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AGRICULTURAL LINKAGES PROJECT (AGLINKS UZBEKISTAN)

ANNUAL REPORT (FY 2010)

OCT 2009 – SEP 2010

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AGRICULTURAL LINKAGES PROJECT

(AGLINKS)

FY 2010 ANNUAL REPORT

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ACRONYMS

ADB	Asian Development Bank
BDS	Business Development Services
BEO	Bureau Environmental Officer
BFU	Business Forum of Uzbekistan
CCI	Chamber of Commerce and Industry
CE	Categorical Exclusion
CIS	Commonwealth of Independent States
CNFA	Citizens Network for Foreign Affairs
CPS	Crop Protection Services
DAI	Development Alternative Inc.
Dekhan	backyard farm
DPP	Dynamic Planning Process
EU	European Union
FFP	Food For Peace
FtF	Farmer to Farmer
FY	Fiscal Year
G&A	General and Administrative
GCCA	Global Cold Chain Alliance
GOU	Government of Uzbekistan
GSB	Growing Sustainable Businesses Initiative (UNDP)
ha	hectare (10,000 square meters, 100 meters by 100 meters, 2.47 acres)
HACCP	Hazard Analysis and Critical Control Points
HO	Home Office
HPLC	High Performance Liquid Chromatograph
IEE	Initial Environmental Examination
IKS	Islohotkonsaltservis, Ltd. (local consulting firm)
ISO	International Organization for Standardization
JICA	Japan International Cooperation Agency
JSC	Joint Stock Company
Kholhoz	collective farm (during Soviet era)
LLC	Limited Liability Company
LOP	Life of Project
LSP	Local Service Provider
MASHAV	Agency for International Development Cooperation (Israel)
MAWR	Ministry of Agriculture and Water Resources of Uzbekistan
M&E	Monitoring and Evaluation
MERIT	Ministry of External Economic Relations, Investment and Trade of Uzbekistan
MOU	Memorandum of Understanding
NDC	Negative Determination with Conditions
NGO	Non-Governmental Organization
Oblast	province
ODC	Other Direct Costs
OH	Overhead
PD	Positive Determination
PERSUAP	Pesticide Evaluation Report and Safe Use Action Plan
Pudrats	Family-based agricultural production units
Rayon	district
SABIT	Special American Business Internship Training
SDC	Swiss Agency for Development and Cooperation

SEAF	Small Enterprise Assistance Fund
Shirkat	production cooperative (Uzbek)
SISF	Social Initiative Support Fund
SME	Small and Medium size Enterprises
Sovhoz	state farm enterprise (during Soviet era)
TA	Technical Assistance
TCN	Third Country National
TIKA	Turkish International Cooperation and Development Agency
TQSA	Temporary Quarters Subsistence Allowance
TCCTC	Tashkent City Center for Testing and Certification
Tumani	rayon (district) in Uzbek
UNDP	United Nations Development Program
USG	United States Government
USAID	US Agency for International Development
VAT	Value Added Tax
Viloyat	Oblast (province) in Uzbek
WFLO	World Food Logistics Organization
WUA	Water User's Association
WUASP	Water User's Association Support Project

The purpose of this Annual Report is to “summarize key developments” during the 2010 Fiscal Year reporting period (01 October 2009 through 30 September 2010) as per the requirements of Section F.4.(b) of the AgLinks Project Task Order (T.O. # EDH-I-07-05-00004-00). FY 2010 was the second full agricultural season for the AgLinks Project in Uzbekistan. The project gained additional experience throughout the year and expanded activities with a variety of actors in the Uzbek agricultural sector. These actors included farmers, market agents, processors, sales agents and public food safety and agricultural support officials.

As per the contract mandate to “summarize key developments” in the reporting period, this report presents seven themes that project staff identified throughout the last twelve months. The major developments discussed below draw on the experience of AgLinks team members and partners in implementing the project over the last 12 months. Observations draw upon the material presented in the regular monthly and quarterly reporting previously submitted. The present report focuses more on broader general developments that have and will continue to impact the project. The objective in this report is to step back from the regular reporting to identify more macro trends and opportunities that confront AgLinks in Uzbekistan.

A. BACKGROUND

The 2010 agricultural season in Uzbekistan was witness to a very light winter followed by an extremely wet spring. These climatic conditions were highly conducive to plant and disease infestation due to the lack of winter frosts to kill pathogens followed by the warm, wet spring that favored pest and disease propagation. Project staff 2010 activities emphasized mitigation of the impact of these adverse climatic conditions on production and output by preparing project partners for the inevitable problems expected to arise during the growing season.

1. Project Focus.

AgLinks continues to focus on horticultural value chain support particularly within the fruit sector. In year two (FY 2010) the project added activities in pome fruits (apple, pear and quince) to the already covered stone fruits (ex., peaches, plums, cherries, apricots, etc.) and grapes. Farmer requests for information and support to pome fruits was the driving force behind the addition of these crops to AgLinks activities. The project remained targeted on eight (8) specific districts within the geographic provinces of Ferghana, Namangan, Samarkand and Tashkent for support activities. Stone fruits predominate within the Ferghana Valley (Ferghana and Namangan provinces) and grapes outside the valley (Samarkand and Tashkent provinces) with pome fruits present in most all areas.

2. Project Partners.

Project beneficiaries are organized within partners that include producers, processors and public entities. Among producers, the project continues to work through AgriFirms and Water User Associations (WUAs), both of which serve as organizational rally points to provide outreach to the targeted beneficiaries, farmers. WUAs also have a previous history of working with USAID via the Water Users Association Support Project (WUASP). AgriFirms are the restructured fruit and vegetables cooperatives of the Soviet era that were essentially privatized in early 2006 and are still adjusting to a market-oriented approach to agriculture. The project continued to work with 5 AgriFirms (3 in the valley and 2 out) and 5 WUAs (2 in the valley and 3 out) in FY 2010. WUAs were chosen based upon the reported fruit and vegetable acreage of member farmers with preference given to those WUAs with the most area in these crops compared to cotton and wheat.

with more intensive trainings and investment in equipment (both sprayer and safety). Trainings are still held for farmers to educate them on the correct pest and disease identification and agrochemical choice. However, the best medium and long-term solution to control and supervise correct agrochemical application and use is through teams, and eventually firms, which take this responsibility and specialize in agrochemical service provision.

This approach of promoting specialized agricultural service provision is preferred because it increases cost effectiveness, reduces safety concerns and allows farmers to focus on other issues. Cost effectiveness is increased because capital equipment purchases can be targeted to specialty teams rather than each individual farmer. Safety concerns are reduced because teams can be intensively trained rather than a multitude of individual farmers each with their own approach to safety implementation. Finally, freeing farmer time constraints allows them to focus on other productive activities. Similar growth in rural small businesses are evident among the specialty pruning teams, sales of variety cuttings for grafting by specialized farmers during and after variety contests, and small-scale home processing businesses, shops and restaurants.

(2) Increased Interaction with Local Sources of Information. The second recurring trend that was identified is increasing farmer interaction with national and local institutional information resources. Farmers are becoming more aware of available resources and how to contact them because the project employs local consultants with institutional contacts at the local agricultural colleges, universities and institutes. Increasing dialogue among farmers and these support institutions will serve to better match needs with capacity. AgLinks has witnessed the beginning of this process while working with Shreder, the Plant Protection Service, Agrarian University and other local institutions.

(3) Seeing Leads to Believing Leads to Adoption and Investment. The final trend appears as a farmer response to experiencing new technologies and techniques. Farmers must see and experience first-hand new technology and its impact before they will believe it can actually work for them. Increased farmer interest, adoption and subsequent investment require farmers to “see to believe.” AgLinks on-farm demonstration plots serve as rural classrooms and laboratories for farmers under the “Field School” approach. This approach has a “spread effect” to neighboring farmers who witness the productivity improvements due to technological innovation in agriculture. AgLinks staff are identifying an increasing number of local farmers interested in learning more, attending trainings in larger numbers and making auto-investment decisions. These examples are all related to the demonstration plots and related trainings that present new technologies and techniques such as pruning, grafting, thinning, trellising, drip irrigation and cold storage, among others.

B. KEY DEVELOPMENTS IN FY 2010

A total of seven (7) major themes representing project activities and experience during FY 2010 were identified by the technical assistance team. These include activities all along the value chain from production through processing and marketing. The 7 themes are (1) field schools, (2) drip irrigation, (3) fruit tree pruning, (4) pest and disease management, (5) farm household processing, (6) variety contests and (7) leveraging funds.

AgLinks activities continued to focus time and resources on the production end (field schools, drip, pruning, pest and disease management) of the value chain for a variety of reasons. First, farmers have little or no other source of extension information and are making decisions with incomplete or incorrect information that harm their finances, health and the environment. Farmers rarely mention post-harvest marketing as a problem and many state buyers seek them out on-farm. Processors, on the other hand, consistently mention increased supply and quality as their major concerns.

1. Field Schools.

AgLinks has chosen to implement a Field School (FS) strategy to provide farmer trainings with farm level demonstration plots serving as field classrooms. A Field School approach is deemed more appropriate for farmers to learn because it combines minimal traditional classroom instruction while optimizing the amount of direct, hands-on experience with new techniques and technologies. The approach also involves group-based learning with groups of farmers interacting, sharing insights and experiences while witnessing the impact of demonstrated technologies on a given plot. The Field School approach was introduced during AgLinks first full agricultural season in 2009 and the impact on participating and neighboring farmers is manifest.

AgLinks has established a total of 32 demonstration plots to-date (see Annex A) with each plot providing a different combination of technology, crop, topography, water access and soil conditions to allow a maximum number of different techniques to be disseminated. The field school strategy using demonstration plot tactics provides a spread effect to introducing new technologies to neighboring farmers similar to an oil drop spreading on water (see text box at right). AgLinks promotes a number of productivity enhancing technologies and techniques through field schools including Pest & Disease Identification and Control, Pruning, Fertilization, etc.

AgLinks has been invited and participated as trainers on other donor programs that do not use the field school approach which provides comparative information on training methods.

Some impact patterns are apparent from the AgLinks field school approach. First, the number of participating farmers has doubled compared to classroom trainings in the same geographic location (roughly 30 to 35 per training versus 15 in classrooms). The direct experience of first-adopter neighbors in a new technology also provides tangible proof of the benefits of change. First person accounts of impact along with visible improvements help further the spread effect. In 2010 AgLinks further introduced cross-provincial trainings (ex. Namangan farmers to Oltiariq Ferghana Province, Namangan Farmers to Samarkand Province, etc.) which invite participating farmers from the different provincial districts covered by AgLinks to attend scheduled activities in other regions. This cross-fertilization of ideas has further enhanced the spread effect.

Based on lessons learned, farmer interest and motivation along with direct observation AgLinks plans to further this activity by :

Field School Spread Effect. A’lam and Rahmatjon are apple and grape farmers from Samarkand District in Samarkand Province with 21 hectares (ha) each. Their neighbor, Farruh Kamolov, participated in AgLinks’ field school program in 2009 by trellising 1 ha of grapes which subsequently increased output by one-third. In 2010 A’lam and Rahmatjon decided to follow their neighbor’s example and trellised half of their grape hectare. They also participated in all AgLinks trainings and applied all recommendations offered during the field school sessions.

While other farmers lost the majority of their grape crop in 2010 to downy mildew, AgLinks farmers saved their harvest by following AgLinks pest and disease trainings. These farmers harvested 35 tonnes/ha each and sold their grapes directly in the field at 2000 soum per kg.

Rahmatjon commented by saying “Last year’s grape price was 800 soum/kg and this year we sold at a price 2.5 times higher. We spent significant money and effort and struggled to save the harvest against disease, but in the end we were winners. I thank AgLinks project for providing timely and necessary recommendations. I intend to collaborate with AgLinks next year on my apple orchard to learn pruning, pest management and post-harvest techniques. My apples were winners in this year’s Variety Contest (sponsored by AgLinks) in Toyloq District and I am convinced my produce can compete at the international level.”

- Preparing a farm manual and instructional books on how to prune, deal with pests & diseases and increase overall productivity of grapes to complement the material already produced by AgLinks for stone and pome fruits



- Providing additional assistance on trellis establishment using different methods for stone and pome fruits to complement the trellised grape plots
- Providing assistance to install small-scale cold stores using technology based upon the use of standard room air conditioners
- Continuing farmer training on use and maintenance of drip irrigation systems facing water problems

Photo # 1 : Field School Training in Pest and Disease – April 2010

2. Drip Irrigation.

Several farm locales among Aglinks participants are in areas where access to water poses a significant constraint on agricultural productivity. AgLinks introduced technology to alleviate this type of constraint via drip irrigation during FY 2010 as part of the field school program (see Section B.1 above). Drip irrigation is expected to become increasingly important in subsequent years as water scarcity increases and AgLinks sought to gain experience with this technology in the Uzbek context to identify best practices for promoting efficient water use. A total of nine (9) drip irrigation systems were installed with an average size of around 1 hectare (see Table 3 below). Field locales were selected after an assessment headed by a local irrigation engineer of around 30 potential locations among existing AgLinks partners.

#	PROVINCE	DISTRICT	LOCALE	FARMER NAME	CROP	AREA (ha)
1	Namangan	Pop	Pungon WUA	Hayitali Juraev	Grape	1.00
2		Torakurgan	Turakurgan Sohibkortari AF	Muhtorjon Shermatov	Peach, pomegranate	0.93
3		Uychi	Namangan Shreder	Abdumalik Nishanov	Apple, peach	1.00
4	Fergana	Kuvasoy	Kuvasoy Behizor AF	Sobirjon Botirov	Peach	1.34
5		Kuvasoy	Kuvasoy Behizor AF	Yusubjanov Bahadir	Peach	1.18
6		Kuva	Fergana Shreder	Alisher Saydaliev	Peach	1.00
7	Samarkand	Payarik	Karshiboy Mirob AUS WUA	Umurzakov Allaberdı	Apple, grape	0.65
8		Payarik	Karshiboy Mirob AUS WUA	Tojanboy Koziboev	Grape	0.50
9	Tashkent	Ohangaron	Eurobasis Group Orchard	Taymurat Yunusmetov	Cherry	1.20

Table 3 : AgLinks Drip Irrigation Sites – FY 2010

The site assessments were conducted by the irrigation engineer and AgLinks staff members and rank ordered the potential site locations based on the level of water scarcity, farmer willingness to use and maintain drip irrigation, age of crop, field topography and crop type. The objective was to select a number of cropping systems to determine the best drip irrigation systems to introduce in different settings. The irrigation engineer and AgLinks staff visited each province and field to

collect information and produced a matrix to facilitate field choice for these pilot drip irrigation activities. Staff spoke with all farmers to check their knowledge and ascertain their willingness to properly use drip systems and cooperate with the project. Based upon the review criteria and budget constraints a total of 9 fields were selected that best met AgLinks' requirements. In instances where farmer commitment has not been sufficient AgLinks reserved the right to relocate the irrigation material to a more productive location. One instance of relocation was implemented in FY 2010 with the transfer of equipment to the plot in Tashkent Province.

Procurement and installation of the drip systems, including all construction work, was performed on a cost-share basis between Aglinks and the partner farmer. Aglinks, through a local sub-contract with an Uzbek drip irrigation firm, provided complete sets of drip irrigation systems including the sand filter, mono-block pump, fertigation tank, pipes, hoses, drippers, and other equipment. Equipment installation was supervised by the irrigation engineer and AgLinks staff members. Farmers were responsible for excavation and construction work at the site including water reservoirs, pipe trenches, pump houses and local labor costs. Some locales were selected that will not require water reservoirs because of pre-existing structures. Pump houses are required to protect



the head unit of the drip system (e.g., filter, mono-block pump, fertigation tank, etc.) from inclement weather, vandalism and theft. By the end of FY 2010 a total of 8 out of 9 systems were functional and the irrigation engineer had held initial training sessions with the partner farmers on the proper use and maintenance of the drip irrigation system. AgLinks is in discussion with the 9th farmer to assure full compliance with the cost-share requirement for participation. AgLinks has made preliminary preparations for a new site for relocating the capital equipment.

Photo # 2 : Drip Irrigation Installation – June 2010

Although Uzbek farmers have heard of drip irrigation very few have actually experienced what a system looks like, how it works, and its benefits. Drip irrigation systems are a very new irrigation technology for many local people. The drip systems attracted neighboring farmers who were invited to attend demonstration sessions on this new water saving technology. The advantages of drip systems were demonstrated and discussed including the more rationale and cost-effective application of fertilizer and pest and disease control agrochemicals. Drip systems economize labor costs, water, as well as the costs of weed control and fertilizer. Partner farmers regard the drip irrigation systems as their own because all installation and construction works were performed on a cost-share basis.

AgLinks will continue to work with partner farmers in strengthening farmers' knowledge of drip irrigation systems and water management. Training programs will be conducted on water management, proper fertigation, fertilizer choice and timing, crop water requirements, and further development and expansion of the area covered by the existing drip systems. Project staff will continue to update farmers with the most relevant agronomic and water management information. "Cross-Provincial Visits" will be organized among AgLinks participating farmers to share insights, learning, techniques and management tips on the various drip systems and how challenges have been overcome in the different settings.

3. Fruit Tree Pruning.

One of the most important ways to care for fruit trees is to keep them well pruned. Uzbekistan has traditionally used a pruning technique which resulted in huge trees and large canopies but with little crop. By introducing the "American Method" of pruning, AgLinks has demonstrated that stone fruit pruning can open-up the tree canopy to maximize light penetration which is essential for flower bud development and optimal fruit setting, flavor, and quality. Additional benefits of pruning in the "American Method" include trees bearing fruit much earlier in their lifecycle, increased yields, longer tree life and manageable size (important for harvesting, pruning, and agrochemical application).



Photo # 3 : Winter Pruning Training – January 2010

To have better impact and extension of "American Method" pruning in stone fruits AgLinks trained specialty pruning groups or teams, usually consisting of 4 pruners. Pruning teams were trained in both the FY 2009 and FY 2010 growing seasons and provided with high quality pruning shears or loppers. The resulting efficiency gains in orchard yields and quality due to training combined with limited capital equipment approached 100 % or a doubling of output. New skills, quality tools and demonstration plot farmer testimonials resulted in increased popularity of the pruning teams and demand for their services, particularly in the Quvasoy District of Ferghana Province.

These specialty pruning teams were in such high demand during the 2010 agricultural season that even farmers from neighboring Kyrgyzstan hired them to prune their orchard in the AgLinks promoted "American method". During 2010 AgLinks

Fruit Tree Pruning. Abbas and Arabboy To'qaeV, farmers in Quvasoy District of Ferghana Province, did not know how to prune their stone fruit trees and had no money to pay for private pruning groups. After attending pruning training held by AgLinks at the Quvasoy Bekhizor agrifirm they invited the AgLinks trainers to their peach orchard. A one-day, hands-on session of on-farm training taught them and their neighbors how to prune using the "American Method." They pruned one hectare of peaches using the new method and saved 300,000 soums in labor costs. The peach harvest from this one hectare fetched 3,000,000 soums which was double the amount from an equivalent one hectare of peaches pruned in the traditional fashion in the same orchard.

further expanded its pruning activities to include pome fruits (ex., apple, pear and quince) and added demonstration plots to serve as field schools and promote the spread effect. AgLinks pruning activities were also a basis for further strengthening of collaboration between the project and the Uzbek National Agricultural Research Institute for Horticulture, Viticulture and Winemaking (Shreder Institute) through joint trainings and the use of research station plots at the Ferghana and Namangan provincial branches of Shreder.

Promotion of best pruning practices has been highly successful because farmers receive higher profits, early bearing trees, increased yields, better quality fruit and longer lived orchards. Hands-on experience on-farm, through the field school approach, provides the best means to introduce new pruning techniques. AgLinks will continue applying best production practices for all fruit crops through the field school program and will add cherry and apricot pruning during FY 2011. Another FY 2011 goal under the pruning activity will be to complete the required technical peer reviews and obtain all formal publication approvals for the farmer manual on “Pruning and Grafting,” similar to what was already accomplished for the stone and pome fruit “Pest and Disease” manual.

4. Pest & Disease Management.

Appropriate pest and disease identification and control represents a vital part of agricultural production, particularly in fresh fruits and vegetables. Lack of farmer knowledge on pest and disease management can result in crop loss equal to one-fifth to one-third of the harvest in a given year. In FY 2010 crop losses in grapes due to downy mildew in Tayloq and Samarkand districts of Samarkand Province and elsewhere reached 100% in some farmers’ fields. AgLinks farmers were not among the worst afflicted because of extensive training sessions held throughout the 2010 growing season for member farmers. AgLinks technicians expected increased downy mildew infection in 2010, although it had been relatively rare in Central Asia, due to the warm winter of 2009-10 and the appearance of isolated cases during the 2009 season. Additional AgLinks training sessions were organized in 2010 to spread information on identification and control measures as broadly as possible given time and resource constraints.

In addition to the grape pest and disease trainings, focused on downy mildew, AgLinks held complementary trainings on stone and pome fruit infestations. All AgLinks trainings draw upon the combination of local experts’ knowledge and international experience of AgLinks staff to help farmers learn more about best management practices. Local trainers were hired to expand the number and geographic coverage of trainings with district and provincial level consultants affiliated with plant protection. The majority of these local consultants are more familiar with the pests and diseases of cotton and wheat thus AgLinks held remedial trainings with local consultants to improve their familiarity with and understanding of fruit tree and grapes pests and diseases.

Pest & Disease Management. While many farmers suffered from crop loss in Samarkand vineyards in 2010 due to disease (particularly mildew), AgLinks partner farmers sold their grapes for 2000 soums per kilogram (compared to 800 soums/kg in 2009). Farmers reported the efficiency and effectiveness of AgLinks pest & disease identification and control training sessions, particularly on controlling for “downy mildew” in grapes.

Sadulla and Murodilla Abdullaev, farming brothers affiliated with the Dilkusho Sifat agrifirm in Tayloq District of Samarkand Province, attended AgLinks trainings on grape pest and disease identification and control in the spring of 2010. Sadulla followed all recommendations given by the AgLinks trainers while his brother implemented only half. At harvest season Murodilla lost 50% of his crop while his brother’s crop yielded twice as much.

The information and lessons learned from the 2009 stone and pome fruit trainings were compiled during 2010 in an AgLinks sponsored farm manual entitled “Pest and Disease Identification and Control”. This farm manual was subject to national peer review and publishing approval prior to printing 2500 copies for distribution to farmers during training sessions. The publication was co-sponsored by the National Plant Protection Center and the Plant Protection Research Institute with all material contained within fully consistent with the recommendations of the Uzbekistan PERSUAP (Pesticide Evaluation Report and Safer Use Action Plan). Other partners requested and



were provided copies of this farm manual to distribute to farmers in their respective areas of intervention including the Uzbek Chamber of Commerce and Industry, the major agroprocessor UzVinProm, among others. To further appropriate use of agrochemicals AgLinks also helped organize commercial specialized sprayer teams, similar to the pruning teams, which are more extensively trained, provided the appropriate safety materials and follow all requirements and recommendations of the Uzbekistan PERSUAP regarding agrochemical choice and use.

Photo # 4 : Grape Pest & Disease Training – May 2010

Many grape farmers who did not follow AgLinks recommendations during the 2010 agricultural season lost a portion to all of their crop while compliant farmers fared significantly better. Farmers who do not achieve any output from grapes for a second season (during 2011) risk having their vineyard replaced with another crop. Some farmers already faced this problem after the 2010 season. Hence, AgLinks expects even greater interest and demand for pest and disease training sessions and information during the 2011 season. In collaboration with local experts and consultants the project has prepared a farmer manual on best grape agronomic practices which includes a specific section on pest and disease control. This manual is presently at the peer review stage and will be printed, used and distribute during FY 2011 once publishing authorizations are obtained. AgLinks will draw upon its growing stable of local consultants complemented by project staff to host as many training as possible to address increasing pest and disease control problems affecting fruit trees and grapes. Trainings will be expanded geographically within provinces and technically by introducing complementary biological methods to control pests (ex., mating disruption) in field schools.

5. Farm Household Processing.

Post-harvest activities in FY 2010 also focused at the farm level to improve household food security and provide an additional source of income. A total of five (5) different training modules on different types of farm level processing were offered in three targeted provinces of Uzbekistan (Ferghana, Namangan and Samarkand). The project had begun the household level processing program in 2009 with test sessions in Namangan Province. During 2010 the program was expanded to the other provinces and additional training modules were developed and provided. These 5 training programs were conducted in a total of eleven (11) locales with trainings specifically targeted to and designed for rural household women.

A total of 285 women participated in the trainings during FY 2010 (see Table #4). AgLinks hires a local food technologist consultant, Marifat Nazarova, who works with a provincial-based agroprocessing company to conduct the training programs. All farm level agroprocessing trainings are held at trainee homes to increase attendance and participation by the targeted female audience. The objective of these training programs is to provide rural households with the knowledge, skills and experience to process fruits and vegetables for home consumption as well as local and regional sales. Focus was given to food safety, hygiene and improved nutrition during the 2010 trainings.

#	TOPIC	PROVINCE	DISTRICT	LOCALE	NUMBER OF TRAINEES	DATE
1	Fruit and Vegetable Processing - Intermediate	Namangan	Pop	Pungon WUA	19	18-Nov-09
2			Pop	Shirinsuv Yangiyer WUA	28	18-Nov-09
3			Torakurgan	Turakurgan AF	17	19-Nov-09
4	Compote, Jam, Lemonade preparation		Pop	Pungon WUA	26	20-May-10
5			Torakurgan	Turakurgan AF	19	21-May-10
6	Fruit and Vegetable drying	Samarkand	Payarik	Hojabostonsuv Tarmogi WUA	34	18-Jun-10
7			Tayloq	Dilkusho Sifat AF	36	19-Jun-10
8	Candied fruit, fruit roll-up and vegetable drying		Payarik	Hojabostonsuv Tarmogi WUA	28	12-Aug-10
9			Tayloq	Dilkusho Sifat AF	26	13-Aug-10
10			Kuvasoy	Muyan Sohikorlari	31	20-Aug-10
11	Fruit and Vegetable Processing - Introduction	Fergana	Kuvasoy	Muyan Sohikorlari	21	28-Sep-10
TOTAL					285	

Table 4 : AgLinks Farm Household Processing Trainings – FY 2010

Training programs are organized when seasonal fresh produce is available from their own production or the local marketplace. All training sessions are hands-on and practical with each of the steps in the preparation techniques and procedures thoroughly demonstrated to attendees. Attendees actively participate in the trainings and the consultant pre-prepares sample products to demonstrate the finished product sought by the end of the session which generates interest and excitement among the participants. Attendees realize that the trainer not only teaches these techniques but also uses them in her own home. Handout materials are distributed to each trainee at the end of the session to serve as memory refreshers.

The 5 topics covered during the 2010 training sessions, and their related content, were :

1. **Vegetable and Fruit Processing (Intermediate).** Persimmon jams, vegetable mixtures, salted & pickled cucumbers, tomato and cabbage.
2. **Compotes, Jams, and Lemonades.** Jams from strawberry, rosehips and green unripe walnuts; compote from strawberry and lemonade from rosehips. Most of these products, especially jam from unripe walnuts, were new to attendees.
3. **Fruit and Vegetable Drying.** Proper and hygienic techniques of drying of apricot, apple, cherry, and plum; jam preparation of a mixture of fruits; drying of vegetables like paprika, onion and eggplant.
4. **Candied Fruit, Fruit Roll-up and Vegetable drying.** The most interesting and

new products that attracted attention and comment were “candied fruit”, prepared from watermelon or pumpkin peels, and “fruit roll-ups”, from various fruit jams.

5. Vegetable and Fruit Processing (Introductory). Salted cucumber and tomato in glass jars for preservation purposes.

All attendees learned new processing and preservation techniques for fruits and vegetables. Participants stated that they learned better processing and preservation techniques that yield tasty, unique and longer shelf life produce and products. After the trainings, participants prepared their own versions of the products that were demonstrated during the trainings. The topics covered at the trainings were considered new, interesting and useful for participants. Additional attendee feedback highlighted the spread effect with participants training neighbors, friends and relatives, particularly daughters.



Photo # 5 : Uzbek Community Connection Participants –July 2010

The food technologist trainer was one of the ten Uzbek participants in the July 2010 USAID Community Connection program in northern California to study “Contemporary Agrotechnology in Fruit Cultivation.” The content of this program included best practices in cultivation, processing, growing and preservation techniques. During the course of the program she visited several small family-owned home processing shops where they process fruits and vegetables at home and market them in the front yard of the house. This example inspired the trainer to apply a similar approach upon returning to Uzbekistan. She has successfully test marketed this approach of “home processing and marketing” with a local entrepreneur, Olmahon Egamberdieva, in Pungon District of Namangan Province. They have successfully prepared large quantities of preserved foodstuffs and are now marketing through Olmahon’s family-owned private shop. They have prepared candied fruit, fruit roll ups, salted cucumbers, cabbage and tomato.

AgLinks will continue geographic expansion of these trainings in 2011 with additional emphasis on the idea of home processing and marketing. To further the marketing aspect of the farm household agroprocessing activity a processed fruits and vegetable component will be added to the annual variety contests during the 2011 agricultural season.

6. Variety Contests.

AgLinks initiated variety contests (VCs) during the 2009 agricultural season to promote farmer interaction, stimulate interest in agronomic best practices, identify new local varieties and disseminate agricultural information. Three variety contests were organized in 2009 with separate sessions held for apricots, peaches and grapes in the provinces of Namangan, Ferghana and Samarkand, respectively. Variety contests are held in specific geographic locales based upon their specialization and reputation for that particular fruit produce. Innovations for the 2010 season included the addition of a fourth variety contest for apples in Samarkand and the enlargement of competition to include participation of AgLinks partners from all targeted provinces irregardless of

where the contest was held. Farm produce is judged by a panel of local experts on both a qualitative and quantitative basis.



The variety contest rules are as follows :

- **Judges** – Judging panel consists of three judges: one from local government, one from the local Shreder fruit and grape production institute, and one from a local AgLinks collaborating agroprocessing company. Judging is based upon both objective (ex., refractometers, penetrometers, brix sugar testers, etc.) and subjective (ex., taste tests, attractiveness, etc.) criteria.

Photo # 6 : Peach Variety Contest – August 2010

- **Participants** – participants consist of growers in any AgLinks assisted area who grows the crop highlighted in a particular variety contest. Attendance can vary between 35 to 45 participants and winners have come from various provinces and are have not only been residents of the area where the contest is held.
- **Locale** – AgLinks partners and collaborating organizations in the respective provinces and districts host and assist organization of the event in a local setting (ex., agrifirm, school, college, etc.).
- **Timing** – Variety contests are held at the peak harvesting period for the targeted produce (June-Apricot, August-Peach, September-Grape, and October-Apple). They generally start in the morning around 10 AM and last until 1 PM after which a group lunch is held followed by the award ceremony.
- **Categories** – Three to four categories are awarded including highest sugar, juiciness (for processing), uniqueness (new variety) and marketability (fresh produce).
- **Prizes** – Winners are determined by summing the scores awarded by the judges and awarded 1st, 2nd, and 3rd place for each category. Prizes are produce relevant and can include ladders, wheelbarrows, manual sprayer, pruning loppers, shears, and crates. In 2010 AgLinks added a commemorative t-shirt to be awarded to all participants and not just the winners.
- **Field Visit** – After the awards ceremony a field trip to one of the local demonstration plots is organized.

Grape Variety Contest. Holbuvi Boymatova from Payarik District of Samarkand Province attended the 2009 grape variety contest and was surprised by the 20 different grape varieties. She immediately decided to cultivate an unproductive portion of her nut orchard to vineyard and requested AgLinks assistance. AgLinks helped her find the appropriate cuttings with the Samarkand branch of Shreder Institute and demonstrated the proper planting scheme for her needs. Today she has close to 10 different varieties in her 1 hectare vineyard including the highly popular kishmish variety.

Significant results in both funds leveraged and impact were achieved by AgLinks collaboration with USAID’s Community Connection Program entitled “Introduction to Contemporary Agrotechnology in Fruit Cultivation.” Community Connection is funded by AID/W and implemented by World Learning. AgLinks assisted USAID and Ministry of Agriculture and Water Resources (MAWR) in identifying potential program participants, the interview process (ex., developed selection criteria, prepared a list of potential participants from the project client organizations, organized interviews with nominees) and helped World Learning in designing the program (ex., topics to be discussed, sites to be visited, issues to be addressed). A total of ten (10) Uzbek representatives from the Ferghana Valley agricultural community attended the program during 3 weeks to learn about modern technologies and techniques used by fruit producers, processors and service providers in California.

Leveraging Funds. Implementation of joint activities with other partners allows AgLinks to outsource expertise in a particular area, mobilize additional funding in support of project relevant actions and replicate project developed materials (ex., manuals, training materials, etc.). While it is rewarding and provides leverage to AgLinks’ limited funding, the process of mobilizing other donor sources of funds is time consuming because each partner has their own criteria and needs which must be fully addressed. A level of dependence on the partner provides additional uncertainty on final outcomes. Best practice from the experience to-date is to plan a joint activity as early as possible, familiarize yourself with the partner’s constraints and formalize the joint commitment.

Upon return to Uzbekistan the program participants immediately started to implement their newly gained knowledge. For example, Joravoy Matayirov pruned his trees in late July which is a summer technique that Uzbek farmers did not use prior to his California visit. Fazliddin Sultonov, another participant, organized video clips and pictures from California on orchard management and processing (including storage) and burned them to disk to be used as visual training materials. He has distributed this material free-of-charge to neighboring farmers and local agricultural college students. Marifat Nazarova, was impressed not only by production but also the small-scale processing and marketing so she cooperated with a female entrepreneur to develop and implement a business plan for opening her own shop (see Section 5 above).

Another activity of special note was AgLinks ability to attract a significant contribution in both time and money from the Global Cold Chain Alliance (GCCA) to host a national Cold Store Operations Workshop in Tashkent that attracted participants from every province of Uzbekistan.



Participants substantially increased their knowledge about modern world-class practices in cold store operations and established contacts with colleagues (there is no established professional association in this sector as this time). The workshop was a remarkable event that AgLinks organized in collaboration with the Uzbek Chamber of Commerce and UNDP. Wide media coverage was assured at the national level on TV, radio, internet and print (see Economic Review magazine excerpt in Annex B).

Photo #7 : US Ambassador and Uzbek Chamber of Commerce First Deputy Secretary at the Cold Storage Operations Workshop – March 2010

Annex A : AgLinks Demonstration Plots Through FY 2010

#	PROVINCE	DISTRICT	LOCALE	FARMER NAME	CROP	AREA (ha)	SUBJECT
1	Samarkand	Samarkand	Istiqlol Meva-Sabzavot AF	Farruh Kamolov	Grape	1.00	Trellis, pruning, pest
2		Toyloq	Dilkusho Sifat AF	Sharif Safarov	Grape	0.50	Trellis, pruning, pest
3				Asror Mallaev	Grape	0.50	Trellis, pruning, pest
4				Jamol Sirojiddinov	Apple	1.00	Pruning, pest
5				Azizbek Husainov	Plum	1.00	Pruning, pest
6		Payarik	Qarshiboy Mirob WUA	Tugonboy Kuzibaev	Grape	0.50	Trellis, Drip irrigation
7				Jasur Kuziev	Apple & Grape	0.65	Drip irrigation, pruning
9				Holbuvi Boymatova	Grape	1.00	Young Vineyard
8				Hojabuston Suv Tarmog'i WUA	Tursunali Yalgashev	Grape	1.00
10	Namangan	Pop	Pungon WUA	Hayitali Juraev	Grape	1.00	Trellis, Drip Irrigation & grafting
11		Torakurgan	Turakurgan Sohibkorlari AF	Karimjon Khojanazarov	Peach & Pomegranate	0.93	Drip Irrigation
12				Erkin Esonov	Grape	0.70	Trellis, pruning, pest
13				Muzaffar Toraev	Peach & Cherry	1.00	Pruning, pest
14				Abdugaffor Akhnazarov	Pomegranate	0.70	Biosaline Technologies
15	Uychi	Namangan Shreder	Abdumalik Nishanov	Apple & Peach	1.00	Drip Irrigation	
16	Ferghana	Kuva	Ferghana Shreder	Alisher Saydaliev	Peach	1.00	Drip Irrigation
17		Kuvason	Kuvason Bekhizor AF	Sobirjon Botirov	Peach	1.34	Drip Irrigation
18				Yusubjanov Bahadir	Peach	1.18	Drip Irrigation, pruning, pest
19				Rahimberdiev Odil	Peach & Plum	1.50	Pruning, pest
20				Rahimberdiev Emin	Peach	4.00	Pruning, pest
21				Shokir Qoraev	Peach & Plum	1.00	Pruning, pest
22				Bahodir Yusufjonov	Peach	5.00	Pruning, pest
23				Abbosali To'qae	Peach	1.20	Pruning, pest
24				Olimjon Saidov	Peach	2.00	Pruning, pest
25				Ro'zimat Sotvoldiev	Peach	2.00	Pruning, pest
26				Rahmonali Sharipov	Peach	2.00	Pruning, pest
27				Mamajon Marasulov	Peach	2.00	Pruning, pest
28				Shuhrat Razzoqov	Peach	1.00	Pruning, pest
29				Nema'jon Mahmudov	Peach	3.00	Pruning, pest
30	Muyan AF		Nazir Salaydinov	Apple & Peach	1.50	Pruning, pest	
31			Ilhom Hujamov	Apple & Peach	4.00	Pruning, pest	
32	Tashkent	Ohangaron	Eurobasis Group Orchard	Taymurat Yunusmetov	Cherry	1.20	Drip Irrigation

Холодильная недостаточность

По мнению некоторых специалистов, в Узбекистане из-за несовершенных условий хранения ежегодно теряется до 40% овощей и фруктов, что особенно остро ощущимо в «несезон» – период, когда наиболее остро встают вопросы импортозамещения.

Аграрный сектор в Узбекистане – это более 44 процентов национального дохода, более чем трехмиллионная численность работников и около половины площади республики (22,3 млн.га), занятой сельскохозяйственными угодьями. Госкомстатом ежегодно фиксируется рост объема с сельскохозяйственной продукции. По сравнению с предыдущим годом указанный прирост составил: в 2007 г. 6,1%, в 2008 г. – 4,5%, в 2009 г. – 5,7%. По некоторым видам продукции, в основном это плоды, ягоды, овощи, производство даже превышает потребности населения (см. таблицу).

В то же время на прилавках рынков и магазинов становится с каждым годом все больше импортной плодоовощной продукции. И это не только «заморские» киви, бананы и ананасы, но и груши, яблоки, картофель. Ответ на вопрос «Почему так происходит?», отчасти заключается в том простом факте, что не каждый плод, выращенный узбекским фермером или дехканином, «доживает» до зимы и, тем более, весны.

В частности, по мнению некоторых специалистов, в Узбекистане из-за несовершенных условий хранения (а порой попросту из-за их отсутствия) ежегодно теряется до 40% овощей и фруктов, что особенно остро ощущимо в «несезон» – период, когда наиболее остро встают вопросы импортозамещения.

Как известно, плодоовощная продукция – это довольно скоропортящаяся продукция, которая должна либо

реализовываться в сжатые сроки, либо грамотно храниться. И сегодня тема разговора – условия и развитие технологий хранения сельхозпродукции. Именно эти вопросы обсуждались и на семинаре «Современные технологии хранения – залог обеспечения качества плодоовощной продукции», организованном Торгово-промышленной палатой Узбекистана при поддержке проекта ПРООН «Бизнес-форум Узбекистана», проекта Агентства США по международному сотрудничеству «AgLinks» и международной ассоциации по холодильному хранению «Global Cold Chain Alliance».

По расчетам докладчиков семинара, в Узбекистане только путем внедрения холодильных хранилищ (без расширения земельных угодий) можно увеличить потребление: овощей - на 662,8, фруктов и ягод - на 118, картофеля - на 162,4, бахчевых культур - на 125,5, винограда - на 84,5 тысяч тонн. Помимо этого, заложение на хранение позволит снизить сезонные колебания в цене, а значит и в потреблении. Таким образом, вопросы хранения сельхозпродукции напрямую связаны как с продовольственной безопасностью, так и с национальной безопасностью страны в целом. Особенно с учетом таких факторов, как глобальные продовольственные кризисы, природные катаклизмы.

Более подробно высказать свое мнение по обсуждаемой проблеме корреспондент «ЭО» попросил участников данного семинара.



Налаженное хранение сельхозпродукции поможет устойчиво обеспечить не только внутренний рынок, но и экспорт

Хикматов Шухрат Кудратович, генеральный менеджер компании «Promholod»:

Вопросы хранения на рынке Узбекистана сейчас стоят достаточно остро — возросла потребительская способность и спрос на более качественный товар. Как

следствие, появились существенные проблемы с импортозамещением. Импорт, особенно в «несезон», вытесняет отечественную продукцию, что невыгодно и для страны, и, в ценовом аспекте, для конечного потребителя. А без надлежащего хранения собственного урожая нам все чаще приходится прибегать к импорту для обеспечения внутреннего рынка в «несезон». Основные импортеры - это Аргентина, Китай, Европа, Турция.

Цена, к примеру, яблок за рубежом — 1 долл. США, конечная цена аналогичного импортного продукта на нашем рынке 3-4 долл. США — эта добавочная

стоимость появляется не столько из-за транспортировки, сколько из-за множественной передачи товара разными посредниками из рук в руки. Оптовая цена яблок в «несезон» возрастает в три раза и на этом очень хорошо зарабатывают владельцы наших действующих складов. В то же время, государству выгодно экспортировать, но мы не можем себе этого позволить из-за дефицита на внутреннем рынке.

Из всех фруктов и овощей, выращиваемых сегодня в Узбекистане — менее 5% (!) оставляют для хранения. В сезон мы экспортируем около 20-25% овощей

Динамика производства основных видов продовольствия на душу населения по Республике Узбекистан за 1995-2008гг.

Виды продовольствия	Ед. изм	Годы					
		1995	2000	2005	2006	2007	2008
Зерно	кг	141,7	159,4	247,5	247,2	247,3	246,4
Картофель	кг	19,4	29,7	35,7	38,5	44,3	51,2
Овощи	кг	120,1	107,3	136,0	162,1	174,6	191,0
Плоды и ягоды	кг	26,6	32,1	36,7	44,6	47,3	51,4
Виноград	кг	27,4	25,3	24,8	30,3	32,7	29,0
Бахчи продовольственные	кг	20,8	18,3	23,8	28,1	31,3	35,9
Мясо (в живом весе)	кг	37,6	34,1	41,0	43,0	45,0	47,2
Молоко	кг	161,6	147,4	176,1	183,3	189,7	198,7
Яйцо	шт	54,3	50,9	76,0	80,3	82,6	88,9

Источник: данные Государственного комитета по статистике Республики Узбекистан (по материалам совещания тему «Ответные меры по устранению угрозы глобального продовольственного кризиса на уровне стран Центральной Азии», Бишкек, февраль 2010).

и фруктов, а в «несезон» - не более 5%. Экспорт сельхозпродукции в этот период ограничен государством, так как в «несезон» приоритет отдается обеспечению внутреннего рынка во избежание дефицита отечественной продукции. Наличие современных овощехранилищ во многом могло бы способствовать снятию проблемы сезонности, расширению экспортных возможностей. А пока что в период урожая наблюдается переизбыток. Большие объемы нереализованной продукции утилизируются либо продаются фабрикам, которые производят джемы и соки, так как продать их в свежем виде уже невозможно. Так, например, один мой знакомый фермер в середине сезона продает урюк по 400 сум за кг, а в конце сезона — по 50 сум, поскольку у него нет возможности хранения, и если он не продаст товар, тот просто превратится в мусор.

К сожалению, на сегодняшний день примерно 80% продуктов хранится в несоответствующих условиях: в необорудованных складских помещениях, где нет правильной температуры, идет большая потеря влаги, а значит и веса продукции. Конечно, с советских времен остались хранилища, рассчитанные на большое количество фруктов и овощей — 5, 10, 15 тыс. тонн, даже до 100 тонн. Как правило, склады больших объемов находятся в нерабочем состоянии — всего лишь около 30% существующих хранилищ

объемами более 70 тонн сейчас функционируют.

Все эти старые склады оборудованы энергоемкой аммиачной системой, которая потребляет более 300 киловатт. В отличие от аммиачной системы, современное холодильное оборудование работает на фреоне и потребляет почти в 9 раз меньше электроэнергии. К тому система полностью автоматизирована и практически не нуждается в услугах механика. Из крупных складов, оснащенных современным оборудованием можно отметить склад в Самарканде на 7 тыс. тонн.

Холодильное оборудование на 100 тонн стоит около 70-75 тыс. долл. США. В эту сумму входит холодильный агрегат, агрегат для контроля климата, монтаж оборудования, обшивка помещения сендвич-панелями. Фрукты нуждаются в поддержании влажности не менее 90-95% и в современных холодильных установках предусмотрено производство водяного пара, чтобы испарители не высушили продукты. Фрукты и овощи в такой холодильной установке можно хранить в 5-8 месяцев без потери веса и качества.

Обычно предприниматели берут для покупки холодильного оборудования кредит. По этому поводу хотелось бы заметить, что сегодняшние кредиты банков не очень удобны. Было бы лучше,

если бы льготный период был дольше — года на два, на три. Если бы проценты начинали взиматься со второго года, так как первый год уйдет на постройку, сбор первого урожая. Сейчас кредиты предоставляются примерно на 16-18% годовых при условии оплаты уже со второго месяца(!). А если сделать льготный период на год, то можно ожидать даже того, что с банками фермеры будут расплачиваться валютой, так как они будут экспортировать продукцию. В таком случае можно будет в следующие 2-3 года увидеть возрастание складов в 10-20 раз.

Наша организация непрерывный год занимается поставкой, установкой, выполнением проектов «под ключ» и сервисным обслуживанием промышленного холодильного оборудования, и мы, по опыту работу советуем мелким и крупным фермерам отводить для хранения и продажи на местном рынке около 30% продукции, а крупным — до 80% для хранения и последующего экспорта — это позволит им быстрее расплатиться с кредитами банка, если в них нуждались при покупке оборудования.

В любом случае рост числа складов будет иметь место, но при отсутствии более выгодных кредитов, мы увидим тот же результат лишь через 5-7 лет. Проблему могли бы помочь решить также и хокимияты на местах».



Появился спрос на услуги хранения

Шарипов Камол, фирма «УктамКо» (Бухара):

«Наша фирма занимается производством, хранением и переработкой плодоовощной продукции уже более 15 лет. До прошлого года мы в основном экспортировали продукцию в Индию и Россию, а в прошлом году, как одним из видов деятельности, стали заниматься и хранением - на это появился спрос.

Установка холодильного оборудования объемом на 50 тонн обошлась нашей

фирме в 100 тыс. долл. США. Для нашей компании это оказалось рентабельно. Но такое приобретение может себе позволить не каждая компания. Взять кредит на покупку холодильного оборудования могут лишь те, кто имеет альтернативные источники дохода помимо производства плодоовощной продукции, так как сегодня очень большой процент плодоовощной продукции не хранится, а продается в сезон».

Нужны единые стандарты хранения

Ричард Трейси, директор по международным программам «Global Cold Chain Alliance»:

«Наша ассоциация — это ассоциация, члены которой (всего 67 государств) заинтересованы развивать свой бизнес в соответствии с мировыми стандартами качества. В условиях современной глобализации упрочняются связи между различными регионами, появляются единые стандарты качества. В связи с этим очень важными становятся вопросы хранения и транспортировки продовольственных товаров. Сегодня необходимо такое соответствие единым стандартам, чтобы все страны стали звеньями единой «холодной цепи». Чтобы товар, доставляемый из США в Узбекистан и из Узбекистана в США, был транспортирован на одном уровне качества.

Одна из основных проблем Узбекистана — это проблема импортозамещения. В «несезон» Узбекистан не может не только экспортировать продукцию, но и обеспечить полностью внутренний рынок. И широкое использование холодильного оборудования может стать решением этого вопроса.

Вот простой пример: без надлежащих условий яблоко хранится 10 дней, в холодильном оборудовании оно хранится без потери качества 18 месяцев. Когда круглый год яблоки не будут дефицитом, и цены также будут стабильными в течение всего года, пик сезона какого-либо фрукта или овоща будет длиться не месяц, а четыре месяца.

Самое большое достоинство современного оборудования — это экономия электроэнергии и сохранение всех санитарных норм. Все исследования, сопровождавшие создание такого оборудования были направлены на уменьшение расхода электроэнергии, так как именно этот вопрос является ключевым для бизнеса. Ориентируясь на американский рынок, могу сказать, что оборудование на фреоне потребляет на 30-40% меньше электроэнергии, нежели старая аммиачная система.

Мы приехали сюда, чтобы, изучить рынок и поделиться нашим опытом. Считаю, что у рынка Узбекистана есть огромный потенциал. Рынок развивается, строится много крупных супермаркетов,

возрастает потребительская способность. Сегодня США, Россия, Казахстан смотрят на рынок хранения продуктов Узбекистана как на возможный объект инвестиций, ищут партнеров. Я думаю, что перемен на рынке Узбекистана в этом плане можно ожидать примерно в течение пяти лет».



Чаще всего мы закладываем в холодильную установку продукцию своего производства

Руководитель агрофирмы «Даврон», Равшан Носиров:

«Наша фирма работает с 1993 года, основная деятельность — тепличное производство плодовоовощной продукции. В 2007 году мы приобрели за 60 млн. сум. холодильное оборудование на 150 тонн. И эта сумма уже окупилась. Обычно «придерживаем» овощи и фрукты до повышения цен в «несезон». Но наши ожидания не всегда оправдываются.

Например, в прошлом году так произошло с морковью — зимой цены на нее практически не поднялись.

Чаще всего мы закладываем в холодильную установку продукцию своего производства, реже — сдаем помещение (или часть) в аренду. В этом году мы снова покупаем оборудования на сумму 14 800 евро, в расчете наладить экспорт продукции».

Валентина Прокофьева