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## Effect of Seed Source on Germination, Growth and Survival of Caucasian maple (*Acer velutinum* Boiss.) in Mountain nursery of Sangdeh (Northern Iran)

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### Abstract

This research, conducted in the mountainous nursery in the north, was aimed at finding the proper seed source with the ability to enhance germination, growth and survival of Caucasian maple (*Acer velutinum* Boiss.). Seeds were collected in heights at elevation of 400, 1,000, 1,600 and 2,200 m above sea level in Sari forest regions and planted in mountain nursery of Sangdeh (northern Iran) as completely randomized block design with three replications. The results obtained in the first season of growth show that the effect of seed source on germination ( $P = 0.019$ ) and survival ( $P = 0.013$ ) was statistically significant, so that germination and survival rates were lower for the seeds collected in altitude of 2,200 m as compared to those in lower elevations ( $P = 0.011$ ). Height growth of seedlings for seed sources of 400, 1,000 and 1,600 m did not differ significantly but it decreased for that of 2,200 m. Collar diameter growth reduced for seed sources of 1,600 m and 2,200 m. The results also showed that late frost does not have a significant effect on the mortality of seedlings with various seed sources ( $P = 0.176$ ). Generally, based on results of this research it can be concluded that the seeds obtained from the elevation of 1,000 m (Lamzer forest region) is the best source for the production of seedlings of *Acer velutinum* as compared to the seeds collected in Lajim and Ashak, though these two locations are closer to the nursery.

**Keywords:** Caucasian maple (*Acer velutinum* Boiss.), Germination, Growth, Late frost, Mountain nursery, Seed source, Survival