

The role of water rations in the development of agricultural plant production in Al-Jazirah semi-arid region in Iraq.

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- **Abstract:** The study of water rations is considered as one of the important topics in knowing the water requirements of different agricultural crops and discerning the surplus or water deficit in soil water and the amount of water needed to irrigate the crops in order to optimally rationalize the water given during the watering period of agricultural crops, in addition to avoid the problems caused by excessive irrigation. Ivanov's equation showed negative results when applied to extract the climatic water budget for the stations of the study area, as it recorded a water deficit in all months of the year, especially in the summer months, and the percentage of the deficit during these months is (49.9)% of the total deficit in the study area and after applying the water ration equation on the stations of the study area, according to the tourist irrigation method and with an irrigation efficiency of (60)%, the lowest total of water metering was recorded during the month of December, reaching (232.4, 306.8, 308.4, 299.0) mm in Mosul, Baiji, Ramadi and Haditha stations, respectively, and the lowest rate was in Sinjar station in January reached (387.9) mm, while the highest rate is in July, as it reached (3947.9, 4214.6, 4052.4, 3584.0, 3817.8) mm in Mosul, Sinjar, Baiji, Ramadi and Haditha stations, respectively. This is due to the lack of precipitation and high temperatures, which means an increase in the need of agricultural crops for water. The amount of water metering with increasing irrigation efficiency reaches the lowest when adopting the centre pivot irrigation method, as it recorded an annual total of (9122.6, 10637.7, 10080.8, 9128.3, 9785.3) mm in Mosul, Sinjar, Baiji, Ramadi and Haditha stations, respectively. It appears in the study area that the actual quantities of water used to irrigate the crops are higher than the theoretical ones, which indicates the farmer's ignorance of these needs, and therefore this will inevitably lead to several problems related to the soil and its fertility, and then the impact of this on the productivity of crops.
- **Keywords:** important topics, productivity, Mosul, Haditha stations, agricultural crops