Enhanced crop productivity and compatibility through intercropping of sesame and sunflower varieties

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Abstract

Field trials were conducted during 2002 and 2003 to determine the productivity and compatibility of the cropping systems obtained from intercropping varieties of sesame (E8, PBTil and 530-6-1) and sunflower (Funtua, Record and Isaanka) in the humid forest–savanna transition zone which is outside the current growing areas. Intercropping did not affect the number of branches per plant, number and weight of capsules per plant, weight of seeds per plant, 1000 seed weight or seed production efficiency (SPE) of all sesame varieties in both years, except SPE in 2003. In both years, intercropping sesame with sunflower varieties significantly reduced grain yield of PBTil and E8. However, 530-6-1 produced grain yield similar to the monocrop when intercropped with Record and Funtua in 2002 and 2003, and Record in 2003. In both years, intercropping significantly depressed the grain yield of the three sunflower varieties because of reduction in their head diameter, head weight, number and weight of seeds per head and lower number of plants per unit area relative to their monocrops. E8, 530-6-1 and PBTil intercropped with the three sunflower varieties recorded land equivalent ratio values in the range of 1.13–1.37, 1.32–1.46 and 1.22–1.35, respectively. Based on competitive ratio values, E8 demonstrated the greatest ability to compensate for intercrop competition with taller sunflower varieties. It was concluded that growers can successfully cultivate sesame (530-6-1 and PBTil) under intercropping with sunflower in the humid forest–savanna transition zone.

Keywords: Competitive ratio;grain yield;intercropping;land equivalent ratio;sesame;sunflower

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