACED provided a national consultant that carried out staff training, monitored crop development, and analyzed the results. Each ACED demonstration included two to three field days for other producers to observe implementation of the technology and assess firsthand its impact on crop quality and yields.

The experience of ACED demonstrations was integrated in the production guides and manuals developed by ACED for the apples, table grapes, sweet cherries, plums, and peaches value chains, that list and describe all major technologies that need to be adopted by the Moldovan producers in order to produce competitive fruits. The production guides and manuals were complemented by technical bulletins that provided additional guidance for implementation of intensive production technologies; 14 such bulletins were developed for apples, 5 for stone fruits, and 5 for table grapes.

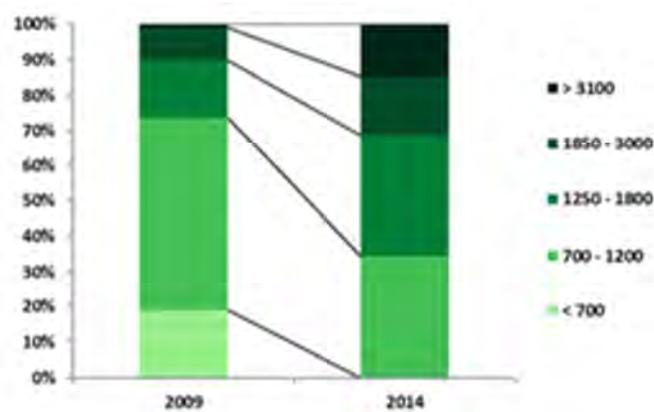
ACED implemented an extensive production training program, which during five years covered the entire country. The training program focused on locations with a high concentration of producers in the targeted value chain, were coordinated with Moldova Fruct and the Table Grape Producers Export Association (APESM), and complied with the monitoring and evaluation framework agreed to by the Compact evaluation team. The training program was complemented by short-term technical assistance (STTA) assignments and 14 international study tours to observe implementation of intensive fruit technologies by the leading Italian, German, Dutch, and Turkish fruit growers. Additionally, the Value Chain Support Center (VCSC) cost-shared the training and consulting assignments of international consultants brought by Moldova Fruct and its members regarding implementation of chemical thinning, weather stations, anti-hail nets, and crop nutrition.

All these activities contributed to the transformation of the fruit production landscape in Moldova:

- Gibberellins and chemical thinners are officially registered and increasingly used by the producers, even by those still managing traditional extensive orchards.
- The iMetos network of weather stations reached more than 100 units, and in 2015 iMetos established a partnership with Agrostoc Coop to provide weather data and disease forecast services to a larger number of producers located in the area covered by the network.

- More than 1,800 producers participating in the ACED Production Training Program for apples, table grapes, and stone fruits value chains reported adoption of one or more improved practices and techniques.
- The share of intensive orchards in the total area of newly planted Moldovan fruit orchards has increased impressively. As seen in Figure 8, based on National Subsidy Agency (AIPA.md.gov) data, apples went from 25 to 65 percent in just five years; the remaining 35 percent reflect the constraints in access to irrigation water (a key prerequisite for intensive production) rather than the lack of knowledge regarding the advantages of an intensive approach to fruit production.

FIGURE 8: DISTRIBUTION OF NEW APPLE PLANTINGS ACCORDING TO THEIR DENSITY (TREES/HECTARE)



Greenhouse Technologies

In August 2011, ACED, with the support of an international expert, carried out the assessment of the greenhouse technologies used by Moldovan vegetable producers and developed a strategy that included improved greenhouse design, extension of production periods in spring and fall through environmental control, improved crop quality and quantity through better lighting and crop nutrition, improved varietal selection, reduced heating costs, reduced polyethylene loss during severe weather, and improved labor efficiency. The strategy was aligned with findings of the greenhouse tomatoes value chain study and discussed with value chain stakeholders through a series of value chain workshops.

In June 2012, ACED developed the Greenhouse Design Manual that laid out a pathway/order for the upgrade of Moldovan greenhouses along 23 intermediary technical steps: From simple, low cold frames with plant support to high-tunnels with improved ventilation, and further to high-tech greenhouses with robots. The manual was later complemented by the Cucumber Production Guide and the Vegetable Seedling Production Guide, and a series of technical bulletins providing detailed recommendations for adoption of key practices and technologies for specific crops: 12 bulletins for tomatoes, and 6 bulletins for cucumbers.

Demonstrations were implemented in major greenhouse vegetable production areas to pilot the adoption of key technologies (mulching, double-layer covers, irrigation, improved ventilation, artificial lighting), and to let other producers observe the improved results. Two to four field days were organized at each demonstration site, and additional visits were carried out as part of the extensive ACED training program for the greenhouse vegetables value chain. ACED used the field days and training sessions to carry out an information campaign to raise awareness about the importance of water and soil analysis for greenhouse production, and provided free water and soil testing for all growers participating at these events. The demonstration field days and training sessions were complemented by international study

tours to Turkey, Ukraine, Romania, and Serbia to observe implementation of advanced greenhouse technologies by their leading growers.

As a result of these activities, more than 950 producers reported adoption of one or more improved practices and techniques. As expected, those practices and techniques that do not require big investments were adopted quicker by the growers (improved fertigation through water and soil analysis, new varieties, pollinators), but there is a significant number of producers adopting the more capital-intensive double-layer covers, microclimate control systems, ventilation systems, and artificial lights, and their number will continuously increase in the future as more and more growers see the advantages of technologies piloted by ACED.

Guides

The guides provided a summary of the whole production and PHH process. They compiled technologies and showed how they can be integrated throughout the production cycle in order to increase yields and quality to better meet market requirements.

By the end of 2015, ACED published 19 manuals and guides. The Apple Production manual was the most popular, and ACED decided to reprint it in 2015, bringing the total number to more than 8,000 copies distributed to farmers, agricultural entrepreneurs, students and scholars, local public authorities, ministerial representatives, and donor organizations.

In total, ACED has published approximately 25,000 manuals and guides for fruit and vegetable production, PHH, and processing. Most of these books have been distributed during the training sessions and upon request, but large quantities were donated to numerous academic and administrative institutions across Moldova, including the National Library, Agricultural University, Orhei Public City Library, Soroca Public City Library, Straseni Public City Library, Cahul District Council Agricultural Department, Criuleni District Council Agricultural Department, Ungheni District Council Agricultural Department, Cimislia District Council Agricultural Department, Calarasi District Council Agricultural Department, Briceni District Council Agricultural Department, Singerei District Council Agricultural Department, Wine and Vine College in Stauceni, Svetlii Agricultural College, Riscani Agricultural College, Cormu Agricultural College, and Ministry of Agriculture and Food Industry.

Bulletins

One innovative training tool was a specialized technical bulletin for producers in the targeted value chains. Like the field training activities, the technical issues addressed in these bulletins were timed to coincide with the production cycle so that producers will be able to immediately try out what they learn on their own farms. ACED mailed these bulletins to thousands of producers around the country and also posted them on AgroConect and ACED.md websites. Additionally, ACED provided them to the associations, which also distributed them to their members. During the special CIS training program, ACED created and sent out 37 bulletins on all of the major HVA innovations that would help CIS farmers transition to HVA, including topics like drip irrigation, establishing new orchards, building greenhouses, and soil management.

The following technical bulletins were published in 2013–2016: Apple; Cucumber; Innovation; Vegetable Innovation; Irrigation Technologies; Stone Fruit; Strawberry; Tomato; and Women's Networks. Overall, more than 10,000 bulletins were published.

Activity 1.2 Lessons Learned and Recommendations

The training team identified the following lessons learned during ACED:

Training and Demonstrations

- The importance of working with industry-recognized leaders ready to invest in trials of improved practices and technologies for the quick set-up of demonstrations and dissemination of their results.
- The results of demonstrations are more quickly disseminated and practices/technologies are more quickly adopted by the industry when there are several identical/similar demonstration plots across the country.
- Once demonstrated and proven, an improved practice or technology is more quickly adopted by the industry when there is a Moldova-based company marketing it.
- The number of RTSPs is limited in many regions of Moldova; there are just a few RTSPs with experience in implementation and monitoring of agricultural training programs. As a result, the capacity building provided by ACED was important, and should be continued under future projects.
- There is a limited number of national experts exposed to modern production practices and technologies (for example, stone fruits and berries). Therefore, it is important to include at least one expert in all international study tours. The side benefit is that they can answer participant questions and make additional explanations along the way, as well as market their services in the future.
- Moldova typically has high soil pH, but that is not a “true” constraint because various management tools exist to control this factor (as shown by the blueberry production and other ACED demonstrations).
- Farmers were very interested in the training subjects identified in the training plans (based on the value chain analysis and end-market analyses), especially those related to pruning, integrated pest management, and PHH.
- Local RTSPs need training for implementation of a given training program before implementation of the program itself. ACED realized this early in the project and began offering this training on a yearly basis. This builds the capacity of the RTSPs, and helped the ACED project run more smoothly.
- In-kind contributions of participants to the study tours played a positive role in motivating farmers to learn about new technologies. Furthermore, it forced farmers who apply for the study tour to self-select those who are the most serious about learning about and implementing new technologies at home.
- Due to environmental review and procurement lead times, it is important to start demonstration design as close to the project start as possible, and to closely manage all the steps to launch the demonstrations.
- ACED training plans were limited to certain locations where training could be held due to the MCC contracted impact evaluation. Until the impact evaluation was modified in Year 5 of the project, ACED was forced to train in randomly selected locations and precluded from holding training in control areas, which had a limiting effect on results.

Recommended Best Practices Identified from Lessons Learned

- A good value chain analysis paired with an end-market analysis is an ideal starting point for identifying training needs and designing an efficient and effective targeted training plan. This ensures that farmers want to learn what is being taught in order to make more money.
- The ACED training plan combined multiple training techniques that stimulated the technology transfer for local producers: Seminars, demonstrations, Farmer Field Days, local and international

study tours, and distribution of production guides and bulletins. The mix increased learning about, interest in, and uptake of new techniques.

- Direct mailing of the technological bulletins reached small farmers and disseminated innovations at scale, including to those who did not have access to other communication tools and areas that were precluded from receiving ACED training.

SUCCESS STORY: FAMILY FARM ADOPTS NEW TECHNOLOGIES



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SUCCESS STORY

Family Farm Adopts new Technologies

Mr. Scutaru and his four sons have significantly improved the competitiveness of their farm with ACED technical assistance.



Photo: Scutaru Family Farm

The picture above shows the ACED Food Safety Specialist (right) advising Victor Scutaru on the procedures needed to obtain GlobalGAP certification. GlobalGAP is a widely accepted certification for food products in western markets. With this certification the Scutaru FF will be able to export to most any western market.

*The Scutaru Family Farm is approved for exports to Russia, but as market conditions change they need to look to western markets to continue to grow. With ACED assistance they have obtained new certifications and they have built a new 2,000 Ton cold storage facility on their farm. As Mr. Scutaru says "Although apples from Poland and Turkey look better, Moldovan apples are much more tasty (**Taste makes the difference**) and can be competitive in international markets with the adoption of new production and storage technologies."*

U.S. Agency for International Development
www.usaid.gov

A critical factor for Moldovan farmers to compete in international markets for fresh fruit and vegetables is the adoption of new plant varieties and cultivation techniques, and the installation of appropriate storage and post-harvest handling systems for their fruit. The Scutaru Family Farm, from Edinet in northern Moldova, is a good example of how ACED assistance can prepare Moldovan farmers to face the challenges of new export markets.

The Scutaru family has been operating their farm for nearly ten years now, and all along the way they have been adopting the latest varieties and production methods. Their farm is a good example of the "super intensive" method of apple production, and ACED has assisted them with training and technical assistance relative to harvesting and post-harvest handling. A critical element that was missing from their farm was an appropriate storage facility to hold their apples after harvest so they could take advantage of seasonal price increases for apples.

The Scutarus turned to ACED for assistance, and the project's Value Chain Team worked with them to prepare a business plan that they used to apply for a loan from the MCC Access to Agricultural Finance (AAF) facility. Based on the plan prepared they received a \$600,000 loan, which represented about 40% of the cost of a new, modern, cold storage facility for their farm. The new storage facility was completed in 2012, and was used for their fruit, and fruit from a neighbor farmer, in the 2012 season.

In addition to access to financing, the ACED project has helped them with securing GlobalGAP certification for their farm (an essential certification for many western markets), installing a weather station in their orchard, and using the weather data for a better plant protection. With ACED assistance the Scutarus sold their apples for higher than average market prices (15% to 20% higher) and their apples were on display at the Moldova booth at the Fruit Logistica international trade show in Berlin in February 2013.

ACED Success Story 04 – Family Farm Adopts new Technologies {Scutaru}

COMPONENT I, ACTIVITY 3: RESULTS AGAINST OBJECTIVES

The objective of Activity 3: **Demand-Driven Technical Assistance to Upgrade the HVA Value Chain** is to identify and support entities across the HVA value chain that will drive upgrading of the value chain in order to ensure that high-quality produce is efficiently transported from the farm gate to the market. Consumers in EU and CIS markets are becoming increasingly quality conscious, and Moldova will not be competitive in HVA until it can deliver appropriate fresh produce to markets—the right varieties of good quality, properly packaged, stored, and transported. Upgrading the fruits and vegetables value chain is critical to building Moldova’s competitiveness in fresh produce exports. One area of improvement needs to be **increased investment in the post-harvest infrastructure and equipment that will be required to transition farmers to increased production of HVA and that will enable producers, wholesalers, and exporters to remain competitive and deliver fresh produce (properly packed, stored, and transported) to increasingly quality-conscious buyers in EU, CIS, and domestic retail markets** using environmentally sustainable and socially just production practices.

The overall objective for Activity 3 of upgraded value chains was met for the value chains targeted by ACED. Across the apples, stone fruits, and table grapes value chains there is recognition for the need to maintain the continuous cold chain, as opposed to the older vision that cold stores are needed only to make use of higher off-season prices. There is a on-going process of building new cold stores across the country, including the south that previously had a big deficit in cold storage capacity (as shown by data from the Agricultural Information Center of MAFI:

http://aipa.gov.md/sites/default/files/prezentare%20AIPA%20final_2014%20%282%29.pdf.

There are significant changes in the ways cold storage facilities are designed and used, witnessed by ACED staff in their work around the country:

- An increasing share of new facilities is designed with dedicated areas for grading and packing operations, as opposed to the older concept of having only cold storage rooms with the understanding that the products will be subjected to minimal or no grading and packing.
- Almost all new facilities located in stone fruits- and grapes-producing areas include precooling rooms, and there is objective evidence that an increasing share of exported fresh produce is precooled before loading in trucks (even for produce shipped during the harvesting season).

An increasing number of cold storage facilities is equipped with mechanical grading and packing lines, as the value chain realizes that manual grading and packing cannot meet strict international standards. During the five years of ACED, the apples value chain moved from just 3 grading lines to more than 15; the first table grapes packing lines were recently installed by two facilities; and the first sweet cherry sorting and packing line was piloted in 2015 through an ACED demonstration.

The industry has greatly increased the number of packaging options to meet the requirements of export markets. Before ACED, produce packed in bulk in large wooden or cardboard boxes was literally the only available option, and there were no tray formers in the country. The first tray former was installed in 2011 by an ACED client, and now there are eight in the country. Currently, the default packaging for apples is fruit packed in two-layer open trays; an increasing share of table grapes is packed in liners with SO₂ pads (piloted by ACED in 2012). The grape bunch bag piloted by ACED in 2015 at Costesti Packinghouse had great success with the importers, and surely will become the standard in the coming years.

Gradually, a culture of trust and cooperation is being built within the Moldovan HVA value chains:

- An increasing number of HVA growers realizes that meeting stringent quality standards of export markets frequently requires dedicated post-harvest facilities that are not economically feasible for individual growers. The Costesti Packinghouse project initiated with ACED support in 2012 was the ice-breaker and the model followed by many of the 28 producer groups with joint post-harvest facilities established since then.
- The two fruit industry associations with divergent strategies and visions that existed at ACED launch merged in 2014 to form a larger, stronger, and more sustainable organization truly representing the entire industry; intense interaction of their members at ACED training events and country booths at international fairs was a key catalyst for the merger.

An increasing number of farmers understand and follow the environmentally sustainable and socially just production practices as codified in GlobalGAP or similar standards. Many of them do not make the next step to obtain a third-party certification of their compliance, because exports to EU countries—where this is a strict requirement by importers—are still small. The ACED-supported upgrade of the Central Phytosanitary Lab and creation of a modern Pesticide Residue Lab within it enable the Moldovan HVA value chain entities to validate their compliance with international requirements.

One lesson learned is that progress is slower in the value chain primarily oriented to the local market (such as greenhouse tomatoes and berries) because the market has lower quality requirements and is more fragmented, making it more difficult to justify the investments in the potential upgrade. The number of improved post-harvest operations within these value chains will definitively increase with development of the retail sector and proliferation of the supermarket-grower cooperation models piloted at Linella with ACED support.

Develop the Value Chain Support Center

The VCSC was ACED’s principal vehicle for a market-driven approach to delivering high-quality TA to HVA value chain entities (producers, producer groups, and agribusinesses) ready to expand and develop new and existing businesses in the HVA sector, but which required specific services and interventions beyond the scope of training services provided under Activity 1.2.

The VCSC provided its support through pre-qualified local and international BSPs operating in Moldova. Pre-qualification was initiated in Year 1, and application and qualification remained open for new BSPs. The final list of pre-qualified BSPs included 21 companies (including one from Transnistria). Almost all pre-qualified BSPs fall in the category of “Investment Development” (business and investment planning). Some categories (such as marketing and promotion services) had a low number of applications for pre-qualification, because potential service providers estimated the demand from the HVA sector to be very low. Other categories (such as production technology and food safety and quality systems) have no service providers or they are individuals who already had training and consulting contracts with ACED under Activity 1.2.

To build demand and facilitate linkages to BSPs, the VCSC developed the AgroConect website (www.agroconect.md), which includes the profiles of the qualified service and technology suppliers, a description of the services and goods they offer, contact information, and articles on how their services and technologies could be implemented to increase the competitiveness of the Moldovan HVA sector. The VCSC maintained continuous communication with the pre-qualified BSPs by sharing ACED-developed materials and other information that could help them deliver better services.

When receiving a request for assistance, the VCSC team worked with the applicant to analyze needs, define the type of assistance required, and develop terms of reference for potential consultancy assignments. If required competencies were available in the VCSC roster, applicants were linked with

pre-qualified BSPs; otherwise the applicant worked with VCSC staff and other ACED staff to identify alternative approaches.

Technical assistance was offered to 194 value chain entities. Production Technologies (management of intensive orchards, new varieties, thinning, and growth regulators) and Investment Development (business plans, feasibility studies) were the most demanded services: 37 percent and 33 percent of offered consultancies, followed by Post-Harvest Handling (13 percent), Marketing (11 percent), and Food Safety and Quality Standards (5 percent).

The VCSC made significant contributions to build demand for BSPs that are critical for upgrading the HVA sector by:

- Highlighting the importance of proper facility design and specifications for refrigeration equipment for long-term profitability of investments in the post-harvest infrastructure (building demand for PHH BSPs).
- Highlighting the advantages of adopting knowledge-intensive technologies, like high-density plantations, crop nutrition, thinning, and growth regulators (building demand for BSPs in production).
- Explaining the importance of third-party certifications (GlobalGAP, IFS, and ISO 22000) to enter alternative markets (building demand for food safety and quality management consultants).

At the same time, the VCSC employed creative strategies to build capacities of local BSPs to meet the increased demand:

- Early in the project, ACED and its subcontractor WFLO organized a training session in Moldova for cold storage technical designers and refrigeration equipment suppliers, and later brought them to a study tour in Turkey to explain the importance of proper design of packing areas and forced-air coolers. As a result, currently almost all new facilities located in stone fruits- and grapes-producing areas include pre-cooling rooms, and an increasing share of new facilities are designed with dedicated areas for grading and packing operations.
- The VCSC entered into partnerships with international suppliers to bring their technologies to Moldova, a key part of these efforts being training of national consultants who could support implementation. Currently, there are several consultants providing services that were nonexistent before ACED—use of weather stations, chemical thinning, and gibberellins.
- Before ACED, there was just a single organization able to assist producers in forming marketing cooperatives. In its joint marketing program, beside the established organization, ACED hired as subcontractors two pre-qualified service providers that had shown commitment to provide quality services in marketing. Under VCSC monitoring, the IDSPs successfully delivered the required services for eight producer groups, and this was also a capacity-building exercise for them as service providers. Later, they were selected by the World Bank MAC-P project to offer similar services for groups applying for its matching grants for PHH infrastructure.
- At the request of one of the largest Moldovan canneries, under the supervision of the ACED Food Safety Specialist, a VCSC-hired national consultant helped in the upgrade of their food safety management system to meet requirements of IFS Food, a standard required by all major EU retailers. The accreditation is the first of its kind in Moldova, and other Moldovan processors are now aware of the abilities of local consultants to deliver such high-quality services.

Facilitate Investments for Value Chain Upgrades

Access to Loan Finance

A critical issue in making value chain upgrades, especially in post-harvest infrastructure, is the lack of appropriate investment finance. A key area of VCSC work was to facilitate the access of value chain enterprises to finance, primarily to the Access to Agricultural Finance (AAF) loan refinancing activity of the MCC Compact. The VCSC contributed to the AAF launching event, and was active in disseminating information to potential applicants at ACED training events and through ACED and AgroConect websites. To facilitate prospective borrower-bank relationships, the VCSC developed the Banking Relations for Agricultural Enterprises Guide and distributed it at ACED training events to interested value chain entities.

The VCSC contributed to the development of 33 business plans; most of them included major investments in post-harvest infrastructure. Of those, 18 obtained long-term loans refinanced by AAF, and two others by the International Fund for Agricultural Development (IFAD). Six business plans were not envisioning long-term bank financing, relying on equity financing and short-term loans; and in seven cases, VCSC clients failed to secure investment loans because they fell short of the collateral required by the banks.

ACED estimates the VCSC impact to be much broader, because value chain entities were directly contacting the pre-qualified IDSPs and obtaining AAF loans (without informing VCSC), and it is probable that most of the 66 AAF loan beneficiaries went this route.

VCSC made efforts to improve banks' understanding of the profitability of financing upgrades to HVA value chains. In June 2012, STTA Mary Miller introduced Moldovan financial institutions to several value chain financing business models used around the world at the ACED-organized "Financing of Agricultural Value Chains" workshop, which was followed by visits to a series of successful HVA growers and exporters to discuss their financing constraints and potential financing solutions. In February 2013, jointly with AGROinform and World Bank's MAC-P project, ACED organized a workshop to introduce the marketing cooperative business model to Moldovan bankers, and to discuss specific financing challenges that are associated with such types of business organizations. Representatives of financial institutions actively participated at ACED events, presenting their services and meeting prospective borrowers.

Attract Foreign Direct Investment (FDI) in the Moldovan HVA Sector

At the start of the project, ACED developed the "Investor Road Map for Potential HVA Investors," a comprehensive document outlining the steps that must be taken to register and operate a business in Moldova, spelling out the officially established fees for required government services and providing comprehensive information about how to contact officials and private sector advisors when necessary.

Following completion of the value chain studies, ACED actively disseminated information about investment opportunities in the Moldovan HVA sector at investment promotion events:

- In September 2013, the ACED Chief of Party (COP) met with Ted Gillman of Crito Capital and Sergiu Bulbas of Mobias Banca to review investment opportunities in Moldova, investment-related reports prepared by ACED, potential investment clients, and BSPs to help with business plans and feasibility studies.
- In October 2012, ACED and StudioCOM (Italy) organized the Moldo-Italian Investment Forum as part of Farmer Fair in Chisinau, which included presentation of joint investment opportunities by selected Moldovan HVA entities.

- In October 2012, ACED provided support to the Chamber of Commerce and Industry to organize an agribusiness-focused Moldova-Russia Agribusiness Forum in Moscow, as part of the Golden Autumn fair, with a second event with Russian investors taking place in the following winter organized by the Moldovan Chamber of Commerce and Industry.
- In November 2012, ACED presented three investment opportunity case studies (manufacturing of cardboard, manufacturing of polyurethane insulation panels, and network of precooling and packing facilities in the South of Moldova) at the Moldova-Turkey Investment and Trade Forum held in Chisinau.
- In February 2013, ACED led the agribusiness roundtable at the “Moldova: Opportunities for Foreign Exporters and Investors” workshop held in Bucharest, Romania and organized by the Ministry of Economy, the Moldovan Investment and Export Promotion Organization (MIEPO), and Ubi France for French companies already operating in Romania and interested in expanding to Moldova.
- In June 2015, ACED escorted Cheribundi (a U.S. company) around Moldova and discussed potential investments in Moldova. ACED put them in touch with private company partners, and this investment to process or freeze cherries or partner with a juice manufacturer could still come to fruition.
- In February 2015, ACED participated in an investor forum in Cluj, Romania and met with an Azerbaijani Turn Key investor to provide information on the agriculture sector in Moldova.
- At two trade shows, ACED collaborated with the GIZ Invest in Moldova project, including at Gulfood 2015.
- ACED helped a Turkish investor perform a feasibility study and detailed technical design for a packing house focused on HVA products from the central region of the country, Anenii Noi.
- After the first Fruit Logistica, Lefrucom signed a partnership with a German company in Dubai, which is still planning to make this investment.

Throughout project implementation, ACED provided required information to a series of U.S. investment funds to review investment opportunities in Moldova. Agroparc Management Ltd., a company of NCH Capital Inc., participated in international study tours and received targeted TA to implement improved practices and techniques in their pilot stone fruit orchards planted in the south of Moldova.

Significant assistance was offered to companies with foreign investment already operating in Moldova. Natur-Bravo and Orhei-Vit, the largest Moldovan canneries, received training and consulting services to upgrade their quality and food safety management systems, and actively participated in ACED-sponsored country booths at international trade fairs. These activities expanded markets for the two processors, and they are currently investing in their capacity to serve the increased demand; construction of an additional processing unit for apples was launched in the north, and for stone fruits in the south.

In addition to the general barriers for attracting FDI (dysfunctional justice system, weak institutions and ineffective law implementation, limited access to finance), investments in the HVA sector are restricted by the ban of land purchasing by foreign investors. The rehabilitation of the central irrigation systems by the MCC Compact created major opportunities for investment in agricultural primary production and processing in these areas, and should be a priority of FDI attraction efforts in the near future.

Demonstrate the Business Model of Critical Investments in Post-Harvest Infrastructure

In August 2011, ACED, in conjunction with its subcontractor WFLO, conducted an assessment of the state of cold chain development and management in Moldova's fresh produce sector. Pre-harvest and harvest practices not requiring significant investments (e.g., disease control, maturity assessment, good schedule of harvests, use of tools to retain moisture and mitigate ethylene content in storage) were identified as priority interventions, and were addressed through ACED crop-specific technical guides and bulletins, and the ACED training program. The joint WFLO assessment and the value chain studies identified a series of key value chain investments that are critical for long-term sustainability of HVA value chains, and they included forced-air and hydro-cooling, sorting and packing lines, and cardboard tray formers.

The VCSC used a series of creative approaches (value chain development workshops across the country, partnerships with international manufacturers, training of facility designers and equipment suppliers as upgrade promoters, international study tours, and demonstrations) to raise general awareness about the advantages of these critical value chain investments, to identify leaders ready to make the investments, and to disseminate the experience of pilot projects.

Forced-Air Cooling

Early in the project, ACED and WFLO organized a study tour to Turkey to explain to facility designers and equipment suppliers the importance of proper design of packing areas and forced-air coolers. That was followed by involvement of trained experts in setting up two ACED table grapes forced-air cooling demonstrations in the center and South of the country, and targeted assistance to a large peach grower to build a dedicated precooling facility. ACED field days at these pilot implementations showed to other value chain entities the clear advantages of the investment in forced-air cooling.

Currently across the entire value chain there is recognition for the need to maintain the continuous cold chain, as opposed to the older vision that cold stores are needed only to make use of higher off-season prices. There are significant changes in the ways cold storage facilities are designed and used. Almost all new facilities located in stone fruit- and grape-producing areas include precooling rooms, and there is objective evidence that an increasing share of exported fresh produce is precooled before loading in trucks (even for the produce shipped during the harvesting season). This greatly extends the shelf life of produce and the perceived quality of Moldovan fruit.

Hydro-Cooling

In Moldovan conditions, this technology is especially critical for long-distance shipment of sweet cherries, and its adoption is seriously constrained by the relatively small size of their production operations. The VCSC designed and implemented the "Sweet Cherry Cooling, Sorting, and Packing for Export Markets" demonstration with a large sweet cherry grower from Roscani MCC CIS zone, based on the detailed recommendations of STTA Marlene Long, as documented in the Sweet Cherry Production Guide. A portable hydrocooler was installed, as well as a sorting and packing line—also a first for Moldova. Currently there are several groups of sweet cherry growers in various regions of the country that had studied the experience of the demonstration, and plan to replicate the model.

Sorting and Packing Lines

Manual grading traditionally used by Moldovan apple growers cannot meet international quality standards, and the traditional packing systems employed by the apple and grape industries have low productivity and cause a lot of bruising. ACED strategy revolved around showing the need to meet international quality standards as a prerequisite to entering into new markets, linking leading cold storage operators and exporters with manufacturers of sorting and packing lines through participation at

industry fairs (FruitLogistica, Interpoma) and international study tours, and facilitating access to investment finance. As result of these efforts, during the five years of ACED, the apples value chain moved from just 3 grading lines to more than 15 (a 500 percent increase), located across the country and offering grading and packing services to other growers from the region. At Costesti Packinghouse (Fructbioimpex Coop), the first table grapes packing line was installed in 2015, and there are already another two cooperatives that are building similar packing areas with sorting and packing lines. The first sweet cherry sorting and packing line was piloted in 2015 at the hydrocooler demonstration described above. ACED achieved a shift in awareness and willingness to invest by producers. The number of grading and packing lines installed by Moldovan value chain entities will continue to definitively increase in the near future, as an increasing share of new facilities are designed with dedicated areas for grading and packing operations, as opposed to the older concept of having only cold storage rooms with the understanding that the products will be subjected to minimal or no grading and packing.

Internal and External Packaging

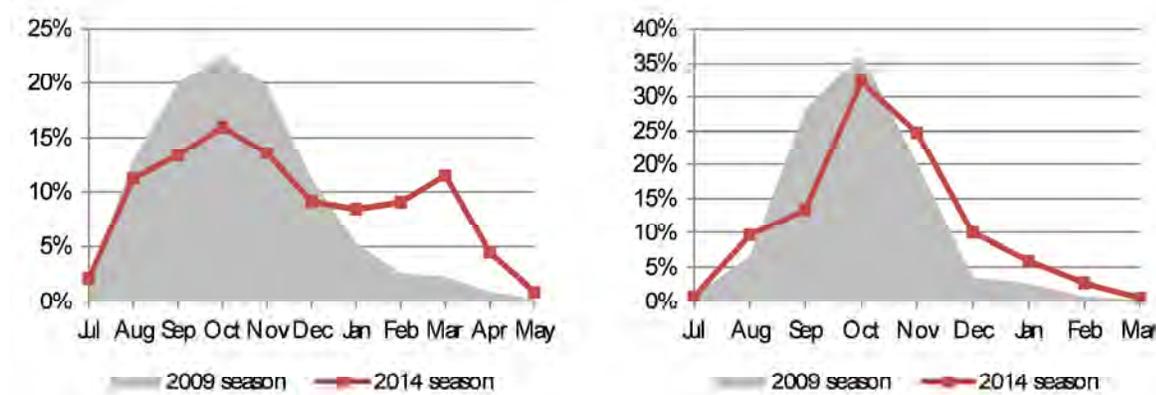
Before ACED, produce packed in bulk in large wooden or cardboard boxes was literally the only available option, and there were no tray formers in the country able to produce the open cardboard trays that are required by EU markets and that are increasingly popular even on the traditional markets for Moldova. As result of ACED efforts, the Moldovan HVA sector has greatly increased the number of packaging options to meet the requirements of export markets. The first tray former was installed in 2011 by an ACED client, and there are now eight across the country, serving all HVA sub-sectors. Currently, the default packaging for apples is fruit packed in two-layer open trays; an increasing share of table grapes is packed in liners with SO₂ pads (piloted by ACED in 2012). The grape bunch bag piloted by ACED in 2015 at Costesti Packinghouse had great success with the importers, and surely will become the standard in the coming years.

Cold Storage Facilities

Overall, 25 ACED clients made investment in construction or expansion of cold storage facilities that increased the storage capacity in the country by 21,020 MT. As others followed suit, the typical pattern of exporting HVA crops mainly during the harvesting season changed into a more balanced one, thus decreasing the downward pressure on prices during the peak season, and allowing producers to benefit from higher off-season prices.

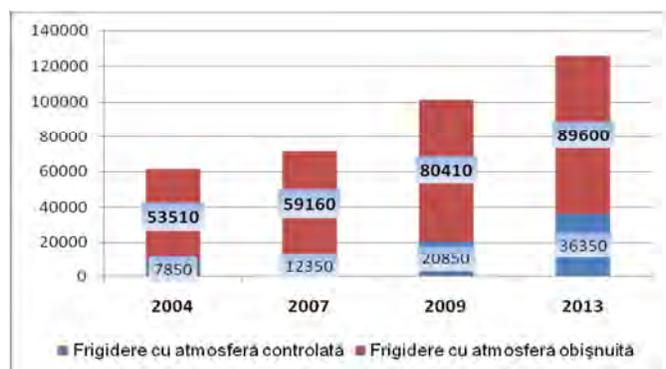
FIGURE 9: CHANGES IN THE SEASONALITY OF EXPORTS (MONTHLY EXPORTS AS PERCENTAGE OF TOTAL EXPORTS FOR THE SEASON)

In the meantime, the increase in controlled atmosphere cold storage increased from 20,850 to 36,350 in



2013 (see Figure 10).

FIGURE 10: STRUCTURE OF COLD STORES IN TONS



Blue= controlled atmosphere, Red= traditional cold stores

Source: *Moldova Fruct Report Presentation “Moldovan orchardists Advantages and benefits for European integration” Chisinau, 2016*

Building the Capacity of Producer Groups

Since its launch, ACED has been active in stimulating the formation and development of various horizontal and vertical forms of cooperation through a series of roundtable discussions of findings of the project’s end-market studies, as well as the effectiveness of the current Moldovan value chain structure.

To respond to the demands for assistance from groups of farmers, in 2013 the VCSC designed and implemented a program that extended through August 2014 to support the creation of joint packing and marketing activities in Moldovan HVA value chains. Two competitively selected subcontractors (AGROinform and the consortium of PromoTerra and AID NGO) provided support to 19 groups of farmers interested in joining together and exploring opportunities to establish formal joint PHH and marketing operations. As part of this, participating farmers were exposed to the best international and local practices in establishing such operations and the feasibility of various business models. During the process, various scenarios were evaluated, business plans were developed, and support for organization registration was provided.

In addition to the assistance offered through its two subcontractors, the VCSC organized important international study tours to Poland and Italy:

- In January 2014, ACED sent 12 apple growers on a one-week study tour to Poland to examine how Polish growers organize themselves into cooperatives and farmer associations to improve their production capabilities and marketing functions. The group visited Polish apple cooperatives and observed some of the latest technologies in the apple industry, including harvesting, PHH, sorting, grading, and packaging. The group participated in lectures and presentations by the managers of these co-ops and learned about how these groups are organized and how working together enhanced their ability to meet market demands.
- A similar study tour to Italy was organized in February 2014 for 11 table grapes growers representing the four groups receiving targeted ACED assistance. Representatives of AIPA (agricultural payments agency) and the World Bank-funded Moldova Agricultural Competitiveness Project also participated. The group also learned about best practices in public sector support for the creation and development of producer marketing organizations.

Out of 19 groups that have participated in the ACED project (apples, stone fruits, and table grapes value chains were represented by 5 groups each), 9 (47 percent) formalized their relationships; 1 marketing association was created, as well as 8 marketing cooperatives. The most productive was the effort for the table grapes groups (4 marketing cooperatives), reflecting the more pressing requirements to have access

to proper post-harvest infrastructure and to consolidate supply. Another table grapes marketing cooperative was created under the leadership of a VCSC beneficiary, when the business plan for a table grapes-focused packinghouse showed that the investments would be profitable only if processed volumes increase by at least 40 percent.

Three of the above marketing cooperatives (in Costesti, Cimisia, and Varatic) have completed the construction of new PHH facilities, investing \$3.6 million, including \$1 million of matching grants from the Government of Moldova through the World Bank-financed MAC-P project. Another four cooperatives have their PHH projects at initial stages; they secured commitment from MAC-P of \$0.8 million, and will invest at least \$1.4 million of their own resources (equity and loans).

After completion of the development program through PromoTerra and AGROinform, ACED continued to provide assistance customized to the needs of the producer groups. Representatives of the Costesti, Cahul, and Cimisia groups participated in the IndAgra, FruitLogistica, and Gulfood shows organized by the marketing team, while Zgurita, Cimisia, and Varatic were selected by the training team as sites of season-long production training, with ACED-supported producer groups serving as hosts of these events. The ACED Food Safety Specialist assisted the groups with completed PHH facilities with implementation of food safety systems based on the Codex Alimentarius guidelines.

Support to Associations

The industry associations representing the targeted value chains were key ACED partners throughout program implementation. Representatives of Moldova Fruct Association and APESM joined ACED staff in market research visits to high-priority markets (Germany, Romania, and Russia) as part of end-market studies to identify commercial, technical, or regulatory barriers to entering, or expanding the presence in, those markets and make concrete recommendations about what would need to be done to address those markets successfully.

The associations made significant contributions for the preparation of comprehensive value chain studies for each targeted crop. The results of the end-market studies and value chain studies were discussed with the value chain entities at workshops carried out throughout the country jointly by ACED and the industry associations. As a result of the value chain workshops, growers began to understand the need for collective actions, and membership of industry associations started to expand. The most spectacular results were achieved in the table grapes value chain. The value chain workshops were the catalyst for the creation of seven regional associations (15–25 members each) that became members of the national industry association. Several of these regional associations were later subcontracted through open competition by ACED to serve as RTSPs.

ACED worked closely with Moldova Fruct and APESM during and prior to the international trade shows. ACED involved each of them in the planning and all other logistical details to build their capacity to organize their own members at trade fairs. In addition, ACED provided them with most of the leads from interested buyers so that they can link the appropriate producer with the specific needs of the buyer, building association capacity in the process.

Additionally, ACED provided a resource person to Moldova Fruct to develop its capacities to provide professional marketing services to its members on a sustainable basis. As an example of this model being successful, this marketing specialist was instrumental in transforming a lead gained at an international trade fair into an ice-breaking commercial transaction: A Moldova Fruct member began supplying apples and grapes to Lidl stores in Romania. Another major achievement was the organization by Moldova Fruct, without ACED support, of its own booth at World Food Moscow in fall 2015. At its general assembly held in February 2016, the association decided to retain the marketing specialist and cover the marketing services from membership fees. The VCSC provided consulting and legal assistance to the two Moldovan fruit associations regarding options for merging the two organizations. The active

participation of individual members from both organizations in ACED training events and study tours, and a common national booth at the trade fairs, contributed greatly to improving the communication between the associations and among the members. This also led to mutual understanding by the members of the need to have a single organization representing the Moldovan fruit industry. A joint assembly meeting of the two associations took place in December 2013, where they agreed to merge. Now there is one national-level treefruit association with a larger membership and voice.

ACED also provided support to build the production and post-harvest training capacity of Moldova Fruct. In December 2014, ACED entered into a memorandum of understanding (MOU) with the association regarding the organization of a series of training sessions led by leading European experts. ACED covered the logistical costs (airline tickets and hotel), while the association was in charge of all other responsibilities, including identifying experts, scheduling their visits, and covering their fees. Six such training sessions were organized in 2015, with participation of experts from Netherlands, Italy, and Portugal, and in 2016 the association continued the program without donor support.

Using the same capacity-building model, in December 2015 ACED provided partial support to Moldova Fruct to organize the first National Fruit Conference, with participation by more than 100 fruit producers, exporters, and cold store operators. Several international fruit production, post-harvest, and marketing experts shared their knowledge regarding modern approaches for successful fruit production businesses.

ACED has encouraged and guided Moldova Fruct in its successful application to the USAID-funded Civil Society Support for Moldova European Integration grant program. Through this program, Moldova Fruct increased the level of knowledge and awareness of its members and other fruit producers from the northern regions of Moldova about the advantages and benefits of the EU-Moldova Association Agreement. Moldova Fruct also carried out a study visit to Poland for 15 association members in May 2015, and based on the gathered information the association produced a study on the advantages and benefits of EU integration for Moldovan fruit growers.

Activity 1.3 Lessons Learned and Recommendations

- Upgrades that target the immediate needs of accessible markets are more quickly accepted by farmers, and they can be used as a platform for other longer-term improvements. For example, the main motivation of Costesti Packinghouse was to be able to pack grapes according to market requirements, and the established cooperative is also an opportunity to implement the improved production practices that lead to increased satisfaction of buyers' requirements across all members.
- The availability of dedicated financing mechanisms (such as donor loan funds AAF, IFAD, MAC-P, "Orchard of Moldova" program with the European Investment Bank) to support the upgrades is of great importance, especially when long-term financing from bank resources is not available or too expensive.
- One lesson learned regarding food safety is that except for processors there is little motivation for value chain entities to apply for third-party certification of their quality and food safety management systems. Most exports are still directed to traditional markets that do not require GlobalGAP or similar certifications, and producers would rather allocate the annual certification costs of \$1,500–2,000 to more pressing needs. Producers also realized that even western European retailers operating in Romania or other eastern European countries request certification only in the second year of collaboration. Meanwhile, several companies that participated in the ACED food safety and quality management program and upgraded their management systems are also involved in pilot shipments to EU countries, and intend to apply for certification in the coming years. One main conclusion from this is that companies seem to want to invest in certification only if it is required, because certification is expensive and time consuming.

Investment Facilitation

- Specialized agricultural financing mechanisms (e.g., government- or donor-backed long-term credit lines or matching grant programs) are very important given the current situation of the banking sector in Moldova. Best results are achieved when financing is in sync with the training and market development programs.

SUCCESS STORY: FIRST HYDRO-COOLING SYSTEM IN MOLDOVA



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UNITED STATES OF AMERICA

SUCCESS STORY

First Hydro-Cooling System in Moldova

The Davidescus have adopted this technique, recommended by ACED, for their cherry crop.



This photo shows Adrian Davidescu in front of the new Hydro-Cooler that is now being used at their sweet cherry storage facility. Adrian also has a picking bin that was part of the ACED demonstration activity at his farm to demonstrate improved techniques for cherry picking.

The longer a freshly picked fruit stays hot, the shorter its shelf life will be. Pre-cooling is the best opportunity to delay the changes taking place inside the fruit, and to prolong its storage life. Hydro-cooling is the quickest way to cool fresh fruit after picking. It can lower the internal temperature of the fruit from 30°C to 2°C in just 15 minutes. By comparison, a forced-air tunnel is less expensive, but it would take 5 to 7 hours to cool the same volume of fruit and it consumes much more power. Any delay in lowering the core temperature means reduced storage life, and reduced income.

Vladimir Davidescu, and his son Adrian, are fruit producers in southern Moldova. Their company, Ceteronis ST, is among the largest producers of sweet cherries and peaches in the country. They cultivate 80 and 220 hectares of orchards for these crops, and they also have some plum and table grape production. Ceteronis ST supplies its fruit to retailers in Belarus, Ukraine, and Russia, in addition to Moldova. Since 2012 Ceteronis ST has been using forced-air pre-cooling tunnels – a method that allows them to pre-cool 160 tons of peaches in 24 hours. The ACED Project's training program has convinced the Davidescus to implement an innovation that now allows them to reach more fruit lovers and more markets with sweet cherries.

In 2014 the Davidescu family was persuaded by ACED consultants, and American specialist Marlene Long, that hydro-cooling is the best way to cool their cherries. Ms. Long offered her advice and technical assistance on sweet cherry post-harvest handling and with ACED's support, Ceteronis ST installed a hydro-cooler in their cherry orchard. Thanks to hydro-cooling, Ceteronis ST can now cool, and prepare for storage, two tons of cherries per hour.

When the cherries come out of the hydro-cooler they pass through a sorting line – another innovation promoted by ACED for the sweet cherries – to remove damaged fruit, leaves and debris, and prepare the fruit for packing. Pre-cooled cherries can be shipped to the local market, or exported, immediately after being packed and the shelf life with pre-cooling extends to eight weeks.

For the 2015 sweet cherry harvest the Davidescus have used their hydro-cooler for two weeks on a trial basis, but immediately Vladimir could see the difference in the condition of the fruit that was pre-cooled. "I harvested high quality cherries and the pre-cooling allowed me to preserve their quality during storage. They stay fresh for a longer time, while I am looking for buyers."

He added: "Another advantage is that I don't have to transport the picked fruit outside of the orchard – I can do the pre-cooling right in the orchard," Vladimir said. "All we need to remember is that this technology likes large volumes of fruit and regular product delivery. Given this, we are working to persuade nearby cherry growers to associate with us for expanded sweet cherry exports."

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ACED Success Story 25 – First Hydro-Cooling System in Moldova (Ceteronis ST)

SUCCESS STORY: FARMER COOPERATIVE GROWS IN MOLDOVA



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SUCCESS STORY Farmer Cooperative Grows in Moldova

With ACED assistance, the Costesti cooperative will now be able to export fresh fruit to western markets.



Photo: ACED Project staff

The image above shows a woman from Costesti working on the newly installed fruit packing line at the FructBioImpex facility in Costesti. This facility, located in the heart of the table grape production zone of Moldova, will greatly expand the ability of the farmer members to export their fruit to new and distant markets.

ACED's initial assistance for this farmer cooperative included a feasibility study for the facility which then formed the basis for an application to a Regional Development Fund. The RDF accepted the proposal for the facility and awarded a grant of \$1.2M to build the building and install the cold storage equipment. The farmers involved have also been assisted with the formation of their cooperative and in negotiating an agreement to lease the facility from the Mayor's office. December 2015 marked the launch of packing operations.

U.S. Agency for International Development
www.usaid.gov

Farmers from central Moldova will be able to export their fresh fruit on an equal footing with European producers thanks to a new cold store and packhouse which opened in Costesti village in December 2015. The 3,000-square-meter facility has a storage capacity of 1,500 tons and facilities to store, sort, and pack produce in compliance with best practices. The launch was possible thanks the support from the United States Agency for International Development (USAID), contributions from the Moldovan and Romanian governments and local farmers.

"We have four pre-cooling chambers with a capacity to cool 100 tons of fresh produce. In 24 hours we can cool around 300 tons," says Iurie Bivol, manager of the FructBioImpex farmer cooperative which will manage the Costesti Packhouse. "This facility will increase the ability of Moldovan producers to compete successfully in European and other foreign markets." The packhouse has ten chambers for the storage of table grapes, apples and other fruit – the main horticultural crops in central Moldova – which are stored at zero degrees Celsius and 90% humidity. "We can keep fruit for six months under these conditions and then sort and pack the fruit according to our customers' preference," Mr. Bivol explained. There are two sorting and packing lines that can process up to 80 tons a day and the facility employs around 60 local women for the packing function.

The assistance offered by the USAID funded ACED Project included consultancy services, technical training, managerial and legal assistance for the Costesti farmers who have formed themselves into the FructBioImpex Cooperative. ACED also provided assistance to the mayor's office of Costesti which is the legal owner of the packhouse building and cold store. As Agriculture Minister Ion Sula says: "The Costesti Packhouse is an excellent platform to supply quality fruit to both domestic consumers and external markets; it is an example of successful collaboration between Moldova and America for the benefit of our farmers." Mr. Bivol says the first shipments of table grapes will go to Romania and Russia, and they will establish a lab on site to certify their produce on the spot in the near future.

ACED Success Story 31 – Farmer Cooperative Grows in Moldova (FructBioImpex)

SUCCESS STORY: PRE-COOLING IMPROVES EXPORT POTENTIAL



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SUCCESS STORY

Pre-Cooling Improves Export Potential

Four farmer clients have added pre-cooling systems to their storage facilities based on ACED training activities.



Photo: ACED Project staff

Mr. Vasile GUZUN (owner of Norton LTD) demonstrates the high quality of his table grapes during an ACED training event at his cold store facility. The pre-cooled grapes stored there have maintained their high quality even after three months in storage. They are still in perfect shape for the Christmas festivities in Moldova which take place in early January.

As was made clear in the ACED Table Grape Value Chain Analysis, table grapes are the third largest high value agricultural export product by value, following apples and nuts. The regional markets are growing, but unfortunately Moldovan products are visually unattractive and this limits their export value. Activities such as pre-cooling, the use of SO₂ pads, and other new technologies will help Moldovan producers increase the quality of their exports and become more competitive.

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The ACED Value Chain Analyses, conducted in the first year of the project, highlighted the importance of the wide-scale adoption of pre-cooling as major factor in adding new HVA export crops. The quick cooling of fruit is paramount to maintaining quality on the long trip to the consumer for fresh fruit. To date, pre-cooling technologies have been mostly ignored by Moldovan farmers because they know very little about the value added by pre-cooling. Farmers also relied on advice from local refrigeration suppliers, who had limited knowledge of the technologies.

The ACED strategy to address the "lack of pre-cooling" was to educate both parts of the equation – the farmers and the hardware suppliers. Pre-cooling was a key topic in the ACED table grape value chain workshops and training program. A study tour was organized for the most active table grape growers to observe modern post-harvest technologies in Italy, the leading European producer of table grapes. On the supply side, ACED organized a study tour to Turkey for leading refrigeration equipment suppliers, and post-harvest facility designers, to educate them on modern cold chain solutions.

The results have surpassed ACED's expectations, and "pre-cooling" has now become the key buzz-word in the Moldovan table grape value chain. Three companies have added forced air tunnels to their cold stores, and one producer of table grapes and stone fruit built a dedicated pre-cooling facility with four forced-air tunnels. The total investment by these clients is estimated at \$400,000. These facilities were built by local equipment suppliers that were part of the ACED study tour to Turkey.

Each of the seven forced-air tunnels now installed can pre-cool 20 to 40 MT per day. The growers expect that in 2013 the pre-coolers will handle at least 4500 MT of fresh fruit, bringing increased incomes to growers, pre-cooler operators and exporters, while foreign consumers will be able to enjoy the taste of fresh Moldovan fruit.

ACED Success Story 03 – Pre-Cooling Improves Export Potential {Norton}

COMPONENT I, ACTIVITY 4: RESULTS AGAINST OBJECTIVES

The objective of the business enabling environment activity was to improve the competitiveness of the HVA value chain and to increase access to markets by creating a market-responsive policy environment.

ACED implemented two Sub-Activities under Activity 4:

- Sub-Activity 1.4.1 – Improving the enabling environment for Moldovan HVA.
- Sub-Activity 1.4.2 – Strengthening SPS and other quality standards.

Sub-Activity 1.4.1 – Improving the Enabling Environment for Moldovan HVA

ACED started by carrying out a brief assessment of the regulatory framework for the HVA sector in Moldova. The assessment determined the most important activities on regulatory reform and created an action plan for the next five years. The action plan included use of the Competitiveness Impacts of Business Environment Reforms (CIBER) approach. ACED trained local BSPs on the approach, then subcontracted one of them (AID) to work with value chain stakeholders to identify key regulatory/administrative constraints and to develop an advocacy campaign for identified issues.

Advocacy Campaign for Constraints Identified by the CIBER Study

First, ACED organized a series of 6 workshops where 120 problems were identified by value chain stakeholders (from the target apples, grapes, and tomatoes value chains). From that number, 29 were placed on a short list after voting by workshop participants. After this, prioritized HVA regulatory issues were:

- Compulsory plant variety registration.
- Import taxes on key inputs (insulation panels, greenhouses, and cardboard).
- Poor regulation of access to water for irrigation.
- Expensive access to the electricity grid.

AID, together with ACED and stakeholders, carried out the economic analysis of the costs and benefits of reforming the targeted regulations. The findings from the analyses were crafted into persuasive economic presentations that outlined the net benefits of reform to both stakeholders (e.g., reduced costs) and the government (e.g., through increased tax collection).

As part of the ensuing advocacy campaign, ACED and AID organized debates and discussions with industry associations with the Ministry of Agriculture. In addition to making a presentation and holding debates, ACED provided a report to MAFI for elimination of, or revisions to, the existing regulatory constraints. An ongoing advocacy campaign for the range of constraints was organized during 2013 and 2014, and in the end, six of the regulatory reforms were adopted by the government. These include reductions in the import duties for insulated panels, greenhouses, and cardboard boxes and cases, as well as an improved system of new plant variety testing and registration. Also, the export certification system was harmonized with international SPS requirements.

Regulatory Reform Results Achieved

Reform 1: Improving Plant Registration

The most important constraint tackled by the project was to improve the plant registration process for competitive varieties demanded by HVA markets.

After several roundtables organized with agriculture producers and debates with MAFI, on October 25, 2013, ACED organized a roundtable on plant variety testing and registration procedures at the ACED office with Philip Santens, Team Leader from the EU TA program for Budget Support on Economic Stimulation in Rural Areas, along with Business Research Company and AID representatives. Roundtable participants discussed possible activities that could be undertaken in order to revise and improve the existing system of plant variety registration in Moldova. The group agreed on engaging the services of an international expert to undertake a comparative analysis on plant variety registration systems to compare and contrast the Moldovan system with systems in the EU.

As a result of these discussions, Ivana Dulic-Marcovic, an ACED short-term consultant and former Serbian Minister of Agriculture who pushed through reforms there, arrived in Moldova in November. She prepared the comparative analysis of plant variety registration systems in the EU and in Moldova. During the first week of the assignment, the consultant, with support from staff from ACED partners Business Research Company and AID, organized several roundtables with representatives of relevant government institutions such as MAFI, the State Commission for Variety Testing and Registration, ANSA, the State Agency for Intellectual Property (AGEPI), and the Horticultural Research Institute, as well as representatives of the private sector. The main conclusion of the discussions was that Moldova urgently needed to legalize about 15 varieties of fruit that were under production in Moldova, but not included in the national catalog, and modify current regulations and normative acts by removing the requirement for the Value for Cultivation and Use test for fruit and grape varieties. This would allow producers to become the drivers of the registration process and new varieties of fruit and grapes could be registered in only one day, instead of the current three to five years.

On December 4, Ms. Dulic-Marcovic offered a presentation on plant variety registration systems in the EU and Moldova at a workshop organized by MAFI. A total of 34 participants attended, including farmers, Uniagroprotect, the National Farmer Federation, AGROinform, Moldova Fruct, the Association of Table Grape Producers and Exporters, and the Association of Berry Producers. Also, representatives of the State Commission for Variety Testing and Registration, ANSA, AGEPI, and research institutions actively took part in the discussions.

On December 5, Ms. Dulic-Marcovic offered a presentation at a short meeting with Minister of Agriculture and Food Industry Vasile Bumacov. The chief of the State Commission for Variety Testing and Registration and the head of the Horticulture Division of MAFI also attended these discussions. As a result of this meeting Mr. Bumacov was convinced that MAFI and the State Commission must improve and simplify the system of plant testing and registering, particularly for fruit and grapes, by removing the requirement for the Value for Cultivation and Use test. At the same time, the relevant officials promised to look for possibilities to legalize the fruit varieties that are already in production in Moldova, but are not registered legally in the country.

While not all reforms requested were put into action, some significant positive reforms were put into place. Government Decision No. 964 of 4/12/2013 on supplementing section 29 of the Regulation on Testing and Introducing New Varieties in the Catalogue of Plant Varieties was adopted. This provides for reducing the terms of testing agricultural crops from three years to one year “in the same conditions, for the varieties listed in the EU Common Catalogue of Plant Varieties.”

<http://lex.justice.md/md/350548>

On December 24, 2014, Mr. Bumacov, signed an order for the establishment of a working group responsible for the improvement of the system to assess new plant varieties to be included in the national variety catalogue. The ACED Deputy Chief of Party, Mr. Ion Perju, as a member of this working group, attended working group meetings organized in January. After long discussions and debates, members of the working group decided to include in the National Catalog 36 new varieties of fruit trees and bushes, 14 varieties of grapes (including 8 varieties of table grapes) and 17 varieties of fruit

rootstocks. Almost all of these varieties are now under production in Moldova and became exempted from testing.

The National Catalog was improved with all new varieties starting January 1, 2015. Almost all of these varieties are in big demand in the EU market, are currently under production in Moldova, and, by being added to the registry, became eligible to receive state subsidies when farmers plant these new varieties. http://www.maia.gov.md/public/files/catalogul%20soiurilor%20de%20plante/Catalog_2015_Text_Tipar.pdf

Cost-benefit analysis: In order to test and register a new plant variety, such as tree-fruit or table grapes, an applicant has to spend up to €2,500. ACED, by improving the national catalog, saved more than €110,000 of agricultural producers' money, but the most important achievement is time. Because four to five years are required for testing of new varieties, for the 44 new varieties of fruits and table grapes added to the national catalog without all the testing procedures there was a savings of 160 years in total.

Reform 2: The “Regulation on the Use of Waters from Water Accumulations for Community Needs, Irrigation, and Fish-Farming” No. 807 of 10/16/2013 was developed and approved. This regulation sets out the basic rules for the use of waters from lakes and other public basins, allowing free access by farmers to water depending on their needs, as proposed by the project and industry associations.

<http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=349955>

As per the CIBER analysis, impacts were estimated to lead to a net monetary benefit of about \$96.6 million over 10 years. In reality, the benefits may be even higher, particularly in years with severe drought.

Reform 3: Inspection of Agricultural Products for Export

This is the internal procedure of the ANSA, which is based on the International Standards for Phytosanitary Measures No. 7 “Phytosanitary Certification System” and No. 23 “Guidelines for Inspection.” This procedure was developed as a result of the regulatory impact analysis (RIA) and the legal draft developed with ACED support for International Standard for Phytosanitary Measures (ISPMs) No. 7 and No. 23.

Reform 4: Issuance of Phytosanitary Certificates for Export and Re-Export

This is the internal procedure of ANSA, which is based on the ISPM No. 12 “Guidelines for Phytosanitary Certificates.” This procedure was developed as result of the RIA and legal draft developed with ACED support for ISPM No. 12.

Reform 5: Import Duties for Insulated Panels, Greenhouses, and Cardboard Boxes

According to the Law on Customs Tariff No. 1380 of 11/20/1997, which was recently amended and became effective 1/1/2015, the following tariff rates were modified (see <http://lex.justice.md/md/354306>) :

Tariff Code	Goods	Tariffs Before Amendments	Starting 1-1-2015
7308 90 510	Insulated panels (metal-faced insulated panels)	15%	0%
9406 00 310	Greenhouses and accessories thereof (prefabricated structures)	10%	0%

Tariff Code	Goods	Tariffs Before Amendments	Starting 1-1-2015
4808 10 000	Paper and paperboard, corrugated, even perforated	15%	0%
4819 10 000	Cardboard boxes and cases	12%	0% from EU 11% from other (starting 01.01.14)

Reform 6: EU Fertilizers

As result of the advocacy campaign on testing and registering new plant protection products and fertilizers, Government Decision No. 710 from October 2015, was adopted to supplement the regulation on state appraisal and approval of plant protection products and fertilizers for agriculture use. This new amendment provides recognition of plant protection products and fertilizers that are already tested and registered in the EU and have the mark “EC fertilizer.” According to the new regulation, the applicant for approval of plant protection products and/or fertilizers has to provide only the documents that certify the products are already tested and registered in one of the EU countries in order to include it in the State Registry of the Republic of Moldova.

<http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=361598>

<http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=298727>

Select Approximate Impact of Reforms

In addition to the cost-benefit analysis results detailed above for variety registration, the following analysis estimates the impact of other reforms based on the CIBER studies:

- The cost-benefit analysis conducted has shown that the elimination of duty on the import of insulated panels would lead to a \$2.1 million loss for the public budget yearly or \$21 million in 10 years, while it would generate additional profit for companies and therefore \$64 million in additional revenues to the public budget collected from the income tax. Therefore, the net benefit from the elimination of this constraint would be around \$40 million.
- The net benefit after cancellation of the greenhouses and accessories (prefabricated structures) tax would be approximately \$6 million.
- The elimination of the duty on paper, paperboard, and cardboard would affect the public budget in losses of about \$1.26 million annually or about \$12.6 million over 10 years. At the same time, the cancellation of this duty would generate additional revenue for the industry, including up to \$20 million in additional income taxes paid in 10 years. Thus, the estimated net benefit would be approximately \$8 million.

Sub-Activity 1.4.2 – Strengthening SPS and Other Quality Standards

A strong SPS system, harmonized with international standards, facilitates trade and avoids the use of unjustifiable measures as barriers to trade, as well as protecting human and plant health. A certified lab, trained personnel, and harmonization with ISPMs protect Moldova’s farms from phytosanitary threats that would decimate productivity and exports, and it reduces the risk of frivolous export bans. ACED also outfitted the lab with pesticide residue testing equipment that protects human health.

I. Providing Equipment for Central Phytosanitary Laboratory

After long discussions with the Central Phytosanitary Laboratory and the General Inspectorate for Phytosanitary Supervision and Seed Control, ACED and the management of these institutions agreed on

a set of laboratory and inspection equipment that was to be supplied by ACED. Subsequently, the list was officially accepted by MAFI and by USAID. Preparations were completed, and the RFP for the supply of the SPS lab equipment, both locally and internationally, were issued in October 2011. The ACED team, with support from DAI's home office and lab specialist Maria Beug-Deeb (T&M Associates, a small business ACED subcontractor), evaluated the offers. Due to the highly technical nature of the procurement, it was only in the third quarter of 2012 that the majority of the equipment was delivered to ACED. The equipment was transferred to the lab by ACED and properly installed by the individual vendors, and the laboratory staff received training on use of the equipment. The equipment installed at the Phytosanitary Laboratory was officially transferred to the lab on October 5 2012, during an event organized by the Moldovan Government, the American Embassy, and USAID.

As part of the activity related to the Laboratory QMS for ISO 17025, ACED sent three Moldovan lab specialists to Romania for a training program during July. This group was accompanied by the ACED Food Safety Specialist, Andrei Cumanici. Another group of four lab specialists was trained in Romania July and August so that all of the central SPS laboratory specialists were trained by Romanian experts.

A contract for training and mentoring services for the Moldovan phytosanitary laboratory experts on validation methods was awarded to Biolab SRL at the end of November 2014. According to the activity calendar for this assessment, during December 2014, 11 specialists from the Moldovan Phytosanitary Laboratory were trained at the phytosanitary laboratory in Bucharest, Romania. During the second stage, nine Romanian experts traveled to Moldova and delivered (January–March 2015) five days of training for each of the 11 specialists at the Moldovan Laboratory.

The Moldovan Central Phytosanitary Laboratory was prepared for accreditation, with one validation method implemented for each of the following six laboratory departments: Mycology, entomology, bacteriology, virology, nematology, and herbology.

In March 2015, the Laboratory was accredited in ISO 17025 from the national accreditation company MOLDAC. The ACED team convinced the laboratory Director to apply for international accreditation to RENAR in Romania, an internationally recognized company.

The RENAR evaluation team organized a mission to the Moldovan Central Phytosanitary Laboratory September 24–26. During the month of December, all equipment required by RENAR was tested and calibrated in Romania. The Laboratory Director, Nicanor Cernautan, sent a letter to RENAR on December 22, 2015, confirming the equipment calibration and the fact that all nonconformities were removed. The accreditation certificate, according to RENAR internal regulation was issued in March 2016, after the draft certificate was sent in February.

The Moldova Central Phytosanitary Laboratory will be the only non-EU member in the CIS zone with international accreditation in ISO 17025. This international accreditation means that results of the laboratory tests offered by this institution will be recognized abroad, increasing consumer trust and lessening spurious trade embargoes.

2. Development of RIAs and Legal Draft for Eight ISPMs

Adoption of ISPMs facilitates trade and avoids the use of unjustifiable measures as barriers to trade, as well as protects human and plant health.

ACED signed a contract for the preparation of RIAs for eight ISPMs with the Business Research Company. The subcontractor was responsible for developing RIAs covering a group of ISPMs. On December 5, the complete set of materials for the eight ISPMs was delivered to the Minister of Agriculture during an official meeting between USAID/Moldova Country Director Kent Larson and Minister Bumacov. Minister Bumacov thanked USAID for the support and quality of the materials

prepared by ACED. The eight RIAs, and the legal drafts for the ISPMs that were developed and delivered to MAFI in 2013, created the following impact:

- ISPMs No. 7, 8, 12, 20, and 23 were incorporated in Law No. 228 regarding plant protection and phytosanitary quarantine, and sent to the Government and Parliament for approval. Currently, due to the Moldovan Parliamentary election on November 30, 2014 and political instability during 2015 (new government) Law No. 228 has been sent back to MAFI for revision by the new government
- ISPM No. 15 was incorporated in Government Decision No. 594 from 2011, on approval of the special requirements for entering and the movement of plants, plant products, and other objects in the Republic of Moldova and shortly it will be sent to the government for formal approval.

As a result of ACED's work on RIAs, there are three new ANSA internal procedures harmonized with ISPMs:

- "Inspection of Agricultural Products for Export" is the internal procedure of ANSA, which is based on ISPM No. 7 Phytosanitary Certification System and No. 23 Guidelines for Inspection.
- "Issuance of Phytosanitary Certificates for Export and Re-Export" is the internal procedure of ANSA, which is based on ISPM No. 12 Guidelines for Phytosanitary Certificates."
- "Import Controls on Plant Health (Products)" is the internal procedure of ANSA, which is based on ISPM No. 20 Guidelines for a Phytosanitary Import Regulatory System.

3. Providing Equipment for Phytosanitary Control Points

Twenty sets of laboratory equipment have been provided to phytosanitary control points, including 10 sets at the customs control points responsible for import control, and 10 sets for ANSA regional laboratories responsible for export certification. In order to verify their condition, ACED staff, accompanied by ANSA representatives, visited several phytosanitary inspection points around the country, which are responsible for customs checks on food imports. Most of the inspection centers that are now under ANSA were found to be in good condition and they are able to make effective use of the equipment that ACED provided to them. On July 25, laboratory equipment for 20 phytosanitary inspection centers was formally transferred to ANSA during a public event organized in Hincesti by the Moldovan Government, the U.S. Embassy, and USAID. At the same time, 300 phytosanitary field inspectors received field kits and reference materials from ACED to help them to carry out their inspection duties around the country.

During 2013–2014, ACED Deputy Chief of Party (DCOP) Ion Perju, and food safety specialist Andrei Cumpanici, conducted several field visits to the regional phytosanitary control offices at the border customs terminals to monitor the installation and utilization of the equipment donated to ANSA by ACED. As a result of these visits, it was determined that the equipment



U.S. Ambassador to Moldova, William Moser, hands a donation certificate to the director of one of the 20 field labs that will be receiving laboratory equipment from the ACED project.

was correctly installed and is being used for product testing as intended. At the same time, it should be noted that at the time, ANSA had not followed all ACED recommendations that were linked to the donation of this equipment. Some of the offices visited did not have direct access to water and sewer systems, and inspectors had to go to other offices to get water for use in their own areas.

4. Reference Materials

As part of the capacity-building program for the phytosanitary inspectors and customs check point inspectors, ACED developed a comprehensive reference book for phytosanitary inspectors, including photos, descriptions, and suggested control techniques for more than 150 pests and plant diseases. This book was published and distributed to all phytosanitary inspectors, including those at customs check points. This manual was also used in the extensive multiyear training program.

As part of the ACED activity to increase the testing capacity of ANSA and help phytosanitary inspectors carry out their inspection duties around the country, ACED provided 200 entomology dissection kits, which were distributed to field phytosanitary inspectors around Moldova. The entomology dissection kits allow phytosanitary inspectors to examine insect/plant interactions, insect behavior, and the ecology of parasite/host and predator/prey interactions, etc.

ACED also provided 45 sets of additional equipment to ANSA field inspectors that had a more complete range of tools for their food safety inspection functions, including a refractometer, sizer set, pocket scale, penetrometer, and digital thermometer.

5. Training and Consultancy for Phytosanitary Inspectors

Based on the contract between ACED and BioLab SRL, during September–October 2013, three Romanian experts provided six seminars (two days each) to Moldovan SPS field inspectors regarding harmful organisms, parasitic plants, and other contaminants whose introduction and spread in Moldova is under quarantine. The training seminars were held in Edinet, Briceni, Balti, Orhei Hincesti, and Chisinau. A total of 170 inspectors (66 women and 104 men) participated. A final, two-day seminar for SPS inspectors from Gagauzia, which was provided with Russian translation, took place in Chisinau December 10–11, 2013.

During June and July 2014, ACED organized seven seminars on phytosanitary certification and the requirements for inspection and certification for ANSA staff. The training seminars were organized in seven regions: Briceni, Edinet, Balti, Orhei Hincesti, Comrat, and Chisinau. The main subjects were provided by ANSA experts Svetlana Lungu, the head of internal quarantine department, and Viorel Chetrari, coordinator of the phytosanitary and veterinary custom control points. Andrei Cumpanici, ACED SPS expert, provided detailed presentations on phytosanitary certification for exports at all of these seminars, which were attended by a total of 173 phytosanitary inspectors.

September 21–30, 2015, Dr. Cumpanici, in partnership with ANSA, organized training seminars in five regions (Balti, Edinet, Hincesti, Comrat, and Chisinau) for all phytosanitary inspectors—160 in total. The



Entomology dissection kits contents: Flexible probe, straight teasing needle with plastic handle, curved teasing needle with plastic handle, 4.5" medium point forceps, 4.5" curved fine point dissecting forceps, 5" straight hemostatic forceps, 5.5" sharp/blunt blade surgical scissors, 4.5" iris scissors, scalpel handle #3 for blades #10 (1 piece), and scalpel handle #4 for blades #22 (1 piece).

main subject was the requirements for phytosanitary inspection and phytosanitary certification of agricultural products.

ACED and the National Phytosanitary Authority of Romania organized a study tour to Romania for 16 ANSA phytosanitary inspectors November 22–26, 2015. Phytosanitary inspectors play a critical role in identification and preventing the spread of harmful plant pests, weeds, and diseases on export and import products. ACED DCOP Perju and Dr. Cumpanici accompanied the group during the study tour. The training covered the entire phytosanitary system, including rules for issuing plant passports, wood package certification in accordance with ISPM 15, registering and monitoring food business operators, and a visit to a phytosanitary laboratory.

Other Crosscutting Activities

Investor Road Map

Early in the project, ACED created an Investor Road Map. It outlines the essential steps for establishing and operating an agribusiness in Moldova, such as company registration and licensing, staffing and related labor laws, and acquisition of financial and operating inputs. It offers guidance to local and foreign companies and individuals looking to invest in Moldova’s HVA sector (fruits, vegetables, and table grapes) and highlights key steps in dealing with Moldova’s public authorities throughout the investment process. This guide was developed by the consulting firm BIS under a subcontract and aims to attract both domestic and foreign investors into the Moldovan HVA sector. It was approved by USAID in early 2012. The guide has attracted great interest among farmers, as well as government institutions and foreign investors. More than 2,500 copies of the guide were distributed via the Ministry of Agriculture, MIEPO, the Chamber of Commerce and Industry, and producer associations, as well as through ACED participation at local and international exhibitions. Since the legislation discussed in the guide has changed, the guide was updated and improved. All of the subjects described in the first version of the Investor Road Map were reviewed and revised, and the new version can be downloaded from the ACED website.

Horticulture Development Program

MAFI asked for ACED’s assistance to elaborate a national Horticulture Development Program (HDP). After an RFP, AID (a local NGO) was awarded the contract to develop it under ACED’s leadership. The final version of the HDP was presented to 30 participants, including local representatives from the regional level and interested agricultural producers. According to the protocol from the workshop, signed by the Deputy Minister of Agriculture, Chitoroaga Stefan (who was head of the working group responsible for HDP development), MAFI has accepted the final version of the HDP. The ministry was supposed to send the program to the government for approval, but instead they used it for development of another program financed by the European Bank for Reconstruction and Development named “Orchards of Moldova.”

Activity 1.4 Lessons Learned and Recommendations

- The EU Plant Variety Catalog does not actually include different types of fruit, so the initial expectation that the EU catalog would solve variety registration problems was flawed.
- As stated by Mr. Machidon, head of the Plant Variety Registration Commission, the Moldova plant testing and registration system has to be harmonized according to International Union for the Protection of New Varieties of Plants and Community Plant Variety Office requirements in order to be part of the mutual recognition system of distinctness, uniformity, and stability tests—only in this case, all the plant varieties registered in the EU catalog could be introduced in production without additional tests.

- Resistance to change is great. Especially if there is a perceived loss of income or status that would result from a change, such as the removal of variety testing.
- It was important to teach local BSPs how to carry out CIBER and a lobbying campaign, as it was important to teach MAFI staff how to carry out RIAs. Both of these ensure that sustainable results continue with local stakeholders.
- It is best to involve private sector partners in lobbying for change.
- Political will is the biggest constraint for regulatory reforms.
- It is not enough to work on regulatory reforms—it is much more important to work on accurate implementation of the regulations.
- Associations should continue advocacy campaigns on other issues prioritized by the CIBER assessment: Access to underground water for irrigation, a labor code for seasonal workers, and procedures for registering phytosanitary products and fertilizers (which are not yet registered in the EU).
- ACED delivered 20 sets of laboratory equipment for phytosanitary check points, including 10 for ANSA regional offices, which had an important role in increasing the capacity and quality of phytosanitary control for export certification.
- There are another 25 regional ANSA offices (small laboratories) that need the same kind of laboratory equipment, but less sophisticated, for example, simple microscopes.
- Because of the median age, ANSA staff is in continuing fluctuation, which requires continuing learning on diverse subjects. Furthermore, because the government often changed during the five years of ACED, it led to delays when ACED was waiting for the head of ANSA to be named. Such delays were out of the hands of the project.

COMPONENT I, ACTIVITY 5: RESULTS AGAINST OBJECTIVES

Background

For project Years 4 and 5, the ACED team added a fifth activity to the project, Sequencing with the MCC Compact THVA. The main objective of Activity 1.5 was to plan, organize, and implement TA and training to farmers located in the Millennium Challenge Compact CIS zones to support their transition to HVA production. These zones can be seen in Figure 11.

The CIS Pilot Program started in June 2014 (Year 4 of ACED). The CIS Pilot Program included three CIS zones, Jora de Jos, Lopatna, and Criuleni. In February 2015, (end of Year 4 of ACED) ACED's program was launched in the Leova Sud, Grozești, Roscani, Puhaceni, Blindesti, Cosnita, and Chircani Zirnesti CIS zones. In project Year 5, ACED continued implementation of the program in all the CIS zones. For implementation of this activity, ACED developed an ambitious two-year training and TA program, which included the components below.

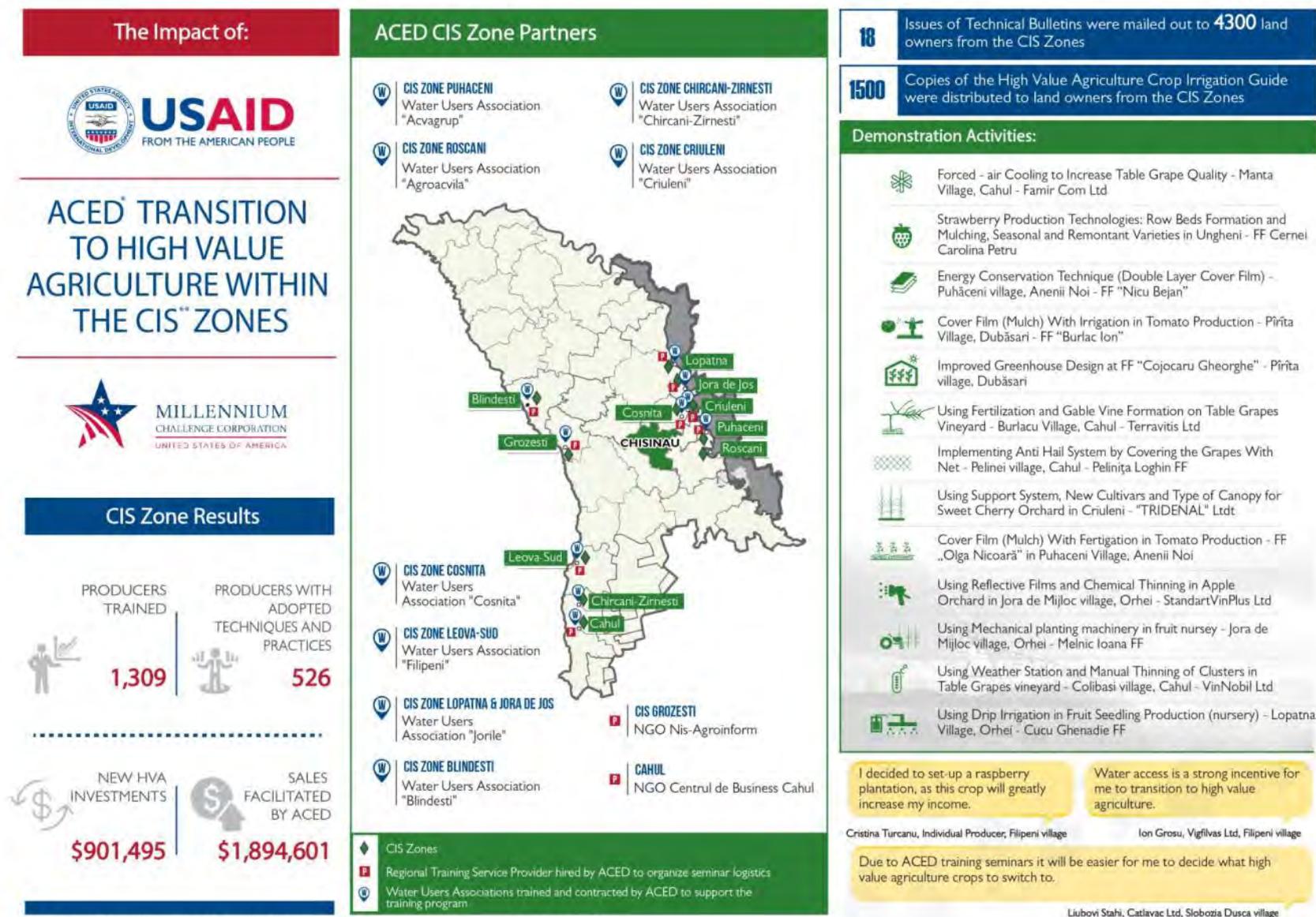
Farmer Fairs

During activity implementation, ACED organized two farmer fairs in Jora de Mijloc village and Criuleni town. The Farmer Fair in Jora de Mijloc was a successful event, because it brought together many of the farmers who will be using the irrigation systems in the Lopatna and Jora de Jos irrigation zones for contact with input and equipment suppliers, banks and other sources of finance, agricultural development agencies and international projects, and local government officials. To start off the event, ACED organized a series of four technical presentations for the farmers to give them an introduction to

the kinds of information they could learn from the technical seminars the project had planned for CIS zone farmers. The event was attended by approximately 500 community members from the area and by representatives of the local and raional administrations (including the local mayor and the Vice President of Orhei raion, Sergiu Muravschi).

On October 18, ACED organized a second Farmer Fair for the MCC CIS zone farmers in the center of the town of Criuleni. This Farmer Fair was held in conjunction with the local harvest festival. There were a number of equipment and input suppliers on hand to show their products and meet with the farmers, as well as representatives of banks and other financial institutions to inform farmers of their options for securing loans and/or grants for their agricultural activities.

FIGURE 11: ACED TRANSITION TO HVA WITHIN CIS ZONES



¹ Agricultural Competitiveness and Enterprise Development Project implemented from April 2011 to March 2016

² Central Irrigation Systems rehabilitated by MCC/Compact Program, ACED's intensive assistance to high value agriculture assistance was provided to the CIS Zones from June 2014 to December 2015

Within the framework of this event, the ACED team organized a local study tour in the Criuleni CIS zone, for 10 agricultural producers from the Jora de Jos and Lopatna CIS zones. These producers visited three individual companies in the Criuleni raion that are involved in intensive apple production, greenhouse production, and cherry production. This visit gave producers from the Jora de Jos and Lopatna CIS zones some new perspectives on apple and fruit production and it gave them an opportunity to meet and interact with farmers from another CIS zone that they rarely, if ever, have an opportunity to meet.

At both events, ACED distributed hundreds of copies of project publications (manuals, guides, and technical bulletins).

Training Seminars

During implementation, ACED conducted 52 separate CIS zone training events on various topics, including:

- Irrigation water quality; building and using an irrigation system.
- Soil quality parameters; establishing irrigation needs.
- Vegetable production in greenhouses.
- Super-intensive apple orchard establishment.
- Treefruit nursery management.
- Modern strawberry production technologies.
- Setting up a peach orchard and winter preparations.
- Greenhouse construction specifics for Moldova.
- Setting up a table grapes plantation.

The training seminars took place in the Lopatna, Jora de Jos, Criuleni, Puhaceni, Roscani, Cosnita, Blindesti, Grozesti, Leova-Sud, and Chircani-Zirnesti CIS zones. Average attendance was 28 participants per event, and the total number of participants at these events was more than 1,400 farmers.

Related to implementation of the training program in the CIS zones, ACED made several public announcements in local media outlets seeking applications from local NGOs or BSPs that would be interested in acting as RTSPs for the training and demonstrations implemented in the CIS zones. In response, ACED received multiple bids, and in the end the project selected nine BSPs that acted as the RTSPs in the CIS zones, with eight of them being the WUAs for their respective CIS zones. Since these entities have updated databases of their members with contact information and field of activity, it ensured a good connection between ACED and the target group, the land owners from the CIS zones. Besides logistical support in the organization of ACED events, the WUAs also maintained ongoing connections with their members, informing them about upcoming events, distributing the “High Value Agriculture Crop Irrigation Guide,” and disseminating valuable information on new opportunities such as grant and loan programs.



Farmer Field Day showing the Irrigation Demo Activity equipment being presented by National Consultant Pesteanu

Demonstrations

During the two years of the CIS zone program, ACED designed and installed a demonstration “Using Drip Irrigation in Nursery Fruit Seedling Production” at Cucu Ghenadie Alexei Family Farm in the Lopatna CIS zone and conducted three separate Farmer Field Days at this demonstration plot.

The main objective of this demonstration and Farmer Field Days was to help the participants understand how irrigation can increase the quantity of their production and enhance the quality of their output through observation of a real-life example. The Farmer Field Days were attended by a total of 58 participants.

Local Study Tours

Eight local study tours were conducted throughout the course of the program, with more than 90 land owners from CIS zones visiting various agricultural businesses. A group of land owners from the Leova-Sud CIS Zone made a visit to the Agromaxer greenhouse facility, situated in Onitcani village, Criuleni district. The same company was also visited by another group of land owners from Cosnita CIS Zone. During the study tour, the participants had the chance to learn about new vegetable hybrids, modern greenhouse construction, and sorting and packing vegetables. Another local study tour on greenhouse vegetables production took place in Speia and Puhaceni villages, Anenii Noi district, and was organized for a group of agricultural producers and land owners from the Chircani-Zirnesti CIS Zone. A group of land owners from Grozesti CIS Zone visited a successful vegetable and strawberry producer from Hristoforovca village, Ungheni district.

Since the interest in berry production among project beneficiaries increased, ACED organized several local study tours to berry producers. A group of land owners from the Puhaceni and Roscani CIS zones visited Golea Family Farm, which is producing blackberries. Another local study tour was organized for agricultural producers and land owners from the Jora de Jos CIS Zone in Cucuietii Vechi village, Riscani district, where the participants observed irrigated strawberry, raspberry, and currant production.

A local study tour focused on irrigated fruit production and PHH took place in Mihalovscoe village, Riscani for a group of agricultural producers and land owners from the Jora de Jos and Lopatna CIS Zones. Another study tour focused on advanced technologies of fruit production and modern post-harvest infrastructure organized at Victor Scutaru Family Farm. In this case, the local study tour was organized for a group of agricultural producers and land owners from Criuleni CIS Zone.

The main objective of these study tours was to help the participants understand how irrigation can increase their production volume and enhance the quality of their output through observation of real-life examples and description of on-the-ground experience.

International Study Tours

Two international study tours were organized; one in Romania and one in Italy. The first international study tour took place in Romania and the main objective was to help the participants understand how irrigation can increase the quantity of their production and enhance the quality of their output through observation of valuable real-life examples and description of on-the-ground experience. This allowed the participants to learn about opportunities to start successful agricultural businesses that utilize their ability to access CIS zone irrigation water.

During the study tour to Italy, the participants had the chance to observe and learn from irrigation systems that are similar in size and organizational structure to those that have been rehabilitated by the MCC Compact program. The participants visited a number of group-operated irrigation schemes so they could learn about both technical operations and management and administrative aspects of the irrigation systems. The participants were also able to visit and observe grading, sorting, and packing operations to see how the Italians handle and process their fruit for the domestic market and for export.



Study Tour to Italy: Table Grape Producers visiting the company La Porta Michele

Another aspect of the study tour was the opportunity for participants to see other WUAs in action and learn how they manage the distribution of water to members and how they ensure that the funds needed to manage these systems are collected from the water users.

Irrigation Technology Forum

The training and TA program was capped with a national-level Irrigation Technology Forum. This event focused on farmers operating within the central irrigation zones being rehabilitated by the MCC Compact in Moldova. ACED arranged for more than 80 farmers, representing all 10 irrigation systems included in the Compact program, to come to Chisinau and participate.



The Irrigation Forum field visit where participants saw the benefits of drip irrigation

The event itself combined technical presentations from sources of financing for irrigation equipment and equipment suppliers, along with presentations by successful Moldovan farmers who are using irrigation technology on their farms, followed by a field visit to a farm to see a modern irrigation system in action. This visit was hosted by a leading irrigation equipment supplier in Moldova where a staff member explained the operation of different types of on-farm irrigation systems. Prior to the start of the forum, ACED organized tables at the event where equipment suppliers could meet with participants and distribute product information.

Development and Distribution of Technical Bulletins

ACED prepared and developed a number of technical bulletins specifically for farmers in the CIS zones, which were mailed to land owners. Subjects included:

- Irrigation water quality.
- Water management.
- Irrigation systems.
- Soil quality.
- Soil management.
- Support systems for orchards.
- Investments in fruit, berry, and vegetable production.
- Plant protection.
- Cold store construction.

Development and Distribution of the “High Value Agriculture Crop Irrigation Guide”

ACED published and distributed to land owners from the CIS zones 1,500 copies of the “High Value Agriculture Crop Irrigation Guide” pictured below.

Cover of HVA Crop Irrigation Guide

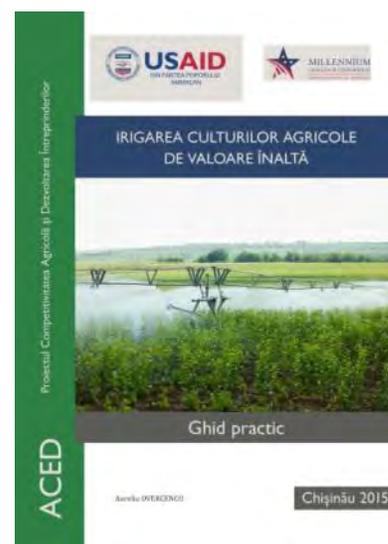
Results

The major CIS zone ACED activity results were:

- 1,436 CIS zone producers were trained.
- 526 producers adopted improved techniques and practices.
- 4 value chain enterprises adopted improved practices.
- \$901,495 in new HVA investments was made.
- \$1,894,601 in sales was facilitated.

The greatest impact will be felt in the coming years, when all CIS land owners will have functioning access to irrigation water. The access to irrigation water will inspire more producers to transition to HVA crops and to apply the knowledge acquired during ACED.

Table 3 disaggregates ACED results by CIS zone beneficiaries.



Cover of HVA Crop Irrigation Guide

TABLE 3: ACED INDICATORS DISAGGREGATION BY CIS ZONES

Indicator	Through the End of the Project
I.2.1 Number of producers trained as a result of ACED	
CIS zones	1,436
Outside CIS zones	5,441
TOTAL	6,877
I.2.2 Number of producers adopting improved practices (or applying improved techniques) as a result of ACED	
CIS zones	526
Outside CIS zones	2,421
TOTAL	2,947
I.3.4 Number of HVA enterprises assisted by ACED	
CIS zones	19
Outside CIS zones	319
TOTAL	338
I.3.5 Number of value chain enterprises (such as processors, cold stores, packaging producers, supermarkets, etc.) adopting improved practices as a result of ACED	
CIS zones	4
Outside CIS zones	76
TOTAL	80

Activity 1.5 Lessons Learned and Recommendations

Sequencing was challenging, because it did not make sense to start specialized CIS zone training until the water would be flowing in the near future. Farmers will easily forget what they learn in a seminar if they cannot practically apply it within the immediate season. As a result, ACED had to postpone implementation along with any delays in renovations of irrigation systems. In the future for such projects, it will be important to prioritize reconstruction and leave plenty of time for training after the water is flowing, so that farmers see how to utilize the water while the project can still assist them.

SUCCESS STORY: IRRIGATION BRINGS POTENTIAL TO MOLDOVA



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MILLENNIUM
CHALLENGE CORPORATION
UNITED STATES OF AMERICA

SUCCESS STORY

Irrigation Brings Potential to Moldova

Moldovan farmer Ghenadie Cucu is now using modern irrigation technology on his farm and fruit tree nursery.



Photo: ACED staff

The photo above shows Ghenadie in his fields with the irrigation system he is now using. The ACED project provided him with some of the equipment he needed in exchange for his agreeing to let ACED use his farm as a "Demo Site." As a demo site ACED will organize at least three Farmer Field Days at Ghenadie's farm to demonstrate the use and impact of the type of irrigation system on his farm.

MCC is rehabilitating ten central irrigation systems in Moldova, which cover 15,000 hectares of farmland. Overall, 9,000 producers and their communities will benefit from the project. In parallel, the United States Agency for International Development (USAID), via the ACED Project, is providing technical assistance and training to the farmers who will receive irrigation water and be able to increase production.

For more than 20 years producers whose fields lie along the Dniester River have longed for water for their crops. Time has destroyed the Soviet irrigation systems and they only had rain to insure good crops. With support from the American government the rehabilitation of these systems will now allow thousands of Moldovan producers to prosper once again. Ghenadie Cucu from Lopatna, a village in Orhei District, is one of those producers. In May 2015, he started using drip irrigation equipment in his fruit tree nursery with assistance from the ACED Project, which provided some irrigation equipment and trained him how to use it.

"Before the irrigation project began, all we could do was pray to God for water. I have a well near one of my fields and built a water reservoir for crop sprinkling – but the possibilities were limited. Plant breeding is a very difficult job without water and the number of trees that have died from a lack of water was huge. With irrigation, everything has changed." Ghenadie Cucu told ACED.

Mr. Cucu farms more than five hectares of farmland for his seedlings, strawberries, and cereal crops, and he expects to expand his irrigation system to other areas of his farm based on the rehabilitation of the system provided by the Millennium Challenge Corporation (MCC). The irrigation system on his three-quarter hectare nursery can pump up to 40 tons of water per hour, and is guaranteed for 30 years.

At Cucu's nursery, which is 600 meters west of the Dniester River, he has laid out the hoses in rows between the plants, with each row being 340 meters long. The water for his system comes from the central irrigation system, which draws water from the river. Ghenadie learned how to operate his system from ACED consultants and he now follows Good Agricultural Practices. ACED helped him to develop an irrigation schedule, to read the meters and monitor water quality. He is also complying with environmental requirements and built a drainage pit for waste water storage.

Irrigation has caused Ghenadie to change his plans – he wants to increase production by planting more fruit trees. He also intends to shift from vegetables to shrubs such as gooseberry and currant, which "are more profitable."

U.S. Agency for International Development
www.usaid.gov

ACED Success Story 24 – Irrigation Brings Potential to Moldova [G. Cucu]

COMPONENT I, ACTIVITY 6: COSTESTI RESULTS AGAINST OBJECTIVES

The value chain team assisted the Costesti Table Grape Association to design, obtain financing, and have the capacity to manage a packing house for a group of small table grapes producers. ACED was able to help leverage the U.S. Government TA investment several times by attracting investment from the Regional Development Fund (\$1.2 million), the producer group (\$800,000), and the Romanian Official Development Assistance Program (\$80,000) to make this public-private partnership come to life.

Following development of the concept for the packinghouse during a series of ACED table grapes value chain workshops in late 2011, ACED provided support to develop the feasibility study and the technical design and application for financing to the Regional Development Fund. Construction was initiated in June 2014.



Fructbioimpex Coop exhibiting their grapes at Gulfood trade show in Dubai

With support of the Romanian Official Development Assistance Program, ACED provided legal consultancy to Costesti local authorities to organize the RFP for management of the packinghouse, which was won by the Fructbioimpex Coop, established by the members of Costesti Table Grape Association. A study tour to Italy was organized for the members of Fructbioimpex Coop to learn about the best practices being used in table grapes harvesting, PHH, and packaging, and to learn from the Italian experience in joint marketing of fresh grapes. Support was provided for successful piloting of new methods of packing fresh plums and table grapes for improved long-term storage and export marketing, as well as piloting of the 1-kg cluster bag that greatly enhances the appeal of packed table grapes.

On December 3, 2015, Fructbioimpex Coop launched grape packing operations during an event with participation of American Ambassador James D. Pettit, Romanian Ambassador Marius Lazurca, Minister of Agriculture Ion Sula, and other officials and guests.

Because of their ability to pack grapes according to the most stringent market requirements, in February 2016, Fructbioimpex Coop exhibited their grapes at Gulfood show in Dubai and established contacts with major importers from the Middle East for subsequent organization of exports to this growing market.

Costesti, like the Basan Agro Coop, both serve as models for other small producers who can successfully work together to fill larger orders.

Activity 1.6 Lessons Learned and Recommendations

In Year 4 of the project, the newly formed Romanian Official Development Assistance Program, affiliated with the Romanian Embassy, added \$80,000 through USAID to the ACED project budget to assist the Costesti producer group with capacity building. This provided a win-win for all involved, because the U.S. Government was able to leverage funds spent on the project; the Romanian donor was able to obtain greater impact for the funds they had available; and the project was able to achieve bigger results thanks to these funds. Such donor partnerships are useful to increase net impact and to avoid ineffective donor duplication of efforts.

Public-private partnerships are a useful tool to tackle complex issues, because each partner brings its unique set of skills and resources. It does, however, take time to bring all partners on board, so they should be initiated early in the project lifecycle.

It is possible for smaller farmers to work together on marketing their products, and on sharing resources like a packing and sorting house and/or cold storage. While small farmers are often skeptical, Costesti presents a successful model for other small farmers around Moldova.

SUCCESS STORY: ACED FEASIBILITY STUDY LEVERAGES \$1.2 MILLION



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SUCCESS STORY

ACED Feasibility Study Leverages \$1.2M

ACED project assistance to a Costesti farmer group will result in an investment of \$1.65M for a new fruit packing house



Photo: www.mbg.com.my/MBG/

The image above shows the operations of a packing house of a similar type to what the table grape farmers in Costesti will be building in 2013. The funding from the Central Regional Development Agency will provide seed funding for the farmer group which will be required to cover 25% of the total cost of the new packing house.

The local communities will benefit from this project by collecting rental fees from the packing house, which will go into the local budget, and from jobs that will be created. Table Grape Producer Associations from Vulcanesti and Cahul, and a producer group from Ștefan Vodă have also asked for ACED assistance to develop similar projects in their areas. Helping Moldova's fresh fruit and vegetable farmers and processors to increase fruit quality, and sales and exports are ACED's main goals.

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Moldovan table grapes have been long famous in the ex-Soviet and European markets, but packaging & quality constraints have limited their market potential. To address this problem, the Agricultural Competitiveness and Enterprise Development Project (ACED), a joint program of the US Agency for International Development and the Millennium Challenge Corporation, helped Costești Village in the Ialoveni District to bid for funding from the Central Regional Development Agency for a new packing house.

The project, titled "Producer Group and Packing House for Modern Marketing Services," will benefit the Association of Table Grape Producers and Exporters of Costești Village, and will be implemented by the village with ACED's assistance. Other partners include the Ministry of Agriculture, the Central Regional Development Agency, the Moldovan Association of Grape Producers and Exporters, and the FructAgroCom Farmer Cooperative.

ACED supported Costești by developing the project concept in the spring of 2012, and drafting the application for funding in July. The packing house will cover 2,000m² and will be located on a plot already allocated by the Mayor. This packing house will cost 20M Lei (\$1.65M), and approximately 15M Lei (\$1.2M) will come from the Central Regional Development Agency. The balance will be contributed by a table grape producer group to be formed in the central part of the country, and this group will be the owner/operator of the packing house. ACED provided co-financing for the project feasibility study.

There are more than 1,400 producers of various fruit varieties and table grapes in the central region of Moldova, and about 200 of them will form the producer group that will be the key suppliers of quality fruit for this new packing house. The ACED project will also provide Good Agricultural Practices (GlobalGAP) training in modern production technology, harvesting, post-harvesting handling, and marketing to the new producer group.

ACED Success Story 02 – ACED Feasibility Study Leverages \$1.2M {Costesti}

WOMEN IN AGRICULTURE NETWORK (WAN): RESULTS AGAINST OBJECTIVES

I. WAN Objectives and Background

The WAN program was developed within ACED as the key activity designed to alleviate the constraints identified in the initial gender assessment.

To address some of the major constraints women face such as time poverty, lack of confidence, and lack of networks providing useful information, ACED facilitated the creation and development of five regional WANs in the northern, central, southern, Gagauzian, and Transnistrian regions of Moldova. The objective of this initiative was to set up several regional informal platforms for women to meet and socialize, learn and get informed about market developments, exchange experience and best practices, and develop their personal and professional capacities.

II. WAN Implementation

ACED subcontracted four regional organizations for WAN activity implementation:

- The National Federation of Agricultural Producers of Moldova AGROinform for the Northern and Central WANs.
- The Regional Center for Assistance and Information of NGOs CONTACT-Cahul for the Southern WAN.
- The Association of Women of Gagauzia for the Gagauzian WAN.
- The Chamber of Commerce and Industry from Transnistria for the Transnistrian WAN.

These entities created databases with contact information and field of activity of members of each regional WAN, which was further updated at the end of each year. They provided logistical support in the organization of WAN events. They also informed and disseminated valuable information and new opportunities to women such as grant and loan programs on an on-going basis.

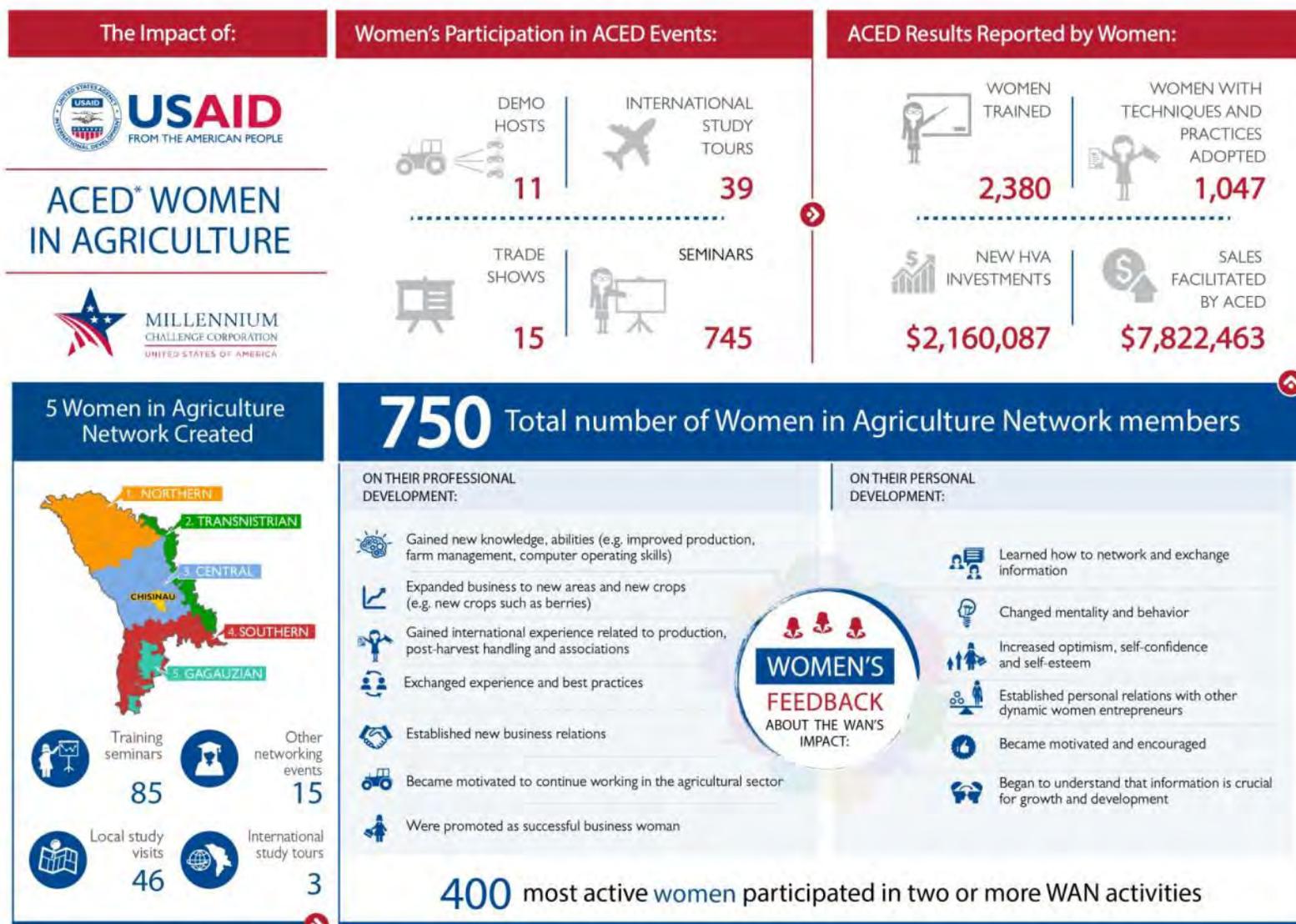
In addition, Network Advisory Groups (NAGs) of up to 10 women each were set up for each regional WAN. NAGs participated in yearly planning of WAN activities, dissemination of information about WANs, and attraction of new members. They served as advisory bodies to the regional organizations that organize logistics for WAN activities.

The WAN was structured bottom-up, with ideas coming from women themselves; specifically, the activities they thought would help them grow personally and professionally and strengthen the networks. The ideas and activities suggested by women were included in yearly action plans developed for each of the five regions and implemented during 2014 and 2015.

III. WAN Results

The ACED subcontractors surveyed the WAN beneficiaries on the impact of the WAN activity on their professional and personal growth at the end of Project Year Four and Project Year Five (see Figure 12).

FIGURE 12: ACED'S WOMEN IN AGRICULTURE NETWORK, INFOGRAPHIC AS OF DECEMBER 2015



*Agricultural Competitiveness and Enterprise Development Project implemented from April 2011 to March 2016

During the WAN surveys, 148 women reported having adopted one or more new production, harvesting, or post-harvesting techniques and practices during 2014–2015, while 55 women said they will adopt new techniques in 2016. From the 148 in 2014–2015, 45 women extended and or developed their businesses, which means that they constructed new or improved existing greenhouses, or moved from open-field to greenhouse production (20 women), or established new plantations with berries or cherries, or expanded the existing orchards or vineyards with new varieties (30 women, some overlapping with the greenhouse adopters). Women reported \$110,000 in investments for items such as: greenhouses, drip irrigation, and seedling material. WAN members also reported \$150,000 in sales facilitated by ACED. These are mostly domestic sales of fruits and vegetables.

Some highlights of the major **impact of WAN activity on women’s development of their businesses** are summarized below:

- As a result of WAN members being consistently informed of ACED activities, two vegetable growers—Maria Darii from Chetrosu village, Drochia district, and Ala Popa from Negureni village, Telenesti district, attended an ACED study tour on Advanced Technologies of Early Cabbage Production in Zarechye, Ukraine. As a result, both of them trialed growing early cabbage in a greenhouse (Maria Darii) and low tunnels (Ala Popa) in 2015. They had never produced this early crop before, but as a result they were able to efficiently use their land, save energy, and ultimately earn good money. Maria Darii said she planned use the money she earned to expand her greenhouse area from 0.5 ha to 1 ha, while Ala Popa said she would continue growing early cabbage because it was profitable.
- As a result of participation in the study tour to Poland on Advanced Technologies for Fruit and Berry Production, the same Ala Popa extended her business by setting up a new intensive cherry orchard on 8 ha. She had previously been planning to set up a fruit orchard, but could not decide on the fruit. The visit to Poland helped make up her mind, because she was impressed by the cherry orchards she saw and the profits made by Polish cherry producers.
- Evghenia Listovaia, a medium-sized vegetable producer and member of the Transnistrian WAN, signed a contract of cooperation with Fourchette supermarket recently opened in Transnistria, as result of her participation in the WAN seminar Steps in Preparation of Products and Documentation for the Supermarkets and Export. A representative of Fourchette participated at the seminar explaining the rules and requirements for product quality and labeling, as well as the delivery terms and the pricing policy. He stressed that any producer could sell his/her product to the supermarket, as long as it was good quality and competitively priced. Ms. Listovaia is a successful producer and could meet both criteria, so based on the contacts made, and the knowledge gained in the seminar, she became a regular supplier. In addition, through the WAN, Ms. Listovaia was recommended to participate in the Cochran Fellowship Program. She was selected as a Cochran fellow and she traveled to the United States for three weeks to receive hands-on training and enhance technical knowledge and skills in areas related to agricultural trade, agribusiness development, management, policy, and marketing. She came back highly motivated and impressed by the agricultural infrastructure and machinery she saw in the United States, and now plans to gradually mechanize her agricultural business.
- One of WAN’s goals was to become a platform for information dissemination, so that women could learn about and take advantage of business opportunities. Transnistrian WAN members were



Ala Popa who planted 8 new hectares of cherries after the Poland study tour

informed of the United Nations Development Programme (UNDP) Business Development Grants Program and were encouraged to participate. As a result, in 2014 four women were awarded grants of \$15,000 to develop their businesses. With the grants, they developed their agriculture infrastructure, purchasing a tractor, equipment for mushroom production, equipment and accessories for pickle production, and equipment for a small cold storage for flowers. Additionally, in 2015, an additional family of a WAN member won a grant to build a greenhouse for greens and vegetables production.

- A Southern WAN member, Maria Gurschi, initiated a producer group and built a cold storage with a MAC-P grant. In order to help this group become more competitive, ACED specialist Andrei Cumpanici advised them on fruit and table grape storage techniques. Ms. Gurschi explained, “This knowledge and advice was extremely helpful, since the group was not aware of all these techniques and could have made big errors.” She and some of the group members attended the GlobalGAP seminar delivered by Dr. Cumpanici, and plan to implement these requirements to become competitive for export.



Maria Gurschi in the newly constructed cold storage

It is also important to highlight **the impact of WAN activity on networking and establishing business relationships** among WAN members. A few examples of such impact are provided below:

- In 2014, Vera Russu, a plum producer from Drochia district, had a good plum yield and had no other options than to sell her plums at the local open-air market in Drochia. But, she said it was quite hard for her to get to the market each day, loading and unloading the car. Due to being a WAN member, she got to know Valentina Poperecinii, a plum drying facility owner. As a result, they made a deal and Ms. Russu sold to Valentina Poperecinii the plum yield at a competitive price. Both sides were quite satisfied with the deal. Mrs. Russu told ACED “Because of this, I saved effort, time, and money.”
- After getting acquainted due to WAN, Angela Bejenari, a Northern WAN member, sold strawberry seedling material at a total of \$15,000 (\$5,000 to each) to three different WAN members who set up new strawberry plantations. In addition, she mentored those buyers on production and provided guidance, as she is an experienced and successful berry producer. Additionally, as a result of her visit to Poland, she set up a new gooseberry plantation.
- Irina Panceva, a member of the Transnistrian WAN, who along with her family owns a vegetable seed production business, sold vegetable seeds to a couple of large vegetable producers, WAN members from the right bank. Through WAN, her business increased its image as a good vegetable seed supplier, because they focused on producing high-quality seeds, and selecting good vegetable varieties. At the National WAN Forum this year, Ms. Panceva exhibited her products and distributed catalogs and trial packets of seeds to women.



Irina Panceva advertises her seeds at the national WAN forum.

Another major result of the WAN activity was that it contributed to increasing the percentage of women who participated in ACED training sessions. Participation rose to 40 percent in 2014 and 2015 compared to 20 percent in 2011 and 30 percent in 2012 and 2013.

Women provided **positive feedback about the WAN activity and its impact on their personal and professional development**. Below are several examples of direct quotes from WAN members:

- “I was encouraged to continue working in agriculture.”
- “I acquired new knowledge and new abilities and skills in production, family farm management, bookkeeping, as well as computer operation.”
- “I extended my business and transitioned to new HVA crops.”
- “I acquired international experience pertaining to production, harvesting, post-harvesting, and associations.”
- “I established business relations.”
- “I became more sociable.”
- “I changed my mentality and behavior.”
- “I became more optimistic and increased my self-esteem.”
- “I feel more motivated and encouraged.”
- “I made new friends.”
- “I became aware of the value of information for my development.”

WANs offered an excellent opportunity for women to communicate with other agro-businesswomen, establish relations, and exchange experience and best practices, which ultimately led to women changing their mindsets, acknowledging the need for and benefit of continuous professional and personal development and growth. Women entrepreneurs from the agricultural sector participated for the first time in a consequential and diverse range of capacity-building activities. Their needs and interests were correctly identified at the beginning of ACED. Their acquired knowledge and techniques are already making a difference and will continue to be applied by many WAN members in the future.

IV. WAN Sustainability

At the last WAN Network Advisory Group (NAG) meetings, members discussed various ways to further maintain and develop the WANs. Andrea Chartock participated at each NAG meeting, making a presentation to highlight several key points related to setting up an organization with an inexpensive budget, sharing international case studies, and making suggestions, which women said they found useful to apply into practice.

As a result of the discussions, women from the Northern and Central WANs decided to elect groups of up to five volunteers who would meet and decide on future action plans and funding options. Women from the Southern WAN decided to divide their WAN into two sub-regional informal platforms considering the geography of the region and the disadvantage of the long distance between them. They plan to cooperate with CONTACT-Cahul, which will serve as a bridge between these two informal platforms. Gagauzia WAN members established strong relations with each other and with the Association of Women of Gagauzia. They will continue meeting, organized by the association itself, of which they are members.

In addition, at the WAN National Forum women decided to elect a national council made up of 15 women (3 women from each of the five WANs), who will meet to explore further activities and apply for financial support. AGROinform hosted the first meeting in February 2016.

Elena Brinza and Andrea Chartock had a meeting with Victor Dragutan and Angela Frunze from the EU funded UNDP Confidence Building Measures (CBM) Program to discuss future support of the WAN. It seemed like there was a potential that CBM could support existing WANs, if they focus on cooperation

between the right and left banks of the Nistru. Mr. Dragutan said that as soon as the program for cooperation support is announced the WAN council can apply for funds.

For 2016, AGROinform secured 355,000 MDL, which is the equivalent of €15,000 to support the Northern, Central, and partial Southern WANs. The funds are from a Swedish Foundation. On February 12, AGROinform organized a meeting with the WAN National Council members elected at the WAN Forum. They gathered to discuss the functions and responsibilities of the council and decide on the activity plan for 2016 at the national level. The National Council decided on the role they will play at the national level:

- Ensure interaction, cooperation, and information exchange among the regional networks.
- Organize events at the national level that will have a scope to promote successful women, lobby women's interests, and learn and apply innovations.
- Enhance National Council members' skills in fundraising, administration, social development, etc., as needed, and act as a body to attract funds for further WAN development.

AGROinform announced that they have additional funds secured for the organization of six WAN national events. The first event that will be organized is a conference on walnut production. National Council members discussed some topics of interest for women for the additional five events to be held throughout 2016.

Lessons Learned and Recommendations

- There is a large value in networking that women realized fully only after being a part of the network for approximately six months to one year.
- The value of the network is in the women and their relations. Having a formal/formally registered network does not necessarily add more value. However, if the women get busy and do not meet for long enough, they will also lose value in information exchange and supportive relationships. Therefore, the most important thing is that the women make the time to meet on a semi-regular basis. If a project is paying to have someone invite the women, they are more likely to meet consistently.
- Having a dedicated activity for women did noticeably boost female participation in all activities across the project, including study tours, training, and trade shows.

SUCCESS STORY: WAN MEMBERS USE KNOWLEDGE TO INCREASE PROFITS



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SUCCESS STORY

WAN Members Use Knowledge to Increase Profits

Maria Darii inside the greenhouse at her farm in Chetrosu shows the early cabbage crop to visiting WAN members.



Photo: ACED

The purpose of the WANs is to reach out to women for information, education, and motivation. The ACED Project has extensively supported the WANs since their inception with agricultural literature, logistics, and opportunities to gain international experience. ACED launched the project "Creation and Development of the Women in Agriculture Networks" in 2013 to enhance the role of women in the national economy of Moldova.

Ala Popa, from Telenesti District, is another vegetable grower and has been through a similar experience. She is a member of the Central Women in Agriculture Network. "I never grew early cabbage before; neither did I use any low tunnels, which are beneficial from the point of view of land use and energy efficiency. I learned to grow new crops in low tunnels in Zarechye. Definitely, this was an excellent experience," Ala told ACED. She has harvested 24 tons of early cabbage in 2015.

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By mid-May 2015, Maria Darii harvested 19 tons of early cabbage and there were still two days to go with the harvesting in her greenhouses before planting new rounds of vegetables. This amount of crop is by far larger than last year's, when she harvested six tons of cabbage overall.

The 3 times larger yield is due to a 2013 study tour on advanced technologies for early cabbage production to Zarechye, Ukraine, in which Maria participated with the support of the ACED Project. Mrs. Darii traveled to Zarechye again the following year, as part of another study tour organized by ACED, in order to get a better understanding of the technology. Then in 2015 at her family farm in Chetrosu, a village in Drochia District, she implemented for the first time what she had learned during her Ukraine visits.

"The first study tour was very interesting and I couldn't keep myself from repeating that experience to learn in detail how to grow early cabbage. This is not the only event I'd like to thank ACED for – last autumn (2014) I took part in a study visit to Turkey on vegetable production along with other producers... again, lots of new things that blew my mind," she told ACED, adding then "I will be using the greenhouse to the maximum, by planting early cabbage in the first cycle, followed by cucumbers and sweet peppers in the second and late tomatoes in the third. I am happy with the price and earnings."

Maria Darii is an active member of the Northern Women in Agriculture Network (WAN), which is supported by ACED to enhance the capacity of Moldovan women involved in agricultural activities. Aside from cabbage, she farms tomatoes, sweet peppers, onions, and cucumbers, in greenhouses (half a hectare) and open fields (13 hectares). The entrepreneur intends to increase the area under greenhouses this year thanks to available investments from the growing sales of early cabbage.

Maria also shared her experience in growing early cabbage with over 20 visiting WAN colleagues on May 3, 2015. "I felt they were impressed as much as I was during my first study tour; hopefully they will be able to do what I've done," said Maria Darii.

ACED Success Story 23 – WAN Members Use Knowledge to Increase Profits

COMPONENT 2: RESULTS AGAINST OBJECTIVES

Component 2 Objective: “To support the development and enhance the competitiveness of the Transnistrian private MSMEs in both HVA and non-HVA value chains, leading to the creation of new jobs and increased incomes in the region. As a corollary, this component is designed to facilitate the integration of the Transnistrian enterprises into the Moldovan economy by establishing linkages/relationships between the left-bank and right-bank MSMEs and business support service providers.”

The project started working in Transnistria in the same year that a young Moldovan was shot in the head and killed when driving through a Transnistrian check-point early in the morning of January 1, 2012. This tragic incident set the backdrop for turbulent relations between the Right and Left Banks over the following five years of the project. Many changes occurred in the region during this time, starting with Yevgenii Chevchuk being elected “President” after more than 20 years of Igor Smirnov seemingly ruling with an iron fist. Other changes in the private sector to follow included the Sheriff Company losing their monopoly and favored position and new supermarkets such as Fourchette entering the region. ACED steered clear of politics, focusing on helping BSPs and MSME farmers improve their businesses and livelihoods, while building cross-bank trust and communications at the individual level. That an American project was able to achieve strong results in a context of escalating rhetoric surprised stakeholders on both sides of the river.

Sub-Activity 2.1: Build Capacity of BSPs to Improve MSME Competitiveness

At the beginning of the project, ACED conducted a rapid needs assessment and a gap analysis of business services in the region. The analysis noted a gap in marketing services in the region and showed that local BSPs are small in number and not very strong, at least partially because of a perceived lack of demand from businesses.

This sub-activity focused on building the capacity of local BSPs in a few targeted areas, such as market research, building the capacity of business membership organizations (such as associations) to offer services to members, and agricultural extension services. ACED offered training in a variety of topics, including marketing services, business planning, and BSP management.

Based on demand, ACED delved into the topic of market research by organizing a cross-bank group to carry out an online university-level course titled “The Principles of Market Research” through the University of Georgia. A cross-bank group also participated in a market research congress and seminar in Istanbul organized by ESOMAR, the top international market research association and was trained by a Slovenian trainer who explained that even in the deep recession in their small country of 2 million there were market research companies that grew.

On request, ACED offered specialized organizational capacity assessments and recommendations for strategy development, including to Belii Most Small Farmer’s Association and InvestPMR.

ACED was also able to effectively support the development of several nascent farmer associations in Transnistria (honey, table grapes, and treefruit) using Right Bank experts.

The table grapes producer group began regularly meeting and actively participating in ACED seminars and study tours. The group remains informal, keeping in regular contact to support each other with information sharing. The honey producer group expressed strong interest in forming either an association or a cooperative, and thereby received assistance from ACED Right Bank consultant Grigore Daraban about the pluses and minuses of each. They recognized the need to cooperate, especially in order to fill larger orders, but did not manage to register before the project closed, although they also grew much closer during the project and maintain communications on an informal basis. Meanwhile, the treefruit association was assisted by ACED consultant Iurie Fala (also the Executive director of Moldova

Fruct) in multiple training sessions in Tiraspol. In the summer of 2015, the Treefruit association registered as Dniestrovskii Fruct and in the fall they signed a formal cooperation agreement with Moldova Fruct. The two associations are now jointly bidding on other donor projects.

Results highlights within this sub-activity include the following:

- ACED assisted 20 individual BSPs (the majority of them multiple times) during 13 BSP training events. Those BSPs reported being better able to serve their 163 micro enterprise clients and 167 small and medium-sized clients in the region.
- ACED was also able to effectively support the development of several nascent producer groups (honey, table grapes, and treefruit) using Right Bank experts and to build the institutional and technical capacities of the leading small farmer association in the region, Belii Most.
- A new Transnistrian treefruit association “Dneistrovskii Fruct” was formed and signed a formal cooperation agreement with the Right Bank’s Moldova Fruct.
- Belii Most, which worked closely with ACED to offer seminars, study tours, and demonstrations to members during the project, grew from 24 paying members at the beginning of the project to 134 paying members at the end of the project.
- The cross-bank group of participants successfully completed the extensive, in-depth On-Line University of Georgia Market Research course.
- Training-of-trainers was conducted on an ongoing basis, including a relationship with the Scientific Research Institute (NII) who hosted a demo activity for ACED. Larisa Colomicenco became a trainer for other donor funded projects, after actively participating in more than 25 ACED training events.

Sub-Activity 2.2: Support the Development of MSMEs in Transnistria

The main thrust of helping MSMEs in Transnistria was helping HVA farmers to become more competitive, increasing incomes and allowing farmers to stay in the region instead of migrating abroad for work. The HVA work in the region began most intensively with treefruit growers and small greenhouse vegetable producers. As many of the smaller vegetable producers were interested in strawberry production, this was added as a target value chain early on, focused on Belii Most members in Chistskani. Honey was added mid-project after international STTA Rick Dale visited the region and 25 enthusiastic participants mobbed an ACED roundtable and expressed strong interest in on-going activities. While ACED invited select table grape producers to participate in Right Bank events and international study tours from the beginning of the project, the table grape producers identified systematically refused to participate. As a result, ACED didn’t sense interest in the project for this product. ACED only added table grapes as a targeted value chain in the last year of the project when a representative of a loose social network of approximately 22 small table grape producers contacted the ACED Local Coordinator and requested a series of trainings and study tours.

Overall, 650 Transnistrian farmers participated in ACED events and 252 (39 percent) adopted new techniques, a higher adoption rate than the national average, reflecting the thirst for outside knowledge in the region. New investments by beneficiaries totaled more than \$2.3 million and beneficiaries reported more than \$1.1 million in sales facilitated, despite deep local resistance to sharing such information. The new knowledge about how to implement market requirements in production and PHH allowed farmers to make more money, stay in the region, and even attract back some relatives who had previously emigrated.

In the words of a successful female entrepreneur and project beneficiary who grew her business from 4 to 24 hectares of production during ACED:

“ACED was the first project in Transnistria that intensively taught farmers in groups about production and PHH technology and innovations. As we didn’t have this knowledge before, it provided us a new vision of commercial opportunities in the Ag sector. For example, I put in a new greenhouse for early strawberry production based on what I saw in the ACED UK study tour, and I got between 40–65 MDL/kg for strawberries from this greenhouse, compared to 15–17 MDL producers get in the high season. In addition to getting linked by the project to Greenhills in Chisinau for sales, we also have one farmer from our association who participated heavily in ACED seminars whose son moved back from Moscow to install and manage greenhouse strawberry production thanks to ACED.”

—*Larisa Colomicenco, president of Belii Most (White Bridge) Small Farmer’s Association in Transnistria*

Drawing on the strong ACED team, the trainings, demonstrations, study tours, and TA, all by and large replicated the same kinds of trainings and activities as carried out on the right bank. Figure 13 below summarizes the results in Transnistria. The 11 HVA demonstrations are detailed. The right column of the infographic lists some of the most impressive investments made as part of the upgrading to HVA. These results are directly linked to ACED demonstrations such as anti-hail nets, pre-cooling, and the introduction of weather stations, as well as 11 microenterprises that planted strawberries on row beds with mulch and drip irrigation. Also, the map shows five key HVA Right Bank study tours carried out by value chain.

Lessons Learned

- BSPs are few in number in a weak market that is monopolistic/oligopolistic. MSMEs by themselves have limited influence, so grouping producers into associations is a great way for them to make themselves heard. Interestingly, the local authorities seem to be supportive of farmers grouping together and a department head from the Transnistrian “Ministry of Agriculture and Environment” even suggested that a group of table grapes producers apply to the project for assistance with training, TA, and study tours.
- Two BSPs with which ACED worked closely went out of business during the life of the project, both rumored to have fallen on the wrong side of political issues and/or powerful constituents. As both had been working closely with the project providing assistance on organizing logistics, it was necessary for ACED to unearth new partners with good capacity and willingness to work for reasonable rates. ACED issued an RFP detailing what work was needed and signed an IQC contract with the NGO the Agency for Regional Development of Transnistria (ARDT) for the last year plus of activities. The ACED team was happy with ARDT’s performance.
- Work with the private sector is fruitful as long as political topics are avoided and project activities are deemed useful.
- Producers are eager to share experiences and interact with each other across banks.

FIGURE 13: ACED ENTERPRISE DEVELOPMENT IN TRANSNISTRIA



*Agricultural Competitiveness and Enterprise Development Project implemented in Transnistria from February 2012 to March 2016 | **Business Service Providers | ***Micro Small and Medium Enterprises

SUCCESS STORY: LEFT-BANK FARM INCREASES SALES WITH ACED INNOVATIONS



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SUCCESS STORY

Left-Bank Farm Increases Sales With ACED Innovations

Veaceslav Coverdeaga attended 20 seminars, 6 international study tours, 4 demonstration field days, which were organized by ACED, and received technical assistance from a national consultant. Based on ACED's recommendations, he convinced Agrostil to change the way it manages tree fruit production and post-harvest operations.



Photo: V. Coverdeaga

In 2015, Agrostil will have six harvesting periods for different varieties of peaches. It plans to treat between 150 and 200 tons of peaches with Ca and keep it in the cold store until the fresh peach season is over and the price increases. "The difference between the peaches after Ca treatment and those stored without Ca is extraordinary. The treated fruit looks as if they came straight from the orchard. Given the high quality of peaches treated with Ca, pre-cooling and cold storage, we can bet on higher prices and pretty good profits," the Agrostil agronomist said. Speaking about the company's plans for the future, Mr. Coverdeaga mentioned: "In the past, we used to throw away quite some quantities of peaches, as we had no pre-cooling equipment and we didn't use Ca. Now it's different: we can afford thinking about competitive products for international sales," he added.

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Before joining the ACED Project's training program or visiting its demo activities, *Agrostil* was in 2012 a Soviet-style farm in the Transnistrian region, cut off from the latest information on new technologies and innovations. Today, thanks to ACED's assistance, *Agrostil* has doubled its peach sales and is preparing for export of peaches to new markets.

Changes started when agronomist Veaceslav Coverdeaga, who has a management role in the company, began participating in the training and demo activities of the ACED Project.

Among other events, in 2013 Coverdeaga joined a demo field day arranged by ACED at the cold store facility of Agrostil farm that uses advanced technologies for pre-cooling. They returned soon after to make technical drawings of the specifications and in the summer of the same year *Agrostil* installed pre-cooling equipment of its own. Coverdeaga said *Agrostil* was able to put 15 tons of peaches into the cold storage facility and it sold this stock later for more than 8,100 USD – this is more than twice the amount the company had expected should it have not used the pre-cooling technologies. "This was a pilot project for our company and it paid off," Mr. Coverdeaga said.

In 2014, Mr. Coverdeaga took part in a study tour on advanced apple production & post-harvest technologies and infrastructure in Italy, which was organized by ACED. This experience convinced the agronomist to use Ca treatment, chemical thinning and a weather station in the *Agrostil* orchards, which cover 145 hectares at present. The four rounds of Ca treatment enabled *Agrostil* to deposit 60 tons of peaches in the cold store, which later netted almost \$30,000 USD from sales in the domestic market at a higher price than those sold fresh. Another 240 tons were sold fresh. "The Ca treatment combined with the pre-cooling allowed us to preserve the perfect look, firmness and taste of the peaches. Without these technologies we would have probably dumped a large part of the crop," the agronomist stated. *Agrostil* rewarded Mr. Coverdeaga for implementing these new innovations, which gave him more profits, by covering his cost share for an advanced strawberry production study tour in the United Kingdom, which was also organized by ACED.

ACED Success Story 21 – Transnistrian farm increases sales with ACED innovations (*Agrostil*)

SUCCESS STORY: VEGETABLE INVESTMENT YIELDS BIG PAYOFF



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SUCCESS STORY

Vegetable Investment Yields Big Payoff

Vitaly Grecu and his son adopted technologies recommended by ACED, tripling farm sales



PHOTO: ACED STAFF PHOTO

This photo shows Vitaly Grecu discussing the results that he has achieved with the Demo Activity implemented by ACED on his farm with Rodica Miron, the USAID COR for the ACED project. He has been able to significantly increase his seedling production using the demo greenhouse.

Vitaly's son participated in two ACED organized study tours to Ukraine which focused on advanced vegetable production in open fields and greenhouses. Following these tours, and participation in ACED training seminars, Vitaly Jr. convinced his father that they needed to invest in irrigation and modern greenhouses to improve their production capacity. Their initial investment was in drip irrigation for their production fields, which have now been extended to cover 60 hectares (120 acres). Now they have purchased a building that they will transform into a cold store for their vegetables.

For more than 10 years Vitaly Grecu, the owner of "Fics LTD" in Transnistria, has been growing vegetables in open fields and using traditional greenhouses to prepare seedlings he then transplants to his fields. After his son, Vitaly Jr., had participated in two study tours to Ukraine to see advanced techniques in vegetable production he convinced his father to invest in modern technologies to be able to continue to grow and compete in the vegetable business. Their first investment was the installation of a drip irrigation system, which they have now extended to cover their entire farm.

Vitaly then applied to the ACED project for some technical assistance and ACED offered to partner with him on the establishment of a demonstration activity on *Improved Greenhouse Design with Micro-Sprinkler Irrigation*. This demo activity showed other farmers the use of modern greenhouses for growing seedlings, fertilization using micro sprinklers and energy saving through the use of a double layer greenhouse. ACED provided the greenhouse and a micro-sprinkler system. Fics provided the land, seedling materials, labor and a boiler to heat the greenhouse. This demo activity became one of the most popular demos in Transnistria and it was visited by many farmers, not only during the ACED field days but also individually on agreement with the owner.

As a result of all these efforts, Fics has tripled their production of vegetables. Along with an expansion of the area under cultivation, they greatly increased their productivity per hectare with the new technologies. Onion production went from 20 T/ha to 70 T/ha and sweet peppers went from 10 T/ha to 40 T/ha. Another benefit was the increased production due to the ability to heat the greenhouse. Previously they had only two cycles of seedling production and now, with heating, they have five cycles to produce seedlings for the different vegetables which are then planted in open fields.

As Vitaly Sr. said: "It was very difficult to make the first step towards these big investments. We had long discussions with my son when he returned after the ACED Study tours. I am more conservative as I had put in a lot of effort to create the company step by step. But new times demand a new approach and I am glad that my son had the opportunity to learn about them."

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ACED Success Story 26 – Vegetable Investment Yields Big Payoff (Fics LTD)

SUCCESS STORY: ACED ASSISTS TRANSNISTRIAN SMALL FARMERS



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SUCCESS STORY

ACED Assists Transnistrian Small Farmers

ACED's partnership with Belii Most, a Transnistrian Farmer Association, is paying dividends for their farmer members.



Photo: ACED Project staff

This photo shows Larisa Colomîcenco, President of the Belii Most farmer association, assisting an ACED consultant trainer to provide in-the-field instruction to members of the association on Strawberry production techniques. Members who have adopted the new techniques presented at the seminars have seen dramatic increases in quality and yield.

In addition to supporting productivity growth for Left Bank (Transnistrian) farmers, ACED activities foster the creation of personal business linkages across the Nistru river. ACED and Belii Most have organized cross-Nistru study tours for their farmer members, including one where a bus load of farmers visited cold store facilities on the Right Bank. Based on the simple designs seen, one member has built a 20 ton "low budget" storage facility that he uses jointly with three other farmers from the Belii Most association.

U.S. Agency for International Development
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Some women entrepreneurs are known to seize the day. This is particularly true of greenhouse farmer Larisa Colomîcenco, who is president of the Transnistrian Small Farmer Association known as Belii Most (White Bridge). Shortly after the ACED project was launched, Larisa showed up at the office in Chisinau asking for technical assistance for the association. Ever since, she and her members have actively participated in ACED events, including domestic and international study tours, business trainings, production trainings, and round-tables.

Based on the close working relationship that ACED has with Belii Most, the project supported the association to organize a booth for themselves at the 2012 Farmer Expo in Chisinau. A contact made at that Expo became a repeat buyer of goods from association members for Greenhills supermarket in Chisinau. Belii Most organized more than 20 seminars for ACED and two demonstration activities at member's farms. Larisa and her members appreciated the support received from ACED and they have credited ACED's assistance with helping Belii Most to attract new members. They now have 134 paying members, a 5 times increase from 24 members when they began working with ACED in 2012.

In May of 2012, five Belii Most members participated in an ACED organized study tour to Ukraine to study "Advanced Technologies for Vegetable Production." The farmers visited demonstration plots and post-harvest facilities. During the tour the participants gained knowledge on innovations, enabling them to increase production quality and yields. Upon her return, Larisa decided to start using a new technology in her strawberry production – mulch on 2,5 hectares, as well as expanded use of drip irrigation. She reports that before utilizing this combination of mulch and drip irrigation, she lost an average of 50% of her harvest when compared to her current yields. Larisa planted strawberries using the new technology presented in an ACED seminar, including a variety that reaches 70% of full production in the first year, compared to only 10-15% with older varieties.

ACED Success Story 08 – ACED Assists Transnistrian Small Farmers (Belii Most)

IV. PERFORMANCE INDICATOR RESULTS ANALYSIS

NARRATIVE TO PMEP INDICATOR TRACKER: PROJECT MONITORING AND EVALUATION SUMMARY

By the end of the project, ACED well exceeded all the PMEP project specific targets (those with direct attribution to project activities). For example, ACED had a target to train 4,300 producers, but trained 6,877 producers. Similarly, the project has facilitated more than \$32 million in sales, much more than the life-of-project target of \$21 million. Below is a discussion and analysis of targets by activity, and the Indicator Tracker follows in Section V.

Indicator 1.0.1 Increase in annual profits among ACED-assisted producers and agribusinesses located outside of areas targeted in the CIS Rehabilitation Project

According to the ACED PMEP, and agreement from the two project donors (USAID and MCC), this producer profit indicator is supposed to be measured by the MCC impact assessment contractor Mathematica. Mathematica and their subcontractors carried out extensive surveys with producers and value chain companies, using detailed questions related to revenues and costs.

A few observations regarding annual profits:

- As envisioned by the (value chain) causal models, ACED assisted its clients—producers and agribusinesses—to improve their profitability in a multitude of ways, such as **improved prices** as a result of selling to new markets, selling in off-season, or higher product quality, **improved yields** as a result of adoption or improvement of irrigation and crop nutrition, **lower costs** from the more efficient use of crop protection products as a result of adoption of weather stations, and **lower incidence of waste** as a result of better product handling and quicker cooling.
- The prevalent trend among Moldovan producers and agribusinesses to hide the true performance of their operations made it impossible for ACED to assess the impact of its interventions on the overall profitability of its clients. However, the data collected during the demonstrations (comparison of plots under improved technologies versus the control plots) confirmed that adoption of these improved practices and techniques increases profitability of the value chain entities.
- The analysis of profitability of various fruit production systems carried out independently by Moldova Fruct in 2015, “Economic Performance of Investments in Fruit Orchards” presentation at the National Fruit Conference, December 2015, confirms the assumptions of higher profitability of the intensive orchards made by ACED value chain studies and action plans. And, it is reasonable to consider that the profits of ACED clients reporting adoption of intensive fruit technologies have increased. For example, the cash flow from a super-intensive apple orchard is 6 times higher than from a traditional apple orchard (332,000 versus 50,000 MDL/ha), for plums the differential is 2.5 (117,000 versus 47,000 MDL/ha), and for sweet cherries is 3.6 (259,000 versus 72,000 MDL/ha).

Indicators 1.0.2 - 1.0.4 (regarding year 2015)

Indicators 1.0.2, 1.0.3, and 1.0.4 look at HVA sectors much more broadly than ACED's results working with beneficiaries. Therefore, they are not project-specific indicators because the indicators are less closely linked to project activities than indicators 1.0.5 through 2.2.1.

According to the PMEP, ACED uses the UN Comtrade data for indicators 1.0.2, 1.0.3, and 1.0.4 to look at value chain wide trends. However, this data generally is not available until April. Therefore, the ACED staff has analyzed 1.0.2–1.0.4 using statistical information from Moldova, generated by Moldovan customs reporting that gets passed on to the Moldovan National Bureau of Statistics (NBS). While this is not official PMEP reporting data, it gives a sense of some of the dynamics for these more global indicators.

Indicator 1.0.2: Percent change in HVA exports

The exports of Moldovan HVA products had a positive trend in the first three years of ACED, increasing in 2013 by 33.4 percent versus the baseline. However, the value of HVA exports decreased in the following two years due to the cumulative effect of:

- The Russian ban on exports of Moldovan fresh fruit.
- A precipitous and continuous depreciation of the Euro versus U.S. Dollar (by a total of 24 percent during 2014 and the first half of 2015), which translates into lower U.S. Dollar value of Euro-priced Moldovan exports for such major export products as walnuts (grouping 08 – Fruits) and apple juice concentrate (grouping 20 – Preserved products).

The true picture of fresh fruit exports is greatly skewed by the wide-spread practice of diminishing the invoice price to the minimum level acceptable by the customs service of the importing country. For example, the declared unit price of Moldovan apple exports to Belarus and Russia stayed at the same level even after the removal of the Russian ban, although ACED information from the field indicated a major improvement of prices.

The Moldova HVA export baseline (2010) and annual export data from 2011 through 2014 was extracted from the UN Comtrade database. For the year 2015, ACED used the export data provided by the NBS due to the fact that at time of writing, the UN Comtrade could provide Moldovan export data from January through September 2015, missing the last quarter. Although ACED requested that the NBS provide HVA export data by chapters (two numbers), positions (four numbers) and sub-positions (five and more numbers), the NBS submitted data by chapters and positions only. For this reason, ACED was not able to exclude the sub-positions as proscribed by the ACED PMEP. According to this NBS data, the total HVA exports for 2015 increased by nearly 5 percent compared to the 2010 export baseline. The NBS statistics present a quite modest increase. However, as can see below, preliminary data reported by Belarus and Russia of imports from Moldova is much higher than this number.

While Moldovan export data is not available from UN Comtrade, data is already available from two sources: NBS and Belarus (BLR) + Russia (RUS) import data already available on UN Comtrade. There is a significant difference between these two sources: BLR+RUS say they imported 117,000 tons from Moldova in 2015, while NBS says that the total Moldovan exports for 2015 are only at 98,000.

The BLR + RUS data on UN Comtrade suggests a partial recovery of Moldovan exports: In the first six months of the 2015 marketing season, Moldovan shipments increased by 27 percent in volume compared to 2014. Many growers had their cold stores full in early January 2016, expecting high prices on the Russian market later in the season; Moldova Fruct estimates that volume as 60,000 tons. Together with what was already sold, this will bring the total volume of exports to the pre-ban level (2013).

Indicator I.0.3: Percent change in HVA exports in selected target value chains

According to NBS data, exports decreased significantly in three ACED targeted value chains (tomatoes by 76 percent, apples by 63 percent, and stone fruits by 7 percent). However, table grapes showed a 50 percent increase, fruit juices increased by 150 percent, and dried fruit increased by 198 percent.

One explanation for the decreases referenced above is the fact that the HVA harvest in 2015 was one-third of the previous year due to climatic factors. Another important factor was the Russian ban for Moldovan and European HVA products, which made Moldovan producers store the apples for later sales and better prices in the early 2016 season.

As for tomatoes, ACED worked primarily in support of greenhouse producers selling domestically, including to supermarkets like Linella. Therefore, it is hard for project staff to comment on the negative trend in tomato exports, which have traditionally been to Belarus.

Table grapes exports increased continuously during the ACED project, avoiding the Russian ban and, more importantly, making full use of the duty-free quota offered by the EU as part of the Deep and Comprehensive Free Trade Agreement. The Russian ban had a great negative impact on the exports of fresh produce value chains targeted by ACED, but that was partially compensated by increased exports of their processed counterparts: Apple juice concentrate and dried plums.

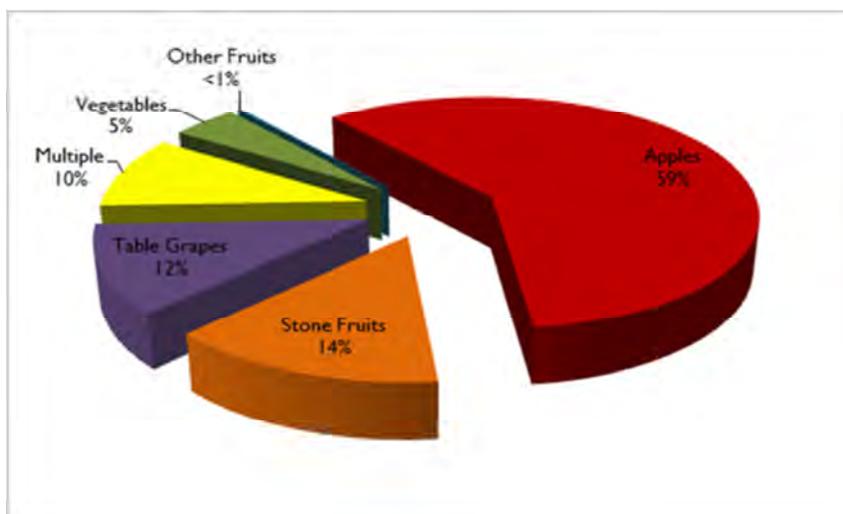
Indicator I.0.4: Change in dollar value of HVA exports to non-traditional export markets

HVA exports to non-traditional markets increased by 86 percent, which was also strongly propelled by the Russian ban. See section 1.1 Results Against Objectives of the report above for more detailed information.

Component I, Activity I, Indicator I.1.1: Sales Facilitated

Through the end of the Project in March 2016, ACED facilitated total cumulative sales of more than \$32 million, exceeding the life-of-project target of \$21 million. This represents sales facilitated and tracked by the marketing, training, M&E and technical teams. The majority of the sales came from treefruit, but the number also includes 10% processed items- classified as “multiple” in the ACED system (vegetables, fruit, sweet corn and honey), and vegetables – 5%. Figure 14 below provides the sales facilitated disaggregation by value chain.

FIGURE 14: PERCENTAGE OF SALES BY VALUE CHAIN



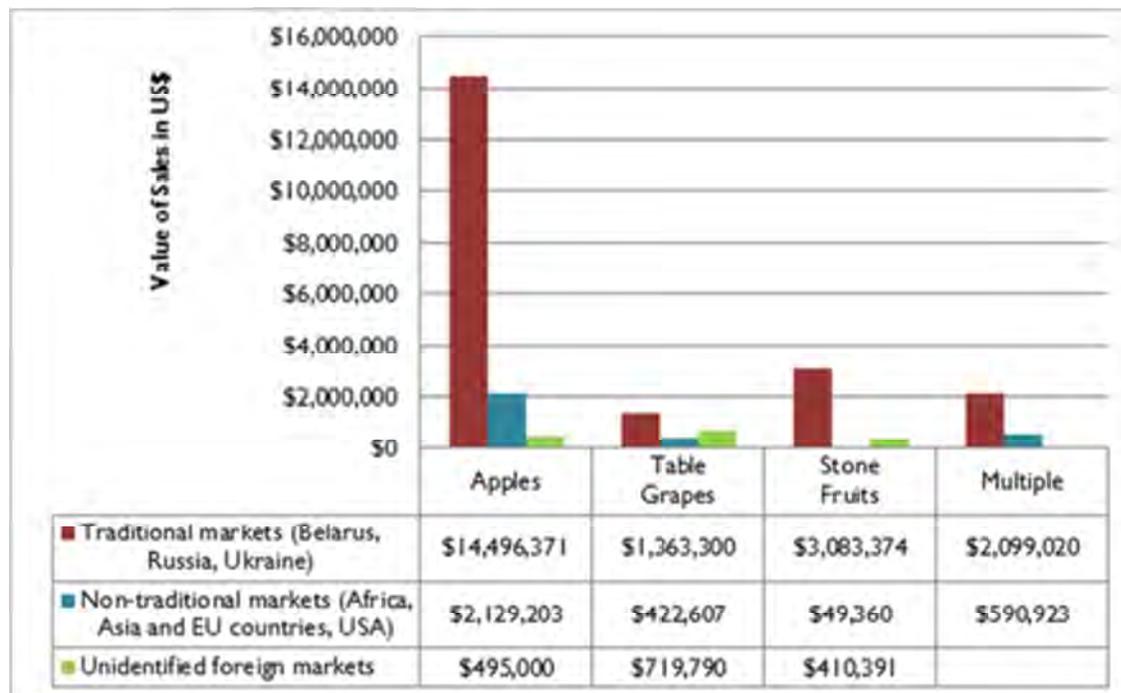
As can be seen in Figure 15 below, stone fruits include cherries, peaches, and plums (see Figure 15), of which plums make the largest share of sales facilitated (66 percent) followed by cherries (23 percent) and peaches (11 percent).

FIGURE 15: SHARE OF STONE FRUIT SALES



As a subcategory, **export sales (Indicator 1.1.2)** were facilitated by ACED in the following value chains: apples, stone fruits, table grapes, and multiple, which includes processed vegetables, fruits, and sweet corn, and honey with the largest amount of export sales facilitated for apples (see Figure 16 below). The great bulk of exports (82 percent) went to traditional markets, which are Belarus, Russia, and Ukraine. Meanwhile, the project helped Moldovan producers make the first attempts in conquering non-traditional markets of the EU, North African, and Asian countries through participation in various international trade fairs in the regions mentioned above. This can be seen in the exports to non-traditional markets amounting to nearly 12 percent of the total exports facilitated by ACED. Note that for \$1.6 million in exports of agricultural HVA produce, the surveyed producers could not identify the export country of destination, because they sold it for cash to exporters. The total amount of exports facilitated is more than \$25 million, significantly exceeding the end-of-project target of \$15 million.

FIGURE 16: VALUE OF HVA EXPORTS FACILITATED BY VALUE CHAIN AND TYPE OF MARKETS



During the life of the project, ACED recorded an export growth of facilitated sales to non-traditional markets from \$100,000 in 2012 to \$500,000 in 2015 (see Figure 16), which can be attributed to ACED’s hard work to help Moldovan producers expand to new markets. The number of new countries that ACED facilitated exports to increased from 3 in 2012 to 11 in 2015 (See Table 1). A total of 20 new markets were penetrated over the 5 years of the project.

ACED registered 1,631 producers with sales facilitated in the Technical and Administrative Management Information System (TAMIS) well exceeding the end-of-project target of 1,500, of which 404 or 25 percent are woman-owned/managed farms/enterprises. More than half of the total come from input supply producers reported by processing enterprises with sales facilitated by ACED.

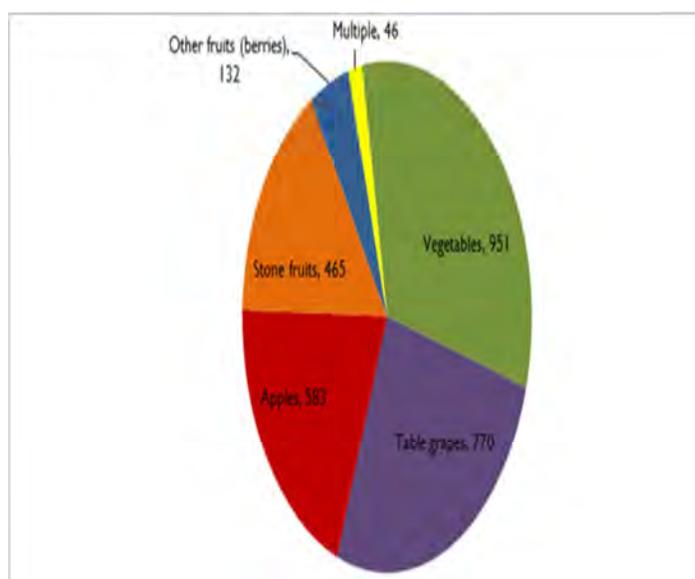
Component 1, Activity 2: Producers Trained and Producers with Adopted Techniques and Practices

Due to an ambitious training program implemented during the life of the project, ACED far exceeded the number of producers trained (6,877 trained versus the 4,300 target). The training program included a large number of training events such as seminars, field days, and study tours. Initially the training program focused on three value chains (tomatoes, apples, and table grapes) with further extension to several other value chains (cucumbers, peaches, plums, and strawberries). Information on the upcoming events was published and disseminated through the ACED production bulletins in addition to producers being invited by local RTSPs. In addition, two activities (CIS and WAN) added ample training participants in Years 4 and 5 of the project. This contributed to boosting the number of discrete participants, including women. Women represented 36 percent of the total discrete training participants, exceeding the ACED target of 30 percent.

Producers adopting improved techniques and practices rose to 2,947 through February 2016. Most adopters were in the vegetable value chain (32 percent of adopters), followed by table grapes (26 percent)

and apples (20 percent), see Figure 17. Women represented 36 percent of adopters, in line with their participation. Producers reported adoption of new techniques and practices on an area of 8,611 hectares, which exceeds the ACED life-of-project target of 8,400 ha.

FIGURE 17: PRODUCERS ADOPTING IMPROVED TECHNIQUES AND PRACTICES BY VALUE CHAIN (TOTALING 2,947)



Component 1, Activity 3: Technical Assistance

During the life of the project, 21 value chain entities adopted international food safety and quality standards (Indicator 1.3.1). Twelve entities implemented good agricultural practices based on GlobalGAP standards. The ACED Food Safety Specialist provided training, materials, and assistance to the owners and technical teams (agronomists, production managers) of these entities on GlobalGAP standards implementation. As a result, these companies have improved their food safety systems at the primary production level by making changes to their basic production processes, as well as documenting procedures and keeping records per ACED recommendations.

Meanwhile, four food processors and manufacturers were certified to ISO 22000. In order to get certified, these companies set up a well-documented and fully implemented food safety management system to manage food safety throughout the agribusiness—from management and business-planning aspects to day-to-day communication and operations affecting food safety. Training and assistance on implementing standard requirements, including HACCP principles were provided by the ACED Food Safety Specialist.

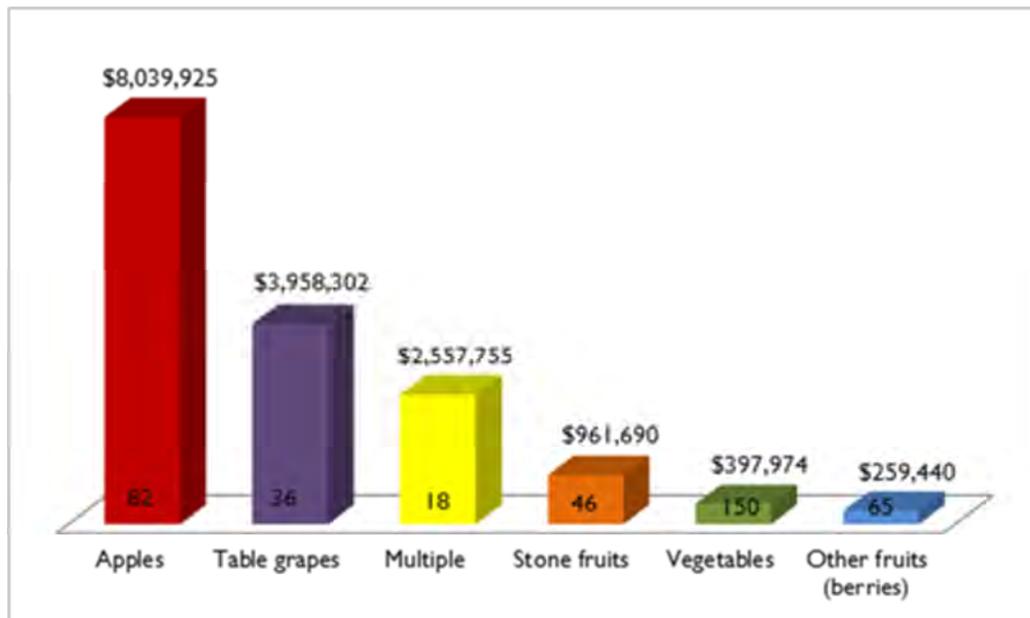
With ACED’s help and assistance, another five entities, including producer groups that launched storage and packing operations, have adopted the following Codex Alimentarius food safety practices:

- Facility hygiene procedures.
- Staff hygiene procedures.
- Product traceability.

The total investments facilitated by ACED through February 2016 (Indicator 1.3.2) were \$16.1 million, of which \$8 million were invested in the apple value chain, \$3.9 million in the table grape value chain,

and \$2.5 million in post-harvest handling facilities that can be used for different value chains. The total number of clients with investments facilitated is 397, of which 125 (31 percent) are woman-owned/managed farms or firms. Figure 18 shows the dollar amount and number of individual clients with investments facilitated by project value chains.

FIGURE 18: NUMBER OF PRODUCERS AND AMOUNT OF INVESTMENTS BY VALUE CHAIN



Categorizing investments by beneficiary type provides the following picture:

- \$12.3 million was invested in post-harvesting equipment and facilities such as cold storage, packing houses, precooling chambers, and sorting and box manufacturing lines.
- \$2.25 million was used to purchase seedling material for new intensive orchards, vineyards, and berry plots, including orchard and vineyard extensions with new varieties.
- More than \$700,000 was invested in greenhouse construction or renovation, heating systems, and drip irrigation in greenhouses and open fields.
- More than \$700,000 was invested in various types of production equipment such as weather stations, branch crushers, weed-cutting machines, sprinklers, and quality control equipment.

Three hundred thirty-eight enterprises received TA from ACED; almost triple the end-of-project target of 120. Seventeen percent of these enterprises were woman-managed or owned. These entities have been provided TA on business planning, post-harvest facility design, application of gibberellins, chemical thinning and other production, harvesting, and post-harvesting techniques and practices, including food safety system implementation. In addition, ACED assisted these enterprises by organizing numerous enterprise events and training sessions, including trade shows and inward-buyer visits.

ACED had 80 value chain enterprises adopt improved PHH techniques and practices (Indicator 1.3.5). Most of them used pre-cooling, implemented storage or drying techniques, and/or maturity prediction and assessment techniques. This also compares favorably to the life-of-project target of 75 value chain enterprises.

Component 1, Activity 4: Enabling Environment

During ACED, six agricultural policy reforms were carried out as result of project intervention, with 31 consultative processes involving communication between government and the private sector.

Improvements to the following regulations have been made with ACED assistance:

- Regulation of access to lake water for farmers for irrigation purposes.
- Inspection of agricultural products for export.
- Issuance of phytosanitary certificates for export and re-export.
- Regulation on import duties for insulated panels, greenhouses, and accessories thereof, and cardboard boxes and cases.
- Regulation on testing and introducing new varieties in the catalog of plant varieties.
- Regulatory reform on testing and registering of phytosanitary products and fertilizers.

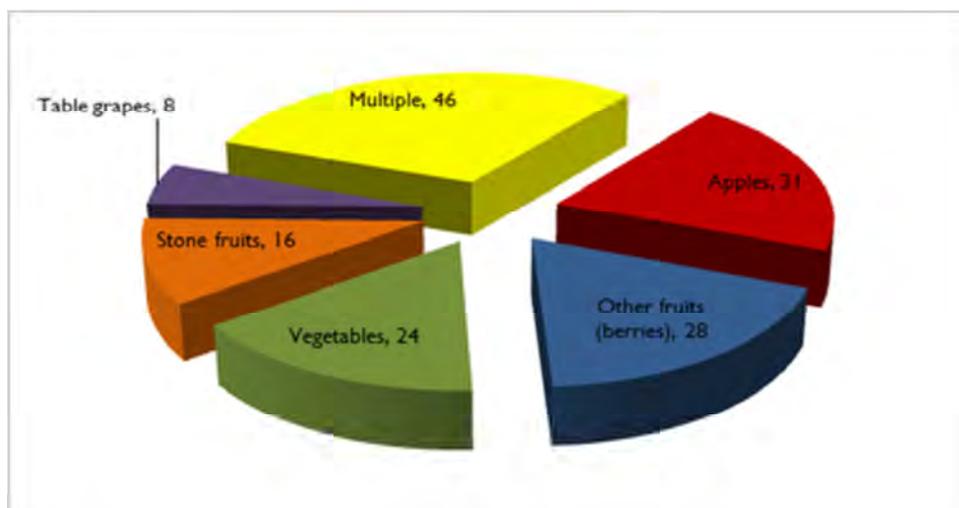
Component 2, Activity 1: Transnistrian BSP Capacity Building

Under Component 2, ACED has far exceeded all life-of-project indicator targets. Component 2, Activity 1 was designed to build BSP capacity so that local BSPs will have a multiplier effect on local businesses to which they provide services. ACED has assisted 22 BSPs, who in turn were better able to provide business services to 163 microenterprises and 167 small and medium-sized clients (compared to life-of-project targets of 20 and 75 respectively). Of the 22 BSPs assisted, 14 (more than half) were woman-led or woman-owned, and the number of BSPs assisted was more than double the life-of-project target of 9.

Component 2, Activity 2: Transnistrian MSME Development

There were 153 cross-bank enterprise linkage activities facilitated by ACED through February 2016. The largest number of these events related to multiple value chains, for instance, international trade fairs with Right and Left Bank participants. Aside from this, there were relatively equal numbers of cross-bank events in the original value chains, with descending numbers for other value chains, which were added to the region over time like honey and table grapes.

FIGURE 19: NUMBER OF CROSS-BANK ENTERPRISE LINKAGE ACTIVITIES BY VALUE CHAIN



End-of-Year Surveys

From October to December 2015, ACED staff carried out a targeted end-of-year survey of producers trained over the course of the project. The survey queried a group of producers (100) who had attended four or more production training sessions, of which three or more were on the same value chain, and who had no new techniques/practices adopted recorded in ACED's TAMIS. In fact, once surveyed, 48 out of 100 selected training participants reported that they had adopted new techniques and/or practices on approximately 130 hectares of land due to ACED assistance.

Based on assistance provided by ACED, participants in the annual survey reported that they generated additional sales of \$191,795. The respondents also reported making a number of new investments, with the reported value of these investments totaling \$47,300. Furthermore, 100 percent of survey respondents said that the project was useful.

There were four end-of-year surveys carried out by the ACED Monitoring & Evaluation Team. The third and fourth surveys used the targeted survey approach, whereas as the survey samples were randomly selected in 2012 and 2013. The change to utilizing a targeted survey approach was used for a variety of reasons, including the flexibility provided by the Project Monitoring and Evaluation Plan to carry out special studies, and the fact that the PMEP system hasn't been designed for the extrapolation of observed results based on a random sample, as all project results are linked in the TAMIS system to a specific individual and company.

In addition to assuring project staff that the performance of the project is on track, the end of year surveys have also given ACED staff an opportunity to check the quality of the data currently in the project's TAMIS system and compare results reported by RTSPs to those reported by participants in the survey. Each year the survey has both added to the results recorded in TAMIS as well as provided important insights and lessons learned to the staff.

V. PERFORMANCE INDICATOR RESULTS

TABLE 4: ACED PMEP INDICATOR TRACKER

No.	Performance Indicator	Disaggregation	Through March 2016	Life-of-Project Target
Component I: Growing HVA Sales				
I.0.1	^Increase in annual profits among ACED-assisted producers and agribusinesses located outside of areas targeted in the CIS Rehabilitation Project funded under the MCC Compact	TOTAL	N/A (^)	20%
		Woman-owned or -managed farms/firms		
		Value Chain		
I.0.2	*Percent change in high-value agriculture exports based on new data available (year 2015)	TOTAL	*Not yet available with UN Comtrade	35% over baseline \$182,382,126 (with re-exports excluded)
		HS Codes (minus exceptions noted in PMEP and re-exports)	From preliminary Moldovan Customs Data: 4.8% in total	
		07 (Vegetables)	31.6%	
		08 (Fruits)	7.3%	
		20 (Preserved products)	-3.1%	
I.0.3	*Percent change in high-value agriculture exports in our selected target value chains based on new data available (year 2015)	Targeted Value Chains	*Not yet available with UN Comtrade, From Moldovan Customs Data:	50% over baseline
		0702 (Tomatoes, fresh or chilled)	-75.8%	
		080610 (Grapes, fresh)	49.6%	
		080810 (Apples, fresh)	-62.9%	
		0809 (Stone fruits, fresh)	-7.4%	
		2009 (Fruit juices)	150%	
		0803 (Dried Fruit)	198%	

^ Indicator to be reported by MCA's Impact Assessment Contractor

* Indicator reported annually

** The total includes crosscutting value chain training participants that cannot be disaggregated by value chain

***The total is discrete enterprises, however, type of assistance (non-discrete) is broken out by (technical and event/training) to show the total number of enterprises assisted per type of assistance.

+To be reported if in project-targeted value chains

No.	Performance Indicator	Disaggregation	Through March 2016	Life-of-Project Target
I.0.4	*Change in dollar value of high value agricultural exports to non-traditional export markets based on new data available (year 2015)	TOTAL	*Not yet available from UN Comtrade, but from Moldovan NBS data:	25% over baseline \$78,920,570 (with re-exports excluded)
		Targeted Value Chains	85.9%	
		0702 (Tomatoes, fresh or chilled)	-86.5%	
		080610 (Grapes, fresh)	2,313.6%	
		080810 (Apples, fresh)	394.6%	
I.0.5	Number of visitors to ACED- sponsored web resources	TOTAL	69,398	50,000
		Web Site		
		ACED web site: total visits	46,458	
		ACED web site: unique visitors	25,833	
		Agroconect: total visits	58,045	
		Agroconect: unique visitors	43,565	
Component I, Activity I: Develop and Expand Market Opportunities for Moldovan HVA				
I.1.1	Value of annual HVA sales facilitated by ACED on behalf of Moldovan producers or producer groups (domestic and exports)	TOTAL	\$32,370,014	\$21 million
		Woman-owned or -managed farms/firms	\$7,893,850	
		Value Chain		
		Apples	\$19,232,325	
		Stone fruits	\$4,607,970	
		Other fruits (including berries)	\$72,127	
		Table grapes	\$3,838,625	
		Vegetables	\$1,497,284	
I.1.2	Value of HVA exports facilitated by ACED on behalf of Moldovan producers and producer groups	TOTAL	\$25,859,339	\$15 million
		Woman-owned or -managed farms/firms	\$4,518,360	
		Value Chain		

^ Indicator to be reported by MCA's Impact Assessment Contractor

* Indicator reported annually

** The total includes cross-cutting VC training participants that cannot be disaggregated by VC

***The total is discrete enterprises, however, we break out (non-discrete) by type of assistance (technical and event/training) to show the total number of enterprises assisted per type of assistance.

+To be reported if in project targeted value chains

No.	Performance Indicator	Disaggregation	Through March 2016	Life-of-Project Target
		Apples	\$17,120,574	
		Stone fruits	\$3,543,125	
		Table grapes	\$2,505,697	
		Multiple	\$2,689,943	
1.1.3	Number of producers reporting transactions facilitated by ACED	TOTAL	1,631	1,500
		Woman-owned or -managed farms/firms	404	
		Value Chain		
		Apples	95	
		Stone fruits	106	
		Other fruits (including berries)	18	
		Table grapes	140	
		Vegetables	206	
		Multiple	1,066	
Component 1, Activity 2: Upgrade Production in the HVA Value Chain				
1.2.1	Number of producers trained as a result of ACED (Milestone)**	TOTAL**	6,877	4,300
		Women	2,445	
		Value Chain		
		Apples	1,325	
		Stone fruits	1,075	
		Other fruits (including berries)	340	
		Table grapes	1,500	
		Vegetables	1,965	
		Multiple	672	
1.2.2	Number of producers adopting improved practices (or applying improved techniques) as a result of ACED	TOTAL	2,947	2,800
		Women	1,101	
		Value Chain		
		Apples	583	
		Stone fruits	465	

^ Indicator to be reported by MCA's Impact Assessment Contractor

* Indicator reported annually

** The total includes crosscutting value chain training participants that cannot be disaggregated by value chain

***The total is discrete enterprises, however, type of assistance (non-discrete) is broken out by (technical and event/training) to show the total number of enterprises assisted per type of assistance.

+To be reported if in project-targeted value chains

No.	Performance Indicator	Disaggregation	Through March 2016	Life-of-Project Target
		Other fruits (including berries)	132	
		Table grapes	770	
		Vegetables	951	
		Multiple	46	
1.2.3	^Number of additional hectares under improved technologies or management practices as a result of ACED	TOTAL	8,611	8,400
		Woman-owned or -managed farms/firms	1,098	
		Men owned or managed farms/firms	7,513	
		Association-applied	0	
Component 1, Activity 3: Upgrade Support for Development of the HVA Value Chain				
1.3.1	Number of ACED-supported value chain entities adopting international food safety and quality standards	TOTAL	21	20
		Woman-owned or -managed farms/firms	5	
		GLOBAG.A.P.	12	
		ISO 22 000	4	
		Codex Alimentarius	5	
1.3.2	Value of new investment in Moldovan HVA farms and value-chain businesses assisted by ACED	TOTAL	\$16,175,086	\$15 million
		Woman-owned or -managed farms/firms	\$2,179,067	
		Value Chain		
		Apples	\$8,039,925	
		Stone fruits	\$961,690	
		Other fruits (including berries)	\$259,440	
		Table grapes	\$3,958,302	
		Vegetables	\$397,974	
		Multiple	\$2,557,755	
1.3.3	Number of clients benefiting from assistance leading to HVA investments	TOTAL	397	150
		Woman-owned or -managed	125	

^ Indicator to be reported by MCA's Impact Assessment Contractor

* Indicator reported annually

** The total includes cross-cutting VC training participants that cannot be disaggregated by VC

***The total is discrete enterprises, however, we break out (non-discrete) by type of assistance (technical and event/training) to show the total number of enterprises assisted per type of assistance.

+To be reported if in project targeted value chains

No.	Performance Indicator	Disaggregation	Through March 2016	Life-of-Project Target
	including farmers, farmer groups and enterprises	farms/firms		
		Value Chain		
		Apples	82	
		Stone fruits	46	
		Other fruits (including berries)	65	
		Table grapes	36	
		Vegetables	150	
		Multiple	18	
I.3.4	Number of HVA enterprises assisted by ACED	TOTAL***	338	120
		Woman-owned or -managed farms/firms	57	
I.3.4.1	Technical assistance	SUB-TOTAL***	194	n/a
		Woman-owned or -managed farms/firms	34	
		Value Chain		
		Apples	30	
		Stone fruits	25	
		Other fruits (including berries)	6	
		Table grapes	35	
		Vegetables	27	
	Multiple	71		
I.3.4.2	Enterprise events/training sessions	SUB-TOTAL***	199	n/a
		Woman-owned or -managed farms/firms	33	
		Value Chain		
		Apples	24	
		Stone fruits	10	
		Table grapes	29	
	Vegetables	14		

^ Indicator to be reported by MCA's Impact Assessment Contractor

* Indicator reported annually

** The total includes crosscutting value chain training participants that cannot be disaggregated by value chain

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+To be reported if in project-targeted value chains

No.	Performance Indicator	Disaggregation	Through March 2016	Life-of-Project Target
I.3.5	Number of value chain enterprises (such as processors, cold stores, supermarkets, etc) adopting improved practices as a result of ACED	Multiple	122	75
		TOTAL	80	
		Woman-owned or -managed farms/firms	11	
		Value Chain		
		Apples	30	
		Stone fruits	21	
		Table grapes	13	
		Multiple	16	
Component I, Activity 4: Improving the Enabling Environment for HVA				
I.4.1	Number of agricultural policy reforms carried out as a result of ACED project intervention	TOTAL	6	5
		Governmental Institutions	Primarily affecting (first reform) MAFI and Min. of Environment; (second reform) Min. of Finance, MAFI, Min. of Economy and Customs Service; (third reform) National Agency for Food Safety; (fourth reform) Customs Service; (fifth reform) MAFI; (sixth reform) MAFI.	
I.4.2	Number of consultative processes involving communication between government and private sector as a result of ACED assistance (Milestone)	TOTAL	31	30
I.4.3	Moldova SPS service achieves compliance with IPPC, ISPM Guidelines 7, 20 and 23	N/A	Compliance achieved	August 2015: Moldova SPS service achieves compliance

^ Indicator to be reported by MCA's Impact Assessment Contractor

* Indicator reported annually

** The total includes cross-cutting VC training participants that cannot be disaggregated by VC

***The total is discrete enterprises, however, we break out (non-discrete) by type of assistance (technical and event/training) to show the total number of enterprises assisted per type of assistance.

+To be reported if in project targeted value chains

No.	Performance Indicator	Disaggregation	Through March 2016	Life-of-Project Target
1.4.4	The Central Phyto-sanitary Lab is certified to ISO family of standards and/or another appropriate international standard as confirmed by a Certification or Accreditation body. This could include ISO 9001 (management standard), ISO 17,025 which is a lab certification standard or another international standard.	N/A	Certification achieved	Certification achieved
COMPONENT 2: Enterprise Development in Transnistria				
Component 2, Activity 1: Enhance the Capacity of Transnistria Business Service Providers to Provide Services to MSMEs Resulting in Improved MSMEs Competitiveness				
2.1.1	Number of microenterprises receiving business development services from ACED-assisted entities (less than 10 employees, this includes household farmers)	TOTAL	163	20
		Woman-owned or -managed farms/firms	83	
		+HVA Value Chain (if applicable)		
		Apples	1	
		Other fruits(including berries)	18	
		Vegetables	82	
		Multiple	52	
2.1.2	Number of small and medium enterprises (SMEs) receiving business development services from ACED-assisted entities	TOTAL	167	75
		Woman-owned or -managed farms/firms	33	
		+HVA Value Chain (if applicable)		
		Multiple	10	
2.1.3	Number of training sessions for business service providers (BSPs) and industry/business associations to better	TOTAL	13	9
		Woman-owned or -managed BSP participating	11	

^ Indicator to be reported by MCA's Impact Assessment Contractor

* Indicator reported annually

** The total includes crosscutting value chain training participants that cannot be disaggregated by value chain

***The total is discrete enterprises, however, type of assistance (non-discrete) is broken out by (technical and event/training) to show the total number of enterprises assisted per type of assistance.

+To be reported if in project-targeted value chains

No.	Performance Indicator	Disaggregation	Through March 2016	Life-of-Project Target
	serve the needs of the business community	+HVA Value Chain (if applicable)		
		Vegetables	1	
		Multiple	7	
2.1.4	Number of business service providers (BSPs) and industry/business associations assisted to better serve the needs of the business community (receive training, consultation, study tour, etc.)	TOTAL	22	9
		Woman-owned or -managed farms/firms	14	
Component 2, Activity 2: Support the Development of MSMEs in Transnistria				
2.2.1	Number of cross-bank enterprise linkage activities facilitated by the Contractor over 5 years	TOTAL	153	7
		Woman-owned or -managed farms/firms	188	
		Value Chain		
		Apples	31	
		Stone fruits	16	
		Other fruits (including berries)	28	
		Table grapes	8	
		Vegetables	24	
	Multiple	46		

^ Indicator to be reported by MCA's Impact Assessment Contractor

* Indicator reported annually

** The total includes cross-cutting VC training participants that cannot be disaggregated by VC

***The total is discrete enterprises, however, we break out (non-discrete) by type of assistance (technical and event/training) to show the total number of enterprises assisted per type of assistance.

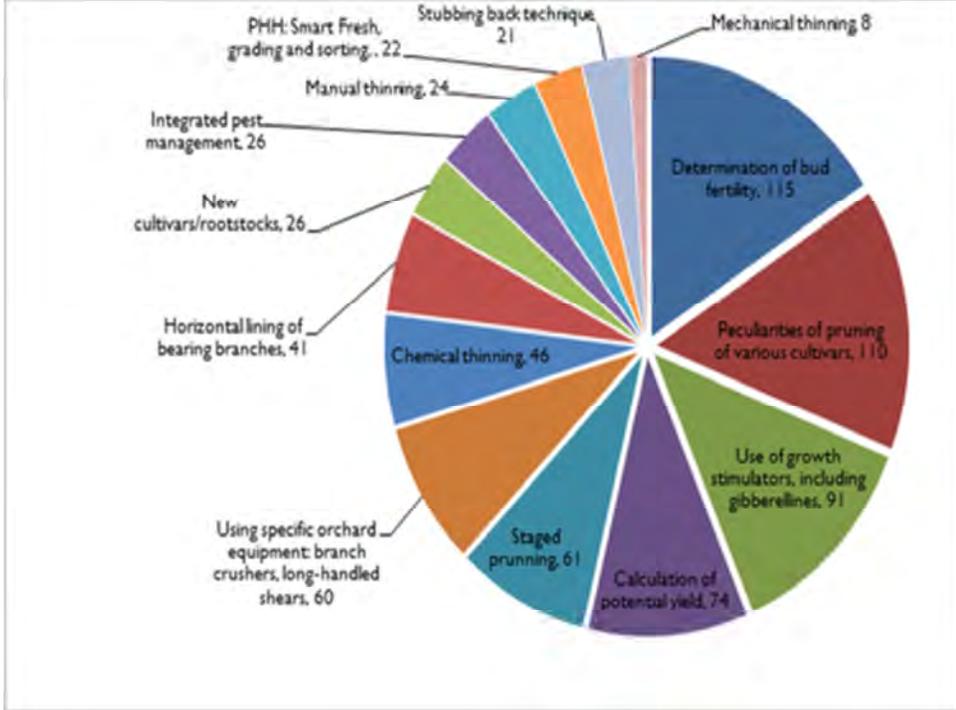
+To be reported if in project targeted value chains

VI. PROJECT ACTIVITIES AND RESULTS BY VALUE CHAIN

The following tables detail activities and results by targeted value chains.

TABLE 5: APPLES VALUE CHAIN

ACED Activities	Results
Market Requirement/Critical Success Factor:	
Cost-competitive apples with good cosmetic appeal (appropriate size, attractive coloring, absence of visual defects)	
Improved access to critical inputs	
<ul style="list-style-type: none"> • Development of “Prospective Apple Varieties for Moldova” Guide • Support for Moldova-Fruct to lobby for an easier and quicker variety registration, including adoption of varieties registered in the EU 	<ul style="list-style-type: none"> • Registration of 15 apple varieties already present in Moldovan orchards in the National Catalogue of Plant Varieties
<ul style="list-style-type: none"> • Support for official registration of gibberellins GA4+7 • Supported Moldova-Fruct to lobby for the quick registration of pesticides and fertilizers already authorized in EU 	<ul style="list-style-type: none"> • Gibberellins GA4+7 officially registered in Moldova • Adoption by the Government of the simplified registration of fertilizers with “EC fertilizer” mark
<ul style="list-style-type: none"> • Best production practices and technologies explained in the Apple Nursery Guide • Demos: mechanical planting in nurseries, irrigation in nurseries • Carried out 7 training events (103 participants) and a study tour to Netherlands 	<ul style="list-style-type: none"> • Effectiveness of key practices and technologies required to produce quality seedlings demonstrated in Moldovan conditions • Established links with leading European nurseries that could partner the Moldovan nurseries in their upgrade • Key Moldovan apple nurseries have initiated the upgrade of their operations
Adoption of critical production practices and technologies	
<ul style="list-style-type: none"> • Consultancy for pilot adoption of chemical thinning & gibberellins • Best production practices and technologies explained in the Apple Production Manual, Fruit Tree Pruning & Training Manual and 16 technical bulletins • Demos: weather station, Frostbuster, reflective film, harvesting platform • Carried out 154 training events with participation of 1325 growers, including 6 international study tours 	<ul style="list-style-type: none"> • 583 producers reported adoption of one or more improved practice or technique <ul style="list-style-type: none"> — Pruning & canopy management — Specific orchard equipment — Thinning — Growth regulators • Major improvements in the type of orchards established: the share of intensive orchards in the total area of newly planted orchards increased from 26% in 2009 to 65% in 2014 (AIPA.md) • AIPA annual report for 2014

ACED Activities	Results																														
	<p>(http://aipa.gov.md/sites/default/files/prezentare%20AIPA%20final_2014%20%282%29.pdf)</p> <p>FIGURE 20: TECHNIQUES AND PRACTICES ADOPTED ON APPLES VALUE CHAIN</p>  <table border="1"> <caption>Data for Figure 20: Techniques and Practices Adopted on Apples Value Chain</caption> <thead> <tr> <th>Technique/Practice</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Determination of bud fertility</td> <td>115</td> </tr> <tr> <td>Peculiarities of pruning of various cultivars</td> <td>110</td> </tr> <tr> <td>Use of growth stimulators, including gibberellins</td> <td>91</td> </tr> <tr> <td>Horizontal lining of bearing branches</td> <td>41</td> </tr> <tr> <td>Chemical thinning</td> <td>46</td> </tr> <tr> <td>Staged pruning</td> <td>61</td> </tr> <tr> <td>Calculation of potential yield</td> <td>74</td> </tr> <tr> <td>Using specific orchard equipment: branch crushers, long-handled shears</td> <td>60</td> </tr> <tr> <td>New cultivars/rootstocks</td> <td>26</td> </tr> <tr> <td>Integrated pest management</td> <td>26</td> </tr> <tr> <td>Manual thinning</td> <td>24</td> </tr> <tr> <td>PHH: Smart Fresh, grading and sorting</td> <td>22</td> </tr> <tr> <td>Stubbing back technique</td> <td>21</td> </tr> <tr> <td>Mechanical thinning</td> <td>8</td> </tr> </tbody> </table>	Technique/Practice	Value	Determination of bud fertility	115	Peculiarities of pruning of various cultivars	110	Use of growth stimulators, including gibberellins	91	Horizontal lining of bearing branches	41	Chemical thinning	46	Staged pruning	61	Calculation of potential yield	74	Using specific orchard equipment: branch crushers, long-handled shears	60	New cultivars/rootstocks	26	Integrated pest management	26	Manual thinning	24	PHH: Smart Fresh, grading and sorting	22	Stubbing back technique	21	Mechanical thinning	8
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Market Requirement/Critical Success Factor: 1) Longer shelf-life and delivery sustainability and 2) Size and color uniformity in the package																															
<ul style="list-style-type: none"> • Demos: Apple outbound logistics (grading, dock leveler, and dock shelter), iodine test, post-harvest physiology lab • Included PHH practices and technologies in the objectives of all international study tours • Supported participation of growers at Interpoma and FruitLogistica to meet suppliers of PHH technologies • Best harvesting, storage, grading and packing practices and 	<ul style="list-style-type: none"> • 23 ACED clients made investments in apple post-harvest infrastructure, valued at 7.2 million USD • The number of apple graders increased from 4 to 15 across the entire country • Some providing services to other growers • Share of exports from cold storages increased from 30% (2009) to 50% (2014) – source is UN Comtrade monthly export data as month of export indicates whether or not it came from cold storage. 																														

ACED Activities	Results
<ul style="list-style-type: none"> technologies explained in the Apple Production Guide Supported development of 9 business plans for creation or expansion of post-harvest infrastructure for apples 	
Market Requirement/Critical Success Factor: Easy-handling package with good fruit protection	
<ul style="list-style-type: none"> Assisted Agro-Product to install the first tray former in Moldova, and encouraged others to follow Linked and assisted Moldova-Fruct members with local and international cardboard manufacturers to develop (1) open-tray designs for European markets, and (2) telescopic bushel designs to serve the Gulf markets Supported Moldova-Fruct to lobby for the removal of import duties for cardboard and cardboard boxes 	<ul style="list-style-type: none"> 8 new tray formers operating across the country Exporters have access to a diversity of packaging required by export markets Import duties removed by the Government for cardboard and reduced for cardboard boxes; as result of EU-Moldova Association Agreement no import duties are imposed on cardboard and cardboard boxes of EU origin
Market Requirement/Critical Success Factor: Guaranteed food safety and phytosanitary health	
<ul style="list-style-type: none"> Organized 5 GlobalGAP and 8 HACCP multi-day training courses for growers and cold storage operators Provided equipment, consultancy and training for the Central Phytosanitary Laboratory Implemented an extensive training program for phytosanitary inspectors, including a study tour to Romania 	<ul style="list-style-type: none"> 11 apple growers and cold storage operators upgraded food safety & quality systems Central Phytosanitary Laboratory accredited ISO 17025 by RENAR EU Rapid Alert System: in 2015 no food safety-related interceptions reported for Moldovan fresh apples EU EUROPHYT: in 2015 no phytosanitary-related interceptions reported for Moldovan fresh apples
Market Requirement/Critical Success Factor: Culture of quality and trust among value chain entities	
<ul style="list-style-type: none"> Developed in conjunction with Moldova-Fruct and other HVA associations the “Taste makes the difference” logo and slogan building Moldovan pride and brand. Supported organization of country booths at the major trade fairs in the target markets Supported organization of buyers’ missions for foreign distributors and retailers Encouraged and provided legal consultancy for the merger of the two treefruit industry associations Provided mentoring and cost-sharing support for the development of the united Moldova-Fruct Association (cost-sharing of training events by international experts, website development, organization of the Fruit Industry Forum and Conference, marketing training for Moldova-Fruct staff and members) 	<ul style="list-style-type: none"> The industry is represented by a stronger and more representative organization Demonstrated the value of stronger cooperation in marketing among apple growers and exporters The number of countries importing Moldovan apples doubled from 8 in 2010 to 17 in 2015 Promising pilot projects of supplying apples to EU retailers (Carrefour, Lidl) currently underway

ACED Activities	Results
<ul style="list-style-type: none"> • Provided support for organization of a study tour to Poland on creation and development of joint marketing groups • Provided consultancy and training for the creation of a marketing cooperative of apple growers- named? Or location? 	

TABLE 6: TABLE GRAPES VALUE CHAIN

ACED Activities	Results
Market Requirement/Critical Success Factor: Good cosmetic appeal (improved varieties, berry and bunch size, absence of visual defects)	
<ul style="list-style-type: none"> • Support for APESM to lobby for an easier and quicker variety registration, including adoption of varieties registered in the EU • Market-demanded varieties adapted to Moldovan conditions described in the Table Grape Production Manual 	<ul style="list-style-type: none"> • Registration of 8 table grape varieties already present in Moldovan vineyards in the National Catalogue of Plant Varieties
<ul style="list-style-type: none"> • Supported APESM to lobby for the quick registration of pesticides and fertilizers already authorized in EU • Support for official registration of gibberellin GA3 	<ul style="list-style-type: none"> • Adoption by the Government of the simplified registration of fertilizers with “EC fertilizer” mark • Gibberellin GA3 officially registered in Moldova
<ul style="list-style-type: none"> • Support for and pilot adoption of gibberellin GA3 • Demos: anti-hail, girding, crop nutrition, irrigation, weather station • Best production practices and technologies explained in the Table Grape Production Manual and 7 innovation bulletins • Carried out 144 training events with participation of 1500 growers, including 3 study tours to Spain and Italy 	<ul style="list-style-type: none"> • 770 producers reported adoption of one or more improved practice or technique such as: <ul style="list-style-type: none"> — Summer and winter pruning — Cluster management — Growth regulators — Irrigation & crop nutrition
Market Requirement/Critical Success Factor: Good cosmetic appeal (packaging)	
<ul style="list-style-type: none"> • Supported market research and facilitated an AAF loan to launch production of better-looking wooden crates in Stefan-Voda, a key grape producing area • Linked APESM members with local and international cardboard manufacturers and assisted them to develop a 4.5 kg open-tray design • 8 tray formers operating in the country, that are able to produce the 4.5 kg design • 1 kg cluster bag piloted by Costesti Packinghouse Project 	<ul style="list-style-type: none"> • Exporters have access to the external and internal packaging required by the alternative export markets

ACED Activities	Results
Market Requirement/Critical Success Factor: 1) Longer shelf-life and delivery sustainability and 2) Size and color uniformity in the package	
<ul style="list-style-type: none"> • Demos: forced-air cooling, liner with SO₂ pad • Best harvesting and storage practices and technologies explained in the Table Grape Production Guide • Post-harvest handling – a key part of the international study tours and training & TA program • Supported development of 13 business plans for development of post-harvest infrastructure 	<ul style="list-style-type: none"> • 15 grape-focused PHH facilities created or expanded with ACED support • Forced-air cooling – by default integrated in the design of all new grape cold storages • First grape sorting line installed by Costesti Packinghouse Project; another cooperative in Costesti is replicating the model • Share of exports from cold storages increased from 28% (2010 season) to 44% in the 2014 season (source UN Comtrade analysis by month of sale)
Market Requirement/Critical Success Factor: Consolidated and organized volumes of high-quality grapes	
<ul style="list-style-type: none"> • Value chain development workshops carried out across the country, “Consolidated supply” being the major theme • Through ACED Joint Marketing Program, 4 grape marketing cooperatives were created, and another 1 was reorganized • Another two cooperatives created by ACED partners based on ACED experience 	<ul style="list-style-type: none"> • Demonstrated successful model of grape growers’ organization • 6 marketing cooperatives made investments in joint PHH infrastructure
Market Requirement/Critical Success Factor: Guaranteed food safety and phytosanitary health	
<ul style="list-style-type: none"> • Organized 5 GlobalGAP and 8 HACCP multi-day training courses for growers and cold storage operators • Provided equipment, consultancy and training for the Central Phytosanitary Laboratory • Implemented an extensive training program for phytosanitary inspectors, including a study tour to Romania 	<ul style="list-style-type: none"> • 6 grape growers and cold storage operators with upgraded food safety & quality systems • Central Phytosanitary Laboratory accredited ISO 17025 by RENAR • EU Rapid Alert System: in 2015 no food safety-related interceptions reported for Moldovan fresh grapes • EU EUROPHYT: in 2015 no phytosanitary-related interceptions reported for Moldovan fresh grapes
Market Requirement/Critical Success Factor: Awareness about market requirements	
<ul style="list-style-type: none"> • Developed in conjunction with APESM and other HVA associations the “Taste makes the difference” logo and slogan • Supported organization of country booths at the major trade fairs in the target markets with participation of Moldovan table grape exporters • Supported organization of buyers’ missions for foreign distributors and retailers interested in Moldovan table grapes 	<ul style="list-style-type: none"> • Market diversification: number of countries importing Moldovan grapes increased from 7 in 2010 to 15 in 2014 (UN Comtrade) • Share of non-traditional markets has increased from 8% in 2010 to 26% in 2014 • Tariff-free quota offered by EU as part of EU-Moldova Association agreement fully used in 2014 and 2015 • Promising pilot projects of supplying grapes to EU retailers (Lidl, Metro) currently underway • National Export Statistics of Moldova show a 49% increase in table grape exports in 2015 (see indicator table)

FIGURE 21: TECHNIQUES AND PRACTICES ADOPTED ON TABLE GRAPES VALUE CHAIN

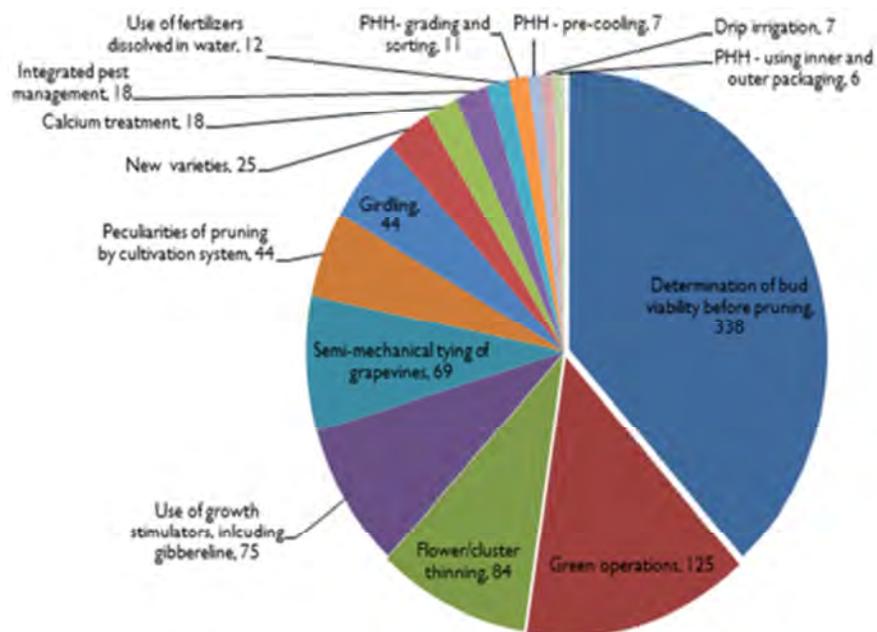


TABLE 7: TOMATOES AND CUCUMBERS VALUE CHAINS

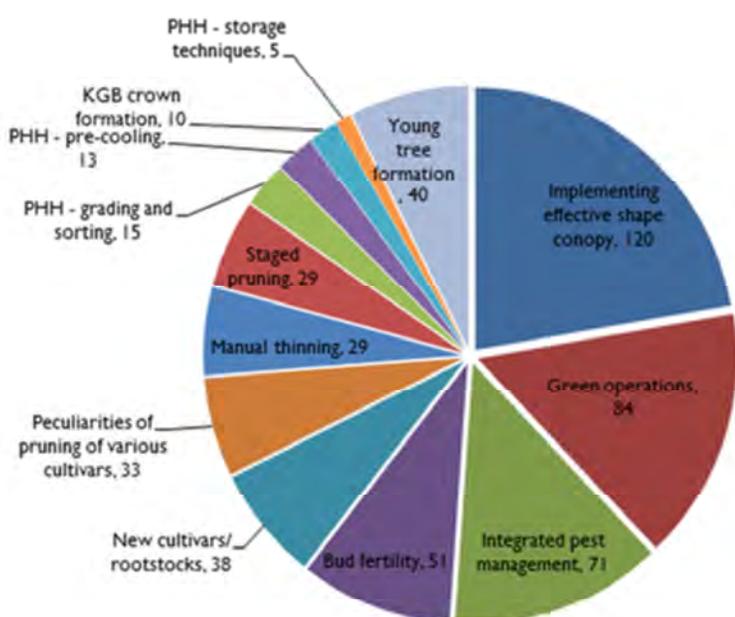
Activities	Results
Market Requirement/Critical Success Factor: 1) Long shelf life (at least 1 week) from delivery time and 2) Supplier capacity to offer supply over extended period	
<ul style="list-style-type: none"> • Supported the growers to lobby for the quick registration of pesticides and fertilizers already authorized in EU • 10 demonstrations with 34 field days & 784 participants: <ul style="list-style-type: none"> — Cover film (mulch) with irrigation in tomato production in greenhouses (2) — Energy conservation technique (double layer cover film) — Improved greenhouse design with ventilation — Cover film (mulch) with fertigation in tomato production — Improved greenhouse design with ventilation and shade covers — Open field production of cucumbers using nets support system — Use of artificial LED lightening on cucumber seedling production • Best production and post-harvest handling practices and technologies described in the Greenhouse Design Manual, Vegetable Seedling Production Manual, Cucumber Production Manual, and Tomato Post-Harvest Infrastructure Guide • Key practices and technologies described in more details in the technical bulletins (tomato – 12 issues, cucumber – 6 issues) distributed by mail in key producing regions • Extensive training program: 77 seminars with 2159 participants • 5 international study tours (Ukraine, Romania, Germany, Hungary, Turkey) 	<ul style="list-style-type: none"> • Adoption by the Government of the simplified registration of fertilizers with “EC fertilizer” mark • 951 producers reported adoption of one or more improved practice or technique, including <ul style="list-style-type: none"> — Using irrigation/fertigation systems — Implementing integrated pest management — Seedling production technologies — New varieties/hybrids — Greenhouse design and construction; climate control

Activities	Results																														
	<p>FIGURE 22: TECHNIQUES AND PRACTICES ADOPTED ON VEGETABLES VALUE CHAIN</p> <table border="1"> <caption>Data for Figure 22: Techniques and Practices Adopted on Vegetables Value Chain</caption> <thead> <tr> <th>Technique/Practice</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Drip irrigation</td> <td>183</td> </tr> <tr> <td>Complex fertigation</td> <td>176</td> </tr> <tr> <td>Integrated pest management</td> <td>162</td> </tr> <tr> <td>Seedling production technologies: use of treated seeds, pallets, peat</td> <td>162</td> </tr> <tr> <td>Soil testing</td> <td>116</td> </tr> <tr> <td>New varieties and hybrids</td> <td>117</td> </tr> <tr> <td>Water testing: pH and salt concentration</td> <td>71</td> </tr> <tr> <td>Greenhouse construction/renovation</td> <td>60</td> </tr> <tr> <td>Microclimate control systems in greenhouse: lateral ventilation, shading, use of double film</td> <td>53</td> </tr> <tr> <td>Tomato pollination</td> <td>52</td> </tr> <tr> <td>Plant formation and grafting</td> <td>39</td> </tr> <tr> <td>Quality requirements: sizing, storage, transportation</td> <td>24</td> </tr> <tr> <td>New planting schemes and support systems</td> <td>23</td> </tr> <tr> <td>Tomato production in Cycle II</td> <td>22</td> </tr> </tbody> </table>	Technique/Practice	Value	Drip irrigation	183	Complex fertigation	176	Integrated pest management	162	Seedling production technologies: use of treated seeds, pallets, peat	162	Soil testing	116	New varieties and hybrids	117	Water testing: pH and salt concentration	71	Greenhouse construction/renovation	60	Microclimate control systems in greenhouse: lateral ventilation, shading, use of double film	53	Tomato pollination	52	Plant formation and grafting	39	Quality requirements: sizing, storage, transportation	24	New planting schemes and support systems	23	Tomato production in Cycle II	22
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Tomato production in Cycle II	22																														
<p>Market Requirement/Critical Success Factor: Long-term contractual relationships of growers with retailers and exporters</p>																															
<ul style="list-style-type: none"> Developed the “Taxes and Fees in Moldova” and “Accounting for Agricultural Enterprises” Guides to help growers understand legal requirements to set up and operate a company able to enter into contracts with local retailers Developed the “Banking Relations for Agricultural Enterprises” Guide to help growers secure short- and long-term financing from banks Developed the Produce Retail Manual and organized training seminars to help retailers in increasing sales through better management of fresh produce sections 	<ul style="list-style-type: none"> Value of annual sales of fresh and processed vegetables facilitated by ACED on behalf of Moldovan producers or producer groups – 1,9 million USD Successful pilot models of grower-retailer collaboration established, bringing mutual benefits to both parties from increased sales Largest processors of vegetables have food safety management systems (IFS, ISO 22000) certified by international bodies Pilot shipments to new markets underway (after participation at trade fairs in Middle East) 																														

Activities	Results
<ul style="list-style-type: none"> • Provided TA to Linella and IMC chains to develop and implement modern approaches to fresh produce retailing and cooperation with growers-suppliers • Developed markets for Moldovan processed vegetables by: • Supporting organization of country booths at the major trade fairs in the target markets with participation of Moldovan canneries • Providing consultancy to Moldovan canneries in upgrading their food safety and quality management systems to meet importing market requirements 	

TABLE 8: STONE FRUITS VALUE CHAIN

Activities	Results
Market Requirement/Critical Success Factor: Cost-competitive fruit with good cosmetic appeal (large size, attractive coloring, absence of visual defects)	
<ul style="list-style-type: none"> • Support for Moldova-Fruct to lobby for an easier and quicker variety registration, including adoption of varieties registered in the EU 	<ul style="list-style-type: none"> • Adoption by the Government of the simplified registration of fertilizers with “EC fertilizer” mark
<ul style="list-style-type: none"> • Support for Moldova-Fruct to lobby for the adoption of the EU Catalogue of Varieties • Market-demanded varieties adapted to Moldovan conditions described in the Sweet Cherry Production Manual, Plum Production Manual, and Peach Production Manual 	<ul style="list-style-type: none"> • Registration of 21 new stone fruit varieties already present in Moldovan orchards in the National Catalogue of Plant Varieties (sweet cherries - 10, plums - 5, apricots – 3, peaches – 3)
<ul style="list-style-type: none"> • 4 production demonstrations: <ul style="list-style-type: none"> — Using Support System, New Cultivars and Type of Canopy for Sweet Cherry Orchard — Use of Plastic Buckets for Sweet Cherry Harvesting — Harvesting Bag in Peach Production — Use of Plastic Buckets for Plums Harvesting • Best production practices and technologies described in the Sweet Cherry Production Manual, Plum Production Manual, and Peach Production Manual • Key practices and technologies described in more details in 5 technical bulletins distributed by mail in key producing regions • Extensive training program: 70 seminars with 2029 participants • 5 international study tours with 64 participants (cherries – Italy and Turkey; plums – Serbia and Germany; peaches - Italy) 	<ul style="list-style-type: none"> • New types of sweet cherry canopies demonstrated and taken up by the growers, allowing higher quality fruit and lower orchard maintenance costs • 465 producers reported adoption of one or more improved practice or technique, including <ul style="list-style-type: none"> — Winter pruning and canopy training — Summer pruning — Integrated pest management — Implementing new varieties and intensive orchard systems — Using thinning techniques and growth regulators

Activities	Results																												
	<p>FIGURE 23: TECHNIQUES AND PRACTICES ADOPTED ON STONE FRUITS VALUE CHAIN</p>  <table border="1"> <caption>Data for Figure 23: Techniques and Practices Adopted on Stone Fruits Value Chain</caption> <thead> <tr> <th>Technique/Practice</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Implementing effective shape canopy</td> <td>120</td> </tr> <tr> <td>Green operations</td> <td>84</td> </tr> <tr> <td>Integrated pest management</td> <td>71</td> </tr> <tr> <td>Bud fertility</td> <td>51</td> </tr> <tr> <td>New cultivars/rootstocks</td> <td>38</td> </tr> <tr> <td>Peculiarities of pruning of various cultivars</td> <td>33</td> </tr> <tr> <td>Manual thinning</td> <td>29</td> </tr> <tr> <td>Staged pruning</td> <td>29</td> </tr> <tr> <td>PHH - grading and sorting</td> <td>15</td> </tr> <tr> <td>PHH - pre-cooling</td> <td>13</td> </tr> <tr> <td>KGB crown formation</td> <td>10</td> </tr> <tr> <td>PHH - storage techniques</td> <td>5</td> </tr> <tr> <td>Young tree formation</td> <td>40</td> </tr> </tbody> </table>	Technique/Practice	Value	Implementing effective shape canopy	120	Green operations	84	Integrated pest management	71	Bud fertility	51	New cultivars/rootstocks	38	Peculiarities of pruning of various cultivars	33	Manual thinning	29	Staged pruning	29	PHH - grading and sorting	15	PHH - pre-cooling	13	KGB crown formation	10	PHH - storage techniques	5	Young tree formation	40
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PHH - pre-cooling	13																												
KGB crown formation	10																												
PHH - storage techniques	5																												
Young tree formation	40																												
<p>Market Requirement/Critical Success Factor: Longer shelf-life and delivery sustainability</p>																													
<ul style="list-style-type: none"> • Demonstration activities: <ul style="list-style-type: none"> — Sweet cherry hydro-cooling, sorting and packing for export markets — Cold-wall forced-air cooling technology for sweet cherries — Use of modified atmosphere packaging for storage and long-distance shipment of plums • Best production and post-harvest handling practices and technologies described in the Sweet Cherry Production Manual, 	<ul style="list-style-type: none"> • Forced-air cooling – now, by default, integrated in the design of all stone fruit-focused cold storages • First sweet cherry hydro-cooler and sorting line installed in Moldova • Value of modified atmosphere packaging demonstrated to Moldovan stone fruit growers and exporters • ACED facilitated investments in stone fruit PHH facilities – 0,9 million USD 																												

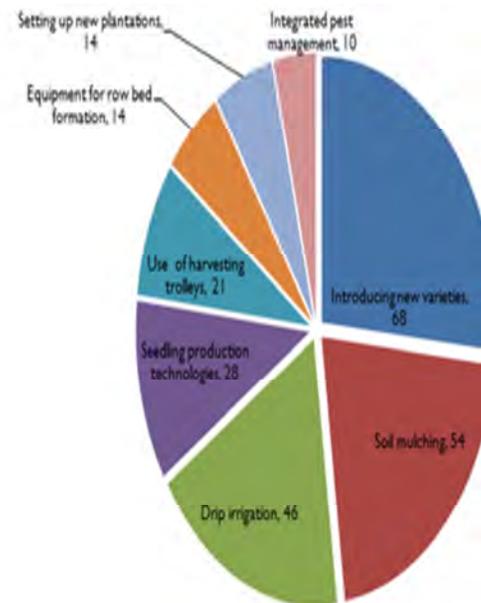
Activities	Results
Plum Production Manual, and Peach Production Manual	
Market Requirement/Critical Success Factor: Availability of alternative/processing markets in case of fresh market oversupply	
<ul style="list-style-type: none"> • Organization of the Plum Drying Forum to discuss sub-sector development, and present best drying practices and technologies • Through ACED Joint Marketing Program, 2 cooperatives were created, focusing on combined marketing of fresh and dried plums • Developed markets for Moldovan processed stone fruit by: <ul style="list-style-type: none"> — Supporting organization of country booths at the major trade fairs in the target markets with participation of Moldovan stone fruit processors — Providing consultancy to Moldovan canneries in upgrading their food safety and quality management systems to meet import market requirements 	<ul style="list-style-type: none"> • 2 marketing cooperatives making investment in joint post-harvest infrastructure (plum cold storage and drying facilities) • Pilot shipments to new markets underway (after participation at trade fairs in the Middle East)

TABLE 9: BERRY VALUE CHAIN

Activities	Results
Market Requirement/Critical Success Factor: Cost-competitive berries with good cosmetic appeal (large size, attractive coloring, absence of visual defects)	
<ul style="list-style-type: none"> • Supported the growers to lobby for the quick registration of pesticides and fertilizers already authorized in EU • Demonstration activities <ul style="list-style-type: none"> — Strawberries: high tunnel & ever-bearing varieties — Strawberries: Raised bed rows with mulch with drip irrigation — Raspberries: high tunnel — Blueberries: demonstration of technical and economic feasibility of the crop in Moldovan soil and climatic conditions • Best strawberry production and post-harvest handling practices and technologies described in details in 6 technical bulletins • Best blueberry production practices and technologies described in the Blueberry Production Guidelines developed by STTA Richard Dale • Organized the Winter School on strawberry production and a full series of training sessions on strawberry production and 	<ul style="list-style-type: none"> • Adoption by the Government of the simplified registration of fertilizers with “EC fertilizer” mark • Key technologies to increase berry quality and extend the harvesting season demonstrated in Moldovan conditions • Demonstrated technical feasibility of establishing blueberry plantations in Moldova • First 6 blueberry varieties included National Catalogue of Plant Varieties • 132 producers reported adoption of one or more improved practice or technique, including: <ul style="list-style-type: none"> — Soil mulching — Improved varieties — Using irrigation/fertigation systems — seedlings production technologies — Using raised-bed rows

- post-harvest handling
- Organized a full series of training sessions on raspberry production and PHH
- A total of 46 training events with participation of 340 growers
- Berry production and marketing study tours to UK, Ukraine, Bosnia and Herzegovina

FIGURE 24: TECHNIQUES AND PRACTICES ADOPTED ON THE BERRY VALUE CHAIN



**Market Requirement/Critical Success Factor:
Consolidated supply of fresh berries**

- Organization of growers for joint sales – a key objective of the international study tours
- Provided consultancy to strengthen Belii Most Association (Transnistria) and initiate joint sales of members’ production of fresh strawberries
- Encouraged ACED partners involved in the berry value chain to form a marketing association, and provided consultancy to strengthen “Pomusoarele Moldovei” Association
- Introduced Belii Most Association and “Pomusoarele Moldovei” Association to local retailers

- Belii Most Association established contractual relationships with Green Hills retail chain
- “Pomusoarele Moldovei” Association established contractual relationships with Fourchette retail chain

TABLE 10: HONEY VALUE CHAIN

Activities	Results
Market Requirement/Critical Success Factor: Cost-competitive honey complying with quality and food safety requirements of international markets	
<ul style="list-style-type: none"> • Organized international study tours to Ukraine, Serbia and Romania to learn new technical approaches (hive systems), and identify potential suppliers of production technologies and queen bees • Organized a training seminar by the leading Ukrainian honey production expert • Provided consultancy to develop a business plan for a Left Bank beekeeper to expand the number of hives and initiate honey processing 	<ul style="list-style-type: none"> • Identified key practices and technologies needed for cost-competitive honey complying with quality and food safety requirements of international markets • Pilot implementation of improved hive systems currently underway
Market Requirement/Critical Success Factor: Consolidated reliable supply of honey	
<ul style="list-style-type: none"> • Supported organization of country booths at the major trade fairs in the target markets with participation of largest Moldovan honey consolidators • Organization of beekeepers for joint honey processing and sales – a key objective of the international study tours • As part of ACED Joint Marketing Program, consultancy and training was offered to Calarasi and Straseni beekeepers to form a marketing cooperative • Linked Left Bank beekeepers with Right Bank colleagues and largest Moldovan honey consolidators 	<ul style="list-style-type: none"> • Now Left Bank beekeepers supply honey to Moldovan honey consolidators • Beekeepers from both Banks organizing themselves for joint procurement of key assets (queen bees from Ukraine) and joint participation at international honey fairs • Pilot shipments to new markets underway (after participation at trade fairs in Middle East)

VII. COORDINATION WITH OTHER DONORS

ACED collaborated and cooperated with other donors and projects intensively.

While the ACED contract was with USAID, MCC was a major donor and the ACED team placed a high priority on customer service for MCC. ACED and the MCC Compact teams collaborated throughout the project. This included regular meetings regarding monitoring and evaluation, impact evaluation, project evaluation, AAF coordination of TA to potential beneficiaries, ACED gender activities, the specialized CIS zone training plan, and marketing. On several occasions, representatives of both MCC and MCA attended trade fairs and international study tours organized by ACED.

In Year 4 of the project, the newly formed Romanian Official Development Assistance Program, affiliated with the Romanian Embassy, added \$80,000 in funds through USAID to ACED to assist the Costesti producer group with capacity building. This provided a win-win for all involved, because the U.S. Government was able to leverage funds spent on the project, the Romanian donor was able to obtain greater impact for the funds they had available, and the project was able to achieve bigger results thanks to these funds.

Following are the main coordination activities with other donors.

Donor Coordination Meetings

- The ACED COP and DCOP participated in the regular agricultural project donor coordination meetings. These meetings, held at various project offices in Chisinau on a rotating basis, have seen good participation from projects focused on agriculture and agribusiness. This is definitely a practice that should be continued under future projects to avoid duplication of efforts.

World Bank

- ACED liaised and cooperated with the World Bank's MAC-P project; and in particular ACED steered many of the producer groups it assisted toward the MAC-P project as applicants for their grant fund. ACED also hosted many World Bank consultant delegations at the ACED office for discussions and presentations on ACED. These meetings were mutually beneficial, because both parties learned from the discussions and information exchange that took place.
- ACED, AGROinform, and the World Bank Agricultural Competitiveness Project organized a roundtable on "Financing Opportunities for Post-Harvest Infrastructure Investments by Agricultural Producer Groups," with the participation of leading Moldovan banks, microfinance institutions, and IDSPs. This forum took place during the first quarter of 2013, and its purpose was to expose financial institutions to opportunities for loan products that will be created by the project.

IFAD

- The ACED VCSC provided TA in the area of financial planning and loan application development. This assistance included a number of clients that are applicants for financing from the IFAD financing program, as well as other donor programs (like the Millennium Compact's AAF).

UNDP Aid for Trade

- In February 2013, ACED, in collaboration with the UNDP Aid for Trade project, organized the first Moldova booth at the Fruit Logistica trade show in Berlin; and the event was judged a success by everyone who participated. The design of the booth, and the brochure that was prepared for the show, were jointly financed by ACED and the Aid for Trade project, and these items set the tone and style for all ACED international trade show exhibits.
- During the second quarter of Year 2, ACED also effectively collaborated with Aid for Trade to plan joint support for the Moldova Pavilion at the World Food Moscow show in September 2012. ACED and the UNDP jointly supported this major event to introduce the new slogan “Moldova: Taste Makes the Difference” to trade show visitors and the begin raising the image of Moldovan produce in that important market. This active cooperation continued in other areas (producer training, study tours, other trade shows) as the two projects sought to avoid duplication and make the best possible use of available development resources.
- ACED and Aid for Trade worked closely on Moldovan agribusinesses’ participation and marketing at regional trade shows in Year 3, including in the selection of participants, building of booths, editing and translation of marketing materials, and dividing of costs. Shows included the World Food Moscow and Fruit Logistica Berlin.

Monthly USAID COP Meetings

- The ACED COP periodically organized COP lunches to foster information-sharing and cooperation among the USAID- and other American-financed projects in Moldova. Jim Herne, Doina Nistor, Kelly Siebold, Fred Yeager, Scott Johnson, Evan Tracz, Ron Wolfson, and Gary Merkley are among the regulars who attended these lunches, usually the last week of the month.

Gates Foundation

- ACED presented technical materials and manuals that the Gates Foundation-funded Novateca program has been providing to the libraries throughout Moldova.

Europe-Based Colleagues

- EU Twinning Project: ACED and Twinning Project Manager Matt Brown discussed safety training related to pesticide use with the Twinning Project utilizing ACED’s Safe Pesticide Use Guide.
- On a regular basis, Andrea Chartock participated in donor coordination meetings organized by the EU delegation at the World Bank offices in Chisinau. These monthly meetings for all donor projects working in Transnistria shared information and lessons learned. In 2015, the Component 2 team leader made a presentation about USAID activities in the region followed by a Q&A session.
- During the first quarter of 2013, ACED developed a national Horticulture Development Plan for the Ministry of Agriculture. ACED staff heard that it was instrumental in the design of an upcoming EU project “Orchards of Moldova.”

In addition to these regular meetings, the COP, DCOP, and other technical staff held numerous meetings with other donors and projects over the course of the project. The ACED monthly and quarterly reports contain detailed listings of these meetings along with information on the topics discussed and actions taken.

VIII. CONCLUSIONS AND LESSONS

The hypothesis underlying the causal model created at the beginning of the project (see Section II) proved to be correct. This served as a robust foundation for designing and implementing activities. The project's systemic approach developed the capacity of actors within value chains to respond to end-market demand, leading to sustainable change at scale. The skills farmers learned through ACED allowed rural Moldovans to increase their incomes, create jobs, and remain in Moldova instead of emigrating in search of economic livelihoods.

The ACED project was highly successful due to a variety of reasons. Below are the most important ones:

Flexible Programming: As discussed above, there was a large external shock to Moldovan producers when the Russian ban hit in July 2014. ACED staff responded quickly, utilizing international marketing expertise to help reorient the private sector toward alternative marketing options like the Gulf, the EU, and North Africa. The flexibility and support offered by USAID made this possible.

The ***market-driven design and integrated approach*** of the project were both critical to success. Being market driven recognized that everything done within the Moldovan context needs to lead to improvements that enable the Moldovan HVA supply chain to meet end-market requirements. If so, producers make money, if not, they don't. While activities need to be based on end-market demand, there is no one activity that is more important than others, rather it was the integrated approach of tackling constraints and helping Moldovans to capitalize on market opportunities that led to successes such as \$32 million in sales facilitated and \$16 million in investments made by project beneficiaries.

A diverse but unified team: ACED had a skilled and motivated team with diverse backgrounds and opinions, with staff who were able to both challenge each other and work together, making the whole greater than the sum of its parts. This synergy occurred throughout the life of the project: from the value chain analysis to Gulfood 2016. Moreover, the USAID Contracting Officer's Representative was very knowledgeable, practical, and flexible, allowing the project to pursue good opportunities and veer away from ones that did not make sense; this greatly added to the potential and results of the project.

Continuous learning: The project management team sent the message to all staff that it is important to gather and analyze information on an on-going basis and to continually strive to optimize performance based on feedback loops, especially considering the dynamic nature of the HVA market. The causal model was re-examined and tweaked at yearly workplanning sessions. At weekly staff meetings and annual workplanning retreats the team had lively brainstorming sessions about how to maximize impact. After each international study tour staff participants presented the most important lessons learned and knowledge gathered abroad to the rest of the team. After delving into the extremely technical and complicated lab equipment procurement process, ACED staff learned that it would be more appropriate for the Moldovan Central Sanitary and Phytosanitary (SPS) Laboratory in Chisinau to receive international accreditation in the complex ISO 17025 standard than the ISO 9000 family of standards mandated by the ACED contract and the original RFP. After much hard work, this international accreditation was received by the laboratory in March 2016.

ACED's emphasis on "Seeing is Believing" to change entrenched mindsets. One of the biggest constraints in Moldova at the beginning of the project was an engrained mentality, such as thinking that exporting to Russia according to tradition is the best choice, and a strong mistrust of working together. ACED made important achievements in changing this producer mentality, so that Moldovans could

export shipments to 20 new markets over the life of the project. Despite a deep-rooted legacy of farmers not trusting each other and not wanting to work together, the situation is slowly beginning to change. The ACED team worked tirelessly to build Moldovan ability to work together and capitalize on opportunities through training, market linkages, TA, demonstration activities, international study tours, and new networks. The results of the new cooperatives like Costesti and Basan Agro will serve as a model for others, as will successful exports to new markets like Egypt, Romania, and Bangladesh.

Emphasis on building local capacity: When local capacity is built, results are sustainable. For this reason, the ACED approach focused heavily on building the capacity of industry associations, and this was highly successful. As an example, instead of doing work for Moldova Fruct, ACED trained them on how to organize a trade fair, providing a declining subsidy and a more substantial role for them and their members. As a result, in the fall of 2015, Moldova Fruct organized a major international booth on their own under the “Moldova: Taste Makes the Difference” brand. As another example, APESM is now in the process of finalizing receipt of a grant from the Romanian Official Development Assistance Program to carry out a pilot in table grapes micro-propagation for nurseries, as well as establishing a demonstration in pergola vine training, both ideas developed in partnership with ACED staff. Because of the increased local capacity of our key partners, the work started under ACED is reinforced and achieves even more impact after the end of the project.

In summary, the value chain approach was successful because ACED was able to tackle constraints from the field all the way to the supermarket shelves, and the private sector had interest in alleviating those constraints in order to increase revenue, so they were enthusiastic participants. The results achieved will continue to bear fruit for many years into the future.

ANNEX A: LIST OF INTERNATIONAL STUDY TOURS OVER THE LIFE OF THE PROJECT

A full list of international study tours over the life of the project is below.

International Study Tour Destination	Study Tour Topic	Month, Year
Bosnia and Herzegovina	Modern Sweet Cherry and Berry Production Approaches and Technologies	May-13
Germany	Advanced Technologies in Plum Production	September-14
Great Britain	Modern Technologies in Greenhouse Strawberry Production	September-14
Hungary, Germany	Advanced Technologies In Cabbage And Cucumber Production For Processing Purposes	July-15
Italy	Advanced Apple Production & Post Harvesting Technologies and Infrastructure	October-13
Italy	Advanced Apple Production & Post harvesting Technologies and Infrastructure. Participation at INTERPOMA 2012	November-12
Italy	Advanced Peach Production & Post harvesting Technologies	July-13
Italy	CIS - Irrigation in HVA Agriculture - Approaches and Technologies	June-15
Italy	Cooperation in Joint Marketing and Sales in the Italian Table Grape Value Chain	July-12
Italy	Cooperative Marketing Development	March-14
Italy	Modern Sweet Cherry Production Approaches and Technologies	May-12
Italy	Table Grape Production and Post-Harvest Technologies and Infrastructure	July-15
Netherlands	Fruit Seedling Production Technologies and Infrastructure	May-14
Poland	Cooperative Marketing Development	February-14
Poland	Modern Technologies in Apple Production and Post-Harvest Handling	January-13
Poland	WAN: Fruit and Berry Production	July-15
Romania	Advanced technologies on Vegetable Production in Greenhouses	June-15
Romania	CIS - Irrigation in Agriculture - Modern Technologies and Practices	May-15
Romania	Hydroponic Vegetable Production	August-13
Romania (Galați, Tecuci, Constanța)	WAN: Vegetable and Aromatic Plants Production	June-15
Serbia	Beekeeping – Approaches, Production, Technologies, Equipment and Processing	July-14
Serbia	Cross-Bank Study Tour for Vegetable Producers Interested in Cooperative Marketing Development	November-13
Serbia	Modern Plum Production Approaches and Technologies	August-13

International Study Tour Destination	Study Tour Topic	Month, Year
Spain	Modern Table Grapes Production Approaches and Technologies	July-13
Turkey	Advanced Technologies in Sweet Cherry Production	May-15
Turkey	Advanced Technologies in Tomato Production And Post-harvesting	October-14
Turkey	Cold Chain Study Tour	March-12
Ukraine, Cahovca	Advanced Technologies for Vegetable Production	August-13
Ukraine, Nemirov	International Workshop on Modern Apple Growing and PHH Technologies	August-13
Ukraine, Simferopol	New Varieties and Advanced Table Grapes Production, Harvesting and Post-Harvesting	August-13
Ukraine, Umani	Modern Technologies in Pomiculture	April-13
Ukraine, Zarechye	Early Cabbage Production and Post-Harvest Handling	April-13
Ukraine	Beekeeping and Honey Production/Processing	September-15
Ukraine, Kahovka	Intensive Technologies in Growing Vegetables of Rijk Zwaan Variety	August-12
Ukraine, Kiev	Modern Practices in Vegetable Production	July-15
Ukraine, Nicolaev	Berries of Ukraine	May-13
Ukraine, Umani	Super-intensive Technologies in Horticulture	May-12
Ukraine, Zarechie	Early Cabbage Production	April-14
Ungheni, Manoilești/Hristoforovca	CIS - Vegetable and Ever-Bearing Strawberry Production	August-15
Ukraine, Vynnitsia	WAN: Modern Techniques for Growing Strawberries, Raspberries	June-15

ANNEX B: LIST AND LOCATIONS OF DEMONSTRATION ACTIVITIES

As of January 21, 2016, FF= Family Farm

#	Partner Name	Description of Demonstration Activity	Location
1	Famir-Com Ltd	Forced-air Cooling Technology	Manta, Cahul
2	Norton Ltd	Combined Use of Forced-Air Cooling And Box Liners With SO ₂ -Generating Pads To Improve Quality and Shelf-Life of Stored Table Grapes	Stauceni, Chisinau
3	Novac Andrei FF	Improved Greenhouse Design With Ventilation and Shade Covers	Dubasarii Vechi, Criuleni
4	Gonciaruc Serghei FF	Improved Greenhouse Design with Ventilation	Speia, Anenii Noi
5	Burlacu Andrei Ion	Improved Greenhouse Design	Pirita, Dubasari
6	Onofrei Vera Ion FF	Improved Greenhouse Design	Taxobeni, Falesti
7	Nicoara Nicolae Nicolae FF	Cover Film (mulch) with Fertigation in Tomato production	Puhaceni, Anenii Noi
8	Bejan FF	Energy Conservation Technique (Double Layer Plastic Greenhouse Cover)	Puhaceni, Anenii Noi
9	Bazi Valeriu FF	Energy Conservation Technique (Double Layer Plastic Greenhouse Cover)	Singerei Noi, Singerei
10	Burlac Ion FF	Cover Film (Mulch) with Irrigation in Tomato production	Pirita, Dubasari
11	Fuio Grigori FF	Cover Film (Mulch) with Irrigation in Tomato production	Taxobeni, Falesti
12	Agrodenidan Ltd	Using Frostbuster Technology for Frost Protection in Apple Production	Cotuijeni, Briceni
13	Domulterra Ltd	Using Weather Station and New Cultivars in an Apple Orchard	Domulgeni, Floresti
14	Belii Most	Strawberry Growing on Row Beds Using Mulch	Chitcani
15	Agrostar Ltd	Using Forced-air Precooling System For Stone Fruits	Pervomaisk, Transnistria
16	Codjebaş Svetlana FF	Implementing Girdling and Calcium Treatment (Ca) To Increase Berry Quality	Vulcanesti
17	Aidin	Use of Harvesting Bags in Peach Production	Comrat district
18	Vrabii Il	Use of Plastic Buckets for Plums Harvesting	Edinet raion
19	Pelinița Loghin FF	Implementing Antihail System by Covering the Grapes With Net	Pelinei, Cahul
20	Tridenal Ltd	Using Support System, New Cultivars and Type of Canopy for Sweet Cherry Orchard	Criuleni
21	Terravitis Ltd	Using Fertilization and Gable Vine Formation in a Table Grape Vineyard	Burlacu, Cahul
22	Amonti Agro Ltd	Use of Plastic Buckets for Sweet Cherry Harvesting	Năvârneț, Fălești
23	Plaiul Birladean Ltd	Modern Post-Harvest Technologies For Apple Grading And Outbound Logistics	Birladeni, Ocnita

24	Fics Ltd	Improved Greenhouse Design With Micro-Sprinkler Irrigation	Ternovca, Transnistria
25	Farm-Prod Ltd	Cold-Wall Forced-Air Cooling Technology For Sweet Cherries	Olanești, Ștefan-Vodă
26	Alimarix-Dani SRL	Open Field Production of Cucumbers Using a Net Support System	Singerei Noi, Singerei
27	Fruct-Export-Inter LTD	Using Controlled Irrigation System and Open “V” Gable Vine Formation on Table Grapes Vineyard with Anti-hail protective system	Ermoclia, Ștefan Voda
28	Perdivar Ghenadie FF	Use of Artificial LED Lightening (Spectrum Red/Blue) on Cucumber Seedling Production	Gura Bicului, Anenii Noi
29	Agrostil LTD	Using Weather Station and Chemical Thinning in an Apple Orchard	Parcani, Transnistria
30	Livada Servis Ltd	Weather Station, Calcium Treatment and Reflective Covers	Camenca, Transnistria
31	Calvil Ltd	Weather Station and Drip Irrigation	Cioburciu, Transnistria
32	Gangan Pavel	Technologies of High Tunnel Strawberry Growing	Chitcani, Transnistria
33	EvroRostAgro Ltd	Implementing Anti-Hail System By Covering Intensive Apple Orchard With Net	Tiraspol, Transnistria
34	StandartVinPlus Ltd	Using Reflective Films and Chemical Thinning in Apple Orchard	Jora de Mijloc, Orhei
35	Melnic Ioana Feodor FF	Using Mechanical Planting Machinery in a Fruit Nursery	Jora de Mijloc, Orhei
36	Vin Nobil FF	Using Weather Station and Manual Thinning of Clusters in Table Grapes Vineyards	Colibasi, Cahul
37	Davidescu Adrian Vladimir FF	Sweet Cherry Sorting And Packing For Export Markets	Cretoaia village, Anenii-Noi
38	Scutaru Victor FF	Using Platform, Mechanical Pruning and New Cultivars in Apple Superintensive Orchard	Edinet raion
39	Cernei Carolina Petru FF	Strawberry Production Technologies: Row Beds Formation and Mulch, Seasonal and Remontant Varieties	Ungheni region
40	Cucu Ghenadie Alexei FF	Using Drip Irrigation In Fruit Seedling Production (Nursery)	Lopatna, Orhei
41	Lolly-Berry LLC	Blueberry Plantation	Dolna, Straseni
42	The Technical University of Moldova (TUM)	Establishment of a Fresh Produce Postharvest Biology and Technology Laboratory at TUM Department of Food Technology	Chisinau
43	Transnistrian Agricultural Research Institute	Construction of Greenhouses For Cucumber Production in the 2nd Cycle	Tiraspol, Transnistria
44	Calvil Ltd	Technologies of High Tunnel Raspberry Growing	Ciobrucci, Slobozia
45	Rovnaia Liudmila Nicolaevna FF	Cold Storage Use for Apples on a Medium Sized Farm	Karmanovo, Grigoriopol

ANNEX C: ACED MOLDOVA PUBLICATIONS LIST

ACED PROJECT BROCHURES AND BULLETINS

 ACED Moldova - Fresh Produce Brochure - Aug 2013 {Eng}	01.08.2013 15:22	Adobe Acr...	34.040 KB
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ACED MANUALS & GUIDES

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ACED TECHNICAL BULLETINS

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ANNEX D: SUMMARY REPORT FOR YEAR 5 BY ACTIVITY

COMPONENT I: GROWING MOLDOVAN HVA SALES AND EXPORTS

Component 1 is also called the Transition to High Value Agriculture Project by MCC, it is the HVA work that takes place on Moldova's Right Bank. This Component provides market development support, TA and training to help Moldovan producers and agribusinesses leverage Moldova's comparative advantage in HVA production, and to overcome fundamental constraints and obstacles they face in meeting buyer expectations and attracting private sector investment.

Activity I.1: Develop and Expand Market Opportunities

During the month of April the ACED Marketing Team visited Mumbai, India to gather additional information on the Indian market requirements and to visit traders who previously expressed at various trade shows a strong interest in importing apples into India. In addition to the commercial side, the team needed clarification as to what administrative documents are required to set up a bi-lateral commercial agreement between Moldova and India. The intention was to get all of the necessary documents signed before, or shortly after, the new harvest begins in order to set up India as a viable export market for Moldova in 2015 and 2016. On the commercial side the team visited traders such as IG International, Yuppa Group, and Yoshi Produce Market as well as to the Federation of Indian Export Organizations (FIEO). With 1.2 billion people, India is a tremendous market and that is continuing to grow. The first imports into India took place in 1999 and currently 10 million boxes of fruit and vegetables are imported per year into India, a number that will continue to increase.

During the quarter the Marketing Team confirmed the international trade shows that the project will participate in, along with corresponding booth sizes and related arrangements. The team will target **World Food Istanbul** from Sept 3rd to the 5th; the **World of Perishables show in Dubai** October 5th to the 7th; the **Anuga 2015** show in Koln Germany between the 10th and the 14th of October; the Indagra show on the 27th of October; and **Gulfood Dubai** in February of 2016.



Peter White meeting with the Chairman of Yoshi Produce Market in Mumbai



Gulfood Dubai

During the quarter the ACED Marketing Team, along with Moldova Fruct staff, hosted a two-and-a-half day Inward Buyer Visit from Mr. Hannes Lintner, a representative of FRUITSERVICE LLC that is one of the primary suppliers of fresh produce to the Lidl supermarket chain. The Lidl chain has over 10,000 supermarkets throughout Europe, and FRUITSERVICE LLC is considering Moldova as a potential supply country for fresh fruit and vegetables for all 200 Lidl supermarkets in Romania and all 72 Lidl supermarkets in Bulgaria. The scope of Mr. Lintner’s visit was to assess the quality and quantity of the products that Moldova could supply. He was impressed with what he saw, pointing out such advantages as simplified logistics considering the proximity of Moldova to Romania and Bulgaria, and producers larger in size than those in other countries that he recently visited.



Cheribundi (www.Cheribundi.com)

The Marketing Team met with Steve Pear, CEO of Cheribundi, and Vadim Zverev, representative of venture capital investment company Emil Capital Partners, who are interested in importing frozen sweet and tart cherries from Moldova for their juice and drink products marketed under the Cheribundi brand. Presently Cheribundi purchase more than 85% of their cherries from New York and Michigan with the rest imported from Poland. The ACED team spent two days with these two American representatives and visited Rustas in Transnistria, Cojocaru in Criuleni, and Alfa Nistru in Sorooca, with each operation exhibiting positive qualities that interested the representatives.

During the course of the quarter the Marketing Team held a number of meetings with the Linella supermarket chain regarding how ACED can help further improve Linella’s produce department; increase their range of locally procured items; and minimize import substitution. The team held preliminary meetings with Mr. Cristian Morath, the CEO of Linella, both to identify his overall strategy and the level of commitment to implement local supply contracts, and to drive the message of “Made in Moldova” to the consumer base. Linella is now a chain with clear direction from the top that supports locally grown products with a definite sense of urgency that is congruent with our strategy for the balance of the ACED program.



Moldova country booth at World Food Istanbul

The **World Food Istanbul** show took place September 3–6. Moldova featured a country booth of 36m² (see picture at the right) with podiums for the individual producers or associations, which provided each of them with brand distinction while projecting a single collective country image. Participating producers included Oleg Cojuhari of Orhei Vit; Vitalie Druta (hazelnuts); Condratiuc (honey); and Mr. Matchovski (apples). Iurie Fala represented the Moldova Fruct association and Sergui Zabolotni represented the Table Grape association. In addition Maxim Popov represented GIZ; Aliona represented Dalser Logsitic; and the traders Elite Fruct and Mialex Nord participated.

During the quarter the Marketing Team was very focused on arranging two shows that will take place in October: the World of Perishables (WOP) show in Dubai (Oct. 5th – 7th), and the Anuga show in Cologne (October 10–14). Anuga is a huge international show that has been viewed as a “must

participate” by the processor community, and this is the first year Moldova showcased their products in this venue.

During the quarter the Marketing Team made good progress with Linella in setting strategic objectives for the next six months. In the short term Linella will focus on enhancing the image of their produce sections while promoting locally grown fruit and vegetables featuring local producers. Over the long term Linella wants to improve their distribution cold chain and to differentiate themselves from the open markets by promoting their quality assurance as well as their overall shopping experience, giving the customer greater confidence compared to the open market.

Lilian Cipciriuc from the Marketing Team presented a seminar targeted at a group of women from rural Causeni that also included speakers from Linella and Politrans. Linella introduced its requirements for the delivery of fresh produce to their retail stores and Politrans outlined the various requirements relative to fresh produce export regulations. ACED updated the participants on key elements relative to external markets such as product requirements, certification requirements, competition, packaging, price points, and other general information that is imperative before considering new market entry.



ACED staff members Veronica Vladiuc and Peter White with Vadim Codreanu from Moldova Fruit in the booth at the WOP show

Collaboration with the Linella supermarket chain has continued this quarter, and ACED organized a series of individual meetings between Linella and producers to have an impact on expanding the supplier base for Linella.

Between October 5 and 7 the ACED marketing team, accompanied by a group of fruit producers and food processors, participated in a Moldova exhibit as part of the annual World of Perishables (WOP) trade show in Dubai. The Moldova booth was a standard booth with 39m² that had individual podiums providing privacy and distinction to each of the participants. The booth included three apple producers, two traders and the Table Grape Association (Mr. Gaberi) along with the ACED Marketing Team. ACED developed new leads from the Emirates, Saudi Arabia, Qatar, Jordan and other Gulf countries; one producer is close to concluding a commercial sale for table grapes to Dubai. Al Maya, a major local retail chain, continues to claim they want Moldovan apples in their stores and are still pushing for this to happen in the near future.



Adrain Cojocaru (second from left) and Peter White (left) of the ACED marketing team speaking with visitors to the booth at the ANUGA trade show

Between October 10 and 14, the ACED Marketing Team, accompanied by a group of fruit producers, food processors, and trade associations, participated in a Moldova exhibit as part of the ANUGA trade show in Cologne, Germany. There were a total of eight producers at the show who were showing various products, including apples, table grapes, dried fruit, nuts, honey, canned/jarred vegetables, juices, “palinka”, and packaged chocolate products with fruit. Representatives from Moldova Fruit (Iurie Fala) as well as the entire ACED Marketing Team of Lilian Cipciriuc, Veronica Vladiuc, Adrain Cojocaru, and Peter White joined the producers at the show. The honey, dried fruit, and nut producers were quite busy at the show with very strong

commercial activity. The interest in the processed juices and the canned vegetables was solid, with new customers being secured from Switzerland and several other countries within Europe. In summation ACED believes that the Anuga trade show is a show that Moldova must participate in every year.

During the course of the quarter ACED conducted a number of tests with producers in order to determine the best apple boxes to ship to new external markets. Producers must take into consideration the convoluted factors such as box weight, fruit count in the box, apple densities that vary by variety, and compartmentalized cells within the shipping boxes that protect the fruit over time and distance. This extensive process requires further testing in the future.

On December 2 and 3, Moldova Fruct, with assistance from the ACED project, organized a national forum on fruit production to present the latest developments in fruit (mainly apples) production technologies. Moldova Fruct invited a number of key international speakers to discuss a variety of topics such as plant protection, cold storage and growth regulators, and retail requirements for fresh fruit. ACED covered the cost of bringing these consultants to Moldova. The participants made a visit to the new 50 hectare high-intensity apple orchard owned by Eugenia Velicescu. Some participants commented that the presentations should have been more in-depth, but participants in general commented that this type of event should take place at least once a year.

On December 8,, Peter White and Lilian Cipciriuc of ACED participated in a brief meeting at the Ministry of Agriculture. White and Cipciriuc met with Vlad Loghin and Sergiu Tirigan from the marketing department as well as Riva Ganjuly Das, the newly appointed Indian Ambassador to Moldova who is based in Romania, and Ravi Chandar, First Secretary from the Embassy. The participants reviewed the history of what has already been done relative to the Indian Pest Risk Analysis. This is part of the joint ACED - GoM efforts to open up the Indian market and to get all of the necessary certifications in place to start commercial transactions in the fall of 2016. India has expressed a strong interest in Moldovan apples as well as some interest in grapes. The Moldovan side diplomatically explained our level of frustration as to why things have not moved to the next level, considering that the necessary paperwork has already been compiled and sent to the necessary agencies in India.

On February 21 to 25, 2016, ACED participated in the GulFood show in Dubai. Four members of the ACED Marketing Team were present. Moldova had an attractive customized booth of 57 sq. mtrs that provided the 10 producers/traders the common platform to conduct business under the umbrella of the Country pavilion Moldova featuring the "Taste makes the difference" slogan. Companies such as Orhei Vit, Franzuleta, Natur Bravo, and Monicol participated along with other smaller companies representing HVA packaged goods. Because GulFood this year emphasized the processed side of the business, the Moldova booth featured fresh produce and products including apples and table grapes. The show was well attended but the traffic was a bit down; some said this was due to the GF taking place closer to Ramadan this year. However all the producers were pleased with the results of the show, with a couple of these producer/traders experiencing a trade show of this magnitude for the first time, and sales should increase from the good contacts made. Even though the focus was on processed goods, the fresh apples and grapes were very well received. The Marketing Team strongly believes that booth visitors walked away thinking that the future potential for Moldovan fresh products is substantial, at least for those who have the desire and the will to diversify.

Activity 1.2: Upgrade Production to Meet Buyer Requirements

For Year Five, the ACED Training Team Training developed and explained the modules for the main HVA value chains that the Team assisted during the year, including apples, table grapes, sweet cherries, plums, peaches, tomatoes, and cucumbers. During this year more than 1,200 new Moldovan farmers were trained, with 1,106 reporting the adoption of new techniques or practices and with over 2,000 additional hectares of farmland being farmed with improved technologies or management.

Apples Value Chain Activities

During Year Five the ACED Training Team provided training sessions to the Apple Value Chain in four separate communities. Local national consultants engaged by the ACED project presented the training to a total of 248 apple farmers, with topics including:

- Setting up an apple orchard and winter preparation.
- Peculiarities of pruning on apple trees for 2016 season.
- Increasing apple fruits' quality by means of chemical thinning.
- Thinning of flowers/fruits and other technological aspects for qualitative fruits.
- Apple cultivar and harvesting and PHH.

Of the new farmers trained a total of 499 were women, with more than 440 reportedly adopting new techniques or practices.

ACED organized a total of seventeen Farmer Field Days at ACED demo activity sites for more than 433 individual apple producers, covering the following topics:

- Peculiarities of pruning on apple trees for 2016 season.
- New apple varieties, harvesting, and post-harvesting handling.
- White reflective film's role in improving the apple coloring.
- Mechanical planting of seedling material in fruit nursery.
- Manual and mechanized pruning on apple trees.
- Post-harvesting and storage specifics for apples.
- Harvesting techniques and quality parameters for apples.
- Using the weather station in determining the IPM optimal timing for apple orchards.
- The usage of FrostBuster and weather stations in apple orchards.
- Apple tree pruning in intensive orchards.

The ACED Training team also organized two Farmer Field Days as part of Apple Value Chain for 36 tree seedling producers from the Orhei district. The trainers covering topics such as feathered method of apple seedling material used in the fruit nursery and tree removal and seasonal works in the nursery.

During this period ACED hosted Dr. Michael Parker, an SITTA from the United States, who visited and provided consultation on diverse aspects of apple production. At the end of the assignment Dr. Parker delivered a seminar on apple fertilization for 16 apple producers.



STTA Michael Parker offering in field consultancy for apple producers

In addition to the training events the Training Team produced and published six issues of the Apple Technical Bulletin that were distributed by mail to more than 500 apple growers around Moldova. These bulletins covered topics such as:

- Chemical thinning in apple orchards.
- Preventing fruit dropping.
- Intensifying apple colors with reflective film.
- Pre-harvest operations in apple orchards.
- The use of harvesting platforms.
- Preparations in apple orchards for wintering.
- Occasional diseases in apple orchards.
- Tree pruning.
- Harvest and market prognosis for the 2015 apple production season.

Sweet Cherries Value Chain Activities

Because farmers have expressed increased interest in the sweet cherry value chain, national and international consultants delivered training events on sweet cherries to a total of 126 individual participants in two separate communities this year, including:

- Green operations, IPM, and anti-hail/anti-rain system in cherry orchards.
- Setting up a new sweet cherry orchard and winter preparation.
- IPM in cherry orchards.
- Green operations and anti-hail/anti-rain system in cherry orchards.
- New sweet cherry varieties and harvesting and PHH process, pre-cooling technologies.
- Setting up new sweet cherry orchards and winter preparation.

For the Cherry Value Chain, ACED also organized two Farmer Field Days for more than 51 individual sweet cherry producers that were held at the demo activity sites that ACED established, including:

- Green operations and anti-hail/anti-rain system in cherry orchards.

- New sweet cherry varieties and harvesting & PHH process, pre-cooling technologies.

The training team considers this year's highlight for the Cherry Value Chain to be the study tour on advanced technologies in sweet cherry production, which was organized by the training team in Turkey for 13 cherry producers and national consultants. The group attended a seminar that covered the important components of cherry production and visited several cherry orchards using traditional and modern management techniques. The group also visited the biggest packing house in Turkey that is owned by Alara Co. as well as some smaller houses.



Group of Moldovan cherry producers at Alara LLC packing facilities in Turkey

This year ACED hosted Lynn Long, an STTA from the United States, who delivered a Training-of-Trainers (ToT) training event to more than 45 local national consultants and Moldovan cherry growers. A private cherry farmer from Oregon travelled to Moldova at his own expense to assist Lynn with this event, sharing his knowledge and expertise in cherry production with the Moldovan producers and consultants.



Lynn Long offering consultancy in the field on cheery trees canopy formation at Tridinal LLC in Criuleni

Plums Value Chain Activities

ACED organized training sessions for 91 plum producers in five communities, with local and national consultants delivering training on:

- Setting up new plum orchard and winter preparation.
- New plum varieties.
- Plum harvesting and storage.

The ACED Training Team also organized an event in the town of Nisporeni entitled “Forum of Plum Producers and Processors” that was attended by 60 participants including plum producers, processors, consultants, input suppliers, researchers, and MAIA representatives. A group of 10 plum producers/processors from Transnistria also attended the event.



Participants at the Regional Forum of Plum Producers and Processors

Peach Value Chain Activities

The Training Team implemented training events to a total audience of 148 participants in four separate communities. Local national consultants delivered training on the following topics:

- Green operations and manual thinning in peach orchards.
- Peach harvesting and pre-cooling.
- New peach varieties.
- Setting up a peach orchard and winter preparation.
- Peach harvesting and pre-cooling.
- New peach varieties.

During this year, ACED hosted Pavel Voracek, an Apricot STTA from Czech Republic. Pavel visited and provided on-site consultancy for 10 apricot producers throughout the country, and also delivered a ToT training for 19 participants.



Pavel Voracek delivering in-field consultancy for apricot producers

Table Grape Value Chain Activities

The ACED Training Team hired local national consultants to deliver table grape value chain training activities to a total audience of 276 participants in four separate communities around Moldova, including:

- Table grapes crop quality management.
- Green operations in table grapes vineyards.
- New table grapes varieties.
- Quality standards and harvesting specifics for table grapes.

- Harvesting and post-harvesting techniques for table grapes.
- Setting up new table grapes plantations.

The team also organized two Farmer Field Days at the table grape demo activity sites for 47 Moldovan table grape producers from Stefan Voda district. Training included:

- Table grapes crop quality management and drip irrigation system.
- Harvesting and post-harvesting techniques for table grapes.
- New varieties of table grapes.

Vegetable Value Chain Activities

During Year Five, the ACED Training Team provided training events on tomato and cucumber production and on post-harvest handling to 368 participants in five separate communities, including:

- Tomato production in 1st cycle;
- Tomato fertilization and IPM;
- Greenhouse construction specifics for the Republic of Moldova;
- IPM and support systems in cucumber production;
- Quality requirements for fresh and to-be-processed cucumbers;
- Cucumber production in greenhouse;
- Cucumber production in open field.

ACED also organized Five Farmer Field Days at the vegetable demo activity sites for nearly 116 Moldovan vegetable producers, including:

- The use of LED lighting (red/blue light-emitting diodes) in cucumber seedling production
- Greenhouse construction with improved design

The Vegetable Value Chain team considers this quarter's highlight to be the study tour on advanced technologies in cabbage and cucumber production for processing. The team organized this tour in Hungary and Germany for 16 cucumber producers, processors and national consultants during the 1st and the 8th of July, which was organized in partnership with Irrigata Crops Service Ltd., the representative company for Rijk Zwaan in Moldova. The Moldovan vegetable growers in attendance gained increased knowledge on new innovations in cucumber and gherkin production and processing, including new hybrids, irrigation equipment, harvesting equipment and processing technologies, packaging, and marketing.



Moldova delegation observing sowing machine during the visit at a cucumber production company in Germany

Another highlight of the year for the team was a study tour on modern practices in vegetable production that was organized for 17 vegetable producers and national consultants between July 14th -16th in Kiev, Ukraine. The event was organized in partnership with Irrigata Crops Service Ltd., the representative company for Rijk Zwaan in Moldova. During the event participating vegetable growers from Moldova gained knowledge on new innovations in vegetable production such as new hybrids, irrigation equipment, and greenhouse design.



Vegetable producers visiting experimental greenhouse of Rijk Zwaan company in Kiev, Ukraine

Another highlight of this year was a study tour on advanced technologies in vegetable production in greenhouses in Romania, which was given to 17 producers and national consultants during June 21st-23rd.

The participating vegetable growers from Moldova gained knowledge regarding new innovations in vegetable production including new hybrids, irrigation equipment, and greenhouse design.

On June 26th the team organized a regional forum in Cahul town for 60 vegetable producers from around Moldova. The agenda included:

- Main interventions of ACED and new innovations implemented in the sector with support of ACED;
- New varieties of vegetables especially cucumbers and tomatoes;
- Advanced production technologies used in vegetable production;
- Innovations implemented in vegetable production with ACED support.

Producers then visited two companies in the region that are testing new varieties of tomatoes under the supervision of Irrigata Crops LLC and Vadalex LLC.



Participants of the Forum during the visit of the Greenhouses at FF Valeriu Tabuncic in Cahul

During the reporting period the team reprinted and distributed to vegetable producers twelve issues of the Tomato Technical Bulletin and six issues of the Cucumber Technical Bulletin.

Berry Value Chain Activities

The ACED Training team organized two Farmer Field Days at the demo activities set up in Hristoforofca village on the following topics:

- Modern strawberry production and IPM methods;
- Strawberry harvesting and post-harvest handling.

Activity 1.3: Upgrade the Moldovan HVA Value Chain in Year 5

Develop the Value Chain Support Center

ACED has developed and implemented a virtual Value Chain Support Center (VCSC) that provided TA for producers, producer groups, and agribusinesses ready to expand and develop new and existing businesses in the HVA sector. The virtual VCSC targets those who require specific services and

interventions beyond the scope of training and TA provided under Activity 1.2. The VCSC provided a cost-share for consulting assignments to support initiatives that are within the strategic interest of ACED target value chains.

During this reporting year, VCSC supported development of business plans for four value chain entities, all being eligible for MCA AAF financing:

- Plaiul Birladean Ltd (procurement of an apple grading and packing line);
- TG-Forest Ltd (finalization of a cold storage for table grapes in Ialoveni district);
- Lidia Musteata FF (construction of a cold storage for apples in Causeni district);
- Vladimir Popovici FF (finalization of a cold storage for apples in Donduseni district).

For the 2015 production season, the VCSC has signed MOUs with two groups of Moldova-Fruct members that have agreed to cost-share a series of short consultant assignments that took place throughout the production season. The assignments were international fruit production advisors from the foreign companies Avenir-Qualite (France) and Griba (Italy). Key topics covered during assignments included flower & fruit thinning strategies to achieve target fruit sizing and improved fruit appearance, irrigation management, and foliar calcium applications to improve fruit shelf-life. Despite the 30% drop in the total Moldovan apple harvest for 2015, the orchards participating in this program have done much better, with yields being comparable with last year's results.



Results of the Avenir-Qualite TA being presented to more than 40 apple growers during a seminar in September 2015 hosted by ACED client Darurile Basarabiei

A similar MOU was signed by VCSC with the Moldova-Fruct Association itself regarding the organization of a series of training sessions led by leading European experts. Onno Schaap from the consulting firm Aquagri (from Portugal) conducted a series of seminars on irrigation management for fruit orchards. Alessio Zanassi from L.Gobby (Italy) conducted thinning and calcium nutrition seminars, and Marc Trapman from RIMpro (Netherlands) delivered a seminar entitled “Decision Support Systems for Crop Protection”. More than 45 growers paid a fee of 500 Lei to Moldova-Fruct to assist with covering its cost-share for the assignment. These seminars are one example of potential activities that the association can produce to strengthen their institutional sustainability.

In October 2015 Orhei-Vit SA successfully passed the international certification audit for its compliance with the IFS Food standard. Since April 2015, an ACED-contracted local national consultant supported this leading fruit and vegetable processor to upgrade their food safety and quality management systems. The IFS certification is a major milestone for Orhei-Vit's international marketing strategy and plans to enter new markets through retail food products.

During the reporting period, Activity 1.3 and the ACED Food Safety and Quality Consultant provided support for the implementation of Codex-based food safety and quality management systems at a series of producer groups which are cooperating with the ACED project (FructBioImpex, Comfructfres, Stinca-Grup and Basan-Agro) and AAF loan recipients (Plaiul Birladean and Popovici Vladimir GT).

During Year Five, ACED continued to maintain the VCSC website which is known as AgroConect, which includes the profiles of the qualified service and technology suppliers, a description of the services and goods they offer, contact information, and articles on how their services and technologies could be implemented to increase the competitiveness of the Moldovan HVA sector. As result of an open tender for the takeover of AgroConect organized in February 2016, ACED passed the website to Artaria Studio, which committed to maintain and further develop the website.

Improve HVA Financing, Especially Through the AAF Program

Three business plans developed with VCSC assistance (for Plaiul Birladean Ltd, Vladimir Popovici FF, and AMV-Grape Ltd) were approved by the banks applied to and long-term loans have been awarded to these companies under the terms of the MCC Access to Agricultural Finance (AAF) program.

Six producer groups created or strengthened through the ACED Joint Marketing Program during previous years of the project were approved for grant financing by the Moldova Agriculture Competitiveness Project (MAC-P) financed by the World Bank, and they have secured their own resources and obtained bank loans to finance their required matching contribution for the investment budget totaling 2 million USD. Fruva Natural Coop and Fructbioimpex Coop have already commissioned their new packinghouses with cold storage rooms, while the other four expect to finish their construction projects by mid-2016.

Demonstrate Critical Value Chain Investments

The Davidescu Andrian FF successfully installed a sweet cherry hydro-cooler and a sorting line as part of the “Sweet Cherry Sorting and Packing for Export Markets” demonstration implemented by ACED in partnership with this MCC CIS zone grower. This equipment was demonstrated for other Moldovan sweet cherry growers during a field day that took place at the end of June. The event was hosted by Agrovit-Exim, a cold storage facility in the area which was financed by an AAF loan.

On October 19th ACED and its partners - the Technical University of Moldova and the Moldova-Fruit Association - organized the inauguration ceremony for the Fresh Produce Post-Harvest Biology and Technology Laboratory. This event marked the opening of this new HVA technology lab that has received a total of about \$90,000 in cold storage and laboratory equipment from the ACED project. The laboratory will now be able to undertake testing and experimentation activities on fresh fruit to provide



Adrian Davidescu in front of the hydro-cooler with a picking basket for the cherries



Jonathan Katz (right) cutting the ribbon at the event with the Rector of the Technical University and the President of Moldova Fruct

guidance on the best methods for storage and preservation to Moldovan farmers. The event was attended by Mr. Jonathan Katz, Deputy Assistant Administrator at USAID Washington for the E&E Bureau, Mr. Thomas Rhodes, Acting USAID Moldova Mission Director, and Rodica Miron, ACED's Contracting Officer's Representative at the USAID Mission.

The first Farmer Field Day at the "Blueberry Production" demonstration at Lolly Berry farm was held on May 14th and was attended by more than 65 participants, more than double what was expected. National consultant Parascovia Sava, and Iurii Tarai from Lolly-Berry, shared their experience in piloting this crop which is in high demand on world markets, and they provided detailed recommendations for other growers intending to follow Lolly-Berry's example. The national press covered the event and it was featured in the monthly MCC Compact Newsletter. Due to high interest in learning more about blueberry production, in Year 5 ACED organized another three visits of group of farmers to the Lolly Berry blueberry field.

Association and Collaboration among Value Chain Entities

Three young growers, nominated by USAID and ACED (Baban Marin, Balan Maxim and Viorel Bezman), have participated in the US Embassy organized Open World Program on Marketing through Producer Organizations. The nominations came from the producer groups that are actively working with ACED on joint marketing activities.

The VCSC provided assistance to the National Table Grape Association in developing their application for the Call for Proposals issued by the Official Development Assistance Department of the Romanian Ministry of Foreign Affairs. With the grant funds, the Association plans to assist the Horticultural Research Institute in upgrading of their in-vitro micro-propagation laboratory and to establish a pilot vineyard using the pergola vine training system observed during the ACED table grape study tours to Italy and Spain.

On December 2nd and 3rd the Moldova-Fruct Association, with ACED support, organized the first National Fruit Conference with participation by more than 100 fruit producers, exporters and cold store operators. Several international fruit production, post-harvest and marketing experts shared their knowledge regarding modern approaches for successful fruit production businesses. Presentations on improvements adopted by ACED client firms Domulterra and Codru-ST were one of the highlights of the event. At the Conference, Moldova-Fruct Association also presented their newly-developed website to its members and to the general public. The website will better communicate the increased level of training, lobbying and marketing activities that are now being provided by the Association. The costs for website development were covered by ACED.



ACED Food Safety Specialist Andrei Cumanici explaining the laboratory to Thomas Rhodes (left), the Acting USAID Moldova Mission Director, and to Jonathan Katz (right), Deputy Assistant Administrator at USAID Washington



Iurie Tarai explaining to the participants at the Farmer Field Day how he prepared soil and planted blueberry seedlings that were imported from Poland

Activity 1.4: Improve the Enabling Environment for HVA

Improving the Enabling Environment for Moldovan HVA

As projected in the Year 5 work plan, ACED organized an international study tour aimed at influencing the reform process of testing and registering new plant varieties in Moldova. It was hosted at the Research Centre for Cultivar Testing (COBORU), in Slupia Wielka, Poland as well as in the field at several diverse regions at variety testing stations. This study tour both trained 15 participants including one representative from MAFI, AGEPI, and Moldova Fruct and 13 from the State Commission for plant testing, accompanied by two COBORU experts. During the training program eighteen COBORU experts offered more than 20 presentations and the group visited four testing stations, including the testing station of the horticultural research institute.

Establish SPS Systems & Procedures to Support Exports

The business enabling environment team continued their work on Laboratory preparation for ISO 17025:2005 accreditation. During this year the ACED DCOP Ion Perju and food safety specialist Andrei Cumanici organized several meetings with representatives of the Central Phytosanitary Laboratory in order to make all arrangements for applying to RENAR (the Romanian accreditation body) for ISO 17025 accreditation. The RENAR evaluation team organized a mission to the Laboratory on September 24th -26th.

By letter nr. 799 from October 10, Laboratory Director Cernautan informed us that RENAR stated that the laboratory equipment must be calibrated outside of Moldova. In December all equipment required by RENAR was tested and calibrated in Romania. The director sent all updated documentation related to laboratory equipment calibration to RENAR personnel by on December 22nd, 2015. ACED successfully completed all activities related to Laboratory preparation for ISO 17025:2005 accreditation. RENAR issued the draft accreditation certificate at the end of February 2016 and the final certificate in the weeks after.

As part of the ACED activity to increase the testing capacity of ANSA and assist phytosanitary inspectors to carry out their inspection duties around the country, ACED distributed 200 Entomology Dissection kits to the field phytosanitary inspectors around Moldova. The kits allow phytosanitary inspectors to examine insect and plant interactions, insect behavior, and the ecology of parasite/host and predator/prey interactions.

As part of the ACED activity to increase the testing capacity of ANSA and to assist phytosanitary inspectors to carry out their inspection duties around the country, ACED offered 45 nine-item sets of additional equipment to provide the field inspectors of ANSA with a more complete range of tools for their food safety inspection functions. The list of equipment includes items such as a Refractometer, sizer sets, a pocket scale, a Penetrometer, and a digital thermometer. In light of the new Law on quality control (pending approval), ANSA representative Alexandru Ciobanu asked that USAID provide some support in this area as part of ACED's Year Five activities.

On September 21st-30th the ACED food safety specialist organized training seminars in partnership with National Food Safety Agency for all 160 phytosanitary inspectors in five regions (Balti, Edinet,



Entomology Dissection kits contents:
Flexible probe, Straight teasing needle with plastic handle, Curved teasing needle with plastic handle, 4.5" Medium Point Forceps, 4.5" Curved Fine Point Dissecting Forceps, 5" Straight Hemostatic Forceps, 5.5" Sharp/Blunt Blade Surgical Scissors, 4.5" Iris Scissors, Scalpel Handle #3 for Blades #10 (1 piece), Scalpel Handle #4 for Blades #22 (1 piece).

Hincesti, Comrat, and Chisinau). The seminars covered requirements for phytosanitary inspection and certification of agriculture products.

ACED and the National Phytosanitary Authority of Romania organized a study tour to Romania for 16 phytosanitary inspectors from ANSA of Moldova during the 22nd to the 26th of November. Phytosanitary inspectors play a critical role in the identification and prevention of harmful plant pests, weeds, and diseases on export and import products. The ACED DCOP and food safety specialist accompanied the group during the entire study tour. The core activities included rules for issuing plant passports; wood package certification in accordance with ISPM 15; food business operator registering and monitoring process; and visit to a phytosanitary laboratory.

TV Talk-Show Participation

On May 25th the TVRAIN station invited ACED DCOP Ion Perju to participate in the talk-show "Author program Ostaf" regarding SME development policies and TA for agro industrial sector. Perju talked about ACED support for Moldova HVA and described how the main activities of the ACED project have been oriented towards increasing the competitiveness of Moldovan HVA within the context of the signed DCFTA treaty.



Andrei Cumpanici (middle), SPS and Food Safety Specialist, on talk show LA ATITUDINE
(<http://www.agrotvmoldova.md/30112015-ia-atitudine>)

On November 30th food safety specialist Andrei Cumpanici was invited to speak on the talk show "LA ATITUDINE" on Agro TV Moldova. The show focused on quality requirements for exporting fruit and vegetables from Moldova.

On December 14th AgroTV also invited Perju to the show "LA ATITUDINE".

On December 29th AgroTV invited Perju to participate on the talk show "Intilnirea de la Ora 8". The show broached topics including ACED support for Moldova HVA and ACED orients project activity towards increasing the competitiveness of Moldovan HVA.



Ion Perju (right), ACED Deputy Chief of Party, on talk show LA ATITUDINE
(<http://agrotvmoldova.md/14122015-ia-atitudine-cu-valentina-badrajan-kelsey-walters->

Activity I.5: CIS Zone Specialized THVA Training program

For project Years Four and Five the ACED team has added a fifth program activity entitled Sequencing with the MCC Compact THVA. The main objective of this activity is to plan, organize, and implement TA and



Ion Perju (right), ACED Deputy Chief of Party, on talk show "Intilnirea de la ora 8" (<http://agrotvmoldova.md/intilnirea-de-la-ora-8-cu-ion-perju>)

training to farmers located in the MCC CIS zones, which is intended to support their transition to HVA production in the irrigated zones being rehabilitated by the Compact.

Training Seminars

During the reporting period ACED conducted 20 separate training events on different topics including:

- Irrigation water quality: Building and using an irrigation system;
- Soil quality parameters: Establishing the irrigation need of the soils;
- Vegetable production in greenhouses;
- Super-intensive apple orchard establishment;
- Treefruit nursery management;
- Modern strawberry production technologies;
- Setting up a peach orchard and winter preparation;
- Greenhouse construction specifics for the Republic of Moldova;
- Setting up a table grape plantation.

ACED organized the seminars in the Lopatna, Jora de Jos, Criuleni, Puhaceni, Roscani, Cosnita, Blindesti, Grozesti, Leova-Sud, and Chircani-Zirnesti CIS Zones. An average of 25 participants attended each event with a total of 498 farmers participating in total.

ACED made several public announcements in local media outlets regarding the local training, seeking applications from local NGOs or Business Service Providers (BSPs) who would be interested in acting as Regional Training Service Providers (RTSPs) for the training and demo activities implemented in the CIS zones. In response ACED selected nine BSPs to act as the RTSPs in the CIS zones, with eight of these BSPs being the Water User Associations for their respective CIS Zones. Because these BSPs maintain databases of their members with updated contact information and field of activity, ACED made a strong connection with land owners from the CIS zones, which is the target group for Activity 5. Besides providing the logistical support for these ACED events, the BSPs also consistently informed its members about the events, distributed the “High Value Agriculture Crop Irrigation Guide”, and disseminated new opportunities such as grant and loan programs.

Demonstrations

In addition to the Activity 5 training seminars listed and described above, ACED conducted three separate Farmer Field Days titled “Using Drip Irrigation in Fruit Seedling Production (nursery),” at the Cucu Ghenadie Alexei Family Farm plot in Lopatna village (in the Lopatna CIS Zone). The field days helped a total of 58 participants understand how irrigation can increase the quantity of their production and enhance the quality of their output through observation of tangible examples.



Farmer Field Day Photo (Irrigation Demo Activity)

Local Study Tours

ACED organized eight local study tours throughout the year, with over 90 landowners from CIS zones visiting various agricultural businesses. A group of landowners from the Leova-Sud CIS Zone visited the Agromaxer Ltd greenhouse facility in Onitcani village, Criuleni district; a group of landowners from the Cosnita CIS Zone later visited the same facility. During the study tours, the participants had the chance to learn about new vegetable hybrids, modern greenhouse construction, and sorting and packing vegetables. ACED organized another local study tour on greenhouse vegetable production for a group of agricultural producers and land owners from the Chircani-Zirnesti CIS Zone and took place in the villages of Speia and Puhaceni in the Anenii Noi district. A group of landowners from Grozesti CIS Zone also visited a successful vegetable and strawberry producer from the village of Hristoforovca in Ungheni district.

Because interest in berry production has increased, ACED organized several local study tours to two berry producers. A group of landowners from the Puhaceni and Roscani CIS Zones visited Golea Family Farm, which is producing blackberries. The project organized another local study tour for agricultural producers and landowners from the Jora de Jos CIS Zone, where the participants observed irrigated strawberry, raspberry, and currant production in the village of Cucuietii Vechi, Riscani district.

A local study tour focused on irrigated fruit production and post-harvest handling took place in the Mihalovscoe village of Riscani for a group of agricultural producers and landowners from the Jora de Jos and Lopatna CIS Zones. Another study tour focusing on advanced technologies of fruit production and modern post-harvest infrastructure was organized at Victor Scutaru Family Farm for a group of agricultural producers and landowners from the Criuleni CIS Zone.

These study tours use real-life examples to help participants understand how irrigation can increase their production volume and enhance the quality of their output.

International Study Tours

ACED organized two international study tours this year in Romania and in Italy. The tours included observation of valuable real-life examples and descriptions of on-the-ground experiences that allow participants to learn about opportunities to start successful agricultural businesses that effectively utilize irrigation water. The first international study tour in Romania helped participants understand how irrigation can increase the quantity of their production and enhance the quality of their output.

The participants in the Italy tour had the chance to study irrigation systems similar in size and organizational structure to those rehabilitated by the MCC Compact program in Moldova. The participants visited a number of group-operated irrigation schemes to learn about both the technical operations and the management/administrative aspects of these irrigation systems. The participants also visited grading, sorting, and packing operations to see how Italian operators handle and process their

fruit for the domestic market and for export. Participants observed other Water User Associations in action and learned how these organizations manage the distribution of water to members and insure that funds needed to manage these systems are collected from the water users.

Irrigation Technology Forum

ACED capped Year Five with a national Irrigation Technology Forum, an event focused on farmers operating within the central irrigation zones being rehabilitated by the MCC Compact in Moldova. ACED arranged for more than 80 farmers - representing all ten irrigation systems included in the Compact program - to participate in this forum in Chisinau. The event itself combined technical presentations on sources of financing for irrigation equipment with presentations by successful Moldovan farmers currently using irrigation technology on their farms. ACED then organized a field visit, hosted by a leading irrigation equipment supplier in Moldova, to a farm where participants could see modern irrigation system in action. A staff member from the supplier explained the operation of different types of on-farm irrigation systems. Prior to the start of the forum ACED arranged tables at the event where equipment suppliers could meet with participants and distribute product information. Overall ACED considered this event a highlight among its recent activities to assist MCC irrigation zone farmers via Activity Five programs.



Irrigation forum presentation

Development and Distribution of Technical Bulletins

ACED developed a number of technical bulletins specifically for farmers in CIS zones that were mailed out free of charge to all of the farmers identified by the project. The CIS technical bulletins cover subjects related to:

- Irrigation water quality;
- Water management;
- Irrigation systems;
- Soil quality;
- Soil management;
- Support systems for orchards;
- Investments in fruit, berry and vegetable production;
- Plant protection;

- Cold store construction.

Development and distribution of the “High Value Agriculture Crop Irrigation Guide”

ACED published and distributed 1500 copies of “High Value Agriculture Crop Irrigation Guide” to landowners from the CIS zones.

Activity 1.6: Support for the Costesti Packhouse Project

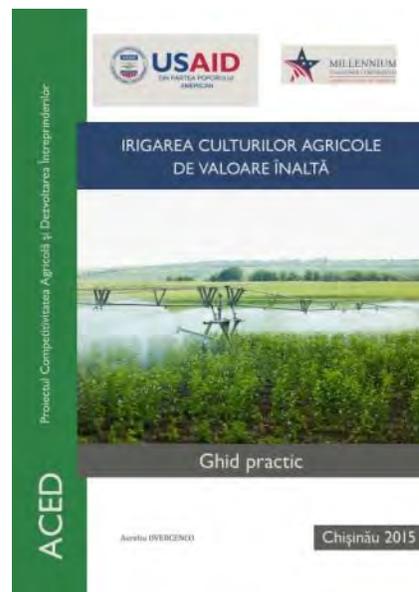
An ACED subcontractor provided assistance to the Costesti Primaria and the Local Council on the issue of public asset management, particularly in preparing the wording for tender documentation for management of the packinghouse. On May 12th the Costesti Primaria and the Fructbioimpex Cooperative signed the facility pre-lease contract for the Costesti Packhouse, which was established by 13 members of the Costesti Table Grape Association. This event cleared the stage for private investment in the project. In short order the coop secured the required 730,000 USD from its members and commercial banks to finance the procurement of refrigeration equipment, insulated doors, forced-air coolers, and two grape sorting lines; this investment complemented the 1.2 million USD investment from the Regional Development Fund.

As the packinghouse neared completion in July 2015, ACED and its subcontractor Italian Consulting Ltd. organized an international study tour for Costesti Packinghouse Project participants to travel to Italy to learn best practices in table grape harvesting, post-harvest handling, and packaging, and to learn how Italians manage the joint packaging and marketing of fresh produce.

On December 3rd the Fructbioimpex Coop launched the grape packing operations during an event featuring American Ambassador James D. Pettit, Romanian Ambassador Marius Lazurca, Minister of Agriculture Ion Sula, and several other officials and high guests. National television and digital and print mass media covered the ceremony extensively.

As part of ACED demonstration titled “Improved Packaging for Export Marketing of Fresh Fruit and Table Grapes,” ACED provided the Fructbioimpex Cooperative with a supply of modified atmosphere bags for their plums. End-of-storage assessments confirmed that plums that had been stored for two months in the MAP bags were of higher quality than the plums stored without MAP bags: the fruit was firmer and the incidence of internal browning was significantly reduced. For next season, Costesti growers plan to adopt the use of modified atmosphere packaging for about 30% of their plums in order to offer their customers a three-month long export program.

As part of the same demonstration, ACED provided the Fructbioimpex Cooperative with a supply of plastic liners with sulfur dioxide pads. The end-of-storage assessment of fruit stored with this technology has demonstrated that fruit stored with these liners is of higher quality. For the next marketing year, the cooperative and its members plan to adopt this packing and storage technology for at least 50% of their grape harvest.



HVA Irrigation Guide Cover Page



Minister of Agriculture Ion Sula talks with American Ambassador James D. Pettit about the new packaging introduced with support from the Romanian Official Development Assistance program

With ACED support, the Frucbioimpex Coop piloted the use of 1 kg cluster bags. Following positive reception by its customers, Frucbioimpex placed a commercial order for another one million bags to be used next year to pack one thousand tons of grapes.

Throughout the quarter ACED hosted a series of meetings with public authorities and farmers from the Singerei District to share experience in organizing a public-private partnership based on the development of the Costesti Packinghouse. ACED shared these experiences with stakeholders of the

Singerei AgroLogistics Park, a 2.5 million Euro project funded by the European Commission, and ACED organized a visit to the Costesti packinghouse for key stakeholders in this project on December 17th. ACED subcontractor Onoris-Legis carried out an analysis of the current state of Singerei AgroLogistics Park and presented its stakeholders with a report on the available legal options for co-financing investments in the Park. The Singerei District Council, the owner of the Park, decided to follow the model used by the Costesti Packinghouse; the Council issued a tender for the lease of the Park in mid-January and a private partner will be selected by mid-April 2016.



Grapes clustered into 1 kg bags

COMPONENT 2: ENTERPRISE DEVELOPMENT IN TRANSNISTRIA

The objective of this component is to support the development and competitiveness of Transnistrian micro, small and medium-sized enterprises (MSMEs) in the HVA and non-HVA value chains. This component is also designed to integrate Transnistrian enterprises into the broader Moldovan economy by establishing linkages and/or relationships between Left Bank and Right Bank MSMEs and Business Services Providers (BSPs).

Assistance in the Transnistrian region during Year Five maintained its rapid pace: it continued to achieve strong results despite the worsening political and economic environment in the region and despite tense relations across banks of the Nistru. The strong technical training program implemented via local organizations built local capacity on the ground and enables the transfer of new technologies from Right Bank experts.

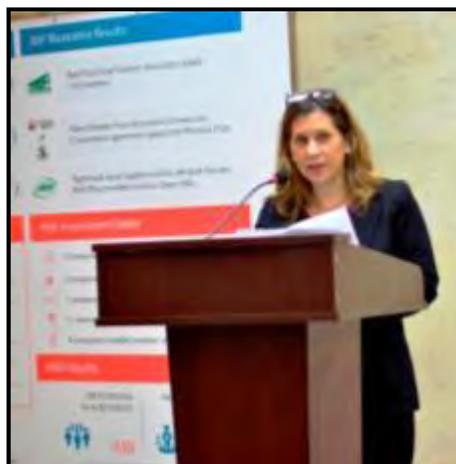
Furthermore, the project continued to build bridges across the Nistru by creating opportunities for participants from both sides of the river to interact and to share experiences. During Year Five the ACED project recorded 40 cross-bank activities, from domestic study visits where Transnistrian farmers learn from their right-bank counterparts, to international study tours for mixed groups of right bank and left bank farmers and agribusiness owners to travel together to observe the experiences of farmers in other countries.



Chetraru of USAID and Chartock of ACED speak with honey producers

In Year 5, the ACED project was able to effectively support the development of several nascent farmers' groups in Transnistria (honey, table grapes, and treefruit) using Right Bank experts. The project continued to build the institutional and technical capacities of Belii Most, the leading small farmer association in the region.

The highlight of Year 5 was the ACED Closing Lessons Learned event in Tiraspol on December 17th. The event included a welcome speech from Stephanie Chetraru, Acting Mission Director for USAID Moldova, followed by a presentation of Component 2 results from Andrea Chartock and words of wisdom from ACED COP Jim Herne. Several stakeholders gave high praise to the project, including from the head of the Transnistrian NII; the head of the Dniester Fruit Association; the manager of the women in Agriculture network for Transnistria; the head of the table grape initiative group; a leading BSP participant; and the head of the honey producers group. After the speeches, the group watched the ACED video (subtitled in Russian) featuring two interviews with Transnistrian stakeholders, which earned numerous positive remarks from the audience.



Stephanie Chetraru, Acting Mission Director for USAID Moldova, speaking at the ACED closing event.

After the formal conference part of the agenda, a group of approximately 180 participants moved into the restaurant hall where key partners had tables with mini-exhibitions of their products and promotional materials. The participants were able to network among themselves and ACED distributed copies of guides and bulletins in Russian. ACED arranged for a minivan to bring over right bank experts, including those technical experts who had been regular trainers in the region. A representative of Moldova Fruct and a representative of Andy's Pizza/Trabo also attended. During the mini-expo, many project participants came up to project staff, and the USAID representative, to express their sincere appreciation for the project.

Activity 2.1: Build Capacity of BSPs to Improve MSME Competitiveness

On May 15, Iurie Fala provided the group with an Interactive Training and Workshop entitled “Association Management, Roles and Critical Success Factors”. Representatives from eight of the leading tree-fruit companies in the Transnistrian region participated. In addition to providing a very useful training event, which the participants said was very timely, Mr. Fala also presented some valuable market research that has been carried out by Moldova Fruct. The participants learned the benefits of having an association and registered their new association “Dneistrovskii Fruit”/the Dniester Fruit Association in July of 2015.

On November 27, Iurie Fala facilitated a workshop titled “Discussion of Administrative & Organizational Documents for the Treefruit Association.” Mr. Fala presented the Dniester Fruit Association the drafts of the three documents he had prepared as internal organizational regulations for the association: Internal Regulations for the Board of Directors; Internal Regulations for the Executive Director; and Internal Regulations for communication between the members and the association and between the association and the members. The association members discussed and approved final versions of these three documents. Participants also discussed the plans for joint activities of the Dniester Fruit Association and Moldova Fruct for 2016.

One cross-bank highlight of the year was the signing of a cooperation agreement between Moldova Fruct and the Transnistrian Dniester Fruit Association on October 22nd, 2015. The agreement included an aspirational workplan for the coming year and the two associations are currently applying for a grant from UNDP to develop joint activities for members in 2016.

On the 3rd and 4th of April Component 2 sponsored a group of seven Transnistrian consultants, all of whom work at regional BSPs, and the ACED Coordinator in Transnistria to participate in the “Sales and Marketing 360” training event in Chisinau. The two-day event included a series of seminars and master classes on modern tendencies in marketing, sales audits, sales scripts, and how to organize work with clients. The participants said that the most interesting and innovative topics were connected with Internet sales, especially sales via social networks: Facebook, Instagram, and Vkontakte. The participants expressed gratitude to ACED and some of them already plan to implement ideas from the seminar on their websites. Also, the participants mentioned that this event was very useful for them to see new ways of working with an audience and organizing presentations.

One highlight of the year was the training provided by Janko Hocevar, a Slovenian CEO of a small local market research company, entitled “Sales and Strategy for Market Research Companies in Small Markets” that he presented to a cross-bank group of BSP participants. Participants learned that, even as Slovenia was mired in a deep recession, certain market research companies managed to grow their sales to the private sector. The BSPs also received some practical tips about different approaches to selling their services, such as cost-splitting marketing efforts to a whole industry and highlighting key market research services in trade journals.

By the end of Year 5, all students from the cross-bank group passed and completed the University of Georgia online course “Principles of Market Research”. This certificate course provided a strong cross



Farmer Field Day group in the front hall of the newly opened Rovnaia Family Farm Cold storage facility in Carmanova village, Grigoriopl raion.

section of knowledge that can be implemented in Moldova. Furthermore the cross-bank group grew together throughout the course and the training referenced above, and left and right bank participants started working together on ad-hoc projects.

Activity 2.2: Support Development of MSMEs in the Transnistria Region

In Year 5, ACED completed a new tender for a Tree-fruit, Honey, Raspberry, and Table Grape RTSP. ACED selected the Agency for Regional Development from Transnistria (ARDT) as this RTSP, and ACED has been pleased with the results. ARDT organized almost all seminar and field day logistics in Y5 except for the BSP events and for the seminars and field days at the NII, who organized logistics for their own Farmer Field Day seminars as part of their demo activity cost share.

Apples Value Chain

At the Farmer Field Day on October 29, ACED unveiled the Rovnaia Cold Storage Demo Activity entitled “Post-Harvest Handling of Apples” in the village of Carmanova in the Grigoriopl raion. The host, Ludmila Rovnaia, expressed her deep gratitude to the project for having the chance to host the demo activity and said that without the ACED project assistance she wouldn’t have been able to set up the cold store, even though she had finished the building three years ago. Her cold store now serves as a rare exceptional example of how a smaller family business will be able to make better profits due to the use of a cold storage facility. 20 participants included orchard growers and a few vegetable producers interested in the use of cold storage attended the event. ACED specialist Andrei Cumpanici gave the participants a presentation on quality standards, the timing of harvesting, and how to put different varieties into cold storage. The field day was followed by an event in January, where Mr. Cumpanici presented cold storage requirements for stone fruit and the group visited the cold storage for a 2nd time.

National consultant Ghenadie Buciuceanu provided a seminar entitled “Apple Plant Protection from Diseases and Pests” on April 10. There were 15 participants at the seminar including 13 farmers and 2 Agricultural NII specialists.

On June 5, ACED organized a Farmer Field Day on chemical thinning with national consultant Pesteanu. Because several companies had already started to use chemical thinning—a practice introduced to the region by ACED—participants came in with active questions.

On July 16, ACED held a Demonstration Activity Farmer Field Day on the use of an anti-hail net system within an intensive apple orchard at EvroRostAgro with National Consultant Pesteanu. There were 10 participants representing different fruit tree orchards in the region. The anti-hail net orchard protection practice was first introduced to Transnistrian farmers on the Advanced Apple Production & Post-Harvest Technologies & Infrastructure Study Tour to Italy organized by ACED in October 2013. National Consultant Pesteanu presented information about the demo activity results and the results of these best practices in Italy, Germany, and the Netherlands. He also described modern protection systems for cherries and peaches. During the visit to the host company, EvroRostAgro agronomist Dmitry Panov showed damage to the trees on the control plot caused by hail and contrasted this with the positive results provided by anti-hail net use. This practice is still considered very expensive but producers agree that companies need to install anti-hail nets to avoid risks for the investment in the orchard.

Table Grapes Value Chain

One highlight was the study tour to Southern Italy on “Table Grape Production & Post-harvest Technologies and Infrastructure” for a cross-bank group of table grapes producers July 26–31. The goal of the study tour was to learn the best practices that are applicable for Moldovan producers in organizing the production, post-harvest handling, marketing, and sales of table grapes. Ten Left Bank study tour participants, two Right Bank producers, and two national consultants had the opportunity to visit

companies covering all stages of table grape production and post-harvest handling, including nursery maintenance; innovative formations for table grape production; irrigation systems; the use and installation of plastic sheeting for table grapes; and a visit to a company specialized in packaging materials for supermarkets. After seeing the results in Italy first hand, many producers expressed a strong desire to install the Pergola type of trellises and to start using SO₂ pads.

On May 21, National Consultant Tudor Cazac provided the seminar “First Phase Green Operations for Table Grapes” to 19 participants at the Hotel Timoty, followed by a field visit to a farmer in Parcani.

More than 20 table grape producers gathered in Tiraspol for a three-part training event entitled “Table Grape Harvesting, Sorting, Quality Standards, Varieties & Local Trials of Gibberlins (GA3) as a Growth Hormone” on August 21. Four experts from Chisinau made presentations that were requested by producers interested in modern practices they learned about in Italy.

On October 9, the ACED Component 2 Team organized a Right Bank Table Grape Production & Post-Harvest Handling Study Tour to the Comfructfres Coop, the Basan agro coop, and the Burlacu Fruct Coop. During the study tour the Transnistrian producers saw cold storage for table grapes; viewed a gable system demo for the production of table grapes; and learned about the results of the trials on gibberellin usage in vineyards.

On November 6, ACED organized a highly successful Table Grape Plant Protection

and Reconstruction (Grafting and Re-grafting) training session with National Consultants Alexandra Braghis and Fedor Cazac in Tiraspol. Farmers requested both

topics after the Table Grape Production and Post-harvest Practices and Technologies Study Tour to Italy organized by ACED in July 2016. Fedor Cazac brought table grape branches to demonstrate grafting and re-grafting. Alexandra Braghis presented a table with the active ingredient in the various plant protection products registered in Moldova and talked about different methods of disease treatment according to evaluations of the stage of development of the disease.



Mr. Mihov from the Burlacu Fruct Coop showing his different table grape varieties to a group of visitors from Transnistria

Stone Fruit

On June 11, the Component 2 team held a seminar entitled “Stone Fruit Pre-cooling and Varieties” that was presented by National consultant Pesteanu and the ACED Food Safety Specialist Andrei Cumpanici. Agrostar company hosted the event for 13 participants and it received coverage from the local TV show “TCB news” (Novosti TCB affiliated with Sheriff, the same TV crew as for the local show “6 Ares”). The building constructed for the line was an upgrade from their first cold storage building, this time built with sandwich panels based on recommendations from Andrei Cumpanici two years prior.

On September 10, a minibus brought 15 participants from the Left Bank to the National Plum Producers Forum in Nisporeni, which included distribution of a new *Plum Production Guide* in Russian and a site visit.

On November 6, ACED organized the “Cherry Plant Protection Seminar” with national consultant Alexandra Braghis. She presented practical methods to farmers from the left bank for dealing with pests

and diseases, and she also presented the group with a table of the pesticides registered in Moldova that can be used on sweet cherries. Participants also received the *Sweet Cherry Production Guide* (in Romanian as the guide had not yet been translated).

Honey

September 14–16, ACED organized a study tour to Ukraine for a cross-bank group of 16 beekeepers on the subject of “Beekeeping – Approaches, Production, Technologies, Equipment and Processing”. This study tour was designed to give Moldovan beekeepers and honey producers an opportunity to observe modern production and honey processing practices in Ukraine that could be implemented in Moldova, focusing on all elements of beekeeping and honey production in a viable commercial enterprise that still maintains low per unit production costs. Dr. Olexandr Komisar, the editor of the famous Ukrainian magazine *Beekeeping Circle*, developed the study tour for participants to see honey production technology ranging from small farms to a big industrial apiary. Honey producers discussed forming a cooperative and also expressed the desire to introduce innovations such as a new method of wintering of bees in four-unit hives and the queen bee nursery.



The cross-bank group of honey producers at a rest stop along their travel route.

Greenhouse Vegetables

On July 22, ACED organized a Demo Activity Farmer Field Day for 34 participants in partnership with the Transnistrian Agricultural Research Institute (NII) entitled “Construction of Greenhouses for Cucumber Production in the 2nd Cycle”. National consultant Alexandr Omelciuc presented technical materials on preparing soil for planting before the 2nd cycle in cucumber production; preparing seedling materials; using mulch; and preparing rows. The farmers also visited NII research fields where they were able to see their work in breeding and selecting vegetable crops. All participants then visited the Demo Activity plot where Omelciuc and representatives of the Right Bank greenhouse vendor explained considerations of greenhouses for vegetable production for prospective businesses.

On Wednesday August 12th Omelciuc presented a seminar to more than 20 participants on sweet pepper production at NII. NII gave tours of their two laboratories and presented farmers with prices for their testing services.

On September 18th ACED and NII organized a second Farmer Field Day at the Demo Site entitled “Construction of Greenhouses for Cucumber Production in the 2nd Cycle”. Participants were happy to have a hands-on view of production in the demonstration greenhouse, a lecture from Omelciuc, and color handouts that detailed the entire production and post-harvest process.

On the 20th of November the 3rd Farmer Field Day at the Demo Activity plot took place, including a presentation on innovations for vegetable production provided by Omelciuc. There were 23 participants, about half of consisting of small farmers and the other half NII staff.

Berries

As the ACED had already provided the entire cycle of strawberry and raspberry demonstrations, the project turned to raspberries. On October 16th, ACED held the first Farmer Field Day at Calvil LTD in Cioburciu entitled “Modern Technologies for the Cultivation of Raspberries”, which included instructions and demonstrations by national consultant Ion Varlan on such topics as the construction of high tunnels and the use of drip irrigation and mulch. Varlan presented the basics of raspberry production and Petru Visitiu presented international experience with photos from the study tour to the UK.



Farmer Field Day group inside the raspberry high tunnel demonstration established by ACED at the Calvil farm in Cioburciu.

On December 10th, ACED held the final Farmer Field Day of the Raspberry Production Demo Activity entitled “Raspberry Diseases and Pests”, presented by Varlan. He not only described raspberry diseases and pests but also presented methods for the enrichment of the soil with organic and mineral fertilizers. Varlan explained that producers need to regularly analyze the soil and water at their raspberry plots to predict the onset or existence of diseases and pests. As it was the final field day the farmers had many questions about raspberry production and asked about different kinds of berry production on the right bank.

Technical Assistance

ACED carried out several TA assignments during this year, including a revised development plan for EvroRostAgro orchards for stone fruits and cold storage. The plan will have a good demonstration effect even after the project has closed because it includes only the highest level of PHH innovations. Furthermore, through the Dniester Fruit Association, EvroRostAgro plans to present their business plan to the other members this winter for their benefit.

ACED cost-shared assistance with product naming, brand development, brand book preparation and package design for apple chips (in 35gr, 65gr, &



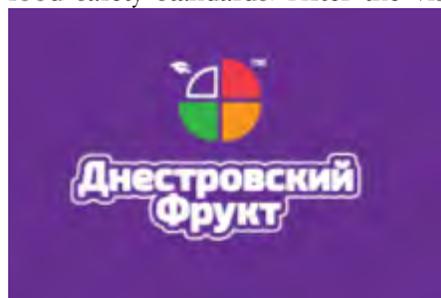
New package design for apple chips

125gr packages) for the MMD group, the owners of the Tiraspol Baby Food Factory in Tiraspol. After ACED issued an RfP for interested bidders through the VCSC website, Atrium Studio won the bid and successfully implemented the assignment.

ACED selected Intelstart Ltd through the VCSC website to help Dniester Fruit Association develop a new logo, which was then used by the association in a banner at the ACED final event in Chisinau.

On May 20th, national consultant Andrei Cumpanici and Professor Viorel Gornet, a meat processing expert from Chisinau, visited the Fkusnyashki Pelmeni producer in Bender to provide a consultation on how to redesign their workflow in order to meet international food safety standards. After the visit Gornet suggested that Fkusnyashki implement a new layout for plant operations to meet food safety standards.

At the beginning of May, ACED had been planning to hold the 3rd and final Farmer Field Day for advanced strawberry production in high tunnels at the demo activity entitled “Results of Using Mulch, Drip Irrigation and High Tunnels for Strawberry Production”. Unfortunately the host farmer called ACED a few days before the seminar to inform them that many of his plants became sick overnight. National consultant Alexandra Braghis provided a TA consultation that was able to save a large portion of his crop before from the sickness identified as fusarium oxysporum. The last field day was cancelled as a precautionary measure to stop the spread of this fungus to other farmers’ strawberry fields.



New logo for the Dniester Fruit Association

On the 12th of November ACED organized an Inward Buyer visit for Moldovan resident and Bangladeshi buyer Mr. Yeahia, who visited with several Transnistrian fruit producing companies Agrostar, Polius Agro, Calvil and EvroRostAgro about exporting fruit to Bangladesh.

ACED Component 2 staff sent out two new Strawberry Bulletins to more than 200 Transnistrian farmers entitled *New Strawberry Varieties* and *Establishing New Strawberry Plots*. ACED staff extracted more than 200 farmers from the TAMIS database who are currently interested in berry production, up from 40 in 2013.

Crosscutting Activity: Gender

Women in Agriculture (WAN) Networks

Through a gender assessment carried out at project startup in 2011, ACED identified several constraints and barriers that hampered women from receiving full access to their activities. Through a series of roundtables, ACED learned that although both men and women play an important role in Moldovan agriculture, women tend to benefit less from projects. Additionally, women are under-represented in positions of leadership and lack the financial resources, networking abilities, and self-confidence that would enable them to get involved in leadership and decision-making.

The Women in Agriculture Network program was developed within ACED as an activity designed to alleviate constraints identified in the gender assessment. To address some of the major constraints such as lack of confidence and lack of networks with information, ACED facilitated the creation and development of five regional Women in Agriculture Networks (WAN) in the northern, central, southern, Gagauzian, and Transnistrian regions of Moldova. The objective of this initiative was to help women develop their personal and professional capacities through informal regional platforms for women to meet and socialize; to receive training and information; and to exchange experience and good practices.

ACED subcontracted four regional organizations for WAN activity implementation:

- The National Federation of Agricultural Producers of Moldova AGROinform for the Northern and Central WANs;
- The Regional Center for Assistance and Information of NGOs CONTACT-Cahul for the Southern WAN;
- The Association of Women of Gagauzia for Gagauzian WAN; and
- The Chamber of Commerce and Industry from Transnistria for Transnistrian WAN.

These entities created and updated databases containing contact information and field of activity of members of each regional WAN. They also provided logistical support in the organization of WAN events and maintained connection with WAN members, consistently informing and disseminating valuable information or new opportunities such as grant and loan programs.

In addition, NAGs of up to 10 women each were set up for each regional WAN. NAGs worked to plan annual WAN activities; disseminate information about WAN; attract new members; and serve as advisory bodies to the regional organizations that organize logistics for WAN activities.

The WAN consisted of a bottom-up structure: ideas came from the women themselves, specifically the activities to strengthen the networks and to help them to grow personally and professionally. The ideas and activities suggested by women were included in yearly action plans developed for each of the five regions and were implemented during 2014 and 2015.

Through this period women participated in a diverse range of training and networking activities on various high value agriculture (HVA) production and non-production subjects geared towards professional capacity building. During 2014 and 2015, 115 WAN events were organized across Moldova:

- Courses, seminars, workshops: 85
- Local study and experience exchange visits: 46
- International study tours: 3
- Mentoring activities: 3
- Other networking events: 15

Women had the opportunity to learn and see the application of modern technologies in tomato, cucumber, apple, peach, table grape, and berry growing. These women also developed basic computer skills that would enable their access to information, and learned business planning and farm management abilities that would help them better manage their microenterprises and more easily apply for grants and loans. Several seminars focused on enhancing leadership skills and abilities.

At the end of 2014, annual forums were organized for each regional WAN, while in 2015 one annual forum was conducted for all five WANs. Each of these annual gatherings created an excellent environment of shared experiences, learning, personal connection, and capacity building.



The WAN bulletins

Three issues of the WAN bulletin were mailed to WAN members during these two years, updating women with current trends, on past and future WAN events, and about inspirational success stories of women in agricultural businesses.

Based on participant feedback, some of the most useful and motivating events in 2015 were experience exchange visits to successful WAN members and the study tours both in-country and abroad. Twelve experience exchange visits within and between WANs were conducted through the year, with over 150 women visiting various agricultural businesses of their WAN colleagues. Women from the Northern WAN visited a berry producer from Riscani district, a walnut and hazel nut orchard owner, and a plum drying facility owner from Drochia district. The Central WAN members visited a plum production farm owned by a WAN member from Hincesti, several fruit orchards in Orhei, and a table grape production farm in Nisporeni.



At a plum production farm owned by a WAN member from Hincesti

As for experience exchange between WANs, a group of women from the Central WAN visited the left side of the Nistru to meet the members of the Transnistrian WAN. Both sides then visited the Livada-Service Company, which produces apples and plums and owns a modern cold storage and a sorting line.

During a two-day study tour, Southern WAN members visited three successful members from the Northern WAN in Drochia district. Two hosts were growing organic vegetables (tomatoes, cucumbers, sweet peppers, and eggplants) in greenhouses and in the open field, and a third host grew walnut and hazelnut orchards.



WAN members from the South on a two-day study tour to Northern WAN members in the Drochia district

Members from the Southern WAN also visited a group of producers who own a cold storage in the village of Salcuta in the Causeni district. Maria Gurschi, the group manager and a Southern WAN member, shared her experience in initiating a producer group, registering a cooperative, applying for a MAC-P grant, and building a cold storage with through the group's effort. She is a good example of a successful female leader who can motivate others with her optimism, enthusiasm, and firm desire to continue expanding the business despite the various obstacles encountered.

ACED organized several international study tours this year as well. A study tour on Advanced Technologies for Fruit and Berry Production was organized in the Sandormierz region of Poland from July 25th to August 2nd, 2015. Fourteen members representing different regional WANs participated in this study tour of modern orchards with apples, pears, apricots, and sweet and sour cherries, as well as as plantations with raspberries, gooseberries, aronia berries, and red and black currants. These participants also learned the application of modern equipment such as harvesting platforms, cherry and berry harvesting machines, and other agricultural equipment used to facilitate human labor process.



Participants on a study tour for Advanced Technologies for Fruit and Berry Production in Poland

Transnistrian WAN members went on a two-day study tour on berry production in Vinnitsa, Ukraine, that was organized by the Fruit Project, a company that specializes in agro services. Women attended a practical seminar on berry production technologies delivered by Jeremy Darby, a fruit project consultant from Great Britain, and also visited two berry producers growing strawberries, raspberries, blueberries, blackberries, gooseberries, and black and red currants.



Participants on a two-day study tour on berry production in Vinnitsa, Ukraine

In addition to experiencing exchange visits and study tours, women attended several courses, as well as training sessions and workshops with the following titles:

- Family Farm Accounting
- Public Speaking and Emotion Control

- Agricultural Marketing
- Basic Computer Skills Development
- Steps in Preparation of Products and Documentation for Sales to the Supermarkets
- Role of Irrigation in Fruit and Vegetable Production
- Export Procedures, and
- Cooperation with Local Retailers.

All these events were conducted per women's request and helped them to acquire new knowledge and find answers to most of the questions they had on the subjects mentioned above.

Year Five was capped with the two-day National ACED WAN Forum with more than 130 members of the Northern, Central, Southern, Gagauzian, and Transnistrian WANs in attendance, along with an additional twenty guests including official invitees and representatives of different international programs. The first day included plenary sessions, capacity building sessions, and roundtables on HVA production topics. The welcome session featured Julie Stuftt, the Deputy Chief of Mission of the US Embassy in Moldova, and Rodica Miron, Project Management Specialist / Economic Growth Sector at USAID Moldova office.



At the national ACED WAN Forum

A motivational session featured five women from the five WANs presenting their success stories and speaking about their cooperation with ACED within the WANs. In the afternoon ACED held two capacity building sessions on the following topics: *Change – A Challenge to Development*, and *Efficient Management of Financial Resources*. The day ended with a mini-exhibition where women were able to promote and sell their products like blackberry juice and jam, tea herbs, hazelnuts, wine, and spices. The second day featured five roundtables on HVA crop production technologies where women initiated discussions and built relationships with their peers from a specific product sector.