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
**Root-Length Densities of Lentil and Wheat and Measuring Infiltration in the
Soil in Different Soil Tillage, Lentil-Wheat versa Fallow-Wheat Rotation
Systems under Central Anatolian Conditions**

Didar ESER, M. Sait ADAK

A.Ü. Ziraat Fakültesi, Tarla Bitkileri Bölümü, Ankara-TÜRKİYE

Andreas BIESANTZ

Institute of Crop Science, Section Agronomy, Faculty of Agriculture, Humboldt
University of Berlin-GERMANY

 [Keywords](#)
 [Authors](#)



agric@tubitak.gov.tr

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Abstract: The research was carried out for four years in the two locations Haymana-Ankara and Gözlü-Konya under different climate characteristics of the Central Anatolian Region. The aim of the research was to improve soil fertility in dry farming areas and to increase the benefit from fallow areas. Different soil tillage treatments and lentil-wheat versa fallow- wheat rotations systems resp. were examined in these experiments. According to experimental results highest root-length densities (RLD s) of winter sown lentils were obtained in soil layers of 0-20 and 20-40 cm in comparison to deeper soil layers of 20 cm each down to 1 m soil depth. I. e. RLD s decreased with increasing soil depth. This reduction was higher in wheat RLD s in comparison to lentil. In soil layers of 40-60 cm and 60-80 cm resp. higher values of RLD s were found in lentil when comparing lentil with wheat. Moreover, higher RLD s could be observed in wheat plants after lentil. This significant result indicates that remaining root channels of the previous crop lentil could be used with advantage by wheat roots, whereas fallow as a previous crop could not contribute to build up an extensive root channel system. In terms of infiltration rate, lentil plots were superior to fallow plots during harvest time of lentil. Similar tendencies were observed after harvest time of wheat. It could be concluded that the infiltration rate was effected positively by tap-root crops, even in the following cropping season.

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