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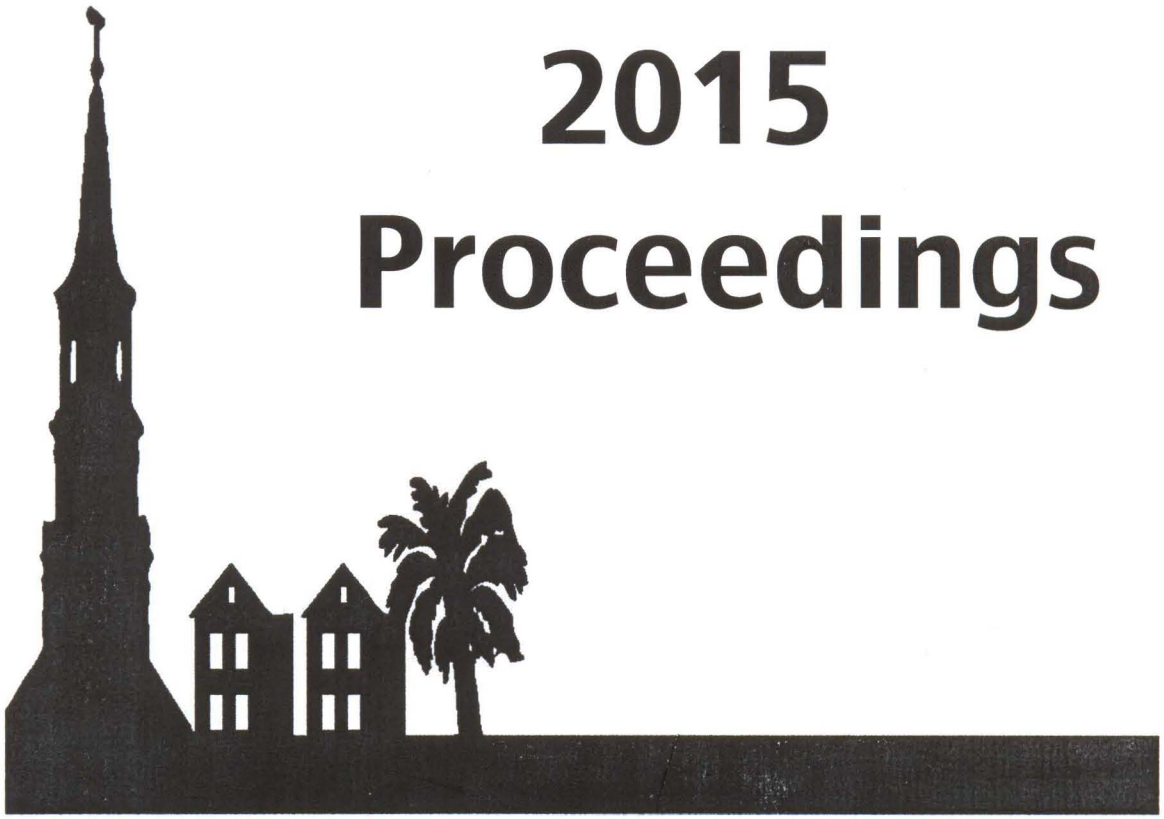

2015 Proceedings

Genetic Differences for Iron Absorption Efficiency Related Traits in Groundnut

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Iron deficiency chlorosis (IDC) is of common occurrence in groundnut growing areas with calcareous, alkaline and black soils which accounts to one-third of the Indian soils. Groundnut is sensitive to iron deficiency, but shows genotypic differences for iron absorption efficiency (IAE) response. A pot experiment was conducted using five genotypes with varying degree of IAE [ICGV 86031, A30b (efficient), TG 26 (moderately efficient), TAG 24, TMV 2 (inefficient)] in normal and deficit Fe soil types to determine underlying mechanisms. They were assessed for IAE related traits like visual chlorotic rating (VCR), SPAD chlorophyll meter reading (SCMR), chlorophyll (a, b and total) content, active iron (Fe^{2+}) content, and peroxidase activity in initial expanded leaves across five crop growth stages (20, 40, 60, 80, 100 days) and also for productivity traits.

Iron absorption efficient groundnut genotypes recorded significantly lower VCR, higher SCMR, higher active iron, chlorophyll (a, b and total) and peroxidase activity across all five crop growth stages compared to inefficient genotypes. Severity of chlorosis was highest at 60 days during which significant negative correlation was observed between VCR and IAE related traits like SCMR, chlorophyll (a, b and total) content, active iron content, and peroxidase activity indicating their utility as surrogate traits in screening for IAE in groundnut. IAE related traits showed significant positive association with productivity traits like pod yield, 100 seed weight, number of pods and primary branches. Pod yield reduction due to iron chlorosis in efficient genotypes was very less compared to inefficient genotypes.