Examination of Modern and Traditional Applications in Hazelnut Production

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Abstract

Hazelnut production in Turkey, which is carried out in a land area of approximately 700 thousand hectares and yields ~600 thousand tons per year of in shell nuts, makes up about 70% of world hazelnut production. Turkey is followed by Italy, Georgia, USA, Azerbaijan, China, Iran, Spain, respectively, in terms of major hazelnut producing countries. Italy is the second largest hazelnut producing country with a production area of 70 thousand hectares. Its share of world production is approximately 10%. Spain is one other main hazelnut producing country with 14 thousand tons per year. A new European ERASMUS + Project "Examination of modern and traditional applications in hazelnut production" was prepared highlighting a "Cooperation for Innovation and the Exchange of Good Practices". Four partners from Turkey (Ordu Commercial Excange, Ordu University, Ordu Governor and Altınordu Chamber of Agriculture), one from Italy (Università degli Studi della Tuscia, Viterbo), and one from Spain (IRTA-Mas de Bover, Tarragona) are involved in this EU project. The most fundamental problem in hazelnut is low quality and low yield according to the World trade union. Accordingly, teaching new methods to the farmers by sharing the best practices with vocational training in Turkey, Italy and Spain, which enjoy the highest shares in hazelnut culture, would make great contributions to this issue. At the same time, this would also provide policy makers with new ideas. Farmers learning appropriate agricultural methods and implementing them would increase hazelnut production and improve fruit quality. The expected goals of the project are to develop cooperation between the institutions, increase hazelnut quality and productivity, learn and adopt new farming methods, plant a pilot orchard, draft a hazelnut booklet, increase the communication between farmers, and share the best practices among three countries. At the end of the project, the outputs obtained will be disseminated to all hazelnut sectors.

Keywords: Corylus avellana L., project, EU

INTRODUCTION

The hazelnut (filbert) is one of the world's major nut crops. World production reach about 950000 tons. Turkey has long been the leading producer and exporter of hazelnuts, accounting for about 70% of the total production. Italy is the second larger producer country in the world with about 22% (FAO, 2017). In Turkey, hazelnut production is 600000

tons and conventional production practices have been used for a long time (Ayfer et al., 1986; Islam, 2000)

The Black Sea Region of Turkey is exceptionally well-suited for hazelnut growing because of its soil and climatological factors. Turkey is a centre of origin of the cultivated *Corylus spp.* and hazelnuts have been grown in the Black Sea Region for thousands of years. Hazelnut grows naturally as a bush or multi-stemmed, shrubby tree. In Turkey and southern Europe, it has been grown in this manner for centuries. In the United States and some other countries like France and Chile, however, hazelnuts are grown as single-trunk trees. 'Tombul', 'Palaz', 'Foşa', 'Çakıldak', 'Mincane' are important Turkish hazelnut cultivars. The cultivars are mainly groups of clones with similar characteristics (İslam, 2003).

The nuts are marketed in shell or as kernels. The in-shell market accounts for 5 to 10% of the world hazelnut crop. The remaining 90 to 95% of the crop is cracked and the kernels are sold to bakers, candy makers, and other processors. About 80% of the kernels are used for chocolate processing (Özdemir, 1997; Mehlenbacher, 2004). Recently, the European project "SAFENUT" was conducted in the Mediterranean basin for the preservation and utilization of local germplasm hazelnuts and almonds (Bacchetta et al., 2010). The results of that project showed great health benefits and technological interest in defining the use of nuts.

The ERASMUS + Project has been prepared under the strategic partnership for professional training and learning, and it is focused on the improvement of the professional capacities of farmers through exchange of new technologies and best practices on an international scale. It is also highly important in the development of the EU Common Agricultural Policy and chronological evolution that an integral viewpoint is provided to the community and that development is achieved in these areas in a mutually compatible manner. At the same time, the activities of the planned project also directly make contributions to the target, the Erasmus Plus Program Guide: "to ensure development, transfer and / or implementation of innovative practices on an institutional, local, regional, national or European level".

FIRST RESULTING OF THE PROJECT

The two year (2016-2018) project was started in October 01, 2016. To start, Italian and Spanish hazelnut growers visited Ordu (Turkey) for five days (Figure 1). Survey forms were prepared for the growers. The main results are listed below:

- Italian and Spanish hazelnut orchards are 2-10 ha (65%), and 25% of hazelnut growers have more than 10 ha.
- The main hazelnut variety adopted in central Italy is 'Tonda Gentile Romana' and the main pollinator is 'Nocchione'.'Tonda di Giffoni' has been recently introduced and at this time represents about 10% of the orchards in Latium region (Central Italy).
- Spanish farmers grow, mainly, the autochthonous cvs.Negret' and Pauetet, and the italian cvs. 'Tonda di Giffoni' and 'San Giovanni'.
- Turkish farmers grow 'Tombul', 'Palaz', 'Çakıldak', 'Kara', 'Sivri' .
- The Italian and Spanish farmers' delegation had never visited the Turkish hazelnut areas (Figure 2).
- 'Tombul' is well known by Italian and Spain growers, although the other Turkish cultivars were not known.
- At the end of the visit, the participants were asked, "Have you benefitted from the exchange with growers from other countries?" 95% of participants indicated that the activity was beneficial in terms of sharing experience, orchard management, seeing new and different orchard and recognition of hazelnut varieties of different counties. The remaining 5% of participants were unable to provide enough information.

- All participants expressed that such activities are useful from a vocational perspective and would like to take part in similar activities in the future.

OTHER STEPS OF THE PROJECT:

- Realization of Turkish, Spanish and Italian Mobility
- Establishment of a pilot hazelnut orchard
- Write a booklet in Italian, Spanish, Turkish, and English languages
- Develop a training course for the agricultural directorate and chamber.

EXPECTED RESULTS

The project will be complete by September 30, 2018 (Figure 1). The expected results from project implementation, process and completion are:

- the development of cooperation between partners of the project, universities, and public institutions.
- to be an example application for hazelnut production in cities where partner institutions are located
- learning new farming methods and practices.
- modernization of hazelnut farming techniques
- increase product quality.
- plant a pilot orchard on 0.5 ha.
- give training to 30 farmers and 9 academicians from three countries in vocational areas, cultural cooperation, and language skills.
- development of intercultural communication and interaction.
- development of project execution capabilities and skills for European institutions and participants.
- to increase the motivation of institution and participants.
- write a hazelnut sector booklet that includes new methods and procedures related to hazelnut land structure, which will be prepared based on results and detailed analysis,
- construction of a dedicated web site for the project.

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Figure 1. Turkish, Italian, and Spanish researchers delegation in the meeting for the project at Ordu University (Turkey).

Figure 2. Turkish, Italian, and Spanish researchers and growers delegation visiting a Turkish hazelnut farm and discussing orchard management.