

Title	The Citrus Rootstock and Variety Improvement to Accelerate Citrus Sector Development and Export Competitiveness of Turkey
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Abstract:

Citrus is the most widely produced fruit group in the world. There has been a rapid increase in the production both in the world and in our country. Approximately 3.6 million tons of citrus fruits are produced in Turkey. With total export of 1.2 million tons, our country is ranking as the 3rd Citrus exporter in the world and 2nd among in the Mediterranean countries.

While Turkey was exporting nearly 50% of the products to the Western European countries 10-15 years ago the export has dropped up to 6 percent in recent years. Turkey is exporting 94% of the production to countries such as Russia, Ukraine, Romania, Poland and Bulgaria, and some Middle East countries such as Iraq, Saudi Arabia and Iran which do not yet have the full development of the consumer reflex. These markets are unstable and have significant risks. The reason why Turkey cannot catch up with the markets of rich and stable but also more selective West European countries is because Spain supplies the market with fruits in a longer period by new citrus varieties and by providing better quality, especially large and seedless varieties. With this structure, Spain has entered partially to Russia, Ukraine and other markets which are currently dominated by Turkey. It's up to the dynamism of the citrus industry and the subject to renew Turkey itself to re-enter the Western European countries where the top exports made and to retain the current markets.

With this project to compete with world citrus markets; 1) Improving early and late orange, mandarin and lemon cultivars by spanning the productions made with the mid-season cultivars to a longer time at the same time by developing cultivars that have high yield and quality, especially producing seedless and large fruits 2) Developing early maturing lemon cultivars that provide 35% of the Turkish citrus export 3) Developing lemon cultivars tolerant to *Mal secco* plant disease which is common in the region of Mersin where the 65% of the Turkey lemon cultivation is made, are intended.

On the other hand in Turkey there is a major rootstock problem which threatens the citriculture. 95% of citrus in Turkey is grafted on the sour orange rootstock that has many features ideal for cultivation. But it has a great risk for the citrus industry since sour orange rootstock is sensitive to an incurable plant disease called Tristeza. This disease occurs in our country but could not span over because the population of the insect strain that carries the disease is poor. Because of this disease millions of citrus trees have died through Brazil, Argentina, Spain, Italy and Israel at various times. These countries have moved to other rootstocks instead of sour orange. Most recently, introduction of the strong carrier insect strain to Portugal and Spain was reported. It is inevitable that carrier insect strain has entered



to other Mediterranean countries and to our country and cause epidemia with the increasing commercial relations and transportation. Thus, rootstocks that are alternative to sour orange are urgently needed.

Therefore another important purpose of this project is to develop new rootstocks that are tolerant to Tristeza and *Phytophthora citrophthora*, another limiting factor in our country and that can be adapted to alkali soil conditions (tolerant to iron chlorosis) using trifolium and its hybrids known to be tolerant rootstocks to Tristeza but sensitive to iron chlorosis.

In this project, in order to improve new citrus varieties and rootstocks, on behalf of the urgent need of Food, Agriculture and Livestock Ministry responsible for developing and directing of the Citrus industry, hybridization, mutation, somatic hybridization, ploidy and molecular methods will be utilized. The targeted outputs are as follows;

1. Improving new early middle-late and late ripening in order to have a wider production period.
2. Improving new orange, mandarin (inc. tangerines) and lemon varieties with yield efficient, high quality, especially seedless and large fruits to take place in world markets.
3. Improving new lemon varieties tolerant to Mal secco disease with a commercially high-value.
4. Improving new geographic-specific to our country, large, qualified and pigmented grapefruit varieties.
5. Improving new citrus rootstocks which can be adapted to alkaline soil and tolerant to Citrus tristeza virus and *Phytophthora citrophthora*.

Promising genotypes from the outputs of this project will be developed by the subsequent studies. As a result the promising genotypes will be registered (certificated) and by producing those cultivars the marketing period will extend, yield and quality will improve and the competition chance in Citrus export of Turkey will increase. On the other hand improving suitable rootstock studies for the orchards those are 95% at risk due to the threat of CTV will be reached to an important point.