Effects of temperature during seed development in *Lactuca sativa* and *Helianthus debilis*.

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Among the factors affecting germinability of a seed lot are the environmental conditions under which the seeds are produced. The objective of this study was to determine the effects of temperature during seed development on seed quality of two Asteraceae species. Seeds of lettuce cv. Tango and *Helianthus debilis* cv. Vanilla Ice and ssp. *cucumerifolius* were produced in greenhouse under one of two treatments: i) hot (27, 40, and 20°C temperatures average, max, and min respectively), and ii) cool (23, 33, and 18°C temperatures average, max, and min respectively). In both species heavier seeds were produced under the cool conditions and no differences were observed in standard germination. In lettuce, germination percentage and rate were both affected by increased levels of exogenous ABA concentrations and reduced water potential (PEG solutions), and in both cases seeds from cool treatments were more affected. Germination at 30°C and constant light was higher for seeds from the hot treatment. Lettuce seed showed a strong light requirement for germination. However seeds from the hot treatment gave better dark germination at 13 and 19°C. Seeds of H. debilis did not required light for germination, and the germination percentage and rates were evaluated at 13, 21, and 29°C. For both lines, seeds from each treatment behave similarly, however the germination of H. debilis cv. Vanilla Ice at 29°C was higher when seeds were produced in the hot conditions. The results showed that temperature during seed development affected aspects of seed quality that are not distinguishable by the standard germination but by germination at suboptimal conditions. Within Asteraceae family differences varied among and within species.