

Performance of lettuce primed seeds during storage conditions.

W. M. Nascimento* and D. J. Cantliffe, University of Florida, IFAS, Horticultural Sciences Department, Gainesville, FL 32611-0690

Under high temperatures (above 30°C) in the greenhouse (transplant industry) or field, lettuce germination can be erratic or completely inhibited. Seed priming circumvents thermoinhibition and/or thermodormancy of lettuce seeds and allows germination at higher temperatures.

The effects of priming on seed longevity in many species have been inconsistent. Seeds were primed at 15°C with constant light in aerated solutions of polyethylene glycol (PEG) at an osmotic potential of -1.2 MPa ('Dark Green Boston' - DGB) or - 1.3 MPa ('Everglades' - EVE and PI 251245 - PI) during periods ranging from 1 to 5 days. Afterward, seeds were rinsed and redried at 10°C and 45% RH for three days. Seeds were placed in paper bags and stored in a seed room (10 °C; 45 % RH) for 12 months. Total germination and germination rate were evaluated at 20 and 35 °C at 0, 6 and 12 months of storage. Primed and nonprimed seeds germinated 100% at 20 °C. At 35°C, primed seeds germinated 100%, whereas nonprimed seeds of DGB germinated only 4%. Nonprimed seeds of thermotolerant (EVE and PI) genotypes germinated 100 % at 35°C. Duration of the soak affected the seed priming response differentially according to genotype. Seed priming did not affect seed viability or seed vigor after storage in thermotolerant genotypes, but in thermosensitive DGB, viability started to decline after 6 months of storage. Thus, the response of seed priming on seed deterioration was cultivar-dependent.