AGRICULTURAL VALUE CHAINS (AVC) ACTIVITY

FY 2017 – QUARTER 2 - REPORT

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AGRICULTURAL VALUE CHAINES (AVC)
FY 2017 - QUARTER 2 - REPORT
JANUARY – MARCH 2017

Agricultural Value Chains (AVC) - Uzbekistan
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For the
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ACRONYMS

AAI Andijan Agrarian Institute
ACTED Agence pour la Cooperation Technique et pour le Developpement
ADB Asian Development Bank
AFD Agence Francaise de Developpement
AMBiT Association of International Business and Technology
AVC Agricultural Value Chains Activity (2015-18) (USAID)
B2B Business to Business
COP Chief of Party
CTJ Competitiveness, Trade and Jobs Project (USAID Regional)
DAI DAI Global, Ltd.
EU European Union
F&V Fruit and Vegetable
FY Fiscal Year
G&A General and Administrative
GAP Good Agricultural Practices
GCCA Global Cold Chain Alliance
GDF Gold Dried Fruit
GOU Government of Uzbekistan
HACCP Hazard Analysis and Critical Control Point
IBRD International Bank for Reconstruction and Development (World Bank)
ICA Independent Consulting Agreement (DAI Global)
IFAD International Fund for Agricultural Development
IM Instant Messaging
IR Intermediate Result
JICA Japan International Cooperation Agency
JV Joint Venture
KOICA Korean International Cooperation Agency
K5 Krymsk-5 (cherry rootstock variety)
LED Light Emitting Diode
LLC Limited Liability Company
LUA Latvian University for Agriculture
MAWR Ministry of Agriculture and Water Resources (Uzbekistan)
MFERIT Ministry of Foreign Economic Relations, Investment and Trade
MOU Memorandum of Understanding
mt metric ton
NEP National Exchange Program
ODC Other Direct Costs
OH Overhead
RDCS Regional Development Cooperation Strategy (USAID)
SAI Samarkand Agrarian Institute
SHC Student Horticultural Concourses
TSAU Tashkent State Agrarian University (Uzbekistan)
USAID United States Agency for International Development
USD United States Dollar
VRI Vegetable Research Institute (Uzbekistan)
WFLO World Food Logistics Organization (research and education arm of GCCA)
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A. BACKGROUND

1. Project Goals and Objectives
USAID’s Agricultural Value Chain (AVC) Activity supports Development Objective #1 under the Regional Development Cooperation Strategy (RDCS) – Expanded Diverse and Competitive Trade and Markets. Specifically, the Activity contributes to Intermediate Result (IR) 1.1 – A More Diverse Private Sector, and IR 1.2 – Enhanced Agricultural Competitiveness and Food Security. In support of this Development Objective, the AVC Activity seeks to:
  (1) create employment opportunities;
  (2) improve incomes;
  (3) increase fruit yield and quality;
  (4) increase packed and processed output;
  (5) increase targeted fruit and vegetable exports;
(6) link USAID’s producers and processors to international markets;
(7) strengthen relationships between educational institutions and the private sector.

2. Project Components
AVC is organized into four Components, linked by cross-cutting themes, all targeted at economic actors along select fruit and vegetable (F&V) value chains. The mandate of each Component is:
- Component 1: improve the quality and volume of agricultural production;
- Component 2: improve post-harvest handling and production;
- Component 3: facilitate market linkages; and
- Component 4: link educational institutions with private sector demand.

3. Geographic and Commodity Focus
AVC will work in 33 districts across 12 of the 13 provinces of Uzbekistan with activities in at least one district of each province plus the city of Tashkent. A grand total of 34 geographic entities are covered by AVC representing significant geographic expansion since the original AgLinks (2008-11) and AgLinks Plus (2011-2015) projects.

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Table 1: AVC Geographic Focus by Province, including Tashkent City

Although it is generally agreed AVC will focus on edible horticulture, the signed MOU did not designate specific crops for project activities. Project expertise embodied in its staff and accumulated knowledge over the previous projects is greatest in stone fruits, pome fruits and grapes which is extended to vegetables and gourds (melons) under AVC.
B. ADMINISTRATIVE

1. Personnel

This quarter witnessed standard financial and administrative support from the project administrative staff to the on-going activities of the AVC technical teams.

2. Local Registration

The Memorandum of Understanding (MOU) signed between the Government of Uzbekistan (GOU) and USAID in early September 2016, combined with the re-registration of DAI as a Resident Representation in December 2016, allowed the project to begin a full range of technical activities. The only remaining registration is that of the project itself which was still underway among the local authorities by the end of this quarter. Project registration will allow AVC to import duty-free those items listed in the registration documents. In March 2016 AVC was requested by the GOU authorities to update the financial figures originally submitted as projections to actual figures to reflect the passage of time since the first submission. These figures were updated and resubmitted to the GOU by mid-March 2017.

By the end of the quarter it appears the project registration process will now fall within the mandate of a new GOU agency tasked to follow investments. Previously, project registration was within the auspices of the Ministry of Foreign Economic Relations, Investment and Trade (MFERIT). It was uncertain, at the time of this writing, if this change to the new “Investment Agency” would require re-submission or other adjustments to the project registration documents.

3. Other

During the Navruz holiday weekend the Market Based Solutions Specialist for USAID’s Competitiveness, Trade and Jobs (CTJ) in Central Asia project reported a medical situation requiring immediate attention. CTJ is co-located with AVC in the same office building. AVC staff visited his apartment and arranged for the local emergency medical service to make a house call. Medical services were provided to alleviate immediate discomfort but the emergency services had minimal diagnostic capability. AVC then assisted the patient’s transfer to the Tashkent International Clinic for a more complete diagnosis. DAI’s Home Office and CTJ Project Management were informed and once the diagnosis called for Medical Evacuation the appropriate insurance companies were contacted. Medical evacuation was completed after two days spent at the Tashkent International Clinic as the ailment was not immediately lifethreatening but could not be treated locally. AVC staff provided food and drink during the entire period as the Clinic only provides biscuits and juice.

C. PROJECT ACTIVITIES UNDER COMPONENTS

The 2nd quarter of the USAID fiscal year marks the period of the horticultural season when start-of-season activities focus on improved techniques to increase yields.

1. Component #1: Improve Quality & Volume of Agricultural Production

   a. Improve On-Farm Productivity
Project introductory training series. Throughout this quarter AVC staff, private sector input supply partners and public sector research institute staff conducted a series of introductory horticultural trainings in the targeted districts. The group of trainers included AVC area technical consultants plus technical representatives from Syngenta, Agrohouse, Fan Agro LLC, Osiyo Kimyo Import LLC and the Vegetable Research Institute (VRI).

These public and private sector partners offer specialized technical assistance in fruit, grape and various vegetable crop production technologies, seed and plant material production and pest & disease identification and control. AVC, in collaboration with Syngenta and the Vegetable Research Institute, prepared technical best practices one-pagers for pome & stone fruits, grapes, tomatoes, melons, and other vegetables to serve as both training aids and post-training refresher material.

A total of almost 600 trainees attended the AVC trainings this quarter with the majority from the new provinces (61%) followed by the densely populated Ferghana Valley (27%). The 6 new provinces were specifically targeted for these introductory trainings as they were added to the AVC geographic scope of activities with the signing of the MOU in September 2016. Of the 590 trainees 6.4% were female horticulturalists which is above the national average of 5%. Among the trainees the largest crop, by area under cultivation, was apples followed by grapes and then the stone fruits (ex., peaches, apricots, plums, etc.). More than 88% of the new trainees reported owning and phone and providing their numbers for follow-up and subsequent contact.

The training series enabled AVC to identify and establish partnerships with 19 lead vegetable producers to evaluate and control the tomato leaf miner, *Tuta Absoluta*, and potato tuber moth, *Phthorimaea operculella*, in 5 provinces plus Karakalpakstan Republic. AVC, the Vegetable Research Institute and Osiyo Kimyo Import LLC agreed to collaborate during the upcoming season to monitor and evaluate the density and distribution of these pests through the use of pheromone traps. This information, complemented by VRI’s study of these pests’ multiplication patterns, behavior, and response to different management techniques, will be collected throughout the 2017 crop growing season. Jointly with these partners, and based upon the results obtained, VRI intends to publish a general pest identification, management and control guide for both *Tuta Absoluta* and *Phthorimaea Operculella*. 
**Instant Messaging Horticultural Production Group.** Given the nationwide scope of AVC’s mandate to provide horticultural information to sector actors a cost-effective means of dissemination was sought by project staff. Beginning in February 2017, AVC used a free, cloud-based instant messaging (IM) service to exchange messages, photos, videos, audio and other types of files and links. Entitled “Мева-узум-сабзавот” (Fruit-Grape-Vegetable) group facilitates communication among producers on a variety of topics related to horticultural production. The group has begun to communicate on technical issues in fruit and vegetable production, exchange solutions, discuss problems, and generally share know-how among its membership. Within a short period of time the group not only expanded in terms of members but also attracted other economic actors along the horticultural value chains such as nursery operators, input suppliers, assemblers, consolidators and brokers, among others. After only two months of activity the group already has members representing nearly all the provinces of Uzbekistan.

![Afternoon Field training - Bakhmal District](image)

By the end of the quarter the IM horticultural production group has 94 members who have joined the discussion which has focused mostly on seasonally relevant topics such as dormant and delayed pruning, pest and disease identification and control, land preparation, and quality plant material sources. The ability to easily share information in text, photo, audio and video formats greatly facilitates learning and increases adoption of best practices. Subsequent IM requests have included technical information for orchards, vineyards, vegetable plot planning and planting, trellising, fertilizing, and weed control. Input suppliers to the horticultural IM group have also joined the discussion through which they provide information on their goods and services such as pheromone traps, fertilizers, gardening tools, plant material, soil and water analysis, pruning or other technical services including user guides. Without a formal agricultural extension service these IM groups have the potential to serve as a lost-cost means of rapid, timely and targeted information to support growth within the Uzbek horticultural industry.

![Screenshots from the “Fruit-Grape-Vegetable” Discussion Group](image)
**b. Increase the Quality and Availability of Agricultural Inputs**

*Private Sector Tissue Culture.* The De Nova Agro Laboratory team, which AVC has been assisting to produce cherry rootstocks since mid-2016, has had a very positive start to their 2017 sales season. A major milestone was achieved in January 2017 with a firm order for delivery of 100,000 cherry rootstocks (Krymsk 5 variety) placed by Gold Dried Fruits (GDF), LLC. Preliminary terms of the contract were discussed and the contract signed and approved by the participating bank in early February with 50% pre-payment due at contract signing. In addition to the cherry rootstocks, GDF also contracted with De Nova Agro for 25,000 walnut rootstocks. The total amount of these local contracts for lab produced rootstocks is valued at 828 million Uzbek soum (approximately a quarter million USD). The walnut rootstock is due for delivery in November 2017 and will require additional technical assistance from AVC on the laboratory protocols for this product.

February and March were spent ramping-up production at De Nova Agro to fulfill the contracted order within the required timeframe. Two separate greenhouses were used during the winter months to handle the ongoing flow of newly acclimatized cherry rootstocks produced by De Nova Agro. Several of the grow-rooms in the laboratory were also upgraded to increase the workflow and rootstocks produced. Additional shelving space was built and the old fluorescent lighting system was changed to the more efficient Light Emitting Diode (LED) fixtures which allowed De Nova to reduce the overall cost of utilities, while increasing light intensity to further stimulate plant growth. All of the improvements were auto-financed by De Nova Agro with the pre-payment proceeds from the contract signing with GDF.

In addition to updating hardware, the De Nova Agro team also increased its labor force by hiring two additional cutters, thereby adding another half-shift to the work day. This move allowed De Nova Agro to increase output by 20%. By the end of March 2017, De Nova had successfully produced 45,000 Krymsk 5 rootstocks which were transferred to the greenhouses for the grow-out stage.

The buyers, Gold Dried Fruit, visited De Nova Agro’s laboratory to follow progress with their order and to review the quality of the plants produced. GDF management came away from their visit with keen interest in building a commercial scale tissue culture production facility based on the smaller USAID funded public and private sector “proof of concept” labs. GDF requested AVC to assist them in evaluating the technical, financial and economic feasibility of what could eventually be a $7-8 million investment on their part. In February, GDF costshared a visit to California by AVC’s Biotechnology Specialist to collaborate with AVC’s Tissue Culture Expert to evaluate and consult with two commercial tissue culture laboratories and gain sufficient information to inform GDF’s ambitious endeavor. By the end of the quarter AVC staff were collaborating with GDF to assemble the necessary components of a complete business plan for sourcing, financing and building a commercial scale tissue culture production facility outside the city limits of Tashkent.
2. Component #2: Improve Post-Harvest Handling & Production

The 2nd quarter of the USAID fiscal year marks the beginning of the horticultural season in post-harvest activities with a focus on cold storage preparations for the upcoming spring and summer fresh fruit season.

a. Facilitate the Advancement of Cold Storage Practices

**Cold Chain National Exchange Program – Day 1.** AVC organized a National Exchange Program (NEP) on best cold-chain, post-harvest practices, and export opportunities in Tashkent from 16 to 17 February 2017. The roundtable meeting consisted of two parts; the 1st day discussed theory, practice, input supplies and export markets for cold stored fresh produce while the 2nd day involved site visits to working cold stores. The event was attended by 115 participants from all provinces of Uzbekistan and representing various contributing sub-sectors to the cold chain, including key service providers. The breakdown of the participants by their activity category is presented in the table at right. The event was purposely organized in a “U” shape setting with participants sitting face-to-face to facilitate interaction and discussion on cold chain, storage and marketing best practices.

Richard Tracy, vice president of Global Cold Chain Alliance (GCCA) provided a keynote address at the event regarding global cold chain practices and trends. The GCCA conducts a worldwide cold chain survey every two years and the “2016 Global Cold Storage Capacity Report” listed Uzbekistan among the top 20 countries in terms of the development rate and capacity of cold storage facilities. Mr. Tracy congratulated the assembled group on their progress to-date and encouraged them to re-double efforts to produce an even better performance in 2018. Local grocery chain Korzinka clarified their policy position towards producer payment terms, recalls, packaging requirements and future fresh produce procurement plans. Their presentation generated vivid debate and discussion among the participants which resulted in better
understanding of the buyer and seller perspectives, needs and concerns. Cold store owners and consolidators expressed interest to cooperate with Korzinka in the future and to supply them with good quality fresh produce that meets the buyer’s requirements. The Korzinka representative reiterated that their firm does not presently have any one stable, regular and reliable supplier of good quality fresh produce at the moment and they are very interested to cooperate with growers and consolidators who can supply them year around with certain products. They underlined their preference to receive from growers or cold store owners already pre-packed fresh produce in small scale packaging trays or bags.

Three large cold storage provision and installation companies presented information about their companies, latest changes in cold store equipment, upcoming technologies and future plans. The most discussed topic with equipment service providers was pre-cooling technologies and its importance in assuring the shelf-life of fresh produce. One company, TechnoCool, introduced the concept of centralized cold storage equipment as a means of increasing power efficiency and, thereby, lowering the largest recurrent cost to owner/operators. At present, the majority of cold store compressor systems are run on an individual room basis which consumes a larger amount of electrical power compared to central systems.

AVC’s marketing team presented quantitative data and qualitative information on the existing and potential fresh produce exports from Uzbekistan to different world markets which resulted in a very lively discussion. GCCA’s local consultant presented on cold chain trends within Uzbekistan and shared information on AVC’s program of assistance to the cold chain and upcoming plans for the postharvest sector. AVC’s postharvest specialist presented training materials adapted and translated from the PostHarvest Technology of Horticultural Crops Short Course at the University of California – Davis (AVC-032). The presentation included actionable information on universal storage issues, temperature management, physiological disorders and freezing injuries of fresh crops relevant to Uzbekistan’s conditions. Best postharvest practices for each of the major Uzbek horticultural crops were also provided (ex., cherry, apricot, peach, grape, persimmon and apple).

Individual cold storage owners shared their experiences and knowledge of local postharvest practices presently in use. For example, a cold storage owner from Altyarik District in Ferghana Province shared his grape storage experience and demonstrated how he packs grapes, his pre-cooling methods, storage temperatures by crop, amount of grapes per box, packaging types and sulfur pad preference. Packaging companies presented the various sizes of crates and boxes for fresh produce storage, which also resulted in animated discussion of the advantages and disadvantages of different packaging options. The assembled group agreed that the industry must change from the current wooden crates to more modern cardboard boxes since this is what the customer demanded. The director of one of the packaging companies stated that:
“we produce tasty and good quality fresh crops in Uzbekistan, but we don’t have good quality packaging materials, this is one of the main reasons why we can’t export to EU markets, and this poses a big challenge for everyone assembled here today.”

Cold Chain National Exchange Program – Day 2. On the second day of the event, AVC organized site visits to two major companies to demonstrate latest technology and practices within the cold storage, processing, sorting, grading and packaging industry. The first visit was to “Qora Bayir LLC” cold storage facility located in Zangiota District, Tashkent Province. This cold storage has 10 separate storage rooms representing a total capacity of 1500 metric tons and it is unique in that it utilizes solar energy during the daytime. This is a first of its kind facility in Uzbekistan through the integration of solar panels into its power supply system. The Director of the facility provided a tour and explained how the cold store operations. The assembled group was impressed with this “high-tech” system and some recalled seeing similar facilities in the US during the study tours of the previous USAID project.

The second site visited was “Gold Dried Fruit” to demonstrate the latest packing line for fresh produce. GDF is a vertically integrated company with its own orchards, greenhouses, sortinggrading line, packing houses and cold storage. For many of the participants the GDF facility was so new and impressive that they stated they would have never thought that this kind of facility exists in Uzbekistan. The participants’ visit to the facility coincided with the packing of fresh herbs into small plastic clam shells for direct export and sale to the consumer. The group also witnessed the grape sorting and grading process at the packing house on the same grounds.

Cold Chain National Exchange Program – Follow-up. AVC technical staff received multiple requests from the cold chain NEP participants to make site visit consultations to their cold storage facilities to provide on-job training and recommendations to improve their profitability. AVC and GCCA staff established a program of consultative site visits that will extend throughout the remainder of the 2017 production season leading up to the first storage of 2017 fruits with the start of the cherry harvest in late May. Initial visits began with cold stores based in the western-most provinces of Bukhara, Khorezm and Navoi to provide site-specific technical recommendations to the owners on topics which include expansion, modification and operation of the cold store, as well as fresh produce packaging options, especially for grapes.

TechnoCool, LLC representatives agreed to collaborate with AVC to provide presentations and on-site visits to cold store clients in the provinces using AVC partners employing centralized systems as examples. The first such joint AVC-TechnCool mini-NEP will be organized in Altyarik District, Ferghana District because it is host to an AVC partner with an operational centralized cooling system. The purpose of these mini-NEPs is to further disseminate information to the Uzbek cold store sector actors on the cost savings available through centralized cooling systems as they consider their expansion plans.
“Techno Cool, LLC” will provide information on the importance of centralized cooling systems and conversion options from individual cooling to a centralized system.

Another example of on-site cold store consultations involves an owner/operator in Turakurgan District, Namangan Province who attended the cold chain NEP. He has decided to build a new 200 mt cold storage, which represents a 4-fold increase in his capacity, and requested AVC technical assistance with consultation on location, design and technical parameters of the facility. The joint AVC and GCCA technical experts assisted the owner to identify the most appropriate cold store location and drafted the required technical specifications resulting in a cold store facility with 3 separate storage rooms and one refrigerated corridor. AVC/GCCA technical staff will make follow-up visits throughout the following quarter to assure the construction process proceeds to plan. By the end of this quarter the owner has already started the foundation and concrete works of the cold store. The next step will be to find the most appropriate local vendor who can supply and build his new cold store in time for the 2017 fresh fruit season.

b. Utilize Improved Post-Harvest Production to Reach New Markets

**Fresh Grape Exchange Visit to India.** USAID, in collaboration with a private Indian firm, organized a study tour to Nashik, Maharashtra state in March 2017 to experience a fresh grape export chain targeted to Western European markets. The group totaled 9 people from four different Uzbek provinces known for fresh grape production and export. All of the participants own cold stores and handle fresh table grapes in their facilities. The main objective of the study tour was to demonstrate best grape postharvest and export practices along the entire export chain or “farm-to-fork,” including production, harvest, transport, sorting and grading, packing, pre-cooling and shipment. J.K. Enterprises, a manufacturer of grape guards and fresh produce packaging, graciously organized and paid for all field and post-harvest site visits while in India.

The majority of export quality grapes from India are seedless varieties exported to European countries including Germany, Switzerland, the United Kingdom, and the Netherlands. The group visited various packing houses and cold storage facilities and witnessed grapes arriving within 1 to 2 hours of harvest for immediate sorting, grading and packing into plastic clam shells or small polyethylene bags, pre-cooled and moved to cold store rooms to await shipment. The Uzbek delegate from Namangan acknowledged the pre-cooling technology at the packing facility was impressive and recognized it could also be replicated for pre-cooling cherries during the 2017 Uzbek export season.

Another participant stated:

“I am impressed with the grape cold chain practices here and we could also export from Uzbekistan if we change to seedless grape varieties and introduce improved packaging.”

A cold store owner from Parkent District noted:

“we also buy grapes from growers and pack ourselves, although we pack for 8 to 9 kilogram wooden crates, but from now on I will introduce this technology in my cold storage facility.”
Back at the offices of J.K Enterprises the company director, Mr. Kabra, explained and demonstrated how grape guard sheets work to protect stored grapes from fungal growth. He explained how grape guard quality varies by brand based upon sulfur content and the packaging used in their manufacture. Too high a sulfur content will damage the grape and impart a bad taste to the fruit. This impact was confirmed by members of the Uzbek delegation when they previously used grape guards with high sulfur content.

Mr. Kabra assured the delegation his product meets European Union standards and requirements and utilized polyethylene sheets instead of paper as the basis of his grape guard sheets. Paper-based grape guards absorb moisture from the produce which reduces its weight, 200 to 300 grams per box, resulting in a huge monetary loss. A cold store owner from Zarkent District allowed that he lost $10,000 in 2016 due to low quality grape guards because the higher sulfur content changed the grape taste which was rejected in many markets resulting in reduced sales prices.

*TSAU Collaboration.* AVC technical staff made multiple visits to the grounds of Tashkent State Agrarian University (TSAU) during this quarter to identify and achieve consensus on where best to locate a demonstration cold store facility to provide hands-on experience for young students. Several sites were assessed by University and AVC staff, including the AVC agricultural engineer and environmental officer. Site improvements and recommendations were provided to TSAU grounds personnel and management including provision of power supply, water and road access which are all the responsibility of the University. In addition, TSAU is responsible for all necessary civil documentation including cadastre, approval documents from the fire department, power supply agency, ecological department, and any other necessary official documents. AVC will be responsible for building the cold storage facility. By the end of the quarter an agreement on the site locale was jointly signed by both TSAU and AVC (see below).
Местоположение участка строительства демонстрационного холодильного хранилища на территории Учхоза ТАШГАУ.

Условные обозначения:
☐ Участок строительства с координатами
41° 22' 02.16" Север   69° 20' 11.83" Восток

Примечание участка строительства к объекту: Площадь строительства холодильника расположена в 40 (сорока) метрах от угла здания контейнер, как показано на карте.

Подпись

Ф.И.О. Должность

[Расшифровка подписи]
3. Component #3: Facilitate Market Linkages

The second quarter of FY2017 witnessed the launch of the export marketing training seminar program with the three agricultural universities and institutes plus the first export test market shipment.

a. Create New Linkages in the Domestic Market

Demand-Driven Training Programs at Educational Institutions. The AVC Marketing Team made its first round of demand-driven training programs at Tashkent State Agrarian University (TSAU) and Andijan Agricultural Institute (AAI) this quarter on the basis of their official request. This activity was included in the Fy 2017 work plan and was accomplished in collaboration with AVC’s Component 4 (Link Educational Institutions with Private Sector Demand). The main idea of these training seminars is to support the agricultural universities and institutes, along with their branch campuses, with up-to-date marketing information to increase the knowledge of graduate students, faculty and professors on the Uzbek horticultural value chain.

These first training seminars addressed three topics:
(1) existing export opportunities of fresh and processed fruits & vegetables from Uzbekistan; (2) potential new export markets and products; and (3) international market standards.

Seminar topics (1) and (2) drew recent information gained by AVC’s marketing team from the market exploration visits in FY 2016. Seminar (3) focused on GlobalGAP and organic standards for entering European markets.

More than fifty (50) participants were present in each of the training seminars which lasted for almost three hours with time for discussion plus a question and answer session. During the discussion sessions AVC staff noted consistent needs for information on additional topics among the agricultural institutes:
- Linkage of theory with real practical activities (all institutes)
- Marketing standards and quality control measurement (all institutes)
- Support to existing labs on quality standards (Tashkent State Agrarian University)

AVC Marketing team will complete the first round of the demand-driven training program with Samarkand Agrarian Institute (SAI) in the coming quarter and will continue with second rounds on more detailed packing and packaging aspects of different export markets, as well as export steps from Uzbekistan. Follow-up trainings on quality control measurement, standards and control will also be designed and provided in response to the revealed demand.
**B2B Meetings with Latvian and Finnish Delegations.** AVC staff participated in business-to-business (B2B) meetings between Uzbekistan-Latvia and Uzbekistan-Finland at the end of this quarter with business representatives from each side discussing potential areas of cooperation and trade relations. The Latvians were invited by the Uzbekistan Chamber of Commerce and Industry (UCCI) whereas the Finns were hosted by the Association of International Business and Technologies (AMBiT). Both events were attended by participants from both countries representing different sub-sectors including service provision, export and import, transport and logistics, food production, consulting services and water supply.

During the Uzbekistan-Latvia event the respective companies gave presentations to introduce and describe their potential goods and services on offer. The Latvian companies expressing interest in exploring further the commercial potential in Uzbek fruits and vegetables included A.FRUITS, Aspasia, Dimdini, Perfecto, One Baltics. To codify this interest a Contract of Intent for future joint activities was signed.

The B2b meeting with the Finnish delegation was held in the offices of AMBiT. During the meeting Finnish businessmen provided detailed information regarding their respective company interests to identify reliable partners from Uzbekistan. The Finnish business delegation mostly expressed interest in Uzbek textile products. However, the Finnish Ambassador to Uzbekistan, Turkmenistan and Tajikistan (Mr. Niklas Lindqvist) stated there was keen interest in Uzbek dried fruits and nuts by the Finnish consumer which was confirmed by the representative of the Finnish company “Business Oulu” (Ms. Maria Melnikova). Both of these Finnish representatives expressed their readiness to support Uzbek exports of dried fruits and nuts into the Scandinavian market. Next quarter the AVC Marketing Team staff will follow-up with the Latvian firms as well as the Finnish Ambassador and “Business Oulu” to identify potential participants in the export test shipment program (see below) to catalyze actionable contracts.

**b. Create Market Linkages with New Foreign Markets**

**Test Shipments to Export Markets.** During the previous quarter the marketing team initiated the analysis of opportunities for test export shipments of various fresh and processed horticultural products in order to support the diversification of Uzbek export markets for multiple types of edible horticultural produce. This activity is fully consistent with FY 2017 work plan and the first test shipment was implemented in the month of March of 2017 on a cost-effective basis for both the buyer and the seller to achieve full price discovery, gauge market demand and determine quality standards.

This first test export shipment was green dill to the Latvian market where the Latvian company (the Buyer) and the Uzbek agrifirm (the Supplier), based in Surkhandarya Province, concluded the transaction through the state joint stock company UzAgroExport (the authorized Seller). AVC’s marketing team worked closely with all three participants in this transaction with the following outcomes:

- Uzbek fresh dill was classified as – CLASS 1 under EU Market Standard
- Total of 332 boxes / 1,181.29 kilogram gross / 997.0 kg net weight were shipped
- Shipment was by air using Uzbek Airlines commercial flight cargo (HY 101)
- In Riga, portions were sold in supermarkets (better quality) and traditional Latvian markets (bazaar)
Due to the late season shipment Uzbek produce sold lower price than the EU competitor (Italy)

The best window for Uzbek dill in Latvia is from end December to early February

Based on these test shipment results a contract of intent was signed between the Buyer and the Supplier which included the following terms:

- HS Code 0709999000 – Fresh Green Dill – 4,166 kg net weight – 9,998.40 USD
- Shipment terms – CPT (Incoterms 2010) – Carriage by air paid to Riga, Latvia
- Country of origin – Uzbekistan – Harvest of 2017
- Packaging – wooden, plastic boxes and/or corrugated cardboard boxes and/or bags
- Terms of shipment – until 31 December 2017

AVC will continue test export shipments with stone fruits in the next quarter (April - June) beginning with early season cherries.

Improve compliance with international standards. AVC collaborates with Uzbek companies to obtain internationally recognized export certifications. During this quarter efforts focused on certified organic production and processing of raisins and vegetables. In mid-February the annual inspection for organic certification of grapes and vegetables took place in the fields and processing units of 3 AVC assisted exporters: JV Berad Agro LLC, Parkent Uzumi LLC and JV Yanfoodelexport LLC. Technical staff from AVC accompanied the German inspector from Ceres GmbH. AVC Technical Staff explained the work implemented at each site in conformity with organic standards. The inspectors findings, comments and recommendations were noted for further improvements.
Sunny Fruit, LLC, a medium-sized Tashkent export of dried fruits, requested AVC assistance this quarter to sample dried apricot for sending to an organic importer in Germany. Sample taking of organic dried apricot requires special technical knowledge and certification in sterilized sample taking which is embodied in AVC technical staff. Product samples were taken according to the requirements of EU Regulations and sent to a laboratory in Berlin for residue analysis. After receiving positive results from the analysis a container (12.5 mt) of dried pitted organic apricots was shipped to Flores Farm GmbH valued at USD 40,000.

Sterile Sampling of Dried Apricot by AVC Staffer

4. Component #4: Link Educational Institutions with Private Sector Demand

a. Agricultural Universities.

Horticultural Knowledge Bowls (Concourse or Universiade). Education is a very important and respected value in Uzbek society and culture which is reflected in a number of traditional proverbs such as:

“Everyone should learn from cradle to grave” and

“You should pay the same respect to your teacher as you do to your father.”

This attitude of Uzbek society towards education is formally reflected in government policy through a specific general law (“On education” August 29, 1997) and directives, for example, on higher education (“The Provisions of Higher Education” - February 22, 2003. Registration # 1222). The “State educational standard of higher education” (August 16, 2001) promotes graduation of qualified personnel with higher education, continuity and succession of the educational process, plus improvement of the educational-methodical and normative-legal basis of higher education. Within the Agricultural Higher Educational system 22 educational directions and 171 specializations in the agricultural and hydrological sectors were designated by a special resolution of the Cabinet of Ministries (“Measures on further improvement of supply of Agriculture and water resources management with highly qualified personnel” – November 3, 2015). The result of these laws and regulatory acts is the establishment of a framework for the higher educational system, with defined rights and responsibilities of both educational institutions and students, to assure the quality of university graduates, their knowledge base in selected areas of concentration, and necessary minimum skills required by their future employers.

During exploratory visits to the 3 partner agricultural universities in Uzbekistan AVC staff held interviews with professors and students which reinforced the impression of a highly traditional form of education prevailing among the higher educational institutions. Conventional pedagogical techniques such as professorial lectures and seminars which utilize one-way communication results in passive absorbers of information subordinated to the directives of the professor. The prevailing teaching techniques did not promote interaction, interdisciplinary thinking, innovation, cooperative learning, problem-based learning or teamwork; all skills needed within the workforce of the 21st century.
Faculty and students at each university acknowledged this issue and were receptive to the idea of more active-based learning techniques to demonstrate to university administrators, professors and students the advantages of more collaborative learning methods. AVC proposed introducing these ideas through extra-curricular activities since incorporating new educational methods through curricula changes is a much more formal and time-consuming process. In collaboration with the University administrations these ideas coalesced around the concept of University Knowledge Bowl type competitions which are locally entitled student horticultural concourses (SHC). In addition, the agreed upon topic for these student competitions would be “Production of ecological, clean and quality fruits, vegetables and grapes.”

The concourse idea was then presented to the Director of the Department of Higher Educational Institutions within the Ministry of Agriculture and Water Resources (MAWR) who fully supported the proposal and proposed a standard format be generated such that all 3 universities would run comparable events to identify preliminary winners who would then compete in a national competition.

AVC prepared the procedures for two teams, consisting of 6 gender-balanced, undergraduate or graduate students each to initially compete at the university level. Competition would consist of four stages: (1) team introductions, (2) formal presentation on a particular subject within edible horticulture, (3) standard question and answer session and, finally, (4) skits. Each stage had a time limitation and team performance is evaluated by an independent judges’ panel consisting of experts in edible horticulture and MAWR representatives.

This concourse framework was designed to incorporate active education tools and allow students to express their individual and group creativity around a horticultural theme. Interpersonal interaction, teamwork, problem solving, an interdisciplinary approach, and cooperative learning were all emphasized by this structure. The team structure, based around existing university departments, had the additional benefit of students and professors working together for a common goal, to win the competition. In this setting interaction becomes two-way, not top down but horizontal while informally and indirectly introducing elements of democratization into the educational process and professor–student relations. For example, if a student proposes a bright idea the entire team evaluates its worthiness and not just the professor.

Another advantage of SHC is that judges’ panel consists of not professors but horticulture sector practitioners. They are future employers of competing students today. They do not evaluate only students’ performance at the different stages of the concourse but also as future employers competing students’ knowledge and skills, ability to define a problem and propose solution for particular issues in horticulture sector. Feedback provided by judges will help universities make necessary adjustments in curricula and lecture notes to respond labor market demand.
The first round of SHC was conducted in Tashkent State Agrarian University (TSAU) in late January 2017 with teams from two departments (1) Fruit, Vegetable and Grape Cultivation and (2) Plant Breeding which were named “Fruits of Independence” and “Ecolnspectors,” respectively. It was immediately obvious, from the team names alone, that creativity and innovation would rule the day. The TSAU main auditorium accommodates 500 spectators and was full of students, technicians, professors and administrators. The two teams held close scores after the first three stages to the fourth would be decisive. The “Fruits of Independence” team came away victorious with a clever horticultural interpretation of the classic Uzbek tale entitled “Shum bola” (Troublemaker). The auditorium overflowed with laughter when the team integrated real-life farm issues within the skit through this famous comic tale.

The second SHC was hosted by Samarkand Agricultural Institute (SAI) in early March 2017 between the “Cultivators,” representing the Agronomy Department and “EcoFruit Flavor,” from the Post-Harvest Processing Department. The event was even more enthusiastically received with the teams ardently supported by the more than 500 people attending the competition. After the event judges, including private sector employers, shared their impressions with the professors and provided feedback on what qualifications they expect from institute graduates.

Feedback from SHC participants, professors, university managements, MAWR representatives and horticultural practitioners corroborates the impression of these events usefulness and success. The SHC format generates an additional incentive for students to remain in school, learn employable skills and cultivate a sense of pride in hard work in their chosen specialty – horticulture. Next quarter will witness the third and final first round SHC at Andijan Agricultural Institute in late April with the final national competition in Tashkent in late May.

Enhancing cooperation between Agricultural Higher Education Institutions of Uzbekistan and Latvia.

a) Joint Proposal for Erasmus+ (KA1) Mobility Project Funding

During the AVC-supported visit of Latvian University of Agriculture (LUA) representatives led by the rector, Dr. Irina Pilvera, to Uzbekistan in the previous quarter, TSAU and SAI Rectors discussed potential avenues for cooperation in concert with AVC. The readily actionable outcome of these discussions was a decision to develop jointly a proposal for submission to the EU’s Erasmus+ (KA1) mobility project competition for funding. LUA leads the consortium as an EU member and has final responsibility for submitting the proposal while the two Uzbek universities provided background information to support the proposal.

Andijan Agricultural Institute (AAI) was not originally included in the joint project proposal due to the short duration of the LUA delegation’s visit to Uzbekistan. Post-visit AVC staff approached AAI’s Rector and Dean of Horticulture and Plant Protection to describe the LAU and Uzbek Agricultural University joint project, goals and potential benefits for participating institutions. AAI management expressed interest in joining the consortium and appointed a staffer to lead this activity for AAI. AVC contacted LUA with the proposal to include AAI to the joint project development which was welcomed by LUA. AVC proceeded to facilitate communication among the Uzbek universities and LUA during proposal development and provided assistance on translation, editing and formatting of background material prepared by the Uzbek institutions. The final version of the Erasmus+ proposal was submitted by LUA to the EU selection committee in late February.

b) Student Exchange
Another substantial outcome of the LUA delegation’s Uzbekistan visit was an agreement to initiate a student exchange program. As a test case the universities decided to send a small number of students for a relatively short period of time to explore a new and different educational system, attend classes, and experience other cultures to promote understanding. The Department for Higher Educational Institutions within MAWR offered its support to address any domestic administrative and regulatory issues involved in establishing the student exchange and proposed a one-month, test exchange of 3 TSAU students to LUA.

AVC facilitated communication between MAWR, TSAU and LUA to determine the most appropriate timing for the exchange to ensure students do not miss scheduled tests and exams in their home university and LUA would not need to change their regular class schedule to accommodate the Uzbek students. The mutually agreed timeframe was the month of April 2017 with the added benefit of a Student Scientific Conference and an International Week were already on the LUA academic calendar in April. These additional events would allow the Uzbek students to actively participate and develop personal relations among multiple cooperating countries and their institutions and not just Latvia. AVC assisted the 3 students to prepare the necessary visa application documents, covered their international air tickets and provided a small daily stipend for food and incidental costs. LUA, in turn, provided lodging and tuition waivers for all 3 Uzbek students while the Latvian Embassy in Uzbekistan waived the visa fee. The students were scheduled for departure early next quarter and AVC will closely monitor the progress of their visit in collaboration with the Head of International Programs at LUA.

Leading Expert Lectures at Agricultural Universities

To promote academic and professional development and expand horizons of both students and professors it is very important to explore new ideas, approaches and technologies and become familiar with global trends. AVC’s international consultants and contacts provide a unique opportunity for professors and students to obtain firsthand experience and knowledge from leading world class experts in horticulture through a guest lecturer program. The Uzbek Agricultural Universities are also keen to have guest lecturers and have particular interest in hosting international experts. During the quarter AVC arranged for international experts in tissue culture (in vitro plant production) and fresh produce cold chain development to lecture at TSAU and SAI.
AVC and its predecessor project (AgLinks and AgLinks Plus) have been successful in reinvigorating the laboratory production of horticultural plants through tissue culture techniques in both the public and private sector. Specifically, AVC has assisted both the Mirzaev Horticultural Research Institute and DeNova Agro to produce commercially viable, true-to-type, virus-free cherry rootstocks and other varieties by sharing technical protocols for tissue culture production. AVC’s work in tissue culture has had the usual demonstration and dissemination effect and several public and private entities are now interested in investing in commercial scale tissue culture production in Uzbekistan. In response, a trained workforce will be required to provide skilled labor to fully exploit the intended level of investment in this biotechnology. The expected growth of this sector qualified graduates and general horticulturalists with understanding and experience with these methods. The success to-date would not have been possible without the multi-year technical support from the leading tissue culture technologist in California. During his most recent visit to Uzbekistan AVC arranged with TSAUD and SAI for John Driver to present an introductory lecture on tissue culture to the respective university faculty, staff and students.

The tissue culture guest lectures took place in mid-January to coincide with Mr. Driver’s presence in Uzbekistan to assist AVC in the next stage of tissue culture production. The formal title of the lecture was “Applications of in vitro Micropropagation” with turnout of 35 participants in Tashkent and 65 in Samarkand. Professors, postgraduate, graduate and undergraduate students attending the lecture in both institutions were engaged and motivated to learn more about the biotechnology of micropropagation. Post-lecture question and answer sessions extended well past the original time allotted and covered technical questions as well inquiries on the US agricultural education system, opportunities to study abroad and how to publish articles in the US.

The second guest lecturer this quarter was an international expert on global cold chain development. Mr. Richard Tracy, vice president of the Global Cold Chain Alliance/World Food Logistics Organization (GCCA/WFLO) had been invited by AVC to provide the keynote address at the Cold Chain National Exchange Program (see Section 2.a. above). He visited TSAU in mid-February 2017 to share highlights from the 2016 Global Cold Storage Capacity Report which highlighted Uzbekistan’s progress in cold chain development. More than 120 participants, consisting of professors and students, were surprised and excited to learn Uzbekistan was now among the Top 20 countries worldwide in terms of cold storage capacity. Mr. Tracy highlighted the major ramifications of this growth and, of particular interest to the agricultural universities, emphasized the increasing demand for qualified cold stores operators, managers and service providers. Universities will need to revise their curricula and make appropriate adjustments in freshmen student specializations given the escalating demand for young, skilled labor within the expanding cold chain sector.
AVC Staff Present Technical Seminars at Agricultural Universities

University professors have strong theoretical backgrounds in their respective fields but are often lacking practical experience within the fast-changing horticultural markets. Academicians often lag behind modern practices when there is limited interaction between the public higher educational system and economic actors within the horticultural industry. This knowledge gap was especially evident during the question and answer sessions which followed the recent guest lectures by the tissue culture and cold chain experts. To address this problem AVC proposed to the three partner universities to organize a series of seminars using local experts to speak on present national, regional and international market conditions and concerns. University management, having witnessed the first trial seminar with AVC technical staff, welcomed the idea and counter proposed to broaden the audience by including undergraduate and graduate students.

University managed also proposed the topics of greatest interest for the initial series of seminars – “Existing and Potential Export Markets for Uzbekistan’s Horticultural Exports” and “International Standards for Horticultural Produce”. AVC’s Team Leader for the Marketing Component and Standards Specialist, respectively, prepared tailor-made presentations and handout materials for the seminar participants. The first seminar was conducted at TSAU in early March, attracting 37 participants, while the second seminar was held at AAI the last week of March with 54 attendees. The audience at both institutions was engaged, motivated and asked many questions about export destinations, market conditions and requirements. An interesting outcome from these seminars is both students and faculty are not presently familiar with food safety and quality control requirements for exports to foreign markets. They were unaware that developed markets employ objective quantitative analysis, rather than subjective administrative documentation, to determine quality. Students, faculty and administrators at all 3 universities requested further AVC assistance to learn standards, engage in quality measurement and control plus integrate this information to student manuals in anticipation of the growing demand of skilled labor given the emphasis of GOU policy on horticultural exports.

Organization of demo sites at Ag Universities

A centuries old and time-tested Uzbek proverb states:

“It is better to see one time than to hear a thousand times.”

To complement the international guest lectures and domestic seminars AVC is also collaborating with the institutions of higher agricultural education in Uzbekistan to obtain hands-on training and practice in what they learn. Studies from the NTL Institute for Applied Behavioral Science in Arlington, Virginia indicate retention rates of learned material are highest (75%) when students can practice what they are taught. USAID’s horticultural program in Uzbekistan has always used this insight in working with horticultural sector actors (producers, storage owners, processors, exporters, etc.) and is now extending the demonstration site approach to the institutions of higher education.

The first test case of this approach will be with TSAU since it is the “flagship” institution of higher agricultural education in Uzbekistan and will involve establishment of a small-scale cold storage facility for students and faculty to manage such a facility. Students and faculty will not only experience and understand new technology, equipment and management approaches but also be able to practice the commercial aspects of assuring the facility turns a profit from the produce stored. Once this facility is operational and lessons learned are established it will replicated at the other two universities (SAI and AAI).
AVC’s team made significant progress this quarter in arriving at consensus with TSAU colleagues on the idea, respective responsibilities, site location and next steps on the cold store facility (see Section 2.b. above). Several meetings and subsequent iterative discussions among AVC’s engineer, cold store experts and educational specialist with the TSAU Rector, Vice-Rector, Chief Engineer, and Head of the Experimental Farm were held to identify and coordinate the cold store construction parameters and responsibilities of each party. Agreement was reached this quarter that TSAU allocates land for construction, ensures all infrastructure (water, electricity, paved road, etc.) along with the necessary permits from the respective local authorities, while AVC is responsible for design, construction and delivery to TSAU on a “turn-key” basis a 20 metric ton (mt) cold storage facility. Based on these negotiations AVC developed technical specifications, prepared a scope of work and launched an announcement for expressions of interest from qualified cold store construction companies.

Research Institutes.

Mirzaev Horticultural Institute. AVC and De Nova Agro offered to host the cherry rootstocks produced by the public sector tissue culture laboratory at Mirzaev Horticultural Institute in the greenhouses for the winter. Mirzaev management preferred to winter their lab produced rootstocks in their own greenhouses. Mirzaev management was further offered to participate in the sale of cherry rootstocks to GDF, as the latter had agreed to purchase as many cherry rootstocks as both the public and private labs could produce. Mirzaev also declined this offer preferring to plant their rootstocks in Institute orchards for eventual sale as finished trees.

Vegetable Research Institute (VRI). VRI’s Director, Deputy Director for Research and Senior Researcher twice visited AVCs offices this quarter to discuss priorities for collaboration in anticipation of the 2017 growing season. VRI management and technical staff confirmed their overarching concern is the negative economic impact arising from the entry of a previously unknown pest in Uzbekistan, the tomato leaf miner (*tuta absoluta*), is having on both the tomato and potato crop in Uzbekistan and throughout the region. AVC shared information with VRI colleagues to demonstrate this is a global threat and not limited to any one sub-region of the world. VRI staff requested AVC assistance to research the life cycle of the tomato leaf miner across different agro-climatic settings within Uzbekistan, both greenhouse and open field, to identify the pest’s most vulnerable stages for subsequent intervention.

Both parties concluded that life-cycle monitoring and research, plus testing of efficient and effective control measures be conducted at VRI’s open fields and greenhouses in Zangiota District, Tashkent Province. Research and monitoring will be conducted by VRI staff while AVC will procure pheromone traps, polyethylene film, tomato seeds, netting and spare parts for rehabilitation of the drip irrigation system in the VRI greenhouse. The necessary accessories were procured and VRI researchers have started to study tomato leaf miner control measures in their greenhouses with a preference for integrate pest management approaches.

AVC and VRI also agreed to cooperate on the organization and implementation of joint seasonal training programs. Throughout February and March AVC organized a series of training programs for horticultural producers in collaboration with VRI researchers. Topics related to fruit production were covered by AVC staff, while VRI representative focused on vegetable cultivation best practices. During each and every training program vegetable growers voiced their deep concern with the impact of tomato leaf miner because it damages not only tomatoes but also bell peppers, eggplants, potatoes and many others vegetable crops. Tomato farmers reported being so bewildered by the fast spread and immense damage incurred from *tuta absoluta* that two-thirds of growers cultivating last year declined to grow tomatoes in 2017. Given the production shortfalls which will result from reduced growers and resultant higher prices for fresh tomatoes, and other vegetable crops, AVC has committed its entire vegetable portfolio to assisting VRI to identify, inform and disseminate monitoring and control measures against this pest.
5. Collaboration with other organizations

AVC staff met with the following organizations this quarter to discuss potential cooperation and share experience:

**Multilateral**

- **International Bank for Reconstruction and Development (IBRD – World Bank)**
  AVC staff held follow-up meetings with the local representative of the World Bank regarding their ongoing $150 million program to support horticulture in Uzbekistan. Comprised almost exclusively of a loan guarantee program with local banks this program has already drawn down two-thirds of the total value in the first year of operations. Given the fast growth within the sector the GOU has requested the World Bank to consider an additional loan program. The Bank representative sought continued AVC technical assistance to the recipients of their loan program to assure efficient and effective use of the financing.

- **International Fund for Agricultural Development (IFAD)**
  IFAD visited AVC with a multi-person team interested in learning more about project activities and experience to inform their on-going design of new financial products to support the horticultural sector in Uzbekistan. IFAD is developing a 6-year plan focused on Rural Development through credit lines with local banks.

- **Asian Development Bank (ADB)**
  AVC staff met with a multi-person team from the ADB tasked on a Project Preparatory Mission to Uzbekistan. A preliminary meeting with the local ADB staff was held a week prior to the multi-person team’s arrival to familiarize ADB with AVC activities. ADB is also interested in establishing a horticultural loan program, implemented through 8 to 9 local banks, and was seeking information and insights from AVC’s experience. AVC staff arranged for the ADB team to meet with a cold store owner/operator during their field visit to Ferghana.

**Bilateral**

- **Japan International Cooperation Agency (JICA)**
  JICA visited AVC to inform AVC that they were also collaborating with TSAU and SAI through provision of small-scale Fuji apple demonstration orchards. JICA’s program with Fuji apples was finishing at end March and JICA was seeking information for the design of a new program. Both sides agreed that under a new program AVC could envision joint trainings and workshops as well film sessions with any Japanese technical specialists brought to support their Fuji apple program.

- **Agence Pour la Cooperation Technique et pour le Developpement (ACTED)**
  AVC staff facilitated a meeting between USAID’s CTJ project and ACTED representatives visiting Tashkent. ACTED is unique in that they are the only accredited Western-NGO operating in Uzbekistan in the economic growth sector. They also have offices and programs in the neighboring countries of Tajikistan and Kazakhstan.

- **Agence Francaise de Developpment (AFD)**
  The AFD local representative and a two-person team from Paris visited AVC to learn more about the project’s experience and operations within the Uzbek horticultural sector. The AFD team was visiting Uzbekistan for 3 weeks as part of an initial design effort for a loan program to support the agricultural sector.
AVC’s COP and Deputy COP provided Daniel Rosenblum, US State Department’s Deputy Assistant Secretary for Central Asia within the Bureau of South and Central Asian Affairs, with a one-hour briefing on the AVC project, its impact and the positive changes within the horticultural sector in Uzbekistan including recent policy modifications.

AVC’s COP and the Tissue Culture Expert from California met with the Acting Regional Mission Director for USAID to present progress within the lab production of trees in Uzbekistan.

6. Women in Agriculture

During this quarter AVC staff specifically targeted female participants for inclusion in the following activities:

1. Production training attendees
   Female participants were highly encouraged to attend field trainings. The resultant number of female horticultural producers attending was 6% of total which is a percentage point higher than the national average. Historically, female agriculturalists in Uzbekistan have favored working in cotton and wheat, given their lower risk factors, than horticulture.

2. Tissue culture
   The majority of the workers in the laboratory production of trees, and all of the new workers hired this quarter by De Nova Agro, are women. This will continue to be the case with the investment in the commercial scale tissue culture production complex planned by GDF for completion by the end of calendar 2017. AVC is already in discussions with GDF regarding the need to begin hiring and training competent laboratory staff to assure the new complex is producing on the opening day. The vast majority of these trainees and new hires are expected to be female.

3. Agricultural Universities
   AVC insisted the teams created for competition in the Horticultural Concourses (Knowledge Bowl) must be gender balanced. The first two competitions, held at TSAU and SAI, were gender balanced. In fact, at the TSAU Concourse one of the teams was skewed female with 4 women and 2 men. The SAI Rector also confirmed that the agricultural universities are receiving and admitting a greater number of female applicants. This trend has not yet reached the 60/40 female/male ratios found in Western university admissions but it is noticeable by the Uzbek university administrators.

Uzbek women in agriculture, especially when limited to horticulture, appear to favor occupations higher along the value chain rather than production. This is evidenced by their increasing importance in tissue culture and in higher education.
D. MONITORING AND EVALUATION

1. Monitoring and evaluation

AVC outreach activities began in earnest this quarter after the MOU signing of mid-September 2016 followed by the re-registration of DAI in November with the expected impact on the indicator performance. The table below provides summary data by indicator and progress towards the 2017 target.

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</tr>
<tr>
<td>9</td>
<td>Organizations</td>
<td>#</td>
<td>100</td>
<td>72</td>
<td>72%</td>
<td>Quarterly</td>
</tr>
<tr>
<td>10</td>
<td>Training</td>
<td>hrs.</td>
<td>15,000</td>
<td>12,902</td>
<td>86%</td>
<td>Quarterly</td>
</tr>
</tbody>
</table>

Indicators 1, 2 and 3. Indicator data on income yield and export values are collected annually and will only become available at the end of the present horticultural production and marketing season.

Indicator 4. The number of private sector service providers participating in AVC implementation increased this quarter reflecting those firms which joined the series of introductory trainings provided in the new provinces and districts.

Indicator 5. The hectares under improved technologies increased by 403 hectares this quarter yielding a new cumulative total of 2576 hectares based upon initial results from the introductory series of trainings. This figure is expected to increase in the next quarter as the production season progresses and more of the new district participants implement mid and late season improvements based upon AVC trainings.

Indicator 6. The value of investments in this quarter are due solely to 4 cold store installations under AVC technical assistance in Andijan (800 mt), Samarkand (500 mt), Namangan (200 mt) and Tashkent (100 mt). Three of these AVC partners are auto-financing their expansions with only the Andijan cold store seeking access to bank financing. The “cold store boom” is still underway and these figures will only grow as more partners implement the designs and plans which AVC staff are assisting.

Indicator 7. Number of partners adopting best practices represents re-engaged partners from the previous two projects who have elected to continue working with the new program. This number will grow in the following quarter as the trainees in the new districts begin to adopt practices promoted by the project.

Indicator 8. AVC has made substantial progress in its outreach to the agricultural universities offering improved educational opportunities to their students. Attainment of this target represents both the SHC program but also the guest lecturer and seminar series implemented this quarter with the three agricultural institutions of higher learning.
Indicator 9. The number of organizations assisted grew this quarter and is expected to continue expansion in the subsequent months. The majority of the growth in this quarter reflects contributions by Component 2 (Post-harvest) for new partner cold stores and packaging companies plus Component 3 (Marketing) for supermarkets, processors (dried and juice), and exporters.

Indicator 10. The cumulative person-hours of training increased due to the series of introductory trainings in the new districts and provinces.

AVC is on-target to reach or exceed it goals for the quarterly monitored data. The annual data awaits further progress in the ongoing horticultural season.

2. Communications and Outreach

The Communications and Outreach team focused their activities to support the National Exchange Program on “Cold Storage in Horticulture: Current State and Perspectives” (see Section 2.a above). AVC’s Public Relations and Outreach specialist, working in concert with the AVC postharvest and marketing technical experts designed, populated and produced a number of informative banners, posters and hand-out materials targeted to the intended NEP Cold Chain audience. The NEP event achieved wide coverage in the local media with representatives from TV, radio, print, and online outlets. The formal announcement by GCCA’s Vice President of Uzbekistan progressing into the Top 20 worldwide in cold storage capacity over the last two years was particularly featured and gained worldwide business attention (see http://www.gcca.org/coldcon/2017/02/07/cold-storage-capacitybooms-uzbekistan-emerging-markets-worldwide/).

Digital film recording of on-going seasonal training activities at AVC demonstration sites continues with this quarter being a heavy training quarter. These recording are edited and prepared for more broad distribution and dissemination using social and broadcast media. To-date AVC produced short-films were provided to a popular Uzbek horticultural Facebook account for hosting and to maximize exposure. The Facebook site has around 10,000 followers and AVC films have accounted for over 30,000 views representing 60,000 minutes of viewing, highlighting the need to restrict video length in this media. The major consuming counties of these videos are presently Russia (34%), Kazakhstan (23%), Kyrgyzstan (20%), Uzbekistan (17%) and Korea (3%). In broadcast media the “Yashil Sayyora” (Green Planet) TV program on the Dunyo bo`ylab (Around the World) channel aired one of the stone fruit pruning training of trainers held in Kibray District, Tashkent Province.

Video Link: https://www.youtube.com/channel/UCpGVyZ0yok7YPxAw9-omMhA
ENVIRONMENTAL COMPLIANCE

1. Monitoring

There were no major technical activities that require preparation of environmental screening document and development of mitigation measures. However, necessary recommendations and information were given to the training participants with regard to environmental compliance and good environmental practices. AVC identified four (4) Category-2 activities (negative determination without conditions) this quarter.

2. Mitigation

(1) Pruning and pest-disease control training programs
These trainings were organized in all provinces except Surkhandarya Province. The pruning training program included the environmental compliance component in which participants were familiarized with proper disinfection of the pruning-grafting tools and disposal of infected wood (Category-2), in addition to standard good agricultural practices (GAP).

(2) National Exchange Program (NEP) on the national cold chain
This NEP was organized in Tashkent for cold storage facility owners, exporters, packaging material manufacturers, cold store construction companies and other key players of the cold chain. Cold storage construction company “TechnoCool” emphasized the importance of eliminating ozone-depleting refrigerants in the world and their replacement with environmentally friendly refrigerants (Category-2).

(3) Exchange Visit to India
The Indian exchange visit was organized for a group of 9 Uzbeks to experience best grape postharvest practices. The study tour was arranged and hosted by an Indian company, J.K Enterprise, which specializes in manufacturing corrugated fresh produce packing boxes and grape guard sheets. Their packaging materials and grape guard sheets are exported to several European countries and are approved by environmental and food safety standard bodies. The group visited farms with Global-GAP certifications and packing houses with Hazard Analysis and Critical Control Point (HACCP) and other food safety standards (Category-2).

(4) Apple Demonstration Orchard.
In collaboration with the Korean International Cooperation Agency (KOICA) AVC established an apple demonstration plot at the MAWR AgroInnovation Center. A total of 700 healthy, virus-free, true-to-type apple saplings were sourced from a local nursery providing certifications and documentation of origin (Category-2).

3. Issues

There were no social and environmental issues during this reporting period that resulted from AVC’s activities.