

## **Impact of Weed Management on Peanut Yield and Weed Populations the Following Year**

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Field Studies were conducted in 2016 and 2017 in North Carolina at Lewiston-Woodville and Rocky Mount to evaluate weed control and yield of peanut when herbicides were applied postemergence within the first six weeks after planting. Dominant weeds included common ragweed (129 plants m<sup>-2</sup>) and Texas millet (75 plants m<sup>-2</sup>) at Lewiston-Woodville and Palmer amaranth (54 plants m<sup>-2</sup>) and large crabgrass (54 plants m<sup>-2</sup>) at Rocky Mount. Commercially-available herbicides were applied at 2 or 6 weeks after planting (WAP) only; 2 and 4 WAP; 4 and 6 WAP; and 2, 4, and 6 WAP. A non-treated control was also included. No preemergence herbicides were applied. Visual estimates of percent weed control were recorded 8 and 10 WAP. Peanut yield was determined. During the following growing season, cotton was planted directly back into the same plots and herbicides were applied postemergence periodically during the season. Emerged weeds were counted 3, 8, and 20 WAP. Cotton lint yield was determined at the end of the growing season.

In absence of herbicides, peanut yield pooled over years was 790 and 990 lbs/acre at Lewiston-Woodville and Rocky Mount, respectively. At Lewiston-Woodville, yield ranged from 1,580 to 2,380 lbs/acre with only one herbicide application while at Rocky Mount peanut yield ranged from 1,850 to 2,210 lbs/acre with this level of weed management. When herbicides were applied twice, peanut yield ranged from 2,400 to 2,930 lbs/acre at Lewiston-Woodville and 3,050 to 3,430 lbs/acre at Rocky Mount. The greatest yields were recorded when herbicides were applied three times (3,310 lbs/acre at Lewiston-Woodville and 4,740 lbs/acre at Rocky Mount). Common ragweed populations at Lewiston-Woodville the following year in cotton were not affected by weed management the previous year in peanut while ranging from 141 to 222, 1 to 18, and 0 plants m<sup>-2</sup> in cotton at 3, 8, and 20 WAP, respectively. Cotton yield was not affected by herbicide programs in peanut the previous year. At Rocky Mount, Palmer amaranth populations in cotton was not affected by weed management in peanut and ranged from 35 to 72, 12 to 18, and 0 to 1 plants m<sup>-2</sup> in cotton at 3, 8, and 20 WAP, respectively. Cotton lint yield ranged from 1,620 to 1,750 lbs/acre at Lewiston-Woodville with no differences due to weed management during the previous year in peanut. Similar to results at Lewiston-Woodville, cotton lint yield ranged from 820 to 940 lbs/acre and was not affected by weed management in peanut. At both locations imazapic was applied in one of the weed management programs in peanut but did not impact cotton planted the following year. Although these experiments do not constitute a true time of weed removal or duration of weed interference study, results inform practitioners of the relative importance of timing and duration of weed management for peanut in North Carolina.