

Seedling Growth Characteristics of Wheat Seeds Grown at Different Groundwater Depths, Without Irrigation

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ABSTRACT

Wheat is one of the significant in cereal crops for feeding the world's population, its yield and growth components adversely affect by abiotic and biotic stresses. In view of our best knowledge, there is no study on how changes the seedling growth ability of wheat seeds, which grow in different groundwater depths, without irrigation. Therefore, this study was carried out to investigate the influence of groundwater depths (30, 55 and 80 cm) on germination and seedling growth characteristics of wheat seed grown under without irrigation condition. The wheat crops were grown in 9 lysimeters (60 cm diameter x 100 cm height) under rain shelter condition and then harvested wheat seeds from different groundwater depths were used for germination experiment. The results show that groundwater depths affected the early growth parameters of wheat seed. However, root fresh-dry weights and root lengths were not statistically influenced by groundwater depths, whereas these values increased with increase groundwater depth up to 55 cm and then decreased. Moreover, shoot length, shoot fresh weight and root dry weight were considerably affected by groundwater depths. The obtained results from this study the highest early seedling growth parameters of wheat were obtained from 55 cm groundwater depths, while the lowest values were obtained from 80 cm groundwater depth. In the light of these values, under the shallow groundwater and without irrigation grown wheat crops, when groundwater depth is higher than 55 cm, reusing of wheat seeds were significantly decreased early growth parameters and consequently decreases yield losses.

Keywords: Groundwater tables, *Triticum aestivum*, seed germination, seedling growth

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