

Project 84 Scion/Rootstock Incompatibility as the Cause of Tree Decline in Fukumoto Navel in the San Joaquin Valley

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Fukumoto navel showed promise as an early maturing navel in the southern San Joaquin Valley. Fukumoto produces an early maturing fruit with good size, color and other quality characteristics. However, many Fukumoto navel trees have been declining in tree health and vigor as a result of what appears to be incompatibility between Fukumoto scion and trifoliolate and citrange rootstocks. Despite problems with tree health, many growers continue to farm Fukumoto profitably. The objective of this project, is to determine if a cause and eventual solution to Fukumoto decline can be found. This project has been functioning as a focus of attention for the decline problem in the San Joaquin Valley and increasingly in the world, such as Spain, where large plantings of Fukumoto are anticipated. The observation, as yet unproven, that Spain and Chile are not seeing this decline even though they have a climate and soil conditions similar to that of the San Joaquin Valley in California, may indicate that a solution exists. However, the trees in Spain are somewhat younger than the oldest trees in the San Joaquin Valley. Foundation block Fukumoto trees and trees tested in grower fields, have not shown a pattern of contamination with viroids, viruses, or citrus stubborn disease.

The objective of the experiment established at the UC Lindcove REC is to determine if an irrigation stress can result in a differential growth response among Fukumoto navel, Washington navel, and Clemenules mandarin. The hypothesis to be tested is if some differences seen in the health of older Fukumoto orchards in the San Joaquin Valley are attributable to a stress factor such as over or under irrigation that does not occur with Washington navel.