



## **Trip Report: InnovATE/Armenia**

### **Dates:**

September 14 to September 24, 2015 for Cathy Cutter  
September 14 to October 23, 2015 for Angela Neilan

**Institution(s):** Virginia Tech, ICARE and ATC, Innovate Consortium Partner Penn State University

### **Purpose:**

Assessment of Food Safety Systems, Food Science Laboratories, Processing Plant Implementation of Best Food Science Based Practices in order to develop new Specialty for ATC students in Food Safety Systems Management.

### **Sites Visited:**

Yerevan- Armenian National Academy of Sciences, Armenian National Agrarian University Department of Food Stuffs Technology, faculties of Food Safety, Meat Production, EVN Wine Academy and food laboratory facilities

Visits to Food Production Facilities, farm and roadside food markets, grocery stores for Food Safety assessment: Field Trip North of Yerevan- Sevan, Vanadzor, Stepanavan, Tashir, Spitak (1 day)

### **Description of Activities:**

Observed and assessed food safety chain for food products such as fruit, vegetables and dairy cheese from farm to fork.

Interviewed Food Processing industry owners and employees from Noyan and Duster Melania, National Academy of Sciences, CARD Food Safety staff

### **Suggestions and Recommendations: (see trip log for further explanations)**

Laboratory space is required to do hands on microbiology-must find appropriate and convenient lab space.

Need space to do small scale processing experiments such as making cheese or jerky. This is important to provide experiential learning and hands on experiences for ATC students.

Need CARD expertise and involvement in this curriculum development process.

Certificate from Penn State is very important and highly valued by recipients. Very important for employment in agribusiness and industries.

Need students to complete some of the work on line. They must have compatible hardware and software on their laptop computers and need some updated computers in the ATC computer lab. Also must explore the possibility of site license for use in modules. Must have windows 7 at least.

Must have hands on experience throughout this curriculum. Students lack real world science and practical application. Current HACCP training is very basic and lecture-based.

4 week intensive class allows focus on Food Safety and provides for savings since faculty only travel once or twice to deliver modules. After pilot test, content can be delivered in the best way for each target audience and can be used for fee based training.

Time frame for class suggested is 9 am-3 pm, but experts recommend 9 am-4 pm.

Faculty need to learn to teach in participatory manner, therefore inviting Armenian Food Safety instructors to Penn State is recommended.

Dr. Joe Marcy and Dr. Catherine Cutter will need time to get curriculum developed. Anticipated start date is Summer 2016 and/or January 2017.

Tours of food processing plants must be close to the training site, convenient, and operating on Saturday's for intensive module development and delivery. And also must be varied enough to illustrate different types of food products and how food safety is implemented in the plant

Need a food regulatory commission to ensure consistent food quality and safety. Labeling is critical.

Need to identify books and sources of books to add to ATC library.

Need to ensure high quality lab equipment for teaching labs.

On line portion of modules must be proctored.

With new arena of export to Russia under Eurasian Union, curriculum must include rules and regulations of that market. Need to identify someone (CARD?) who has the expertise.

Include financial aspects of food safety-Louisiana has taught this to CARD folks and could be included in modules.

Need permissions from VaTech and PSU to release materials for use in Armenia.

Must discover necessity of US citizenship for Food Defense Class; will need to work with FDA on exemptions or develop course specific to ATC.

Explore possibility of MOU with Penn State and ANAU/ATC for certification process.

Consumers need more education on the demand side. Curriculum will focus on the supply side.

Define the role of Risk Assessment and Risk Management in Food Safety Systems Management.

Define the role of the ICARE/ATC Foundation Board in offering this curriculum and if fee based, handling of the funds.

Explore ways to involve industry in the training and determine how much can be charged for certification.

Discuss the possibility of establishing an advisory group for this special area of study that intends to supply workforce for industry. Link the curriculum to the industry need for new graduates.

*Recommendations from Dr. Joe Marcy, Food Safety Curriculum Specialist who visited in July, 2015: It became clear that the veterinarians are the professionals who are trained in food safety. University programs focus on microbiology and scientific assessments, but the veterinarians deal directly with the farmers and the families in villages. They must be involved to improve sanitation behavior and to strengthen the linkage between animal health and human health. (Discuss with Dr. Valerie Ragan at VT Vet Med College and her work to prevent brucellosis in Armenia through the Ministry of Agriculture)*

*More international students would be an advantage to ATC program. Recommend that more out of country students be recruited to ATC at both Undergraduate (UAB) and masters (MAB) level. ATC could become the university agribusiness and food safety program of choice for the region, especially with the Penn State Food Safety Certificate. Increase in masters' tuition for out of country students is a part of the ICARE enterprise mix toward financial sustainability and long term sustainability.*

*We recommend that Vahe Ghazaryan, General Manager and Owner of Euroterm Company which produces "Noyan" brand fruits and juices become the example of successful food safety implementation. With his best practices, continued path to success and his personal investment and commitment to safety of his products, he has obtained international certifications required to market his well-known products in Europe and the USA. He was very clear about the need for management of the food safety process. We discussed international export and import with their expert and also toured the factory with the Manager of Food Safety. Technical training for Noyan staff is provided by the equipment and packaging vendors such as Tetra Pak. The management team is convinced of the positive return on investment they continue to receive based on his own experience. USDA MAP program got this factory started in the mid 1990's and in contrast to other companies we visited, Euroterm/Noyan has not relied on outside funding but rather invested their own resources into their company and into the food safety of their products.*

*Recommend that the Food Safety Systems Management specialty at ATC be called a name such as Administration of Food Safety Systems or another title without "specialty" because this word has many meanings in Armenia and does not actually clarify the content of the course certification/s. Most of the management and owner stakeholders said they wanted more of a manager who could work with teams and people. They did not need another scientist. Communication, Responsibility, Vision and Dedication were qualities that many of the factory owners and directors said they were looking for when hiring new employees. Most said they could get the technical training on the job, but wanted managers who were trained to manage people and processes at a higher level to make a contribution to moving company forward, not remain at status quo. Leading and working toward a culture of constant sanitation and food safety practices was the highest challenge.*

*Recommend that a Curriculum Review Panel be established to include experts such as Deputy Minister of Agriculture for Food Safety Systems, Ms. Lusine Davtyan and Dr. Nune Darbinyan, Ecoglobe Director and USDA Organic certification authority both be included in panel of experts and possible guest lecturers to review and deliver curriculum for ATC Food Safety Systems Management.*

*Agree with recommendation of Duster Melania owner that a formal food safety commission should be established. This should be country wide and implemented at the Regional level.*

*Recommend that OSHA worker safety considerations be included in the curriculum for ATC. For example, personal hearing protection and potential injury areas need to be addressed at all levels.*

*Recommend that the economic considerations of Food Safety and comparison of vertically integrated industry such as Noyan and traditional industry with outside suppliers be included in curriculum. The economic advantage of food safety (and cost of food contamination) along the value chain must be covered in the courses developed by VT and PSU.*

*Recommend that students be surveyed for interest in and knowledge of food safety to guide the curriculum development process. Pre-test and post- test will indicate the knowledge gained and knowledge gaps in the pilot curriculum to be implemented in 2016.*

*Because ATC can only accept students from ANAU business and economics (NOT food science or science in general), we anticipate that some basic food science will be needed in the series of courses developed by VT and PSU.*

*Recommendation-Armenian government budget does not provide funds for Ministry staff and scientists to attend trainings and workshops. They must be specifically invited and funding provided. If they are not specifically invited to trainings by other NGO's and organizations, these government staff and scientists will continue to fall behind current regulatory and technical capabilities.*

## **Trip Log**

September 14-16 Travel to Yerevan via Vienna

September 16-Met with ATC staff and discussed the need for Food Safety Systems Management Curriculum

September 17-Visited Armenian National Academy of Sciences Center for Ecological-Noosphere Studies Discussed appropriate International certification programs, in addition to potential VT and Penn State InnovATE Consortium University certifications. Became aware of the importance of the actual certificate and the value to both students and employers as each scientist displayed their certificates. Worked on curriculum outline.

September 18-Met with CARD Food Safety Expert and discussed prior USDA support, classes offered and certifications awarded. Food Safety is a constant problem and CARD would like to see Penn State and Virginia Tech work with ATC to provide certificates for students which will help them get jobs in the agribusiness field including food processing. Also met with ANAU Dean, Department Head of Foodstuffs

Technology, and two faculty in Food Safety and Meat Production. Visited ANAU labs and recommend that the ATC curriculum be supported by the newer labs at Academy of Science and at the EVN Wine Academy. A donation from diaspora Armenian family in Boston has made construction of the wine lab a reality. It should be completed by November. Several modules of the Food Safety Systems Curriculum will be ready for pilot test with Senior ATC students by summer 2016 or January 2017. Skyped with Dr. Joe Marcy from VT to define topics for the Food Safety curriculum modules. Visited upscale grocery store on North Avenue.

September 19 (Saturday)-Visited vernissage market and explored the availability and cost of glass lab supplies. Also explored home processed and preserved foods available at markets and ate at small vernissage café to observe the preparation of horovatz outside over grill. Came to ATC office and met with ICARE/ATC Director. Continued working on proposal budget for Food Safety Systems Curriculum Development to be submitted to innovATE at VT.

September 20 (Sunday)-field trip to Garni and Ghehard. Explored home prepared breads and preserves with fruits, nuts, berries and some dried meats. Talked with women about gata breads and green walnut preserves. Discussed safety of these foods purchased primarily by tourists at the ancient sites.

September 21 (NATIONAL HOLIDAY) Met with USDA representative and discussed the previous funding of Food Safety and certification classes funded by USDA. Ate German sausages and visited Cascade outdoor park.

September 22-Field Trip to Sevan and Tashir. Visited Duster Melania Cheese Factory and discussed the industry needs related to Food Safety. Owners proposed that a Food Safety Commission be established to oversee and enforce the Food Safety regulations. They likened this group to the FDA and USDA food inspection program. A goal of the ATC Food Safety curriculum is to learn about gaps in the existing regulations and legislation Visiting this plant during the ATC Food Safety classes will be hard due to the distance, but video or skype might be possible.

*Excerpt from Dr. Joe Marcy trip report visit to Duster Melania:*

*Met with the two brothers who own the factory. One is the business man and one is the PhD scientist. Toured the plant while in operation. They had achieved ISO22000 and were held up as a very trustworthy company with consistently good cheese product and trusted label. Brought three dairy farmers to talk with us as they were the milk producers who supply the company. These brothers also invested much of their own money into their business and the next generation were involved in the process.*

September 23-Field trip to Noyan juice and fruit manufacturing facilities in Yerevan. General Manager and Owner was on travel so we were hosted by two young and energetic employees, the international import and export manager and the food safety team manager. Excellent condition and will be used as example of best practices in the ATC curriculum. Explored the possibility of plant tours for ATC students in 2016/2017.

*Excerpt from Dr. Joe Marcy trip report on visit to Noyan:*

*Visited Euroterm, Noyan, Vahe Ghazaryan General Manager and owner-Tour of factory while in production. Excellent condition. They had identified the critical control points in his factory and employees were dressed in protective clothing and doing personal sanitation well. He said this was the most difficult part for him-getting the behavior in place and changing the culture of manufacturing.*

*Discussed his pathway to success. He has achieved what everyone else wants to achieve in Food Safety. Already certified in ISO22000 and ISO9001 and looking to get ISO certification at farm level to complete full ISO certification for his supply chain. HACCP in place. Lengthy discussion of criteria for specialty in food safety management. His motivation for implementation was export to the US/EU market. Strong recommendation that he should be one of the people we consult with frequently about his pathway to success and should be asked to use him as success story. He said he wanted employees who were responsible, took initiative, willing to be part of his team and change behavior for the better. Didn't need a "specialist." He needed more managerial skills in his employees and he could train them on the job.*

Also visited EVN Wine lab under construction at ANAU on lower level of ICARE/ATC building. Wine Academy Director shared design plans and showed locations of lab spaces being constructed and with utilities being installed as we toured. The EVN Wine Academy lab will be completed by end of 2016 and can be used for Food Safety classes.

Neilan and Marcy debriefed before Marcy's departure after midnight on July 11. VT and PSU team will collaborate on initial course development with goal of implementation at ATC for fall semester, 2016.

#### People Met:

Pam Karg, International Women's Association of Yerevan  
Zara Davtyan, CARD Food Safety Manager  
Ashot Aghababyan, Dean of Food Stuff Technology, ANAU  
Hayk Hovsepian, Meat Specialist, ANAU  
Zara Muradyan, Associate Director EVN Wine Academy  
Edward Binder, EVN Wine Academy Development Director  
Romik Stepanyan, Food Standards, ANAU  
Mr. Yavruyan, Former Dean of Food Stuffs Technology  
Davit Pipoyan, National Academy of Sciences, Risk Assessment of Food Chain  
Shushanik Asmaryan, National Academy of Sciences, GIS  
Ruben and Asator Harutunyan, owners of Duster Melania Cheese Processing Factory in Tashir