Cross-Cultivation for Weed Control in Organic Peanut Production.

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Weed control in organic peanut is based on intensive cultivation. Despite the proven effectiveness of this system, weeds present in-row remain difficult to control. Peanut seed are large, seeded approximately 6 cm deep, and have the growing point below the soil surface for several days after emergence. These attributes allow peanut to tolerate aggressive cultivation with the tine weeder from seeding through full-emergence. In an attempt to improve in-row weed control, trials were conducted to determine if early-season cultivation perpendicular to row direction using a tine weeder is a feasible strategy to manage weeds in organic peanut production. Irrigated field trials were conducted in 2011 and 2012 at Tifton, GA to evaluate combinations of parallel cultivation (cultivation in the same direction of the rows), cross-cultivation (cultivation perpendicular to row direction), and banded applications of herbicides derived from natural products that can be used in certified organic crop production. Weed control results were inconsistent among weed species. Parallel cultivation with the tine weeder tended to be more effective than parallel cultivation with sweeps, particularly for the grassy weed Texas millet. Cross cultivation slightly improved overall weed control and peanut yield, but this benefit did not supplement superior weed control from parallel cultivation with the tine weeder. Cross cultivation with narrow, small-scale equipment used in research trials and small-scale organic farms creates multiple tire tracks across the rows, mashes peanut seedlings, and reduces stand. This appears to have lessened the weed control benefits of cross cultivation by creating voids in the peanut stand that allowed subsequent weed emergence.