

Krueger*, K, A. S. Goggi, R E. Mullen, and A P. Mallarino. 2012. Phosphorus and potassium fertilization do not affect soybean storability. **Agronomy Journal** 104:405-414.

Abstract:

Few studies have investigated the influence of P and K fertilization on soybean [*Glycine max* L. (Merr.)] seed storability. The objectives were to determine the effect of P and K fertilizer rates and seed storage environments on soybean seed quality and seed carry-over potential. Seed lots were harvested from a long-term P and K trial. The plants were grown on replicated plots fertilized with one of four rates of P or four rates of K (0, 28, 56, 112 kg P₂O₅ ha⁻¹/0, 35, 70, 140 kg K₂O ha⁻¹) broadcast by hand in the fall. Seed samples were stored in four different storage environments: continuous climate controlled warehouse; continuous nonclimate controlled warehouse; nonclimate controlled warehouse and 1 mo at 12-h alternating temperatures of 4.5° and 15.5°C; and nonclimate controlled warehouse and 2 mo at alternating temperatures, with the first month at 4.5° and 15.5°C and second month at 10°C and 32.2°C. Most seed lots stored under ideal conditions were below the recommended value of 95% germination and 80% vigor following 13 mo of storage. Seed storage environments that experienced high temperature (>20°C) and relative humidity (RH) (>80%) rapidly decreased in seed viability and vigor to unacceptable levels. Phosphorus and K fertilization did not improve seed storability, although higher rates of K fertilization increased seed survival in poor storage environments for a short time. Seed producers should not store soybean seed for two growing seasons, regardless of storage environment and P and K fertilization levels in the seed production field.

URL

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