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## Effects of Triclopyr and Nitrogen on Striga Incidence and Sorghum Growth and Yield

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### Abstract

*Striga hermonthica*, an important root parasitic plant on cereals, is a difficult weed to control. Several control measures were reported, but their performance was often inconsistent. The present investigation was undertaken to study the effects of nitrogen, the herbicide triclopyr and their combinations on *Striga* incidence and sorghum growth and grain yield. *Striga* count, in the untreated control, was 10 and 34 plants m<sup>-2</sup> early and late in the season, respectively. Nitrogen at 43.8 and 87.6 kg ha<sup>-1</sup> displayed excellent (>80%) suppression of the parasite early in the season, however, only, poor (22-38%) control was achieved late in the season. Triclopyr at 0.68 kg a.e. ha<sup>-1</sup>, alone, resulted in moderate to poor control of the parasite. The herbicide at 1.0 and 1.4 kg a.e. ha<sup>-1</sup>, irrespective of nitrogen, resulted in good to excellent (72-100%) suppression of the weed throughout the season. Unrestricted *Striga* parasitism increased sorghum peduncle length, significantly. Nitrogen at 43.8 and 87.6 kg ha<sup>-1</sup> reduced peduncle length by 10 and 44%, respectively. Triclopyr, alone and in combinations with nitrogen reduced peduncle length by 44-61%. *Striga* parasitism resulted in a low head weight (32.5 g). Nitrogen had inconsistent effects. Triclopyr alone at 0.68 kg a.e. ha<sup>-1</sup> had no effect. However, the herbicide at 1.0 and 1.4 kg a.e. ha<sup>-1</sup> increased head weight by 49 and 36%, respectively. Triclopyr, at all rates, when supplemented with nitrogen increased head weight by 37-54%. Unrestricted *Striga* parasitism reduced sorghum grain yield significantly. Nitrogen at 43.8 and 87.6 kg ha<sup>-1</sup> increased grain yield by 32 and 24%, respectively. Triclopyr, at 0.68, 1.0 and 1.4 kg a.e. ha<sup>-1</sup>, alone, increased grain yield by 10.4, 54.8 and 30.5%, respectively. Triclopyr, at all rates, when supplemented with nitrogen, at the lower rate, increased grain yield by 41-52%. Increasing nitrogen to 87.6 kg ha<sup>-1</sup> increased grain yield by 56-57%. The data indicate that triclopyr at 1.0 and 1.4 kg a.e. ha<sup>-1</sup>, when supplemented with nitrogen, had the most consistent performance and resulted in the highest suppression of the parasite and the highest sorghum grain yield.

**Keywords:** Nitrogen, sorghum, striga, triclopyr