EFFECTIVENESS OF AMMONIUM THIOSULFATE AS A SAFENER AND WEED CONTROL ADDITIVE FOR MSMA APPLIED POSTEMERGENCE ON COTTON

J.C. Sanders, C.D. Monks, M.G. Patterson, D.P Delaney, D.P. Moore, and L.W. Wells
Auburn University
Alabama Agricultural Experiment Station
Auburn, AL

Abstract

Until recently, there were no herbicides with broadleaf weed control activity that could be applied postemergence over-the-top that would not adversely affect cotton growth, development, or yield. Ammonium thiosulfate has been marketed to reduce MSMA effects on cotton; however there is no published data to confirm this use. Field experiments were conducted in 1997 and 1998 at the Prattville Experiment Field in Prattville, Alabama and the Wiregrass Substation in Headland, Alabama to determine if ammonium thiosulfate additions to MSMA would affect weed control, lessen MSMA-induced cotton injury, lessen the fruiting and maturity delay on cotton caused by MSMA, and lessen the MSMA-induced yield reduction in cotton. Treatments included a complete factorial combination of MSMA (0, 1.12, and 2.24 kg/ha) and ammonium thiosulfate (Sul-Max 15) (0, 1.75, and 3.50 L/ha). Treatments were applied before cotton was at the pinhead square stage and the weeds were 5 cm tall. Weeds evaluated were sicklepod [*Senna obtusifolia* (L.) Irwin & Barneby], morningglory spp. (*Ipomoea* spp.), yellow nutsedge (*Cyperus esculentus* L.), and Texas panicum (*Panicum texanum* Buckl.). Crop injury, cotton maturity, and yield were also evaluated.

Ammonium thiosulfate additions generally increased MSMA's efficacy in controlling weeds and had little effect on cotton injury. The addition of ammonium thiosulfate to MSMA generally increased sicklepod, morningglory spp., yellow nutsedge, and Texas panicum control approximately 10%. MSMA was generally more injurious to cotton initially with the addition of ammonium thiosulfate, but the cotton recovered rapidly. Boll count data demonstrated that ammonium thiosulfate additions to MSMA did not affect the maturity delay often induced by MSMA. Research indicated that ammonium thiosulfate additions to MSMA did not lessen yield reductions caused by MSMA. Ammonium thiosulfate can thus be added to MSMA to enhance weed control, but it will not reduce MSMA-induced cotton injury.

Reprinted from the *Proceedings of the Beltwide Cotton Conference*
Volume 2:1458-1458 (2000)
National Cotton Council, Memphis TN