Abstract

Two on-farm experiments were conducted in Eastern Zimbabwe`s Chinyika Resettlement Area (18^0 02" and 18^0 17" S and 32^0 09" and 32^0 24" E), during 2002/2003 rainy season, to evaluate the effects of three grain legumes species, genotypes and cowpea (*Vigna unguiculata* L.Walp) populations on witchweed (*Striga asiatica* L Kuntze) emergence, growth, development and maize (*Zea mays* L.) grain yield. Both experiments were 2*3*3 factorial with three cropping systems being sole cowpeas, maize SC513 cowpea intercrop and maize Pan6363 cowpea intercrops. The cowpea genotypes were Kavara and IT18, while three cowpea populations were 55 000, 65 000 and 75 000 plants ha^{-1}. For experiment 2,. three legume species were soyabean [*Glycine max* (L.) Merill], cowpea and bambara nut [*Vigna subterrenea* (L.) Verdc]. The cropping system, cowpea population, and genotypes significantly ($P<0.001$) affected *Striga asiatica* emergence across sites during 10 and 12 WACE. A significant interaction was observed between cropping system, genotypes, and cowpea populations. Maize SC513 intercropped with Kavara at 55 000 plants ha^{-1} caused the highest *Striga* emergence, with Pan6363 Kavara intercrop at 55 000 plants ha^{-1} having the lowest emergence. Maize SC513 IT18 intercrop at 55 000 plants ha^{-1} caused the least emergence while Pan6363 IT18 intercrop at 55 000 plants ha^{-1} had the highest emergence. A significant effect was observed between the two soyabean varieties, with Maize soyabean variety Magoye having the least emergence compared to Maize soyabean variety Hurungwe.. Across sites, *Striga* emergence increased and reached peak emergence at 12 WACE, and then declined during 14 WACE within maize legume intercrops. *Striga asiatica* dry matter accumulation was low and significant ($P<0.05$) across sites. The cropping system had significant ($P<0.05$) effect on *Striga asiatica* days to flowering from emergence. Maize legume intercrops had more days to flowering from emergence. Maize grain yield, cob and maize plant height were negatively and weakly correlated to *Striga asiatica* emergence. Results indicate that sole legumes suppressed *Striga asiatica* emergence. Intercrop of cowpea genotype IT18 gave the least *Striga asiatica* emergence thus have a suppressive effect on to *Striga asiatica* parasitism. Smallholder farmers in *Striga asiatica* infested farms should therefore be encouraged to plant sole legumes in rotation with cereal crops to reduce *Striga* parasitism.

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List of Abbreviations and Acronyms

AA	Ammonium Nitrate
AREX	Agricultural Research and Extension
CIMMYT	International Maize and Wheat Improvement Centre
CRA	Chinyika Resettlement Area
EC	Emulsifiable Concentrate
FAO	Food and Agricultural Organisation
G	Granules
GTZ	Gesellschaft Fur Technische Zusammenarbeit
ICRAF	International Centre for Research in Agroforestry
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IDRC	International Development Research Centre
IITA	International Institute of Tropical Agriculture
N	Nitrogen
RCBD	Randomised Complete Block Design
SADC	Southern Africa Development Community
SH	Smallhloder Holder
TLER	Total Land Equivalent Ratio
WACE	Weeks After Crop Emergence

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