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CHICKPEA YIELDS AND WATER USE EFFICIENCY DEPENDING ON CULTIVATION TECHNOLOGY ELEMENTS AND IRRIGATION

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The paper presents the results of the field experiments dedicated to investigation of chickpea reaction on cultivation technology elements in the South of Ukraine. The study was carried out during 2012-2014 on the dark-chestnut soil in the semi-arid climate conditions. The design of the study included research of the crop reaction on the following agrotechnological factors: plowing depth (20-22, 28-30 cm), fertilization dose (N_0P_0 ; $N_{45}P_{45}$; $N_{90}P_{90}$), plants population (50, 100, 150 plants per m^2), and humidification conditions (sprinkler irrigation applied or not). The study was conducted in four replications by the split plot design method with the crop variety Rosanna of Kabuli type. Chickpea yielding data were processed by ANOVA procedure, the differences obtained in the experiments are significant and reliable at the probability level of 95%. The results of the experiments testify that the best crop productivity could be obtained at the irrigated variants with the highest fertilization dosage, the maximum plants population, and plowing at the depth of 28-30 cm - 3600 kg per ha. However, the best water resource use efficiency was obtained at the variants with plowing at the depth of 20-22 cm - 36.66 kg per mm. Absence of water supply by irrigation also worsened the water use efficiency and productivity of the crop. Mineral fertilizers and optimum plants population significantly enhanced the crop water use efficiency and productivity both at the irrigated and non-irrigated conditions.

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