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# 2017
# Turfgrass Proceedings

***The New Jersey Turfgrass Association***

In Cooperation with
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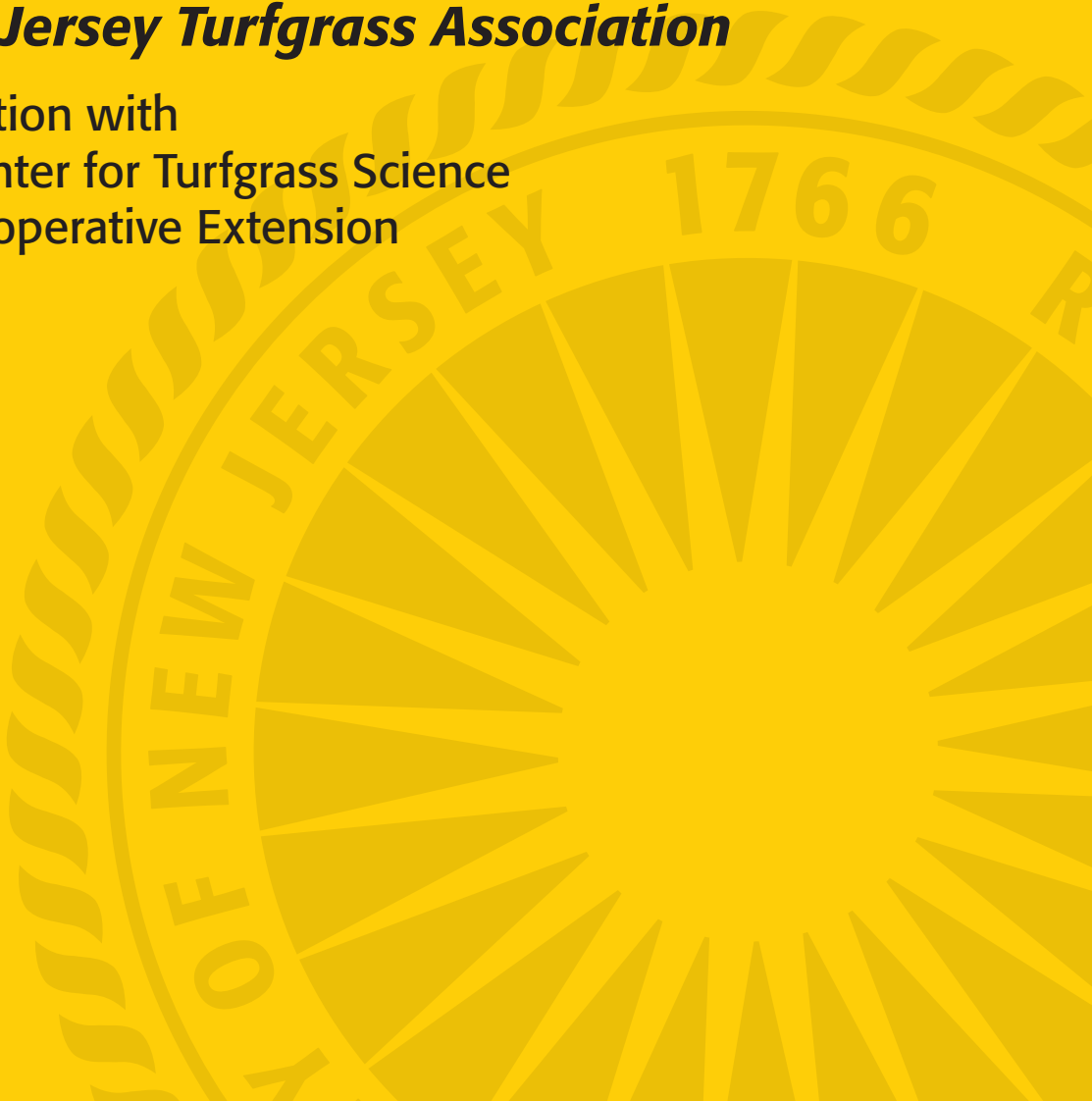

# 2017 RUTGERS TURFGRASS PROCEEDINGS

**of the**

**GREEN EXPO Turf and Landscape Conference**
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The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey in cooperation with the New Jersey Turfgrass Association. The purpose of this document is to provide a forum for the dissemination of information and the exchange of ideas and knowledge. The proceedings provide turfgrass managers, research scientists, extension specialists, and industry personnel with opportunities to communicate with co-workers. Through this forum, these professionals also reach a more general audience, which includes the public.

This publication includes lecture notes of papers presented at the 2017 GREEN EXPO Turf and Landscape Conference. Publication of these lectures provides a readily available source of information covering a wide range of topics and includes technical and popular presentations of importance to the turfgrass industry.

This proceedings also includes research papers that contain original research findings and reviews of selected subjects in turfgrass science. These papers are presented primarily to facilitate the timely dissemination of original turfgrass research for use by the turfgrass industry.

Special thanks are given to those who have submitted papers for this proceedings, to the New Jersey Turfgrass Association for financial assistance, and to Barbara Fitzgerald and Anne Diglio for administrative and secretarial support.

Dr. Ann Brooks Gould, Editor
Dr. Bruce B. Clarke, Coordinator

# PRE-EMERGENCE GOOSEGRASS CONTROL WITH COMMERCIALLY AVAILABLE HERBICIDES, 2017

**Matthew T. Elmore and Daniel P. Tuck[1]**

The objective of this experiment was to evaluate various commercially available herbicides for pre-emergence goosegrass (*Eleusine indica*) control.

## MATERIALS AND METHODS

This experiment was conducted at the Rutgers Horticultural Farm II in North Brunswick, NJ on a sandy loam soil with a pH of 5.5 and a history of goosegrass. A poor stand of mature perennial ryegrass (*Lolium perenne*) (turf cover ~40%) was also present. The site was mowed weekly at 1.5 inches with a reel mower and irrigated at least weekly to prevent wilt. No additional fertilizers or plant protectants were applied to the trial. Quinclorac was applied to the entire trial site in late July to control crabgrass.

Treatments (Table 1) were arranged in a randomized block design and replicated three times. The treatments were applied to 4 x 7-ft plots using a $CO_2$-powered sprayer calibrated to apply 44 GPA through a single 9504EVS nozzle at 44 PSI. Granular treatments were applied using a shaker jar. Applications A, B, and C were made on 24 February, 13 April, and 1 June 1 2017, respectively. A 12-inch wide, non-treated buffer strip was maintained between each plot providing a 3 x 7-ft treated area.

Goosegrass control and perennial ryegrass injury was evaluated visually on a 0 (no injury or control) to 100% (complete control) scale relative to the non-treated control. Goosegrass cover was moderate (~30%) in the non-treated control plots at the final evaluation in September. Data were analyzed subjected to ANOVA in ARM (v2017) and Fisher's Protected LSD ($p \leq 0.05$) was used to separate means.

## RESULTS

No perennial ryegrass injury was observed at any time during the experiment (data not presented).

Treatments (Table 2) that provided similar goosegrass control at 15 weeks after the C application included: 1) sequential applications of prodiamine; 2) sequential applications of oxadiazon; 3) a single oxadiazon application in April; 4) prodiamine applied singly in February; and 5) sequential applications of dithiopyr in April/June. No treatment provided >90% goosegrass control. Single applications of dithiopyr provided poor (<50%) goosegrass control.

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Table 1. Herbicide treatments applied for pre-emergence goosegrass (*Eleusine indica*) control at the Rutgers Horticultural Research Farm II, North Brunswick, NJ. Applications A, B, and C were made on 24 February, 13 April, and 1 June, 2017.

| Treatment | Product | Active Ingredient | Product Rate (per acre) | Active Ingredient Rate (lb per A) | Application Code |
|---|---|---|---|---|---|
| 1 | Non-treated | – | – | – | – |
| 2 | Dimension 2EW | dithiopyr | 32 fl oz | 0.5 | A |
| 3 | Dimension 2EW | dithiopyr | 32 fl oz | 0.5 | B |
| 4 | Ronstar 2G | oxadiazon | 87 lb | 1.7 | B |
| 5 | Echelon | prodiamine + sulfentrazone | 12 fl oz | 0.22 + 0.11 | B *fb*[1] C |
| 6 | Barricade 65WG | prodiamine | 1.54 lb | 1.0 | A |
| 7 | Barricade 65WG | prodiamine | 1.54 lb | 1.0 | B |
| 8 | Dimension 2EW | dithiopyr | 16 fl oz | 0.25 | A *fb* C |
| 9 | Barricade 65WG | prodiamine | 0.77 lb | 0.5 | A *fb* C |
| 10 | Ronstar 2G | oxadiazon | 75 lb | 1.5 | B *fb* C |
| 11 | Dimension 2EW | dithiopyr | 16 fl oz | 0.25 | B *fb* C |
| 12 | Barricade 65WG | prodiamine | 0.77 lb | 0.5 | B *fb* C |
| 13 | Ronstar 2G | oxadiazon | 44 lb | 0.65 | B *fb* C |

[1] *fb* = followed by

Table 2. Goosegrass control from pre-emergence herbicide applications in North Brunswick, NJ. Applications A, B, and C were made on 24 February, 13 April, and 1 June, 2017.

| Treatment | Product | Application Code | Goosegrass Control (%)[1] 17 Aug. 25 WA-A[2] 11 WA-C[3] | Goosegrass Control (%)[1] 18 Sept. 29 WA-A 15 WA-C |
|---|---|---|---|---|
| 1 | Non-treated | – | 0 cd | 0 e |
| 2 | dithiopyr (0.5 lb) | A | 2 d | 3 e |
| 3 | dithiopyr (0.5 lb) | B | 14 bcd | 48 cd |
| 4 | oxadiazon (1.7 lb) | B | 38 abc | 63 a-d |
| 5 | prodiamine + sulfentrazone | B *fb*[4] C | 35 abc | 55 cd |
| 6 | prodiamine (1.0 lb) | A | 69 a | 85 a |
| 7 | prodiamine (1.0 lb) | B | 37 abc | 60 bcd |
| 8 | dithiopyr (0.5 lb) | A *fb* C | 28 a-d | 45 d |
| 9 | prodiamine (0.5 lb) | A *fb* C | 64 a | 87 a |
| 10 | oxadiazon (1.5 lb) | B *fb* C | 52 ab | 83 ab |
| 11 | dithiopyr (0.25 lb) | B *fb* C | 55 ab | 70 abc |
| 12 | prodiamine (0.5 lb) | B *fb* C | 35 abc | 72 abc |
| 13 | oxadiazon (0.65 lb) | B *fb* C | 59 a | 80 ab |
| | | LSD at 5% = | 29-40 | 25 |

[1] Goosegrass control evaluated on a 0 to 100% scale, where 0 = no control and 100 = complete control relative to the non-treated control. Means followed by the same letter are not sigificantly different according to Fisher's Protected LSD test ($p \leq 0.05$)

[2] WA-A = weeks after application A

[3] WA-C = weeks after application C

[4] *fb* = followed by