



Mississippi Corn Promotion Board 2021 Progress Report

Project

Title: One-Shot Weed Management Programs in Mississippi Corn

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Project Summary (Issue/Response)



A field study was conducted in 2021 at the Delta Research and Extension Center, in Stoneville, Mississippi, to evaluate one-shot herbicide application programs for glyphosate-resistant Palmer amaranth (*Amaranthus palmeri*), pitted morningglory (*Ipomoea lacunosa*), prickly sida (*Sida spinosa*), broadleaf signalgrass (*Urochloa platyphylla*), and hemp sesbania (*Sesbania herbacea*) control in Mississippi corn (*Zea mays*). Corn (Pioneer 1870 YHR) was planted on beds with 40-inch row spacing at a seeding rate of 2.5 seeds ft⁻¹ on April 19, 2021 and emerged on April 28. The study was designed as a randomized complete block with 20 herbicide treatments and four replications. The herbicide programs contain eight preemergence (PRE), six postemergence (POST) at V2-V3, and six postemergence at V3-V4 corn stage. A weedy (nontreated) and weed-free check were included in the study. The one-shot herbicide programs as follows:

PRE: 1) Acuron (S-metolachlor + atrazine + mesotrione + bicyclopyrone) at 80 fl oz/A; 2) Verdict (Haloxifop) at 10 fl oz/A + Zidua SC (pyroxasulfone) at 5 fl oz/A + AAtrex (atrazine) at 48 fl oz/A; 3) Verdict + Zidua SC + AAtrex at 64 fl oz/A; 4) Dual II Magnum (S-metolachlor) at 1.3 pt/A + AAtrex at 1 qt/A + Callisto (mesotrione) at 6.5 fl oz/A; 5) Axiom (flufenacet + metribuzin) at 14 oz wt/A + AAtrex at 64 fl oz/A; 6) Axiom + Callisto; 7) Axiom + Zidua SC; 8) Axiom + Callisto + Zidua SC.



Project Results/Outcomes

PRE: Acuron (S-metolachlor + atrazine + mesotrione + bicyclopyrone) at 80 fl oz/a applied preemergence provided 99, 91, 91, 97, 96% control of Palmer amaranth, pitted morningglory, hemp sesbania, prickly sida, and broadleaf signalgrass at 7 weeks-after emergence (WAE). Verdict (haloxifop) at 10 fl oz/a + Zidua SC (pyroxasulfone) at 5 fl oz/a + AAtrex (atrazine) at 64 fl oz/a, Axiom (flufenacet + metribuzin) at 14 oz/a + Callisto (mesotrione) at 6.5 fl oz/a, and Axiom + Zidua (pyroxasulfone) at 5 fl oz/a as one-shot preemergence treatments provided comparable or better results as Acuron. Therefore, these treatments can be used as alternative treatments as Acuron. Corn yield was comparable too.

POST (V2-V3 and V3-V4): Halex GT at 3.6 pt/A + AAtrex at 1.5 qt/A + COC applied (one-shot) postemergence at V3-V4 stage of corn provided 99 to 100% control of Palmer amaranth, pitted morningglory, hemp sesbania, prickly sida, and broadleaf signalgrass by 7 WAE. ImpactZ + AAtrex + Roundup PowerMax + MSO and Halex GT + Sencor provided comparable results in terms of broad-spectrum weed control and corn yield (181 to 192 bu/a) as standard treatment. Therefore, these treatments can

Project Results/Outcomes

be used as alternative treatment as standard treatment for herbicide program at V3-V4 stage of corn. Weed-free check plot produced 184 bu/a corn yield.

Nontreated check



ImpactZ at 8 oz/a + AAtrex at 4 pt/A + Roundup PowerMax at 32 oz/a + MSO at 0.25% v/v.



These are photos of the nontreated check and treatment 20 (ImpactZ at 8 oz/a + AAtrex at 4 pt/A + Roundup PowerMax at 32 oz/a + MSO at 0.25% v/v (at V3-V4 application)).

Project Impacts/Benefits

ImpactZ + AAtrex + Roundup PowerMax + MSO (Trt. 20) and Halex GT + Sencor (Trt. 16) provided comparable results in terms of broad-spectrum weed control and corn yield (181 to 192 bu/a) as standard treatment (Halex GT at 3.6 pt/A + AAtrex at 1.5 qt/A + COC). Therefore, these treatments can be used as alternative treatment as standard treatment for herbicide program at V2-V3 or at V3-V4 stages of corn. Weed-free check plot produced 184 bu/a corn yield. In conclusion, there are some one-shot herbicide programs (for preemergence and postemergence at V2-V3 or at V3-V4 stage of corn) as good as the standard treatment that could be used in weed management programs in Mississippi corn.

Project Deliverables

This study will be presented at Weed Science Society of America (WSSA) Annual Meeting 2022.