

EDAPHIC AND CLIMATIC CHARACTERIZATION OF THE AVOCADO (*PERSEA AMERICANA* CV. "HASS") PRODUCING AREA OF MICHOACÁN, MÉXICO A-48

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Setting up a program for integrated management of avocado requires the knowledge of the main edaphic and climatic characteristics of the orchards. The objective of the present study was to characterize the soil and climate features of the main avocado growing areas of Michoacán (México). First, the orchards were delimited and quantified by using multi-spectral images captured by Landsat 7 ETM+ satellite in January 2001. The images were processed and classified with the program ENVI v. 3.2. Afterwards, the edaphic and climatic orchard characterization was done by an environmental information system GIS IDRISI 3.2. This program integrated the images related to soil types, climatic types, elevation, slope, mean annual temperature and mean annual cumulative rainfall. Edaphic and climatic types were incorporated to the system by digitalization; topographic variables were incorporated by spatial analysis of the digital elevation model INEGI (90x90 m precision) and climatic variables were integrated by interpolating climatic data recorded monthly between 1961 and 2000 in the state of Michoacán by using the QBASIC program. Results showed that the orchards are located between 101° 20' and 103° 40' W, and between 19° 00 and 20° 00' N at 1200-2400 m above sea level, with the majority of the orchards (80%) situated between 1600 m and 2220 m. The major type of soil is "andosol" present in 80.8% of the orchards. The remaining 19.2% includes different soil types: acrisol, feozem, luvisol, litosol, vertisol, regosol and cambisol. The orchards present slopes ranging from 0 to 35%; the slope of 45.3% of the orchards ranged between 5-10% and the slope of 21.8% ranged between 10-15%. The dominant climate was semiwarm sub-humid (A)C(w₂)(w) (32.5% of the total cultivated area) followed by semiwarm sub-humid (A)C(w₁)(w) (25%); warm sub-humid C(w₂)(w) (24%) and semiwarm humid (A)C(m)(w) (10.4%). The remaining areas are scattered in warm humid C(m)(w) (4.4%) and semiwarm sub-humid A(C)w₀(w) (0.16%) climates. The mean annual temperature ranges from 11 °C to 27 °C but 78.5% of the total cultivated areas are found between 15 °C and 19 °C. Rainfall in 64% of the cultivated areas varies between 1050 and 1150 mm per year. Considering the soil and climatic requirements of avocado (*P. americana* cv. "Hass") only 65% of the total cultivated area of Michoacán completely fulfill them. In the remaining areas, at least one of the analyzed factors can be limiting for productivity.