Background

The turfgrass industry is one of the fastest growing segments of U.S. agriculture with approximately 50 million acres of land currently being managed as turf. A growing challenge facing the turfgrass industry is limited availability of water for irrigation.

AquaSmart Enterprises, LLC is currently marketing a super-absorbent, polymer coated sand product to the turfgrass industry. There is need for peer-reviewed research to evaluate AquaSmart’s statement that their product will increase water-holding capacity, germination, and growth rates.

Research Objectives and Hypotheses

Evaluate the effects of AquaSmart on

- Establishment
- Root growth
- Soil moisture

Assess against various bermudagrass plots

- Newly seeded
- Newly sodded
- Well-established

We want to establish efficacy and ideal application of AquaSmart.

Methods

This study was conducted at the Oklahoma State University (OSU) Turfgrass Research Center in Stillwater, OK. Research plots were fertilized according to the results of soil tests run prior to the study, and were provided adequate irrigation based on reference evapotranspiration (ET). Using the reference ET data, a bermudagrass crop coefficient of 0.75 was used to irrigate all three plots.

There were 24 plots per study and treatments were assigned using a randomized complete block.

Treatments were as follows:

- Untreated Control
- Topdressing sand at 40lbs/1000 ft²
- AquaSmart at 10lbs/1000ft²
- AquaSmart at 20lbs/1000ft²
- AquaSmart at 40lbs/1000ft²
- AquaSmart at 60lbs/1000ft²

Results and Discussion

Preliminary data analysis of new seed (Table 1) and new sod (data not shown) percent cover using a Least Significant Difference (LSD) test at the 95% confidence level for paired comparisons shows no significant differences between treatments. However, other analyses, including root core analyses, are still to be run.

Table 1: Mean Percent Cover of New Seed Establishment Under AquaSmart Treatments.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Week 1</th>
<th>Week 2 Mean %</th>
<th>Week 3 Cover</th>
<th>Week 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>38.301</td>
<td>84.82</td>
<td>97.597</td>
<td>95.456</td>
</tr>
<tr>
<td>Sand 40lbs/1000ft²</td>
<td>33.969</td>
<td>76.27</td>
<td>85.075</td>
<td>95.423</td>
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<tr>
<td>AquaSmart 10lbs/1000ft²</td>
<td>30.374</td>
<td>84.37</td>
<td>97.656</td>
<td>99.723</td>
</tr>
<tr>
<td>AquaSmart 20lbs/1000ft²</td>
<td>26.129</td>
<td>73.69</td>
<td>96.264</td>
<td>99.727</td>
</tr>
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<td>AquaSmart 40lbs/1000ft²</td>
<td>32.432</td>
<td>80.05</td>
<td>97.651</td>
<td>99.414</td>
</tr>
<tr>
<td>AquaSmart 60lbs/1000ft²</td>
<td>29.841</td>
<td>84.61</td>
<td>98.280</td>
<td>99.328</td>
</tr>
</tbody>
</table>

LSD NS² NS² NS² NS²

¹Least Significant Difference test between planned paired comparisons
²NS² Not Significant