

Storage temperature and relative humidity affects the rate afterripening and viability of *Heteropogon contortus* seeds

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Heteropogon contortus (piligrass) is a drought and fire tolerant grass native to the dry leeward sides of the Hawaiian Islands. Primarily utilized for revegetation of severely degraded land, it is now being evaluated for roadside revegetation, agricultural riparian buffer strips and landscaping. An important limiting factor for piligrass revegetation is its seed dormancy. Although a dry afterripening requirement has been mentioned in the literature, specific storage conditions to aid dormancy loss have not been determined. In this study, the effects of storage temperature and relative humidity on piligrass seed dormancy and viability were examined. Freshly harvested piligrass seeds were incubated for 0, 1, 3, 6, 9 and 12 months in a combination of three equilibrium relative humidities (12%, 50% and 75% eRH, i.e. stabilized humidity prior to storage in sealed packets) and three storage temperatures [10°C, ~23°C (ambient in laboratory) and 30°C]. Seed germination and tetrazolium tests were conducted at each incubation period to determine afterripening/dormancy loss and seed viability. Results indicate a significant interaction between month of incubation, storage equilibrium relative humidity and storage temperature. Storage at either 12%eRH/30°C or 50%eRH/30°C significantly increased the rate of afterripening/dormancy loss. To optimize percent germination, seeds must be stored under these conditions for at least 9 months. Seed viability was maintained in all treatments except seeds stored at 75%eRH/23°C and 75%eRH/30°C. In these storage treatment combinations, significant seed deterioration and loss of viability was recorded over time.