STAPLE/MSMA COMBINATIONS FOR SICKLEPOD (*SENNA OBTUSIFOLIA)* CONTROL IN COTTON

K. M. Jennings, A. C. York,
A. S. Culpepper and R. B. Batts
North Carolina State University
Raleigh, NC

Abstract

An experiment was conducted at three locations in 1996 and 1997 to evaluate the potential benefits of tank mixing MSMA with Staple for sicklepod (*Senna obtusifolia*) and other broadleaf weed control in cotton (*Gossypium hirsutum*). Treatments were a factorial arrangement of soil-applied herbicides by early postemergence (EPOST) herbicides and late post-directed (LPD) herbicides. Soil-applied herbicides included Prowl or Prowl plus Cotoran. EPOST treatments included no herbicide, Staple, MSMA, Staple plus MSMA, and a POST-directed application of Cotoran plus MSMA. LPD treatments included no herbicide or Bladex plus MSMA. All POST treatments were applied with a non-ionic surfactant at 0.25% (v/v). Cotton was not cultivated.

Weed species evaluated included sicklepod, morningglory species (*Ipomoea* spp.), common cocklebur (*Xanthium strumarium*), common lambsquarters (*Chenopodium album*), and redroot pigweed (*Amaranthus retroflexus*).

Excellent season-long control of redroot pigweed and common lambsquarters was obtained with Prowl plus Cotoran. There was no benefit to the EPOST or LPD treatments for either of these species. However, Prowl plus Cotoran only controlled common cocklebur 71%. Following Prowl plus Cotoran with Bladex plus MSMA increased control to 99% which was comparable to control from Prowl plus Cotoran in conjunction with Staple, MSMA, Staple plus MSMA, or Cotoran plus MSMA. Bladex plus MSMA was not necessary in these systems for cocklebur control.

Early in the season, sicklepod control from Staple plus MSMA was comparable to that of MSMA and Cotoran plus MSMA at 84, 86, and 91%, respectively. Staple alone only controlled sicklepod 79%. Control from Prowl plus Cotoran followed by no herbicide, Staple, MSMA, Staple plus MSMA or Cotoran plus MSMA ranged from 25 to 59% with Staple plus MSMA giving the greatest control. Following these systems with Bladex plus MSMA increased control to at least 83%. Early-season morningglory control from systems including Prowl plus Cotoran followed by Staple, MSMA, Staple plus MSMA, or Cotoran plus MSMA was at least 95%. Prowl plus Cotoran only controlled morningglory 61%. By the end of the season control was similar among MSMA, Staple plus MSMA, and Cotoran plus MSMA and ranged from 55 to 63%. Staple alone gave control similar to Prowl plus Cotoran alone. As with sicklepod control, including Bladex plus MSMA in these systems gave excellent season-long control of at least 92%. Cotton lint yield among the EPOST treatments ranged from 360 to 790 lb/A. Plots treated with Prowl plus Cotoran alone yielded 360 lb and cotton treated with Staple plus MSMA produced the greatest yield of 790 lb. Staple alone, MSMA alone, and Cotoran plus MSMA produced similar yields of 460, 500, and 610 lb, respectively. Following MSMA, Staple plus MSMA, and Cotoran plus MSMA with Bladex plus MSMA resulted in similar yields which ranged from 980 lb to 1130 lb. Adding Bladex plus MSMA to systems including Prowl plus Cotoran and Staple resulted in lower yields of 880 and 920 lb, respectively.

Another experiment was conducted at two locations in 1997 to determine the effects of Staple and MSMA on cotton maturity and yield. Treatments included Staple, MSMA, and a tank mixture of Staple plus MSMA applied POST over-the-top when cotton was in the cotyledon, 1-leaf, 2-leaf, or 5-leaf stage. Plots were maintained weed-free through the application of Prowl plus Cotoran, cultivation, and hand-weeding.

Cotton treated with MSMA or Staple plus MSMA in the cotyledon or 1-leaf stage produced less position one bolls on nodes five through seven relative to the nontreated check. These same plants produced an increased number of bolls on nodes twelve through fifteen. No differences among any treatments were observed on nodes eight through eleven. Cotton lint yield was similar among all treatments including the nontreated check, and ranged from 750 to 860 lb/A.

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