



USAID
FROM THE AMERICAN PEOPLE



HIGH-VALUE AGRICULTURE ACTIVITY

FINAL REPORT

NOVEMBER 2017 – NOVEMBER 2022

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Cover page picture

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Photo caption: Harvesting apples in the orchard of the Elit Fruct company

ACRONYMS

AgroindVET	Sectoral Committee for Professional Training in Agriculture and Food Industry
AIPA	Agency for Intervention and Payments in Agriculture
AITTF	Agricultural Innovation and Technology Transfer Fund
AMS	Association Management System
ANSA	National Food Safety Agency
APESM	Association of Table Grape Producers and Exporters from Moldova
APSM Cahul	Association of Table Grapes Producers from Cahul Region
ASW	Association of Small Winemakers
ATIC	Moldovan Association of ICT Companies
ATU	Autonomous Territorial Unit
B2B	Business-to-Business
BoM	Berries of Moldova Association
CICA	Regional Beekeeping Consulting and Training Center
CIS	Commonwealth of Independent States
COVID-19	Coronavirus Disease or 2019 Novel Coronavirus
CSE	Commission for Exceptional Situations
DCFTA	EU Deep and Comprehensive Free Trade Agreement
EMMP	Environmental Monitoring and Mitigation Plans
EU	European Union
FARM	Federation of Agricultural Producers from Moldova
FRUMATIS	EU Commission's Fruit Reproductive Material Information System
FY	Fiscal Year
GLOBALG.A.P.	Global Good Agricultural Practices
GPS	Global Positioning System
GRASP	GLOBALG.A.P. Risk Assessment on Social Practice
HDP	Horticultural Development Program
HEA	Honey Exporters Association
HEKS-EPER	Swiss Church Aid Office in Moldova

HoReCa	Hotel, Restaurant, and Catering
HRI	Horticulture Research Institute
HS	Harmonized System
HVAA	USAID High Value Agriculture Activity
IFAD	International Fund for Agricultural Development
IPM	Integrated Pest Management
IQF	Individually Quick-Frozen
ISO	International Organization for Standardization
LOP	Live of Project
IT	Information Technology
MAFI	Ministry of Agriculture and Food Industry
MCP	USAID Moldova Competitiveness Project
MDL	Moldovan Lei
MER	Ministry of Education and Research
MFA	Association of Fruit Producers and Exporters Moldova Fruct
MoU	Memorandum of Understanding
MOVCA	Moldova Organic Value Chain Alliance
MRL	Maximum Residue Level
MSME	Micro-, Small-, and Medium-sized Enterprise
MT	Metric Ton
NBARM	National Beekeepers Association of the Republic of Moldova
NGO	Non-Governmental Organization
OCA	Organizational Capacity Assessment
ODA	Organization for Entrepreneurial Development
ONVV	National Office of Vine and Wine
PGI	Protected Geographical Indication
PHH	Post-Harvest Handling
PQUP	Product Quality Upgrading Program
ROI	Return on Investment
SAUM	State Agrarian University of Moldova
SDA	Sustainable Development Account
SEMP	Sector Export Marketing Planning

SMETA	Sedex Members Ethical Trade Audit
SWOT	Strengths, Weaknesses, Opportunities, and Threats
ToT	Training of Trainers
TUM	Technical University of Moldova
UAE	United Arab Emirates
UAP	UniAgroProtect Association
UK	United Kingdom
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
VET	Vocational Education and Training
VL	Value Chain
WESA	Wine Export Support Activity
WFD	Workforce Development
WoM	Wine of Moldova
WUA	Water User Association
Y	Year
ZKDP	Baby Food Factory (from the Russian “Zavod Konservov Detskogo Pitaniya”)

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EXECUTIVE SUMMARY

Once known as the garden of the Soviet Union, the Republic of Moldova is a country whose economic roots are in agriculture. Over 50 percent of Moldova's land is dedicated to agriculture. More than 20 percent of its active labor force is employed in the agriculture sector, and agriculture makes up 11 percent of the country's gross domestic product. Although blessed with black, fertile soils, abundant sunshine, and plentiful rainfall, Moldova has tapped only a percentage of its agricultural potential.

In recognition of the potential of Moldova's horticulture sector, in late 2016, the United States Agency for International Development (USAID) launched the High-Value Agricultural Activity (HVAA) in Moldova (*Agricultura Performantă în Moldova* in Romanian), the third generation of USAID programs designed to support the development of the agriculture sector. Implemented by prime contractor Chemonics International Inc. with subcontractors the Federation of Agricultural Producers from Moldova (FARM), Field Glass Communications, and Resonance, HVAA was designed to further stimulate the transformation of the Moldovan high-value agriculture sector into an engine of economic growth for the country, leading to improved competitiveness and higher living standards for rural Moldovans in the long term.

To achieve this goal, HVAA had four primary objectives:

- To expand trade and strengthen linkages to domestic, regional, and international markets for targeted value chains.
- To improve productivity, post-harvest handling (PHH), and private sector capacity to comply with European and international standards in targeted value chains.
- To increase capacities of member-based groups (producer groups, Water User Associations (WUA), and industry associations) to serve their members in targeted value chains.
- To improve the enabling environment leading to increased investments and an improved workforce in key value chains.

By working toward these objectives, HVAA sought to improve the “quadruple bottom line” for the high-value agriculture sector, achieving economic, social, environmental, and institutional returns on its investments to build sustainable capacity and achieve equitable economic growth. For this reason, HVAA worked in value chains requiring a range of capital and capacity, from honey and berries, which have low barriers to entry for family businesses or young entrepreneurs, to orchard crops and vineyards, which can require six-figure investments per hectare to plant and intensive management thereafter. By targeting a diverse set of value chains — which included apples and stone fruits (primarily cherries, apricots, and plums), table grapes, honey, berries, and open-field vegetables — HVAA was able to reach

producers throughout Moldova, including Transnistria and Gagauzia; micro, small, and medium enterprises (MSMEs), as well as large businesses; and established operations and start-ups. In addition, HVAA engaged government, civil society, and education institutions that play a critical role in creating an enabling environment for high-value agriculture in Moldova, building their capacity to support the sector's growth.

The \$6.4 million Agricultural Innovation and Technology Transfer Fund (AITTF) grant fund was critical to HVAA's success. Through the fund, the Activity was able to encourage entrepreneurial risk-taking by subsidizing adoption of new technologies, support market identification and penetration efforts, increase access to critical irrigation resources, equip schools with modern technology, and promote the benefits of new agricultural technologies and practices throughout Moldova. By serving as a catalyst for adopting new ways of doing agrobusiness, HVAA grants helped to bring transformational change to Moldova's high-value agriculture sector.

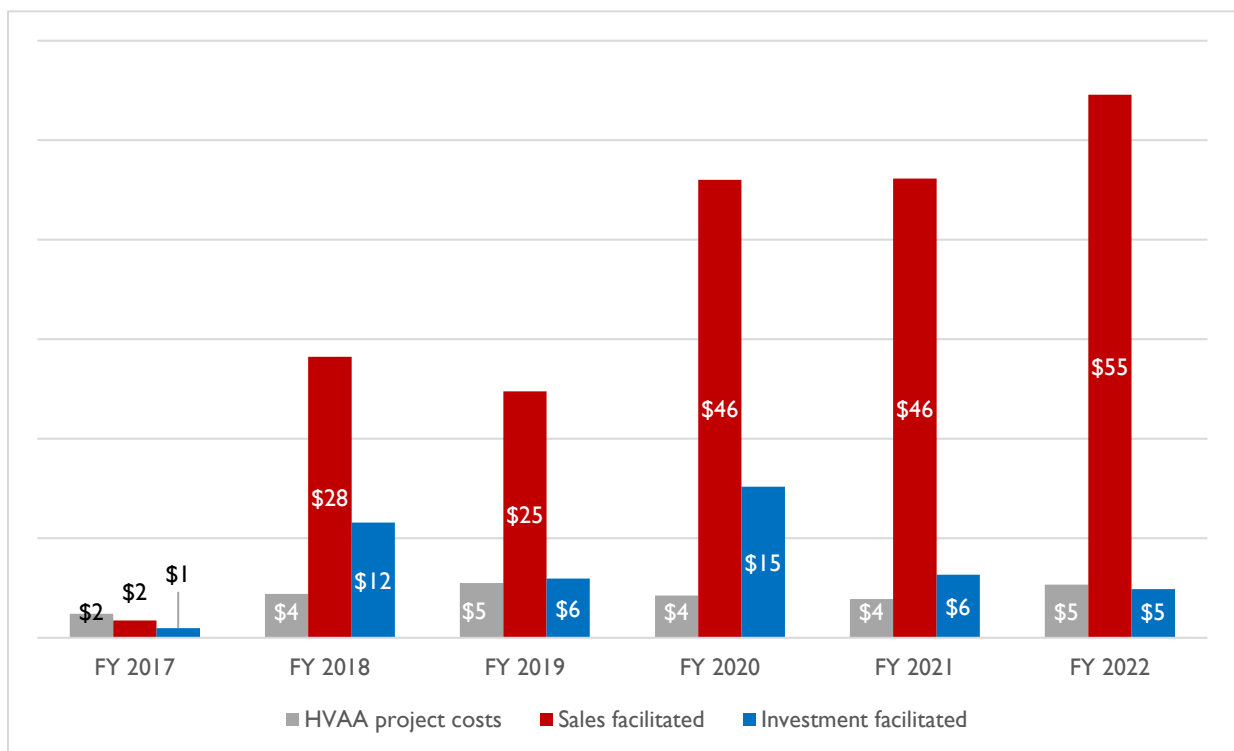
In its six years of implementation, HVAA laid a solid foundation with sustainable models for value chain development in Moldova. Momentum for change is growing in the high-value agriculture sector, and the results are evident: Moldovan products are reaching previously untouchable markets in Europe; firms are increasingly investing in state-of-the-art technologies and adopting improved practices that are leading to international certifications; sector associations are providing more and better services to their members, further strengthening their respective sectors; educational institutions are working hand-in-hand with private businesses to ensure that students are equipped with real skills needed in the workforce; the private sector is becoming more prepared to engage the government as a unified voice to advocate for their needs; and the media have developed sustainable agriculture-related programming. Thanks to this momentum, HVAA achieved \$201.5 million in domestic and export sales, reached new export markets, supported 3,649 companies to adopt new technologies, and supported the passage of 24 critical laws or regulatory changes that have improved and will improve the enabling environment of the high-value agriculture sector for years to come. In addition to these quantitative effects, HVAA and its partners and stakeholders achieved many "firsts" for the country, including the first export of packed honey in Malaysia, the first fruit export from Gagauzia to the European Union, the first cohort of berry producer-processor graduates, and the first virtual tours of fruit producers, demonstrating to producers throughout Moldova the benefits of investing in upgrades to their agricultural practices.

These results were achieved amid multiple crises that buffeted the Activity from 2020 to 2022: the COVID-19 pandemic, the war in neighboring Ukraine, and severe droughts. These crises challenged HVAA in unforeseen ways and highlighted the importance of agriculture in sustaining the economy, maintaining jobs, and ensuring the domestic food supply. COVID-19, a global health crisis without precedence in living memory, forced HVAA to adapt its methods and activities to a new operational environment, moving many activities online and finding

creative ways to support its diverse clients and beneficiaries. Just as the pandemic seemed to be subsiding, Russia’s full-scale invasion of neighboring Ukraine created new challenges, closing traditional transportation routes and forcing HVAA and its partners to move quickly to mitigate the impact of the war on the sector and to help producers still reliant on the Russian market to find new destinations for their goods. HVAA continued to support Moldovan agribusinesses, producers, and sector leaders to grow the sector, reach new development milestones, and promote rural prosperity through high-value agriculture.

Overall, measuring the impact of donors' assistance on high-value agriculture economic development, we can conclude that after six years of implementation, each dollar spent on technical assistance contributed to \$8 in facilitated sales and \$2 in new investments of assisted enterprises (Exhibit I).

Exhibit I. HVAA project costs and facilitated sales and investments by year (million USD)



MAP OF ACTIVITIES



HVAA IN NUMBERS



\$201,500,000

Facilitated sales



\$50,100,000

Domestic market



\$151,400 000

Export market



10,225

People trained

♀ 2,971 ♂ 7,254



\$6,350,000

USAID
investments



3,679

New practices
adopted



\$44,500,000

Additional investments
generated



458

Companies
assisted
in sales



100

Companies with
international
certifications

SECTION I

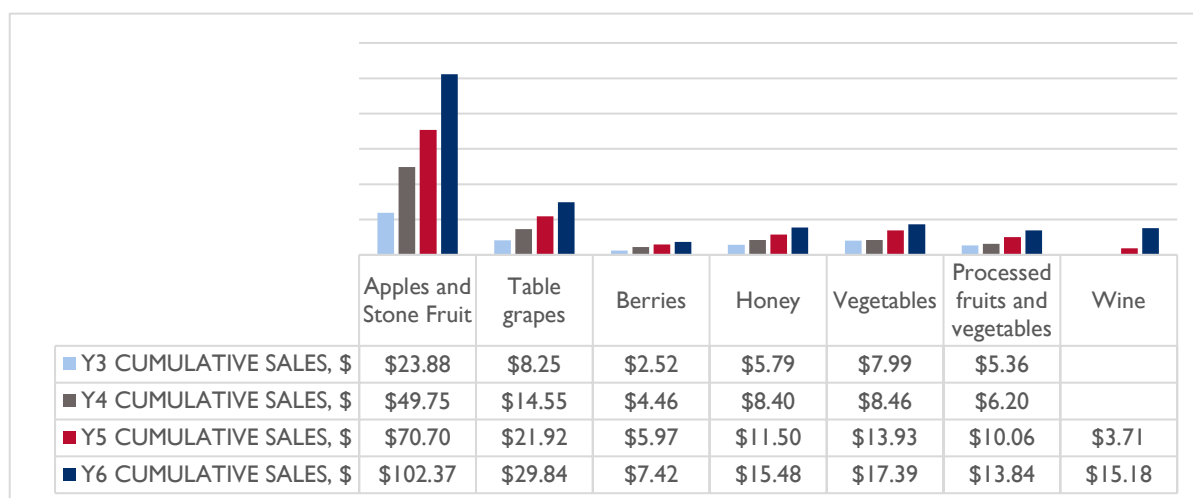
PROJECT ACCOMPLISHMENTS BY OBJECTIVE

OBJECTIVE I: EXPAND AND STRENGTHEN LINKAGES TO DOMESTIC, REGIONAL, AND INTERNATIONAL MARKETS FOR TARGETED VALUE CHAINS

As a former Soviet republic, Moldova has traditionally looked eastward to market its products. For the 30+ years since independence, the Russian Federation and other former Soviet states have been Moldova’s traditional market for everything from fruit to textiles. Until recently, Russian buyers’ willingness to purchase low-quality products, familiar logistics, and convenient payment systems provided little incentive to look elsewhere when taking goods to market. However, Russian trade embargos on Moldovan apples, cherries, and other fruit in 2014 and 2022 and on Moldovan wine in 2006 and 2013 — coupled with preferential trade procedures under the Deep and Comprehensive Free Trade Agreement (DCFTA) signed with the European Union (EU) in 2014 — compelled entrepreneurial producers to look toward other markets. Russia’s war against Ukraine and renewed bans on Moldovan fruit exports reinforced producers’ desire for market diversification.

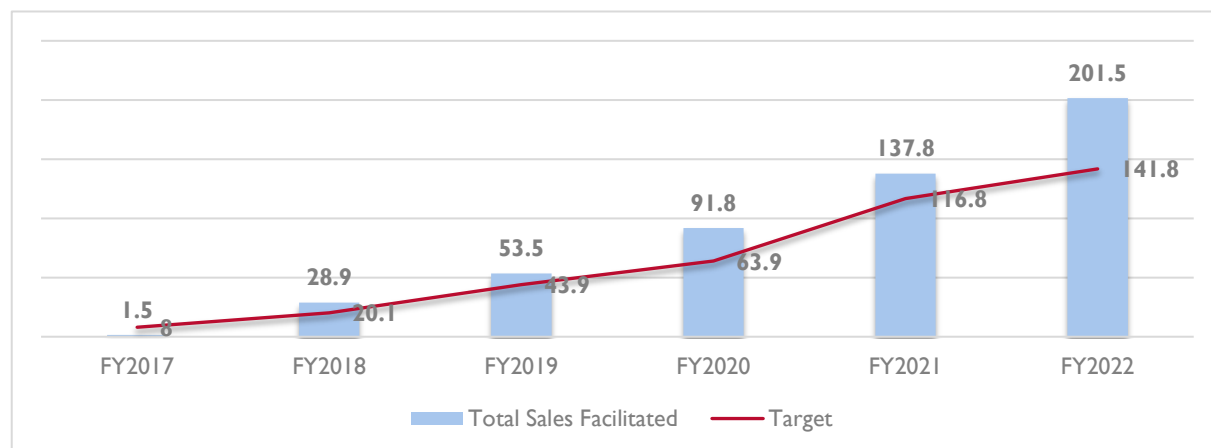
Through HVAA, USAID supported their efforts to diversify and alter production, post-harvest, and marketing practices to take advantage of the opportunities the DCFTA provides and to meet the more stringent quality, quantity, traceability, and price requirements in European and other markets. HVAA also helped to strengthen producers’ ties to local markets to increase market diversification and strengthen the value chain for horticultural products in Moldova. Through its efforts to expand trade linkages and promote Moldovan products on international markets, HVAA-supported producers (458 companies) achieved \$201.5 million (Exhibits 2&3) in domestic and international sales, while the overall HVAA targeted sectors registered an increase of \$177 million in the exports value over the period 2017-2021 calendar years. The project directly facilitated numerous export “firsts” (Exhibit 4), and diversification of export geography.

Exhibit I. Cumulative HVAA-facilitated sales by value chain in progress, million \$ (life of project)



The cornerstone of HVAA’s market development activities was the Sector Export Marketing Planning (SEMP), a participatory process through which HVAA and its partners in each sector analyzed and prioritized target markets. Through the SEMP process, the project brought

Exhibit 3. HVAA-facilitated cumulative sales vs. targets, by year (million \$)



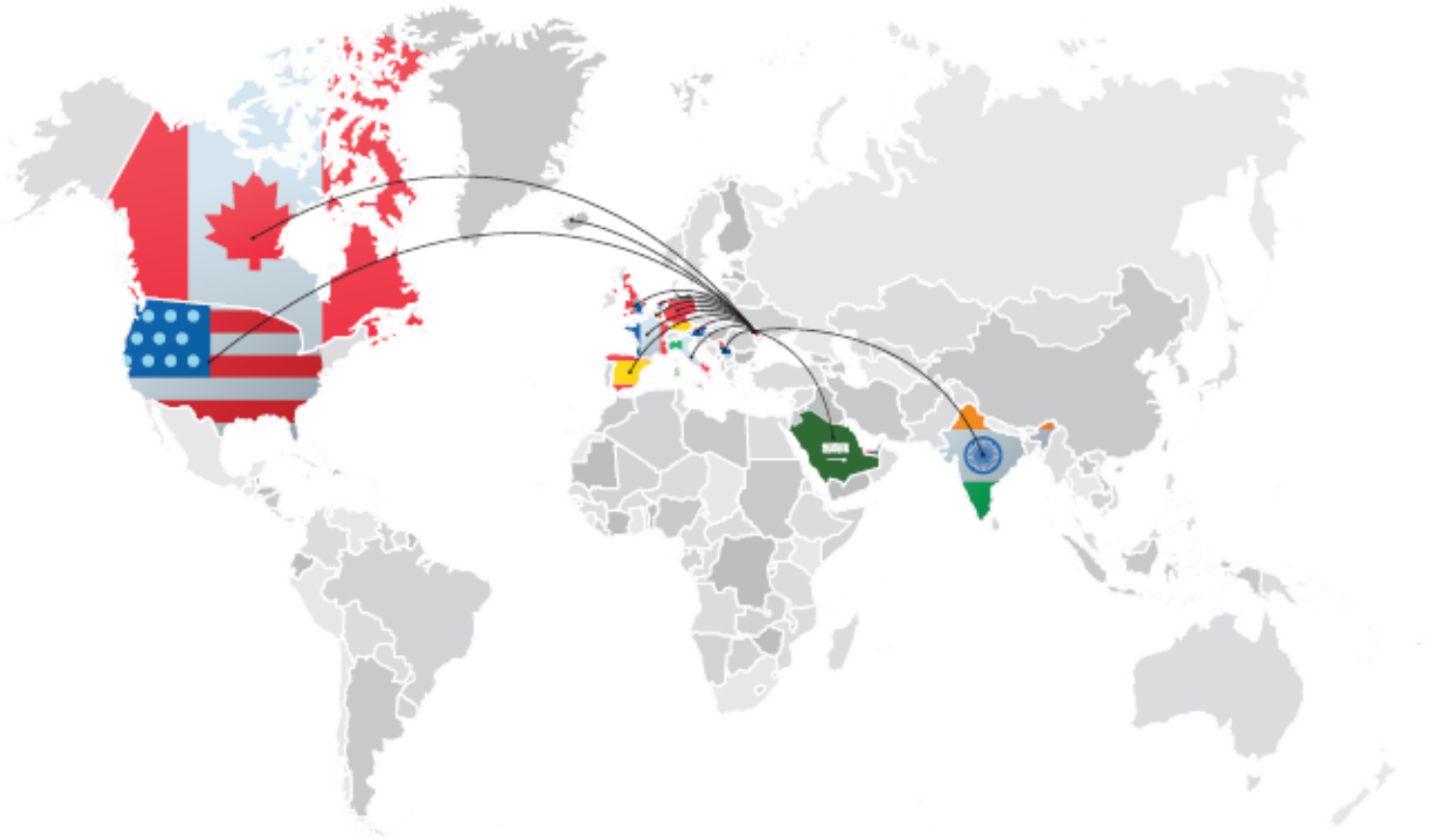
together stakeholders — including growers, consolidators, exporters, industry associations, government agencies, and development partners — to comprehensively analyze both internal markets and external markets to understand market trends, competitors, and Moldova’s competitive advantages and disadvantages. Based on this analysis, HVAA and its stakeholders narrowed the list of target export markets, developed an approach to expand sales in those markets, and identified potential buyers within them. This common vision and coordinated strategy allowed sector stakeholders to be strategic rather than reactive to any market opportunity that arose.

Exhibit 4. Facilitated export “firsts”

First Exports:

- Fruit from Transnistria and Gagauzia to the EU.
- Apricot to the Netherlands and Germany.
- Apples to new markets in the Middle East.
- Packed honey to Malaysia and the United Kingdom (UK).
- Table grapes to Germany, the Netherlands, and the UK.
- Direct contracts for fresh plums and honey with international retail chains in the EU.

FACILITATED EXPORT GEOGRAPHY



Austria



The Netherlands



Serbia



Canada



Italy



Spain



UK



India



France



Belgium



USA



UAE



Germany



Saudi Arabia

The SEMP process, which was repeated on a roughly annual basis for each value chain with large export sales, informed HVAA's support program by identifying where investments in grants, technical assistance, training, and promotion would yield the greatest returns in terms of sales. This included the design of grant programs to help producers meet buyer standards; joint activities with associations to promote Moldovan producers; and supporting market linkages through Business-to-Business (B2B) meetings, inward buyer missions, and fostering partnerships between local processors and growers.

Informed by SEMP, HVAA undertook a wide range of activities to facilitate sales, both domestically and internationally. Value chain-specific activities are described below, but, in general, HVAA efforts fall into the following categories:

- **Supporting participation in international trade fairs.** Putting Moldova on the map and in the minds of international buyers was HVAA's top marketing priority. HVAA supported 373 companies and associations to participate in 226 commercial events such as international trade fairs, B2B, and commercial missions over the life of the Activity. HVAA helped trade fair participants to prepare for each event, including developing their commercial offers, product availability charts, and analyses of logistics costs; provided hands-on coaching during the fairs for their interactions with potential buyers; and tracked the companies to ensure quick follow-up on identified opportunities immediately upon returning from the event.
- **Professionalizing marketing and communications tools practices:** First impressions count, and few Moldovan producers were putting their best foot forward when it came to their marketing and communications tools. Furthermore, there was very little information online about the Moldovan horticulture sector, Moldovan producers, or Moldovan products. For this reason, HVAA dedicated significant effort to helping producers and industry associations to represent themselves by upgrading their communications and marketing platforms. HVAA support included branding and logo development; website development for producers, products, and associations; virtual reality and digital video presentation tools; and coaching on engaging with potential buyers.

The brand development model for fruit producers and exporters experienced with HVAA support was later followed by many other horticulture producers and exporters, developing on their own brands for their products, websites, and promotional materials to represent their companies to international buyers. Other international donor organizations further replicated and supported virtual reality and video tours.

- **Nurturing emerging exporters.** Many Moldovan producers sell their goods through intermediaries, which affects the price formation for the final consumer and limits opportunities for sales volume growth and quality control. For this reason, many Moldovan producers have sought to export their products and manage their supply chain themselves. To accelerate these initiatives, HVAA provided 360-degree support to launch export operations for companies attempting their first international sales. This included developing commercial offers and basic presentation tools; matchmaking and negotiations with buyers; and assistance with contractual documentation, customs procedures, logistics arrangements, and further product quality control on goods acceptance and follow up from the final points of sales.
- **Facilitating market breakthroughs.** Impediments such as lack of internationally recognized certifications, lack of packaging that corresponds to buyer and consumer requirements, and untested maritime logistics routes blocked Moldovan producers from exploring new export destinations. HVAA provided technical and financial support to develop new packaging options required by non-traditional markets, including any necessary equipment infrastructure upgrades, as well as implementation of Global Good Agricultural Practices (GLOBALG.A.P.), GLOBALG.A.P. Risk Assessment on Social Practice (GRASP), and ISO 22000 standards.

To stimulate development of logistics routes to non-traditional destinations, HVAA developed a technical guide on maritime transportation and launched several trial shipment support programs. Together with extensive marketing and matchmaking support, these efforts resulted in multiple market breakthroughs.

- **Linking to local markets.** Not every producer is an exporter. For some producers, the best market is the one closest to home. For berry and vegetable growers, in particular, the high perishability of their products made improving marketability close to home the best strategy. To achieve this end, HVAA stimulated local consumption of local products, supported producers to overcome logistical hurdles of supplying to local retail chains, and brokered partnerships between producers and processors.

APPLES AND STONE FRUITS VALUE CHAIN

Apples have been Moldova's horticultural calling card since independence as the largest orchard crop cultivated in Moldova and its largest horticultural export by both volume and value. The vast majority, more than 90 percent, were exported to traditional markets, primarily the Russian Federation. However, the global market for apples is changing quickly, with new orchards being established in Russia and Kazakhstan, imperiling Moldova's traditional markets. In addition, Russia has proven to be an unreliable market, with politically motivated embargoes on Moldovan horticultural products in 2014 and the invasion of Ukraine in 2022 dramatically impacting Moldovan producers. It became imperative for apple producers to protect existing markets and find new ones (Exhibit 5).

Exhibit 5. Apples packed at Fresh Time company in bushel box for Middle East market



Stone fruits are key to the future of Moldovan orchard crop production, sales, and exports. Already one of the world's top 10 exporters of plums, Moldovan producers are gradually diversifying into sweet cherry, plum and apricot production, in part in response to global demand and in part to reduce the risks of apple marketing. To support their efforts, HVAA provided critical assistance to plum, cherry and apricot producers to find markets for their new crops.



"We are focused on the European market because we understand that this is a benchmark of fruit production. Thanks to USAID HVAA, we managed to find buyers in EU."

Vera Iabanji,
Fruit producer from Gagauzia

Cultivating Future Today

HVAA's key partner in marketing Moldovan horticultural products was the MFA, the largest association representing horticulture producers in Moldova. Through grants, technical assistance, and day-to-day collaboration, HVAA worked with and in support of MFA's efforts to improve the quality of production in Moldova and to help Moldovan producers to reach export markets. Central to HVAA and MFA's joint marketing and promotion efforts was participation at international trade fairs. Consistent participation at international trade fairs is critical to attracting interest from potential buyers, and professional presentations are key to securing deals. Through its grants program, HVAA helped MFA to mount a Moldova booth under its "Taste Makes the Difference" country brand at 17 international trade fairs, including FruitLogistica and GulFood, two fairs critical to attracting buyers in non-traditional markets (Exhibit 6). Trade fair participants were selected competitively, and HVAA and MFA provided

training and technical assistance to prepare them to participate successfully at the fairs, from pre-scheduling meetings with potential buyers to following up on leads following the fairs.

Exhibit 6. International trade fairs attended by Moldovan fruit exporters with HVAA support

	Date	Activity Name	Activity Town/Village
1.	September 2017	World Food Moscow 2017	Moscow, Russia
2.	October 2017	Anuga Trade Show	Koln, Germany
3.	November 2017	Professionals in Fruits and Vegetables Industry Forum 2017	Brasov, Romania
4.	December 2017	World or Perishables 2017	Dubai, UAE
5.	February 2018	Fruit Logistica 2018	Berlin, Germany
6.	February 2018	GulFood 2018	Dubai, UAE
7.	September 2018	World Food Moscow 2018	Moscow, Russia
8.	October 2018	World of Perishables 2018	Dubai, UAE
9.	October 2018	Indagra Food 2018	Bucharest, Romania
10.	February 2019	Fruit Logistica 2019	Berlin, Germany
11.	September 2019	World Food Moscow 2019	Moscow, Russia
12.	November 2019	Fruit and Vegetables Professional Forum 2019	Bucharest, Romania
13.	December 2019	GreenYard Expo 2019	Eitting, Germany
14.	February 2020	Fruit Logistica 2020	Berlin, Germany
15.	September 2020	MACFRUT 2020	Rimini, Italy
16.	September 2021	MACFRUT 2021	Rimini, Italy
17.	April 2022	Fruit Logistica 2022	Berlin, Germany

Moldova Fruct re-branding. Despite its status as the largest and most developed membership association in Moldova's high-value agriculture sector and its role as the primary promoter of Moldova horticultural products on the international stage, MFA's communications platform and practices were outdated and did not represent the full scope of the association's activities. To help refresh MFA's communications platform, HVAA led the association through a re-branding process to develop both a new association logo and a new country brand, which were released in 2020 (Exhibit 7). The new logo and country brand rectified several of the weaknesses of the previous logos. Whereas the old MFA brand and country brand were markedly different in style and sophistication, the new brands complemented one another. The old logos both used apples as their primary graphic element, whereas the new logos used stylized versions of a variety of fruits to demonstrate

the diversity of Moldova’s horticultural sector. Finally, the new logos are modern, and the use of black and bright colors helped MFA to stand out from the crowd at trade fairs, while complementing pre-existing Moldova country brands, such as the “Tree of Life” brand in use by the Moldovan Investment Agency.

Exhibit 7. The new MFA logo and the new country brand for fresh fruits



As part of the re-branding effort, HVAA also supported the re-development of MFA’s website.¹ Because there is a shortage of information online, particularly in English, about Moldova’s horticulture sector, MFA’s website plays a critical role in introducing international buyers and importers to the unique qualities of Moldovan fruit and horticultural products. Unfortunately, the association’s old website failed to make a good impression, with an outdated design and little up-to-date information. Critically, no one at MFA knew how to make changes to many parts of the site. The new website contains information targeting both international buyers and MFA’s members. For buyers, sector profiles, a searchable database of member producers and service providers, and calendars provide a comprehensive introduction to the sector. The site allows members to post information about their products and services, a calendar of events, and virtual tours, and includes a members-only page for value-added information. MFA continues to add new functions and features to both the front and back end of the site and hired a full-time communications specialist to support developing content for the site and other communications roles, including writing articles to promote Moldovan products in online trade magazines.

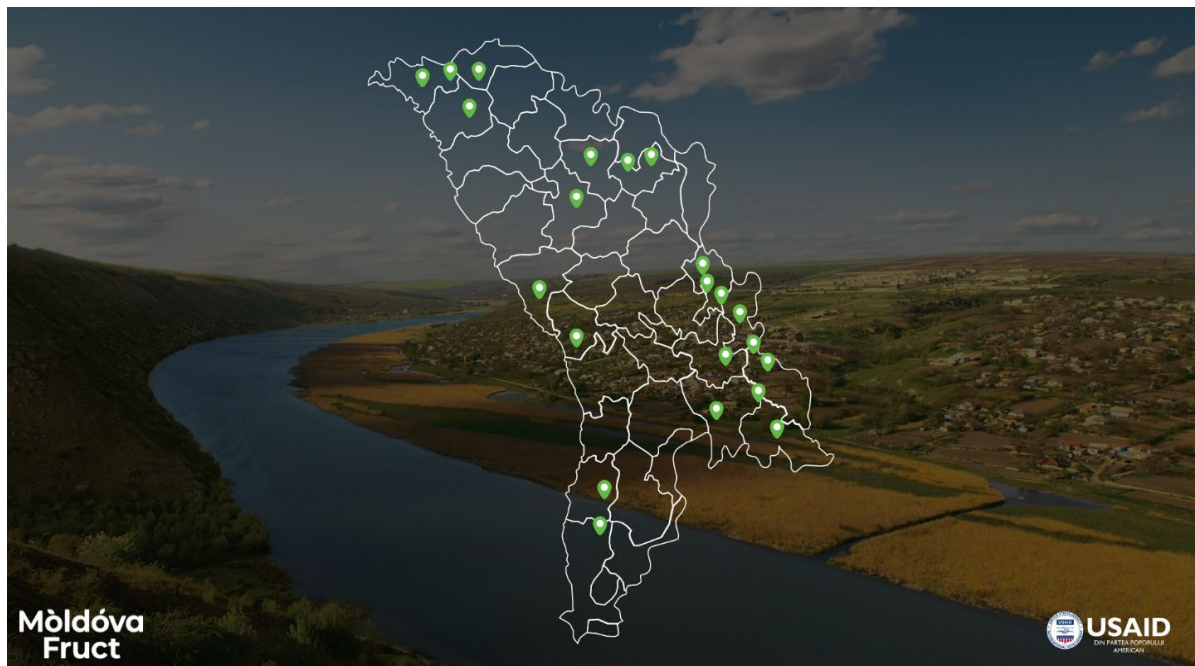
Inward and outward buyer missions. Fresh fruit buyers are much more likely to contract fruit shipments after they have physically visited an orchard, toured PHH facilities, and met with prospective exporter business partners. This form of B2B networking through inward and outward trade missions is a relatively new tactic for Moldova and requires strong interest from the buyers themselves, given the cost of allocating time to explore a new supplier

¹ moldovafruct.md

country. HVAA supported MFA and its members to organize buyer missions, often as the result of connections made at international trade fairs. Support included market research, prospecting potential customers, arranging logistics and translation, and qualitative follow-up. HVAA and MFA supported 174 trade missions, which were increasing in frequency prior to the COVID-19 pandemic, after which HVAA pivoted to supporting online B2B meetings. The value of trade missions can be seen in the results.

- After an inward mission in Year 4, three Romanian retail chains signed supply contracts with Moldovan exporters for multiple deliveries of fresh plums and table grapes.
- A trade mission by the sourcing manager and quality manager of one of the largest European fresh produce importers/distributors led to multiple contracts after the buyer's representatives saw firsthand the quality of production and PHH practices and adherence to GLOBALG.A.P. standards.
- Repeated trade missions in Year 5 and 6 of a Dutch importer resulted in the first exports of apricots and sweet cherries export to the Netherlands and a long-term supply agreement with a plums and table grapes producer from Gagauzia.
- An inward trade-mission of an importer from the United Arab Emirates (UAE) in Year 5 resulted in a long-term supply contract with an apple producer for the Dubai market.

Exhibit 8. Map of fruit producers that have virtual tours on the MFA website



EXPANDING MOLDOVAN EXPORT MARKETS: “ONE SMALL STEP” FOR A FRUIT PRODUCER, “ONE GIANT LEAP” FOR THE MOLDOVAN HORTICULTURE SECTOR

In Summer 2019, local media in Moldova was flooded with news about the first shipments of Moldovan cherries, plums, and apricots to Germany, a major milestone for Moldovan producers who were previously unable to sell to this highly exacting market. It might be considered “one small step” for the two companies whose fruit was exported, but it was “a giant leap” for the Moldovan horticulture sector.

Moldovan farmers have historically exported to the Russian Federation, where importers were willing to purchase lower-quality products and where farmers were accustomed to “traditional” logistics and payment terms. This business-as-usual approach to exports for Moldovan farmers abruptly ended in 2014, when Russia imposed an embargo on fruit imports from Moldova as a retaliation for Moldova signing an Association Agreement with the EU. Deprived of the Russian market, many producers were forced to sell their products at a loss; some went out of business. It was a harsh lesson about the vulnerability of dependence on the traditional market model and the need to diversify export markets.

In response to these opportunities and challenges, HVAA worked with a complex set of activities to assist Moldovan fruit and table grape producers to become more competitive in new international markets. This requires a rapid shift from outdated, Soviet-era production techniques toward modern farming and business management practices that allow Moldovan growers to take full advantage of their fertile soil, sunny climate, and ample rainfall.

Through HVAA, USAID implemented a holistic approach to diversifying markets for Moldovan fruit (apples and stone fruits such as plums, cherries, and apricots) and table grapes that capitalizes on years of previous USAID assistance to the sector. To improve product quality that meets the rigid demands of non-traditional buyers, HVAA provided support that spans the supply cycle – from variety selection and planting to good orchard management and appropriate PHH practices. In addition to supporting investments in infrastructure and training, HVAA also helped producers to implement international standards such as ISO 22000/HACCP, GLOBALG.A.P., and GRASP that are required by many EU wholesalers and retailers.

HVAA also created possible alternatives to traditional, less-stable markets by supporting inward buyer missions, outward trade missions, and participation in international fairs to assess market opportunities and strengthen linkages with high-paying buyers. Many trial shipments to the EU (Poland, Belgium, Spain, Germany, and the UK) and the Middle East (Iraq, Dubai, and Qatar) were supported through HVAA grants.

Results show that the holistic HVAA model worked. The market development and diversification initiatives in the Moldovan High Value Agriculture sector and quality improvement activities were successfully demonstrated in 2022, when fruit producers had to reorient exports to new markets due to repeated Russian bans on the import of Moldovan agriculture products and many challenges caused by Russia’s invasion in Ukraine. HVAA efforts resulted in extending Moldovan target markets from Dubai and Iraq to Germany and the UK. These results show that a series of small steps, taken together, can result in a significant leap forward for farmers.

Responding to COVID. As part of its efforts to modernize and professionalize producers’ marketing and communications platforms, HVAA promoted digitalization as a critical business strategy prior to the COVID-19 pandemic, and intensified the digitalization push in

response to pandemic-induced travel restrictions. HVAA developed a guide and trained businesses on digital marketing and helped associations and agribusinesses improve their online presence. To replace the exporter-buyer interface, HVAA developed innovative virtual tours that allowed prospective buyers to “visit” 11 orchards and post-harvest facilities through comprehensive online tours (Exhibit 8). The virtual tours were posted on MFA’s website, as part of the “Meet Your Exporter” initiative to replace the international trade fairs, B2B events, and inward buyer missions that were standard components of the international horticulture sales and marketing calendar.² In addition, HVAA hosted “guided” virtual tours with buyers, B2B discussion panels, and “speed-dating” meetings that introduced a buyer to multiple potential suppliers in a short timeframe. The “Meet Your Exporter” initiative was publicized and shared through trade magazines, including FreshPlaza, Freshfel, and other specialized online media, and reached a critical mass of European importers. Thanks to the success of “Meet Your Exporter,” the United Nations Development Programme (UNDP) AgTrade project funded the development of additional virtual tours for MFA’s website. Some MFA members also paid to produce their own virtual tours for MFA’s website. There are currently 22 virtual tours on the site.

Results. HVAA-facilitated apple and stone fruit sales totaled \$102.4 million over the life of the project, of which \$17 million were exported to EU countries. Although these high-level results are an important accomplishment, perhaps more important are the trends behind the numbers. Pilot shipments in Years 3 and 4 led to larger supply and direct sourcing agreements in Years 5 and 6. There is an increasing trend towards diversification to more dependable, higher paying non-traditional export markets, and simultaneously, fruit producers are becoming increasingly prepared to meet the more stringent market requirements to enter these markets.

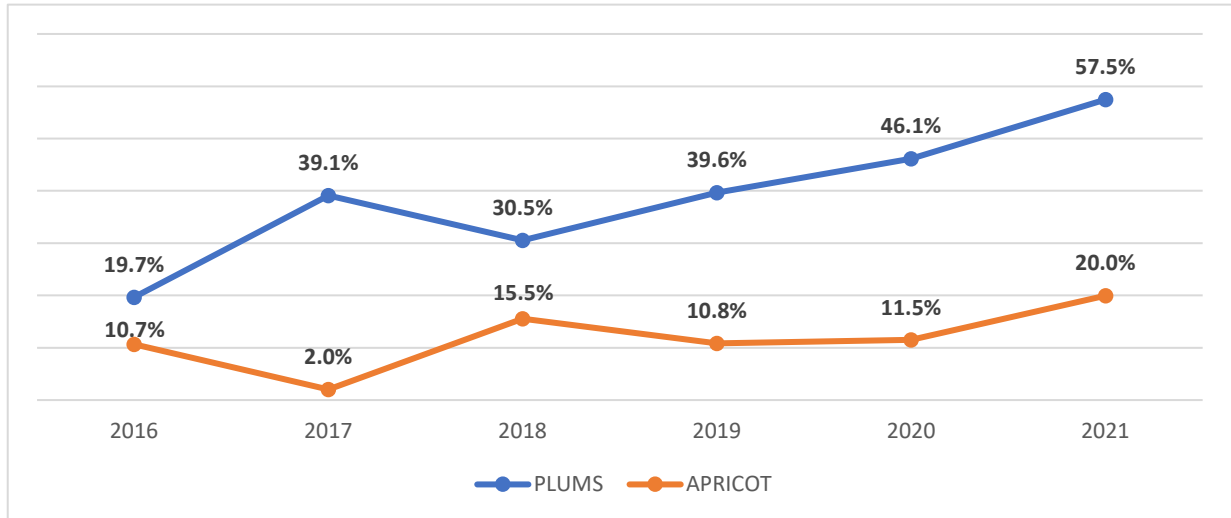
For example, the plum sector arguably demonstrated the greatest progress in export market diversification during the life of the project. When HVAA launched in 2016, 20 percent of the total exported volume of plums went to the EU; in 2021, it had reached 58 percent. The largest increases were recorded in the quality-demanding markets. **In 2016, there were no exports of Moldovan fresh plums to Germany or Austria. In 2021, Germany and Austria imported 3,573 tons and 1,460 tons of Moldovan fresh plums, respectively. The vast majority of these plums were supplied by HVAA beneficiaries and resulted directly from HVAA market linkage activities and its GLOBALG.A.P. Implementation Support Program.**

Other stone fruit crops are well-positioned to follow the market diversification success achieved for plums. In 2021, 20 percent of apricot exports by volume went to 12 EU member states (including to quality-demanding markets of Germany, France, and the Netherlands), as compared to four EU countries in 2016 (Exhibit 9). More importantly, exports to the EU

² moldovafruct.md/en/map

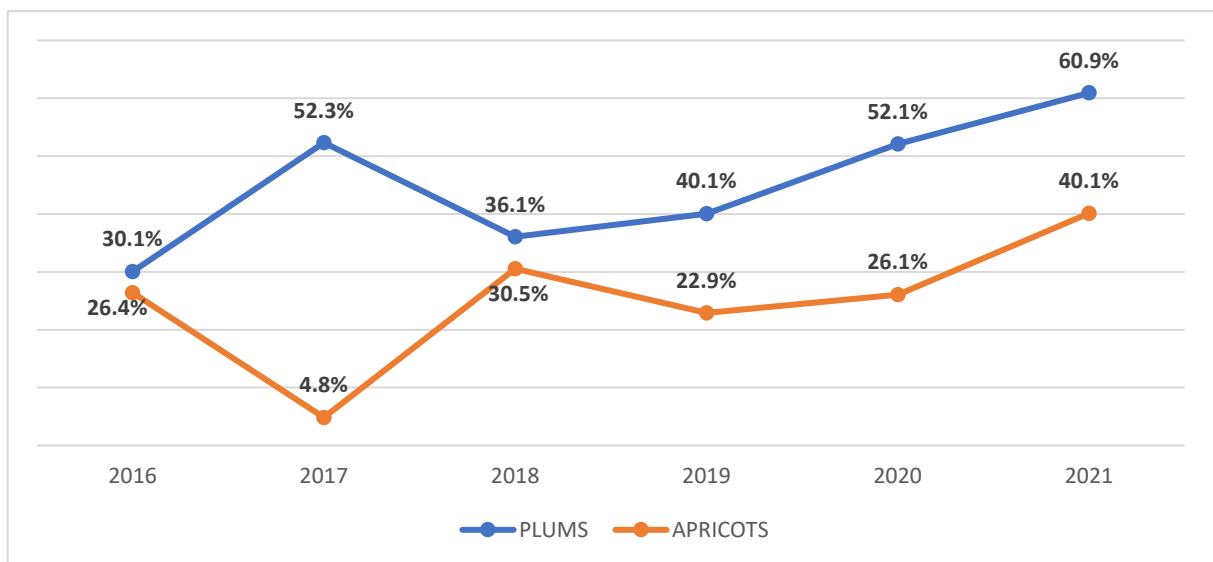
accounted for 40 percent of total export value due to the much higher prices obtained on the EU market (Exhibit 10).

Exhibit 9. Percentage of Moldovan plum and apricot exports destined for the EU, by volume



Source: National Statistics Bureau (statistica.gov.md)

Exhibit 10. Percentage of Moldovan plum and apricot exports destined for the EU, by value



Source: National Statistics Bureau (statistica.gov.md)



"This year we have a new experience of exporting sweet cherries to the Netherlands, but we hope to expand export market to other countries of the European Union."

Mariana Paslaru,
Founder of the "Staragro Group" company

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These achievements are due to coordinated efforts and investments made over six years by HVAA and the Moldovan fruit industry to adopt improved fruit varieties, increase yields and product quality, upgrade post-harvest infrastructure, and obtain international certifications, alongside export facilitation initiatives. While traditional markets remain dominant for some crops, such as apples, HVAA has shown that supporting pioneer exporters and showcasing their successes for others to replicate can stimulate significant impact.

TABLE GRAPES VALUE CHAIN

Moldova's cultivation of table grapes stretches back for more than 5,000 years, with trade routes for wine and table grapes established between ancient Greece and the territory of contemporary Moldova. HVAA built on this venerable legacy, working in partnership with sector associations, the private sector, and others stakeholders to chart new, modern-day trade routes for Moldovan table grapes.

BUILDING CAPACITY OF LOCAL EXPORTERS TO REACH NEW MARKETS

To demonstrate that it is administratively feasible for smaller companies to directly export and access European markets, HVAA provided multi-faceted assistance to Braila Dmitri FF, a grower and consolidator of stone fruits and table grapes who received an HVAA grant. In August 2019, HVAA's communications and marketing experts provided direction to enhance the company's image, and assisted Braila to improve its communications materials, including its logo, website, business cards, and promotional brochures. Technical and grant assistance also helped to improve fruit packaging to meet EU market requirements.

Assisted by HVAA, the company participated in several inward trade missions of buyers from Poland and Romania and participated at Fructe Legume Forum in Bucharest, Romania.

As a result of the comprehensive support, the company diversified its export market in addition to Russia and Ukraine, and now is supplying fresh table grapes to Romania.

Much of HVAA's collaboration with MFA (described above) also supported the table grape sector, as MFA counts table grape producers and exporters among its members. In addition to MFA, HVAA also worked with the Association of Producers and Exporters of Table Grapes of Moldova (APESM) and regional Association of Grape Producers in Cahul (APSM Cahul). APSM Cahul was a particularly productive partner and worked alongside HVAA to help producers adopt new practices and technologies that produce export-quality fruit and meet buyers' packaging demand. For example, through an HVAA grant in 2018, APSM Cahul adopted an improved packaging

standard (plastic liners and SO₂ pads) as part of an initiative to implement a common quality management system covering production, storage, and packaging to meet the demands of a Spanish buyer.

The majority of HVAA and its stakeholders' efforts, informed by the SEMP for the sector, were focused on exports to nearby countries in Eastern Europe. Poland was an early country of focus, and HVAA helped Moldovan producers and exporters to participate in B2B events at the Bronisze Wholesale Market in Warsaw in Years 2 and 3. During the events, Moldovan producers met with Polish importers and retailers to discuss potential contracts for Moldovan table grape varieties. With HVAA support, including grant funding for improved packaging solutions, more than 300 tons of Moldovan table grapes were sold thanks to participation in the Bronisze event in 2017, and 400 tons of table grapes were sold after the event in 2018.

To continue developing the Polish market, in Years 5 and 6, HVAA arranged participation of Moldovan table grape producers in the Fresh Market trade fair and B2B events in Warsaw, targeting international retail chains, and arranged an online B2B “speed-dating” event with Biedronka — the largest retail chain in Poland, with more than 3,000 stores — that resulted in a direct supply contract of table grapes to the supermarket chain. Moldovan producers continued to build and maintain market linkages with Polish retailers in preparation for the 2022-23 marketing season.

Exhibit 11. Table grapes Moldova variety packed for the EU market



Based on the experience of developing the Polish market for Moldovan grapes, HVAA issued a marketing grant to Swiss Church Aid Office in Moldova (HEKS-EPER) in 2019 to carry out multiple inward and outward trade missions to begin developing other markets for Moldovan grapes in Central and Eastern Europe. HVAA and HEKS-EPER organized a workshop for leading Moldovan grape exporters that brought representatives of leading wholesale markets from Poland, Croatia, Hungary, Bulgaria, and Ukraine to present their grape market in detail, including providing information on importers operating in their markets. HEKS-EPER also organized

trade missions to Zagreb, Croatia, and Prague, Czechia, for 11 table grape exporters to meet with prospective buyers, attend B2B meetings, and check stores to gather market information

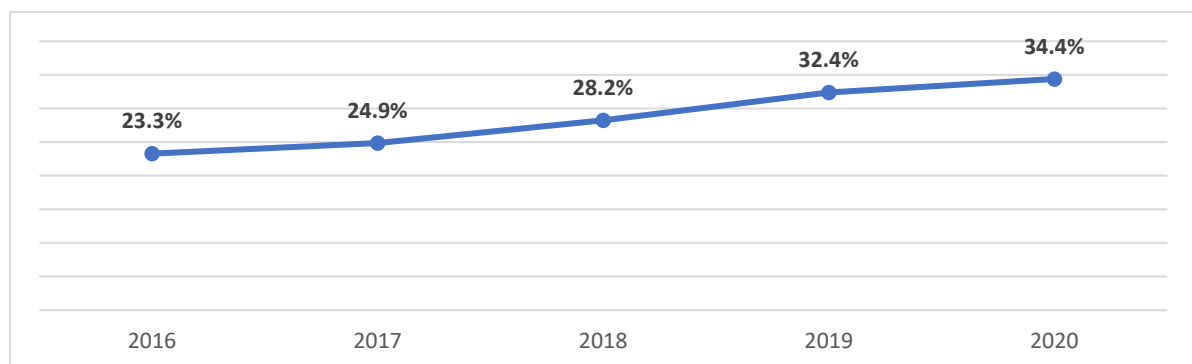
on pricing, packaging, and quality. As a result of the trade mission to Croatia, a Moldovan exporter (who also obtained GLOBALG.A.P. certification with HVAA assistance) successfully brokered a deal and delivered multiple shipments of table grapes to Croatia. Due to the initial successes of the pilot shipments, the importer ordered 300 tons of Moldovan table grapes for the next marketing season.

Working with its partners and stakeholders, HVAA achieved several breakthroughs in table grape exports during the life of the project. The first table grapes grown on pergolas were exported in 2019 to the United Kingdom (UK), the most challenging European market to enter for table grapes. In Year 4, due to comprehensive marketing and GLOBALG.A.P. assistance from HVAA and the Dutch Export Coaching Program, a Moldovan exporter established linkages with a Dutch importer and made Moldova's first shipment of table grapes to the Netherlands. In Year 5, an HVAA grantee made a shipment of grapes grown in Moldova to Germany. To meet the buyer's demands, the exporters started to use improved 5-kilogram cartons that were produced by another HVAA grantee using a tray-forming machine HVAA purchased (Exhibit 11).

In 2021, Biyaz Salkim, a woman-led company from the Autonomous Territorial Unit (ATU) Gagauzia, obtained the first harvest of high-quality table grapes from their GLOBALG.A.P.-certified pergola vineyards and made multiple shipments to a Dutch buyer that had procured plums from the grower earlier in the season.

Thanks to these and other activities, HVAA laid the groundwork for increased and strengthened trade linkages throughout Europe (Exhibit 12). As more high-quality, pergola-grown grapes begin to be harvested thanks to HVAA's support (see Objective 2 below), trade volumes and value will increase, and more consumers in Europe and beyond will soon be enjoying the taste of Moldovan table grapes.

Exhibit 12. Percentage of Moldovan grape exports destined for the EU, by volume



Source: statistica.gov.md

BERRY VALUE CHAIN

Berries are a small but exponentially growing sector in Moldova. Due to the nascent state of the sector, its export viability is extremely limited due to small volumes at the grower level, lack of consolidation, lack of dedicated PHH facilities, and, until recently, a limited range of varieties demanded on markets outside the Russian Federation. For this reason, HVAA focused on stimulating domestic consumption of berries and helping producers consolidate, improve quality, and make the right investments to maximize profitability on local markets. HVAA also helped producers to take advantage of the limited export opportunities that did arise.

Meeting the standards of domestic supermarkets, rather than selling on the open market, is a critical first step for producers to eventually meet international standards that are required for export. In Year 1, HVAA partnered with the Berries of Moldova Association (BoM), UNDP, and HEKS-EPER to run an awareness and promotional campaign to increase consumption of fresh berries through supermarket networks. HVAA worked with BoM to help its members sell their berries to retailers, providing multiple food safety, PHH, and packaging trainings. HVAA also supported the association by providing international quality packaging, food safety labels, and refrigerated transportation for members who established contracts with domestic supermarket retailers. The promotional campaign in selected retail

Exhibit 13. Berry producers at the Summer Berry Fair

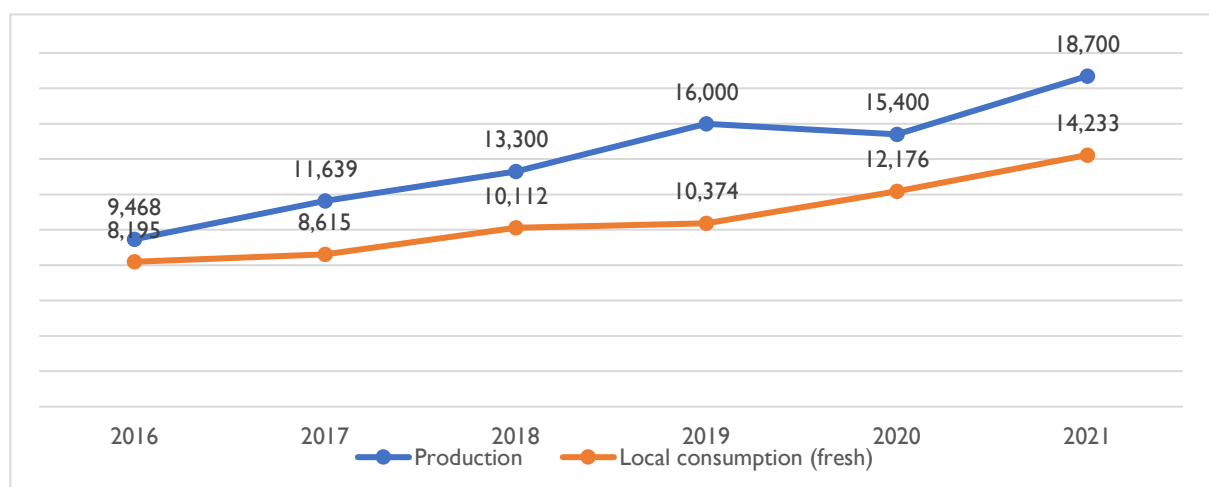


stores resulted in an increase in fresh berry sales of more than 200 percent. The results of the campaign were transformative for BoM and its members, who stated that HVAA’s support brought the association to “an entirely new level.”

To complement the promotional campaign, HVAA and its partners organized three Summer Berry Fairs in Cathedral Park in central Chisinau (Exhibit 13), which featured different berries as the growing season progressed. The fairs allowed BoM members to sell directly to the public and to promote the benefits of consuming berries. Cooking demonstrations and child-friendly activities helped to draw and keep the crowd. Thanks to the success of the fairs — producers made \$49,000 in sales in the first year — HVAA and BoM continued to organize them each summer. In Transnistria, HVAA partner and grantee Belyi Most organized three Summer Berry Fairs in 2020, respecting all hygiene requirements imposed by the COVID-19 pandemic. The fairs provided more than 37 farmers with an opportunity to sell their fruit at a better price than through typical channels.

In 2020, HVAA partnered with BoM on a promotional campaign to increase berry consumption in the local market. Aiming for a wide audience, the campaign heavily relied on digital tools, such as social media promotion (Facebook, Instagram), Google ads, highlights in television news programs, and appearances of local producers and influencers on television and in online media. The campaign shared recipes using berries, demonstrated techniques for cooking with berries, highlighted the benefits of using fresh berries, and promoted other berry-centric messaging. An independent study in 2021 showed that berry consumption had indeed increased in Moldova, thanks in part to HVAA efforts. In 2016, Moldovans consumed 8,195 tons of fresh berries, and by 2021, that number had almost doubled, to 14,233 tons (Exhibit 14). The consumption of raspberries increased more than tenfold, from 315 tons in 2016 to 3,828 tons in 2021.

Exhibit 14. Production and local consumption of fresh berries, tons



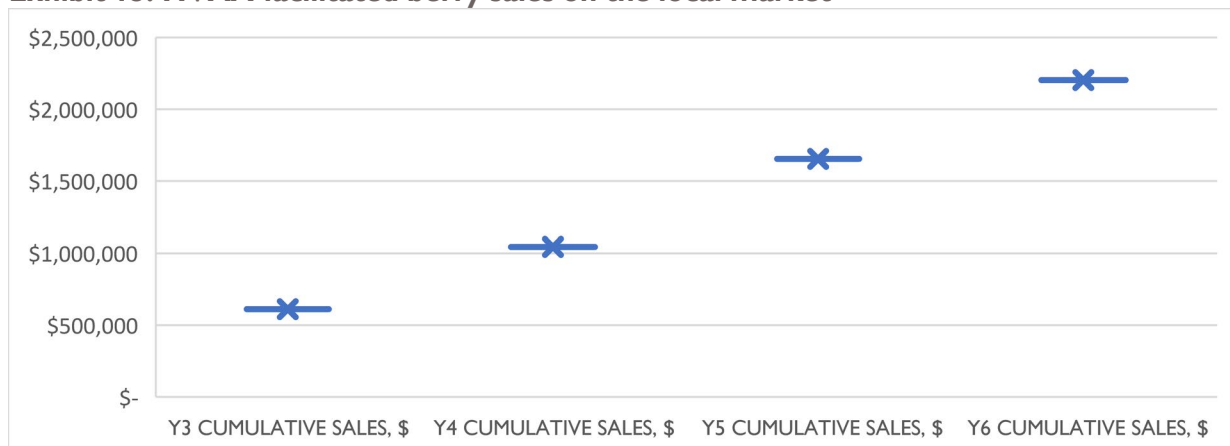
Source: National Statistics Bureau (statistica.gov.md)

To help meet the increased demand for berries, and in recognition that consumer habits are continually trending to purchase berries in retail chains, HVAA provided a grant to a berry cooperative to pilot a distribution system to directly sell berries to Moldovan brick-and-mortar and online retailers. Moldovan stores are reluctant to negotiate with and stock berries from small producers, as the logistics are prohibitively challenging without consolidation centers.

The cooperative established a continuous cold chain from field to retail by renting a refrigerated transportation and cold storage facility, achieving sales to retailers exceeding 2.3 million MDL, with additional direct sales to consumers through their Facebook page valued at over 320,000 MDL, primarily of strawberries sourced from 25 growers. As the season progressed, the cooperative expanded its range of berry crops and even added fresh plums and grapes to their portfolio to meet retailer and consumer demand.

As a result of the combined efforts, local facilitated sales in the berry sector increased by 33 to 70 percent from one year to another (in cumulative comparison), reaching \$2.2 million during the life of project (Exhibit 15).

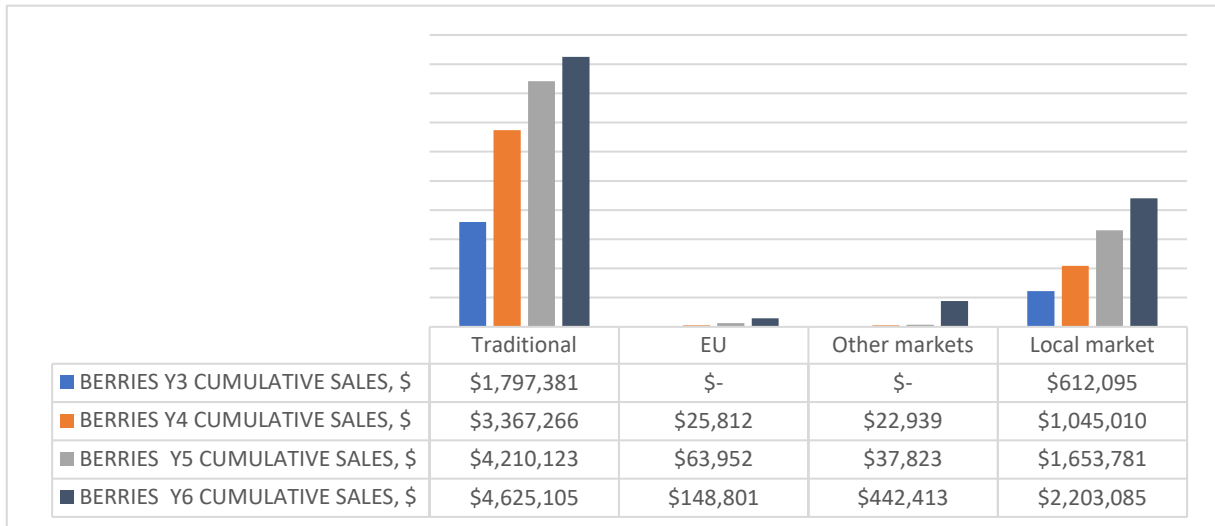
Exhibit 15. HVAA-facilitated berry sales on the local market



Source: National Statistics Bureau (statistica.gov.md)

Moldovan berry producers are at the beginning of their growth trajectory. Although the sector is small, sales have been growing exponentially: HVAA-facilitated sales in Year 4 nearly equaled the sales achieved in Years 1-3 combined, and sales in Year 5 increased by another 34 percent, reaching a total of \$7.4 million at the end of year six. Exhibit 16 below shows the progress of facilitated berry sales per type of market. With the sector continuing to develop and global demand for berries continuing to grow, HVAA's efforts in both production and marketing support will continue to have a positive impact on Moldova's berry growers.

Exhibit 16. Cumulative HVAA-facilitated sales, berries



HONEY VALUE CHAIN

Honey produced in Moldova has the potential to be among the best in the world. Its acacia honey sets the standard for high quality, with a water-white color and delicate flavor, while its linden honey boasts a golden color and a floral flavor characteristic of Eastern European honeys. Moldova also sits at the doorstep of the largest honey importer in the world, the European Union, which imports more than 200,000 tons of honey per year. Despite this potential match of high-quality honey and high-value markets, at the outset of HVAA, most of Moldova's honey exports were sold in bulk packaging and often was used by processors in Europe as an additive to lower-quality honeys to improve their taste. These bulk exports meant that Moldovan producers were forgoing added value and profits.

Through the SEMP development process, HVAA and its partners pinpointed that processors and exporters varied significantly in size and capacity to control honey quality, to pack honey in value-added packaging, and to export a variety of products. The large-scale adoption of vertical hives (described in Objective 2) helped to mitigate some of the quality and quantity issues for honey processors, but packaging and development of market linkages remained a challenge. This began to change in Year 3, when the largest honey producers and exporters in Moldova formed the Honey Exporters Association (HEA) to address the obstacles to value-added production and marketing in Moldova. HEA and HVAA organized a market analysis exercise to review the market and positioning of Moldovan conventional and organic honey and identify market development opportunities. HVAA also provided a marketing assistance grant to HEA to support members' attendance at international trade fairs that are must-attend events on the international honey sector calendar: TuttoFood Trade Fair in Italy in May 2019; Apimondia Conference and Fair in Montreal, Canada, in September 2019; the ANUGA International Fair in Cologne, Germany; and Apimondia Conference and Fair in Istanbul, Turkey in August 2022. At these events, HEA members learned more about buyer demands and began to develop linkages to higher-value Western markets. Following the missions, HVAA assisted participants to negotiate with the identified leads and carry out first deliveries. For example, one participant shipped packed honey under the private label of an importer from Canada that was identified during the Apimondia Conference and another one concluded a contract with a niche retail chain in the Netherlands and has shipped a wide assortment of packed honey.

Understanding the importance of having a strong marketing and communications platform, HVAA supported developing and improving multi-lingual websites for both HEA and seven of its members, several of which included online storefronts, and provided branding and communications support to HEA and its members. The online shops the honey consolidators developed with HVAA support continued to slowly increase sales as local consumers became accustomed to online grocery shopping. For example, one producer received two to three orders per week during the first few months after their site was launched. Now, with

additional promotion and consumer acclimation to online shopping, the producer receives two to three orders per day.

In addition to supporting the association, HVAA also provided direct support to honey consolidators and processors to develop and implement local market penetration strategies, create and staff their commercial departments, design product packaging and labels, and negotiate with local retail chains and food distributors. HVAA provided grant support for two Moldovan honey exporters to access new sales channels by upgrading packing infrastructure, improving product development, and designing and using promotional activities in local and export markets. At the same time, HVAA provided capacity building to improve exporter marketing and sales skills.



"One of the goals reached in 2022 is delivery of honey in jars to a retail chain in the United Kingdom. Now, we're negotiating on extending sales to Germany within the same retail chain."

Nicanor Negru,
Director of the "Regina Naturii" company

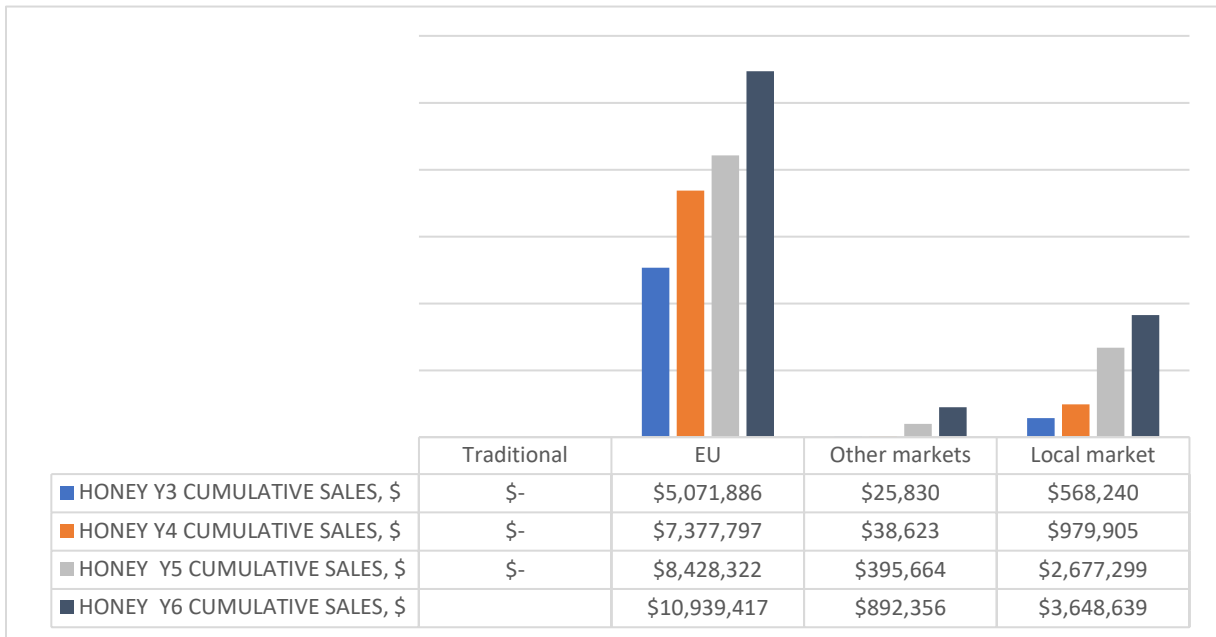
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One such grantee was Regina Naturii, a leading honey exporter, that successfully entered international markets with branded packed honey. Also, HVAA provided grant support for the company Apifera, a Moldovan honey packer, to pilot quick heat treatment of honey in order to prevent honey crystallization in jars, a natural process that can occur within 45 days of the packing date, but which is highly undesired/unacceptable by retailers and consumers (Exhibit 17). The upgraded processing technology enabled the company to greatly extend the period of guaranteed non-crystallization and ship its packed honey to distant markets such as Norway, Ireland, and North America and increase the share of packed honeys to 15 percent.

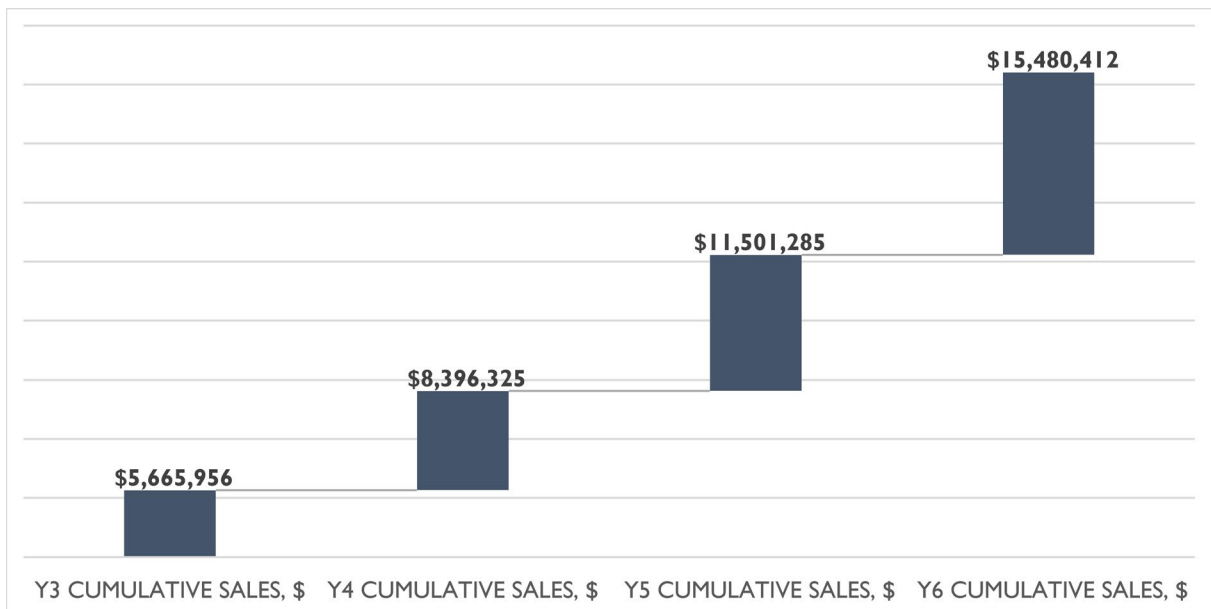
Exhibit 17. Equipment for quick heat treatment of honey to prevent honey crystallization in jars provided to the company Apifera



With these marketing breakthroughs and continued development of production capacity thanks in part to HVAA's production, workforce development (WFD), and association strengthening activities, the honey sector has achieved transformational changes over the past six years. The gains in sales are major, with the bulk of it on the EU market, and with impressive increases in domestic consumption, as well (Exhibit 18).

Exhibit 18. Cumulative HVAA-facilitated sales, honey

Overall sales increased by 20 to 28 percent on a year-by-year basis, or by 35 to 48 percent in cumulative values (Exhibit 19), reaching \$15.48 million at the end of Year 6.

Exhibit 19. Cumulative HVAA-facilitated sales in progress, honey

PACKED HONEY PRODUCED IN MOLDOVA IS REACHING EUROPEAN MARKETS

Regina Naturii has its own apiary and collects honey from over 1,000 small and medium beekeepers from across Moldova. Until its collaboration with HVAA, more than 97 percent of the honey the company produced was exported, but all of it was sold in bulk. HVAA supported Regina Naturii to modernize and automate its packaging and labeling capacity with high-tech equipment, tripling its packaging capacity and allowing the company to transition from selling bulk honey to more value-added, packed products. HVAA also assisted Regina Naturii to re-brand and launch a range of new products targeting individual consumers and the hotel, restaurant, and catering industries (HoReCa).

HVAA's comprehensive support to Regina Naturii is already showing results: the company's products are present in 80 percent of Moldovan retail, duty-free shops, and HoReCa outlets. Increased sales on the local market led the company to establish a Marketing and Sales Department that has grown to five employees. This, in turn, allowed the company to enter export markets with packed honey. In 2022, Regina Naturii became the first Moldovan honey company to sell its branded products in EU markets. The company's high-quality honey in retail packaging is currently sold through retail chains in Romania, the UK, and Germany and an online store in Malaysia.

OPEN-FIELD VEGETABLES VALUE CHAIN

To take advantage of irrigation resources put in place by the Millennium Challenge Corporation Compact Program (2010-2015) and to support the WUAs that manage them, HVAA promoted the cultivation and supply of open-field vegetables using contract farming mechanisms.

KNOWING THE MARKET

There are many roadblocks for farmers to successfully sell to retailers in Moldova. One constraint is a lack of knowledge regarding consumer demands and preferences for the domestic market, which is drastically understudied. To address the vast knowledge gaps, HVAA conducted the first comprehensive domestic market study on consumer practices and preferences in fresh and processed fruit and vegetable.

The nationwide survey of 1,200 Moldovans was completed in 2018-19, after which findings were presented at the “Differentiation and Innovation in Retail and Fast-Moving Consumer Goods” Conference, which was attended by all leading Moldovan retailers and fresh produce distributors, as well as individually to retailers.

Contract farming links producers with processors or fresh-market operators (such as retailers or distribution companies) prior to the growing season, which offers multiple benefits to producers, such as lowering risk by offering a guaranteed market. However, many producers in Moldova are hesitant to establish contracts with processors or fresh-market operators because payments are not “under the table” and the payment terms are slightly delayed in comparison to the open market. Additionally, there is a widespread belief that prices offered

by processors do not cover production costs.

To encourage the practice, HVAA conducted a comprehensive study on domestic demand for crops from major processors and retailers in Moldova in Year I that identified multiple gaps in processor and grower business relations that prevented both parties from mutually benefitting from each other, such as insecurities about volumes and prices, leading to limited investment in improved technologies and low availability of raw materials at relatively high costs. The study data were widely disseminated to encourage more farmers to establish contracts with processors and retailers, rather than selling on the open market where prices are unpredictable and market saturation is common.

HVAA developed the **“Growing Together” grant program** to showcase efficient models for developing long-term commercial relationships between processors and producers. To qualify for a grant, producers or processors had to show that they had a contract or potential contract in place. If the processor was an HVAA grantee, the money or equipment granted was given primarily to their partner producer to help them increase their yield, decrease the cost of production, and/or to produce to the processors’ exact specifications (Exhibit 20).

TRANSNISTRIAN AGRICULTURE SECTOR IS INTERESTED TO DIVERSIFY THE RANGE OF PRODUCTS AND EXPORT MARKETS

Every year, Transnistria, located on the left bank of Nistru River, produces over 10,000 tons of processed agriculture products such as canned and pickled vegetables, canned fruits, juices, and individually quick-frozen (IQF) vegetables. The sector is important for the region. The Baby Food Cannery in Tiraspol is one of the oldest and largest vegetable processors in the region. The company started to modernize its technologies and equipment over 15 years ago. For years, the company produced canned sweet corn, green peas, beans, and tomato paste, and a limited variety of IQF vegetables, sold under a partner's brand mainly on the Commonwealth of Independent States (CIS) market. IQF products were sold only in bulk unmarked bags of 10, 20, 25 kilograms for further repacking by the importer. This situation did not offer many prospects for the company's development or for market diversification.

To diversify the range of products and export markets, the company decided to increase production and harvesting of cauliflower and broccoli mainly for processing and some small volumes for the fresh market and to expand the production volume of final (processed) products. The processor partnered with HVAA to buy a modern harvesting platform to harvest and load cauliflower and broccoli in the field for transportation to the cannery for further processing. Also, with HVAA support, Baby Food Cannery diversified its products and developed the range of frozen and canned vegetables in consumer packaging under its own brand "Mr. Harvi" suitable for local and international markets. These changes were crucial for the company to diversify its sales, grow profits, enhance competitiveness and expand its exports to new higher paying markets.

Complementary to these achievements, HVAA assistance helped the processor to build strong partnerships with farmers in the region, which allowed the company to considerably increase production and harvesting of fresh cauliflower and broccoli for processing, resulting in increased production of processed products (IQF cauliflower and broccoli) and increased sales on traditional and EU markets.

HVAA organized 46 open-field demonstration days on the new technologies funded by the grants to promote contract farming. A total of 16 grants were awarded in Years 2-5 under the "Growing Together" program, resulting in \$17.4 million in sales for producers.

An HVAA survey of partners in September 2021 showed that these efforts paid off for processors and producers. Orhei-Vit cannery reported a 160 percent increase in the volume of gherkins processed in 2021 versus 2018 (the baseline year) and a 46 percent increase for green peas. The processor Alfa-Nistru increased its raw material suppliers by 70 percent (from 17 suppliers in 2018 to 29 in 2021), resulting in a 240-percent increase in the volume of gherkins and a 54-percent increase in tomatoes processed.

Tiraspol Baby Food Factory added more grower-suppliers to its initial roster of four contracted growers and tripled its volume of processed broccoli and cauliflower. Moreover, as the quality of its frozen broccoli and cauliflower increased following equipment upgrades,

the company started exporting its frozen cauliflower and broccoli to Serbia and Poland.

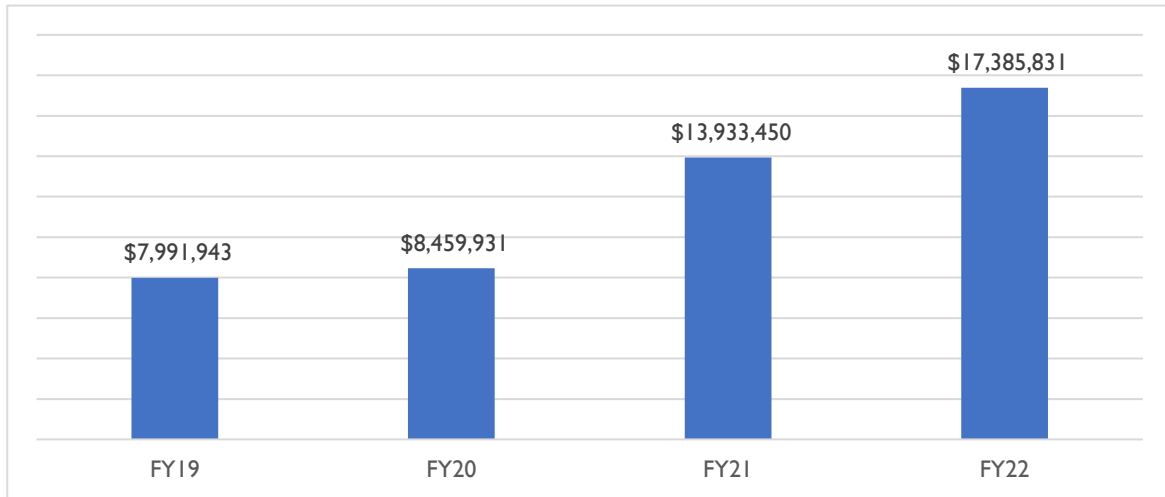
As the COVID-19 pandemic accelerated the transition from open-air markets to modern retail as the main channel for the distribution of fresh fruits and vegetables in Moldova, HVAA

Exhibit 20. Tomatoes harvested for processing in the farm of Igor Isac

partnered with three consolidator-distributors to improve the local supply chain for vegetable and fruit crops. By using improved packing technology and applying the best practices applied by the “Growing Together” program for processing open-field vegetables, HVAA sought to overcome some of the obstacles that traditionally prevented small-scale producers from accessing retail markets. In December 2021, one of these distributors expanded its packing and distribution program, purchasing vegetables and greens from local producers, packing, and distributing them to retailers, the foodservice industry, and online through its website under the trademark “Local Garden.” HVAA supported the distributor with a flow pack pillow-type packing machine that increased three-fold the company’s packing capacity, and it is no longer delaying or canceling orders placed by its customers. The equipment also extends product shelf life, reduces product losses, and ensures that Moldovan consumers have greater access to quality produce.

Although contract farming was a new concept in Moldova, it has gradually gained momentum as both growers and processors saw the benefits of working in partnership. Increased sales figures reflect the increased benefits of contract farming, as well as using Compact-funded irrigation infrastructure to grow open-field vegetables (Exhibit 21).

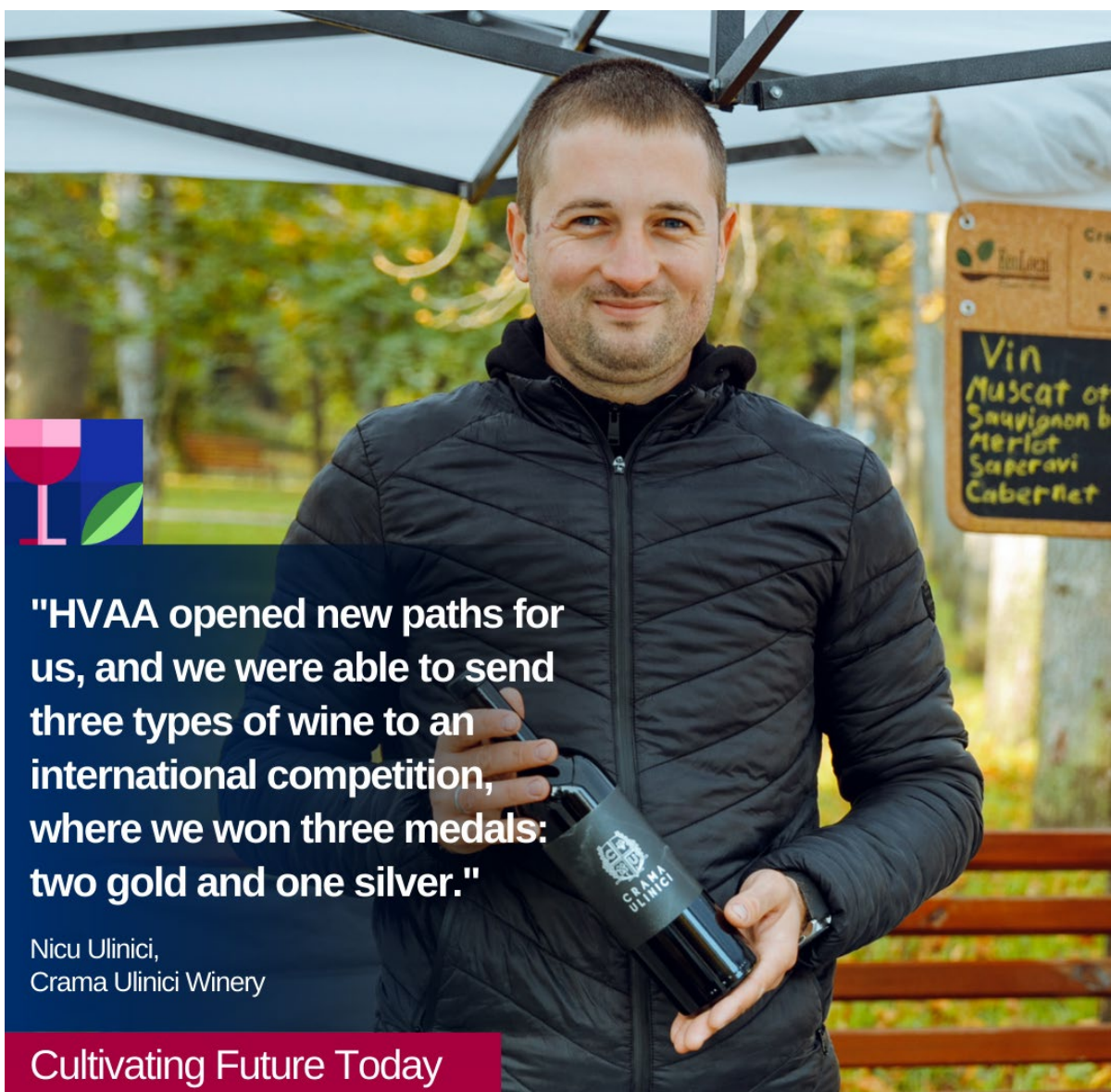
Exhibit 21. HVAA-facilitated sales of fresh open-field vegetables



WINE VALUE CHAIN

In Year 5, HVAA integrated the wine sector into its support program. The sector had previously been supported by four iterations of USAID competitiveness programs in Moldova. HVAA took on support to the sector as it was challenged by drought, which affected production, and the COVID-19 pandemic, which hindered many trade, marketing, and distribution efforts. Despite these challenges, HVAA continued to build markets for Moldovan wine both at home and abroad.

Moldova's export markets are primarily Romania, Poland, Czechia, and China, with other EU countries targeted to a lesser extent. To help Moldovan wines capture, maintain, and increase their share of these markets, HVAA worked in partnership with the National Office of Vine and Wine (ONVV), the Association of Small Winemakers (ASW), and individual wineries to



"HVAA opened new paths for us, and we were able to send three types of wine to an international competition, where we won three medals: two gold and one silver."

Nicu Ulinici,
Crama Ulinici Winery

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increase exports by building a positive image of the Wine of Moldova (WoM) brand and stimulate increased sales of high value-added wineries.

In 2021, HVAA established the Wine Export Support Activity (WESA) to provide individual support to wineries for breaking into export markets. Gitana Wineries, a WESA beneficiary, conducted a marketing and promotion campaign in Romania that included both social media campaigns and appearances on the “Chefs’ Arena” TV show on Romania’s most popular TV channel (ProTV). Gitana’s wines and vineyards, as well as Moldova as a wine-producing country, were showcased during the show. As a result, Gitana estimates an 18 percent increase in sales in Romania in 2022.

Following the experience of Gitana winery, HVAA extended assistance to four wineries to promote their wine on international markets using social media campaigns in target markets: Tomai Vinex (Romania), Salcuta Winery (the Netherlands), Agrici Wines (Romanian), and Doina Vin (Germany).

In Romania, which has shown an affinity for high-quality wines and high potential to absorb greater quantities of Moldovan bottled wines, HVAA supported ONVV to run a marketing campaign in Mega Image and Carrefour retail outlets. In Poland, HVAA partnered with Purcari Wineries Group to leverage its well-established market presence by carrying out a large online and retail campaign that promoted Moldovan wine, as well as fruit, honey, and the country’s tourism sector. In addition to their own wines under the Moldawska Dolina brand, Purcari Wineries promoted Moldovan brands and taglines such as “Be our guest!” (tourism), “Moldova – Taste Makes the Difference” (fruit), and “Moldova – Kraina Winem I Miodem Płynąca!” (Moldova is a country of wine and honey!). Purcari sold more than 100,000 bottles of wine through the campaign and generated an increased online consumer interest in Moldovan wine. It also introduced other Moldovan fruits to Polish consumers.

Participation in international wine competitions is an excellent way to raise the profile of Moldovan wines and demonstrate their quality to the international community of wine professionals. HVAA complemented ONVV’s efforts in 2021 and 2022 to enter wines in 48 international competitions. In particular, HVAA sponsored small, boutique wineries and transitional wineries that successfully converted from bulk to bottled wine production, and/or that achieved notable quality upgrades of their wine.

The wine sector achieved memorable successes at competitions in these areas. In 2021, Moldova wineries won 1,208 medals at 30 international wine competitions, a historic record. A quarter of the medals were won by small wineries, HVAA beneficiaries who were ASW members.

In 10 months of 2022– 781 **medals** at 18 international wine contests, 52 % **gold medals**, including 30 titles of best in show and grand gold.

In 2022, Fautor Winery’s 2017 Negre was named the best red wine in the world at the last edition of the Concours Mondial de Bruxelles, one of the most important wine competitions in the world. This accomplishment is the result, in part, of Fautor’s long-standing collaboration and

partnership with USAID projects. As a continuation of efforts so far, HVAA supported promotional activity and a social media marketing campaign for Fautor Winery (Exhibit 22). The title and awards were a big opportunity for WoM to communicate its performance to the world. In the campaign’s first stage, an international press release was issued in Moldova and Romania.

Exhibit 22. Social media promotional banner for the World’s Best Red Wine



Closer to home, HVAA supported the ASW and its members to raise awareness of their brand through a manage the “VinulMeu” (“MyWine”) campaign and the wine consumer community established in recent years. This effort also sought to improve ASW’s institutional communication with direct and indirect stakeholders about the association’s activities and achievements. HVAA also helped ASW to garner direct sales through small fairs held

Exhibit 22. Bahu Winery bottled wines at the “Big Wines from Small Winemakers” Fair



Exhibit 24. New brand for National Wine Day



throughout 2021 and 2022. To coincide with Chisinau City Day (October 14) in 2021, ASW launched a social media campaign, “Vinuri Mari de la Crame Mici” (“Big Wines from Small Winemakers”) (Exhibit 23).

All participants reported a very high impact on sales and awareness. HVAA also supported the DeVin and DeGust festival in late May 2022, which provided another opportunity for direct sales and for Moldovan consumers to sample high-quality Protected Geographical Indication (PGI) wines from small winemakers, and possibly discover new favorites. HVAA also supported ONVV to update the brand identity for National Wine Day, the most important wine industry event in Moldova (Exhibit 24).

The sector’s resilience in the face of successive challenges (drought, COVID-19, and the war in Ukraine) is a testament to USAID’s longstanding support to the sector over nearly 20 years.

MARKETING AND SALES



\$201,500,000

Facilitated sales



\$50,100,000

Domestic market



\$151,400,000

Export market



458

Companies assisted in sales

FACILITATED SALES PER SECTOR



\$102,400,000

Apples and Stone Fruit



\$17,300,000

Vegetables



\$29,800,000

Table Grapes



\$15,500,000

Honey



\$7,400,000



\$8,760,000

PRIVATE SECTOR CAPACITY TO COMPLY WITH EU AND INTERNATIONAL STANDARDS IN TARGETED VALUE CHAINS

To help producers bridge the gap between their production capacity and market requirements, HVAA designed and implemented a wide variety of production training and technical assistance activities to increase value chain capacity at production and PHH levels. Organized in cooperation with industry associations and other stakeholders and funded in part through the AITTF grants pool, Objective 2 activities were designed to create a demonstration effect. By showcasing the benefits of improved practices and technologies, HVAA hoped to inspire other value chain actors to replicate them.

SUB-OBJECTIVE 2.1: IMPROVE ADOPTION OF INNOVATIVE TECHNOLOGIES AND AGRICULTURAL PRACTICES IN TARGETED VALUE CHAINS

Over the past six years, HVAA introduced technologies new to Moldova that had transformational impact in their sectors, such as vertical hives and pergola planting systems. In each of its target value chains, HVAA's technical assistance, grants, knowledge sharing, training programs, study visits, and promotion of international quality standards helped producers to open doors to markets in Europe and beyond. HVAA's wide-ranging support improved production processes, from planting to packaging. In addition to sector-specific activities, described below, HVAA addressed production challenges that affect all high-value agriculture sectors in Moldova.

Promoting environmentally and socially responsible agriculture models.

The low level of awareness about proper waste management was an issue for Moldova for the last 30 years, and agriculture was not an exception. To promote good agriculture practices and environmentally responsible agriculture, HVAA developed and distributed media materials and informative publications on waste management in agriculture addressing plastic pollution and promoting basic steps to tackle it. The efforts had a notable impact: five farmers and 13 plastic collecting individuals supplied 40 tons of plastic drip-irrigation lines and plastic film for greenhouse cover from farmers to one recycling company in November-December 2021. In September 2022, HVAA learned that four of its grantees intended to recycle the plastic collected after several production seasons (plastic hoses) and facilitated cooperation and plastic recycling contracts with two Vocational and Educational Training (VET) Schools in Bubuieci and Nisporeni for future agricultural inputs that become waste.

HVAA facilitated a cooperation-based model between its grantees and non-profits working with marginalized and vulnerable groups by connecting a fruit and vegetable distribution company from Chisinau with a non-governmental organization (NGO) that collects food for poor and homeless inhabitants in Chisinau. The model was replicated by two other HVAA grantees that are fresh produce distributors.

To support and promote sustainability in the wine sector, HVAA facilitated the upgrading of wastewater treatment at small wineries, beneficiaries of the **Wine Pick-Up program**, through

coaching and mentorship activities. At least five small winemakers upgraded their current treatment systems, with three benefiting from co-financing through Organization for Entrepreneurial Development (ODA). HVAA promoted good agricultural practices in vineyards: incorporating pruning into soil instead of incineration and composting of organic material and sub-products of primary grape processing. HVAA also promoted composting by donating compost boxes to small wineries that run small-scale tourist facilities ('Crama'). Thus, organic residues and sub-products from winemaking can now be turned into organic fertilizer (compost).

HVAA started pilot activities to promote climate-smart irrigation through support to one WUA, which distributed three sets of soil-moisture sensors among its members, allowing the farmers to monitor soil humidity at three different depths and adjust the irrigation schedule and amount of water used. This practice can significantly improve the water usage ratio and avoid over-irrigation.

Exhibit 25. Grape planting material of "Certified" category



HVAA elaborated and executed 122 Environmental Monitoring and Mitigation Plans (EMMPs) over six years to ensure environmental compliance of HVAA activities. The EMMPs focused on mitigating the environmental risks associated with specific activities.



Improved planting materials and varieties. HVAA identified poor quality seedlings/planting material as a major constraint for the fruit, table grape, and berry value chains, as it leads to lower quality of harvested fruit, lower fruit yields, and subsequently higher per unit production costs — all negative impacts on Moldova’s competitiveness in international markets. Although Moldova has more than 3,000 varieties of plants officially registered, most varieties are not appropriate for modern cultivation methods and do not meet current market demands. This meant that farmers who chose to respond to market demands for certain

varieties were forced to bear the full cost of planting, which diminished their competitiveness in markets, particularly in the EU, where agriculture is heavily subsidized. They also were unable to legally market or export unapproved varieties, despite market demand for them. HVAA continually advocated for changes to the list of approved plant varieties that qualified for subsidized cultivation. HVAA worked together with its association partners to promote regulatory amendments of regulations that provided Moldovan farmers access to subsidies for plant varieties that are registered in the EU Commission’s Fruit Reproductive Material Information System (FRUMATIS) database, finally achieving success in late 2021. The new amendments support farmers’ investments in new plant varieties according to international standards and consumer requirements, which will increase competitiveness in export markets and offer more opportunities to sell at a higher price.

To address the lack of quality planting material for table grape production, HVAA brokered a partnership between USAID, the Ministry of Agriculture, ONVV, HEKS-EPER, and the Horticulture Research Institute (HRI), resulting in a memorandum of understanding (MoU) that was signed in May 2018 to rehabilitate HRI’s tissue culture laboratory, greenhouses, and scion mother stock plantations. Additionally, HVAA supported HRI with agricultural machinery to plant and manage the mother stock blocks and funded non-structural improvements to a greenhouse at the HRI’s tissue culture laboratory to make it functional.

Figure 26. New bushel-type box for apples, branded with “Moldova - Taste Makes the Difference”



These investments enabled private nurseries to produce certified, virus-free vines beginning in 2021, with potentially transformative impact on the sector (Exhibit 25).

Through its grant program, HVAA helped install the first thermo-treatment equipment for table grape planting materials in the Republic of Moldova at a major commercial nursery, the first of its kind in the former Soviet Union. Applying thermo-treatment ensures that planting materials are virus-free, leading to improved quality and quantity of harvested grapes. A survey of initial vineyards planted with heat treated vines showed better plant development. Applying thermo-treatment will help safeguard farmers' investments, ensuring that Moldovan grapes remain high-quality and increasing competitiveness in international markets.

Packaging. EU and other buyers have strict packaging requirements, and producers must be prepared to offer a variety of packaging options to secure deals. HVAA worked with producers to source packaging materials and meet international packaging standards. In many cases, this led to first-in-Moldova experiences with packaging, including installing flow pack packaging lines; developing a new bushel-type box with “Moldova - Taste Makes the Difference” branding, which allowed exporters to reduce transportation costs by about 20 percent compared to the Standard Bushel in Moldova (Exhibit 26); promoting returnable plastic boxes that can be used for 7-10 years; and producing cardboard fruit packing with lids that EU importers demand for apricots, plums, table grapes, and berries.

APPLES AND STONE FRUIT



\$102,400,000

Facilitated sales



1,487 ♀ 418 ♂ 1,069

Trained people



652

Firms and Farms with
adopted new practices



\$1,630,000

USAID investments



\$21,000,000

Additional investments generated

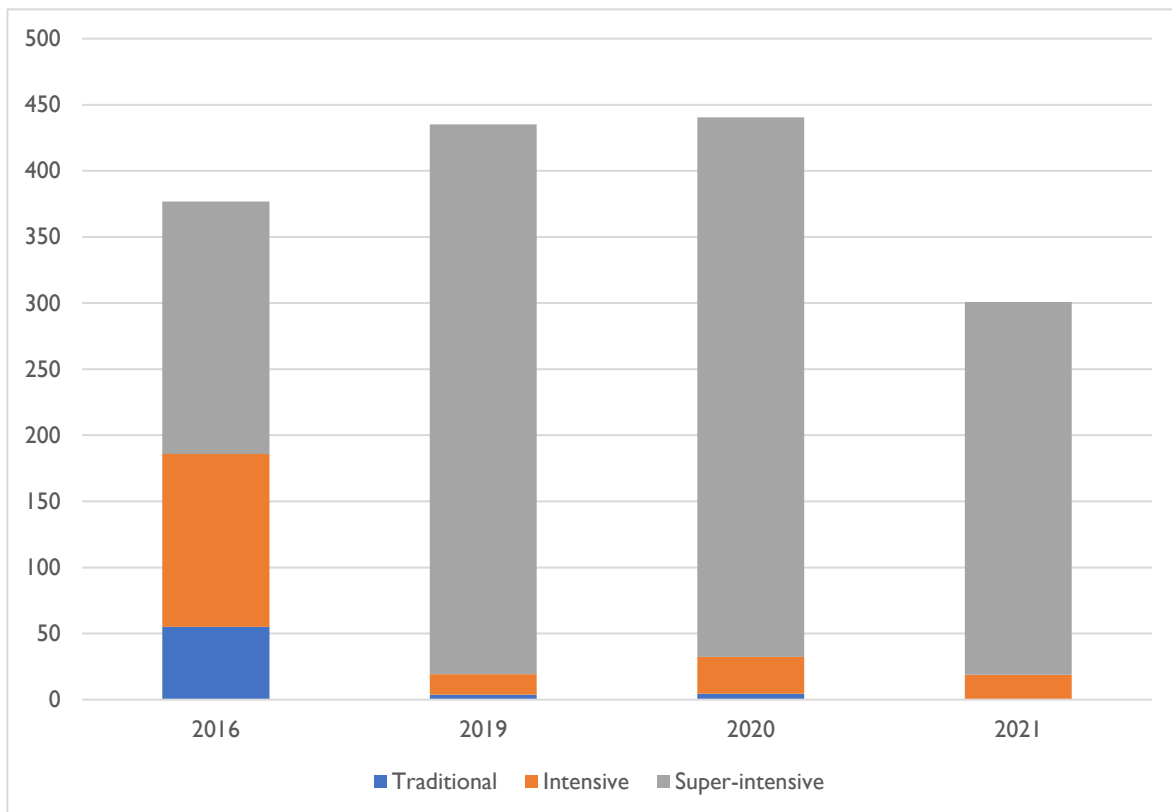


APPLES AND STONE FRUIT VALUE CHAIN

HVAA worked intensively with apple, apricot, plum, and sweet cherry producers to improve yield and product quality, responsiveness to market demands, and to modernize and diversify production. Working hand-in-hand with Association of Fruit Producers and Exporters Moldova Fruct (MFA) and other stakeholders, HVAA's technical assistance package (local and international consultancies, study tours, field days, manuals incorporating best practices and technologies, and media educational programming) helped Moldovan fruit growers better manage their orchards and achieve higher returns, leading to increased investments in new orchards. With HVAA support, Moldovan farmers invested in new orchards and planted over 7,000 hectares of new apple, sweet and sour cherry, plums, apricot, and peach orchards, according to Agency for Intervention and Payments in Agriculture (AIPA) data. During the last two years, HVAA noted a decrease in the areas of new planted orchards in favor of planting intensive and super-intensive orchards with higher investments, but also higher yields and better quality (Exhibit 27).

The transition to intensive orchards that HVAA and its partners promoted will lead to higher yields per hectare, increase total production, and improve Moldovan competitiveness in international markets for years to come.

Exhibit 27. Apple orchards by intensity progress, 2016-2021



Source: AIPA

Increase capacity of sector associations to help members to improve fruit quality through targeted trainings. To foster sustainability, HVAA delivered much of its technical assistance to the apple and stone fruit sector through grants to MFA to strengthen the association's capacity as a sector leader and service provider to members. Through 11 grants to MFA, HVAA reached 460 producers in the apple and stone fruit sector through a variety of capacity-building initiatives, including 48 trainings, 10 study tours, six conferences, and other activities. In addition, HVAA supported MFA to build the National Fruit Business Conference into an important gathering of sector leaders to network, share knowledge, and learn from local and international experts on modern production technologies and market trends. By 2020, MFA had transitioned from heavily relying on HVAA financial support to self-funding the conference through new partnerships and corporate sponsors, a major step toward financial sustainability. Similarly, in 2018, MFA launched the Fruit Day Exhibition to showcase technologies and practices that are presented during the National Fruit Business Conference in the field, which later was transformed into a sustainable annual activity based on private sector partnerships.

MFA and HVAA also helped to build the capacity of the Dniestr Fruit Association to increase access to capacity-building services for producers in Transnistria. This began with helping the association to assess member training needs and organize events to address them. Once Dniestr Fruit Association improved its capabilities, HVAA issued a grant to provide members with training and technical assistance and to help the association improve its marketing and communications tools, including a website with resources for members.³

Diversifying fruit production. Although apples and plums remain Moldova's largest orchard crops, fruit growers are increasingly diversifying production into other stone fruits, which provide higher profits and are in great demand in export markets. HVAA partnered with MFA to address the multiple production, harvest and PHH, food safety, and market challenges growers face in diversifying into stone fruits through strategic training initiatives and hands-on support.

In the 2022 marketing season, sweet cherry exports surpassed 14,000 tons (\$13 million), a 150 percent increase from the average in 2015-2017, while apricot exports surpassed 7,500 tons (\$4.4 million), double the average in 2015-2017. Quantities exported to the EU registered the highest growth. This is the result of complex HVAA assistance provided to fruit growers to adopt production and PHH best practices, in line with the innovative technologies employed by the largest cherry-producing countries. HVAA held a Sweet Cherry Conference in Year 1 to promote the advantages of sweet cherry production and organized a series of "orchard walks" for participants to observe the high quality and yields that could be achieved in intensive sweet cherry orchards, as well as the practices and technologies (including improved varieties) that led to these results. HVAA funded multiple visits by international experts in sweet cherry

³ dnfruit.md

production and PHH, who traveled extensively around Moldova and provided hands-on guidance and demonstrations to producers, local consultants, university personnel, and orchard and packinghouse managers and workers. Issues covered during the visited included: cherry varieties and rootstocks adapted to Moldova, irrigation monitoring and scheduling, pruning, nutrition, and using gibberellic acid and calcium to improve post-harvest fruit quality. Finally, HVAA conducted a study tour for cherry producers to Washington state (USA) and developed the Sweet Cherry Production Guide, a detailed guidebook to cherry production that is a resource for producers, educators, local consultants, and associations.

Exhibit 28. Sweet cherry grading line provided to Farm-Prod



In addition to building technical knowledge sector-wide, HVAA provided grants to producers to reduce the costs of investing in new technologies. With HVAA support, two leading Moldovan sweet cherry grower-exporters installed the first sweet cherry grading lines in Moldova, which allowed them to meet EU buyers' grading requirements (see Exhibit 28). These lines led to increased sales prices of Moldovan sweet cherries by at least 15 percent, which is an even more dramatic profit margin increase. They further increased productivity by over 25 percent, as time was not wasted identifying fruit with defects. Shelf life for the fruit also increased by using the new technology, as the period from harvest to cooling is significantly reduced using the new sorting technology.

Exhibit 29. Apricots harvested by the Dorvalandro, HVAA assisted company, for export to the EU



In Year 1, HVAA identified apricots as a crop offering higher margins and a way to diversify and reduce risk from Moldova's high dependency on apple exports to Russia. After a visit to Moldova, an international expert confirmed that the country had the required soil and climatic conditions to produce apricots at the same quality level as those from Italy, the European benchmark for apricot quality. HVAA invested heavily in the apricot value chain by organizing a study tour to Italy, providing in-person and remote international and local production expertise, publishing the Apricot Production Guide, and organizing multiple training events (Exhibit 29). In particular, routine visits from an Italian apricot production expert helped ensure growers' success with this relatively new-to-Moldova crop. On each assignment, individual consulting was complemented by 1-2 training events co-organized with MFA for groups of 15-25 growers, crop advisors, and teaching staff of the State Agrarian University of Moldova (SAUM). HVAA also assisted multiple apricot growers to obtain GLOBALG.A.P. and GRASP certifications for their operations.

More than 40 different types of practices were adopted by 652 companies working in the fruit value chain. To implement the new practices and technologies, up to \$20.9 million was generated in investment (Exhibit 30).

Exhibit 30. New practices and investments in the fruit value chain



FRUIT

- Intensive and super-intensive orchards
- Anti-hail nets
- Modern rootstocks
- Pheromone traps
- Meteorological stations
- Cold storages

MAIN PRACTICES

TABLE GRAPES



\$29,800,000

Facilitated sales



1,001 ♀ 283 ♂ 718

Trained people



567

Firms and Farms with
adopted new practices



\$1,390,000

USAID investments



\$9,200,000

Additional generated investments



TABLE GRAPES VALUE CHAIN

Moldova has extensive traditions in grape growing; the country's cultivation of table grapes stretches back more than 5,000 years. After land privatization in the early 1990s, table grapes were identified as a crop that could be grown profitably even on the small land plots that resulted. Since that time, the rate of establishing new table grape vineyards has increased steadily. For the last 15 years, table grapes have comprised 45-55 percent of new vineyard plantings each year. Currently, an estimated 19,000 hectares are planted with table grapes in Moldova, primarily in the central and southern regions of the country, and the country produces approximately 100,000 tons of table grapes per year.

Pergola trellising systems. Moldovan table grape growers almost exclusively use the "Vertical Espalier" vine training system, which they initially adopted in the Soviet era. Table grape growers employed the system, as viticulture research was focused on wine grape production and no other alternatives were seriously studied or tried. The Vertical Espalier system produces satisfactory results for wine grapes, but is not well-suited for table grapes, leading to lower yield quality and quantity. All advanced table grape-producing countries have adopted intensive vine training systems, such as Tendone/Pergola and Gable systems, that are specific to table grape production and maximize both productivity and quality. As a result, yields of 40-45 metric tons (MT)/hectare are the norm in countries such as Chile, Italy, Spain, and the United States, while 10-12 MT/hectare is considered a very high yield for a Moldovan table grape grower.

Although there are multiple advantages to Pergola and Gable systems, many feared that

ADVANTAGES OF PERGOLA SYSTEMS

1. The leaves of the grape vine are better exposed to much-needed sunlight, which increases photosynthesis and improves grape coloring.
2. Improved air flow thanks to reduced biomass helps to avoid mold development on the vines, leaves, and berries.
3. Pest treatments and spray coverage to reduce diseases are more effective.
4. Increased ground shade preserves moisture in hot, arid climates.
5. Winter pruning and harvesting are much easier, allowing growers to double the productivity of labor.
6. Improved quality of bunches, with berries that are less prone to cracking during harvest.
7. Yields of 40-45 MT per hectare, almost quadruple the yield using traditional trellising system.
8. Improved quality of grapes, including larger, more uniform bunches.

Moldova's colder climate was not a suitable environment for grape cultivation on Pergolas due to the risk of frost. HVAA decided to pilot table grape vineyards using the Pergola and Gable systems, using grant funds to co-invest and reduce the risk for producers. In Years 2-5, HVAA provided 10 grants to eight companies to adopt Pergola/Gable systems, with grantees contributing at least \$3.9 million in the new systems. The grants covered key grape-producing regions (Cahul, Ialoveni, and Orhei rayons), and the resulting vineyards served as demonstrations of the potential of these technologies, as well as open-air classrooms for local crop advisors and table grape producers. To ensure the

success of the new vineyards, HVAA identified an Italian table grape expert who conducted numerous short-term assignments in Moldova to support growers' transition to Pergola systems. The consultant provided on-the-job training for the grantees' staff on managing Pergola system vineyards, covering topics such as controlling vine growth and vigor, crop nutrition and using growth regulators to increase bunch and berry size, integrated pest management, and early disease detection and mitigation.



In addition to international expertise, HVAA helped build a cadre of local consultants through a grant with APSM Cahul. In November 2019, HVAA and APSM Cahul conducted a study tour to Italy for local grape consultants who received world-class Training of Trainers (ToT). APSM Cahul started providing Pergola and Gable-related consultancies to Moldovan growers using

these local experts under the guidance of the international expert. As a positive sign of sustainability, the network of Pergola demonstration plots that HVAA established is used by APESM, APSM Cahul, and other regional organizations for training events organized without HVAA contribution, demonstrating the industry's wide acceptance of the intensive grape production technologies HVAA piloted.

The introduction of Pergola and Gable trellising systems is transforming Moldova's table grape sector. In 2016, fewer than 10 hectares were planted using modern trellising systems; by September 2020, the area had expanded to 357 hectares, and had reached up to 400 hectares by the end of the Fiscal Year (FY) 2022 (Exhibit 31). This is a direct result of HVAA's demonstration of the benefits of Pergola/Gable systems and its complementary efforts to reduce the considerable cost of planting a new vineyard on Pergola by successfully advocating for government subsidies for Pergola systems (see Objective 4) and identifying local sourcing options for inputs. With newly planted vineyards coming online each year, HVAA's promotion and support of Pergola systems will continue to lead to increased yields and sales for Moldova's table grape farmers, and the impact of HVAA's work will continue to be felt for years to come.

Exhibit 31. AMV Grape company's Pergola table grape plantation



Seedless table grape varieties. Following consumer demand around the world for seedless table grapes, HVAA assisted HRI to help Moldovan producers diversify grape varieties that are

BERRIES



\$7,400,000

Facilitated sales



754 ♀ 279 ♂ 475

Trained people



567

Firms and Farms with
adopted new practices



\$750,000

USAID investments



\$2,700,000

Additional investments generated

Department of Agriculture's (USDA) Plant Genetic Resources Unit to start testing seven "cold hardy" American seedless varieties in Moldova, donated by USDA. Cornell University provided another two patented varieties under a Material Transfer Agreement. Further testing of seedless varieties (or hybrids) will be required before a critical mass of producers will be willing to adopt them.

Post-harvest handling (PHH) in table grape value chain. Over the life of the project, HVAA issued seven grants to businesses and associations to demonstrate improved post-harvest practices and technologies, such as pre-cooling, using plastic liners with SO₂ pads, and other critical post-harvest infrastructure that play a critical role in improving the quality of Moldovan table grapes for export markets. This included grants to improve packaging, including shifting from wooden boxes to more sustainable cardboard boxes, in line with European retailer requirements (Exhibit 32). HVAA grants also led to establishing five sorting and packing line for table grapes, which allow producers to fulfill customer orders more quickly and to double the packers' productivity. This included the first packing line in Gagauzia, one of the largest grape and stone fruit producing regions of the country that lacked appropriate PHH infrastructure.

Exhibit 32. Demonstration of different packages for table grapes used by Fratii Vaipan company

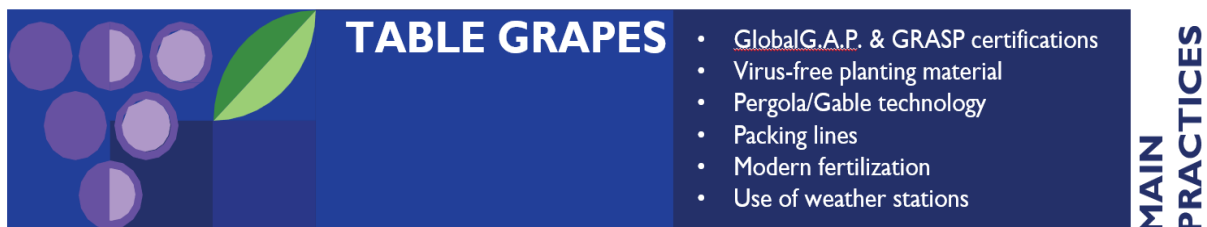


To further increase PHH capacity in Gagauzia, HVAA supported Agro Oguz Association, a regional association of fruit and grape producers from Gagauzia, to conduct a feasibility study for a new packing house to be funded in part by the Regional Development Agency and to be managed under a public-private partnership between Agro Oguz and the Municipality of Comrat. According to HVAA's 2018 needs assessment of PHH infrastructure in Gagauzia, there was a critical need for investments in the region that would provide regional farmers with capacity to compete on international markets with their fruit and grapes.

The Comrat Packing House will have a capacity of 1,000 tons and will provide services to regional farmers who cannot afford to invest in their own post-harvest facility. HVAA support leveraged the approval of 30 million MDL (\$1.5 million) in financing from the Ministry of Economy, Regional Development Agency Gagauzia, Gagauzia Executive Committee, and Agro Oguz members. In addition, HVAA provided Agro Oguz and its partners with technical assistance for trainings for the Comrat Municipal Government and Agro Oguz on how to properly establish a management mechanism for the publicly owned asset. Gagauzian stakeholders were trained on establishing member-based groups, such as cooperatives or producer groups that are eligible to apply to use the facility and determining the roles and responsibilities of the association and its members in the public-private partnership. The facility is expected to be finalized by the end of 2023.

More than 20 different types of practices were adopted by 567 table grape producers and exporters. To implement the new practices and technologies, up to \$9.2 million was generated in investment (Exhibit 33).

Exhibit 33. New practices and investments in the table grape value chain



BERRIES VALUE CHAIN

Like honey, HVAA selected the berry sector to support because of its relatively low barriers to entry and the potential for a small-business owner to generate a good income with a relatively small amount of land. HVAA also forecast strong potential for growth in the berry sector, thanks to steadily increasing global demand for berries, a trend that would be replicated in Moldova. However, at the outset of HVAA, the berry sector was just beginning to realize its potential. Although berry production was an attractive business opportunity for young farmers and small entities due to smaller upfront investment requirements, overall volumes remained low. Production increases were largely gained by increasing hectares under cultivation, not by improving production practices, and Moldova's berry sector needed significant production upgrades and marketing consolidation in order to transform. Although the sector is still in the earliest stages of development, HVAA's partnership with pioneering berry growers in Moldova has demonstrated that with an improved foundation for production, the sector has the potential to become a viable contributor to Moldova's agricultural sector and source of economic opportunities for rural Moldovans.

Increasing berry producers' technical knowledge. As berry production is a relatively nascent sector in Moldova, there are fewer technical resources for berry producers, including a lack of sector specialists or input suppliers who can provide extension services to producers. HVAA worked to jump-start the growth of technical knowledge and to introduce modern production technologies in the sector. HVAA and BoM established Winter Berry School, an annual conference for berry producers that took advantage of producers' downtime and availability for training in winter. The first Winter Berry School was held in Year 3 and trained berry growers on cultivating strawberry, raspberry, blackberry, and niche crops. The Winter Berry School was repeated annually in Years 4-6, moving online during the COVID-19 pandemic, and adapted to fit participants' shorter attention spans for online trainings.

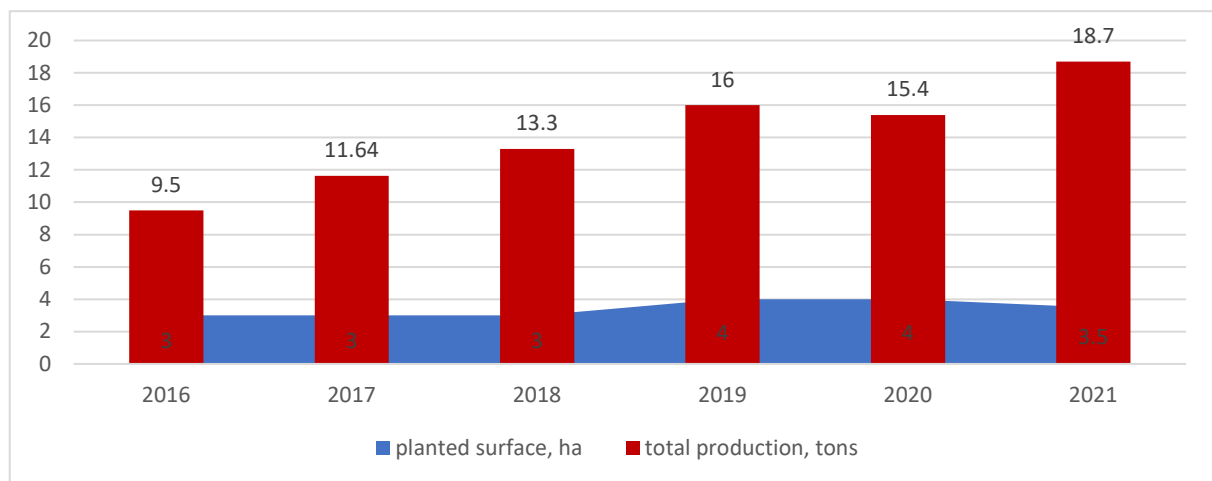
To increase berry producers' technical knowledge and exposure to best international practices, HVAA supported several study tours to leading or emerging berry-producing countries. In particular, HVAA looked to Bosnia and Herzegovina, where a USAID program had helped a similarly nascent Bosnia berry sector increase production by 2,000 percent and reach EU markets in less than six years. Study tours in Year 4 and Year 6, as well as in-country trainings provided by Bosnian berry production and marketing specialists, helped to increase Moldovan producers' technical know-how in producing planting material for strawberries and raspberries; new varieties of strawberries and raspberries; support systems (trellis system); covers culture (high tunnels) for raspberries; fertigation equipment and techniques for use; post-harvesting equipment for pre-cooling and quick freezing; and packaging and marketing of berries. A study tour to the Netherlands demonstrated state-of-the-art berry production, such as farms that cultivate their entire berry crops indoors.

This study tour helped producers to study all strawberry cultivation systems and to see the highest level of strawberry production: planting material production, variety selection, fruit production, and marketing. During the study tour to Serbia in summer 2022, producers and representatives of associations and public institutions received valuable information and knowledge about berry production trends and raspberry processing. Following the study visit, two producers invested in processing equipment that they saw in Serbia, which they have already used, and the processing equipment was a key element in setting up Soft Fruit Collection and Processing Centers.

Even though the planted berry surfaces have not expanded, productivity has increased from 3.33 tons per hectare in 2016 to 5.34 tons per hectare in 2021, denoting that more and more producers started to apply intensive production practices (Exhibit 34).

As described under Objective 4 below, HVAA helped to ensure the next generation of berry producers are well-versed in modern production practices and familiar with the latest production technologies by developing a new theoretical and practical berry curriculum at Nisporeni VET School, which offers the only berry-related educational program in Moldova. With additional HVAA assistance, the school established a demo plot, where students practice modern cultivation systems for different berry crops like currants, raspberry, blackberry, aronia, sea buckthorn, goji, and gooseberry. To provide real-world learning opportunities for students, HVAA facilitated student visits to berry producers so students could see modern

Exhibit 34. Berry production in Moldova



Source: statistica.gov.md

berry cultivation techniques firsthand.

Due to the pandemic's effects on in-person training or conferences, HVAA and BoM developed 28 educational videos on a wide range of topics to help berry growers increase yields and quality and better market their products on local and export markets. HVAA was able to transfer knowledge via the videos while observing COVID-19 protocols and farmers

could watch the trainings when they wanted, and as often as they wanted. The production-oriented videos addressed fertigation for berries produced under hydroponics, soil and water analysis, crop protection approaches for conventionally and organically produced berries, and post-harvest management for the fresh market. The marketing-oriented videos addressed product and process certification for local and export markets, berry marketing and promotion on the local market, and best practices in e-commerce of berry-based products. HVAA developed an educational video on best practices in integrating berry production in tourism activities for berry growers looking to diversify their income sources. The training videos were widely shared on BoM's social media pages and are housed in the association's electronic library on its website for continuing access.

HVAA developed multiple short technical handbooks with recommendations for berry production based on innovative technologies and practices tested at HVAA grantee demonstration plots. The handbooks focus on open-field strawberry production, strawberry production in substrates, strawberry harvesting and PHH, raspberry harvesting and PHH, and raspberry production on trellises. They were distributed to farmers at HVAA events and through the BoM website.

Promoting new berry technologies. To promote modernizing Moldova's berry sector, HVAA launched the "Berry Innovation Program" grants program in Year 2. Over the life of the project, the grants were used to support new production technologies, showcase new berry varieties, encourage using modern equipment, and demonstrate technologies for PHH and infrastructure. Through 27 grants, HVAA supported berry growers to install "first in Moldova" technologies that are changing the landscape of the berry sector, including:

- **Improved PHH.** Developing post-harvest infrastructure – such as pre-cooling, grading and packing lines, and cold chain logistics – is key for consolidating supply and expanding the export of Moldovan berries. PDG Fruct company in Calarasi rayon (part of the Berries Group Cooperative) purchased the first strawberry inspection line in Moldova in June 2019, and plans to increase production to 400 tons thanks to the improved competitiveness of its offer.
- **Pre-cooling equipment to extend berry shelf life.** ElitExpert company, part of a WUA, received a 7-ton mobile refrigerator to pre-cool its strawberries immediately after harvesting and transported to the store. The grantee applied HVAA-recommended harvest and PHH practices to extend the shelf life of its strawberries by up to 10 days, generating higher income and preventing losses, while selling its 100 tons of berries to local buyers and exporters.
- **Modern trellising system for raspberry production equipped with anti-hail net.** Iliescu Natalia Family Farm established the first plantation in

Moldova protected from hail, demonstrating the efficiency of the modern trellis and anti-hail net for growing raspberries. The grantee imported four raspberry varieties from the University of California, assisted by HVAA, in order to select the best one for growing in Moldovan conditions. The grantee applied all HVAA recommendations and developed a growing plantation, selected and extended production of the Caroline cultivar, and promoted the new raspberry variety for official registration in Moldova.

- **Modern trellising system equipped with shading net for raspberry and blackberry production.** Belyi Most Association in Transnistria developed two demonstration plots to demonstrate the efficiency of the shading net in preserving the quality of raspberry and blackberry fruits, which are affected by sunburn during the fruiting period. The plots were established on both banks of the Dniester River in order to increase farmers' access to the demonstration plots and facilitate sharing experience among berry producers from all regions of Moldova.
- **Soil-less cultivation of berries.** AgroLux-Dia company demonstrated that strawberry production on coconut substrate with a modern fertigation system double yields, increases workforce productivity, reduces the use of pesticides, and leads to higher prices due to earlier harvest. HVAA and its partners widely circulated this information to stakeholders throughout the country to encourage widespread adoption (see Exhibit 35).
- **A high tunnel complex to produce high-quality planting material.** Berries Group Cooperative established a new high tunnel complex, covering an area of about 4,000 square meters, equipped with a computerized control center that monitors temperature and humidity inside the greenhouse, and computerized fertigation station to provide the mother plants and daughter plants with needed nutrients adjusted to their development stage.

The first professional strawberry nursery in Moldova, the complex was developed to produce high-quality, virus-free tray plants that were previously unavailable in Moldova (see below, *Introducing new cultivars*).

HVAA provided each grantee with support from a U.S. berry expert who gave each one specific recommendations and guidance. In addition, the consultant developed a ToT for national consultants to build a roster of local consultants and trainers in the berry sector. HVAA engaged berry experts from Bosnia to develop ToT programs that focused on variety selection, production of planting material, establishing berry plantations, crop nutrition, irrigation, harvesting, cooling, packing, and processing operations.

Exhibit 35. Dmitrii Bass from Agrolux-Dia demonstrating soil-less berry cultivation technology



Introducing new cultivars. The majority of berry growers in Moldova use the same varieties of berries, which leads to a surplus of berries at the exact same time, lowering prices and profit margins. At the start of HVAA, no certified, disease- and virus-free planting material was available for berry crops from local nurseries. To address these critical gaps, HVAA worked with U.S. commercial nurseries to identify and import four new strawberry varieties and four new raspberry varieties (purchased by grantees) that can be harvested either earlier or later than typical varieties already in Moldova, allowing growers to sell when market prices are higher.

To make the new varieties available to growers, HVAA partnered with Berries Group Cooperative to establish the first nursery that produces virus- and disease-free strawberry plant propagation material. With support from an HVAA grant, Berries Group Cooperative established a large nursery with three production areas: a mother plantation inside a high tunnel that uses substrates and fertigation to cultivate the rooting material (runners) for harvest; a rooting area inside a high tunnel, equipped with humidity control and a micro-sprinkler (fog type) system, where the strawberry runners are rooted in pallet cells;

Exhibit 36. Berries Group nursery for strawberry planting material



and an acclimatization area where the rooted tray plants acclimate to environmental and climatic conditions (Exhibit 36). The nursery started operating in summer 2020, focusing on the Onebor/Marmolada variety that the market demanded. In its first testing and production cycle, the cooperative produced around a half million plants that were shipped to five local farmers to establish 10 hectares of new strawberry plantations in early spring 2021. Based on farmers' observational data, the seedling transplant survival rate was over 99 percent, compared to 80 percent for frigo-type imported seedlings, which was the current market benchmark. In 2021, the cooperative invested its own resources to expand the high tunnel complex by another 3,000 square meters, demonstrating production of strawberries on the substrate in two crops per year and using the planting material it produced.

Support to Transnistrian berry producers. To ensure that all berry producers from different regions of the country benefit from its support, HVAA worked in close collaboration with the Belyi Most Association, the leading association of horticultural producers in Transnistria. Overall, HVAA issued five grants to the association, while the association and its members contributed significant amount of their own funds. Belyi Most set up six plots demonstrating improved production technologies and held 66 events with 1,398 growers, crop advisors, students, and teaching staff.



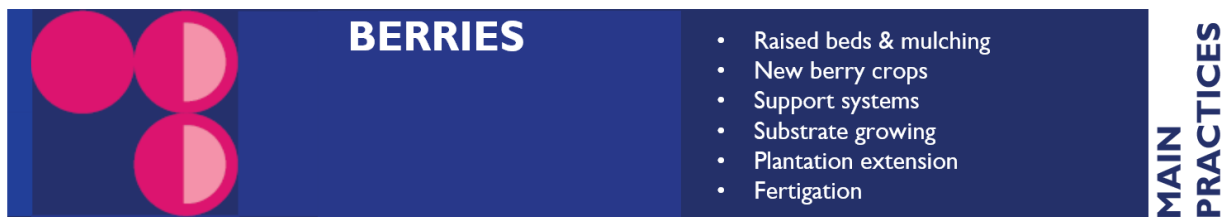
There were several study visits on the Right Bank of the Nistru River, which fostered greater dialogue between growers on both sides of the Nistru. The association established a small production facility to make planting material more widely available and built an informal producer group that imported high-quality planting materials from Italy.

HVAA also partnered with Belyi Most to create skills-based learning opportunities for students at the Tiraspol Agricultural College and establish a greenhouse and demonstration plot for berry production at the school and a pergola demonstration site for table grape production. As a result of Belyi Most's wide-reaching grant activities, more than 60 percent of berry growers in the region adopted modern technologies that resulted in higher yields, such as using high quality frigo planting material for strawberries; planting strawberries on raised beds

with polythene mulch to optimize water use and reduce the risk of soil-borne diseases; and using high and low tunnels for berry production, thereby enabling early or late season harvest. The shading nets control humidity and the berries grow larger and ripe without being burnt by the sun, while at the same time decreasing the risks for mite attacks (mites reproduce much slower without sun) and other illnesses. In the end, the berries are much larger in size, much sweeter, and have a more marketable appearance.

More than 28 different types of practices were adopted by 543 berry growers, generating up to \$2.9 million in private investment (Exhibit 37).

Exhibit 37. New practices and investments in the berry sector



HONEY



\$15,500,000

Facilitated sales



2,747 ♀ 351 ♂ 2,396

Trained people



1,069

Firms and Farms with
adopted new practices



\$750,000

USAID investments



\$2,700,000

Additional investments generated



HONEY VALUE CHAIN

Moldova has many natural advantages for beekeeping. Honeybees are native to Eastern Europe, and beekeeping is a time-honored traditional craft. Moldova is also blessed with a diverse flora that yields acacia, linden, and sunflower honey during every season. The honey produced in Moldova, particularly acacia, is of very high quality and in demand on the global marketplace. Despite the country's advantages, much of Moldova's apicultural potential was unrealized because beekeepers practiced beekeeping on a small scale, using labor-intensive management with traditional technology and hives that were large, difficult to move, and required constant attention. A lack of integrated pest management (IPM) meant that beekeepers suffered significant hive losses due to parasitic mites and sales losses due to chemical residues in their honey.

HVAA designed an outreach and infrastructure improvement program for the sector. Nicknamed "from hobby to business," HVAA's designed a strategy for the honey sector to help beekeepers make the leap from a recreational pastime to business enterprise by bringing their operations to scale through the adoption of improved technologies that ensure quality and make beekeeping profitable enough to become the primary income source for a family. Due to the low economic barriers to entry (beekeepers do not have to own land or purchase

Exhibit 38. Vertical hives that HVAA donated in Year 2 to 30 beekeepers



expensive equipment), HVAA placed particular emphasis on supporting women and youth to adopt professional beekeeping.

Vertical hives. One of the most transformational technologies HVAA introduced to Moldova was vertical hives. Prior to HVAA, the majority of Moldovan beekeepers used a variety of traditional horizontal or large Dadant Blatt hives that required intensive management and were difficult to manufacture and move. Due to these constraints, most beekeepers could manage only 100-150 hives. By contrast, vertical hives, which are the international standard, are easy to manufacture, move, and manage, allowing individual beekeepers to increase the number of hives in their operations. In Year 1, HVAA and the National Beekeepers Association of the Republic of Moldova (NBARM) began a series of workshops that resulted in developing a standard design for vertical hives in Moldova. Hive standardization simplified management and transportation for beekeepers and facilitated economic hive manufacturing and distribution.

To promote adoption of vertical hives, in Year 2, HVAA awarded a grant to NBARM to distribute 2,400 vertical beehives to 30 competitively selected Moldovan beekeepers from around the country, including Transnistria (Exhibit 38). The beekeepers were able to dramatically expand production and transform their hobby into a business with vertical hives. To further promote adoption of vertical hives, HVAA awarded a follow-on grant in Year 3 to NBARM to distribute 1,600 vertical beehives to 20 competitively selected Moldovan beekeepers.

A critical component of the grant activities was demonstrating the efficacy of the vertical hive system, which allows beekeepers to exponentially expand the number of hives per worker in an apiary and to increase yields per hive. HVAA rolled out an extensive training program in collaboration with NBARM to ensure beekeepers' success and developed educational videos on Moldova's agriculture-focused TV channel, AgroTV, on different aspects of hive management.⁴ In the first year of the grant, beekeepers using vertical hives harvested between 38.6 kilograms and 54.8 kilograms of honey per hive, versus the national average of 25.5 kilograms. The vertical hives also allowed beekeepers to produce mono-floral honey (35-45 percent of harvest), which sells for significantly higher prices than poli-floral honey. The increased yield per hive, coupled with the ability for one beekeeper to manage 50-60 vertical hives per day compared to 30-35 traditional hives, allowed beekeepers to exponentially increase their incomes.

Although many beekeepers strongly resisted vertical hives at first, the increased productivity possible with vertical hives convinced even those who were initially skeptical to adopt the technology, as demonstrated by hive sales. For example, in 2017, 5 percent of the hives sold by Moldovan hive manufacturer ApiNord were vertical hives. By 2018, that number had grown to 30 percent, driven by HVAA's vertical hive educational and promotional activities. By 2020,

⁴ agrotv.md/agricultura-cu-valoare-adaugata

90 percent of the hives sold by ApiNord were vertical hives. Two other large hive manufacturers in Moldova reported a similar sales trend, with vertical hives making up more than 90 percent of all hives sold.

Developing training center model. Building on the success of its vertical hive program and recognizing the need to tailor training programs to the region-specific needs of beekeepers, in 2020, NBARM and HVAA established three Regional Beekeeping Consulting and Training Centers (CICAs, using the Romanian acronym) in Glodeni, Ialoveni, and Cahul, localities where NBARM had previously established demonstration apiaries for vertical hives. Based on the pilot CICA results in their first year, NBARM extended the CICA network in 2021 with another three CICAs in Soroca, Edinet, and Hulboaca. Each CICA received support to develop customized training materials. CICA training events were well attended despite the COVID-19 pandemic, with a total of 724 participants. NBARM also supported the CICAs to pilot a consulting and mentoring program that helped beekeepers put knowledge from the trainings into practice and reinforce the hobby-to-business strategy. NBARM mentors conducted 120 field visits, with additional demand-based support provided through the Viber groups established by each CICA. At the end of the 2020 bee wintering period, CICA-trained beekeepers showed a colony loss rate of 5-15 percent, while other NBARM members reported losses of 30-50 percent (a typical loss rate, even in countries with more developed beekeeping sectors, is between 10-20 percent), thus proving the value of CICA training. A random survey of CICA beekeepers in August 2021 found that 70 percent of CICA beekeepers had adopted at least one improved practice or technology.

Protecting bee colonies from poisoning. Bee poisoning occurs each year in Moldova due to insecticide application near apiaries when crops are in bloom. In some cases, more than 60 percent of bee colonies were lost due to insecticide poisoning, which negatively affected both beekeepers and farmers who require pollination to increase crop productivity. HVAA took a multi-faceted approach to working with stakeholders to prevent bee poisoning. In 2020, HVAA partnered with NBARM and the UniAgroProtect Association (UAP), which represents field crop farmers, to launch the national awareness campaign #Oamenipentrualbina (or #PeopleforBees in English).

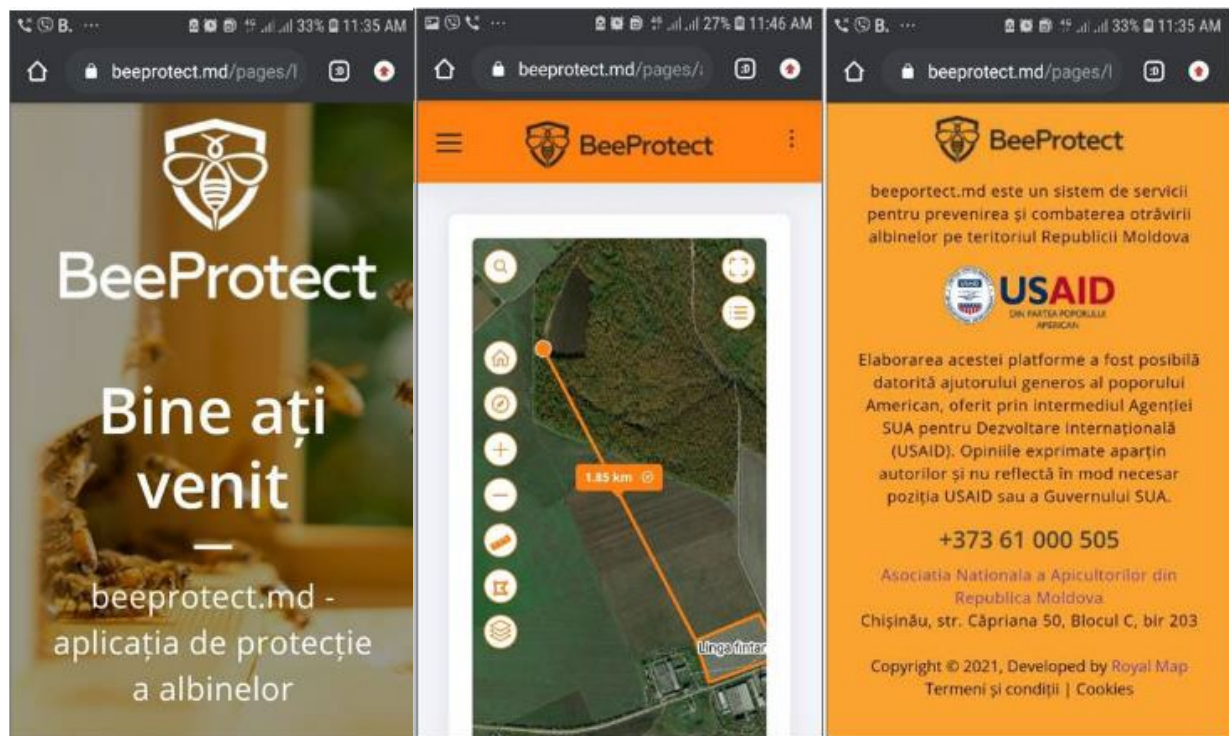
The campaign focused on the importance of cooperation between beekeepers and growers to reduce bee poisoning from crop insecticides. The campaign began before the blooming season and reached a wide audience through various media tools, such as promotional video, billboards, social media posts, flyers, posters, and other communication tools.⁵ In addition, UAP and NBARM organized 10 regional seminars and joined another 15 seminars organized by input suppliers throughout the country, where UAP and NBARM presented on bee poisoning prevention, promoted IPM to reduce pesticide use, and shared informational materials.

⁵ www.facebook.com/ANARM.md/videos/2631846283781542

To further reduce the risk of bee poisoning, HVAA and NBARM developed the BeeProtect web application, in partnership with USAID ICT Excellence Center Project (Tekwill) (Exhibit 39). BeeProtect is a tool used to warn beekeepers when sprayings of plant protection products will take place in the vicinity of their apiaries. Users such as agricultural growers and beekeepers can conveniently access the digital platform on a personal computer or smartphone and can receive notifications through the popular messenger application Viber.⁶ HVAA supported pilot testing the tool with users to ensure functionality. In addition, HVAA worked with NBARM and the Ministry of Agriculture and Food Industry (MAFI) to draft legal amendments that will make BeeProtect use mandatory under Moldovan law.

Prior to introducing it on a national scale, HVAA piloted BeeProtect regionally in 2022 in Ialoveni rayon, in close partnership with the National Food Safety Agency (ANSA), NBARM, Ialoveni inspectors, and mayoralities. In total, 148 beekeepers and agricultural producers participated in practical trainings that covered legal aspects and registering with and using the web app. HVAA collected 90 comprehensive questionnaires with valuable information on the incidence of bee poisoning and participants' knowledge of legal provisions regarding spraying and apiary relocation notifications. HVAA presented the findings during a public event in September 2022. By the end of the project, there were 282 users registered on the platform.

Exhibit 39. BeeProtect platform interface



⁶ www.BeeProtect.md

Piloting organic production as a niche product. Although Moldovan honey is very high quality, there is strong market competition. To improve competitiveness, Moldovan beekeepers need to develop niche products, such as certified organic honey, for high-paying markets. Organic honey is produced from the nectar of organically grown plants or wildflowers, and with the growing global demand for healthy and organic products, organic production can offer higher returns for beekeepers. Converting standard honey production to organic production requires a significant amount of time and investment. A minimum of two years is required for the conversion period, but despite these requisites, there are already many beekeepers in Moldova who are willing to put in the hard work and investment.

Through HVAA grants in 2020 and 2021, two Moldovan honey processors, Apicola Lux and Regina Naturii companies, and their beekeepers obtained the EU-recognized certification of Moldovan organic honey as individual beekeepers and as a group, with 19 organic honey production certifications issued. So far, over 100 tons of organic honey have been exported to the EU.

Regina Naturii developed a new brand for jarred linden, acacia, and multi-floral organic honey that makes the new product recognizable for health-conscious consumers locally as well as in the EU, Asia, and the Middle East.

Exhibit 40. MoldApis president Petru Sacara working in the laboratory to artificially inseminate Carpathian breed queen bees



Improving quality of honey through producing local genetic material resistant to diseases and climate change. The health and efficiency of bee families, as well as the volume and quality of honey, are determined by the quality of genetic material. At least 80,000 queen bees are needed every year for beekeepers to develop and maintain the health and efficiency of bee families. Meanwhile, only seven queen bee reproducers are officially registered in Moldova. They have the capacity to produce only one-sixth of the queen bees needed annually for the beekeeping sector.

PRODUCING LOCAL GENETIC MATERIAL RESISTANT TO DISEASES AND CLIMATE CHANGE

Over a year after opening the first laboratory for artificial insemination of queen bees, the MoldApis Association and a group of beekeepers started developing a closed circuit to produce high-yielding and productive queen bees to form bee families. Controlled mating of queen bees prevents impurity of the breed and allows identifying queen bees with exceptional traits that help to improve bee family health and apiary productivity, thus increasing the profitability of the beekeeping business. “We aim to have our Moldovan bee in 3-4 years, and to replace the import of queen bees from abroad,” said Petru Sacara, President of MoldApis Association.

Beekeepers who have procured these queen bees say they have managed to form disease-resistant and highly productive bee families, and more and more beekeepers are interested in obtaining queen bees with improved genetic characteristics. So MoldApis invested in developing a production base for breeding queen bees and expanding the laboratory.

The Transnistrian Association of Beekeepers followed the production model of high-quality genetic material for beekeepers that MoldApis developed with HVAA support. In partnership with NBARM, the Transnistrian Association of Beekeepers procured a similar laboratory to artificially inseminate queen bees.

As a result, many beekeepers have to reproduce queen bees by themselves or import them unofficially, but these queen bees do not meet the necessary genetic quality and health conditions. Since artificial insemination of queen bees is an extremely important step in selecting, conserving, and improving genetic material, HVAA assisted MoldApis to buy its first laboratory and equipment for artificially inseminating queen bees (Exhibit 40). The laboratory is used to artificially inseminate Carpathian breed queen bees, selected from families with special genetic characteristics. HVAA provided trainings for Bubuieci VET School and SAUM students and private breeders on queen bee reproduction and improving genetic quality.

More than 10 different types of practices were adopted by 1,567 beekeepers. To implement the new practices and technologies, up to \$2.7 million was generated in investment (Exhibit 41).

Exhibit 41. New practices and investments in the honey sector



HONEY

- New marketing techniques
- Online sales
- Organic honey production
- Vertical hives use
- Organic acid treatments
- Varroa monitoring & control
- Monitoring registers

MAIN PRACTICES

VEGETABLES



\$17,400,000

Facilitated sales



1,390 ♀ 399 ♂ 991

Trained people



684

Firms and Farms with
adopted new practices



\$770,000

USAID investments



\$6,800,000

Additional investments generated

OPEN-FIELD VEGETABLES VALUE CHAIN

Vegetable production remains one of the main horticultural sectors in Moldova, providing fresh vegetables to consumers and raw material to the processing industry, for domestic and export sales. Favorable climatic and soil conditions allow the cultivation of more than 60 species of vegetable crops in Moldova, and the rehabilitation of irrigation infrastructure during the Millennium Challenge Corporation Compact increased the potential for cultivation on irrigated land.

Recognizing market demand from processors on the one hand and underutilized land and water resources on the other, HVAA was determined to help vegetable growers maximize the economic opportunities in the open-field vegetable sector. HVAA began promoting *contract farming*, whereby producers and processors are linked prior to the growing season and negotiate sales contracts. Contract farming also protects Moldovan producers from large fluctuations in market prices due to oversupply. In addition to supporting producers to negotiate sales contracts, HVAA also provided extensive assistance to considerably improve production technology.

Exhibit 42. Carrot harvesting equipment provided to Tamara Cecoi Family Farm



Contract farming is a relatively new concept in Moldova. Distrust between producers and processors, as well as the weak enforceability of contracts in Moldova, made it challenging to

establish contract farming, despite the benefits to both producers and processors. HVAA developed a grants program branded “Growing Together,” which required producers or processors to show that they had a contract or potential contract in place to qualify for a grant. If the processor was a grantee, HVAA gave the money or equipment granted, in most cases, to their partner producer(s) to help them increase their yield, decrease the cost of production, and/or produce to the processors’ exact specifications. Grants supported investments in tomatoes for processing; gherkin and cucumber production using trellis systems and nets; mechanical harvesting of onions, carrots, red beets, broccoli, and cauliflower; sweet and round pepper production using trellis systems; and drip irrigation and fertigation systems; and modern water pumps, among others (Exhibit 42). As with all grants, HVAA used the grantee sites to hold demonstration days on the new technologies funded by the grant. In Years 2-5, HVAA held 57 open-field demonstration days, through which the project also



"Implementation of modern technologies ensures good harvest, and due to HVAA assistance, my experience of producing gherkins on a trellising system is well appreciated and taken over by other farmers in Moldova."

Sergiu Bunduchi,
Farmer

Cultivating Future Today

promoted contract farming. A total of 26 grants were awarded in Years 2-5 to support the open-field vegetable sector.

Along with showcasing improved technologies and practices, HVAA worked with processors to promote greater level of trust among growers. This included holding four Open Door events at processors' factory sites, to which they invited current and prospective vegetable farmers to learn about the results of the past season, future contract farming opportunities, and technological requirements. In some cases, processors offered interest-free loans for inputs, reducing the entry barrier for smallholder farmers. For many farmers, this was the first opportunity to visit a processing facility, and the events built greater levels of trust between farmers and their processor partners. HVAA also supported processors to develop dedicated information materials targeting farmers to promote transparency in contract farming.

Recognizing that contracts were weak and ambiguous, HVAA mentored processors to include several contract conditions, such as agreed quality specifications, supply volume, minimum unit price per size class, delivery window, type of packaging, and payment terms. Processors also created improved communication materials, including question and answer sections on their websites, to increase transparency in the contract process.

Exhibit 43. Farmer Ilia Fedorciucov explaining the benefits of producing sweet pepper on supports



Although progress has been slow, contract farming is gradually gaining momentum in Moldova, thanks to the benefits both growers and processors have realized under HVAA-funded grants and training activities. An HVAA survey of partners in September 2021 showed that these efforts paid off. For example, Orhei-Vit cannery reported a 160 percent increase in the volume of gherkins processed in 2021 versus 2018 (the baseline year) and a 46 percent increase for green peas. Processor Alfa-Nistru increased the number of raw material suppliers by 70 percent (from 17 suppliers in 2018 to 29 in 2021), resulting in a 240 percent increase in the volume of gherkins and 54 percent of tomatoes processed. These arrangements benefited farmers, as well. Alfa-Nistru established three collection and grading points in partner communities that committed to cultivate gherkins and other vegetables for processing on a contract basis. These collection points saved significant time and costs for growers, as each grower would normally need to travel up to 70 kilometers to the processing facility with their produce. In addition, the grading lines improved calibration procedures, reducing the chances for disputes between growers and the processor. Alfa Nistru identified a lead farmer in each village to serve as a broker between the processor and other farmers, promote participation, and provide technical assistance. For example, in the Cunicea village, Floresti rayon, a farmer

that hosted an HVAA/Alfa-Nistru sweet pepper production demonstration plot in 2019, mobilized nine other farmers to grow gherkins for Alfa-Nistru in 2020 (Exhibit 43).

Alfa-Nistru hired the farmer to provide ongoing technical assistance and consultancy services to neighboring farmers. Participant farmers also attended trainings at a vertical (trellising) gherkin production demonstration plot that Alfa-Nistru established under the grant. The technology doubled yields on the 11 hectares of gherkins planted by the community, with 80 percent of the harvest contracted by the processor. This additional volume produced in Cunicea village represented 34 percent of Alfa-Nistru's gherkin supply in 2020.



Based on the gherkin trellising technology demonstrated in 2019 on one hectare of land as part of a HVAA grant activity in Edinet district, farmer Dumitru Mațuc invested his own funds in one additional hectare of land using trellising technology. Producing net-trellised gherkins was new for Moldovan agriculture, but by applying this technology, Dumitru Matuc increased the quality and health of the plants, which helped him to quadruple his yield at harvest.

In 2021, Dumitru Matuc obtained 8.5 to 11.5 MDL per one kilogram of gherkins delivered on a contractual basis to a nearby processor, while the price at Chisinau wholesale market was 5 MDL per one kilogram.

In another example, HVAA partnered with Transnistrian producer Zavod Konservov Detskogo Pitaniya (ZKDP, or Baby Food Factory in English) and five growers from Transnistria to promote contract farming for processing, specifically targeting broccoli and cauliflower. HVAA supported the processor to identify and build commercial relationships with farmers in the region who could produce vegetables for processing on a contractual basis, then procured cutting equipment for broccoli and cauliflower to be cut directly in the field at the five producers' farms. This equipment dramatically reduced the required harvesting and post-harvest preparation time, allowing ZKDP to increase its production of frozen cauliflower and broccoli per season, while reducing reliance on manual labor. Despite weather challenges and a relative lack of experience in growing these two crops, the increased supply of raw materials in 2020 allowed the processor to increase annual sales of frozen broccoli and cauliflower by approximately an 80 percent increase from 2019 and reflected an outstanding return HVAA investment in just one season. With HVAA support, the company increased production of these commodities from 462 tons in 2019 to 1,170 tons in 2021.

Due to HVAA's efforts, more than 680 farms and firms adopted new practices related to the open-field vegetable value chain. Mulching technology, support systems, water and moisture meters, mechanical harvesters, safety equipment for employees, and soil and water analysis were among the new technologies and practices used by the vegetable growers, who invested more than \$6.8 million to improve their businesses (Exhibit 44)

Exhibit 44. New practices and investments in the vegetable sector



WINE SECTOR



\$15,200,000

Facilitated sales



184 ♀ 53 ♂ 131

Trained people



79

Firms and Farms with
adopted new practices



\$300,000

USAID investments



\$1,700,000

Additional investments generated

WINE VALUE CHAIN

In Year 5, HVAA added the wine sector to its targeted value chains, aiming to enhance the economic resilience of the Moldovan high-value agriculture value chains affected by the COVID-19 pandemic, as well as expand HVAA's assistance to support Moldova's wine value chain recovering from the disruption caused by the pandemic. HVAA assistance extended the work of three generations of USAID programs supporting the sector, including, most recently, the Moldova Competitiveness Program (MCP).

HVAA built on MCP's Product Quality Upgrading Program and the ASW Mentorship Program, which sought to help small grape growers and mid-sized wineries make the leap from cheap grape and bulk wine producers to producers of high-quality bottled wine. Once bottled, high-quality wines can bring the small wine producers' profits of over \$600,000, which is seven times more than the profits they would gain by simply selling the grapes, and three times more than selling it as low quality by-liter wine.

29 ASW wineries assisted
Over 390,000 liters of wine
produced
Over 163,000 bottles bottled

The ASW Mentorship Program is a peer-to-peer assistance activity that provides emerging small wine producers with mentorship from experienced winemakers and gives them access to a unique marketing and promotion platform focused on quality and the concept of "author" wines.

During the 2021-2022 harvesting/production season, three local consultants visited 26 small and four transitional wineries under the mentorship program and developed production plans for each grape variety that was to be processed. With the consultants' assistance, the wine producers processed the wine, observed the necessary production protocols, analyzed the wines produced, and performed tastings to decide on the next steps. Additionally, HVAA provided technical assistance to improve the environmentally friendly practices at the companies.

To make the association more sustainable and able to respond quickly to its members' needs, HVAA provided ASW with critical equipment that can be rented out to small wineries that cannot afford to buy their own bottle washing and corking equipment. The equipment helps producers bottle wines according to regulations and add value to final products.

In addition to the mentorship program, HVAA assisted ASW to design, develop, organize, and deliver a training course tailored to the needs of small wine producers. The training program became part of ASW's permanent income-generating services.

As 80 percent of Moldovan wine is exported, it is important to adhere to international requirements to be competitive in international markets. HVAA worked with ASW to support a quality monitoring program for ASW members that would reduce the costs of wine certification in compliance with the PGI and WoM quality standards. HVAA subcontracted an accredited laboratory and a certification body to conduct physio-chemical index testing and

provide safety and organoleptic analysis services for ASW members in compliance with the Technical Regulation “Organization of the Wine Market,” approved by Government Decision #356/2015.

Exhibit 45. Dumitru Olarasu from Mingir Winery with the equipment procured with an HVAA grant



HVAA supported small and transitional wineries in Moldova under the Product Quality Upgrading Program (PQUP) Program, implemented jointly with ONVV, by delivering the necessary professional expertise and equipment during the most critical stages of wine production. The PQUP goal is to support ‘transition wineries’ to graduate to the ‘quality over quantity’ paradigm. HVAA supported 16 grant activities for 13 small and three transition wineries, providing critically needed assistance to the participants. The wineries acquired high-performance technological equipment in compliance with international production standards: pneumatic presses, stainless steel storage and fermentation vessels, cooling systems, and barrels for maturation (Exhibit 45). The equipment significantly contributed to improving wine quality and the wineries’ ability to comply with worker safety legal requirements and promoted environmentally friendly practices, such as good waste management. PQUP enabled beneficiaries to convert their business models from producing bulk wine to bottled wine production with higher added value, thus expanding the quantity of industry wines that are compatible with WoM and PGI quality standards. Among the HVAA grantees were two

exceptional start-ups that had their first harvest in 2020: Alterego, a woman-owned winery, and family-owned Rizov Familna.

With HVAA support, these wineries participated in the Vinarium International Wine contest in Bucharest, Romania, in July 2021, and received gold medals for their first vintages. Alterego was awarded for the Pinot Grigio 2020 and Rizov Familna Winery was awarded for its Sauvignon Blanc 2020.

Up to 10 types of new practices and technologies were implemented by 79 wineries with HVAA support, facilitating an investment of over \$1.7 million (Exhibit 46).



Exhibit 46. New practices and investments in the wine sector



WINE

- Bottling & Labeling
- New marketing techniques
- Online sales
- Orange wine production technology
- Use of selected low-alcohol active yeasts
- Fermentation at controlled temperature

MAIN PRACTICES

SUB-OBJECTIVE 2.2: IMPROVE PRIVATE SECTOR COMPLIANCE WITH INTERNATIONAL/EU FOOD/QUALITY STANDARDS

International quality certifications are the key to opening the door of global markets. Certifications such as GLOBALG.A.P. demonstrate to buyers that producers and exporters follow safe and sustainable agriculture practices, while adherence to GRASP standards demonstrates that producers maintain socially responsible business practices demanded by consumers. HVAA helped to build a critical mass of standard-certified producers and exports as part of its efforts to reorient horticultural producers toward high-value – and highly demanding – markets.

From only a few GLOBALG.A.P.-certified companies in Year 1, Moldova now has more GLOBALG.A.P.-certified companies than any other post-Soviet country. This feat was accomplished through an intensive effort to promote GLOBALG.A.P. and its benefits and to make certification more accessible and affordable for Moldovan producers and exporters. In Year 1, HVAA translated the core GLOBALG.A.P. standards from English to Romanian to increase accessibility and to use them in trainings and consultancies. HVAA developed a GLOBALG.A.P. Implementation Guide in line with the requirements of the new edition of GLOBALG.A.P. standards and national legislation. Finally, HVAA developed tailored comprehensive trainings for businesses pursuing GLOBALG.A.P. certification, which were supplemented by direct technical assistance on an as-needed basis. HVAA provided GLOBALG.A.P. training to Moldova producers and exporters throughout the life of the Activity.

HVAA supplemented its technical assistance package with grants in Years 3 and 4 to reduce the costs of certification.

Exhibit 47. The cohort of GLOBALG.A.P.-certified fruit producers, assisted by HVAA in Year 4



A total of 45 producers received grants to support their GLOBALG.A.P. certification, all of whom received certification. In total, 75 companies in Moldova received GLOBALG.A.P. certification with HVAA support. The demand for GLOBALG.A.P. certification grew exponentially over the life of the project (Exhibit 47). The majority of GLOBALG.A.P.-certified companies were apple and stone fruit producers. In addition to GLOBALG.A.P., HVAA supported companies to achieve certification in other internationally recognized standards, including seven in ISO 22000 food safety management certification and 19 beekeepers with organic certification.

A growing number of buyers required assurance that their products were produced in a socially responsible manner, making GRASP certification increasingly necessary to remain competitive in global markets. As the GRASP National Interpretation Guidelines are required to be developed by local stakeholders for all countries with more than 20 GRASP certifications, HVAA partnered with two certification bodies to develop the GRASP Interpretation Guidelines for Moldova, which provide guidance to Moldovan producers and assessors on how GRASP requirements are linked to the legal framework of the country.



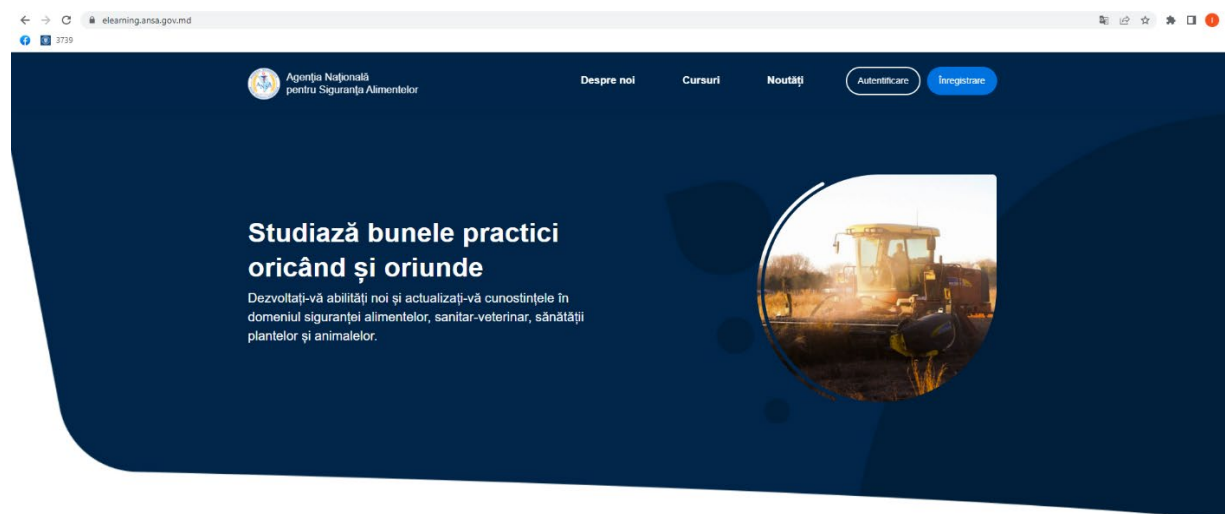
The focus on hygiene and food safety standards in GLOBALG.A.P. and GRASP standards proved to be an asset when the COVID-19 pandemic began in 2020. Certified companies were able to quickly apply their internal hygiene procedures to deal with the workplace challenges imposed by COVID-19, reducing health risks for employees. To help the horticultural sector understand

and adopt legal requirements brought on by the pandemic, HVAA developed a guide that was presented during an online training held for MFA members in April 2020 and later disseminated through multiple articles and TV appearances. At the request of ANSA's top management, HVAA organized similar online trainings in May for more than 200 ANSA field inspectors, who used this knowledge to help agri-food operators adopt workforce safety measures and best practices to ensure food supply continuity for local and export markets.

In 2022, HVAA provided technical assistance to three Moldovan fruit producers to undergo Sedex Members Ethical Trade Audit (SMETA), a more comprehensive audit of social standards required by European buyers for entering higher-value markets. The successful international audits were completed in November 2022.

HVAA supported ANSA to promote sustainable use of pesticides in horticultural production. Compliance with European buyers' pesticide residue requirements is a major issue for producers seeking to expand sales to the EU, as the active ingredients and their Maximum Residue Levels (MRL) are continuously reviewed. To build a stronger image of the Moldovan fresh produce sector and ensure compliance with increasingly strict local and international pesticide use and residue regulations, the government approved Government Decision 42/2020 in early 2020, which established a requirement that all growers must have staff appropriately trained on sustainable use of pesticides by the ANSA. To support compliance with the legislation, HVAA issued a grant to ANSA to create and deliver an e-learning platform with certification course on the sustainable use of pesticides (Exhibit 48).⁷ The course included 13 training modules consisting of presentation slides, slide-by-slide transcripts, video presentations, reading materials, and quizzes with multiple choice questions. Considering the many professional pesticide applicators and distributors that needed to be trained within a short period and restrictions on mass gatherings due to the COVID-19 pandemic, HVAA procured an e-learning platform for ANSA to deliver the training remotely. This helped to ensure that the training is institutionalized and available for years to come.

Exhibit 48. E-learning platform developed by ANSA with HVAA support



To help growers, HVAA developed a 10-step checklist for managing pesticide residues. The checklist emphasizes active communication with buyers and within the organization (specifically between production and sales departments), adoption of IPM approaches, and self-checking compliance with buyer requirements before any shipment is made. The checklist and supporting commentary were widely shared with agricultural media and industry associations to reach the target audience at the start of the growing season. HVAA also produced an animated video of the checklist in Romanian and Russian to disseminate the message to the

⁷ elearning.ansa.gov.md

growers more effectively.⁸ These animated videos were released to coincide with the start of the new agricultural production season at the end of winter and the start of spring 2022. Finally, HVAA complemented the checklist with the user guide “Acute Reference Dose Calculator by Greenyard,” a free online platform that allows growers to quickly analyze the pesticide residues detected in their products for compliance with the official EU MRL, as well as the more stringent private requirements of the largest 15 retailers operating on the German market.

To help the wine sector align with the International Sustainability Standards, HVAA partnered with ONVV to assist wineries in obtaining certificates for Sustainable Viticulture FAIR and GREEN, the seal of sustainable viticulture. HVAA and ONVV helped winegrowers to objectively measure and verify sustainability goals, e.g., reduction of carbon dioxide emissions, higher biodiversity, and social commitment. Consumers recognize sustainable wines by the bottle label and can thus choose a sustainable product. According to The Global Sustainability Study 2021, wine consumption trends globally show a growing interest in sustainable wines produced through environmentally friendly practices.

In the first stage, three wineries piloted this process, and their experience and good practice will be extended to other wine producers in Moldova. Athenga experts visited six Moldovan wineries in September 2022 to audit the grape plantations, wineries, and tourism facilities. The evaluations were carried out in accordance with the Wine Sustainability Code’s 150 criteria, which include auditing practices related to environmental protection, protection of biodiversity and natural resources, social responsibility, personnel policies, social commitments, and the preservation and promotion of heritage and cultural landscapes.

As a result of the audit, Athenga proposed to certify eligible wineries based on the timeframes in the individual action plans and include the first wineries from Moldova into the FAIR’N GREEN network starting with the 2023 harvest.

⁸ www.facebook.com/watch/?ref=search&v=295796175375934&external_log_id=1b3f25cd-63af-4122-810c-478315c953bb&q=managementul%20nivelului%20reziduri

OBJECTIVE 3: STRENGTHEN CAPACITIES OF MEMBER-BASED GROUPS (PRODUCER GROUPS, WUAS, AND INDUSTRY ASSOCIATIONS) TO SERVE THEIR MEMBERS IN TARGETED VALUE CHAINS

Industry associations play a critical role in mobilizing resources for development and growth. In countries with fragile stability, such as Moldova, associations are called upon to fulfill many of the functions governments often play, such as providing training and extension services or creating strategic development plans for their sectors. Therefore, HVAA considered capacity building for the sector associations representing Moldova's honey, berry, fruit, grape, and other producers as a critical component to the growth and development of its targeted value chains. HVAA worked with associations to strengthen their organizational capacity to serve as sector leaders, provide much-needed support to their members, and work in partnership with HVAA to achieve economic growth by developing the high-value agriculture sector.

HVAA supported national-level associations (MFA, NBARM, and BoM) throughout the life of the project with the goal of ensuring the long-term ability of the associations to provide relevant, timely, and effective support for their members and to develop their value chains. HVAA recognized three key aspects of sustainability:

- **Financial** - which requires a steady flow of funds and revenue generation to continue and maintain the organization's work. Without financial sustainability, desired services cannot be funded.
- **Institutional** - which requires the organization to have adequate managerial, human, material, and internal regulatory working resources. Without good management and governance, the organization will not be truly member-driven and capable to design and execute programs and services.
- **Programmatic** - which relates to the organization's ability to continue providing quality services without donor support.

To identify each association's strengths and weaknesses in each of these sustainability aspects, HVAA used USAID's Organizational Capacity Assessment (OCA), a structured tool for a facilitated self-assessment of an organization's capacity followed by action planning for capacity improvements.⁹ The OCA measures organizational performance in relation to governance and legal structure, financial management and controls, administration and procurement, human resources, program management, project performance management, organizational management, and sustainability. Following the OCA, which is facilitated by a third party to prevent scoring bias, HVAA and its partner associations established low, medium, and high priorities to guide HVAA interventions for the year. HVAA also integrated organizational development initiatives into technical grant activities, and thus, most grants to the associations

⁹ <https://usaidlearninglab.org/resources/organizational-capacity-assessment>

included both institutional development and programmatic milestones to balance the need for both technical and organizational growth.

HVAA also used the OCA scores to inform the development of medium-term (up to five years) strategic plans for its primary association partners. Prior to HVAA, no national-level sector association had ever undergone a strategic planning exercise, which made the organizations vulnerable during administrative turnover and changes in elected board members with differing priorities. In many cases, the organizations had no concrete long-term goals, plans for financial sustainability, or mechanisms for collecting feedback from members to ensure that resources are best serving the organization at large. During Years 2 and 3 (and again as needed in Year 6), HVAA engaged local and international experts to provide ongoing technical support for MFA, NBARM, and BoM to prepare strategic development plans that include short-, medium-, and long-term goals, along with actionable steps to reach those goals. The strategies included important aspects of sustainable development, including mission, vision, values, strategic objectives, and a strategic action plan. These documents serve as tools for each association for efficient budgeting, securing of funds, and implementing planned activities that will be more responsive to members' needs. The strategic planning process also helped the associations to use resources optimally rather than pursuing opportunities and activities as they arose. For example, because of these exercises, MFA established a self-sustaining reserve fund and revised its membership fee to promote greater financial sustainability. NBARM conducted a re-organization process to attract more members and BoM has diversified its services. Together with other planning exercises, such as strategic export and marketing plans developed to guide marketing decision-making, the strategic development plans helped the associations to be proactive agenda-shapers in their respective sectors.

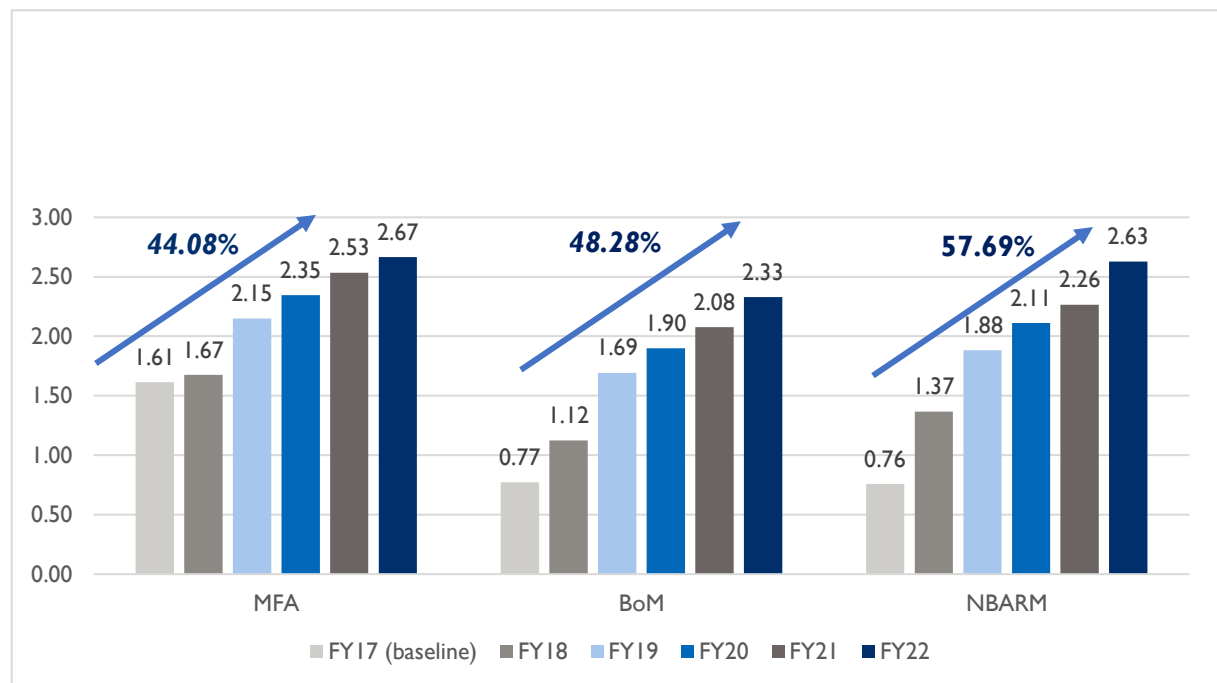
While organizational maturation is difficult to measure and often nuanced, progress on OCA scores does indicate improved association management practices and capacity to serve members. Over the life of the project, the average OCA score for the three national associations that were HVAA's closest implementing partners increased their average OCA scores by 50.02 percent compared to the baseline (Exhibit 49 and Exhibit 50). More importantly, the OCA helped the associations understand the best practices for running an effective organization, established a baseline for developing strategic plans, and created institutional memory through documentation of best practices. Although at first, some associations viewed the OCA process as just a compulsory exercise to gain HVAA funding, as time went on, the associations began to see the intrinsic value of the OCA itself. For example, implementing OCA recommendations on financial management and internal control systems allowed them to demonstrate their fiscal responsibility to potential donors, while the recommendations on communications helped the associations demonstrate transparency and increase members' trust. These experiences demonstrated to HVAA and the associations that investment in developing strong organizational policies, practices, and procedures pays off, and

that the management capacity built through the OCA process had positive benefits that go beyond OCA scores. Based on the positive outcomes achieved using the OCA as a foundation for collaboration with the national associations, HVAA also provided OCA assessments for water users associations and other association partners, including Belyi Most, APSM Cahul, and Agro Oguz.

Exhibit 49. OCA index measuring the extent to which national industry associations' capacity improved

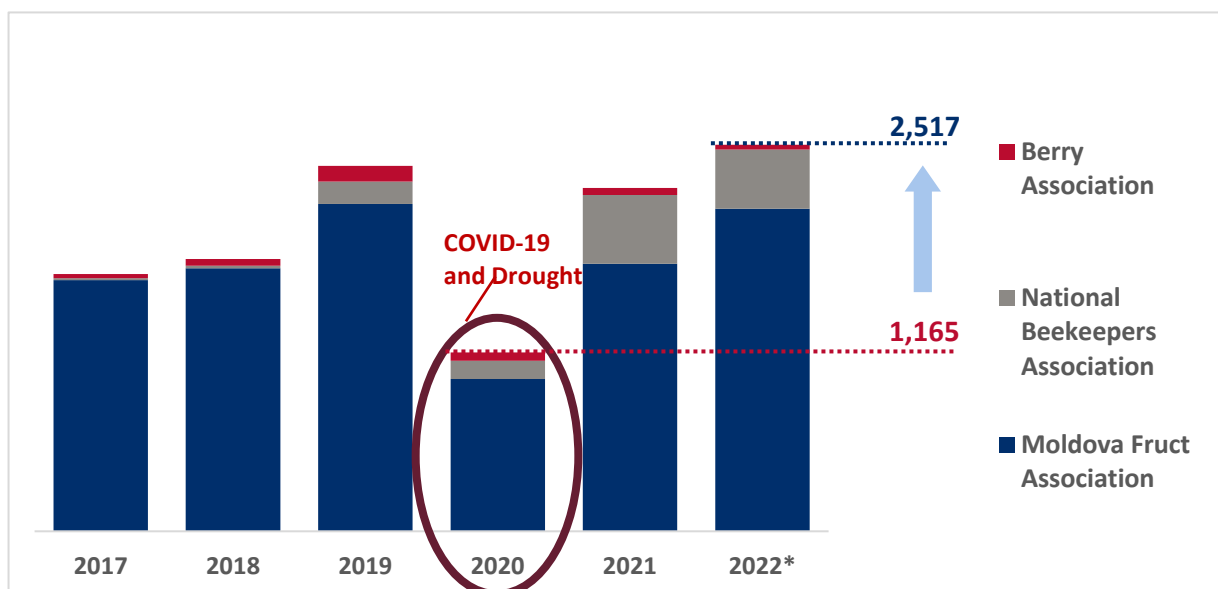
YEAR	TARGET (% OVER THE BASELINE)	RESULT
Yr 1	0%	-
Yr 2	10%	9.75%
Yr 3	20%	25.75%
Yr 5	30%	35.80%
Yr 5	40%	41.92%
Yr 6	40%	50.02%
LOP	40%	50.02%

Exhibit 50. OCA score progress for BoM, MFA, and NBARM, FY 2017–FY 2022



In addition to and informed by the OCA, HVAA provided both one-on-one and cross-cutting support to its partner associations to increase their sustainability, improve their memberships and member services, and comply with local legislation. In Year 4, HVAA grants supported associations to develop and pilot a fee-based member services model to generate revenues independent of donor funding, a critical step to long-term financial sustainability. Over the life of the project, HVAA's three national association partners registered an average increase in revenues from membership fees and paid services by 1,170 percent over the baseline. This result was achieved despite the pandemic in 2020, which brought a sharp drop in revenues for the associations as activities were halted. However, in 2021, revenues from fees and services nearly rebounded to their pre-pandemic levels (Exhibit 51).

Exhibit 51. BoM, MFA, and NBARM revenues (MDL), 2017-2022



With HVAA support, eight associations developed 26 new services for members. Notably, NBARM increased its revenue thirtyfold above its baseline, as the association held fee-based trainings and provided subsidy application services.

To help associations promote their work, both to members and the general public, HVAA also provided comprehensive, ongoing assistance to improve their communications platforms and practices. Under grant activities, NBARM, BoM, and MFA received technical assistance to improve their websites' content and design, develop, and print brochures and other promotional materials. HVAA supported a complete re-branding for MFA and the "Taste Makes the Difference" country brand. HVAA developed a brand for HEA and supported the association's efforts to develop a website. In addition to formal trainings in social media management and media relations, HVAA also provided ad hoc consulting and advice. HVAA also worked to build associations' advocacy capacity, developing an advocacy guidebook and

accompanying training program in Year 5 to provide associations with a step-by-step roadmap to achieve their policy goals.

HVAA supported association partners to comply with local legislation and regulations. In 2020, a new law on non-commercial organizations (86/2020) went into effect, which affected the establishment, organization, registration, development, and dissolution of NGOs. In many ways, the changes simplified legislation related to member-based organizations, but the new legislation also required HVAA's partners to make internal revisions to align with new legal requirements. HVAA organized an online workshop on the new legislation to help partner associations meet the new requirements, then provided hands-on guidance and support to associations through the process of reorganizing their legal structures.

APPLES AND STONE FRUITS VALUE CHAIN

Apple and stone fruit producers in Moldova are represented by the MFA. As the largest and most developed association representing horticulture producers in Moldova, MFA and HVAA worked closely together on multiple activities to improve the production and marketing of apples, stone fruits, and table grapes.¹⁰ In addition to marketing, production, communications, and advocacy support, through which HVAA sought to build the association's capacity while working toward project objectives, HVAA also provided significant support to MFA to build on and improve its member services. This included supporting the launch of routine member communications through e-newsletters and promoting members through its website. With HVAA support and in collaboration with the Moldovan Investment Agency, MFA developed an electronic association management system (AMS) for statistical data collection, information dissemination, and event management. The system is a critical tool for improving communications with its 180 members and staff and is designed to streamline data collection and coordination efforts for marketing and other initiatives. It also ensures information transparency and quick access to each association member. For example, when international buyers previously contacted MFA, the organization lacked any systematic way of rapidly responding to inquiries on product availability, which is now easily done through the AMS. The system fosters greater fairness among members for marketing opportunities and access to organizational information. Importantly, the AMS streamlines operations, saving staff time on clerical work to allow greater focus on member services. The AMS was also integrated with the association's website, giving MFA members the ability to access their own dashboards through a dedicated member area page.

In addition to improving member outreach, HVAA support was critical in helping MFA increase member services. This includes the annual Fruit Business Conference, initiated with HVAA support in Year 1, and the national Fruit Day Exhibition that provides MFA members an opportunity to promote their services to farmers, producers, and exporters.

¹⁰ www.facebook.com/agricultura.performanta/videos/748745186251621

TABLE GRAPES VALUE CHAIN

With many table grape producers as members, MFA also served as one of HVAA's primary association partners for production and marketing activities for the table grape sector. Although another national organization represents the sector, the APESM, HVAA found greater success working with smaller, regional associations in grape-producing areas of the

"The HVAA grants had a great transformative impact on the association's activities and on fruit and grape producers from the region as a whole. Thanks to HVAA support, the Agro Oguz Association had the opportunity to draft and optimize all the association's internal documents.

The promotion and transfer of new technologies to our farmers through trainings and educational videos was an important achievement for the Agro Oguz Association. Thanks to HVAA, we had the opportunity to meet the best local experts, who shared their knowledge and experience with regional growers.

HVAA also helped us develop and modernize the association's Facebook page and official website, becoming more visible to regional and national stakeholders, as well as to many media outlets."

**IVAN SCRELEA,
EXECUTIVE DIRECTOR,
AGRO OGUZ ASSOCIATION**

country. This includes the APSM Cahul and Agro Oguz, an association of stone fruit, table grape, and vegetable producers in the autonomous region of Gagauzia. In addition to providing grants to promote improved production and PHH knowledge and practices among their members, HVAA conducted OCA assessments with each association and used the results to help them to address institutional weaknesses.

Emphasizing collaboration among various communities in Moldova, HVAA connected MFA, APSM Cahul, and Agro Oguz to promote knowledge sharing and collaboration among the associations' members. Finally, HVAA worked with the associations to

improve member communications and outreach to their larger communities. For example, APSM Cahul contributed to developing educational media programs for table grape growers, while Agro Oguz improved its communications platform with HVAA assistance.

HONEY VALUE CHAIN

HVAA support to the honey sector brought dramatic changes to sector, and to the primary association representing it, NBARM. At the outset of HVAA, NBARM was in disarray: leadership was fragmented, and the association's mission was uncertain. With HVAA's guidance, NBARM elected stable leadership, reunited regional chapters, and became the lead agency for a nationwide beekeeper education and demonstration program. Beginning with joint stewardship of the vertical hives program, the HVAA-NBARM partnership contributed to NBARM becoming one of the most financially sustainable associations in Moldova, having increased its annual revenues from services and membership fees thirtyfold over the life of the project.¹¹ With HVAA support, from 2017-2021, NBARM increased from five to 29 regional

¹¹ <https://www.facebook.com/dezvoltam.moldova.rurala/videos/3292460881024561>

association members (NBARM was originally an association of associations, instead of an individuals-based association).



Following HVAA assistance to restructure its membership to allow non-association members, NBARM had 99 members by 2022, including private sector companies. NBARM's impressive development in a relatively short time was the result of the perfect mix of good leadership, transformative technologies, and timely HVAA support. In addition to institutional strengthening, management, and communications support, HVAA also helped NBARM to develop and launch practical services targeting small beekeepers' fundamental training and business development needs. For example, in Year 5, NBARM rolled out company registration and subsidy/access to finance services, include webinars on the importance of registering a

business, types of legal forms, and critical aspects of business management.¹² The videos were watched more than 20,000 times on Facebook and YouTube, and the first 65 beekeepers that successfully completed the online business registration and fundamentals training could apply for a business services voucher to use at one of NBARM's regional training centers (another service developed with HVAA support) or directly through NBARM's central office. As a result, 33 beekeepers received support to access external funds and subsidies valued at \$437 thousand. The majority of beekeeping businesses that have benefitted from the program are owned by youth and women. Through its company registration consulting services, NBARM helped 40 businesses to complete the registration process, which contributed to the creation of more than 45 jobs in the sector.

HVAA supported two other associations to develop the honey sector. HVAA supported MoldApis, an NBARM member, and the HEA to update its statute to include new commercial services for queen bee breeders and beekeepers, including professional training and consultancy in queen bee artificial insemination and genetic purity determination. HVAA helped bolster MoldApis' communication initiatives, ensuring that educational resources developed under its HVAA grant are widely available.

To increase exports of Moldovan honey, 12 of the largest honey producers and exporters in Moldova formed the HEA in Year 3 to address the obstacles to value-added production and marketing in Moldova. HVAA provided wide-ranging support to the exporters, particularly by helping the association establish goals, develop bylaws, establish protocols for electing a president, establish membership contribution requirements, and develop a brand and communications channels.

BERRIES VALUE CHAIN

Berries of Moldova (BoM), like the sector it represents, is a small association in a nascent stage of development. Through the OCA and strategic planning activities, as well as day-to-day support to the sector, HVAA sought to build the association's capacity to help develop the berry sector, while building its institutional capacity in the process. HVAA supported BoM to plan the Summer Berry Fairs in Years 1 and 2, which promoted the benefits of berry consumption to the Moldovan public and provided opportunities for direct-to-consumer sales for association members. Given the success of the fairs, BoM independently staged berry fairs, without HVAA assistance, on an annual basis in succeeding years. To generate additional revenue, HVAA supported BoM to become an official service provider accredited by the MAFI, further extending services to berry producers who are required to undergo official training to access subsidies. By obtaining the accreditation, BoM gained new members, raised its income streams, and improved members' access to funding. The association used IT equipment that HVAA provided via grants to conduct the trainings. HVAA support was also critical for

¹² www.youtube.com/playlist?list=PLbIlMh7GkqtAM5gZVkgDYoKSdoWMC8hI4

organizing BoM's Winter Berry School and annual conferences, which helped the association grow.

To ensure that berry producers from different regions of the country benefit from support, HVAA worked in close collaboration with the Belyi Most Association, the leading association of horticultural producers in Transnistria. Overall, HVAA issued five grants to the association valued at more than 2.6 million MDL, while the association and its members contributed 3.9 million MDL. After completing its first OCA with HVAA support, HVAA helped Belyi Most to develop its Strategic Action Plan and to implement key elements, including improving marketing and sales services for members and services for adding value to berries and grapes.

WINE VALUE CHAIN

Building on previous USAID efforts, HVAA worked to strengthen the institutional capacity of the ASW, beginning in Year 5. In particular, HVAA helped the ASW to establish and provide member services to ensure financial autonomy, as its revenues were barely sufficient to cover operational costs. Through a co-creation process in Year 5, HVAA and ASW designed a grant with four components: institutional development, communal equipment for member use, promotion and marketing, and lobbying and advocacy. Through institutional development, the grant allowed the association to conduct an OCA; hire an executive director; launch the

Exhibit 52. ASW training for members on ensuring wine grape quality



Quality Monitoring and Partnership Development Program for small wineries to increase access to laboratories; host a 7-module member training program; develop and utilize improved communication tools; develop a financial policy framework; develop a Quality Code for Small Wine Producers; and improve its administrative infrastructure (Exhibit 52).

Under the grant's production component, HVAA procured equipment for communal use to help small winemakers access necessary technology to improve quality. ASW started a training course tailored to the needs of small wine producers that has become part of the association's income-generating activities. Under the promotion and marketing component, ASW improved its website; carried out an export sales promotion campaign; launched a promotional campaign for the association; and conducted international B2B initiatives. Finally, the grant's lobby and advocacy component were designed to strengthen ASW's ability to effectively participate in the ONVV Coordination Council, as well as develop its own lobbying and advocacy plan.

HVAA provided support to Moldova's PGI associations on an as-needed basis. This included supporting the associations to modify their statutes to comply with legislative changes and helping the management and executive teams to draft official letters and position papers related to modifications of legislation and normative acts.

INCREASING CAPACITY OF WATER USER ASSOCIATIONS

The 2010-2015 Millennium Challenge Corporation Compact program made significant investments in irrigation infrastructure in Moldova, rehabilitating Soviet-era centralized irrigation systems and establishing WUAs to manage them. At the onset of HVAA, the WUAs were still young organizations that lacked the knowledge, equipment, and operational capacity to engage members and provide irrigation services for farmers. As such, much of the rehabilitated irrigation infrastructure was underused, and local farmers were growing crops that did not require irrigation.

Recognizing the enormous potential for business growth in the rehabilitated centralized irrigation system areas, HVAA worked closely with WUAs and landowners from centralized irrigation system areas to promote transition to high value crop production that relies on irrigation, attract investment in centralized irrigation system areas, and build WUAs capacity to expand member services.

To demonstrate the potential of high value agriculture in irrigated areas, HVAA provided grants to WUAs and their members: 19 grants, which generated additional investment valued at \$2.3 million.

The WUA grants were designed to increase connectivity between centralized irrigation infrastructure and individual farms, increasing access to irrigation for smaller farmers and increasing the efficiency of and lowering the cost of using irrigation. For example, medium-capacity pumps allowed more and smaller producers to access irrigation. Water meters with connectors (which reduce pumping time, increase energy efficiency, and provide water consumption information) helped farmers to make informed irrigation decisions. WUAs also

received equipment, such as reel hoses and sprinklers, to connect irrigation equipment to hydrants that they could rent to farmers for a fee as a revenue-generating service. Revenues from equipment rental pay for operational costs and investments in new equipment, ensuring that the WUAs are sustainable and offer members continuous access to water.

HVAA particularly emphasized climate-smart irrigation, the need for which was highlighted by the droughts in 2020 and 2022. HVAA grants provided WUAs with high-tech meteorological stations that provide critical weather data, helping farmers make better decisions on irrigation time and volume, crop protection against frost, and other weather-related phenomena. As



HVAA continually demonstrated the transformative impact of irrigation on agricultural production. Vegetable producers in areas with access to irrigation, such as the centralized irrigation system areas that were rehabilitated with U.S. Government support, have enormous potential to increase their harvest, improve quality, and widen profit margins. Nonetheless, many farmers do not take advantage of the water resources available.

To demonstrate the advantages of irrigation for open-field vegetable production, HVAA partnered with grantee Ghenadie Zmeu Family Farm to model business investment in irrigated areas based on precision seed drilling. The new seed drill increased the number of successful plants by over 140 percent, decreased production costs, and reduced the time required for sowing. With irrigation and the new drilling technology, the farmer increased yield and improved vegetable quality: onion productivity was 40 percent higher than in the previous year. With irrigation access and modern cultivation equipment, Ghenadie Zmeu can now cultivate and harvest two crops in one season. HVAA showcases these successes to encourage other farmers to also adopt irrigation technologies and more fully utilize the U.S. investment in the rehabilitated centralized irrigation system areas.

Moldova does not have adequate extension services or weather stations that are available to most farmers, this advanced meteorological station fills a major information gap. WUA members are now able to monitor data from their mobile phones or computers, an especially vital feature during the COVID-19 pandemic. WUAs also received soil moisture meters, which help farmers optimize water use through soil moisture-based irrigation scheduling and increase profitability by conserving water, reducing input costs, and improving crop yields.

HVAA grants for farmers were designed to facilitate transitioning to high-value agriculture or to demonstrate the additional gains that could be achieved through irrigation. Grants funded the purchase of equipment such as a precision seed drill for vegetable production; onion harvesting equipment, which reduces dependency on labor during harvest and ensures better product quality; and experimental trials of three types of irrigation systems on sweet corn. The equipment funded by these grants help producers to increase profitability by increasing yields or allowing cultivation

of more than one harvest in a growing season. Such long-term investments in centralized irrigation system areas demonstrate farmers' confidence in WUAs and provide WUAs with a stable source of income and fees. Every grant contained a knowledge transfer component, such as demonstration days, conference participation, student engagement, and promo activities for using irrigation resources (Exhibit 53). More than 280 WUA members adopted new or improved irrigation practices that contributed to WUA sustainability and enabled the producers to improve product quality and productivity and to access higher-paying markets.

Exhibit 53. Practical training on soil protection for WUA members



HVAA helped WUAs to build their organizational capacity to ensure their sustainability and increase their ability to attract other funds and investments. HVAA conducted OCAs of WUA Cosnita and WUA Acva-Grup, which informed HVAA's hands-on assistance and training to help the WUAs overcome organizational weaknesses. The trainings were not limited to WUA Cosnita and Acva-Grup; as with all HVAA trainings, all WUAs were invited to participate so they could increase their capacity to serve members and increase their hectares under irrigated cultivation. In addition to direct capacity building, HVAA supported WUAs' efforts to qualify for grants from other funders. In 2020, WUA Agrorufeni won an International Fund for Agricultural Development (IFAD) grant to expand its irrigation area and build a water reservoir with HVAA support. HVAA helped WUAs to receive additional financial investments from the Sustainable Development Account (SDA), the Moldovan government agency that

was established during the Compact program to support WUAs. In total, HVAA leveraged \$600,000 in support from other donors for WUAs.

SERVICES ACCESSIBLE TO EVERYONE: CREATING POSSIBILITIES THROUGH IRRIGATION

In the Soviet era, Moldova was described as a garden. An abundance of tasty fruits and vegetables were produced in Moldova thanks to the country's mild climate, fertile soil, and ample water resources. Moldova lies between two main rivers, the Nistru and the Prut. Most fields along the rivers were equipped with complex irrigation systems that were destroyed or left to deteriorate after the collapse of the Soviet Union. This situation changed in 2010-2015 through an initiative of the Millennium Challenge Corporation, whereby the American people invested over \$90 million to rehabilitate ten centralized irrigation systems throughout the country. This enormous undertaking provided access to water for up to 13,000 hectares of land. The new irrigation systems are managed by WUAs created by farmers in the rehabilitated irrigation areas.

Despite modern infrastructure and quality water, the systems were drastically underutilized. Only 15 percent of land in the area was irrigated during the 2018 production season. The reasons for the low utilization rate were multi-faceted and ranged from land fragmentation to farmers' lack of knowledge about new agricultural technologies. Without income from water sales, the WUAs had no resources to manage or maintain the infrastructure, making the American investment vulnerable to vandalism and decay. To ensure that stakeholders took advantage of the infrastructure resources and to drive greater demand for water in the rehabilitated irrigation system areas, HVAA regularly showcased the advantages of irrigation, encouraging the adoption of high value crops that require irrigation and thus increasing the likelihood that the WUA systems would become sustainable.

WUA Coşnita, created in 2012, is responsible for managing one of the rehabilitated irrigation systems. The WUA has the potential to irrigate 2,900 hectares, but there are far fewer irrigated agricultural plots today than there were 30 years ago. Thanks to HVAA assistance and farmer initiatives, WUA Coşnita achieved success during the last six years, including by quadrupling its revenue.

The area of irrigated land in WUA Coşnita's region increased more than two times during the last six years, reaching over 970 hectares. This is the result of the WUA's strategy to assist both small and large farmers in the rehabilitated system area. WUA Coşnita's motto is "Services Accessible to Everyone." With HVAA grant support, WUA Cosnita purchased mobile water meters and mobile irrigation equipment that it can share with the small farmers who cannot afford to buy their own. With the new equipment from HVAA, farmers can irrigate their land whenever they need and are not subject to major equipment shortages. The farmer members of WUA also increase the efficiency of water use by utilizing portable soil moisture meters that were provided by a HVAA grant. The new equipment allows farmers to optimize the irrigation process and plan for more precise irrigation, ensuring sustainability of soil and water resources.

It is still a challenge for WUAs to convince farmers to transition to high value crop production that requires irrigation and ensures high profits for farmers. Therefore, WUA Coşnita encourages its members to participate in trainings and study visits organized by HVAA to ensure that they receive the best education possible. As a result, all orchards that were planted in the area in recent years have been super-intensive, proving that the farmers understood that this is the only way to competitively produce fruit.

WUA Coşnita's success is a model for other struggling WUAs in Moldova to replicate and achieve their own success.

As a result of the joint efforts over the last six years of WUAs, HVAA, and other donors, WUAs' irrigated area tripled, investment in high value crops increased, and irrigated areas extended (Exhibit 54).



Exhibit 54. Enhanced access to irrigation due to HVAA support

Centralized Irrigation Systems Areas, rehabilitated within the Compact Program:

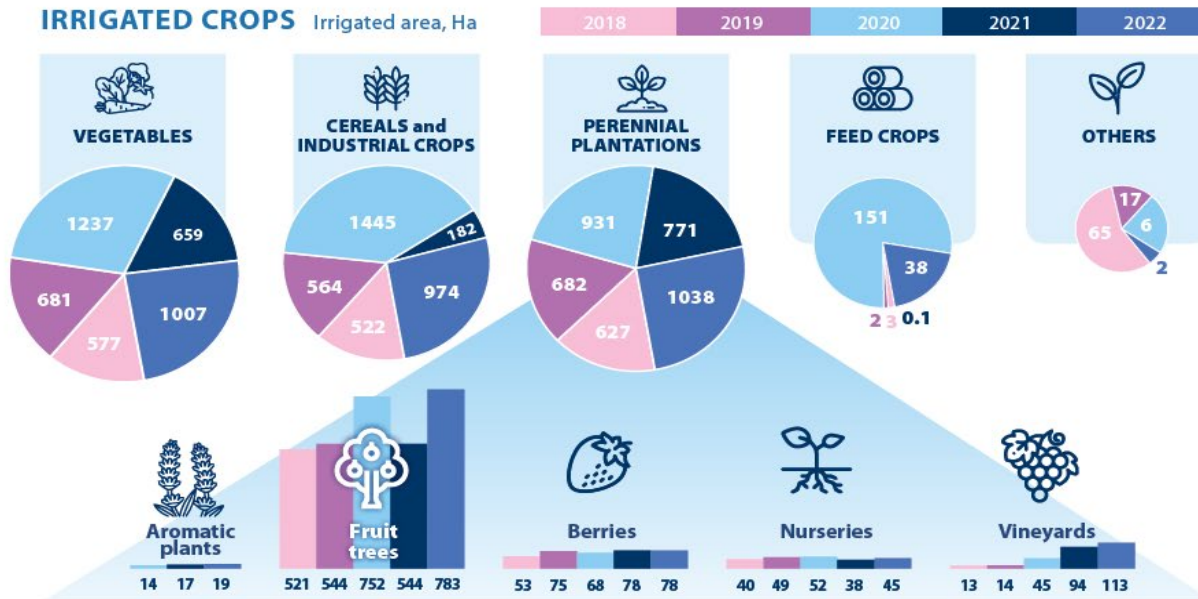
Blindesti, Grozesti, Leova-Sud, Chircani-Zirnesti, Cosnita, Lopatna, Jora de Jos, Criuleni, Roscani, Puhaceni.

**IMPROVED ACCESS
to irrigation services**

**PROMOTING INVESTMENTS
in high value crops**

**PRIVATE INVESTMENT
in high value agriculture**

IRRIGATED CROPS Irrigated area, Ha



**USAID HVAA invested
through grants**

\$ 575 927,13

**GENERATING
ADDITIONAL investments
of**

\$ 2 313 462

OBJECTIVE 4: IMPROVE THE ENABLING ENVIRONMENT, LEADING TO INCREASED INVESTMENTS AND AN IMPROVED WORKFORCE IN TARGETED VALUE CHAINS

SUB-OBJECTIVE 4.1: INCREASE PRIVATE SECTOR LINKAGES WITH THE EDUCATION/RESEARCH SECTOR, LEADING TO A COMPETITIVE WORKFORCE IN TARGETED VALUE CHAINS

With the high pace of emigration of Moldovan citizens to other countries, particularly residents of rural areas, Moldova's agriculture sector was facing a growing and worsening shortage of agricultural labor. Furthermore, many of those still in Moldova lacked the skills demanded in modern orchards, vineyards, fields, and packing houses because school curricula were out of date and out of touch with private sector needs.

- Agriculture amounts to 21% of middle and high schools, and 9% of university educational programs.
- Only 1.6 percent of students in the VET system decided to pursue agriculture specialties.
- Only 1.7 percent of students in higher education are studying agriculture.
- SAUM is the only educational institution in Moldova preparing irrigation sector specialists.
- Nisporeni VET School is the only institution preparing a qualified workforce for the berry sector.
- Bubuieci VET School is the only institution preparing a qualified workforce for the beekeeping sector.

In Year 1, HVAA conducted a qualitative and quantitative survey to assess workforce skill needs with the goal of identifying skills gaps private sector companies encounter when building their labor force. The survey identified the largest number around the initial stage of production planning, but there were also WFD needs for pre-production (business planning, feasibility studies, etc.), marketing, and export. The private sector also noted weaknesses in human resources administration, financial management, and procurement. Other knowledge and skills gaps pertain to soil, water, and plant interaction, as well as the ability to analyze meteorological data. These findings were used to inform HVAA's WFD interventions that are responsive to private

sector demands.

HVAA determined that the most transformational impact could be achieved by providing concentrated, in-depth support to a few educational institutions. The honey and berry sectors were the most nascent of the value chains supported and irrigation was identified as a critical skills gap in the workforce needs assessment, so HVAA determined to work with schools that had exclusive or predominant capacity for educating students in these fields: Bubuieci VET School for apiculture, Nisporeni VET School for berry cultivation, and SAUM for irrigation.

HVAA entered into a long-term partnership with each school, solidified through a 3-year support road map. The development of these road maps helped the project and schools jointly plan their collaboration in the medium term and identify school needs and the resources HVAA could offer.

Road maps were structured according to six pillars of support for each of these institutions (Exhibit 55).

Building private sector engagement was critically important and designed to ensure that all support to the schools was targeted toward producing graduates with the skills in demand by the private sector. This engagement came in a variety of forms. HVAA worked with schools to form Curriculum Quality Councils, which brought together public, private, and school representatives to make annual updates to the curricula. HVAA also encouraged private sector partners to provide their real-world perspectives on classroom subjects by giving guest lectures and hosting field trips to their businesses. Finally, HVAA developed a guide for private sector firms on internships for students and/or apprentices. This first-of-its-kind guide in Moldova provided host companies with recommendations on how to organize an efficient apprenticeship for the students, apply incentives, communicate, capitalize on students' theoretical knowledge, and evaluate the development of their practical skills. Highlights of HVAA's WFD activities are shown in Exhibit 56.

Exhibit 55. The pillars for the educational institutions' road maps

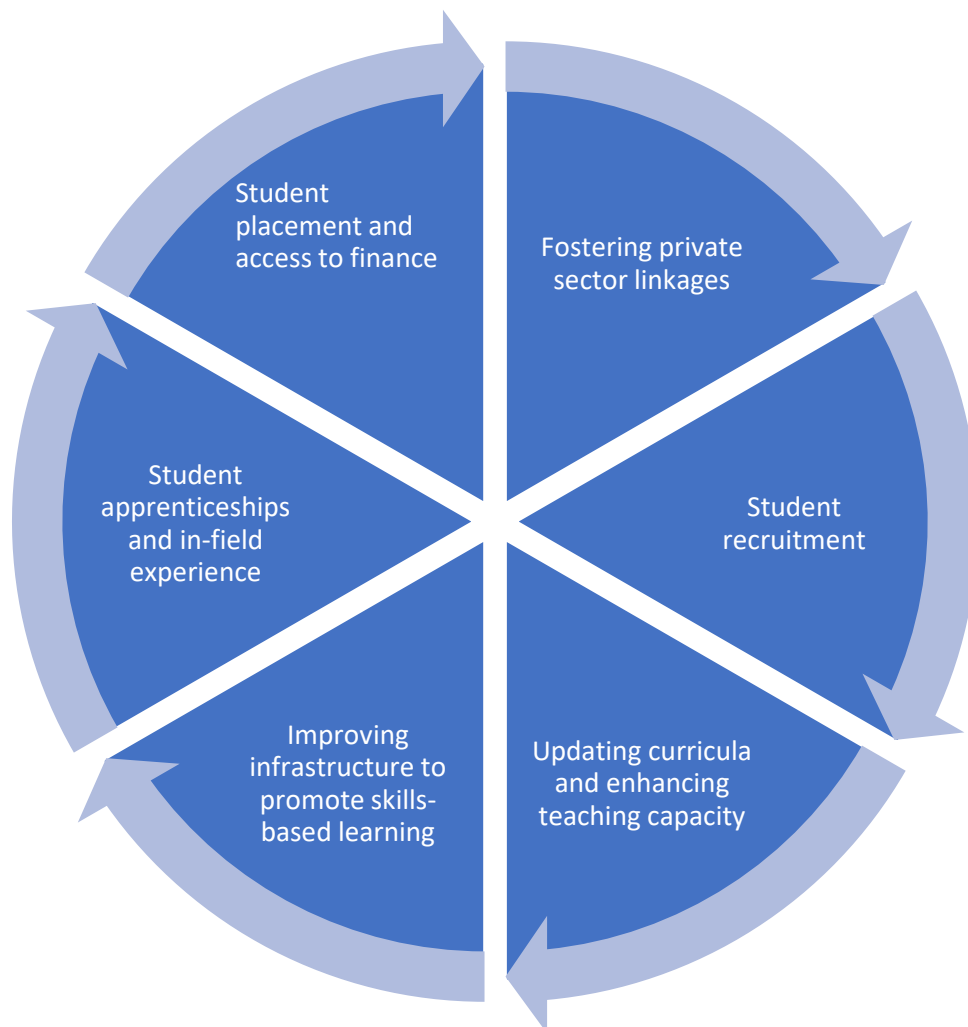
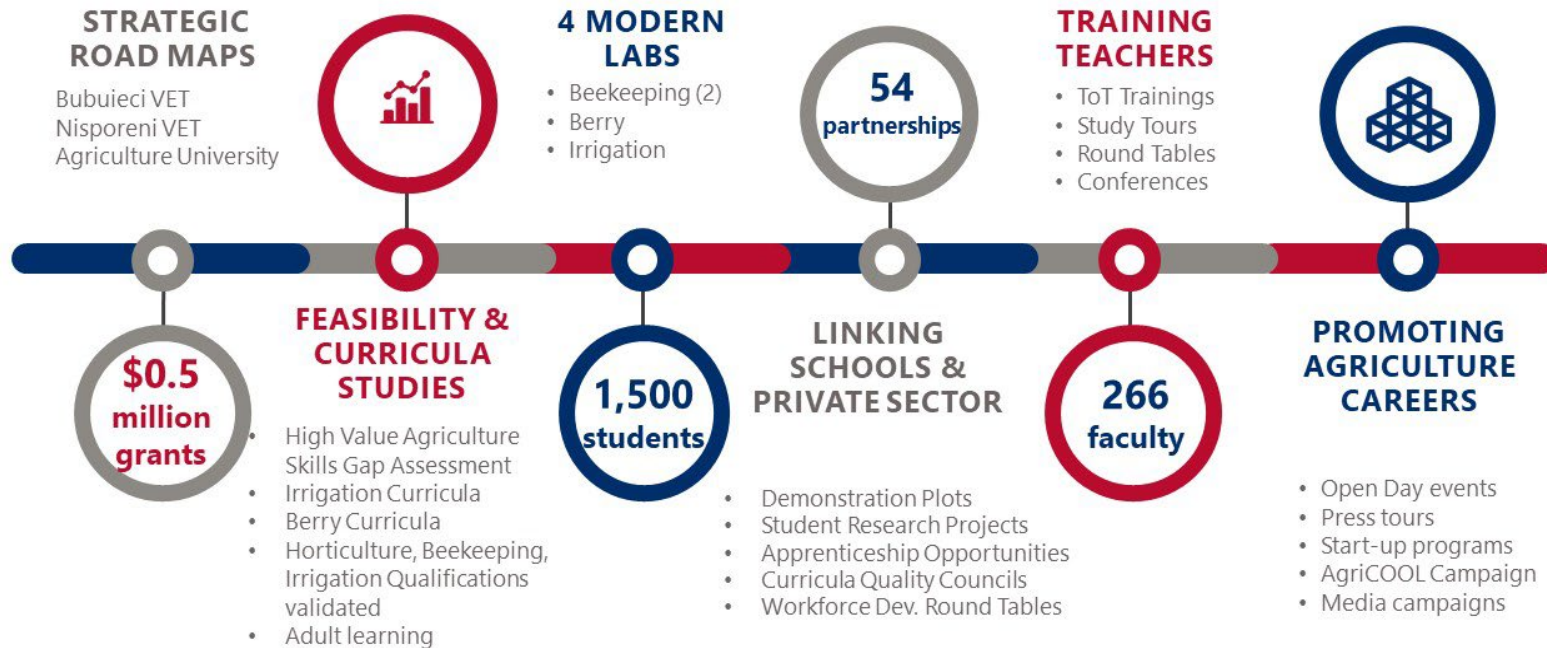


Exhibit 56. WFD highlights

WORKFORCE DEVELOPMENT



DEVELOPMENT OF THE AGRICULTURE EDUCATION SECTOR



\$570,000

USAID investments
in educational sector



1,500

Trained students



54

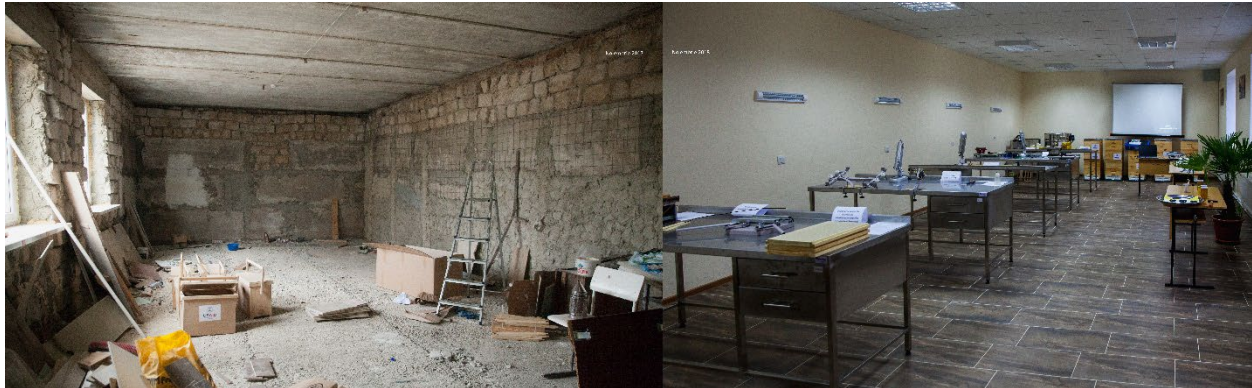
New partnerships
facilitated



BUBUIECI VET SCHOOL

Through a combination of grants, strategic planning support, and technical assistance, HVAA helped Bubuieci, **the only vocational school in Moldova with a program dedicated to apiculture**, to dramatically upgrade the quality of its educational offerings.

Exhibit 57. Beekeeper laboratory at Bubuieci VET School, before and after renovations



For decades, Moldovan students had been learning outdated beekeeping methods and often graduated without the practical skills needed to gain employment or start their own businesses.

Exhibit 58. Beekeeper students in the school's apiary equipped with vertical hives



To address this shortcoming, HVAA collaborated with Bubuieci to ensure that students could build practical skills rather than solely receive textbook-based instruction in classrooms. Through a grant, HVAA funded the refurbishment of a classroom dedicated to the apiculture program, as well as a laboratory and carpentry workshop where students could develop their skills through practical, hands-on exercises (Exhibit 57). The school itself funded the construction of the spaces, while HVAA provided the necessary equipment, including 15 beehives for the school apiary (Exhibit 58), IT equipment, desks and chairs, woodworking and welding equipment, and protective clothing.

The new spaces provided a place for students to learn practical skills related to managing a modern apiary business as well as ancillary skills such as welding, carpentry, electrical, and plumbing skills. In addition to improving the quality of education, the equipment allowed the school to double the number of students enrolled from 20 to 40 in the 2021-2022 academic year and will help fill the much-needed workforce for the honey sector in Moldova.

To leverage the new learning spaces, HVAA facilitated updates to course materials, in part through a Curricula Quality Council that brought together private businesses, sector association representatives, and teachers to discuss the Beekeeper Occupational Profile, the foundation for curriculum development in Moldova, relative to labor market demands. Based on these discussions, HVAA promoted the vertical hive technology that is the core of the school's current curriculum. The school also began exploring developing an organic beekeeping curriculum.

Equipped with the new classroom and laboratory, Bubuieci developed an adult education program to help amateur beekeepers move from hobbyists to business owners. In January 2020, 23 hobbyists and would-be beekeepers enrolled in the first 3-month program. The adult education program also generates revenues for the school that it can re-invest in modernizing its educational infrastructure. To date, more than 160 adult beekeepers have completed the adult education program, generating significant income for the school.

When the COVID-19 pandemic struck, HVAA quickly pivoted to support Bubuieci VET School and its student to adapt to the new learning conditions the pandemic brought. With HVAA support, the school surveyed students and professors to determine their needs. Supported by HVAA, the school digitalized the beekeeping curriculum and created a digital learning platform. As the majority of Bubuieci's students come from families with limited financial resources, the move to online education was complicated by a lack of computers or Internet access at home. HVAA provided tablets and other mobile communications support to help the most disadvantaged students, while the faculty led classes from computers previously provided by an HVAA grant. HVAA trained the faculty to use smartphones to make short videos of practical demonstrations that were uploaded on the platform.

In addition, HVAA supported the school's efforts to develop its students' business acumen and technical knowledge. Many students, especially those studying beekeeping, are interested in establishing their own apiaries that can become sustainable family businesses following graduation.

In January 2020, with HVAA support, the school launched entrepreneurship trainings to teach students about entrepreneurship, accessing start-up subsidies from the National Fund for Agricultural and Rural Development managed by the AIPA, and other opportunities for start-up projects once they complete their studies. HVAA supported business fairs for students and developing small revenue-generating activities, such as beeswax candle-making and hive construction, that allow students and the school to generate income.

Finally, HVAA supported developing the BeesUP entrepreneurship program, in which students create business plans for a small apicultural business that are judged by faculty and NBARM representatives. The competition winners receive 15 vertical hives each to start their own apiaries. For two years, each winner gives a portion of their harvest back to the school, to be



"It was an indescribable experience for me, I learned many important things. And now, expanding my apiary, I hope to enter local market with honey, and other bees products."

Ion Rusu,
Graduate of the Bubuieci VET School

Cultivating Future Today

sold through a company the school established, BeesUP SRL. In this way, BeesUP is self-financing and sustainable for future students.

NISPORENI VET SCHOOL

To support developing a knowledgeable workforce in the berry sector, HVAA partnered with Nisporeni VET School, **the only school in Moldova with coursework in berry cultivation as part of its horticulture curriculum**. Like its approach with Bubuieci VET School, HVAA began its collaboration with Nisporeni by developing a 3-year road map to define objectives, set priorities, and create an action plan.

Through grants and hands-on technical assistance, HVAA worked step-by-step with the school to improve its educational offerings. A grant in Year 2 helped to establish a berry laboratory and upgrade existing greenhouse facilities with a heating system, and HVAA provided the school with modern meters to measure soil and water quality parameters. The devices enabled students to gain practical skills in soil and water testing for berry production while also providing a needed service for nearby berry producers. Nisporeni also used HVAA funding to establish a demonstration site to produce berries in coconut substrate, a new-to-Moldova planting material.

The school established a demo plot with a variety of trellising systems with HVAA grant support and seedlings donated by private sector partners (Exhibit 59). The plot contained seven types of berries. All these facilities gave students hands-on learning opportunities to practice skills taught

Exhibit 59. Training on the berry production demonstration plot at Nisporeni VET School



in the classroom. HVAA emphasized real-world learning opportunities through field visits to leading berry companies. As part of a start-up program, the school established a small nursery for producing vegetative strawberry seedlings and assembled a cold storage container to store frigo plants for the next planting season.

To improve the quality of coursework, and in response to private sector requests, HVAA analyzed the curriculum for the berry sector workforce. The study concluded that the existing horticulture curriculum did not develop the knowledge and skills needed by berry producers, such as modern varieties, using innovative equipment, or modern post-harvest practices. To address this shortcoming, HVAA facilitated a collaborative process that brought together BoM, private sector stakeholders, local consultants, and the school itself to form the Berry Curricula Council (private companies on the council also signed partnership agreements committing to host interns, help with curricula development, deliver guest lectures, offer jobs to graduates, and promote the school's berry program in local communities). The process was guided by a feasibility study that the Sectorial Committee for Training in Agriculture and Food Industry (AgoindVET) conducted, which revealed that a separate occupational profile for the berry sector was required, rather than teaching berry production as a component of horticulture curricula (in Moldova, occupational profiles must be developed and approved by the government prior to developing educational programs to help students meet the requirements of that profile).

With HVAA assistance, Nisporeni VET School led the development of the occupational profile for this new profession, holding an inaugural meeting of the Berry Curricula Council in November 2019 to ensure that the curricula would build skills needed by the private sector. Nisporeni VET School and HVAA worked with businesses to develop the occupational profile "Producer, processor of berries," and fine-tuned the general profile requirements into occupational standards, which were vetted by AgoindVET. The Ministry of Health, Labor and Social Security then included the occupational profile in the National Register of Trades and Occupation. After inclusion in the Register, MAFI and the Ministry of Education and Research (MER) coordinated and approved the Standard Qualification of this occupation, allocating 25 spots as the National Plan of Recruitment. In September 2020, the school finished the curricula and submitted it to the MER, which approved it in October 2020. A historic victory for the sector, Nisporeni officially launched Moldova's first berry production and processing program in October 2020, filling all 25 places despite starting the program during the pandemic.

HVAA also helped Nisporeni VET School to develop adult education programs to meet the needs of those already in the workforce. To educate the workforce on highly profitable, less cultivated berry crops, HVAA worked with the school to design and teach a short course for students and adult farmers on the production and processing of niche berries such as goji, blackberries, and sea buckthorn. The school used grant funding to organize six online sessions dedicated to the production and processing of niche berries, which more than 60 students, farmers, and people interested in small-scale processing attended. After piloting the short-term course, the school developed and approved curricula for a detailed course called "Production and Processing of

Niche Berries,” which is comprised of 300 hours/10 credits and covers subjects ranging from seedling production to marketing of niche berry crops. During the pandemic, the school expanded its adult education initiatives by publishing 13 video courses related to berry production on the school’s website (also upgraded with HVAA support) and shared them on its Facebook page.¹³ Registered participants who completed more than 10 video seminars received a certificate of accomplishment.

The berry sector is an attractive option for starting a business due to low barriers to entry and only requiring small landholdings to run a profitable enterprise. HVAA provided a grant to Nisporeni VET School to develop the Start-Up Entrepreneur Program to support



¹³ spnisporeni.edu.md/page/6

entrepreneurship. Three students were selected through a competitive process to receive strawberry planting material and two years of mentorship by the school's staff and BoM consultants. The co-financing secured from private business partners for the start-up is worth 45 thousand MDL (approx. \$2,368).

STATE AGRICULTURE UNIVERSITY OF MOLDOVA (SAUM)

HVAA's Workforce Skills Needs Assessment identified a lack of skilled irrigation technicians that are able to maintain and operate modern irrigation systems as a critical obstacle in the development of the high-value agriculture sector. HVAA partnered with SAUM to address the knowledge and skills gap in irrigation, working with the university to develop a 3-year roadmap for developing its irrigation department. HVAA awarded a grant to the university to update its irrigation skills-building laboratory, replacing obsolete equipment from the 1990s. Re-opened in January 2020, the laboratory was equipped with modern training facilities for students studying fluid mechanics, hydrodynamics, centrifugal pumps, pipe joint methods, hydro-chemical soil regimes, and other irrigation topics (Exhibit 60).

This transformative equipment enabled the university to enhance the quality of the workforce trained in irrigation expertise, while allowing faculty and students to conduct research and deliver short courses for farmers and engineers. The state-of-the-art laboratory equipment can train at least 150 students and 30 engineers every year, ensuring that they are prepared to meet the private sector's needs for irrigation expertise. **The renovation also made SAUM's**

Exhibit 60. Students in the SAUM irrigation laboratory



laboratory the most modern irrigation laboratory in the region (compared to Romania and Ukraine).

While modern equipment and infrastructure are vital, the university lacked appropriate curricula for irrigation. In November 2019, HVAA and SAUM held the first Quality Curricula Council meeting that was dedicated to irrigation. The council discussed many issues related to the new irrigation laboratory, such as the practical tasks that should be performed with modern equipment, curricula for careers as irrigation technicians and engineers, and labor safety protocols. Incorporating priorities from council discussions, HVAA and SAUM updated the Irrigation Specialist Qualifications and developed and offered new short courses for 18 adult learners that use the new irrigation laboratory. Finally, the Department of Natural Resources Management in the Faculty of Cadaster and Law successfully completed procedures to accredit a master's degree program for irrigation (Exhibit 61).

Exhibit 61. Adult learners during the short courses on irrigation processes



SAUM used its upgraded irrigation department facilities to promote knowledge sharing both in Moldova and internationally. A speaker-seminar series in 2021 brought together students and practitioners to discuss development challenges and opportunities in the irrigation section. In addition, the university established a mini-library for the Irrigation Laboratory, granting students

access to more than 70 books related to irrigation. Finally, in March 2021, SAUM organized the first Innovations in Irrigation International Conference through the Irrigation Laboratory with HVAA support. Over 100 participants attended the online event, which facilitated exchanging experience on using new irrigation technologies and built relations between specialists and scientists in the field. The conference drew presenters from the private sector, schools, and scientific institutions in Moldova, Kazakhstan, Romania, Israel, and Italy. Main discussions included how to increase irrigation efficiency and rational use of water due to climate change to ensure sustainable irrigated agriculture.

ENGAGING YOUTH IN AGRICULTURE

Recognizing that agriculture has enormous potential to provide quality income for youth in Moldova, who are prone to emigration, and that nurturing the next generation of the agriculture workforce is critical to the continued development of the agriculture sector, HVAA worked along several fronts to attract students to careers in agriculture.

WORKFORCE DEVELOPMENT FORUM

To address the challenges to developing Moldova's agriculture sector workforce, HVAA and FARM organized the Forum on Workforce Development in High Value Agriculture (WFD Forum) in Year 6. The Forum gathered more than 100 participants, including national and international experts, and representatives from line ministries, professional associations, vocational schools, Sectoral Committee for Professional Training in Agriculture and Food Industry (AgroindVET), and the private sector.

The participants agreed on a Forum Resolution that includes a list of actions to be initiated by relevant stakeholders (public authorities and development partners) to overcome the challenges related to labor shortages in agriculture.

“Open Doors” at VET schools. HVAA worked with its partner schools to improve their outreach to potential students. This included developing promotional campaigns and supporting upgrades to youth-appropriate communications channels, such as social media and websites. HVAA worked with its three educational partners to hold *“Open Doors”* targeting potential students, which gave the schools an opportunity to tout their upgraded facilities and educational offerings and to

increase enrollment. During the COVID-19 pandemic, the Open Doors events were held online, a first for agricultural education institutions in Moldova.

Grants programs. Through its grant program, HVAA encouraged young Moldovans to develop an interest in all facets of high-value agriculture and supported organizations targeting rural youth. Grants to the Belyi Most Association in Transnistria helped to bring practical learning opportunities to students at the Tiraspol Agrarian College. With HVAA funding, Belyi Most purchased a greenhouse and developed a hands-on berry production training course for 65 agricultural college students and established an internship program with association members, enabling the students to gain skills under the guidance of industry leaders.

With a second grant, Belyi Most Association partnered with the Tiraspol Agrarian Technical College to establish a 2.3-hectare pergola table grape demonstration plot, the first of its kind in the region. The college and Belyi Most used the demonstration plot to provide practical skills-

building for 15 students, skills that will help them gain employment following graduation. In addition to students, the site was used to train five faculty and 12 table grape producers. As a result, 5.4 hectares of table grapes on pergola systems were planted on the left bank of the Dniester River. Finally, the grant provided Left Bank producers an opportunity to exchange their experience with Right Bank producers through visits to the Costesti packing house and to table grape producers using pergola systems on the Right Bank.

In the honey sector, HVAA grantee MoldApis provided 16 trainings to more than 300 students from Bubuieci VET School, SAUM, and private bee breeders on queen bee reproduction and genetic quality improvement. HVAA partnered with the Federation of Agricultural Producers from Moldova (FARM), Dorcas Moldova, and We Effect of Sweden to host a Youth Agro Summer Camp in 2021. The event drew 50 young members of the National Network of Young Farmers from 10 regions of the country. Young farmers (18-40 years old) learned from the best specialists in the country about critical agricultural topics such as climate change and renewable energy, financial management in agriculture, and agricultural digitalization.

Exhibit 62. SAUM students learning about applying GPS technology to design orchards and vineyards



Promoting AgTech to youth. HVAA put particular emphasis on promoting the tech side of agriculture to attract young people to the sector. HVAA funded the first ag-focused hackathon

in Moldova, connecting 70 youth from agricultural schools with IT professionals to use design thinking to identify IT solutions for common agricultural programs. Another grant focused on teaching 104 students at SAUM how to use Global Positioning System (GPS) technology to design new multiannual fruit and table grape plantations, a skill they can use to start their own business or be hired as a consultant in the future (Exhibit 62). Through the grants program, HVAA supported developing specialized software for financial management of targeted value chains for 165 students, who will be assets to agricultural businesses that frequently lack financial management or planning skills.

Through its communications program, HVAA promoted the economic opportunities agriculture offers at home, to try to stem the tide of out-migration. HVAA partnered with the agriculture-oriented media platform Agrobiznes.md to conduct youth outreach activities. In 2020, Agrobiznes started the AgTech Conference, a first-of-its-kind event in Moldova dedicated to modern agricultural technology and digitization.¹⁴ AgTech drew over 100 participants including farmers, agricultural experts, representatives of agricultural institutions, and many young people interested in the agricultural sector. Participants learned from private sector leaders about the next generation of equipment and software for improved farm planning and management. The conference also reached an audience of more than 250,000 viewers from throughout Eastern Europe through the Agrobiznes.md website. Agrobiznes.md held successive iterations of the conference in 2021 and 2022.

Building on the conference's success, and as part of its effort to promote digital solutions during the pandemic, HVAA provided a grant to Agrobiznes.md to start the AgTech Academy to train agricultural students and recent alumni on non-traditional skills that employers required yet are often left out of agricultural curricula.¹⁵ Twenty-nine students and graduates of agricultural educational institutions from throughout Moldova attended the 10 learning sessions of the first AgTech Academy, which took place in November-December 2020. Sessions covered topics such as networking and presentation skills; personal abilities; digital instruments; agricultural digitalization; corporate thinking; corporate culture and corporate communication; strategic planning objectives and vision; strengths, weaknesses, opportunities, and threats (SWOT); project management; marketing and sales; public relations and communications; and digital marketing. Following the sessions, 10 of the most active students were selected for internships at four agricultural businesses to put their new skills into practice. Agrobiznes.md repeated the AgTech Academy in 2021 and plans to fund further editions through private sector sponsorships, ensuring sustainability.

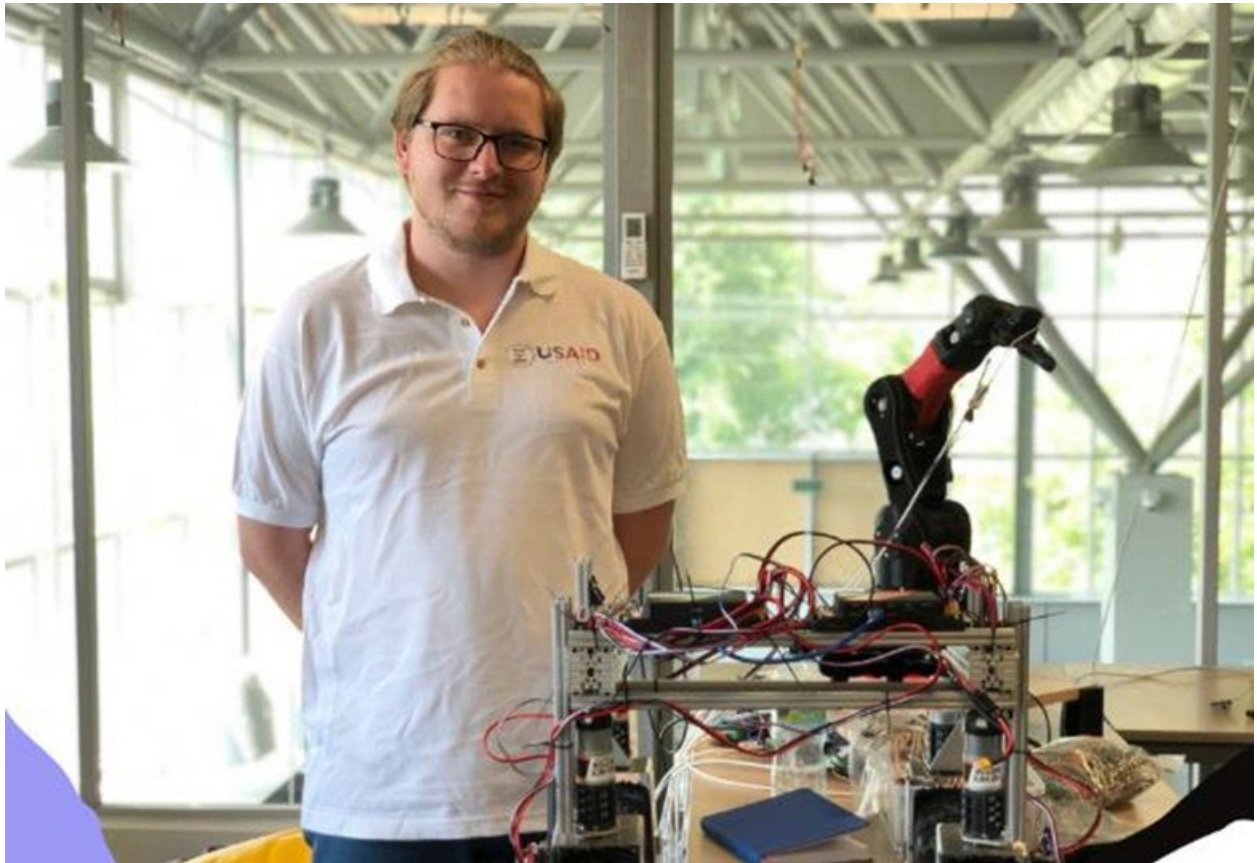
Through a grant to MicroLab, a non-profit association focused on developing youth skills by complementing formal education and preparing youth for work in the industrial sector, HVAA supported a year-long program for 15 students from SAUM and the Technical University of Moldova (TUM) to develop innovative solutions to challenges in the agriculture sector. Working

¹⁴ agrobiznes.md/conferinta-agtech

¹⁵ agrobiznes.md/academia-agtech

in groups of 4-5 people, the students were mentored by agriculture and IT experts and integrated microelectronics, robotics, IT, and green energy into their work. At the end of the grant, students presented the results of their efforts, including AgroDron, a spectral camera-equipped drone to monitor fields; AgroBot, a robot programmed to perform field operations such as removing weeds and transporting boxes of harvested berries; and a FineGrippingArm for harvesting delicate produce such as berries and tomatoes in greenhouses and open fields (Exhibit 63).

Exhibit 63. Student presenting the FineGrippingArm for harvesting

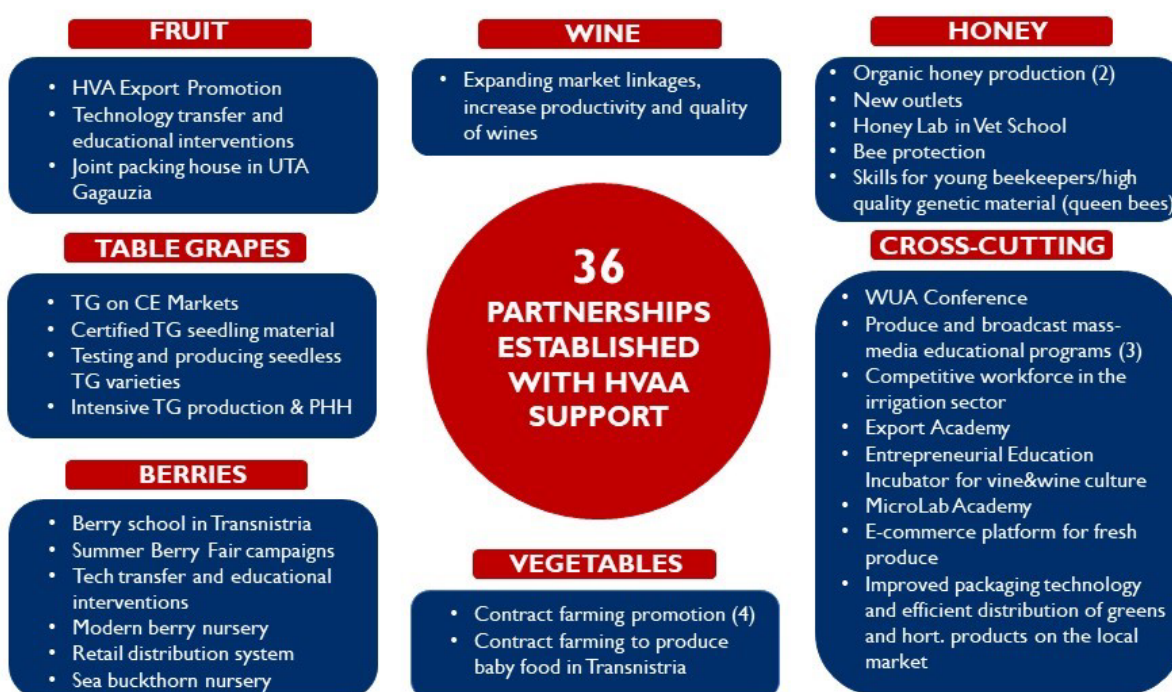


SUB-OBJECTIVE 4.2: INCREASE INVESTMENTS AND ESTABLISH PARTNERSHIPS TO ADDRESS VALUE CHAIN GAPS

HVAA worked to identify and foster sustainable partnerships and to catalyze investments that were critical to the continued development of the horticultural sector, as well the long-term sustainability of its work. Partnerships took many forms, from establishing an association to temporary collaboration to promote a common interest. Partnerships covered all six HVAA value chains and cross-cutting issues in areas such as export promotion, technology transfer, production of certified and seedless table grape seedling material, organic honey production, contract farming, educational media programs, and VET school-private sector collaboration to improve learning outcomes.

Many partnerships were driven by grants, while others led to organizations applying for grants. Over the life of the project, HVAA facilitated 36 partnerships valued at \$9.26 million (Exhibit 64).

Exhibit 64. HVAA facilitated partnerships



HVAA sought to stimulate investment in its target value chains in numerous ways. Its grants program required a certain cost-sharing varying by the type of grant — which resulted in a significant up to 90 percent grantee contribution. The 229 HVAA grants were awarded over six years totaling \$6.35 million, which facilitated an additional \$44.96 million in investments across all value chains. The fruit, table grape, and open-field vegetable sectors generated the largest share

of investment, due to the costly new technologies adopted, such as meteorological stations, anti-hail nets, cold storages, pergola/gable technology, support systems, and others.

SUB-OBJECTIVE 4.3: IMPROVE THE POLICY AND ENABLING ENVIRONMENT FOR SELECTED VALUE CHAINS

The legal and regulatory environment plays a critical role in fostering, or inhibiting, the growth of the high-value agriculture sector. Informed by a comprehensive regulatory mapping project in Year 1 to identify legal, regulatory, and administrative (procedural) constraints to production and marketing, HVAA worked to build a better enabling environment for agriculture, building the capacity of project stakeholders to engage in effective advocacy along the way. Although policy work can be a slow and painstaking process, particularly in a political environment as complex as Moldova's, HVAA scored significant policy wins that will continue to be a positive force for Moldova's high-value agriculture sector for years to come.

Horticulture Development Program. Horticulture is one of Moldova's primary agricultural sectors and makes up a significant portion of Moldova's economy. The sector is responsible for 15 percent of the country's total exports and is a major source of job opportunities and income, particularly for people in rural areas. Despite horticulture's importance to the national economy, the Moldovan government had never developed a strategic development plan for the sector. The lack of a sector strategy meant that little government resources were dedicated to fostering the sector's growth and advocating for its needs. Beginning in Year 3, HVAA worked alongside MAFI, MFA, and private sector stakeholders to draft the Horticulture Development Program (HDP) of Moldova, the first national-level strategic planning document for the horticulture sector. The HDP serves as Moldova's blueprint for the horticulture sector, defining sector targets and determining investment priorities. The HDP is market-oriented — all activities, such as increased support for PHH infrastructure, increased support for quality certifications, and the proposed creation of a public-private Horticulture Office — are oriented toward helping Moldovan products reach export markets, particularly those in the EU. In Years 4 and 5, HVAA ushered the draft HDP through the consultative / endorsement process under four successive governments, providing continuous support in reviewing and improving the document and integrating feedback from government institutions. Finally, in November 2020, the HDP was approved by government decision #840/2020, a milestone in the development of Moldova's horticulture sector.

The HDP for 2021-2025 is the foundation for sector development until 2025 and guides steps toward ambitious targets, such as expanding the area of super-intensive orchards and vineyards by 21,800 hectares, expanding the cold storage capacity for fruit and grapes by 45,000 tons, and increasing exports by \$200 million. It also provides MAFI with a tool for coordinating donor support. To ensure the HDP helps the government reach its targets, HVAA supported MAFI to develop the legal framework for the horticulture sector that complies with EU regulations. The new legal framework led to new provisions, intervention instruments, and institutions for a market-oriented horticulture sector.

In addition, the HDP serves as a turning point for several significant changes in the horticulture sector, such as:

- Expanding export markets for Moldovan horticulture products by initiating trade agreement negotiations with Egypt.
- Promoting increasing Tariff-Rate Quotas for exports of fresh horticultural products such as plums and table grapes to the EU.
- Amending the subsidies policy to facilitate horticulture producers' access to critical financial support to develop specific areas of the sector.
- Building the foundation for a new Horticulture Law and establishing a Horticulture Office.

Facilitate access to subsidies for horticulture producers. As in many ag-centric economies, state subsidies in Moldova are critical to catalyze investments in the sector. Moldova's high-value agriculture producers rely on subsidies to support their operations, decrease the cost of infrastructure investments, and reduce the risks of doing business in a high-risk sector like horticulture. However, in Moldova, only government-approved items, cultivars, or investments are eligible for subsidies. HVAA assisted sector stakeholders to advocate for diversifying the list of potential investments benefiting of subsidies.

A great result of the advocacy efforts supported by HVAA was approval for the subsidy of plant varieties registered in the EU. Although Moldova had more than 3,000 varieties of plants officially registered, most varieties were not appropriate for modern cultivation methods or did not meet current market demands. This meant that farmers who chose to respond to market demands for certain varieties were forced to bear the full cost of planting, which diminished their competitiveness in markets, particularly in the EU, where agriculture is heavily subsidized. They also were unable to legally market or export unapproved varieties, despite market demand for them. After a long advocacy campaign initiated by the sector associations and assisted by HVAA, in December 2021, the Moldovan Parliament approved amendments to Law #276/2016 on subsidy principles for agriculture and rural development, providing Moldovan farmers with access to subsidies for plant varieties that are registered in the Common Catalog of Agricultural Plant Species of the European Union, the European Union Catalog of Varieties of Vegetable Species, the Common Catalog of Vine Varieties of the European Union, and/or varieties indicated in the FRUMATIS Information System. Based on a survey of exporters, growers, and nurseries, HVAA, MFA, and BoM compiled a list of 97 varieties and rootstocks of 11 crops that should be a top priority for the HRI variety testing and registration agenda in 2022-2023. Thanks to the joint efforts, Moldovan farmers will be more competitive on the international market due to access to government subsidies and responding to export market requirements.

Adoption of improved policy framework supporting pergola and gable trellis systems. In Year 2, HVAA achieved an important change to the list of subsidized production by

supporting investments related to intensive production technologies for table grapes on pergola and gable trellis systems that could reach up to 600 thousand MDL (approximately \$33 thousand) per hectare. Due to HVAA's efforts, producers have access to subsidies to modernize their vineyards, up to 120 thousand MDL per hectare for pergola and up to 75 thousand MDL per hectare for gable systems. Coupled with the strong success of pergola systems among HVAA-supported farmers, this contributed to an increase in hectares planted with pergola and gable systems in Moldova.

Supporting access to seasonal workforce. Agriculture is a unique sector in that it is labor-intensive, but only for short periods of time. Indeed, the majority of the agricultural labor force works on a seasonal basis, working in brief stints from spring to fall. This creates challenges to securing adequate labor, as the majority of job-seekers would prefer to work full-time. In 2018, Moldova passed a new law governing the employment of seasonal/day workers that further complicated the employment of seasonal/day laborers. The law increased the administrative burden for registering and reporting on seasonal workers and capped the number of days employers could hire workers at 90. For workers, the law created a disincentive to work by potentially jeopardizing their access to social benefits, such as unemployment payments. To address these legal shortcomings, HVAA worked in coalition with private companies and sector associations whose members were adversely affected by the law to identify alternative approaches. The amendments sought to improve labor shortages in Moldova's high-value agriculture sector and facilitate farmers' access to skilled and unskilled temporary workers by increasing the number of days employers could hire workers (from 90 to 120 days per year); exempting daily workers from pursuing yearly mandatory medical insurance and shifting this responsibility fully to beneficiaries; canceling compulsory contributions to the state social fund for daily workers; allowing daily workers to maintain their unemployment status while working as a daily worker for a short time. Over the course of two years, through numerous roundtable discussions, identifying and benchmarking against international best practices, drafting amendments, and one-on-one advocacy meetings with key government officials, HVAA pushed for changes to the law that would benefit both companies and the seasonal workers they employ. In 2022, the Parliament approved amendments to the law drafted by HVAA with stakeholder support, putting amendments for seasonal workers in place. As a result of these changes, producers will be able to easily access seasonal labor, which is in scarce supply in Moldova, and seasonal workers will likely see their standard of living increase due to the ability to work and retain social benefits.

Quality requirements for apicultural by-products. At the outset of HVAA, honey was the only product of animal origin that was exported from Moldova because Moldova's regulated quality requirements were imposed only on honey, not on honey by-products such as pollen powder, propolis, royal jelly, or beeswax. Due to this legal loophole, beekeepers could not confirm the quality of honey by-products and the lack of quality standards for byproducts of apicultural production (including propolis, beeswax, and royal jelly) prevented their export. As apicultural byproducts for human consumption are often more valuable than honey itself, the lack

of standards denied honey producers a critical additional source of income. Beginning in Year I, HVAA prioritized the development and approval of quality standards in line with EU and international standards. HVAA worked with MAFI to analyze EU and international standards, develop draft quality requirements that aligned with those standards, and vet the results with sector stakeholders, including NBARM, large and small beekeepers, processors and exporters, and the National Food Safety Agency (ANSA). Although the effort stalled due to a change in governments, in November 2020, the government unanimously approved the draft regulations. The approved requirements set out the minimum acceptable conditions for quality, food safety, appearance, and packaging to be observed in production, extraction, processing, packaging, storage, long-term preservation, transportation, and marketing of beeswax, royal jelly, pollen and propolis.

Support development of the Food Security Strategy. HVAA assisted MAFI to draft the Food Security Strategy, a long-term strategy to enhance the country's food security, that is more critical and pertinent in light of international food security issues caused by Russia's invasion of Ukraine. The strategy timeframe is anticipated for 2023-2030 and includes a range of medium- and long-term actions to boost the country's food security by creating a solid foundation for an efficient food, supply, and social protection system, resilient to emergencies and crises. Accompanied by a detailed action plan, the draft strategy was submitted for official endorsement and public consultation and after passing all legal stages of required expertise, was forwarded to the government for approval by the Cabinet of Ministers.

Support to draft the National Program for the Development of the Wine Sector. Considering the importance of the wine industry for Moldova's economy, including its significant share in export volumes, jobs (especially in rural areas), and contribution to developing branches of the economy, in 2019-2020, the MAFI and ONVV started developing a new public policy for the wine industry to replace the National Program for the Wine Industry Development 2002-2020. After several comprehensive studies and assessments developed by ONVV and the USAID MCP, an intermediate draft was summarized and submitted for debate in February 2020. However, the pandemic and the approval of a new regulatory framework for policy documents extensively modified the context and delayed the approval of the new policy.

ONVV and HVAA continued to address legal and regulatory barriers in the wine industry. Over the last few years, the business enabling environment for the wine sector has demonstrated major improvements. The draft program reviews the vision and long-term development priority for the wine industry, including strategic elements for public policy, such as a situation analysis, vision, strategic objectives, main priority interventions, expected impact, monitoring and evaluation indicators, and an action plan for the first three years. A review of the program and its elements follows an action plan developed by an HVAA subcontractor in coordination with the ONVV and MAFI. The wine industry policy will be aligned with the strategy for developing the agricultural sector and rural environment in 2022-2027, the 2030 Agenda for Sustainability Development, the

National Development Strategy Moldova 2030, and the provisions of the EU-Moldova Association Agreement.

The Concept for the National Program for the Development of the Wine Sector for 2023-2027 was drafted and submitted to the State Chancellery for clearance and concurrence.

Successful partnership between HVAA and NBARM when advocating for legislative changes aiming digital transformation of the communication among farmers, beekeepers, and public authorities to prevent bee poisoning from pesticides use. HVAA extensively assisted NBARM to conduct meetings and in-depth consultations with the MAFI and ANSA about amendments to the legal framework to improve and facilitate communication among farmers, beekeepers, and local public authorities to protect bees from pesticide poisoning. Building upon the idea that the honeybees are major pollinators for high-value crops, and their loss can be crippling not only for beekeepers but also for farmers, HVAA supported NBARM efforts to facilitate communication and notification of pesticide use to safeguard beekeepers from devastating losses as a result of poisoning. In addition to developing the BeeProtect platform, as a response to the many bee poisoning incidents that occur due to a lack of communication between farmers and beekeepers, HVAA was fully involved in updating the regulatory framework and legislation that regulates the apicultural sector by introducing BeeProtect as the main communication tool among farmers, beekeepers, and local public authorities to prevent bee poisoning from pesticide use.

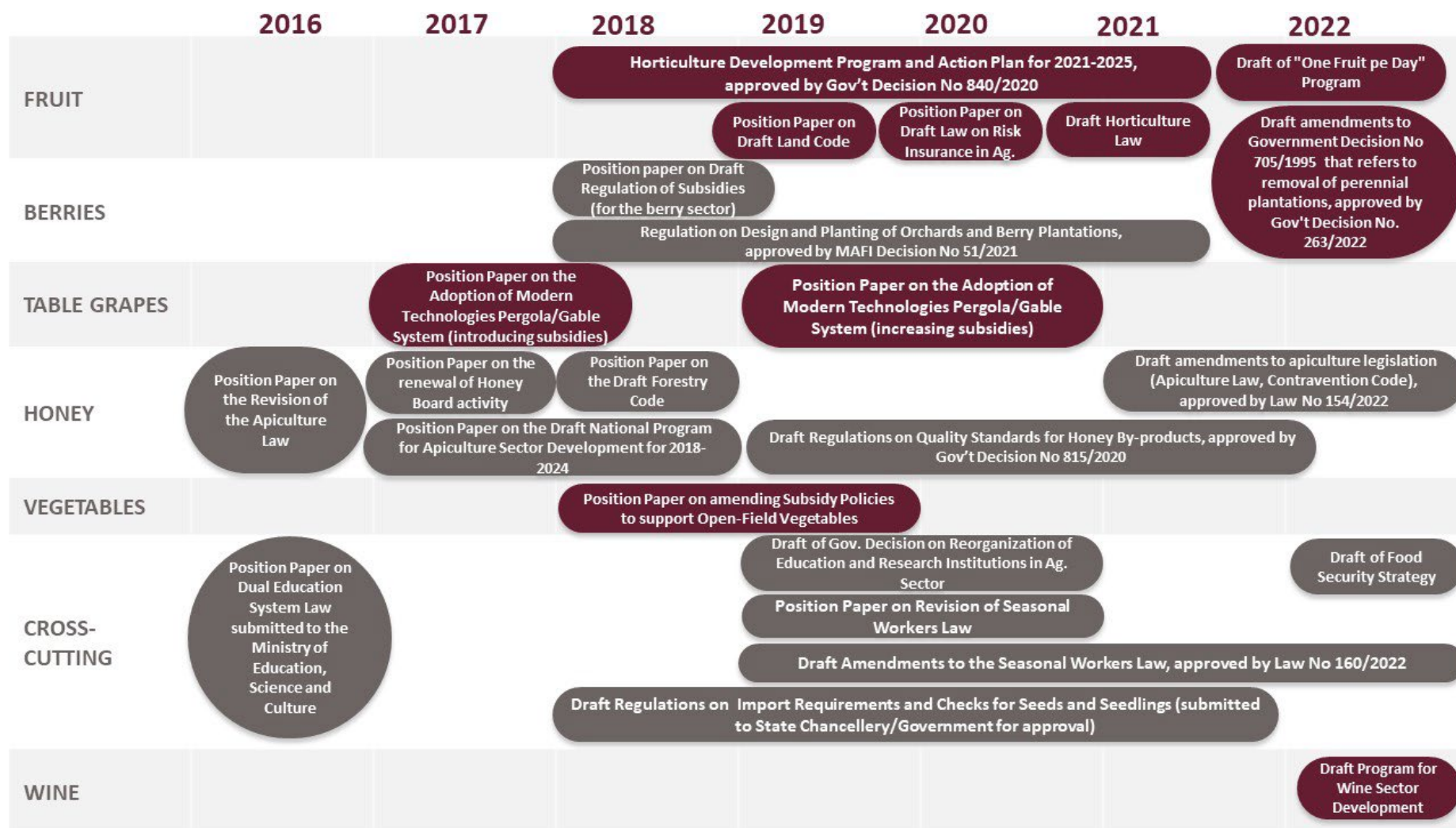
HVAA supported drafting amendments to Apiculture Law #70/2006 and Contravention Code #218/2008 to introduce the BeeProtect web application into the national legislation. All amendments were approved by the Parliament and will enter into force on January 1, 2023. The most relevant changes recently approved by the Parliament refer to:

- Introducing the informational system BeeProtect web application as the single pertinent communication tool among farmers, beekeepers, and local public authorities
- Replacing rules related to the notification of pesticide spraying in municipalities with rules on notification through the BeeProtect web application
- Replacing beekeepers' obligation to register apiary location in a pastoral area with local public authorities with registration in the BeeProtect web application, within 24 hours from the last change of location
- Reducing pesticide spraying notifications from 7 days to 48 hours
- Recognizing as contravention if farmers and beekeepers do not use BeeProtect
- Increasing the penalties for lack of communication (through notifications) and for inadequate use of pesticides that contribute to bee poisoning

HVAA assisted ANSA and MAFI in drafting and endorsing a regulatory package that regulates and ensures the integration of the BeeProtect web application into the existing legal framework: the

Technical Concept regarding BeeProtect and the Regulation on operation and using the BeeProtect application, which later will be integrated into Government Decision #82/2021 on informational systems and ANSA's state registers. Exhibit 65 presents the timeline for the development, submissions and approvals of Laws, bylaws, policies, regulations, and position papers prepared and supported by HVAA.

Exhibit 65. The timeline for the development, submissions and approvals of Laws, bylaws, policies, regulations and position papers prepared and supported by HVAA



CROSS-CUTTING ACTIVITIES TO SUPPORT IMPLEMENTATION

INCLUSIVE DEVELOPMENT

For a society to develop successfully, it must provide equal opportunities and resources to all. Everyone, regardless of gender and age, deserves the same chance to build the life they aspire to and an opportunity to contribute to their community. In Moldova, women make up approximately 52 percent of the population and 44 percent of the agricultural workforce. Women comprise a large portion of the unskilled labor force in agriculture, performing manual work as well as attending to unpaid domestic and child-care work (Exhibit 66). However, it is relatively rare for women to take on top leadership positions in agribusinesses, despite the severe lack of skilled and innovative leaders. Recent studies point out that in family-owned businesses, women are less likely to engage in training opportunities compared to their male family members.

At the same time, young people represent 26.9 percent of the total population in Moldova, but only one-third of young adults work in agriculture. Twenty-five percent of young employees aged between 15-34 are involved in agriculture.

From the outset, HVAA was designed to take an inclusive approach to the high-value agriculture sector and increase the number of young and female participants in this traditionally male-dominated sector. One of HVAA's first major activities was a gender assessment, which identified how it could create intentional opportunities to improve the overall enabling environment for women workers, strengthen support to parts of the value chain where

Exhibit 66. Women involved in unskilled agriculture activities



women are already active, and develop the pipeline of women who are qualified and interested in new roles in agriculture. The finding of this assessment, and the desire to increase women and youth representation in its activities, contributed to HVAA's selection of target value chains. HVAA was the first USAID agriculture activity in Moldova to support the berry and honey value chains, whose low start-up costs and land use make them attractive to farmers with fewer resources, such as women and youth.

Recognizing the imbalance of access to opportunities for women and youth in agriculture, HVAA made special efforts in its day-to-day activities to ensure that women and youth benefited from HVAA-funded assistance, such as:

- Ensuring that grant solicitations include gender and/or youth integration as a merit review criterion and showcased illustrative ideas that involved women and/or youth to spark inclusive applications.
- Encouraging subcontractors and grantees to integrate inclusive measures into their activities, incorporating gender strategies into grants, and establishing targets as accountability mechanism for project partners.
- Designing requests for grant applications specifically targeting activities to promote youth involvement in agriculture.
- Providing training and capacity building to ensure inclusive practice, such as a training program for female WUA members on access to funding.
- Initiating a remote training and technical assistance program to support women-led enterprises and young farmers during the COVID-19 pandemic, particularly supporting the Women in Agriculture Network.
- Showcasing young and female leaders' and entrepreneurs' communications activities.

Through HVAA efforts, more than 2,970 women and 3,360 youth received targeted trainings, leading to enhanced competitiveness and profitability of their agricultural businesses. Although agriculture is a male-dominated sector, 29 percent of HVAA beneficiaries were female, with the highest female participation in the berry sector and cross-cutting activities (Exhibit 67). Youth also recorded the highest participation rates in the berry sector and cross-cutting activities (Exhibit 68).

Alongside inclusive activities, HVAA actively designed women-focused trainings, such as domestic study tours to visit women-led businesses and accounting and business trainings that targeted female administrators

Almost 40 percent of grants were awarded to women-owned businesses or women-run associations, providing technology such as irrigation and fertigation systems, sorting lines, agricultural machinery, and pasteurization equipment to help grantees improve product quality on their farms.

Exhibit 67. Male and female participation in HVAA activities (life of project)

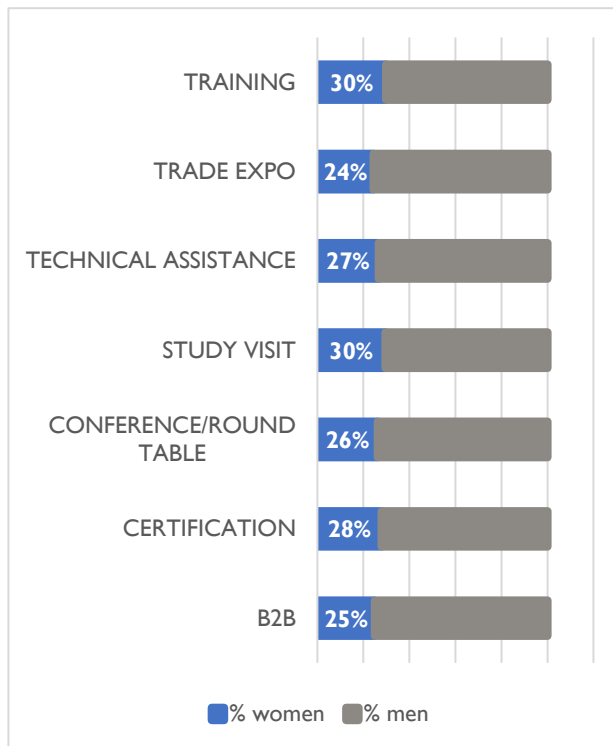
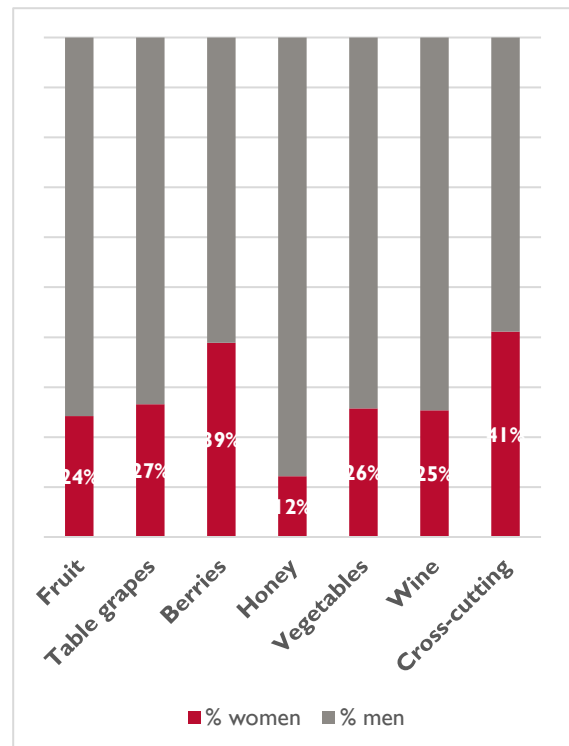


Exhibit 68. Female and male beneficiaries per value chain, % (life of project)



Women and youth have achieved some impressive successes thanks to HVAA support. A women-run business was responsible for the first export of plums from Gagauzia to Germany and the first export of sweet cherries to the Netherlands. Women have taken leadership roles in sector associations, including BoM and Belyi Most. More than 30 percent of the pioneering businesses that are currently obtaining the GLOBALG.A.P. certification with HVAA support are women-owned or women-led. By encouraging more businesses to obtain the GLOBALG.A.P. and GRASP certifications, a requirement to access many European buyers, Moldovan business owners are motivated to ensure that their operations employ safe working environments and socially conscious business practices for all workers, ensuring that the large

proportion of female agricultural laborers receive fair and improved working conditions.

Through its communications program, HVAA used media stories and short films to inspire and empower women to take a more active role in agriculture. For example, after promoting the vertical hive training and implementation grant activity, there was a 200 percent increase in the number of women who applied for

ENGAGING WOMEN AND YOUTH

- Youth accounted for 36 percent of HVAA beneficiaries.
- Youth were involved in 1,444 HVAA activities (training events, conferences, B2B, etc.).
- Youth recorded the highest participation rates in the berry sector and cross-cutting activities.

beehives. Similarly, through its partnership with Agrobiznes.md, HVAA dedicated significant support to promoting agriculture as an attractive career option for youth. Through “Be AgriCOOL,” AgTech Academy, and other communications programs, HVAA sought to reach and inspire the next generation of agriculture workers and entrepreneurs.

In celebration of the International Day of Rural Women in Year 6, HVAA organized a series of five online events during Rural Women Week, where women who built successful careers in agriculture shared their experiences with more than 350 participants. These women serve as an example of what is possible for the next generation. Women business leaders shared strategies for women to attract funding in agriculture, tactics for e-commerce and online sales, opportunities for rural tourism, best practices for marketing and branding for agricultural products, and ways to diversify agribusinesses.



"We are grateful. It's not just about the immediate technical support provided. It's about the trust they have towards us, the validation of our efforts, the mentorship they offered us. Very often that is worth more than money."

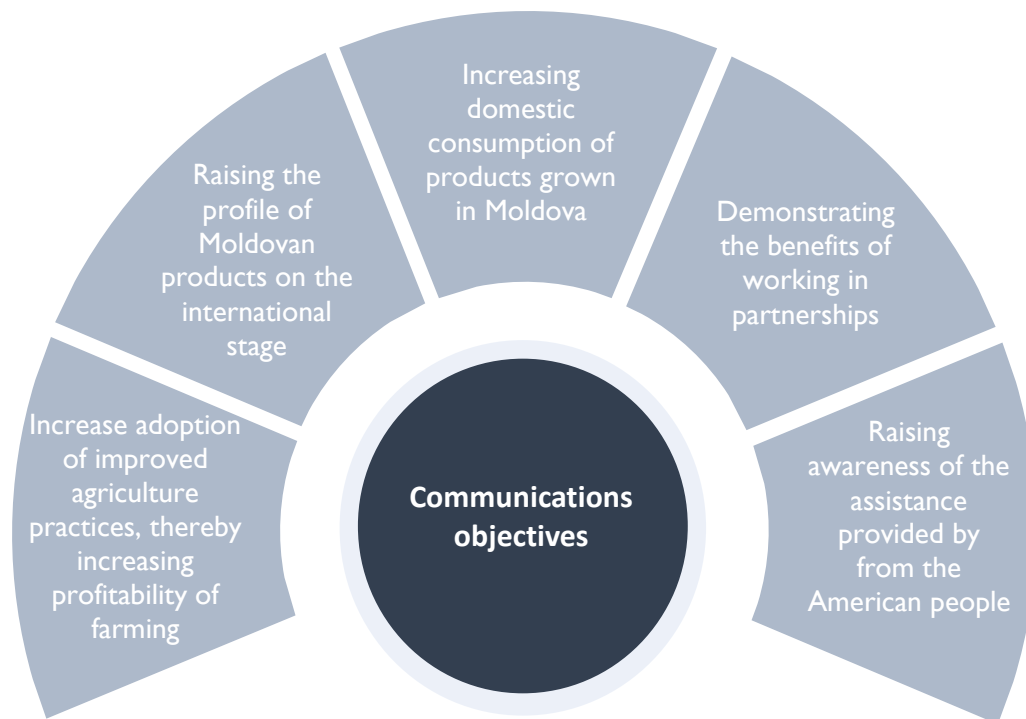
Natalia Efros,
AlterEgo Winery

Cultivating Future Today

COMMUNICATIONS

Communications were integrated into each facet of HVAA, from marketing to promoting agriculture careers to Moldova youth. HVAA sought to move beyond merely raising awareness to using communications as a tool to facilitate and enhance the project’s impact. By building a robust and multi-faceted communications platform that included social media, educational programming, branding and marketing, video production and more, HVAA sought to motivate positive change among stakeholder groups by following targeted objectives (Exhibit 69). *Media*

Exhibit 69. HVAA communications objectives



activities and grants. Strong media relations were central to HVAA’s communications efforts (Exhibit 70). HVAA built close ties to leading print, online, and broadcast media outlets throughout Moldova, including Jurnal TV, Agro TV (the only broadcast channel dedicated exclusively to agriculture), online news portal Agrobizness.md, Agroexpert.md, Agromedia.md, and others. Through press tours, HVAA built journalists’ knowledge and understanding of the challenges and opportunities in high-value agriculture, increasing their capacity to identify and report on agriculture-related news stories. HVAA’s technical experts functioned as important resources for television programs and were regularly invited to participate in TV interviews and programs related to agricultural exports, productivity, and compliance with international standards. Recognizing the quality content that HVAA could help the media to develop, television stations regularly attended HVAA trainings to disseminate critical information to a wide audience.

Exhibit 70. HVAA specialist explaining GLOBALG.A.P. standards to the media



HVAA used its grants program to increase the quality, quantity, and diversity of news stories on high-value agriculture in Moldova. Through grants to Agro TV, HVAA created a series of more than 90 educational videos for beekeepers, as well as numerous reports on new production technologies and practices in HVAA's value chains.¹⁶ Grants to regional stations in Nisporeni, Cimislia, and Gagauzia helped small stations to better serve their communities by providing hyper-local news related to the crops grown in their areas. Through grants to national broadcast media channels, HVAA reached broad, nationwide audiences with news campaigns and TV shows focused on agriculture. TV8's AgroTerra program included 16 reports on advanced agriculture technologies, broadcast weekly in both Romanian and Russian. Through a grant to JurnalTV, the station developed and launched a new series of half-hour programs called AgriCOOL on the latest developments in agriculture (Exhibit 71).¹⁷ The AgriCOOL series was such a success with audiences that JurnalTV decided to continue the program after the HVAA grant concluded, using its own resources. To date, 18 episodes of AgriCOOL have been produced.

HVAA maintained a life-of-project partnership with Agrobiznes.md, an online news portal dedicated solely to agriculture. In Year 1, the project subcontracted Agrobiznes to publish HVAA information about grants, training programs, activities, and new promoted technologies in the target value chains. By using this tool, HVAA was able to reach a large audience of farmers and other stakeholders. In Year 3, Agrobiznes won an HVAA grant to develop a platform to promote careers and opportunities in agriculture, targeting Moldovan youth,

¹⁶ agrotv.md/agricultura-cu-valoare-adaugata

¹⁷ www.jurnaltv.md/category/agricool

Exhibit 71. Promotional banner of the AgriCOOL show produced by Jurnal TV





where they could find information about job opportunities, stories on agricultural students, or articles about graduates of professional schools, colleges, or universities. All reports and interviews were published and shared under the motto “Be AgriCOOL!” The online platform is used to promote agricultural technology perspectives, agricultural educational opportunities in vocational schools, Centers of Excellence, and the SAUM. Agrobiznes compiled articles and interviews about educational programs, school infrastructure and facilities, and success stories of young graduates who found gainful employment or launched a business following their studies. In 2021,

Exhibit 72. Digital Agriculture Library

NE PUTEȚI CONTACTA: +373-69613530

Despre noi | Parteneri | Disclaimer | Termeni și condiții | Contacte





Organic | Apicultura | Planificare financiară | Irigare | Legumicultură | Management | Marketing | Pesticide | Pomicultura | Pomusoare | Sere | Viticultura | Zootehnie

Bine ați venit.

BIBLIOTECA AGROBIZNES

Agrobiznes.md launched Agrobiznes Library, the first agricultural digital library in Moldova.¹⁸ The platform, which was developed with Tekwill and HVAA, immediately became popular both in Moldova and in Romania, due to the educational materials in Romanian. The library currently hosts 122 educational materials (manuals, guides, brochures, etc.), uploaded by different providers, such as HVAA, IFAD, Livada Moldovei, The Liechtenstein Development Service Foundation, and the Moldova Organic Value Chain Alliance (MOVCA).¹⁹

The Agrobiznes Library offers unlimited access to all resources on the platform. Organizations that share educational materials have the option to check the number of downloads and obtain limited personal details of the users who download the materials. Over 2,500 users have

registered with the library (Exhibit 72).

The platform became a great resource of professional information for young farmers, farmers planning to develop their farms or improve their production and post-harvest technologies. In just two years, the digital library doubled the number of publications uploaded and brought on new partners. Currently, Agrobiznes is working on expanding the list of educational materials available with training videos and the number of partnering organizations.

In addition to creating and disseminating information that helped HVAA to reach its performance and communications objectives, these grants also helped to build the capacity of the media outlets themselves. This included production capacity (through procurement of needed equipment), improved knowledge of and ability to report on high-value agriculture issues, and increased viewership numbers (and thus ad revenues). For example, during its HVAA grants, AgroTV's audience tripled, while Agrobiznes.md saw the number of its unique site visitors triple in less than three years thanks in part to HVAA-supported programming. The partnership between HVAA and



One of the HVAA objectives was to increase adoption of new technologies and good agricultural practices. One way it achieved this was through partnerships with the media. HVAA built the capacity of local media to provide improved coverage of agricultural topics and promote advanced production and PHH practices.

Through cooperation with www.agrobiznes.md, an online media platform that focuses on agriculture issues, HVAA facilitated access to Moldovan and international experts, shared the results of HVAA-supported demonstration plots and tested technologies, and encouraged youth to get involved in agriculture. Sergiu Jaman, the director of the Agrobiznes.md platform, said that due to HVAA's support, the content of agrobiznes.md is appreciated by agricultural stakeholders not only in Moldova, but in Romania and Italy, as well. Therefore, agrobiznes.md extended its presence in Romania and Italy and launched the "Agriculture without Borders!" project.

"There is great experience and ideas to share and learn from each other," said Sergiu Jaman.

¹⁸ biblioteca.agrobiznes.md

¹⁹ movca.md

Agrobiznes.md, which included two grants and several small subcontracts, also helped Agrobiznes draw an increasing number of Romanian visitors. Thanks to this success and increased capacity, Agrobiznes.md established a new news portal, Agrobiznes.ro, targeting Romanian audiences.

HVAA provided 13 media grants to Moldovan media organizations. More than 4,000 stories were published about HVAA, an average of 30 stories per month.

Supporting association communications. To help associations promote their work, both to members and the general public, HVAA provided comprehensive, ongoing assistance to improve their communications platforms and practices. Communications activities and milestones were integrated into each grant to association partners, and HVAA provided training and hands-on communications coaching and mentoring to association staff. Under

Exhibit 73. Banner of the HVAA close-out promotional campaign



grant activities, NBARM, BoM, and MFA received technical assistance to improve the content and design of their websites, and to develop and print brochures and other promotional material. HVAA supported a complete re-branding for MFA and the “Taste Makes the Difference” country brand. HVAA developed a brand for HEA and supported the association’s efforts to develop a website. In addition to formal training programs in social media management and media relations, HVAA provided ad hoc consulting and advice on an as-needed basis.

Social media. HVAA ran an active Facebook page to share up-to-date information on project activities, best practices, success stories, and relevant information for agricultural activities and agribusiness development. The page has more than 3,000 followers, more than 40 percent of whom are under the age of 34.

In its final year, HVAA launched a social media campaign to celebrate its successes. With the tagline “Planting tomorrow today,” the campaign included videos, infographics, and quotes from beneficiaries to demonstrate HVAA’s impact on the high-value agricultural sector (Exhibit 73). During the 3-month campaign, HVAA reached an average of 120,000 Moldovans per week with messages about USAID’s support to the high-value agriculture sector and the impact achieved through HVAA.

ENVIRONMENTAL COMPLIANCE

Environmental compliance was integrated across activities carried within HVAA targeted value chains and cross-cutting activities. In accordance with USAID regulations and the HVAA Initial Environmental Examination (IEE), Chemonics ensured that all sub-awards and project activities were appropriately screened for potential environmental impact. Environmental Mitigation and Management Plans EMMP(s) were developed for activities that had a potential adverse environmental impact and these EMMPs were submitted to USAID. During the project implementation period, HVAA developed and executed over 120 EMMPs, with each one being translated into Romanian and attached to the corresponding sub-award, becoming guidance for each HVAA grantee. Key information on EMMPs development, monitoring, and execution, as well as relevant activities is presented below (Exhibit 74).

In addition to following USAID environmental compliance procedures within sub-awards, HVAA took proactive steps in a timely manner to minimize and prevent adverse environmental impacts and promote sustainable agricultural practices through training events, communication via multi-faced platform of social-media, educational content, and video production, as well as policy interventions and direct technical assistance to beneficiaries.

Among the environmental topics touched on within some of the HVAA interventions were plastic ag-waste recycling (HVAA facilitated at least 40 tons of plastic drip-irrigation lines and plastic film for greenhouse cover recycled), promoting cooperation-based model to reduce food waste (through match-making facilitation between grantees and non-profits working with marginalized groups), enhancing sustainability in the wine-sector (at least five small wineries upgraded their water treatment systems). HVAA also promoted composting and good agricultural practices in the vineyards, to minimize erosion and conserve humidity in the soil. Soil management was also an important aspect during interventions: HVAA strongly recommended soil and water testing for plots demonstrating new production technologies (such as new trellising systems, modern spraying equipment) in order to highlight the resulting improved use of pesticides and fertilizers and reduced impact on the environment.

HVAA has been implementing recommendations stated in the original and amended Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP). Thus, HVAA conducted a series of trainings on pest management, under the GlobalG.A.P. and IPM framework highlighting the importance of safe pesticide use, Integrated Pest Management (IPM), and market-driven education on Maximum Residue Limits (MRLs) and only featured pesticides approved in the PERSUAP in a safe manner both from the health and safety and environment points of view. In addition to training and awareness raising, HVAA encouraged producers, including with grant support, to utilize agri-meteorological stations and pest monitoring to identify the best times for pesticide spraying. One company was assisted supported to produce plums using organic production principles and used to demonstrate the use of birds and bats in IPM.

In addition to promoting good agricultural practices and minimizing environmental risks within sub-awards, HVAA noted a series of problems and barriers in enhancing resilience and sustainability in the agricultural sector. Lack of separate waste collection infrastructure,

insufficient funding for SMEs greening program, aggressive marketing campaigns by phytosanitary input providers with less emphasis on biological and environmentally-friendly alternatives to spraying, as well as poor monitoring by controlling state agencies and lack of awareness of basic sustainable ag-practices are few of the problems HVAA spotted.

Exhibit 74. HVAA Environmental Compliance Highlights

HVAA ENVIRONMENTAL COMPLIANCE HIGHLIGHTS

- Developed, executed, and monitored 121 Environmental Monitoring and Mitigation Plans (EMMPs) and 121 Records of Compliance
- Conducted over 140 monitoring visits in relation to Environmental Mitigation and Monitoring Plan (EMMP). USAID, represented by Mission Environmental Officer and E&E Bureau Environmental Officer assisted during visits to at least 15 sites.
- Assisted Association of Small Winemakers to hold the seminar “Practical Aspects in Implementing Regulatory Requirements for Environmental Protection.”
- Developed and distributed infographic content and informative article on waste management in agriculture. HVAA continually makes linkages to minimize plant waste (through alternative use and composting) and plastic waste (through recycling).
- Promoted plastic recycling of agricultural waste through a video report released by one national broadcaster and reprinted by Romanian and Russian digital media.
- Purchased personal protective equipment (PPE) for 16 winemakers, improving waste management and workforce security on sites.
- Updated the Pest Management section of the Apricot Guide, in line with the Pesticide Evaluation Report and Safe Use Action Plan (PERSUAP).
- In line with PERSUAP recommendation #5, HVAA continues initiatives to reduce bee poisoning, including through digital communication (BeeProtect). Parliament approved amendments to Apiculture Law #70/2206, which introduced the BeeProtect tool developed by HVAA and Tekwill. HVAA is currently supporting ANSA to integrate BeeProtect into its systems, with an expected national launch in 2023.
- In line with PERSUAP recommendation #4, HVAA supported more than 40 growers to prepare for and pass GRASP.
- In line with PERSUAP recommendation #4 HVAA also developed a "Safe Pesticide Use" poster, which was disseminated throughout Moldova. In addition, HVAA utilized AgroTV to promote Good Agricultural Practices (GAPs), IPM, and safe use practices by integrating these themes in crop production programming, as well as individual topics.
- HVAA worked with AgroTV to develop 17-minute comprehensive video on GAPs, with visual and practical demonstration on ways to comply with the GlobalG.A.P. standard and relevant national legislation.
- In line with PERSUAP recommendation #3, HVAA supported ANSA to establish and deliver an e-learning certification course on sustainable use of pesticides.
- HVAA did not report any environmental or pesticide use accidents on project sites.

SUPPORTING STAKEHOLDERS THROUGH CRISES

Like the rest of the world, Moldova was deeply impacted by COVID-19. Like organizations around the world, HVAA was forced to adapt its implementation methods and activities to a new operational environment, moving many activities online and requiring the project to find creative ways to support its diverse clients and beneficiaries. In addition, the project also was challenged to support its beneficiaries to find their own ways to adapt and to continue to do business in the absence of in-person meetings, training, site visits, international trade fairs, and buyer missions that characterize the annual calendar of production and trade of horticultural products around the world.

The shift from in-person to online activities was a challenge for the entire world — a challenge that was exacerbated in resource-poor countries such as Moldova. Although Moldova has good Internet infrastructure and strong broadband connections, most agriculture producers have little to no online presence and rely on trade fairs, inward buyer missions, and other forms of in-person communications to attract new buyers. As part of its efforts to modernize and professionalize producers' marketing and communications platforms, HVAA had been promoting digitalization as a critical business strategy prior to the COVID-19 pandemic. With the onset of the pandemic, the project intensified its digitalization push in response to pandemic-induced travel restrictions. The project developed a guide and trained businesses on digital marketing and helped associations and agribusinesses improve their online presence. To replace the exporter-buyer interface, the project developed innovative virtual tours that allowed prospective buyers to “visit” orchards and post-harvest facilities through comprehensive [virtual tours](#) that were placed on Moldova Fruct's website. In addition, the project hosted “guided” virtual tours with buyers, B2B discussion panels, and “speed-dating” meetings that introduced a buyer to multiple potential suppliers in a short timeframe.

In addition to marketing, HVAA helped its stakeholders to move activities — including training, assemblies, and other meetings — online. This support was particularly critical for vocational schools, whose students come from lower socio-economic classes and whose homes are less likely to have broadband service and the technology necessary to access it. For example, at Bubuieci Vocational School, HVAA helped the school to digitalize the beekeeping curricula and create a digital learning platform. HVAA provided tablets and other mobile communications support to help the most disadvantaged students, while the school's faculty lead classes from computer previously given to the school under an HVAA grant. The school's faculty also were trained to use smartphones to make small videos of practical demonstrations that were downloaded on the platform.

To help the entire horticulture industry understand and adopt legal requirements and best practices to deal with the new workplace challenges imposed by the COVID-19 pandemic, HVAA developed a guide that was presented during an online training held for Moldova Fruct Association members in April 2020 and later disseminated through multiple articles and TV appearances. At the request of ANSA's top management, HVAA organized two similar online training sessions in May for more than 200 ANSA field inspectors that used this knowledge to

help agri-food operators adopt workforce safety measures and best practices to ensure food supply continuity for local and export markets.

The effects of the pandemic were just beginning to subside when the Russian invasion of neighboring Ukraine created new challenges. The war in Ukraine closed traditional transport routes and forced the project and its partners to scramble to mitigate the war's impact on Moldova producers. Exporters still reliant on the Russian market were forced to find a new destination for their goods when Russia declared an embargo in August 2022 on Moldovan horticultural products from most regions of the country (excluding Transnistria). However, HVAA and its stakeholders began the push for market diversification efforts immediately after the war began. For example, in 2020, Moldovan apples were sold to only nine countries — with Russia as the top destination market, accounting for more than 90 percent of Moldova's apple exports that year. However, 2021/22 was a record season for Moldova's production and export of apples also. The country exported to a record number of countries (29), including EU (as far as Spain and France), Asia (as far as Laos, Malaysia, and Bangladesh) and Africa (as far as Angola). One of the buyers was World Central Kitchen, an international nonprofit organization that provides fresh meals in response to crises. The organization bought 200 tons of Moldovan apples as part of its efforts to feed Ukrainian refugees. The project and its stakeholders' efforts to find new markets for Moldovan apples was highlighted in [a speech delivered by USAID Administrator Samantha Power](#) at the Society for International Development-US conference in late May 2022.

The regional situation caused by Russia's war against Ukraine impacted worldwide markets and created concerns for Moldovan wine exports as well. According to the ONVV, Moldova's total wine exports dropped dramatically in the first seven months of 2022, by 25.6 percent in volume and 20.1 percent in value compared to the same period in 2021. USAID HVAA stood along the sector and supported the efforts to diversify the markets by launching promotional and marketing campaigns on new European markets and participation at the international events, but also connecting Moldova wine sector to international professional organizations and platforms.

When the closure of a traditional transport route through Ukraine led to long delays for trucks filled with perishable goods at the border with Romania, HVAA worked with the Government of Moldova, associations, the Commission for Exceptional Situations (CSE) headed by the Prime Minister to authorize and direct the Customs Office and ANSA to open Green Lanes for Perishable Products at all border crossings through which these goods could be exported. In response to the global concerns about food security in the wake of the war, HVAA also supported MAFI to draft a food security plan in the summer. Despite the challenges caused by the war, in June 2022, Moldova's exports of highly perishable fruit such as sweet cherries, sour cherries, apricots, strawberries and raspberries amounted to \$12 million. This performance achievement was only possible thanks to the USAID HVAA-facilitated improvements in export logistics.

While the Russian-Ukrainian war continues, much uncertainty remains, USAID continues to support Moldovan producers and exporters to reorient their sales to the EU and other non-traditional markets and increase the resilience of rural communities.

SECTION II

PROGRESS TOWARD TARGETS UNDER THE PERFORMANCE MONITORING AND EVALUATION PLAN

NO.	INDICATOR	UNIT OF MEASURE	DISAGGREGATION	FREQUENCY	BASELINE	ANNUAL CUMULATIVE TARGETS HVA VCS	RESULTS HVA VCS	ANNUAL CUMULATIVE TARGETS WINE VC	RESULTS WINE VC
1	Return on investment	ratio	Location/ region, Harmonized (HS) code	Annually	0	Yr 1: 0.2:1	2.5:1	N/A	N/A
						Yr 2: 0.5:1	2.05:1		
						Yr 3: 1:1	6.24:1		
						Yr 4: 2:1	5.94:1		
						Yr 5: 4:1	6.84:1		
						Yr 6: 5:1	6.1:1		
						LOP: 5:1	6.1:1		
Live of Project (LOP) TARGET ACHIEVED. According to its definition, Return on Investment (ROI) is calculated as the ratio of Indicator 3 (\$157,96 million) of the reported year (final year 2022) over the total project budget (\$25.86 million). The latest Project Monitoring and Evaluation Plan approved by USAID does not include the wine value chain for the Indicator 3 (Increased value of domestic and export sales in targeted sectors/value chains) in order to maintain continuity from the baseline figures in previous reporting when the project did not support the wine sector. At the same time, Indicator 1 (Return on Investment) calculates ROI as Indicator 3 (total sales value in USD excluding wine sales) divided by the total project budget (which includes the funds for wine value chain). Therefore, the ROI calculated under Indicator 1 is higher than the figure reported here.									
GNDR-2	Proportion of female participants in USG-assisted programs designed to increase access to productive resources (assets, credit, income, or employment)	%	Location/ region, HS code, age, type of resources	Quarterly	0	Yr 1: 25	19.5	N/A	N/A
						Yr 2: 28	22	N/A	N/A
						Yr 3: 25	24	N/A	N/A
						Yr 4: 25	24.7	N/A	N/A
						Yr 5: 25	27.8	Yr 5: 25	23.6
						Yr 6: 25	29	Yr 6: 25	28.8
						LOP: 25	29	LOP: 25	28.8
LOP TARGET ACHIEVED. Out of the total number of 10,225 unique beneficiaries reached during the six years of implementation, 2,971 were women, with the highest female participation in the berry sector (39%) and in cross-cutting activities (41%) and the lowest in the beekeeping sector (12%). Fruit sector was represented by 24% women, table grapes - 27%, vegetables -26% and wine - 25%. Disaggregated by type of activity, women participated primarily in trainings (30% of participants) and study visits (30% of participants), but even in trade exhibitions with the least women representation, there were no less than 24% women. B2B activities gathered auditorium with 25% women participation, conferences (26%), technical assistance (27%) and certifications (28%).									
SUB-PURPOSE I. EXPAND TRADE AND STRENGTHEN LINKAGES TO DOMESTIC, REGIONAL AND INTERNATIONAL MARKETS FOR TARGETED VALUE CHAINS									
3*	Increased value of domestic and export sales in targeted sectors/value chains	Million USD	Location/ region, HS code, market	Annually	0	Yr 1: 15	53	N/A	N/A
						Yr 2: 28	42.8		
						Yr 3: 48	130.5		
						Yr 4: 68	153.56		

NO.	INDICATOR	UNIT OF MEASURE	DISAGGREGATION	FREQUENCY	BASELINE	ANNUAL CUMULATIVE TARGETS HVA VCS	RESULTS HVA VCS	ANNUAL CUMULATIVE TARGETS WINE VC	RESULTS WINE VC
						Yr 5: 84	176.97		
						Yr 6: 95	157.96		
						LOP: 95	157.96		
		<p>LOP TARGET ACHIEVED. The final year results are a forecast based on estimations made in the framework of Focus Groups with experts, data on the already performed exports (ASYCUDA), and the 'east-fruit' [https://east-fruit.com/] platform (prices). To calculate the domestic market for the indicator, production volumes were considered. Despite the production volumes fluctuations over the years, impacted by various factors such as extreme weather conditions, increases in value of domestic and export sales were registered due to increases in prices due to shifting from traditional to the higher paying markets such as EU and other new markets. The average export prices increased by 22% for berries, 26% for apples, 48% for table grapes, 90% for stone fruit, and 31% for honey in 2021 compared to 2016. While the exports by volume of HVAA value chain products increased by 31% on traditional markets, they more than doubled on the EU market (2.4-fold increase) and exceeded by 46% on other markets.</p>							
4*	Value of domestic and export sales facilitated on behalf of assisted enterprises	Million USD	Location/ region, sex, age, HS code, business size, type of organization, type of assistance, market	Data collected bi-annually, reported annually	0	Yr 1: 8	1.5	N/A	N/A
Yr 2: 20.1						28.9	N/A	N/A	
Yr 3: 43.9						53.5	N/A	N/A	
Yr 4: 63.9						91.8	N/A	N/A	
Yr 5: 116.8						134.1	Yr 5: 5	3.7	
Yr 6: 141.8						186.3	Yr 6: 20	15.2	
LOP: 141.8						186.3	LOP: 20	15.2	
		<p>LOP TARGET ACHIEVED. During the six years of implementation, the project facilitated sales exceeding the LOP target for HVA Value Chains (VC) by 42% by reaching a total of \$201,5 million. Of the total, \$50,1 million were generated on the domestic market and \$151,4 million on international markets. The disaggregation per value chain shows \$102.37million of total fruit sales, \$29.84 million for table grapes, \$7.42 million for berries, \$15.48 million for honey, \$17.39 million for vegetables and \$13.84 for processed fruit and vegetables. Wine accounted for \$15.18 million, as the final reporting deadline did not match the reporting schedule for the wineries.</p>							
5	Number of enterprises with sales facilitated through US government assistance	Number	Location, sex, age, HS code, business size	Quarterly	0	Yr 1: 50	50	N/A	N/A
Yr 2: 100						220	N/A	N/A	
Yr 3: 250						235	N/A	N/A	
Yr 4: 300						296	N/A	N/A	
Yr 5: 350						387	Yr 5: 10	14	
Yr 6: 400						437	Yr 6: 30	26	
LOP: 400						437	LOP: 30	26	
		<p>LOP TARGET ACHIEVED. Overall, 458 sellers have reported the increased facilitated sales reported under 'Indicator 4' above, while disaggregated by value chain there would add up more, since many companies have been assisted and have registered increased sales for more than one product/value chain. The disaggregation shows 38 companies with registered sales for apples and 76 for stone fruit; 125 for table grapes; 123 for berries; 78 for fresh vegetables; 7 for processed fruit and vegetables; 56 for honey (only the ones reporting directly to the project where counted, while indirectly the number is much higher if to consider all the honey suppliers); 26 for wine.</p>							
6		Number		Quarterly	0	Yr 1: 20	53	N/A	N/A

NO.	INDICATOR	UNIT OF MEASURE	DISAGGREGATION	FREQUENCY	BASELINE	ANNUAL CUMULATIVE TARGETS HVA VCS	RESULTS HVA VCS	ANNUAL CUMULATIVE TARGETS WINE VC	RESULTS WINE VC
	Number of assisted enterprises exhibiting or participating at trade shows or participating in business-to-business events		Location, sex, age, HS code, business size, type of organization			Yr 2: 40	65	N/A	N/A
						Yr 3: 80	110	N/A	N/A
						Yr 4: 120	224	N/A	N/A
						Yr 5: 235	226	Yr 5: 10	4
						Yr 6: 250	302	Yr 6: 20	71
						LOP: 250	302	LOP: 20	71
<p>LOP TARGET ACHIEVED. The numbers above represent total unique exhibitors and or/B2B participants. Disaggregated by value chain a larger number of companies sum-up, as follows: 37 apples producers and exporters, 96 stone fruit companies, 51 in the berries sector, 33 for table grapes VC, 41 honey businesses, 47 fresh vegetables producers/consolidators, 22 processed fruit and vegetables producers, 72 wineries, as well as 19 processors, input suppliers, retailers, and online sales platforms.</p>									
SUB-PURPOSE 2. IMPROVE PRODUCTIVITY, POST-HARVEST HANDLING AND PRIVATE SECTOR CAPACITY TO COMPLY WITH EUROPEAN AND INTERNATIONAL STANDARDS IN TARGETED VALUE CHAINS									
7	Number of enterprises (except primary producers) receiving project-related assistance to improve knowledge, processes, technologies and practices	#	Location, sex, age, HS code, business size	Quarterly	0	Yr 1: 50	84	N/A	N/A
						Yr 2: 130	258	N/A	N/A
						Yr 3: 210	261	N/A	N/A
						Yr 4: 300	287	N/A	N/A
						Yr 5: 350	364	Yr 5: 15	78
						Yr 6: 370	389	Yr 6: 30	116
				LOP: 370	389	LOP: 30	116		
<p>LOP TARGET ACHIEVED. The number of unique enterprises under this indicator, such as processors, consolidators, input suppliers, exporters, and other constituents of the value chain have benefited of trainings (59%), technical assistance (4%), grants (4%), participation in trade expos and B2B activities (4%), study visits (2%), conferences and round tables (26%) in the fruit VC (136 companies), table grapes VC (68), berry VC (51), honey VC (46), vegetables (88), and 116 wineries.</p>									
8	Number of enterprises (except primary producers) adopting improved production, processing, and management techniques or using improved agricultural inputs and equipment	#	Location, sex, age, HS code, business size, type of improvement adopted	Annually	0	Yr 1: 35	52	N/A	N/A
						Yr 2: 105	144	N/A	N/A
						Yr 3: 175	148	N/A	N/A
						Yr 4: 245	185	N/A	N/A
						Yr 5: 280	251	Yr 5: 11	30
						Yr 6: 280	282	Yr 6: 23	79
				LOP: 280	282	LOP: 23	79		
<p>LOP TARGET ACHIEVED. Enterprises that have adopted new practices and/or implemented modern technologies related to input supplies, post-harvest handling, management, marketing, and sales have been considered for this indicator. A distribution by value chain shows 97 enterprises in fruit and 47 enterprises in the table grapes value chains using sorting and packing lines, and/or cold storages, marketing and other innovative practices and technologies that enable them to access higher paying markets, 51 berry processors/exporters using pre-cooling, and/or joint packaging and exhibiting support, access to market, retail chains and end customers. 38 honey consolidators/processors/exporters producing organic honey and applying new marketing techniques and having the first online sales; 49 vegetable processors,</p>									

NO.	INDICATOR	UNIT OF MEASURE	DISAGGREGATION	FREQUENCY	BASELINE	ANNUAL CUMULATIVE TARGETS HVA VCS	RESULTS HVA VCS	ANNUAL CUMULATIVE TARGETS WINE VC	RESULTS WINE VC
		consolidators and retailers such as contract farming, modern equipment use in the canning industry, access to new retailers, etc. As processors, 79 wineries have started using stainless-steel tanks for fermentation at controlled temperature, filters and pumps with closed circuits that reduce oxidation risks, modern pneumatic presses, and barrels, and other equipment that improves the quality of wine, also bottling and labelling, new marketing techniques, online sales, and others. The primary producers that are also processors/exporters etc. and have adopted practices relatable to both production and post-harvest handling and/or management, marketing, sales have been considered for both indicators (8 and 11). Also, producers who have adopted practices related to more than one value chain, were considered for each VC respectively.							
9	Number of assisted enterprises with achieved international certifications due to USG assistance	#	Location, sex, age, HS code, business size, type of organization	Annually	0	Yr 1: 1	1	N/A	N/A
Yr 2: 4						13			
Yr 3: 20	25								
Yr 4: 35	53								
Yr 5: 60	86								
Yr 6: 65	100								
						LOP: 65	100		
	LOP TARGET ACHIEVED. Overall, 146 certifications were received by 100 companies. A total of 75 GLOBALG.A.P., 45 GRASP, 7 ISO 22000 and 19 organic honey certifications were received by HVAA beneficiaries during the six years of project activity. The name of the indicator implied each company was counted only once despite the number of certifications it received. Nevertheless, the life-of-project result has greatly exceeded (by 54%) the activity life of project target. There was high interest and motivation in obtaining international certifications on behalf of Moldovan producers and exporters, thus high dedication of time, efforts and financial resources with implementing the required conditions. This has contributed to establishing new linkages with European importers. GLOBALGAP certificates were awarded for apples (37), cherries (4), plums (29), peaches (3), apricots (1) and for table grapes (13). ISO 22000 was awarded for fruit (5), table grapes (1) and for honey (1). The wine certifications were not included under this indicator.								
10	Number of (primary) producers trained	#	Location, sex, age, HS code	Quarterly	0	Yr 1: 1,000	685	N/A	N/A
Yr 2: 2,000						2,031	N/A	N/A	
						Yr 3: 3,000	3,552	N/A	N/A
						Yr 4: 3,500	4,807	N/A	N/A
						Yr 5: 5,000	5,326	Yr 5: 15	7
						Yr 6: 5,200	5,772	Yr 6: 30	116
						LOP: 5,200	5,772	LOP: 30	116
	LOP TARGET ACHIEVED. The number of unique primary producers under this indicator have benefited of direct and indirect support (through the industry associations, WUAs and subcontractors) such as trainings (60% of total participations), technical assistance (12%), grants (8%), participation in trade expos and B2B activities (4%), study visits (1%), conferences and round tables (14%) in the fruit VC (995 producers), table grapes VC (713), berry VC (647), 2,618 beekeepers, and 1,105 fresh open-field and greenhouse vegetables producers.								
11	Number of (primary) producers adopting improved production techniques or using improved agricultural inputs and equipment	#	Location, sex, age, HS code, type of resource	Annually	0	Yr 1: 700	252	N/A	N/A
Yr 2: 1,400						873	N/A	N/A	
Yr 3: 1,800						1,502	N/A	N/A	
Yr 4: 2,100						2,652	N/A	N/A	

NO.	INDICATOR	UNIT OF MEASURE	DISAGGREGATION	FREQUENCY	BASELINE	ANNUAL CUMULATIVE TARGETS HVA VCS	RESULTS HVA VCS	ANNUAL CUMULATIVE TARGETS WINE VC	RESULTS WINE VC
						Yr 5: 2,750	3,118	Yr 5: 11	30
						Yr 6: 2,900	3,649	Yr 6: 22	79
						LOP: 2,900	3,649	LOP: 22	79
						<p>LOP TARGET ACHIEVED. Due to HVAA efforts, over 100 types of practices were adopted in the targeted value chains. For this specific indicator, the primary producers were included, as follows: 574 companies in the fruit value chain adopted new practices related to planting intensive and super-intensive orchards, growing modern varieties, orchard management, irrigation techniques, meteorological stations, and other innovative practices and technologies that enable them to access higher paying markets; 537 companies and individual growers from the table grape value chain reported adoption of new technologies, including Gable/Tendone/Pergola technologies, grape color improvement techniques, virus-free planting material; 1,567 firms in the honey sector started producing organic honey production, and/or applying high quality bee breeding, using vertical hives, organic acid treatments and monitoring registers; 516 berry growers adopted new types of practices, such as new modern varieties, soil and water analyses, substrate growing, and others; 649 companies have adopted new practices related in the open-field vegetable value chain, among the main ones being modern crop protection, support systems, water and humidity meters use, safety equipment for employees, modern equipment and technologies use, and contract farming; 79 wine companies, as primary producers have adopted new practices and technologies, such as meteorological stations, orange wine production technology, use of selected low-alcohol active yeasts, and others. The primary producers that are also processors/exporters etc. and have adopted practices relatable to both production and post-harvest handling and/or management, marketing, sales have been considered for both indicators (8 and 11). Also, producers who have adopted practices related to more than one value chain, were considered for each VC respectively.</p>			
SUB-PURPOSE 3. INCREASE CAPACITIES OF MEMBER-BASED GROUPS AND INDUSTRY ASSOCIATIONS TO SERVE THEIR MEMBERS IN TARGETED VALUE CHAINS									
12	OCA index measure of the extent to which technical, administrative, and management capacity of WUAs and national industry associations has improved (average numerical score increase)	%	Location, sex, age, HS code, business size, type of organization	Annually	Variable	Yr 1: 0% over the baseline	-	N/A	N/A
Yr 2: +10% over baseline						9.75% industry associations; 2.60% WUAs	N/A	N/A	
Yr 3: +20% over baseline						25.8% industry associations; 14.6% WUAs	N/A	N/A	
Yr 4: +30% over baseline						31.2% for industry associations; 17.8% for WUAs	N/A	N/A	
Yr 5: +40% over baseline						41.9% for industry associations; 25.1% for WUAs	Yr 5: +10% over baseline	Baseline set at 1.62	
Yr 6: +40% over baseline						50.02% for industry associations; 41.04% for WUAs	Yr 6: +20% over baseline	9.69% for ASW	
LOP: +40% over baseline							LOP: +20% over baseline		

NO.	INDICATOR	UNIT OF MEASURE	DISAGGREGATION	FREQUENCY	BASELINE	ANNUAL CUMULATIVE TARGETS HVA VCS	RESULTS HVA VCS	ANNUAL CUMULATIVE TARGETS WINE VC	RESULTS WINE VC
		<p>LOP TARGET ACHIEVED. The average OCA score exceeded the life-of-project targets. It reached 50% for the three associations and 41% for the WUAs. Individually, MFA registered a 44.1% OCA score increase, BoM – 48.3%, NBARM – 57.7%, WUA Cosnita – 42.3% and WUA Acvagrup – 39.8%. The OCA scores were calculated on an annual basis using the 'growth rate with fixed base' formula when each following year the % increase was calculated cumulatively reporting it towards the individual (fixed) baseline (2017) for each association: $(Year (Y)2-Y1)/(4-Y1)/100$. This methodology allowed for the most accurate calculation of progress considering each individual baseline and the growth path each organization had to make to reach the highest OCA score of 4.00.</p>							
13	Number of new types of services for members introduced by national industry associations, or WUAs	#	Location, sex, age, HS code, business size, type of organization, type of service	Annually	0	Yr 1: 2	4	N/A	N/A
Yr 2: 4						5			
						Yr 3: 6	10		
						Yr 4: 8	14		
						Yr 5: 18	20		
						Yr 6: 20	24	-	2
						LOP: 20	24	-	2
		<p>LOP TARGET ACHIEVED. The number of new services developed by sector associations and WUAs reached 26 at the end of Year 6. MFA started assisting members with attracting donor funds; also, was performing joint purchases & distribution of packaging for members. BoM performed standards and Food Security trainings, joint packaging and exhibiting support, online trainings organized for members with the equipment received from HVAA, provided access to market, retail chains and end customer through the berry distribution system. NBARM started assisting beekeepers with business registration, donor funds attraction, advance subsidy attraction for youth, guidance and mentorship in apiary management (through CICA), apiary monitoring (through CICA), training and mentoring BeeProtect users. Access to export markets was provided by Belii Most in Transnistria, while Agro Oguz in ATU Gagauzia started rendering trainings, organizing study visits and cooperative registration services for their members. Supplying breeders with high-quality genetic material through artificial insemination of queen bees was offered by Moldapis with HVAA support. WUAs provided training services to members, lobby (AIPA), investment planning & accessing, financial and fiscal consultancy, determining the soil moisture & temperature, monitoring and sharing with members meteo/weather data. ASW started providing marketing trainings as well as renting specialized equipment to its members.</p>							
14	Percent increase in revenues collected from membership fees and services provided by WUAs and national industry associations that are assisted by the Project	%	Association assisted Type of association (WUA or national industry association)	Annually	0	Yr 1: N/A	N/A	N/A	N/A
Yr 2: 5						229.5% for industry associations; 28.2% for WUAs			
						Yr 3: 10	330.7% for industry associations; 46.1% for WUAs		
						Yr 4: 15	299.1% for National Industry Associations 160.7% for WUAs		
						Yr 5: 20	1,185.6%* for National Industry Associations -8.7% for WUAs		
						Yr 6: 20	993.5% for National Industry Associations		
						LOP: 20	993.5% for National Industry Associations		

NO.	INDICATOR	UNIT OF MEASURE	DISAGGREGATION	FREQUENCY	BASELINE	ANNUAL CUMULATIVE TARGETS HVA VCS	RESULTS HVA VCS	ANNUAL CUMULATIVE TARGETS WINE VC	RESULTS WINE VC
							280% for WUAs		
			<p>LOP TARGET ACHIEVED. By diversifying the paid services provided to beneficiaries and members, the targeted associations registered a tremendous revenue growth. Compared to the 2017 baselines, the estimated total 2022 revenues increased by 28.5% for MFA, by 20.8% for BoM; and by 2,931% for NBARM (albeit from a low base). After a slight decrease in 2021, WUA Cosnita registered a 329% revenue increase and WUA Acvagrup - a 231% revenue increase in 2022 towards the baseline year.</p>						
SUB-PURPOSE 4. IMPROVE THE ENABLING ENVIRONMENT LEADING TO INCREASED INVESTMENTS AND AN IMPROVED WORKFORCE IN KEY VALUE CHAINS									
15	Number of policies, laws, and regulations drafted and submitted for endorsement	#	Location, HS code, type of intervention	Annually	0	Yr 1: 2	2	N/A	N/A
						Yr 2: 6	6		
						Yr 3: 11	12		
						Yr 4: 16	18		
						Yr 5: 20	20		
						Yr 6: 22	23		
						LOP: 22	23		
<p>LOP TARGET ACHIEVED. Regulations, position papers, strategies, draft amendments, draft programs and other policy papers have been drafted, submitted and some also approved in all the HVAA value chains, as follows: 5 in the fruit sector, 3 for berries, including one for both fruit and berries (perennial plantations), 2 for table grapes, 6 on honey and by-honey products, one position paper on amending subsidy policies to support open-field vegetables, and 6 cross-cutting referring to seasonal workers, food security, import requirements and checks for seeds and seedlings the dual education system and reorganization of education and research institutions in agriculture sector.</p>									
16	Value of new private sector investment in assisted enterprises and financing mobilized with US government assistance	Million USD	Location, sex, age, HS code, business size, type of organization, type of investment/financing	Annually	0	Yr 1: 2	1.07	N/A	N/A
						Yr 2: 6	12.1	N/A	N/A
						Yr 3: 16	17.9	N/A	N/A
						Yr 4: 20	29.7	N/A	N/A
						Yr 5: 36	41.4	Yr 5: 0.2	0.57
						Yr 6: 40	43.2	Yr 6: 0.3	1.74
						LOP: 40	43.2	LOP: 0.3	1.74
<p>LOP TARGET ACHIEVED. Private sector investment represents the own reinvested profit, or the additional financial resources (Government subsidies, loans, credits and other grants) leveraged by companies to supplement the USAID initial investment, that came as grants awarded, or as a result of the technical assistance delivered. Of the total \$44.94 million investment facilitated, \$20.9 million came in the fruit sector, \$9.2 million from table grapes, \$2.9 million from berries value chain, \$6.8 million in the vegetables sector, including the processed fruit and vegetables, \$2.7 million were facilitated in the honey value chain and \$1.7 million for wine. The new technologies implemented, and practices applied with these resources are mentioned above under indicators 8 and 11.</p>									
17	Number of partnerships facilitated	#	Location, HS code	Annually	0	Yr 1: 2	2	N/A	N/A
						Yr 2: 5	14	N/A	N/A
						Yr 3: 22	22	N/A	N/A
						Yr 4: 26	28	N/A	N/A

NO.	INDICATOR	UNIT OF MEASURE	DISAGGREGATION	FREQUENCY	BASELINE	ANNUAL CUMULATIVE TARGETS HVA VCS	RESULTS HVA VCS	ANNUAL CUMULATIVE TARGETS WINE VC	RESULTS WINE VC
						Yr 5: 30	31	Yr 5: 1	0
						Yr 6: 33	35	Yr 6: 1	1
						LOP: 33	35	LOP: 1	1
						LOP TARGET ACHIEVED. Of the 36 partnerships established during the 6 years of project activity, three were in the fruit sector and focused on HVA export promotion, technology transfer and educational interventions. A joint modern packing house for stone fruit and table grapes in ATU Gagauzia resulted from a partnership between the Government, the ATU Gagauzia Agency for Regional Development, Tekwill and the Agro-Oguz Association. The four partnerships set in the table grapes value chain focused on the production of the certified seedling material, testing and producing seedless table grape varieties, intensive table grape production and post-harvest technologies, and on increasing export sales of Moldovan table grapes in Central Europe by establishing business relations and facilitating market research, exploration, and promotion. In the berries sector six partnerships set the grounds for the Summer Berry Fair campaigns which continued to be organized without HVAA support in the following years, the berry school in Transnistria, a modern nursery for "certified" and "standard" high-quality strawberry planting material, a sea buckthorn nursery. A berry retail distribution system was established, and a partnership was used to stimulate technological transfer in the berry value chain through best practice exchange activities; promote and use advanced technologies. The six partnerships in the honey value chain focused on organic production (2), bee protection, developing abilities of young beekeepers to obtain and use high-quality genetic material, opening a honey laboratory in the vet school, and building capacity of the new HEA association and enable it to identify new outlets and promote its members and Moldovan honey on European markets. The five partnerships in the vegetables sector all related to contract farming, one of them to produce baby food in Transnistria. The wine partnership focused on expanding market linkages, increase productivity and quality of wines and improve the business environment by increasing the capacity of the local ASW. The ten cross-cutting partnerships had several major activities created such as Export Academy, MicroLab Academy, but also the series of annual WUA Conferences organized in partnership with the Sustainable Development Account and 12 or more WUAs. Other Public-Privat Partnerships related to the producing and broadcasting of media educational programs, educating competitive workforce in the irrigation sector, creation of the Entrepreneurial Education in Incubator for wine and vine culture, supporting an E-Commerce platform for fresh produce and create the conditions for improved packaging technology and efficient distribution of greens and horticulture products on the local market.			
18	Value of partnerships facilitated or supported	Million USD	Location, HS code	Annually	0	Yr 1: 0.5	0.21	N/A	N/A
						Yr 2: 1.75	1.52	N/A	N/A
						Yr 3: 2.5	3.08	N/A	N/A
						Yr 4: 3.0	5.0	N/A	N/A
						Yr 5: 5.5	6.4	Yr 5: 0.2	0
						Yr 6: 6.0	6.86	Yr 6: 1	2.4
						LOP: 6.0	6.86	LOP: 1	2.4
LOP TARGET ACHIEVED. Of the total of \$9.25 million generated in the established partnerships, \$1.54 million was facilitated in the fruit sector, \$1.9 million came from the table grapes partnerships, \$2.4 million in wine, \$1.13 million in the vegetables contract farming partnerships, \$0.83 million with berries, \$0.93 million for honey, \$0.52 million from the cross-cutting partnerships.									
19	Number of students/pupils and faculty trained and/or receiving direct or indirect project assistance to improve knowledge	#	Target sector (HS code), location, age; gender (M/F)	Quarterly	0	Yr 1: N/A	N/A	N/A	N/A
						Yr 2: 150	143		
						Yr 3: 300	423		
						Yr 4: 450	1.060		

NO.	INDICATOR	UNIT OF MEASURE	DISAGGREGATION	FREQUENCY	BASELINE	ANNUAL CUMULATIVE TARGETS HVA VCS	RESULTS HVA VCS	ANNUAL CUMULATIVE TARGETS WINE VC	RESULTS WINE VC
						Yr 5: 1,100 Yr 6: 1,200 LOP: 1,200	1,421 1,767 1,767		
		LOP TARGET ACHIEVED. Exactly 1,500 students and 267 teachers and mentors from the SAUM, Bubuieci and Nisporeni VET schools benefited of the multiple courses under the new curricula developed with HVAA support, the demo-plots and nurseries established, and the modern irrigation and honey laboratories established. Also, students and faculty from the Leova VET school, Agriculture Centers of Excellence from Ungheni, Taul, Tiraspol and Svetlyi (ATU Gagauzia) benefited of various mentorship programs, participation in National Conferences and in study visits opportunities inbound and abroad (the Netherlands).							
20	Number of private enterprises that collaborate with educational institutions	#	Target sector (HS code), type of enterprise	Annually	0	Yr 1: N/A Yr 2: 10 Yr 3: 20 Yr 4: 30 Yr 5: 40 Yr 6: 50 LOP: 50	N/A 10 28 37 48 54 54	N/A	N/A
		LOP TARGET ACHIEVED. The SAUM, the Nisporeni and Bubuieci VET schools had partnerships established with HVAA support in all targeted value chains during the 6 years of project activity. 23 honey producers, 13 berry producers, 5 table grape producers, 5 fruit producers and 7 companies with cross-sectorial activity. The Agriculture College from Tiraspol had established a sustainable partnership with Agricol PPK on vegetables growing. Family Farm Colomicenco along with the Belii Most Association had many pupils and students from Transnistria involved in mentorship activities in both berries and table grapes value chains. Other than the companies mentioned above, students took internships at the "Apele Moldovei" National Agency and at the two WUAs (Cosnita and Pruteni). The Center of Excellence in Viticulture and Wine Making Stauceni had a mentorship program guided by five organic producers. The Bubuieci and Nisporeni VET Schools' students and teachers now have the opportunity to develop their skills in Romania on the basis of the partnership signed with the Husi Agriculture College in 2021.							

