

## Defining Optimum Seeding Rate for Bermudagrass and Zoysiagrass

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### Objective

Evaluate the optimum seeding rate for bermudagrass and zoysiagrass based on rate of establishment and winter survival.

### Rationale

The use of seeded bermudagrass (*Cynodon dactylon*) and seeded zoysiagrass (*Zoysia japonica*) has risen due to the increased availability and improvement of seeded varieties. The use of these seeded varieties is relatively new and little is known about their establishment and management. For example, recommended seeding rates for zoysiagrass widely range from 0.75 to 4.1 lbs. pure live seed (PLS)/1000ft<sup>2</sup>. Bermudagrass recommended seeding rates also include a broad range from 0.25 to 2.0 lbs. PLS/1000ft<sup>2</sup>. This experiment will enable us to define an optimum seeding rate for seeded bermudagrass and zoysiagrass varieties as well as determine their affects on winter survival.

### How it was Done

The experiment was conducted in 2001 and will be repeated in 2002 at the W.H Daniel Turfgrass Research and Diagnostic Center, West Lafayette, IN. The experimental area was fumigated in Apr 2001 with methyl bromide to minimize competition from annual grasses and broadleaf weeds that would complicate data measurement. The area was then smoothed and leveled to prepare the seedbed. 'Mirage' bermudagrass was seeded at 0.25, 0.5, 1.0, 1.5, 2.0 and 3.0 lbs PLS/1000ft<sup>2</sup> and 'Zenith' zoysiagrass was seeded at 0.5, 1.0, 2.0, 3.0, 4.0, and 6.0 lbs PLS/1000ft<sup>2</sup>. The areas were covered with a seed blanket to prevent the seed from moving from plot to plot and each area was irrigated to promote germination. Data was taken monthly as percent cover and tillers/area. Tillers/area was determined by counting the number of tillers per soil core.

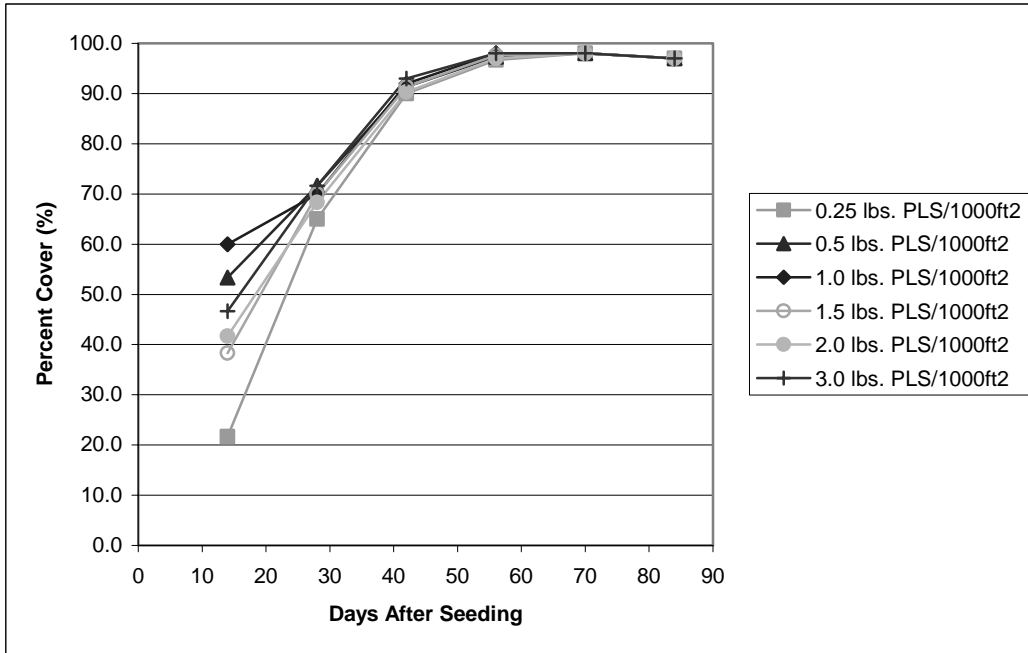
### Results

Bermudagrass has both stoloniferous growth and rhizomatous growth and is very aggressive. Twenty eight days after seeding all bermudagrass seeding rates produced similar cover except 0.25 lbs. PLS/1000ft<sup>2</sup> (Figure 1). Equilibrium among the seeding rates for tillering occurred at 84 days after seeding (Figure 2).

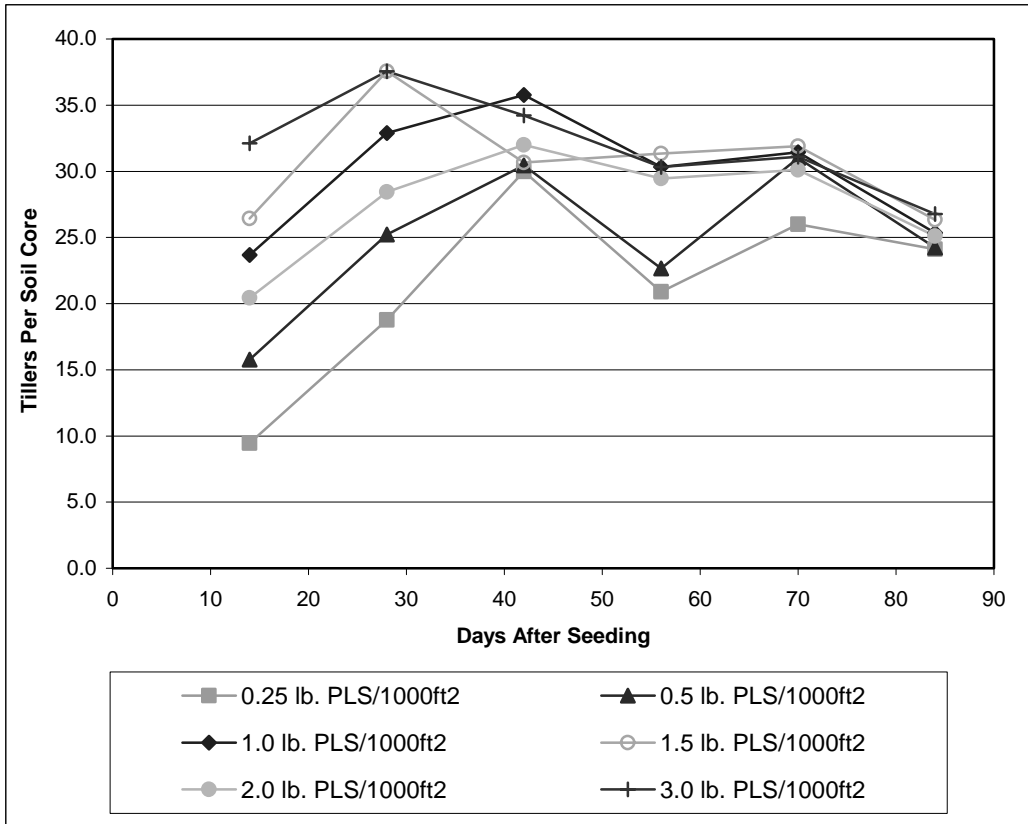
Zoysiagrass has both stoloniferous and rhizomatous growth similar to bermudagrass. However, zoysiagrass is slow in both germination rate and growth rate. Due to the relatively slow growth rate, similarities among seeding rates did not appear until later in the study. Similar turf cover occurred at 84 days after seeding and similar tillers/area occurred at 98 days after seeding (Figures 3 and 4).

Although the second year of the experiment has not yet been established, it appears bermudagrass can be seeded at very low rates, and there is no advantage to seeding more than 0.5 lbs. PLS/1000ft<sup>2</sup>. Zoysiagrass should be seeded between 1.0 and 2.0 lbs. PLS/1000ft<sup>2</sup>. The low rate of

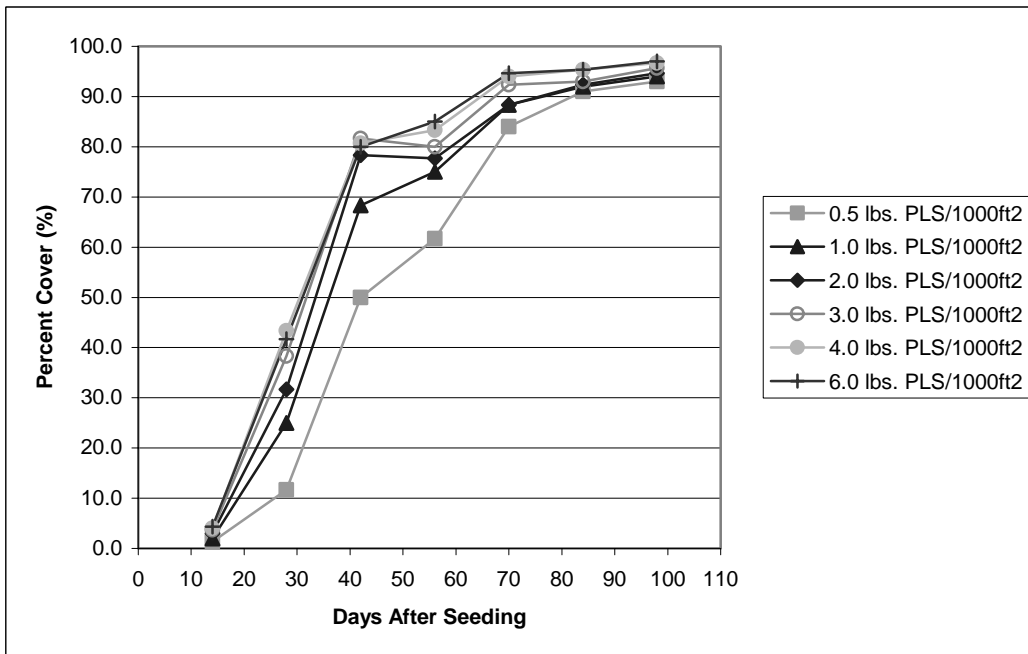
zoysiagrass (0.5 lbs. PLS/1000ft<sup>2</sup>) gave poorer results for the majority of the study and is not recommended for areas that require rapid maturation and fill in.



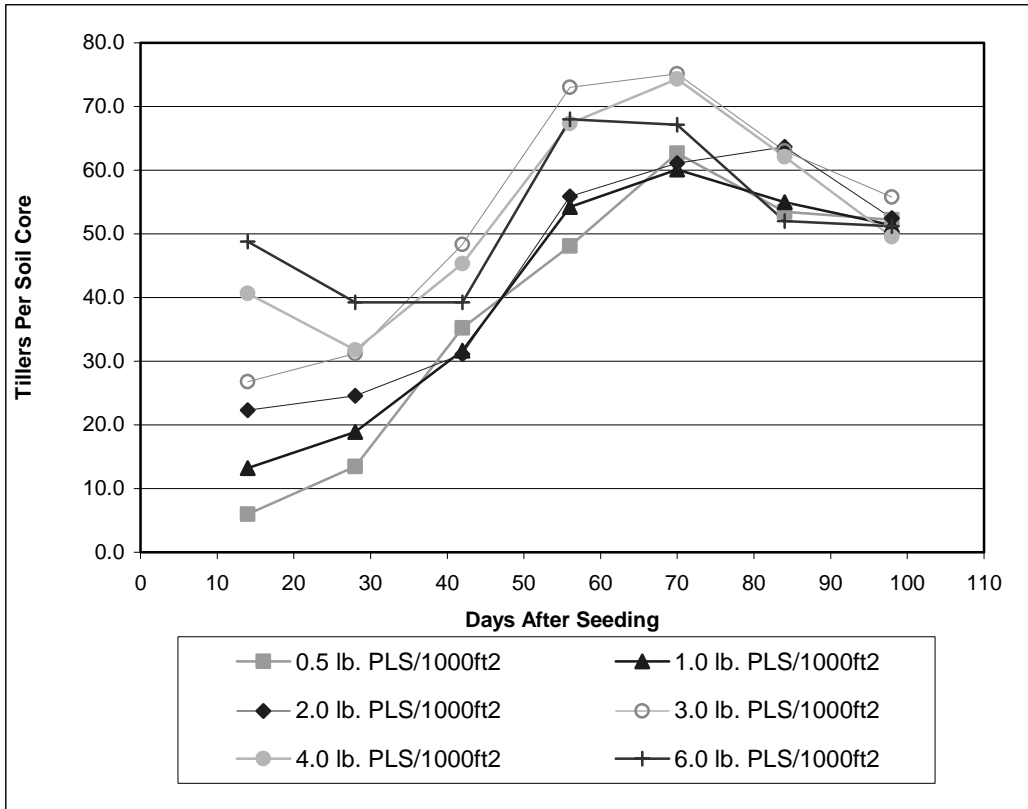
**Figure 1.** Percent cover of seeded bermudagrass at different seeding rates over time.



**Figure 2.** Tiller density of seeded bermudagrass at different seeding rates over time.



**Figure 3.** Percent cover of seeded zoysiagrass at different seeding rates over time.



**Figure 4.** Tiller density of seeded zoysiagrass at different seeding rates over time.