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IMPACT OF MULCH-BASED CROPPING SYSTEMS USING GREEN MULCH AND RESIDUES ON THE PERFORMANCE OF ADVANCED MUTANTS LINES OF MAIZE (*ZEA MAYS* (L.)) UNDER INFESTED FIELD WITH THE PARASITIC WEED *STRIGA ASIATICA* (L.) KUNTZE IN MADAGASCAR

In Madagascar, the cereals yield remains insufficient due to various biotic and abiotic constraints including *Striga asiatica*, a parasitic weed that has contributed to decrease maize yield up to 100%. This work aims at assessing the impact of the practice of two cropping systems on the maize crop infested by *Striga asiatica*. PLATA maize seed of the putative mutant tolerant line from the M5 generation after gamma irradiation at 300 Gy and of the sensitive parent variety were grown in fields naturally infested or artificially inoculated with one pinch of around 3000 of ready-to-germinate *S. asiatica* seeds. The residue of *Stylosanthes* sp., legumes was used as mulch SCVm and the Cowpea legumes was planted with the host plant for intercropping system SCVv. Results have shown that the use of mulch either residues SCVm or green mulch SCVv minimize *S. asiatica* infestation on maize plant. The SCV reduces significantly the number of *Striga* plants emergence of 1.33a for SCVm, 4.33b for SCVv then 15c for the Control. Moreover, M5 lines have shown significant differences of survival plant rate of 51-80%, versus 13-50% for the parent variety. Yields of the parent and M5 varieties on SCVm are respectively 3.46 and 4.64t/ha; 3.3 and 3.61t/ha for SCVv, while that of the Control block remains low, it varies from 1.39 to 2.29t/ha. Cover increases the soil humidity and delays the *S. asiatica* development to the host plant then improve the host plant yield. These results demonstrate the benefit of integrated approach of mutation breeding and cultural practice to ensure more durable crop production under heavily *Striga*-infested.

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