

EVALUATION OF NITRATE LEACHING UNDER CANOLA CULTIVATION IN NORTH OF KHUZESTAN, IRAN

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INTRODUCTION: Nitrogen fertilizers are one of the main contaminators of water resources because they leach the soils' NO_3 and are also being overused (Gheisari et al., 2007). In order to prevent the nitrate leaching to groundwater, it is necessary to apply methods of determining plants' real need of nitrogen (Moez-Ardalan et al., 2002). In the condition that the amount of nitrate is more than the plants need, it will be rapidly washed away from the soil profile because nitrate loads are homologous with clays of soil. The high amount of nitrates founded in plants drainage indicates the misuse of nitrate fertilizers and low efficiency of fertilizing. The main purpose of this research is to study the effects of different levels of nitrogen fertilizers on nitrate leaching appear in the form of canola roots' drainage.

MATERIALS AND METHODS: The present study was conducted in 2012, in Dezful. Dezful is located on the north of Khuzestan. The research design was completely randomized and had been repeated for three replicates. The design included twelve experimental plots, furrow irrigation method were applied and the water need in an I_{100} millimeter level contained four fertilizer levels of N_0 , N_{100} , N_{150} and N_{200} Kg per hectare. Before conducting the experiment a soil sample has been extracted from the depth of 0-30 cm and 30-60 cm of the experimental terrace in order to determine soils' physical and chemical features like soils' texture, SP, EC PH and the amount of organics exist in the soil. After that the terrace was prepared to cultivate canola cultivar sor19. In order to gather the drainage, the vase shape bowels were dug in the depth of 30 and 60 cm. the drainage samples were gathered in six phases. The amount of the nitrate existed in drainage was also determined by spectrophotometer. The SPSS version 15 and the Duncan test were applied for analyzing the data.

RESULTS AND DISCUSSION: Results showed that effect of different levels of treatments on the nitrate concentration in depth of 30cm was significant. The highest concentration nitrate related to third treatment level i.e. 150Kg per hectare with concentration of 46.09 mg/lit and the lowest concentration related to forth level of treatment i.e. 200Kg per hectare with concentration of 35.63 mg/lit. The effect of different levels of treatments on the concentration of nitrate in depth of 60cm was also significant.

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