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Full Length Research Paper

Evaluation of the use of herbicide (Imazapyr) and fertilizer application in integrated management of *Striga asiatica* in maize in Malawi

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Abstract

The parasitic weed species *Striga asiatica* (L.) Kuntze is one of major constraints in maize production in Malawi. Studies were conducted from 1999/2000 to 2001/2002 seasons to evaluate the effects of seed dressing with imazapyr (an acetolactate synthase [ALS] - inhibiting herbicide) at 0 and 45 g ha⁻¹ and two fertilizer rates (0 and 69N:21P₂O₅:0+4S kg ha⁻¹) on maize with ALS target site resistance on *Striga* suppression and grain yield at Chitedze Research Station and farmers' fields. In the first season, imazapyr suppressed *Striga* emergence across all sites but did not increase yield. In contrast, fertilizer application had no effect on *Striga* emergence (P>0.05), but significantly increased yield (P<0.05). In the second season results were similar, but in addition the use of herbicide increased yield. In the third season a local hybrid (SC627) was included to compare yield potential of the untreated Imazapyr Resistant (IR) variety. The local check yielded higher than the IR hybrid with or without herbicide treatment, but sustained the highest emergence of witchweeds. The untreated IR hybrid had less *Striga* than SC627 and more than the treated. Overall, fertilizer use is found to be the single most important factor in increasing maize yield under *S. asiatica* infection, while herbicide use is important for reducing emergence.

Key words: *Striga asiatica*, imazapyr, *Zea maize* (L), Malawi, acetolactate synthase.

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