

# Effect of plastic mulching on color retention on seeded Bermudagrass varieties during fall season.

D.D. Minner & F.J. Valverde

This study was conducted from June 30 to November 15, 2002 at the Horticulture Research Station in Gilbert Iowa. Five different varieties of Bermudagrass (*Cynodon dactylon*) and one zoysiagrass (*Zoysia japonica*) were evaluated under different plastic mulches for color retention during the fall season.

Warm season grasses are known to lose color as temperature declines and when frost occurs. Some varieties of bermudagrass seem to be more efficient in retaining the green color. Color retention in the fall is a desirable trait for extending the growing season. Protective covers have been used to reduce winter injury in both cool and warm season grasses. The effect of light on fall color loss (bleaching) has not been evaluated for bermudagrass turf.

## Objective

Clear and black plastic covers were compared with no cover to determine the effect of light on Bermudagrass color loss at the onset of winter dormancy.

## Methods

The study was seeded on June 30<sup>th</sup>. All six cultivars (Table 1) were seeded at a rate of 3 lbs/1000 sq.ft. The trial follows a split block design with 3 replications (blocks), 3 covers (split plot) and 6 treatments (varieties) for a total of 54 small plots. Plots were fertilized at 2 lb/1000 sq.ft of N, P and K of each nutrient during the summer. The first mowing was done in the middle of August and before each rating session.

**Table 1.** Bermudagrass varieties and covers used to evaluate color retention.

Varities	Covers
1 Srx9554	1 Black (4 mil)
2 Primo	2 Clear (4 mil)
3 Yukon	3 No Cover
4 Riviera	
5 Sr9500	
6 Zoysia *	

\* Not a Bermudagrass

By the first week of September, it was considered that the grass had reached its maximum growth and color. Color ratings were done September 14, October 25, and November 08.

Tarps were placed on top of the grass by October 15, just a few days before the first night with freezing temperatures. Tarps were removed October 25 for 2 days and replaced on October 27. Tarps were removed again on November 8 for observation.

All varieties of Bermudagrass were at least 95% ground cover before cold temperatures started to effect growth. Before the tarps were placed turf color was between 7 and 8 (Table 2).

**Table 2.** Color ratings observed in 6 varieties of warm season grasses during fall of 2002.

Cultivar	Black			Clear			Uncovered		
	14-Sep	25-Oct	8-Nov	14-Sep	25-Oct	8-Nov	14-Sep	25-Oct	8-Nov
Srx9554	7.0	7.8	4.7	7.2	6.5	4.7	7.2	2.3	1.0
Primo	7.2	7.8	4.7	7.0	6.3	4.7	7.2	2.7	1.0
Yukon	7.8	8.0	4.7	7.8	7.3	6.0	7.8	4.0	1.0
Zoysia	7.5	8.0	4.7	7.5	7.0	5.8	7.3	3.0	1.0
Riviera	7.0	7.8	4.7	7.5	6.8	5.2	7.3	2.7	1.0
Sr9500	7.0	8.0	4.7	7.0	6.5	5.0	7.2	2.7	1.0

Color Scale 1-9, (9 dark green, 6 least acceptable green)

When averaged over varieties color differences are evident among plastic mulches and no cover (Table 3). On October 25 the black plastic provided darker turf color compared to the clear plastic and no cover. One theory is that the lack of light prevents the breakdown of chlorophyll during this transition period. By November 8 the clear plastic had better turf color than the black plastic. It appears that an extended period of light blocking by the black plastic resulted in poor turf color. Since there were no temperature measurements reported during this period, it cannot be clearly determined if light or temperature effect decline in turf color during the initial Bermudagrass dormancy period.

**Table 3.** Color ratings given to varieties of bermudagrass under different covers (averaged over varieties)

<b>Plastic</b>	<b>14-Sep</b>	<b>25-Oct</b>	<b>8-Nov</b>
<b>Black</b>	7.25	7.92	4.67
<b>Clear</b>	7.33	6.75	5.22
<b>Uncovered</b>	7.33	2.89	1.00
<b>LSD<sub>0.05</sub></b>	0.177	0.284	0.379

Color Scale 1-9, (9 dark green, 6 least acceptable green)

The type of plastic cover, and consequently the amount of light transmission, affected green color retention of bermudagrass. On October 25 the black cover (reduced light to turf) provided greener turf than the clear cover (more light to turf). By November 8, this turf color response was reversed, indicating that any turf color enhancement by light blocking is only a temporary response. Both tarps significantly extended and protected the green color of the evaluated grasses during the fall season.

Table 4 shows the differences that occurred between Bermudagrass varieties for green color retention during the fall dormancy period. Yukon maintained the most green color during the fall.

Quality ratings, temperature and radiation measurements will be available in future reports.

**Table 4.** Color ratings given to varieties of bermudagrass (averaged over covers)

<b>Cultivar</b>	<b>14-Sep</b>	<b>25-Oct</b>	<b>8-Nov</b>
<b>Srx9554</b>	7.11	5.56	3.44
<b>Primo</b>	7.11	5.61	3.44
<b>Yukon</b>	7.83	6.44	3.89
<b>Zoysia</b>	7.44	6.00	3.83
<b>Riviera</b>	7.28	5.78	3.61
<b>Sr9500</b>	7.06	5.72	3.56
<b>LSD<sub>0.05</sub></b>	0.216	0.348	0.4646

Color Scale 1-9, (9 dark green, 6 least acceptable green)