Barley Growth and Productivity As Affected By Soil Amendments Under Fully and Minimum Irrigation Conditions In Saudi Arabia.

Almarshadi M.H. and Ismail S. M. 2014.

Abstract:

A field experiment was conducted at Agriculture Experimental Research Station of King Abdulaziz University (KAU), Hada Alsham, Saudi Arabia, for two growing seasons to study the effect of different soil amendments on growth traits and yield of barley crop grown under dry land conditions. Two irrigation treatments using sprinkler irrigation method were studied, full irrigation level, (100% of required water) and minimum irrigation level (60% of full level). Under each irrigation level two soil amendments, humic acid (Ha) with a rate of 10 kg ha-1 and Gel Polymer (Gp) with a rate of 16 kg ha-1 beside the control (not amended) were investigated. Irrigation event was every two days in full irrigation level and every 4 days in minimum irrigation level. Results revealed that, full irrigation level was better than minimum one in most investigated characteristics. The barley growth and yield components increased with application of humic acid and gel polymers amendments compared to control. The best results obtained from humic acid treatment. Irrigation water use was improved under minimum irrigation level and with Ha treatment. Full irrigation level and amendment treatments increased N content in grains. On the basis of the present experiment 10 kg ha-1 and full irrigating are recommended for barley growth and yield. When water is a limited factor for agriculture production, minimum irrigation level is recommended to use because it saves 40% of irrigation water with minimal yield reduction.

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