

**IDENTIFICATION OF SOIL PHYSICAL INDICATORS QUALITY IN THE
SYSTEMS OF HORTICULTURAL PRODUCTION IN BARRIO NUEVO,
FEDERATION COUNCIL, FALCON-VENEZUELA**

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ABSTRACT

The objective of this research was to identify principles indicators of physical soil quality in different production systems. For the identification of the physical parameters to select as indicators of soil quality, was carried out the identification of the principal horticultural production systems in the three sectors selected inside the study area (Barrio Nuevo, Corraleja and Chiguire) whose have approximate surface of 1500 hectares. This results allowed to identify three systems of horticultural production: 1)Tomato-Paprika-tomato 2)Tomato-onion-tomato 3)Tomato-tomato-tomato. In each one of production the parameters: bulk density, infiltration, macroporosity, total porous space, microporosity and saturated hydraulic conductivity were evaluated. Some parameter were identified as indicators, because reflect that the values near to the limits critical and evidence changes in parameter evaluated as consequence of system production established in the study area, this indicators reflects that bulk density in Corraleja and Chiguire showed minor values (1,45 gr/cm³ y 1,54 gr/cm³ in comparison to critical values to loam silt and sand texture with critical values were (1,50 gr/cm³ and 1,70 gr/cm³ respectively) The worst soils conditions (> bulk density, < total porous space, < macroporosity and > microporosity) were observed in the Barrio Nuevo Area, in this case several compactation problems was observed because bulk density was 1,32 gr/cm³ higher in comparison to critical values to clay soils (1,10 gr/c^{m3}, similar tendency was observed for hydraulic conductivity saturated in those production systems with tendency to the compactation, which shown lower values of macroporosity and increase of the microporosity, this soils conditions which was translated in aguachinamiento problems a smaller aeration of the soils and therefore lower biology activity. This results reflect that the predominant systems in the Federation Council to cause a deterioration of the soil physical property increasing the compactation problems

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