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Research Article

Impact of different levels of nitrogen and spraying with Ethephon on physiological parameters and yield of rape (*Brassica napus* L.)

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Abstract

A field experiment was performed at the Karma Ali site, affiliated with the Agricultural Research Station of the College of Agriculture, University of Basra, located in Basra Governorate. An experiment was conducted in the winter of 2021-2022 to examine the impact of four nitrogen fertilizer concentrations (N0, N1, N2, and N3) and three concentrations of Ethephon (750 and 1500 microliters L-1) on the growth characteristics and yield of rape (Brassica napus L. Var. Pactol). The nitrogen levels tested were as follows: 0, 100, 200, and 300 kg N ha--1. It was designed using randomized complete blocks (RCBD) in three replications using the factorial experimental method. For both seasons, the N3 fertilizer level substantially improved the following parameters: net photosynthesis, crop growth rate, leaf area, and leaf area index. In the second season, as for seed yield, the N3 level exceeded (3.24 tons ha-1), and it did not. In the first season, the N3 level (2.71 tons ha-1) differs significantly from the N2 level (2.60 tons ha-1). The findings also indicated that foliar spray treatments containing varying concentrations of Ethephon had a significant impact on the majority of the traits examined, as evidenced by the higher average E2 concentration for the majority of the traits. Yield and development over two seasons. The interaction between nitrogen and Ethephon was high in most traits except leaf area, leaf area index, and net photosynthesis for the first season. The combination N2×E2 recorded the highest average for seed yield (2.91 tons ha-1) in the first season.

Keywords: rape, nitrogen levels, foliar spraying, Ethephon