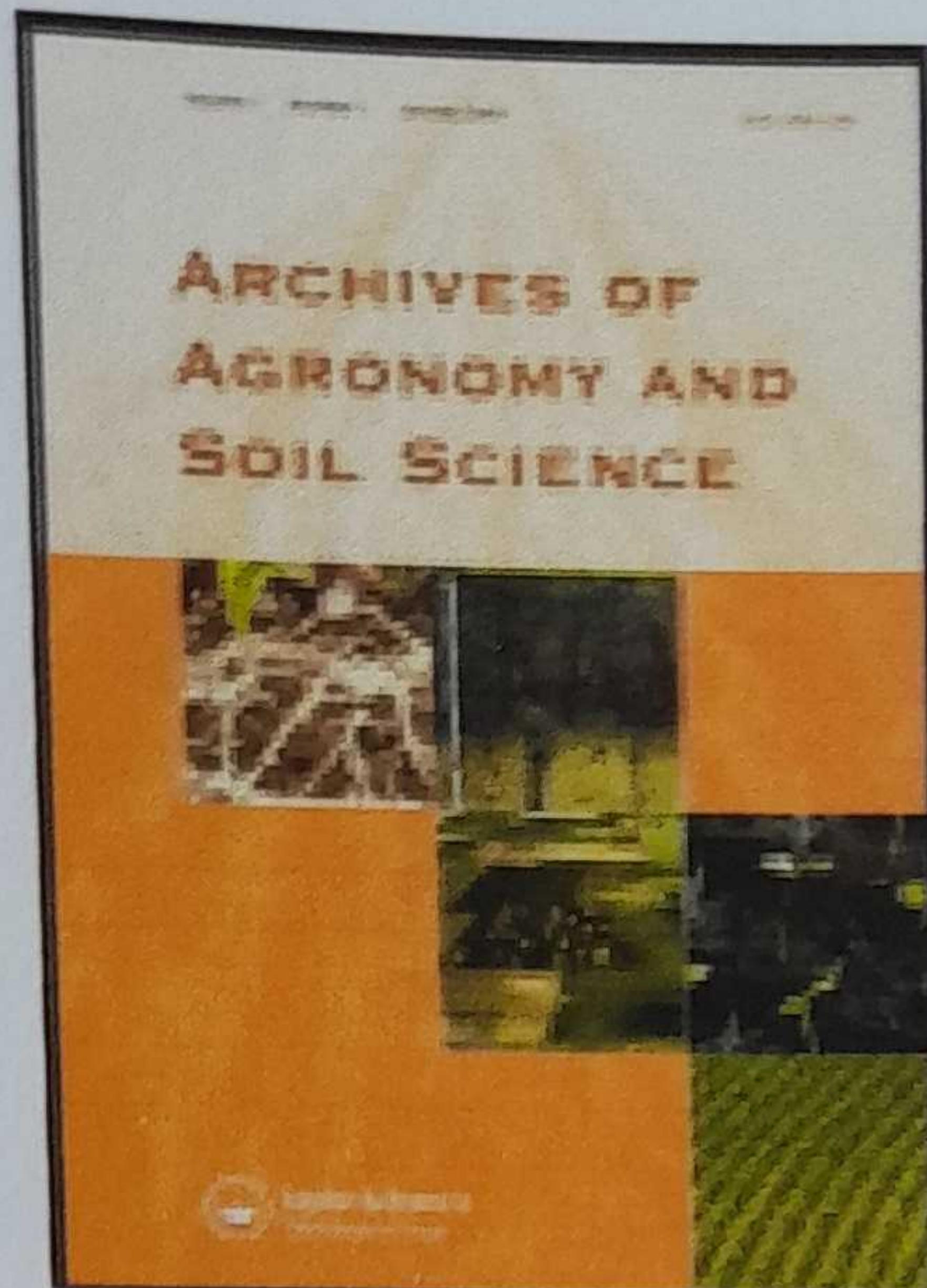


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Effect of seed rate and nitrogen fertilizer on weed species composition, density and diversity in two sesame varieties

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Effect of seed rate and nitrogen fertilizer on weed species composition, density and diversity in two sesame varieties

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To evaluate the effect of seed and nitrogen rates on weed species composition, density, biomass and diversity in two sesame (*Sesamum indicum* L.) varieties, a field experiment was conducted in 2009, 2010 and 2011 rainy seasons at Samaru, Nigeria. Four seed rates, 2, 4, 6 and 8 kg ha⁻¹, four nitrogen rates, 0, 30, 60 and 90 kg N ha⁻¹ and two sesame varieties NCRIBEN 01M and E8 were arranged as factorial in a split plot design. Weeds with the highest important values in sesame field were *Dactyloctenium aegyptium*, *Ludwigia decurrens*, *Ageratum conyzoides* and *Cyperus esculentus*. Year had a significant effect on weed density, biomass, diversity, evenness and richness. Weed density, biomass, diversity and richness were lowest in the 2011 trial and weed species evenness in 2009. Variety E8 reduced weed biomass better than NCRIBEN 01M. Averaged over years, weed diversity and evenness were lowest at 4 kg seeds ha⁻¹. Seed × nitrogen rates effect of 4 kg seed ha⁻¹ and 30 kg N ha⁻¹ produced the lowest weed species diversity and evenness. The result suggests that variety E8 at 4 kg seed ha⁻¹ and 30 kg N ha⁻¹ with hoe weeding at 3 and 6 WAS may provide better weed control, and it is recommended in sesame production.

Keywords: weed species composition; weed species diversity; evenness; richness; sesame

Introduction

Sesame (*Sesamum indicum* L.), commonly known as benniseed, is an important edible oilseed crop in Nigeria. It is also a good source of pantothenic acid, vitamin E and mineral nutrients such as calcium (1450 mg (100 g)⁻¹), phosphorous (570 mg (100 g)⁻¹) (Malik et al. 2003). The seeds are used in making a variety of foods such as snacks, confectioneries, pastries and cakes (El Naim et al. 2010). The oil from the seed is of high grade and is used in manufacturing of margarine; baking; cooking; making of candy, lubricants; soap making; hair treatment; body massage; pharmaceutical industries, other industrial uses and alternative medicine (Ahmed et al. 2009; El Naim et al. 2010). The cake obtained after oil extraction from the seeds is useful as supplementary food for humans and livestock feed and as a fertilizer (El Naim et al. 2010). The world's largest producer of sesame is India followed by China, Myanmar, Sudan, Ethiopia, Uganda and Nigeria (Ogbonna & Umar-Shaaba 2011). In Nigeria, the crop is cultivated on over 80,000 hectares of land across most of the northern states, for food and oil (Umar et al. 2011).

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