EVALUATION OF COVER CROPS AND HERBICIDE PROGRAMS FOR WEED MANAGEMENT IN COTTON

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Abstract

Besides several crop production benefits, another potential benefit from cover crops include contribution on weed suppression. Field research was conducted to evaluate weed suppression response from wheat, oat, rye, carinata (*Brassica* spp.), and no cover crops, and to integrate them with herbicide programs in a strip-tilled XtendFlex cotton production system. Herbicide programs consisted of PRE applied fomesafen, fluridone, or pyroxasulfone then fb POST applied dicamba for sicklepod and tropical spiderwort control. There was no effect of cover crop for sicklepod or tropical spiderwort control at 4 WAT. Sicklepod control was ≥ 5% with PRE-applied fluridone compared to pyroxasulfone or fomesafen at 4 WAT; however no differences were observed for tropical spiderwort control. At 4 wk after dicamba application, there was no effect of cover crop on sicklepod control; however, tropical spiderwort control was ≥ 45% with rye compared to wheat. A herbicide program consisting of PRE applied fluridone provided higher control of sicklepod and tropical spiderwort compared to the fomesafen program. Cotton injury was minimal (≤ 3%) from PRE applied herbicides at 4 WAT; however, injury was greater with carinata compared to rye cover crop at 4 wk after dicamba application. Cotton height was 92 cm after rye compared to 78 cm after carinata at 6 wk after dicamba application. Similarly, cotton height was 13 cm taller with fluridone compared to reflex, pyroxasulfone, or no herbicide treatment. Seed cotton yield was significantly higher with PRE applied fluridone herbicide (1,772 kg ha^{-1}) compared to fomesafen, pyroxasulfone, or no herbicide treatment (≤ 1,291 kg ha^{-1}). This research illustrates that combination of a rye cover crop with PRE-applied fluridone has potential for sicklepod and spiderwort control in Xtendflex cotton production systems.