

Desiccant Study in Kentucky Bluegrass for Seed for Dry Down Following Harvest in Preparation for Open Field Burning, 2012

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Abstract

Defoliants and desiccants are chemicals that can be used in agricultural production to remove crop residues after harvest. However, improper use of desiccants can cause yield loss and reduced seed quality. In wet years, Kentucky bluegrass fields are still green and open field burning following harvest can be difficult. This research compared Firestorm (Paraquat) applied at four different rates for quality of desiccation, quality of open field burn following application and seed yield the follow summer.

The herbicide was effective as a desiccant, particularly at 2 pts/acre or more. Firestorm up to 4 pts/acre did not negatively affect seed yield. *Firestorm is not currently registered for use in grass seed production.*

Introduction

In central Oregon, open field burning following harvest of Kentucky bluegrass is an important to remove vegetative grown and open the crown of the plant to sunlight to encourage fertile tillers in the fall that produce seed the following summer. With excessive soil moisture after harvest, plants remain green and are uniform burning is difficult. Large propane burners are used when open field burning is inadequate. An option to create dry down prior to burning is the use of a desiccant like Paraquat to improve the quality of burn. However, improper use of desiccants can cause yield loss and reduced seed quality. Paraquat is not currently registered for use in grass seed production.

The objective of this research was to compare Paraquat applied at four different rates for quality of desiccation, quality of open field burn following application and seed yield the following summer.

Methods and Materials

A field trial was conducted in two established commercial field of Kentucky bluegrass grown for seed on the Agency Plains, north of Madras. Firestorm was applied using a CO₂ backpack sprayer with a handheld boom outfitted with 8002 TeeJet nozzles operated at 40 psi and 20 gallons of water per acre. Treatments included Firestorm at rates of 1 pts/acre, 2 pts/acre, 3 pts/acre and 4 pts/acre. An NIS surfactant at 2 pt/100 gal was added to all treatments. Size was 10 ft x 25 ft were replicated four times in a randomized complete block design.

Treatments were applied at Site 1 on August 10 and plant desiccation was recorded on August 16, 2011. The evaluated field was open burned on August 18 and post burn observations for were made on August 19, 2011.

Treatments were applied at Site 2 on August 17 and observations of percent dry plants in plot were recorded on August 22, 2011. The field was open burned on August 23, 2011. No post burn observations were taken, due to any observable differences between plots.

Plots were swathed using a small-plot, forage harvester. Seed samples were bagged and hung to dry in three-side equipment shed on June 29 at Site 2 and July 5, 2012 at Site 1. Once samples had adequately dried, they were processed through a stationary Wintersteiger plot combine. Seed samples were processed using a debearder and then run through a small scale Clipper cleaner at the USDA-ARS Seed Conditioning lab in Corvallis, Oregon.

Results and Discussion

Firestorm was an effective desiccant, particularly at 2 pt/acre to 4 pt/acre, and provided uniform dry down and uniform flaming (Table 1). Firestorm applied at 1 pt/acre provided both less drying down and a less even burn than the 2 to 4 pt/acre rates. There were no differences in seed yield between any of the treated and untreated plots. These data indicate that Firestorm up to 4 pt/acre applied as desiccant after seed harvest has no impact in Kentucky bluegrass seed yield.

Table 1. Percent plot dry down pre application of Firestorm, percent plot burned, and seed yield on two Kentucky bluegrass fields near Madras, Oregon, 2011-2012.

| Treatment | Pre-Burn | | Post Burn | Seed Yield | |
|------------------|------------------------|--------|-----------|------------------|-----------|
| | Site 1 | Site 2 | Site 1 | Site 1 | Site 2 |
| | ---% plant dry down--- | | % burned | -----lbs/ac----- | |
| Firestorm 1 pt/a | 58 c | 73 b | 70 a | 597 | 801 |
| Firestorm 2 pt/a | 81 b | 95 a | 92 a | 505 | 785 |
| Firestorm 3 pt/a | 90 a | 98 a | 97 a | 691 | 798 |
| Firestorm 4 pt/a | 93 a | 98 a | 98 a | 566 | 816 |
| Untreated | 0 d | 0 c | 19 b | 573 | 790 |
| <i>LSD</i> | 3.9 | 7.3 | 30 | <i>NS</i> | <i>NS</i> |

