



Venue : Dr. T.P. Ganesan Auditorium
SRM IST, Kattankulathur, Chennai, India

Combining ability of tropical maize inbreds for anthesis-silking interval and grain yield in natural heat stress conditions

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Field experiment was conducted to assess the general combining ability of parents and specific combining ability of hybrids under heat stress conditions. The experiment was laid out at Agriculture College Farm, Bheemaranagudi, Karnataka. It involved 27 hybrids obtained by crossing nine females and three males in NCD-II mating design in summer, 2016. The values of *gca* effects for ASI in females ranged from -0.90 to 0.25. VL1051 (-0.90) exhibited significant negative *gca* effects and identified as good general combiner. Neither the males nor the crosses exhibited *sca* effects in desirable direction for ASI. The values of *gca* effects for grain yield plant⁻¹ ranged from -6.95 to 10.36 and -4.08 to 3.85 for females and males, respectively. The female, ZL126643 (10.36) was identified as good general combiner as it exhibited desirable *gca* effects. The values of *sca* effects for grain yield plant⁻¹ ranged from -13.66 to 27. The crosses VL107578×VL1018816 (21.38) and ZL134971×VL0556 (27.27) showed desirable *sca* effects for the trait. The study suggests that the mentioned inbreds represent valuable genetic material that can be used further in the breeding programmes. The hybrids can be evaluated in multi-location trials to know their stability and can be used to isolate second cycle inbreds.

Eberhart and Russell approach of genotype-environment interaction for yield and quality traits in forage legume-Hedge lucerne (*Desmanthus virgatus* (L.) Willd.)

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Desmanthus virgatus commonly known as hedge lucerne is a perennial shrub legume belonging to the family Fabaceae and subfamily Mimosoideae. The fodder can be safely fed to ruminants and non-ruminants as it is palatable, aggressive, devoid of toxicants like mimosine, persistent and tolerant to grazing. Being a promising fodder legume with ample advantages, hedge lucerne demands genetic improvement in terms of productivity. Information on adaptability and stability with regard to performance of genotypes can be drawn from the analysis of interaction of genotypes with locations and other agro-ecological conditions. In this study, the linear regression model proposed by Eberhart and Russell (1966) is used for analysis of genotype x environment interaction. Eight genotypes of hedge lucerne were grown across four locations viz., College of Agriculture, Vellayani, College of Horticulture, Thrissur, KVK, Kollam and RARS, Ambalavayal, Wayanad in Kerala. The genotype T₁ (IC 345276) was stable over all locations for different characters such as plant height, number of branches, green fodder yield, dry fodder yield, dry matter production and crude fibre. The genotypes T₂ (IC 343710) and T₈ (Thumburmuzhi local) were stable genotypes for favourable environment while the genotype T₅ (IC 90934) was suitable for unfavourable environment.
