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The New Jersey Turfgrass Association

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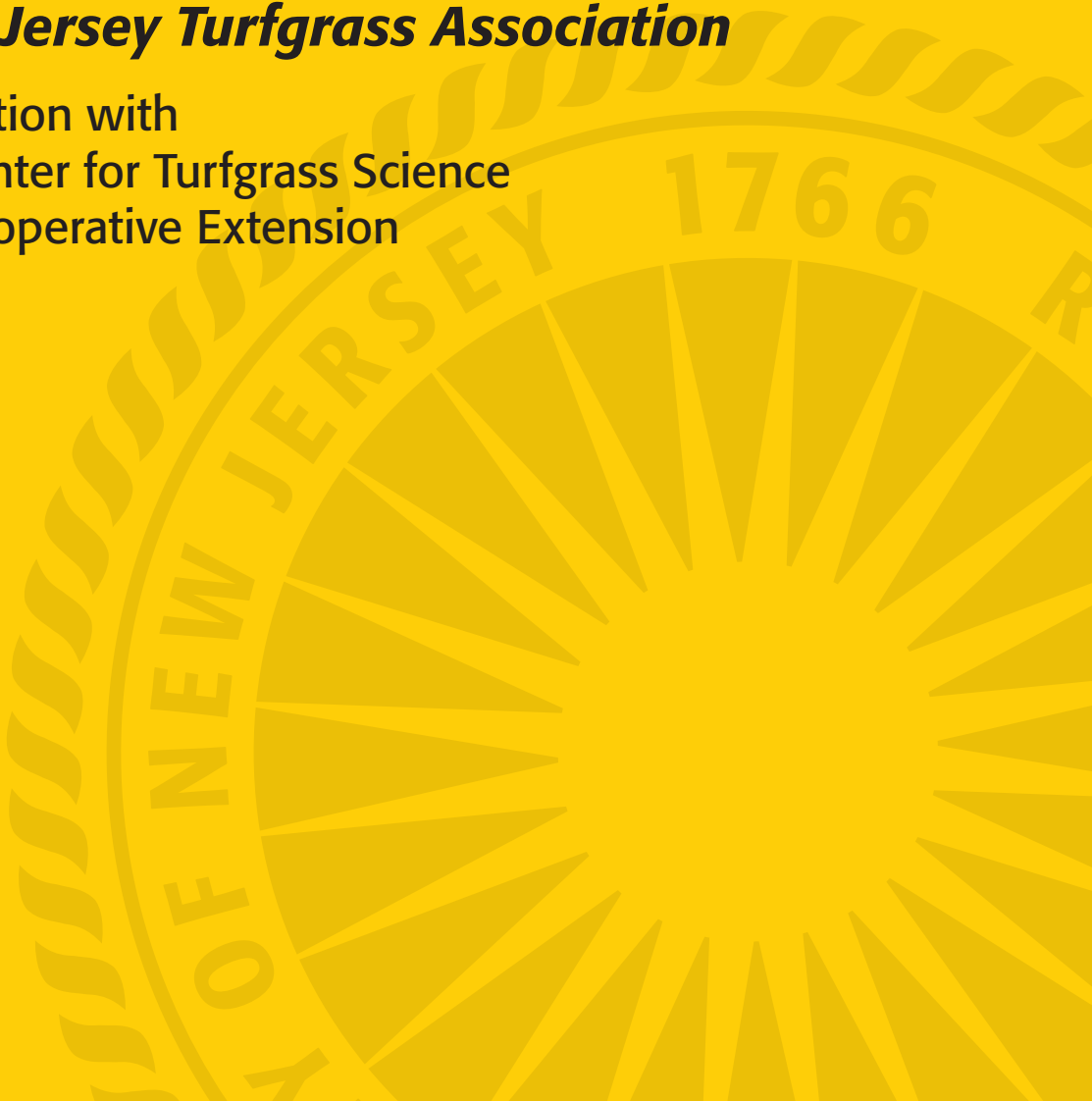

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The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences, Rutgers, The State 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

WHITE CLOVER AND PROSTRATE KNOTWEED CONTROL WITH 4-SCORE, 2017

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

The objective of this experiment was to evaluate the efficacy of 4-Score herbicide for post-emergence white clover (*Trifolium repens*) and prostrate knotweed (*Polygonum aviculare*) control.

MATERIALS AND METHODS

The white clover experiment was conducted at the Rutgers Plant Science Research and Extension Farm, Adelphia, NJ on a simulated lawn. The site was a sandy loam soil with a mature stand of white clover (>85%). A poor stand of perennial ryegrass (*Lolium perenne*) was also present at the site. The site was mowed weekly at 3 inches and irrigated as needed to prevent wilt. No additional fertilizers or plant protectants were applied to the trial during the experiment.

The prostrate knotweed experiment was conducted at the Rutgers Horticultural Research Farm II, North Brunswick, NJ on a simulated tall fescue (*Festuca arundinacea*) lawn. The site was mowed weekly at 2.5 inches and irrigated as needed to prevent wilt. No additional fertilizers or plant protectants were applied to the trial 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 8002EVS nozzle at 44 PSI. The white clover and prostrate knotweed treatments were applied on 20 and 21 June 2017, respectively. A 12-inch wide, non-treated buffer strip was maintained between each plot providing a 3 x 7-ft treated area.

Turfgrass injury and white clover and prostrate knotweed control were evaluated visually on a 100% scale, where 0 = no injury or control and 100 = complete necrosis or control relative to the non-treated control. Data were subjected to ANOVA in ARM (v2017) and Fisher's Protected LSD ($p \leq 0.05$) was used to separate means.

RESULTS

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

Prostrate Knotweed Control

All treatments provided ≥95% prostrate knotweed control at 4 and 8 weeks after treatment (WAT) (Table 2). 4-Score at 4 pt per acre and Momentum FX2 provided more control than 4-Score at 3 pt per acre at 8 WAT.

White Clover Control

All treatments provided ≥95% white clover control at 7 and 9 WAT (Table 3). Momentum FX2 provided more control than 4-Score applied at 3 pt per acre but not 4 pt per acre at 7 WAT.

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Table 1. Herbicide treatments applied to a stand of white clover (*Trifolium repens*) on 20 June 2017 at the Rutgers Plant Science Research and Extension Farm, Adelphia, NJ and to a stand of prostrate knotweed (*Polygonum aviculare*) on 21 June 2017 at the Rutgers Horticultural Research Farm II, North Brunswick, NJ.

Treatment	Product	Active Ingredient	Product Rate (pt per acre)	Active Ingredient Rate (lb per acre)
1	Non-treated	–	–	–
2	4-Score	sulfentrazone + fluroxypyr + triclopyr + 2,4-D	3	0.64
3	4-Score	sulfentrazone + fluroxypyr + triclopyr + 2,4-D	4	0.85
4	Momentum FX2	2,4-D + triclopyr + fluroxypyr	4	1.4

Table 2. Prostrate knotweed control following herbicide applications made on 21 June 2017 in North Brunswick, NJ to a stand of prostrate knotweed and tall fescue.

		Knotweed Control (%)[1]		
		3 July	3 July	22 Aug.
Treatment	Product	2 WAT[2]	4 WAT	9 WAT
1	Non-treated	0 b	0 b	0 c
2	4-Score (3 pt)	80 a	95 a	95 b
3	4-Score (4 pt)	87 a	98 a	100 a
4	Momentum FX2	92 a	100 a	100 a
	LSD at 5% =	18	8	5

[1] Prostrate knotweed control evaluated on a scale of 0 to 100%, 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] WAT = weeks after treatment

Table 3. White clover control following herbicide applications made on 20 June 2017 in Adelphia, NJ to a stand of white clover.

		White Clover Control (%)[1]		
		3 July	8 Aug.	25 Aug.
Treatment	Product	2 WAT[2]	7 WAT	9 WAT
1	Non-treated	0 b	0 c	0 b
2	4-Score (3 pt)	64 a	96 b	96 a
3	4-Score (4 pt)	68 a	98 ab	97 a
4	Momentum FX2	74 a	99 a	99 a
	LSD at 5% =	20	3	5

[1] White clover control evaluated on a scale of 0 to 100%, 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] WAT = weeks after treatment