Evaluating performance of cimmyt maize inbred lines against maize streak virus, turcicum, rust, gray leaf spot and yield potential under stress and optimum environmental conditions of Zimbabwe

EVERTON JAISON
B1129230

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE BACHELOR OF AGRICULTURAL SCIENCES HONOURS DEGREE CROP SCIENCE

19 DECEMBER 2014
ABSTRACT

CIMMYT maize inbred lines selected for tolerance to maize streak virus, grey leaf spot, rust and turcicum were used in this project. Yield was very important trait and was considered as a check to find the ability of different lines to tolerant various diseases. In this study several inbred lines were evaluated for per se performance against disease tolerant and yield potential under different environmental conditions of Zimbabwe. The trial was carried out at Harare CIMMYT (misting), Art Farm, Devonia and Kadoma. The trial was carried out during the 2013/2014 summer season. A total of 35 entries were planted in an alpha (0.1) lattice design with two replications and five (two row) plots per incomplete block. Data was collected on several traits that is grain yield and diseases from across sites. The data was analyzed using Gen Sat and Field book softwares. Significant variation was noted at all the sites for grain yield (p<0.001). Entries (genotypes) were all affected by environment as there was a highly significant difference of p<0.001 for the GLS, turcicum, rust and MSV from all the sites. Same entries had different yield. However, the following lines proved to be ready for release for public and private seed companies to use them in their breeding programs. TL115986, TL123981, TL1311661, TL115989, VL0511320, TL124615, TL115974, TL117079, TL115983 and TL115993. The other lines that had produced below average yield can undergo further trials until they have proved to be stable.