

## 84 GRAIN YIELD OF EARLY MATURING PRO-VITAMIN A (PVA) MAIZE INBRED LINES UNDER STRIGA INFESTATION AND OPTIMAL CONDITIONS

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### Abstract

*A total of two hundred and ten single-cross hybrids generated by crossing the panel of 50 selected early maturing pro vitamin A (PVA) inbred lines from the International Institute of Tropical Agriculture – Maize Improvement Program (IITA-MIP) to four early maturing PVA inbred testers using the line x tester mating design, six single crosses were obtained by intermating the four testers, plus four commercial checks served as the entries. The research was conducted at Mokwa, Niger State for two years under artificial Striga infested and optimal growing conditions. The results revealed that General (GCA) and Specific (SCA) combining ability means were significant ( $p < 0.01$ ) for grain yield and other agronomic traits across environments, this indicated additive and nonadditive gene actions were important in the inheritance of most traits of the inbred lines. The GCA effects of multiple traits (HGCAMT) method classified the inbred lines into four heterotic groups under Striga infestation and five groups under optimal growing condition. TZEIOR 172 x TZEIOR 108 and TZEIOR 202 x TZEI 25 were identified as the highest-yielding and most stable hybrids across the contrasting environments. TZEIOR 21 x TZEI 25 was identified as the preferred hybrid for Striga infested environments. The inbred lines such as TZEIOR 201 and TZEIOR 202 recorded significant and positive GCA effects for grain yield across the contrasting environments and could be useful for developing Striga tolerant and/or combined drought and heat stress tolerant hybrids and synthetics.*

Key words: Maize; General combining ability, Specific combining ability, *Striga hermonthica*; inbred lines