STRATEGIES FOR THE REHABILITATION OF AVOCADO ORCHARDS (*Persea americana* Mill) IN CHILE

F. Gardiazabal, F. Mena and C. Magdahl.
Sociedad Gardiazabal y Magdahl Ltda.
Parcela 49 San Isidro, Quillota - E-.mail: secretaria@gama.cl

A large percentage of avocado orchards in Chile are planted in fine-textured soils (clay) with bulk densities between 1.3 to 1.5 g cm^{-3} and an air capacity ranging from 15 % to 20%. Ideal growth and production conditions for avocados in Chile are reached when the air capacity in soil is higher than 27%. Mexican soils where avocados are grown have a bulk density between 0.5 and 0.8 g cm^{-3} and porosity around 45%. In addition to the lack of porosity in soils in Chile, irrigation management and other cultivation practices in many orchards with fine-textured soil have resulted in declined plantations, lowering yield and reducing fruit size. Between the years 2002 and 2007, several irrigation trials were carried out, comparing drip, pulse and micro-sprinkler irrigation technologies which included the measurement of leaf water potential, fruit and trunk diameter changes, together with meteorological and tensiometer data. Other trials included applications of mulching and sulfuric acid to soil as well as phosphorous acid and other commercial products to foliage and pruning.

From all of the research and experiences, under Chilean growing conditions, it is clear that the rehabilitation of orchard performance requires an integrated management approach where soil health and aeration together with irrigation management play a key role. Other management tools such as the use of fungicides and pruning are essential to support the rehabilitation, but can not be considered as long-term strategies to maintain trees healthy and productive.