

WEED MANAGEMENT IN COTTON WITH CGA 362622 AND STAPLE SYSTEMS

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Abstract

Field experiments were conducted at five locations in North Carolina from 2000 to 2001 to evaluate the use of Staple with CGA 362622 in conventional cotton. Treatments were a factorial arrangement (all possible combinations) of preemergence (PRE) by postemergence (POST) by late post-directed herbicide options (LAYBY). PRE herbicide options included Prowl (pendimethalin) (0.9 qt/A), Prowl plus Staple (pyrithiobac) (0.6 oz product/A), or Prowl plus Cotoran (fluometuron) (1.0 qt/A). POST treatment options included no herbicide, CGA 362622 (0.05 oz ai/A) POST, CGA 362622 plus Staple (0.6 oz product/A) POST, or CGA 362622 early-postemergence (EPOST) plus CGA 362622 (POST). LAYBY herbicide options included no herbicide or Caparol (prometryn) (0.65 qt/A) plus MSMA (1.33 qt/A). All EPOST, POST, and LAYBY treatments were applied with a non-ionic surfactant at 0.25% (v/v).

Weed species evaluated included common ragweed (*Ambrosia artemisiifolia*), entireleaf morningglory (*Ipomoea hederacea* var. *integriuscula*), ivyleaf morningglory (*Ipomoea hederacea*), jimsonweed (*Datura stramonium*), pitted morningglory (*Ipomoea lacunosa*), prickly sida (*Sida spinosa*), and sicklepod (*Senna obtusifolia*).

At Goldsboro in 2000, all CGA 362622 treatments injured cotton 73-77% at 3 weeks after treatment (WAT). Injury consisted of discoloration and stunting, but not stand loss. By 6 WAT, crop injury was lower at 18-20%. Injury was noted at other locations in treatments containing CGA 362622, but never exceeded 18% at 3 WAT. No injury was observed by 6 WAT in all tests except Goldsboro in 2000.

Early season sicklepod control from the PRE herbicides alone was less than 52%. The addition of CGA 362622 EPOST increased sicklepod control to at least 87% for all systems. CGA 362622 EPOST or EPOST + POST controlled jimsonweed and prickly sida less than 10% and 34%, respectively, with Prowl PRE. Prowl plus Cotoran PRE alone controlled jimsonweed and prickly sida 80 and 69%, respectively. Any herbicide system containing Staple, either PRE or POST, controlled jimsonweed >90% and prickly sida >85%. Prowl plus Cotoran PRE fb CGA 362622 EPOST or EPOST + POST controlled jimsonweed and prickly sida >88%. All herbicide systems that included Prowl plus Cotoran PRE and CGA 362622 EPOST controlled common ragweed >98%. Early season control of morningglory spp. was >85% for treatments that included POST herbicide(s).

All systems but one required both POST and LAYBY systems for full season control of sicklepod. Prowl plus Cotoran PRE fb CGA 362622 EPOST + POST did not require a LAYBY treatment and controlled sicklepod >90%. A system that included a LAYBY herbicide with any POST treatment controlled sicklepod, jimsonweed, prickly sida, entireleaf morningglory, ivyleaf morningglory, and pitted morningglory >98%, and was better than herbicide systems that did not include a LAYBY herbicide treatment.

Systems without POST herbicide(s) were not harvestable. Early season injury was not reflected in cotton yields. LAYBY herbicide treatments increased yields (>620 lbs/A). With the exception of Prowl PRE, cotton treated with POST herbicide(s) plus a LAYBY treatment yielded similarly for each PRE herbicide treatment. Staple PRE or POST plus CGA 362622 provide complementary weed control, and when used together offer effective broad spectrum broadleaf weed control for cotton when used in conjunction with soil applied herbicides and properly timed LAYBY herbicides. Cotton yields with Cotoran PRE were numerically greater than with Staple PRE.