



## MINISTRY OF JIHAD-E-AGRICULTURE

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### **Assessment of performance and chemical composition of hydroponic barley fodder**

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#### **Abstract**

Hydroponically sprouted grain has the potential to help livestock breeders in solving animal nutrition problem due to the existing drought. The objective of this study was to evaluate barley crop (*Hordeum vulgare*) for green fodder production under hydroponic condition. In this research, chemical composition and yield of four barley cultivars (Reihan, Behrokh, EC and Fasih) were evaluated 10 days after sowing. The experiment was conducted with three levels of planting density (600, 700 and 800 g/tray) and two nutritional supplements in four replicates for each. The experiment was repeated at three different planting times. Results showed that average yield (barley fodder) of the four barley cultivars on dry matter basis was 0.941 kg per kg of planted seeds. The average concentration of dry matter, crude protein and crude ash for these cultivars were 11.7, 16.5 and 5.86 percent, respectively. Also, average barley hydration weight due to soaking was increased by 53.35%. Among the cultivars, dry matter weight of fodder decreased in the order of Fasih (1.062 kg/kg planted seed), EC, Behrokh and Reihan, respectively. Behrokh and EC had 17.3% crude protein which was significantly different from Fasih and Reihan cultivars. There was no significant difference between yields of Fasih, Behrokh and EC cultivars. Different planting time had a significant effect on the yield and chemical composition of hydroponic barley fodder. Planting density of 800 grams per tray showed significantly lower yield than the other two densities. Crude protein concentration was not affected by nutritional supplement, but yield of barley fodder showed a significant reduction under no nutritional supplement condition. We concluded that performance of this system depends on type different factors such as: barley cultivars,

humidity, intensity, and duration and color spectrum of artificial light, disinfection and hygiene in the hydroponic plant system.

**Keywords:** Chemical composition, Hydroponic barley fodder, yield.