

An Israeli perspective on Irrigation with treated wastewater, and why an avocado grower should care.

In this talk I will give a broad perspective on irrigation with treated wastewater from the vast experience gained in Israel. For the past 30 years Israel has been going through a reform, diverting its wastewater to treatment processes and supplying its agricultural water needs in this way. Today, nearly 50% of Israel's agriculture is supplied with treated wastewater (TWW), accounting for nearly 80% of the wastewater produced. The water quality of TWW is highly variable and depends on the source water and the treatment process. As a general rule the produced TWW has higher levels of organic matter, plant nutrients (N, P, K) and salts as compared to fresh water. I will briefly discuss the subject of safety to humans in the use of TWW and then review agricultural implications of the use of treated wastewater. It should be known that TWW can supply a significant amount of the nutrient demand of plants, saving farmers costs. Concurrently, irrigation with TWW may have negative effects on plants. One of the negative consequences of irrigation with TWW may be hindering of soil aeration. This is of great relevance to avocado growers because avocado trees are especially susceptible to damage as a result of low soil oxygen levels. I will describe a study where we examined the effect of TWW irrigation on soil oxygen levels in avocados grown on clayey soils. In that study we established a link between TWW irrigation, lack of oxygen and damage to plant production. I will conclude with an outlook on to how such oxygen related issues can be dealt with using agro-technical solutions.