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Full Length Research Paper

Potential application of *Hyptis spicigera* for biological control of *Striga hermonthica* infestation

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Abstract

Food situation has remained insecure and unpredictable in sub-Saharan Africa leading to high levels of cyclic famine and poverty. This has been exacerbated by perennial pest problems, which cause substantial pre- and post-harvest food grain losses. Production of cereal crops is threatened by *Striga hermonthica* weed known to infest an estimated 46000 ha of land in the traditional food producing areas in western and coastal Kenya. It is against this background that this study was designed to evaluate the efficacy of *Hyptis spicigera*–maize cropping systems on *S. hermonthica* infestation and maize grain yield and, generate a recommendation compatible with the target farmer domains. Results showed that *Striga* counts were significantly ($P < 0.05$) reduced where maize was following fallow with *H. spicigera*. This was most effective in reducing *S. hermonthica* incidence and increased maize yield from 2.2 to 3.4 T/Ha. Intercropping maize and *H. spicigera* in the same plot at the same time negatively affected maize growth resulting in reduced maize yields. Indications were that root cuttings of *H. spicigera* stimulated *Striga* seed germination while their stubble (stem and leaves)

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reduced *Striga* seed bank in the soil. *Striga* seed bank analysis showed that *Striga* seed depletion increased with increase in *Hyptis* bushes with critical *Hyptis* seeding rate of 3 kg/Ha for maximum reduction in *Striga* seed bank. The findings of this study have implications for plant protection against *S. hermonthica* and improvement of cereal crop production in *Striga*-prone environments.

Key words: *Striga* Incidence, seeding rates, cropping systems, maize yield.

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