

Anthesis to Silking Interval Usefulness in Developing Drought Tolerant Maize

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Abstract - Maize, the most important staple crop in Kenya is affected by drought stress mostly at flowering stages causing delay in silk emergence. The Anthesis to Silking Interval (ASI) is highly correlated to grain yields under drought stress as shown by experiments conducted at CIMMYT, Mexico. This study aimed at combining both earliness and short ASI in one maize genotype. Early-maturing, open pollinated varieties (OPVs) from Kenya Agricultural Research Institute (KARI), with a long ASI and late-maturing, inbred lines from CIMMYT with a short ASI were evaluated in a randomized complete block design trial replicated three times. F₂ progenies arising from crosses between these two types of germplasm were generated and tested under drought stress conditions. There were significant differences among the OPVs and inbred lines, in all traits including ASI. ASI was significantly correlated to kernel weight ($r=0.76$), days to anthesis ($r=-0.91$), days to silking ($r=-0.81$) and to leaf senescence ($r=0.86$). F₂ population of KVD2 x CML442 produced 74-80% of the early flowering genotypes of between 49 and 57 days and had an ASI segregation range of -2 to 10 days. The results showed that ASI and earliness can be combined and selected for in the same maize genetic background.

Keywords - ASI, Days to Anthesis, Days to Silking, Drought Tolerance, Inbred Lines, Open Pollinated Varieties (OPVs)