

ELASTICITY MODULUS AS A HYDRIC REGULATION CRITERION OF COMMON BEAN (*PHASEOLUS VULGARIS* L.) UNDER CONTROLLED IRRIGATION REDUCTIONS

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ABSTRACT

The purpose of this research was to study the effect of controlled irrigation reductions on the elasticity modulus (ϵ_v) in common bean plants (*Phaseolus vulgaris* L.) cultivated in hydrogravitropic response pots. The plants were submitted to complete root irrigation (RCR) and partial rootzone-drying irrigation (RPR), where the water assigned according to the water-soil retention curve allowed to control and configure four treatments (RPR300, RPR500, RCR300 and RCR500 or control). The xylem water potential (Ψ_x) of the leaves was monitored, and then the pressure-volume curve (P-V) was constructed to determine ϵ_v . The results showed that the different volumes of water applied generated significant variations in the levels of ϵ_v ; however, in the treatments configured to bring the soil to field capacity (RPR500 and RCR500) it was where the best performance of ϵ_v was obtained, effect expected mainly before applying the irrigation to the plants (15,63 and 15,34 MPa, respectively). Finally, although both treatments obtained the same level of significance of ϵ_v , RPR500 stood out about the control treatment, because the reduced water volumes, combined with the maintenance of different moisture values in the soil explored by the roots, could be a key in favor of an elastic fit.

Keywords: Water Stress, Elasticity Modulus, Partial Rootzone-Drying Irrigation.

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