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IRRIGATION PRACTICES IN AVOCADO ORCHARDS UNDER THE ISRAELI CLIMATIC CONDITIONS

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Avocado orchards in Israel are planted in a wide range of soil types and climate conditions. The majority of the soils are of high pH (8.0 – 8.5) including the sandy-loam at the coastal region, heavy soil at the western Galilee, and calcareous soils at the Sea of Galilee region. The weather is characterized by cold and rainy winter and hot and dry summer. All the avocado plantations are irrigated during the dry season, in some cases the irrigation period lasts almost all year round.

The irrigation practices are strongly influenced by the above factors, by the amount of rainfall and by the severe shortage of water in the country.

At the main avocado growing area (Western Galilee), the irrigation practice includes: the use of drip systems, one to two lines along the rows and the irrigation frequency is 2-3 times a week, the amount of water is determined by pan evaporation coefficient. In most orchards tensiometers are installed to avoid percolation. The average yearly amount of irrigation water is about 700 mm.

At the region around the Sea of Galilee (hot and very dry climate), most of the avocado growers are using drip irrigation, with 3-5 lines per row and 30-50 cm between the drippers to increase wetted volume. The irrigation frequency is 2-8 times a day to increase efficiency and to avoid percolation. The water amount is controlled by dendrometers. The average yearly amount of irrigation in this region is above 1000 mm.

The irrigation systems in all avocado orchards over the country are usually controlled by computers for accuracy, efficiency and saving man-power.

New technologies to control irrigation are under development including the use of TDR in soils and/or in tree trunk and various sophisticated wireless sensors controlled by computers.