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Poster Presentations
Moderator: Cathy Pinto

Competition Between Cowpea Cover Crop Varieties and Weeds

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Abstract

Field experiments in 2000 and 2001 examined the competitive abilities of three cowpea (*Vigna unguiculata* (L.) Walp.) varieties with similar maturity and vegetative vigor but different growth habit. Iron-Clay (IC) grows erect, IT89KD-288 (288) semi-erect and UCR 779 (779) prostrate. A short stature species, purslane (*Portulaca oleracea* L.), and a tall competitor for light, sunflower (*Helianthus annuus* L.) were planted within the cowpea row as weeds. After 3 weeks after planting, cowpea canopy height, cowpea canopy width and light intensity above and below sunflower and cowpea canopies were measured weekly for four times and biweekly for 1-2 times. One meter of row (0.76 m²) was sampled at the same day to measure leaf area and dry weight. Relative growth rate (RGR), leaf area growth rate, and canopy height and width growth rate of cowpea varieties and weeds were calculated to compare varietal differences in competition with sunflower and purslane.

Sunflower reduced the amount of light that cowpea received and cowpea varieties reduced the light received by purslane. Cowpea biomass production was reduced by sunflower in either year. Purslane did not affect cowpea biomass in 2000 and reduced the biomass of variety 288 and 779 in 2001. IC was not affected by purslane in either year. Sunflower biomass was reduced only by variety IC in 2000 and by all cowpea varieties in 2001. Purslane biomass production was reduced by variety 779 and IC in 2000 and by all three cowpea varieties in 2001. The RGRs of cowpea and weeds show the similar results. Leaf area of cowpea was reduced when sunflower was present. Purslane had very small effects on cowpea leaf area. Sunflower leaf area was reduced by cowpea varieties 288 and IC and purslane leaf area was reduced by cowpea variety 779 and IC in 2000. Sunflower and purslane leaf area were decreased by all three cowpea varieties in 2001. The cowpea canopy height growth rates increased when competing with sunflower, decreased or unaffected with purslane. The experiments suggest that cowpea varieties differed in their ability to compete with purslane and sunflower. IC was the most tolerant variety to weed competition. The results also indicated that erect growth habit might be more effective in suppressing weeds than semi-erect and prostrate growth habit, although additional tests with more varieties are needed.

Nomenclature: Cowpea, *Vigna unguiculata* (L.) Walp.; Purslane, *Portulaca oleracea* L.; Sunflower, *Helianthus annuus* L.

Key word: Competition; Cowpea Cover Crop; Sunflower; Purslane.