

Herbicide panel in Kentucky Bluegrass

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Introduction

In fall of 2023, an herbicide trial was conducted to evaluate the safety and efficacy of multiple herbicides for potential use in Kentucky bluegrass grown for seed. Annual grass weeds, such as Italian ryegrass (*Lolium multiflorum*), are difficult to control in grass seed fields and infestations can reduce stand quality, longevity, and productivity. The herbicides used in this trial included Axiom DF (flufenacet + metribuzin), Callisto (mesotrione), Metribuzin, Goal (Oxyfluorfen), Prowl H2O (pendimethalin), Dual II Magnum (metolachlor), and Sinbar (terbacil).

Methods

The study was established in a 2nd-year Kentucky bluegrass field near Rockford, WA. Treatments were applied when the Kentucky bluegrass was 3 to 5 tiller and actively growing in the fall of 2023. Treatments were applied with a CO₂ powered backpack sprayer and a 5 ft boom with 3 Teejet 11002VS nozzles with an effective spray pattern of 8 ft and calibrated to deliver 15 gallons per acre (GPA). The study was conducted in a randomized complete block design with 4 replications. Plots were 10 ft by 25 ft long. Treatments were assessed for crop response and weed control in the spring, 6 months after treatment. Two ½ m² subsamples were harvested from each plot to estimate yield. Data were subject to ANOVA using the Agricultural Research Manager software (Ver. 2024).

Table 1. Treatment application details.

| Study Application | |
|--------------------------------|----------------|
| Date | 10/12/2023 |
| Application volume (GPA) | 15 |
| Timing | Postemergence |
| Crop Stage | 3 to 5 tillers |
| Air temperature (°F) | 55 |
| Wind velocity (mph, direction) | 4, NNE |
| Relative humidity (%) | 66 |

Results

Weed control ratings for Italian ryegrass were consistent across evaluation dates, with all treatments achieving complete control. There was also no noticeable phytotoxicity to any of the chemistries present. Yields were not significantly different between treatments (Table 2), though the highest numerical yield was observed in Metribuzin-treated plots (2,800 lbs/A). While not statistically significant, the comparatively low numerical yield in Sinbar-treated plots (1,300 lbs/A) indicates the need for further exploration of application timing or rate adjustments to enhance crop safety.

Table 2. Yield for Kentucky bluegrass in response to multiple herbicides. Means with the same letter are not statistically different ($\alpha = 0.05$).

| | Treatment ¹ | Yield (lb/A) | | |
|---|------------------------|--------------|------|----------|
| | | Rate | | 7/2/2024 |
| 1 | Nontreated | | | 1720 |
| 2 | Axiom | 6 | oz/A | 1520 |
| 3 | Callisto | 16 | oz/A | 1870 |
| 4 | Metribuzin | 3 | oz/A | 2810 |
| 5 | Goal | 8 | oz/A | 2260 |
| 6 | Prowl H2O | 64 | oz/A | 2260 |
| 7 | Dual II Magnum | 16 | oz/A | 1950 |
| 8 | Sinbar | 8 | oz/A | 1270 |