
Use of *Sorghum bicolor* L. (Moench) residues in combination with lower rate of trifluralin herbicide for weeds control in cowpea (*Vigna unguiculata*) L. (Walp)

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Abstract

A Field experiments were conducted to test the allelopathic potential of sorghum residues alone and in combination with half (1.2 L ha⁻¹) of recommended rate of trifluralin herbicide in controlling weeds in cowpea field. For preparation of sorghum residues, grains of sorghum cv. Enkath were grown in lines in plots of 4 × 3.5 m² keeping 10 cm between grains and 75 cm between lines. Plots of the same area were left without cultivation to be used in the next experiment as a control. At physiological maturity of sorghum crop, the grains were harvested and the plants were left on the plots to dry under sun for 2 weeks. After that, the sorghum residues were incorporated in to the plot soil at 5 T ha⁻¹ and 10 T ha⁻¹. Plots without residues, plots with half dose of trifluralin herbicide, plots with label rate of herbicide and weed free plots (removing weeds weekly). Incorporation of sorghum residues at 5 T ha⁻¹ reduced weed density by 6% of control at 75 days after sowing (DAS), while incorporation of sorghum residues at 10 T ha⁻¹ reduced weed density by 43% of control at 75 DAS, and reduced dry weight biomass of weeds by 48 and 66% of control respectively. However, this reduction is further increased when half rate of herbicide was applied to plots amended with sorghum residues. Application of sorghum residues to the plots amended with half rate of trifluralin herbicide provided seed yield significantly higher than that achieved by sole application of label rate of herbicide.

Keywords: allelopathy, sorghum residues, lower rate herbicide, weed control, cowpea

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