

Evaluation of Primo Maxx, Sync and Sprayer Nozzles on Fairway Height Creeping Bentgrass

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Introduction

This study was conducted on a mature stand of creeping bentgrass (*Agrostis stolonifera*) and annual bluegrass (*Poa annua*) at the Valentine Turfgrass Research Center, Penn State University, University Park, Pa. The objective of the study was to determine the efficacy of varying nozzle types (droplet size) to apply Primo MAXX alone or in combination with Sync Fungicide Activator and using color ratings and measurements of plant height and foliar fresh weight yield.

Methods and Materials

This study was a randomized complete block design with three replications. The plot size was 40 ft². All treatments were applied on June 7, June 29 and July 20, 2006 using a four foot battery powered walk behind boom sprayer calibrated to deliver 1 gpm using two nozzles of varying types/droplet size at 40 psi. The test site was maintained similar to that of a golf course fairway with respect to irrigation and mowing. The study received 0.5 lb N/M before the trial was initiated and 0.25 lb N/M every month thereafter from a liquid methylene urea source. Turfgrass height was measured using a Turfcheck 1 prism. Clipping weights were taken once a week with a John Deere walk behind reel mower bench set to 0.485" with an actual height of cut 0.500".

Results and Discussion

Turfgrass color was evaluated nine times during the study (Table 1). At no time during the study did treated or non turfgrass color ratings fall below acceptable (7.0).

Turfgrass height was evaluated nine times during the study (Table 2). On the June 21, 2006 rating date, turfgrass treated with Primo MAXX plus Sync using XR Tee Jet XR11004 (M) nozzles or Turf Jet 1/4TT J04 (XC) nozzles Had significantly shorter height compared to non treated turfgrass. On the July 13, 2006 rating date, turfgrass treated with Primo MAXX alone using M nozzles had significantly shorter height than non treated turfgrass.

Turfgrass fresh clipping yield was evaluated nine times during the study (Table 3). On the June 21, 2006 rating date, turfgrass treated with Primo Maxx alone or combined with Sync using the XC nozzles and Primo Maxx plus Sync using the M nozzles had significantly less fresh clipping yield than non treated turfgrass. Turfgrass treated with Primo MAXX plus Sync using the XC or M nozzles had significantly less fresh clipping yield on both the July 5 and August 3, 2006 rating dates when compared to non treated turfgrass. On the July 13, 2006 rating date, turfgrass treated with Primo MAXX plus Sync using the XC nozzles had significantly less fresh clipping weight compared to non treated turfgrass. Turfgrass treated with Primo MAXX plus Sync using the M nozzles had significantly less fresh clipping yield on the July 26, 2006 rating date compared to non treated turfgrass. Finally, on the August 3, 2006 rating date, turfgrass treated with Primo MAXX alone using the M nozzles had significantly less fresh clipping yield than non treated turfgrass. In general, it appears that the addition of Sync to Primo MAXX and or nozzle (droplet size) had little influence on fresh clipping yield when comparing the different treated turfgrass combinations to each other.

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Table 1. Color ratings on a scale of 0-10 where 0 = brown, 7= acceptable, and 10 = dark green of PGR's applied to creeping bentgrass taken in 2006.

Treatment	Form	Rate oz/M	6-14	6-21	6-28	7-5	7-13	7-19	7-26	8-3	8-16
PRIMO MAXX	1MEC	0.125	8.2	9.0	8.7	8.8	8.7	9.5	9.0	9.2	8.0
TURF JET 1/4TT JO4 (2.8) XC ¹											
PRIMO MAXX	1MEC	0.125	7.8	8.8	8.2	8.8	8.8	9.2	9.2	9.2	8.0
XR TEEJET XR11004 (2.8) M											
CHECK			7.7	8.5	8.3	8.7	8.2	8.8	8.7	8.2	8.0
PRIMO MAXX	1MEC	0.125	8.2	9.0	8.3	8.8	8.8	9.2	9.2	9.5	8.0
SYNC	L	0.125% v/v									
TURF JET 1/4TT JO4 (2.8) XC											
PRIMO MAXX	1MEC	0.125	8.5	8.7	8.2	9.0	9.0	9.5	9.3	9.0	8.0
SYNC	L	0.125% v/v									
XR TEEJET XR11004 (2.8) M											

1 – Nozzle type (ground speed mph) droplet size where XC = extra coarse and M = medium.

Table 2. Height ratings (in inches) of PGR's applied to creeping bentgrass taken in 2006.

Treatment	Form	Rate oz/M	6-14	6-21	6-28	7-5	7-13	7-19	7-26	8-3	8-16
PRIMO MAXX	1MEC	0.125	0.37a ²	0.42b	0.63b	0.57a	0.43ab	0.57a	0.54a	0.53a	0.48a
TURF JET 1/4TT JO4 (2.8) XC ¹											
PRIMO MAXX	1MEC	0.125	0.41a	0.47ab	0.68ab	0.57a	0.42b	0.57a	0.55a	0.50a	0.51a
XR TEEJET XR11004 (2.8) M											
CHECK			0.42a	0.51a	0.70a	0.59a	0.51a	0.56a	0.54a	0.56a	0.52a
PRIMO MAXX	1MEC	0.125	0.39a	0.43b	0.71a	0.55a	0.45ab	0.56a	0.53a	0.54a	0.51a
SYNC	L	0.125% v/v									
TURF JET 1/4TT JO4 (2.8) XC											
PRIMO MAXX	1MEC	0.125	0.40a	0.42b	0.68ab	0.55a	0.46ab	0.52a	0.51a	0.50a	0.50a
SYNC	L	0.125% v/v									
XR TEEJET XR11004 (2.8) M											

1 – Nozzle type (ground speed mph) droplet size where XC = extra coarse and M = medium.

2 - Means followed by same letter do not significantly differ (P= 0.05 Duncan's New MRT)

Table 3. Fresh clipping weight (grams) of creeping bentgrass taken in 2006.

Treatment	Form	Rate oz/M	6-14	6-21	6-28	7-5	7-13	7-19	7-26	8-3	8-16
PRIMO MAXX TURF JET 1/4TT JO4 (2.8) XC ¹	1MEC	0.125	3.4a ²	5.2b	56.7a	12.2ab	7.2ab	15.7a	9.6ab	13.3ab	20.7a
PRIMO MAXX XR TEEJET XR11004 (2.8) M	1MEC	0.125	3.7a	7.7ab	61.2a	11.4ab	7.0ab	16.7a	8.7ab	10.0b	20.6a
CHECK			5.4a	10.2a	66.8a	15.3a	9.9a	18.3a	12.7a	17.4a	18.9a
PRIMO MAXX SYNC	1MEC L	0.125 0.125% v/v	3.4a	5.2b	52.1a	8.5b	4.7b	14.5a	7.8ab	10.0b	23.3a
TURF JET 1/4TT JO4 (2.8) XC											
PRIMO MAXX SYNC	1MEC L	0.125 0.125% v/v	3.4a	5.2b	52.7a	9.2b	5.6ab	13.6a	6.1b	7.4b	20.3a
XR TEEJET XR11004 (2.8) M											

1 – Nozzle type (ground speed mph) droplet size where XC = extra coarse and M = medium.

2 - Means followed by same letter do not significantly differ (P= 0.05 Duncan's New MRT)