

Development of Minimal Input Best Management Practices for Paspalum

Ron Duncan
University of Georgia

Objectives:

1. To develop and refine best environmentally oriented paspalum management practices for long-term maintenance on golf courses.
2. Investigate encroachment control issues with seashore paspalum and other grasses.
3. Conduct herbicide efficacy studies.
4. Conduct insect resistance level assessments.
5. Develop low light intensity management protocols for the grass.

Start Date: 1998

Project Duration: 5 years

Total Funding: \$125,000

Shade studies comparing seashore paspalums with bermudagrasses (at 70% and 90% shade) has revealed that Sea Isle 1 is the superior cultivar, followed by Sea Isle 2000. None of the bermudagrasses were even close in reduced light intensity response compared to these two paspalums. Turf quality declined 9% under 70% shade and 13% under 90% shade for Sea Isle 1 compared to full sunlight. The bermudagrasses averaged 22% and 28% turf quality reductions for 70% and 90% shade, respectively. Canopy photosynthetic rate was reduced 10% and 27% for Sea Isle 1 at 70% and 90% shade compared to full sunlight for Sea Isle 1, while the bermudagrasses declined 43% and 67%, respectively.

Morning and afternoon shade comparisons revealed that Sea Isle 1 exposed to morning shade/afternoon sunlight performed better than when exposed to afternoon shade/morning sunlight. However, no significant differences were found between the two treatments for turf color, density, quality or canopy spectral reflectance. When traffic (wear device or studded roller) was included, the morning shade/afternoon sunlight plots had better turf quality, color and density with less tissue injury than plots exposed to afternoon shade/morning sunlight.

Encroachment studies by B.J. Johnson focused on bermudagrass in paspalum. Treatments in 2002 included Prograss + Cutless at 3/4X rate was the best rate/combo with the least injury to the paspalum. Prograss + Primo did not suppress

the bermudagrass at an acceptable rate, but severely injured Sea Isle 1 and not Sea Isle 2000. No single chemical applied in multiple applications will effectively suppress bermudagrass in paspalum. Combinations of Prograss + Cutless suppressed bermudagrass better and caused less paspalum injury than Prograss alone or Prograss + Primo. Envoy, Arsenal, Fusilade, and Prograss + Fusilade effectively suppressed the bermudagrass but also severely injured all paspalums. Sea Isle 2000 was the least damaged paspalum cultivar compared to Excalibur and Sea Isle 1. An additional herbicide-siduron (Tupersan)-has been applied to Sea Isle 1 plots to check on efficacy. This old herbicide has been used before to control bermudagrass in bentgrass. No preliminary results on siduron use are available at this time.

Trinexapac-ethyl (Primo) and paclobutrazol (Trimmit) applications to Sea Isle 1 indicated that paclobutrazol could be applied at rates as high as 0.56 kg ai/ha with no reduction in growth. Trinexapac-ethyl rates at 0.14 kg ai/ha or lower resulted in 12% injury to the grass with 59% vegetative growth suppression. Rates half that level provided minimal injury with acceptable growth suppression.

Additional herbicide efficacy studies were initiated with foramsulfuron (Revolver), flazasulfuron (Katana), Manor and Speedzone (St. Augustine formula) during the summer 2002. Manor and Speedzone are safe on paspalum.

Water use efficiency studies on Sea Isle 1 have been initiated with Bob Carrow involving in-ground probes from Australia and Toro that measure water at depths down to 3 feet with computer monitoring.



Overhead salt irrigation studies and water use by paspalum are being used to develop water conservation management strategies for this grass.

The study involved probes in three soil types (native clay, clay capped with 4 inches sand, and USGA-specification profile). Data analyses have not been completed.

Summary Points

- Seashore paspalum proved much more shade tolerant than bermudagrass.
- Morning and afternoon shade comparisons revealed that Sea Isle 1 exposed to morning shade/afternoon sunlight performed better than when exposed to afternoon shade/morning sunlight.
- No single chemical applied in multiple applications will effectively suppress bermudagrass in paspalum.
- Trinexapac-ethyl (Primo) and paclobutrazol (Trimmit) applications to Sea Isle 1 indicated that paclobutrazol could be applied at rates as high as 0.56 kg ai/ha with no reduction in growth.