

## ABSTRACT

*Striga hermonthica*, an obligate root hemi-parasite, is a massive biological constraint that hinders maize (*Zea mays* L.) production in western part of Kenya particularly when susceptible varieties are used. Use of Imazapyr resistant hybrids coated with small doses of imazapyr herbicide offers potential for management of *Striga hermonthica* and increase maize production. A study was conducted to evaluate the effectiveness of Imazapyr Resistant Maize (IRM) and selected striga tolerant varieties on *S. hermonthica* management and yield of maize. Field trials were conducted during two successive cropping seasons (2018 and 2019) at Alupe Research Station (artificial inoculation), farmer's field in Rangwe (natural infestation) and Koibatek Agricultural Training College (striga free) in Busia, Homa Bay and Baringo Counties respectively. The genotypes were evaluated in randomized complete block design with three replication. Test materials comprised of two IRM (H528IR, FRC425IR), two striga tolerant (KSTP94, GAF4), five susceptible commercial hybrids (DK8031, H513, DUMA43, DH04, Haraka 101) and two local landraces (*Shipindi*, *Nya Uyoma*). All striga and crop data collected were subjected to analysis of variance and means separated using Tukey's HSD test. Results showed that IRM varieties significantly ( $P \leq 0.05$ ) reduced number of emerged striga plants by 56 and 69% compared to the local landraces and commercial hybrids, respectively. Similarly, IRM varieties produced 50.3 and 79.5% higher grain yields compared to striga tolerant (KSTP94 and GAF 4) and susceptible hybrids, respectively under striga infestation. However, the grain yields recorded at Koibatek ATC (striga free) were 67 and 70% higher than at the Rangwe and Alupe sites, respectively. These findings show that use of Imazapyr resistant technology in maize production contributes to improved striga management and enhances maize grain yields. This technology can be integrated with other measures to contain striga in infested areas.