Report

Evaluation of Application Timings to Maximize Herbicide Selectivity for Annual Bluegrass Control in Bermudagrass

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Objectives. To evaluate the influence of growing degree-day application timings on the selectivity of Finale and Roundup applied with other herbicides for annual bluegrass control in bermudagrass.

Materials and Methods

Location. A field experiment was conducted on a 'Tifway' bermudagrass fairway at the UGA Griffin Campus from January to April 2019. Turf was maintained at 0.5" height with reel-mowers during active growth. Soil was a Cecil sandy loam with a 6.0 pH and 2.5% organic matter. Treatments were the factorial combination of five herbicide programs at three timings. Herbicides applied included:

1. Roundup Pro at 16 oz/acre + Simazine 4L at 1 qt/acre
2. Sureguard at 12 oz/acre + NIS at 0.25%
3. Roundup Pro at 16 oz/acre + Simazine at 1 qt/acre + Ronstar Flo at 3 lb ai/acre
4. Finale at 6 qt/acre
5. Finale at 6 qt/acre + Ronstar Flo at 3 lb ai/acre

A nontreated check was included. Application timings were triggered at 0, 100, or 200 growing degree-days (GDD) using a base temperature of 50° F beginning January 1, 2019. The application dates were January 3, February 11, and March 6 for the 0, 100, and 200 GDD, respectively. Bermudagrass was completely dormant on the day of initial treatments. Herbicides were applied with a CO_2-pressured sprayer calibrated to deliver 40 gallons per acre with a three-nozzle (TeeJet 8002) boom. Weed infestations were rated visually in April on a percent scale. Bermudagrass greenup was visually rated on a percent scale biweekly after initial greenup. Data were subjected to analysis of variance in ARM. Means were separated with Fisher's LSD test at $\alpha = 0.05$.

Results

There was no meaningful greenup detected in January or February in the nontreated plots. At 200 GDD (March 6), bermudagrass was 90% dormant and significant transition was not

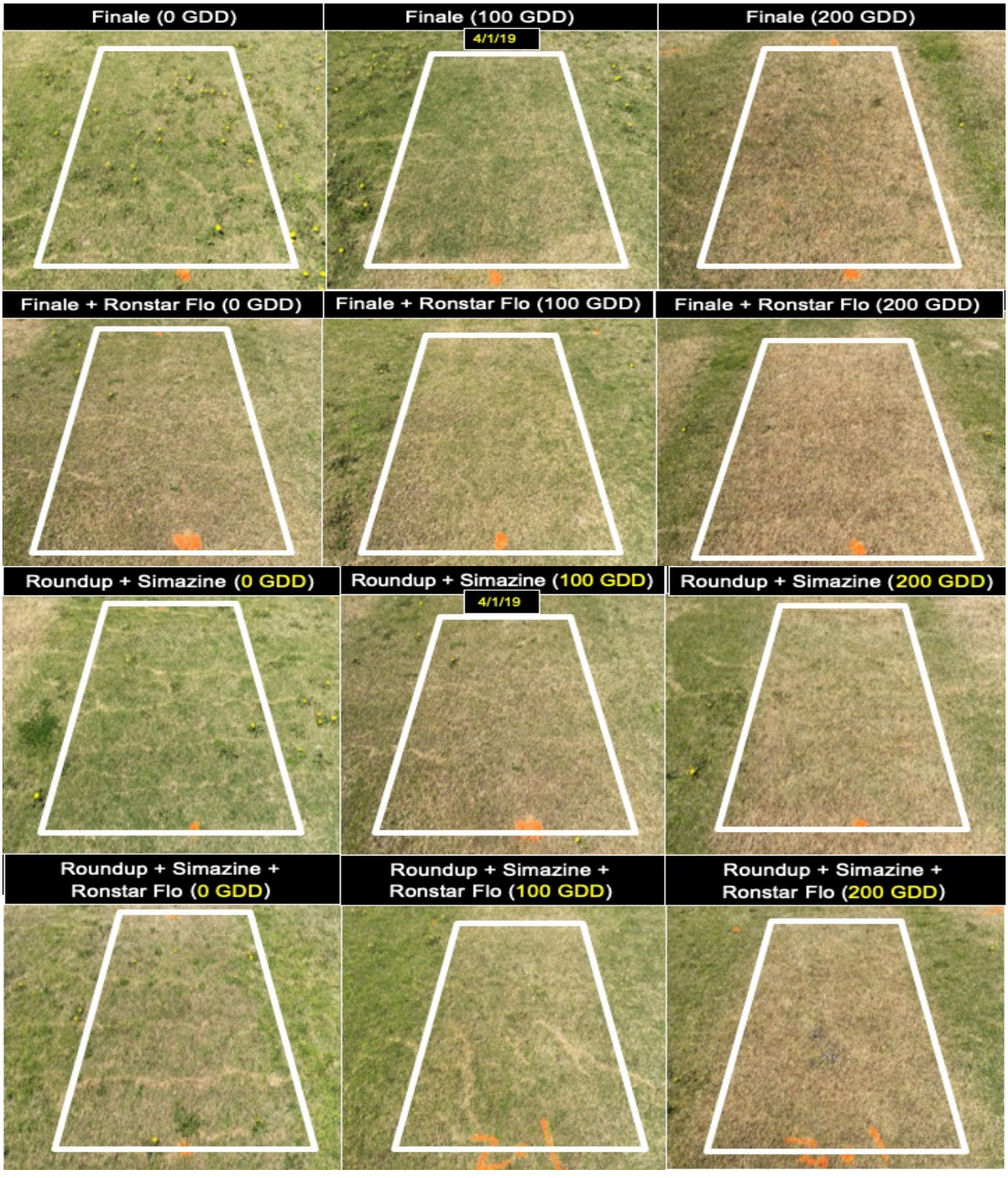
detected until April. On April 1, the nontreated bermudagrass had reached 58% greenup and all plots treated with herbicides at 0 GDD were similar to the nontreated. Finale + Ronstar Flo and Roundup + Simazine + Ronstar Flo applied at 100 GDD reduced greenup by half of the nontreated on April 1 but turf recovered to similar levels by the following week. No other herbicide program applied at 100 GDD reduced bermudagrass transition from the nontreated in April.

Herbicides applied at 200 GDD (March 6) caused the most severe delays in bermudagrass greenup. Finale and Finale + Ronstar Flo reduced bermudagrass greenup to 11% or less on April 1 and less than 39% on April 8. There was no difference in bermudagrass greenup between Finale applied with or without Ronstar Flo. These reductions in greenup were comparable to Roundup Pro + Simazine with and without Ronstar Flo. Sureguard was the least injurious herbicide applied at 200 GDD and turf greenup was comparable to the nontreated. By April 24, bermudagrass treated with Finale at 200 GDD had about 25% less greenup than the nontreated plots.

Annual bluegrass infestations averaged 13% in the nontreated plots on April 29, 2019. Annual bluegrass control by late April was similar from all herbicide programs and timings evaluated, ranging ~85 to 100%. Finale and Roundup + Simazine provided poor control (<70%) of common dandelion when applied at 0 GDD, but treatments at 100 and 200 GDD provided good (80 to 89%) to excellent (≥90%) control on April 29. Sureguard provided poor control of dandelion at 0 and 200 GDD, but applications at 100 GDD gave good control. Dichondra infestations averaged 16% cover in the nontreated plots on April 29. There was significant variability throughout the field with dichondra cover and statistical differences among herbicides were not detected from the nontreated.

Recommendations

When bermudagrass begins the year at complete dormancy, superintendents should be able to maximize the selectivity of Finale and Roundup + Simazine for controlling annual bluegrass when treatments are made at 0 or 100 GDD using our model and rates tested. The combinations with Ronstar Flo may temporarily delay bermudagrass transition at 100 GDD but applications at 200 GDD are not recommended due to excessive turf injury. If spraying herbicides is desirable in late winter, superintendents could use Sureguard (51WG) at 12 oz/acre if applications are delayed to 200 GDD to help reduce delays in greenup compared to Ronstar Flo combinations with Finale or Roundup.


Finale (0 GDD)
Finale (100 GDD)
4/1/19
Finale (200 GDD)
Finale + Ronstar Flo (0 GDD)
Finale + Ronstar Flo (100 GDD)
Finale + Ronstar Flo (200 GDD)
Roundup + Simazine (0 GDD)
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