Effect of High Temperatures During Soybean Seed Development on Seed Quality. (C04-tekrony092100-Oral)

Authors:

- D.M.TeKrony - *University of Kentucky*
- D.B.Egli - *University of Kentucky*
- J.Spears - *North Carolina State U.*

Abstract:

Phytotron studies have shown that high maximum temperatures (33 or 38 C for 10 hours daily) during seed development (R5 to R8) can reduce seed soybean quality. This experiment evaluated the effect of the same maximum temperatures, but in diurnal cycles similar to the field environment on seed germination and vigor of cvs. McCall, Elgin 87 and Hutcheson . Diurnal cycles of 38/33 and 33/28 C (~ 2 h at high temperature) reduced seed size, increased shriveled seeds and lowered overall seed quality compared to the control at 27/22 C. Even normal, spherical seeds without visible abnormalities had unacceptable seed germination (38/33 C) and vigor (accelerated ageing and conductivity tests) at 33/28 and 38/33 C . Extending the diurnal cycle to 33/22 and 38/27 C resulted in similar reductions in seed quality. Exposing plants to 38/27 C for one week intervals at various stages of seed development caused no reductions in seed germination and vigor. Research is continuing to determine when during seed development quality is lost due to high temperatures and to evaluate the effect of high temperatures in field environments.

Corresponding Author Information:

Dennis TeKrony
University of Kentucky
Department of Agronomy
Lexington, KY 40546-0091

phone: 859-257-3878
fax: 859-257-7874
e-mail: dtekrony@uky.edu

Presentation Information:

Presentation Date: Tuesday, November 12, 2002
Presentation Time: 9:15 am

Keywords:

seed vigor, soybean, high temperature, seed development