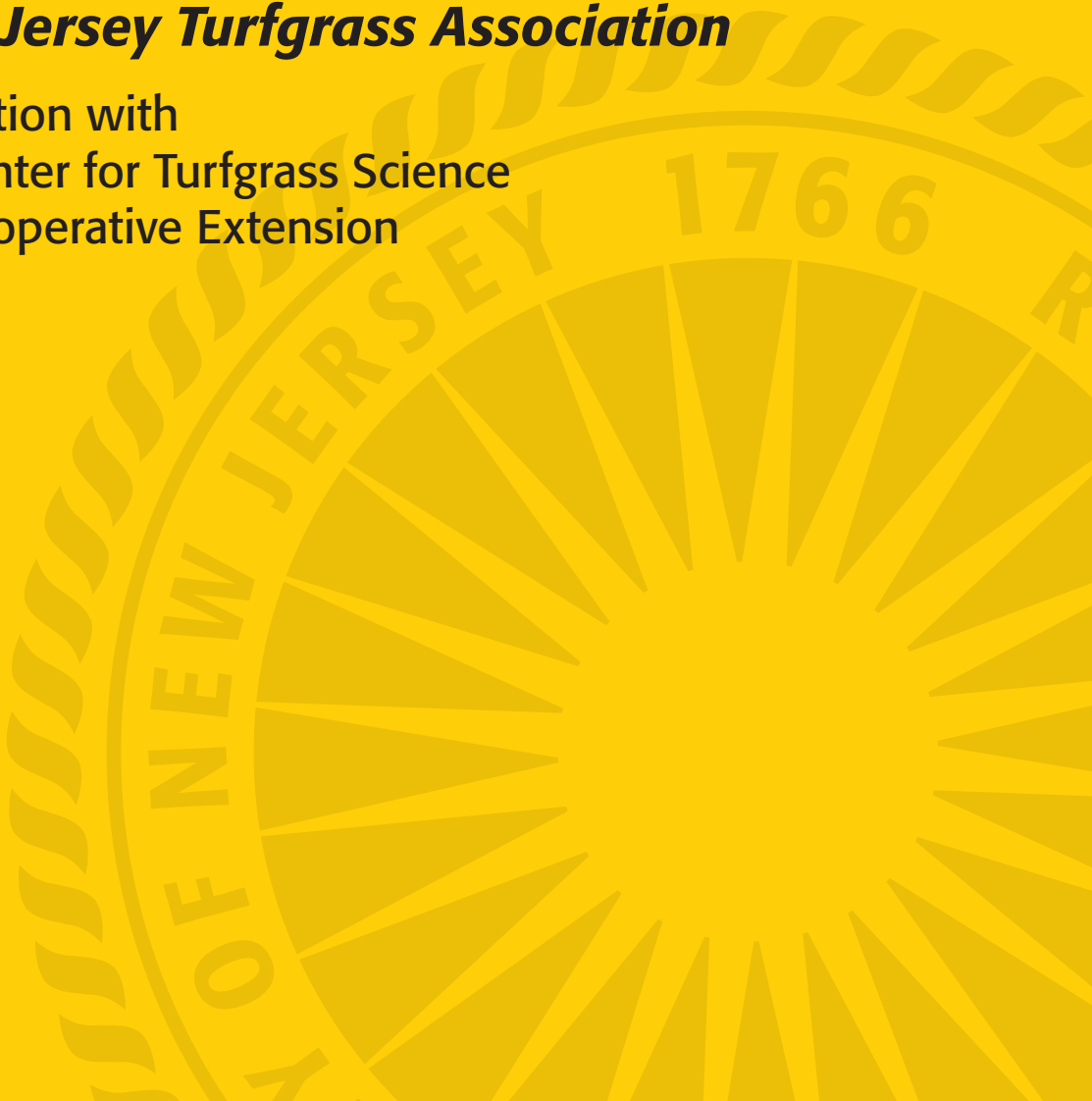
RUTGERS
New Jersey Agricultural
Experiment Station

2017
Turfgrass Proceedings

The New Jersey Turfgrass Association

In Cooperation with
Rutgers Center for Turfgrass Science
Rutgers Cooperative Extension



2017 RUTGERS TURFGRASS PROCEEDINGS

of the

GREEN EXPO Turf and Landscape Conference
December 5-7, 2017
Borgata Hotel
Atlantic City, New Jersey

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 SMOOTH CRABGRASS CONTROL WITH ALTERNATIVE PRODUCTS, 2017

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

The objective of this experiment was to evaluate alternatives to traditional synthetic herbicides for pre-emergence smooth crabgrass (*Digitaria ischaemum*) control.

MATERIALS AND METHODS

This experiment was conducted at the Rutgers Plant Science Research and Extension Farm, Adelphia, NJ on a sandy loam soil with a thin stand of mature 'Manhattan IV' perennial ryegrass (*Lolium perenne*) (turf cover ~30%). The site was mowed weekly at 1.5 inches and irrigated as needed to prevent wilt. No fertilizers or plant protectants were applied to the trial site during the experiment.

Treatments (Table 1) were arranged in a randomized block design and replicated four 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 11 April and 12 and 31 May 2017, respectively. A 12-inch wide, non-treated buffer strip was maintained between each plot providing a 3 x 7-ft treated area.

Smooth crabgrass control and perennial ryegrass injury were evaluated visually on a 0 (no control or injury) to 100% (complete control or complete necrosis) scale. Data were 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).

Three sequential applications of Opportune at 5.9 fl oz per 1000 ft^2 provided 40% crabgrass control at 9 weeks after the initial treatment but not at 17 weeks after the initial treatment (Table 2). Except for Dimension, no other treatment provided crabgrass control on any rating date. We observed that crabgrass control provided by Opportune was mostly as a result of early post-emergence control and that pre-emergence residual was limited.

[1]Assistant Extension Specialist in Weed Science and Field Researcher IV, respectively, New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey, New Brunswick, NJ 08901-8520.

Table 1. Herbicide treatments applied for pre-emergence herbicide smooth crabgrass (*Digitaria ischaemum*) control to a stand of mature 'Manhattan IV' perennial ryegrass (*Lolium perenne*) at the Rutgers Plant Science Research and Extension Farm, Adelphia, NJ. Applications A, B, and C were made in 11 April and 12 and 31 May 2017, respectively.

Treatment	Product	Active Ingredient	Product Rate (per 1000 ft^2)	Active Ingredient Rate	Application Code
1	Non-treated	–	–	–	–
2	Preem	soybean oil	32 fl oz	3.2 fl oz per 1000 ft^2	A *fb*[1] C
3	ICT Pro Turf	corn gluten	3 lb	–	A *fb* C
4	ICT Pro Turf	corn gluten	5 lb	–	A *fb* C
5	Dimension 2EW	dithiopyr	0.37 fl oz	0.25 lb per acre	A *fb* C
6	Opportune (MBI-005)	thaxtomin A	8.8 fl oz	–	A
7	Opportune (MBI-005)	thaxtomin A	5.9 fl oz	–	A *fb* B *fb* C
8	19-0-9 fertilizer	nitrogen	5.0 lb	1.0 lb per 1000 ft^2	A
	Gluten 8 OLP	corn gluten	32 fl oz	–	A *fb* C

[1] *fb* = followed by

Table 2. Smooth crabgrass control from pre-emergence herbicide applications in Adelphia, NJ. Applications A, B, and C were made in 11 April and 12 and 31 May 2017, respectively.

Treatment	Herbicide	Application Code	Smooth Crabgrass Control (%)[1] 16 June 9 WA-A[2] 2 WA-C[3]	Smooth Crabgrass Control (%)[1] 8 Aug. 17 WA-A 10 WA-C
1	Non-treated	–	0 c	0 b
2	Preem	A *fb*[4] C	0 c	0 b
3	ICT Pro Turf (3.0 lb per 1000 ft^2)	A *fb* C	0 c	0 b
4	ICT Pro Turf (5.0 lb per 1000 ft^2)	A *fb* C	0 c	0 b
5	Dimension	A *fb* C	100 a	100 a
6	Opportune (12 qt per acre)	A	11 c	0 b
7	Opportune (8 qt per acre)	A *fb* B *fb* C	41 b	0 b
8	Nitrogen + Gluten 8 OLP	A *fb* C	0 c	0 b

[1] Smooth crabgrass control was 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