

Day-Length During Seed Development Affects Germinability and Storability of Lettuce Seeds.

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The objective of this study was to determine how day-length of the mother plant affects lettuce seed quality. Seeds of cv. Tango were produced in growth chambers under one of two treatments: i) short day (SD), consisting of 8 h of fluorescent light ($\sim 310 \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$) plus 16 h of darkness daily, and ii) long day (LD), consisting of 8 h of fluorescent light plus 8 h of incandescent light ($\sim 21 \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$) and 8 h of darkness daily. The LD treatment produced significantly heavier seeds, however germination at standard conditions (20°C-light) was similar for both treatments. At suboptimal conditions (30°C or 20°C with different external ABA concentrations), seeds from SD treatment exceeded seeds from LD in both germination percentage (GP) and germination index (GI, sum of the ratios of germinated seeds and days after sowing). When germinated in dark at 14, 19, and 24°C, GP was significantly higher for seeds from SD. After accelerated aging (41°C, $\sim 100\%$ RH, 72 h) GP of normal seedlings was higher for seeds from LD. Seed germination was also evaluated after 2, 4, and 6 months of storage at two conditions: i) 30°C, 55%RH, and ii) 30°C, 74%RH. After the storage at the lower relative humidity, GP and GI at standard conditions remained similar for both treatments. Seeds stored at 74%RH presented a progressive and significant reduction of GP and GI for both treatments, however seeds from SD were more affected. The results indicated that day-length during seed development affected lettuce seed weight, germinability, and storability. In this case, germinability and storability were inversely related.