



## LEARNING POST HARVEST HANDLING TECHNOLOGIES

On May 02-09, 2010 three CARD foundation representatives visited the Netherlands through a business link program organized by "PUM - the Netherlands senior experts" organization. The host and organizer of the trip were Mr. Otto Wagenaar, PUM Country Coordinator of Armenia, Georgia and Azerbaijan and Drs. Cees Arkesteijn the former director of KCB- Dutch Fruit and Vegetable Inspection body in the Netherlands who has previously visited Armenia as a PUM volunteer to advise on a Cooperative development project.



At RIJK ZWAAN seed grading and sorting plant

The extensive visit schedule allowed for meetings with 14 organizations in various regions of the country. The main purpose of the visit was to learn about Dutch agricultural and agribusiness practices, and make contacts with agricultural input suppliers, equipment and TA providers.

All the visits were of interest and great value in terms of new knowledge and future collaboration.

The Dutch system of fresh produce qualification and certification for export and for the internal market has proven to be very effective and appreciable. It is important to mention that not only fresh produce is being inspected, but also all the plant materials including rootstocks and seeds have to be tested before going to market. CARD representatives visited the Dutch Agency of Fruit and Vegetable Inspection (KCB) and got acquainted with the procedures and standard practices in the Netherlands.

Biological systems for plant protection from diseases and pest control are another important input for agriculture. The visit to the "Koppert" Biological Systems producer revealed a big potential for local agricultural development without chemical pesticides.

Greenhouse technologies are developing very fast in the Netherlands, which is stipulated by the strong competition within and outside the country. The visited greenhouse producer company was ready to provide not only the materials for greenhouse building but also technology, as well as to assist with the local production of high end greenhouse building.

The Netherlands is famous for its high quality planting materials, and one such propagation nursery was visited by CARD representatives. The company has large varieties of apple, pear, and plum trees and rootstocks. Several varieties of apples and

pears, which are currently being imported to Armenia, can be produced locally. The propagation nursery "Bodten & van Willegen bv" is willing to provide technical assistance to introduce these varieties in Armenia. However, not only trees and rootstocks are of high interest for Armenia, but also high quality seeds. A famous seed producer "RIJK ZWAAN" introduced their plant and production facilities to CARD employees and possibilities of collaboration were discussed.

A visit to the producer of cooling facilities revealed many new technologies, which are used for better storage of fresh fruits and vegetables. Such technologies will increase the income of Armenian farmers and provide the possibility to supply most fresh fruits and vegetables throughout the year.

Also important contacts were made with packaging equipment producers and a manufacturer of a large range of packaging solutions for all kinds of products including agricultural produce and HACCP standard disposables. The links will be beneficial for finding solutions to export local fruits and vegetables, as well as improving local packaging solutions.

A meeting was organized for the Armenian delegation in the PUM office with Mr. Thijs van Praag, CEO; Mr. Otto Wagenaar, Country Coordinator; Mr. Mijke van Os, Project Officer; Mr. Hans Ekemans, Sector Coordinator; and Mrs. Maribel Monge Perez, Project Officer. A wide range of cooperation opportunities was discussed during the meeting which revealed effective ways for PUM projects to be implemented in Armenia with CARD Foundation involvement in disseminating experts' services to a greater number of beneficiaries.



In the PUM office

Overall, the visit created multiple important links which will be extremely effective for finding answers for the development of Armenian farm production and agribusinesses.

As a follow up of the trip to the Netherlands communication has started with many companies CARD employees visited to introduce new products and technologies in Armenia. Sergey Vasylevsky from seed producer "RIJK ZWAAN" visited Armenia and met with CARD representatives, farmers and Agricultural Ministry employees to set up demo projects to introduce vegetable seeds for Armenian greenhouse growers.

The representatives of "Koppert" Biological Systems are also planning to visit CARD next month.

## INTRODUCTION OF KIWI FRUIT IN ARMENIA

Kiwi is a unique fruit which is mainly imported to Armenia from neighboring countries at a volume of 300-500 tons (over 700,000



In the kiwi plantation, Meghri

US Dollar) annually with a retail price of 1200-1400 AMD per kg. However, despite having the possibility to cultivate the fruit in Armenia, local farmers are facing several obstacles to starting production of kiwi on their lands. The main problems with kiwi cultivation in Armenia are related to the lack of assistance in importing high quality rootstocks and an absence of consulting services by specialists competent in kiwi growing.

Having in mind the mentioned situation, CARD foundation experts visited Tavush and Lori marzes, as well as the Meghri region of Syunik marz. The visits identified several farmers willing to start

cultivation of kiwi with further expansion of production. In the Meghri region, kiwis have already been grown for several years. It is done in quite small quantities in a sporadic manner that is mainly for household consumption. However, there is still a lack of specific knowledge relating to the plant's cultivation and a lack of high quality rootstocks suitable for industrial growing. Compared to farmers from the Meghri region, farmers from Lori and Tavush are novices in the growing of the fruit. Despite this fact, there is a bigger opportunity for future large scale production of the fruit in Tavush and Lori due to the availability of larger land plots where it is possible to cultivate kiwi.

To assist farmers in the expansion of local kiwi production, CARD foundation imported 600 high quality rootstocks (New Zealand variety) from Italy and disseminated them to nine farmers from three marzes. 450 imported rootstocks were disseminated in the Meghri region and 150 in Lori and Tavush. Consultations have also been provided for the new plant's cultivation. In the future, the Meghri region, because of its exceptional weather conditions and availability of specialists, has the capability to serve as a nursery and provide a large quantity of rootstocks to all the regions where plant can be cultivated. The farmers will be obliged to provide the same quantity of rootstocks in three years, ensuring the sustainability and expansion of local kiwi cultivation practices.

It is important to mention that in a few years each kiwi plant will produce up to 90 kg of fruit, 1,100 -1,500 kg per 1,000 m<sup>2</sup> on average. This will produce the highest farmer income per square meter of open land cultivation in Armenia at about 3,500 USD per 1,000 m<sup>2</sup>.

## ARTIFICIAL INSEMINATION AND ANIMAL HUSBANDRY IN TAVUSH REGION

The protection of rural animal husbandry and improvement of genetics is endangered in Armenia due to the shortening of the scope of artificial insemination because of the economic changes under the Agricultural Reforms. Because of a lack of synergic activities towards breeding, about 35-40 percent of livestock genetics has been reduced in Armenia. Several researchers of foreign countries, among them Latvia, Lithuania, Romania, Poland and Hungary, testify that milk production is highly dependent on complex technologies in genetics improvements, animal care and housing, feeding, and access to veterinarians, all of which is called "livestock management." This strategy is a very important component for businesses in terms of investing in information and consultancy, as well as technologies and new methods.

In 2009 CARD Foundation together with World Vision started a project of artificial insemination and held trainings in Tavush region targeting the local specialists. The project planned to conduct artificial insemination of 200 heads of cattle in Artsvaber, Norashen, Navur, Tavush, Neqin Karmiraghbyur, Sarigyugh, Khashtarak, Lusadzor, Voskevan and Koti communities in the Tavush region. Meetings were organized in the communities with cattle-breeding farmers and veterinarians with the help of community leaders in order to inform them about the advantages of artificial insemination, animal care, feeding and maintenance. The total number of participating farmers in 10 villages of the Tavush region was about 180. As was expected, the project resulted in improving the genetics of the animals. For instance, in Koti community the heifers of "Brown Swiss" breeds weigh now 41-42 kg, one-month-old "Holstein" breeds weigh 68-70 kg, and two-month-old

"Jersey" breeds weigh 95-97 kg. The calves of local breeds do not grow that well and in comparison with the presented crossbreeds in two months the calves of local breeds hardly gain weight of about 40 kg. As a result of this project the total number of cross breeds, with advanced genetics are about 100-120.

The logical continuation of the 2009 project was to sign a new agreement between CARD Foundation and World Vision in spring 2010. According to the agreement, three genetic improvement centers will be established in three provinces in the Tavush region in Ditakan, Koti and Aygedzor in order to provide artificial insemination services by local specialists aimed at improving income and welfare of rural farmers by enhancing milk production.



Family of Sargsyan's (in the middle Manushak Sargsyan) in Ditavan village have benefited from the CARD AI project having their 15 cows artificially inseminated

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