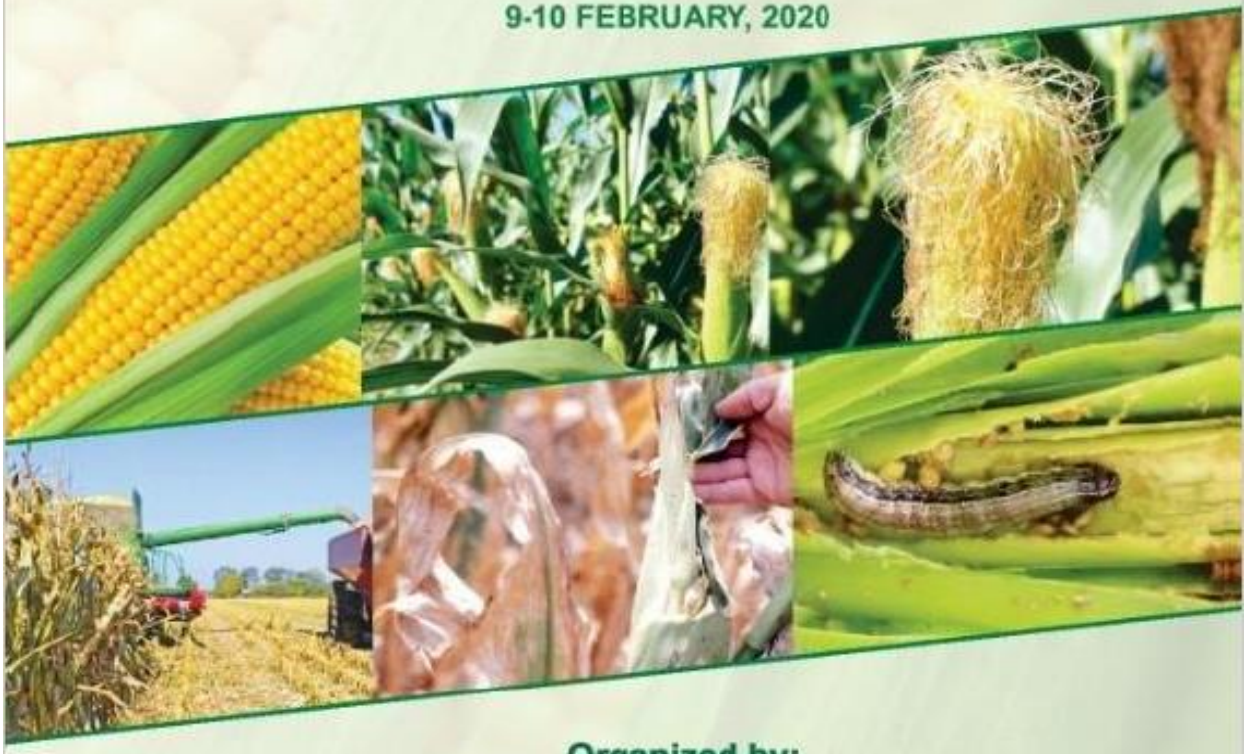
National Seminar

on

Maize for Crop Diversification under Changing Climatic Scenario

9-10 FEBRUARY, 2020



Organized by:

Maize Technologists Association of India

In collaboration with

ICAR-Indian Institute of Maize Research, Ludhiana &
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I-17 STABILITY OF EXPERIMENTAL WINTER MAIZE HYBRIDS TESTED ACROSS THE ENVIRONMENT OF BIHAR USING GGE BIPLOT AND AMMI ANALYSIS

National Seminar on "Maize for Crop Diversification under Changing Climatic Scenario", Ludhiana, Feb 09-10, 2020

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Maize (*Zea mays* L) being of a protean nature crop acclimate facilely to a wide range of production environments. Maize is the highest contributor of more than 1046 million tonne (FAOSTAT, 2018) annually to the global food basket among the cereal food crops out of which India shares around 2.2% with production of 26.26 MT from 10.20 million hectare. The projected demand for maize in India is expected to be 45 Mn MT of Maize by the year 2022. To meet this demand, there is need to develop high yielding and highly stable single cross hybrid varieties. The phenotype of the hybrid is the result of Genotype (G) x Environment (E), such G x E interaction effect poses problem to the breeder while selecting a genotype with consistent performance across different environments. Multi-location testing of cultivars plays a key role in any breeding programme. Hence, looking into the above facts, multilocation testing of thirty-two newly crossed hybrids along with four checks DHM-117, BIO-9544, P-3396 & DKC-9081 was made across six environments *i.e.* three locations *viz.* Begusarai, Sabour & Dholi and two seasons (rabi 2017-18 & rabi 2018-19) in the Bihar, India using GGE biplot & AMMI model to analyze and interpret the complex GEI in MLT data. The objectives of the study was to estimate the G×E of hybrids, identify high yielding single cross maize hybrids with high stability and partition of testing location into mega environments. Analysis of variance clearly showed the significant effect of G, E and GE for all the traits studied. It was observed that environment was the most important source of variation for all the traits. For trait grain yield, environment contributed for 77.84% of the variation while 16.31% and 5.72% contribution of the total variation was made by the genotype and GE respectively. Performance and stability of the genotypes were visualized graphically through GGE biplot. The first two PC (Principal component) explained 71.92% variation for grain yield, 86.6%, 64.49% & 98.48% for the traits grain filling duration, ear height & anthesis silking interval respectively. Hybrids IMHSBM-28 & IMHSBM-36 was observed as the high yielding as well as highly stable across the location. Which won where graph showed that IMHSBM-1 was winning genotype in Begusarai environment for both the seasons while genotype IMHSBM-17 & IMHSBM-24 was winning in both Sabour & Dholi environment for the trait grain yield.

I-18 BREEDING FOR HIGH KERNEL ROW NUMBER - A STRATEGY TO