

PROJECT TITLE

Thermotolerance genotypes for sustainable legume production in South Africa

CONSORTIUM

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SUMMARY OF THE REPORT

The study aimed at evaluating the effect of heat stress on the physiology, growth performance and yield of 4 chickpea and cowpea genotypes used for experiments in South Africa. We hypothesized that short term heat stress before or during the reproductive phase will affect the gas exchange and chlorophyll fluorescence in sensitive genotypes. Chickpea and cowpea plants were exposed to control conditions of 25/20°C and two stress temperatures of 35/30°C and 30/25°C day/night temperatures respectively. Data was collected on F_v/F_m , gas exchange, chlorophyll content, carbon dioxide response, flavonoids and anthocyanins, nitrogen balance index (NBI) and grain yields. The results support our earlier finding from field experiments that F_v/F_m is a suitable tool for identifying tolerant genotypes to heat stress in these legume genotypes and some of the genotype showed superior characteristics for heat stress tolerant.