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in the Tropics and Subtropics”

**Reclamation of *Imperata cylindrica* (L.) Raeuschel Infested Land
Using Cover Crops and Subsequent Maize Yields in West Africa**

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Abstract

Speargrass is widespread in tropical and sub-tropical zones, where land is continuously disturbed by recurrent fires, tillage, weeding, and other farm activities. Field experiments were conducted in the forest/savanna transition zone of Nigeria from 1996 to 2000 to evaluate the potential of two cover crops [velvetbean, *Mucuna cochinchinensis* (LOUR.) A. CHEV. and tropical kudzu, *Pueraria phaseoloides* (ROXB.) BENTH.] for reclaiming land that had been abandoned to speargrass. Cover crops were grown in the same plots for three consecutive years (1996 to 1998). The controls were natural fallow plots that were dominated by speargrass in 1996 to 1998. Maize (*Zea mays* L.) was planted in all treatments in 1999 and 2000. Total dry matter of speargrass before the treatments were imposed was 9 Mg ha⁻¹ and rhizomes contributed 49% of this. At all subsequent sampling dates, plots without cover crops had higher shoot and rhizome dry matter than plots with cover crops. Dry matter of both shoots and rhizomes declined over time in plots with cover crops. Shoot dry matter was reduced to zero at 65 WAP in both cover crops; rhizome dry matter was reduced to zero after 97 wk in velvetbean plots and after 105 wk in tropical kudzu plots. At maize harvest in 1999 and 2000, there were more weed species in addition to speargrass in plots previously sown to cover crops than in plots without cover crops. Speargrass density increased from 31 shoots m⁻² in 1998 to 78 shoots m⁻² in 2000. Maize grain yield did not differ with type of cover crop ($p > 0.05$). It was 60% higher in plots with tropical kudzu ($p < 0.0313$) and 102% ($p < 0.0013$) higher in plots with velvetbean than in control plots without cover crops. Maize grain yield was negatively correlated with speargrass dry matter ($r = -0.67$, $p < 0.01$), indicating that lower maize yield, especially in plots without cover crops, may be attributed to weed competition.

Keywords: Integrated weed management, planted fallow, smallscale farms