WHERE DOES ISOXAFLUTOLE FIT INTO COTTON WEED MANAGEMENT

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Abstract

The commercialization of isoxaflutole (IFT) tolerant cotton will allow for the use of a new MOA in cotton production. IFT is an HPPD inhibiting herbicide that can provide a new tool for managing troublesome weeds and potentially delay the development of herbicide-resistant biotypes. Field research was conducted at research stations near Clayton, Lewiston, and Rocky Mount, NC to evaluate preemergence and postemergence efficacy of IFT. Preemergence trials compared IFT at rates of 1.5, 2, and 3 fl oz/A to cotton preemergence standards and evaluated IFT at 2 fl oz/A in combination with standard residual herbicides. Standard treatments included Warrant (48 fl oz/A), Reflex (12 fl oz/a), Direx (16 fl oz/A), Cotoran (32 fl oz/A), Brake (16 fl oz/A), and Staple LX (2.1 fl oz/A). In postemergence trials, IFT at 1.5 and 3 fl oz/A was compared to Roundup Powermax (32 fl oz/A), Liberty (32 fl oz/A), Staple (3.6 fl oz/A), Roundup + Warrant (32 + 48 fl oz/A), and Liberty + Warrant (32 + 48 fl oz/A). In addition, IFT at 1.5 and 3 fl oz/A was evaluated in combination with all the previously stated postemergence treatments. Both preemergence and postemergence trials included a non-treated check for comparison. Visual estimates of percent weed control were collated at 14, 21, 28, 35, 42, 56, and 70 days after application (DAA). At Clayton, preemergence control of Palmer Amaranth (*Amaranthus palmeri)* 28 DAA ranged from 92 to 98% for all tank mix combinations containing IFT, while control by preemergence standards ranged from 43 to 84%. At Lewiston, preemergence control of common ragweed (*Ambrosia artemisiifolia*) was evaluated and tank mix combinations containing IFT controlled the weed 88 to 99% control, while control by standards was between 54 and 74%. IFT controlled emerged Palmer amaranth 19 to 30% 28 DAA at Clayton whereas IFT (3 fl oz/A) + Liberty (32 fl oz/A) + Warrant (48 fl oz/A) controlled the weed 72%. These experiments demonstrate that combinations of IFT and cotton preemergence standards can improve the control of Palmer amaranth and common ragweed. Additionally, research suggest IFT is ineffective postemergence but will serve as a viable postemergence residual option.