

Longevity of maize (*Zea mays* L.) seeds during low input storage under ambient conditions of southwestern Nigeria

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Abstract

Seed longevity of two commercial hybrid maize (*Zea mays* L.) varieties ('Oba-Super' and 'Suwan-1') were evaluated under simulated low-input seed storage systems typical of the tropics. Saturated salt solutions of ZnCl₂, CaCl₂, Ca(NO₃)₂, NaBr, NH₄NO₃, NH₄Cl, and KCl in air-tight containers at 31±4°C provided relative humidity (RH) levels of 15.6, 28.7, 52.5, 56, 60, 75.4, and 80.5% respectively for storage. Monthly germination data for a 12-month storage period were analyzed using the Probit model. Survival curves confirmed a normal distribution pattern for most RH treatments. Seed longevity estimates (*p*50 or seed half-viability period and *s* or distribution of seed mortality in time) were significantly different among the RH treatments. The two seed kinds equilibrating at 15.6±0.95 and 28.7±1.51% RH had *p*50 values of ~600 days representing a 10-fold increase in the estimates of seed longevity compared to seeds stored at >60% RH and 31±4°C (corresponds to the ambient microenvironmental conditions in southwestern Nigeria). Implicit in this are potential gains in seed longevity for dry and ultra dry seed storage under tropical temperature regimes.

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