



## INTRODUCTION OF MODERN FRUIT DRYING TECHNOLOGIES

*Fruit drying is a good means for adding value to fruit production. This is an important marketing tool especially considering the short period of harvesting and the volatility of the local and export markets for local fresh produce. There is a big market for Armenian dried fruits, and the production is not even sufficient to cover local market needs. However, low quality, absence of modern equipment and high costs of production still remain obstacles for the further development of dried fruit industry in Armenia. This is the reason why CARD, through the USDA FAS CADI initiative, has launched the dried fruit production improvement project in Armenia since 2010.*

*The first initiative in this field was the introduction of the cabinet (or shelf) dryer, which operates by blowing hot air and, depending on the model, is powered by electricity or natural gas. The equipment has several advantages in comparison to the conventional solar dryers, though has slightly higher operational costs.*

*Possibility to control the process of drying without depending on weather conditions, better quality and appearance of final product and more sterile working conditions are the most important advantages.*

*Since 2010, CARD has introduced 11 cabinet dryers with total production capacity of about 30 tons of dried fruit annually.*

*Moreover, the first positive results of this initiative convinced other development organizations such as UNDP, UMCOR, Heifer International Armenia, Save the Children, as well as the private sector to get involved in this activity and currently more than 40 pieces of equipment have been introduced in Armenia. Only 18 pieces of equipment were distributed through the UNDP project in the Tavush marz to serve 14 farmers from 7 communities and one farmers' cooperative. CARD implemented training programs for the farmers involved in UNDP, UMCOR, Heifer International Armenia projects and initial consulting related to the operation of the equipment; still more trainings are scheduled by CARD during the coming years.*

*Within a short period of time, these efforts returned good results: capacity to produce more than 100 tons of clean and safe dried fruits in a controlled environment, which is an increase in nationwide dried fruit production by about 7-8% or nearly \$500,000 of value added farmer production. The project is continuous and in the coming 3 years the efforts should at least double these results, which in turn will create potential for dried fruit export in large quantities.*

## PUM Netherlands senior experts



CARD invited a food engineer from PUM, Mr. Louis Timmermans, to Armenia to conduct seminars for local dried fruit producers on modern fruit drying technologies.

During his mission, from September 3 to September 12, Mr. Timmermans paid visits to several fruit drying facilities in Ararat, Armavir and Tavush regions, as well as to Arcolad chocolate production facility and provided on-site consultancy on cabinet drying technologies.

Apart from the field trips, the PUM expert conducted two seminars with Power-point presentations on "Modern Fruit Drying Technologies", during which he made some comments on the traditional way of drying (sun drying) along

with its advantages and disadvantages, and the modern way of drying through cabinet dryers. The expert linked the future of industrial fruit drying with high quality cabinet and tunnel dryers, which will allow producing standard quality dried fruits in a controlled and clean environment.

The seminars were attended by the dried fruit producing farmers experienced in sun-drying, who did not have much knowledge about cabinet drying, as well as by start-up dried fruit producers of the Tavush marz.

The first workshop was conducted for the farmers from Ararat, Armavir and Kotayk marzes. The second one was tailored for 14 farmers from Tavush region who are collaborating with



UNDP on a project of dried fruit production development in their region and were going to get 17 cabinet driers in a week after the workshops. CARD collaborated with UNDP and provided technical assistance on the utilization of new technology.

“Many of the processors already use a cabinet dryer, which is a step forward, but apart from that, they must have a basic knowledge about modern drying, they must understand the basic principles and what is happening in the machinery in terms of temperature control, calculation of the process, etc.,” said Mr. Timmermans. “They should also produce their products based on market demand which can change from time to time. To produce a higher quality product, the raw material must be of the best available quality”, added the PUM expert.

In total, during his mission, Mr. Timmermans trained more than 25 farmers at the seminars and provided on-farm consultation to 8 farmers.



## WORKSHOPS BY SOUTH KOREAN DELEGATION



September 17 - 20, 2012, the delegation from the Korean-based company Dongho Agrimecha, Mr. Jae Il Kim, CEO & President of the company, Mr. Jin Wook Choi, Exporting Director, Mr. Soo Kyun Lee, Technical Manager, and Mr. Kyung Ho Shin, President of JINOO Trans Co., Ltd., the exporting agency of Dongho Agrimecha, visited Armenia to provide workshops to dried fruit producers and improve fruit dryers based on local needs.



During their mission in Armenia, the delegation visited several farms with fruit drying facilities. The farmers were trained on the correct usage of fruit shelf dryer, shared their knowledge and experience in dried fruit production. The farmers were also taught about early identification of equipment issues, how to take care of shelf dryers, and multiple exploitation tips. In addition, the installed fruit drying equipment was tuned to

work in Armenian environment conditions, taking into account also the local natural gas in-pipe tension, electrical network peculiarities, and other important factors.

“The purpose of our visit was to show our clients the proper use of the dryers, identify possible problems in operating the system. Through our Armenian partner CARD, we will make our best efforts to expand dryers in the Armenian market. We will keep providing our consultation to CARD technicians on after sales service”, said Mr. Kim, the president of Dongho Agrimecha.



As a summary of the visit, a list of improvements for drying equipment and future scope of work with the Korean partner were also discussed and elaborated. Possibility of production of a more affordable model for Armenian market and translation of all the associated technical documentations and texts on dryers were also discussed. The Korean partner will also do market research to identify modern equipment and new technologies in fruit drying, such as dried fruit washing machine, seed removers and apple peeling equipment.

Dongho Agrimecha, an agricultural equipment manufacturing company, is specialized in producing electrical and gas-burner type tray dryers and greenhouse heaters. With its best equipment, it offers innovative solutions with advanced technologies.



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