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On going pistachio research projects at Ceylanpınar State Farm

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SUMMARY – In Turkey, pistachios are grown in non-irrigated, calcareous, stony and poor conditions. In the future, irrigation facilities will start in southeastern Anatolia where pistachio is mainly grown. This will help to obtain higher yield and quality. However, the potential problems occurring with irrigation may affect the yield and quality adversely. In order to avoid this, nine ongoing projects were conducted in 1989 and these works still continue.

Key words: Pistachio, projects, irrigation, rootstocks.

RESUME – "Projets de recherche en cours sur le pistachier à la ferme d'état de Ceylanpınar". En Turquie, les pistachiers sont cultivés dans des conditions non irriguées, calcaires, pierreuses et adverses. Dans le futur, l'irrigation commencera à être appliquée dans le sud-est de l'Anatolie, qui est la principale région de culture des pistachiers. Ceci aidera à obtenir un meilleur rendement et une plus grande qualité. Cependant, les problèmes potentiels d'irrigation pourraient affecter négativement le rendement et la qualité. Afin d'éviter ceci, neuf projets ont été mis en place en 1989 et ces travaux continuent encore.

Mots-clés : Pistachier, projets, irrigation, porte-greffe.

Project 1: Investigations on adaptation of domestic and foreign pistachio cultivars and types grown at Ceylanpınar State Farm under irrigated conditions

In this project, characteristics and performances of domestic and foreign pistachio cultivars and types have been determined at Ceylanpınar State Farm under irrigated conditions. Experimental orchard was established in 1992 and *Pistacia vera* used as rootstock. Budding was started in 1995 in June. In the project totally 36 cultivars and types were used as Siirt, Kırmızı, Bilgen, Hacı Re_o, Ohadi, Kerman, Sefidi, Mümtaz, Vahidi, Sel-1, Sel-2, Sel-3, Sel-4, Sel-5, Sel-6, Sel-7, Sel-8, Sel-9, Sel-10, Sel-11, Sel-12, Sel-13, Sel-14, Sel-15, Sel-16, Çakmak, Kalleghochi, Halebi, Keten Gömle_i, De_irmi, Beyazben, Sultani, Uzun, M-1, Tardivadis and Gialla.

According to high yield, selected types of domestic and foreign cultivars grown at Ceylanpınar State Farm were used as budstick. Besides Sel-1, Sel-2, Sel-3, Sel-4, Sel-5, Sel-6, Sel-7, Sel-8, Sel-9, Sel-10, Sel-11, Sel-12, Sel-13, Sel-14, Sel-15 and Sel-16 were supplied from Pistachio Research Institute in Gaziantep. M-1, Tardivadis and Gialla cultivars were supplied from Italy.

In this project, different data have been obtained. This project has been also supported by TUBITAK (TOGTAG-TARP-1894).

Project 2: Effects of irrigation on growth, bearing, alternate bearing, yield and quality of pistachio cultivars budded on different rootstocks

Rootstock are very important on fruit production. Its effect is different on yield and quality. For this reason, effects of 4 different rootstocks have been determined on pistachio cultivars at Ceylanpınar State Farm under irrigated conditions in the project.

This experiment has been carried out at CEYTAM Research Station at Ceylanpınar State Farm at 6 x 6 m spacing since 1992. Experimental orchard has been established on 3 block; every block contains 200 trees and 4 different rootstocks. Kırmızı, Siirt, Ohadi, Kerman, Sefidi and Mümtaz cultivars were budded on *Pistacia vera*, *Pistacia khinjuk*, *Pistacia atlantica* and *Pistacia terebinthus* rootstocks in every blocks in 1995.

Until 1999, orchard was irrigated by spring. Later, drip irrigation has been established.

In this project, budding success rate, start bearing age, rootstock diameter where is 5 cm below budding point, stem diameter where is 5 cm above budding point and current shoot length have been determined.

Project 3: Effects of high density planting on yield and quality of pistachios

High density planting is an effective growing technique in fruit production in last years. Effect of high density planting on bearing, yield and quality of pistachios has been aimed in this project.

Experimental orchard was established at CEYTAM Research Station at Ceylanpınar State Farm at 6 x 1 m, 6 x 2 m, 6 x 3 m and 6 x 6 m spacing in 1992.

Kırmızı, Siirt, Ohadi, Mümtaz, Bilgen, Vahidi, Sefidi and Kerman cultivars have been budded on *Pistacia vera* rootstock since 1995. The orchard has been irrigated by spring since 1992.

In this project, budding success rate, start bearing age, rootstock diameter where is 5 cm below budding point, stem diameter where is 5 cm above budding point and current shoot length have been determined.

Project 4: Investigations on selection of pistachio male trees at Ceylanpınar State Farm

In this project, 24 male types selected from Ceylanpınar State Farm, different male types supplying from different inside and outside of Turkey will be budded on *Pistacia vera* rootstock at this plot.

24 male types were selected and described according to "Descriptor for Pistachio" (from IPGRI) at Ceylanpınar State Farm in 1997.

Establishing male germplasm and selection of male trees will be provided by this project. Thus, suitable male trees for female cultivars will be determined.

For this purpose, a new experimental orchard was established at CEYTAM Research Station at Ceylanpınar State Farm at 6 x 3 m spacing in 1998.

Project 5: Investigation on effects of ultra high density planting on growth, yield and quality in pistachios

After the finishing GAP Project, 1.7 million ha area will be irrigated in southeastern Anatolia region where pistachio grows mainly. New pistachio orchards will be established under irrigated conditions in this region.

In this project, ultra high density spacing can be investigated for pistachios like Iranian pistachio orchards.

Experimental orchard was established at CEYTAM Research Station at Ceylanpınar State Farm at 6 x 0.3 m spacing in 1998. The seeds were germinated at the orchards. Young seedlings will be budded at its places by T budding. Kırmızı, Siirt, Ohadi, Kerman and Mümtaz cultivars will be done.

Project 6: Establishment of budstick production with different cultivars for pistachio young plant production under irrigated conditions

In Turkey, both pistachio growers and nurseries have needed budsticks of different cultivars. For this reason, a new pistachio budstick production has been established at different spacing as 6 x 0.5 m, 6 x 1 m, 6 x 2 m and 6 x 3 m under irrigated conditions.

With this project, budstick production will be done abundantly and suitable space will be investigated for budstick stallion in our region.

Experimental orchard was established by *Pistacia vera* rootstock at CEYTAM Research Station at Ceylanpınar State Farm. Plants will be budded by Kırmızı, Siirt and Ohadi cultivars.

General comment

As seen above, the projects aim to improve pistachio yield and quality. Although the pistachio has been grown under rainfed conditions for centuries, researchers prefer now to conduct research under irrigated conditions making use of the irrigation facilities provided in the southeast Anatolia region (the main pistachio growing area) in recent years.

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