

Effects of chlorsulfuron, 2, 4-D and their tank mixtures on *Striga* and sorghum growth and yield

Rashida Mohammed A Abusin¹, Elfatih Abdelaziz Ahmed², Mohammed Mahgoub Hassan³ Babiker Mohammed Mahgoub¹ & Abdel-Gabar Eltayeb Babiker³

¹ University of Bahri, College of Agriculture, Pests and Plant Health, Khartoum, Sudan,

² Agricultural Research Corporation (ARC), Sudan

³ Environment and Natural Resources and Desertification Research Institute, National Centre for Research, Khartoum, Sudan,

Abstract

The root parasitic weed *Striga hermonthica* presents a serious constraint to cereal production in sub-Saharan Africa and is considered a threat to agriculture and food security. The parasite inflicts most of its damage to the host while subterranean thus early intervention is a necessity to avert losses. A Field experiment was undertaken at Sinar State, Central Sudan, to study the effects of the herbicides chlorsulfuron, 2,4-D and their tank mixtures on *Striga* incidence and sorghum growth and yield. Treatments were arranged in a Randomized Complete Block Design (RCBD) with four replicates. At 45 days after sowing (DAS), *Striga* emergence was negligible and little differences between treatments were observed. At 60 DAS, *Striga* emergence was 6 plants m⁻² in the untreated control. 2,4-D, chlorsulfuron and their tank mixtures, irrespective of rate, reduced *Striga* emergence by 50, 83.3 and 66.7%, respectively. At 90 DAS, the corresponding reductions were 42, 75 and 70%. At harvest 2,4-D, chlorsulfuron and their tank mixtures reduced *Striga* biomass by 17, 86.1 and 44.8%, respectively. At 30 DAS, sorghum, irrespective of treatment, displayed comparable height. However, at 45 DAS, chlorsulfuron, irrespective of rate, and chlorsulfuron at 2.38g i.a ha⁻¹ tank mix with 2,4-D at 0.57 a.e ha⁻¹ reduced sorghum height significantly. However, complete recovery of the crop was observed 90 days after treatment. All herbicides treatments had no adverse effects on sorghum head weight. Among the herbicide treatments only 2,4-D at 0.76 kg a.e ha⁻¹ significantly reduced sorghum head length. Chlorsulfuron, 2,4-D and their tank mixtures increased sorghum grain yield over the untreated *Striga* infested control by 21.5, 9.3 and 9.7%, respectively.

Keywords: Chlorsulfuron, 2, 4-D, *Striga hermonthica*, sorghum
