

## **Using Waterboxx as an innovative method in the development of rain fed orchards in Ilam province**

### **Abstract**

Waterboxx is the technology of planting trees in arid, dry, rocky and mountainous lands without energy and irrigation. For this purpose, an experiment was designed in the research farm of agricultural faculty in Ilam University in year 1391-1392. In order to determine the effectiveness of waterboxx on different fruit saplings in dry and rain fed conditions. The experiment was carried out as randomized complete block design in 6 replication. The experimental factors include usage of waterboxx (using waterboxx vs. not using it), Mycorrizhae fungi (using it vs. not using it) and different saplings (grapes, figs, and almonds). The results indicated that the interaction effect among waterboxx, Mycorrizhae fungi and saplings was significant ( $p < 1\%$ ) for leaf surface traits, total leaf water content, relative water content of leaves, Ion leakage and the height of saplings but there was no significant difference in stem diameter. In all different type of examined saplings ion leakage was decreased under the effect of waterboxx and Mycorrizhae fungi; this was mostly significant respectively in almonds, fig and then grapes. The most and the least total leaf water content were in almond saplings respectively that were planted using waterboxx and Mycorrizhae fungi and grape saplings planted without waterboxx and Mycorrizhae fungi. Comparing to the traditional common method, the percentage of survival saplings planted with waterboxx were respectively 8.33, 80 and 80 percent more in grapes saplings, fogs and almonds. Based on the better responses achieved in almond and fig saplings in using the waterboxx technology in this experiment, employing this method can be highly effective in combating drought and desertification and creation of rain fed orchards especially almond and figs on a big scale in Ilam province.

**Keywords:** Waterboxx, grapes, figs, almonds, rain fed orchards, Mycorrizhae fungi, Ilam province.



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