

## Abstract

Herbivores grazing effects on range plant species have been more studied from the viewpoint of their effects on the aerial parts of range plants. But in addition to the aerial parts of the plant, grazing affects underground parts of plants as well. Due to the importance of roots in the survival and maintaining vigor and vitality of plants, it is necessary to study the intensity of grazing influences in real conditions or in simulated conditions in greenhouse. The aim of this study was to determine the appropriate harvest intensity of the aerial parts of *Agropyron elongatum* and the effects of harvest intensity on morphological characteristics of these species. Treatments were three levels of harvesting including heavy, moderate and control. In this study, plastic pots were used in order to allow the roots grow normally. After germination, healthy individual remained and others removed. After full tillering of plants, treatments were applied by cutting the aboveground parts of plant. At the end of the experiment, roots were taken out of the pot and the soil was removed by water flow. To determine the root morphological characteristics of root, the Delta-T scan was used. Finally, data were analyzed by SPSS software. Among the six root morphological factors which were examined, two factors had normal distribution which were analyzed by one-way ANOVA, and four other factors had non-normal distribution which were analyzed by using the Kruskal-Wallis test. It was found that the morphological characteristics of roots were less affected by different harvesting intensity. However, the average root length varied in three different treatments, i.e. it was in control treatment greater than average treatment and in moderate treatment greater than heavy treatment. But these differences were not statistically significant. The average diameter of roots in three harvesting intensities was not statistically significant. The average diameter of roots in control treatment was 60/0 mm, in moderate treatment was 51/0 mm and 53/0 mm in heavy treatment. Kruskal-Wallis test results on dry root mass and average rating in the control treatment, respectively, for medium and heavy weight of 30/44, 04/34 and 85/35 and the 30/44, 58/34 and 33/37 was that these two factors are not significant.

**Keywords:** Simulated grazing, grazing intensity, root morphological characteristics, *Agropyron* *elongatum*.



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**Effect of Simulated Grazing on Root Morphological  
Characteristics of *Agropyron elongatum***

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