Acclimation to High Temperature in Groundnut (Arachis hypogaea L.). (C02-kakani164254-Poster)

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Abstract:

Objectives of this study were to determine (1) the effect of acclimation prior to high temperature at pre- and post-anthesis stages of development on fruitset in two groundnut genotypes; and (2) whether acclimation during vegetative or floral bud development affects pollen germination at high temperature. Plants of genotypes 55-437 (heat tolerant) and ICGV 92116 (heat sensitive) were grown at 28/22 C. Vegetative and reproductive acclimation was achieved by exposing plants to 34/22 C at 12 to 6 DBA (d before anthesis) and 0 to 6 DAA (d after anthesis), respectively. High temperature (40/22 C) was then imposed for 6 d. Flowers were counted and tagged for 6 d during the high temperature periods and number of pegs recorded 10 d later. Acclimation treatments did not alter the temperature response of the genotypes. Pollen germination percentage of ICGV 92116 compared to that of 55-437 was reduced by both acclimating and high temperatures treatments. Genotype 55-437 was clearly far more tolerant to high temperature than ICGV 92116. It is concluded that differences in the genotypes were mainly due to differences in their base heat tolerance rather than to heat acclimation potential.

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