The Tale of Two Studies Revisited

Meet FTGA Member, Jason Franciosa, intelliSky Drone Analytics

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CONTENTS

Cover Story
The Tale of Two Studies Revised
8

Focus on Advocacy
Water vs. Landscape: A False Choice
12

Member Profile
Meet FTGA Member, Jason Franciosa, intelliSky Drone Analytics
16

DEPARTMENTS
President’s Message ................................................................. 4
From the Executive Director .................................................. 6
Wildlife Feature Photo ............................................................. 15
Index of Advertisers ................................................................. 18

The Florida Turf Digest is a publication of the Florida Turfgrass Research Foundation, which provides scholarships to students in turfgrass and related studies in addition to funding turfgrass research and education for the Florida Turfgrass Association (FTGA). The FTGA serves its members in the industry through education, promotion and representation. The statements and opinions expressed herein are those of the individual authors and do not necessarily represent the views of the association, its staff, its board of directors, Florida Turf Digest or its editors. Likewise, the appearance of advertisers or FTGA members does not constitute an endorsement of the products or services featured in this, past or subsequent issues of this publication.

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t’s been a busy year at the Florida Turfgrass Association. Right out of the gate, the FTGA has concluded its annual Turf Seminars. I would like to thank everyone who made presentations, our terrific sponsors and the dedicated staff—Executive Director Heather Russo and Manager of Marketing Emily Cox—for all they did to make this year’s seminars the best ever. Our thanks also go to those who took the time to attend, to sharpen their skills and to walk away with newfound knowledge they can apply in their everyday work lives.

In addition, the staff and many of you attended the Golf Industry Show in Orlando last month to keep abreast of developments in the golf segment of the industry. The year is still young, and we have already gained a lot of knowledge. You might think that we can take a pause and pat ourselves on the back after a job well done. The truth is there is no time for a pause. Our presenters will continue their research just as you will return to your job and turn newfound information into practical application.

But I have an additional challenge to present in conjunction with our nutrient and advocacy issue: Let us each resolve to do one extra thing this year to further our cause. Here are a few examples:

- Encourage your peers to join the FTGA.
- Spend one hour a week learning about the issues that confront us. Swap one hour of TV or video games to invest in your career. Start by visiting some of the links in the cover story.
- Donate to the Florida Turfgrass Research Foundation.
- Make a presentation at a local high school or college career day.
- Submit an article to the Florida Turf Digest.
- Attend a local city council meeting when ordinances are on the agenda.
- Speak up at HOA meetings and let your neighbors see that you, as an FTGA member, are a good steward of the environment.

At the FTGA, we’re gearing up to deliver the 2017 Membership Directory & Industry Guide and we’re in the midst of planning the Annual Conference & Show, which will take place September 25–27, 2017, at the Innisbrook Golf & Spa Resort. Due to the learning curve involved with the YourMembership system, we must set a drop-dead deadline for new memberships and renewals in order for your name to appear in the FTGA Membership Directory & Industry Guide. In previous years, we have made every effort to include stragglers in the publication, but that is not possible this year. The good news is that we have extended the deadline to March 31, 2017. However, we cannot extend it any further. Right now, while you’re thinking about it, head on over to www.FTGA.org and register or renew today.

Join me in making this a stellar year for advocacy. Our efforts will reward us richly. 😊
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No one likes change when it first takes place, but the rewards are often greater than we imagine. That has been the case at the Florida Turfgrass Association. Now that we have settled into working with the YourMembership program, we are able to accomplish the same tasks in less time and at a reduced cost. The risk vs. reward is paying off—a win/win for all of us.

For some, the change may not be as easy because we all like doing things in the manner in which we have become accustomed. Technology is moving at such a fast clip, it can leave our heads spinning. Who thought Kindles would replace books a few years ago? Still, I like the feel of a book in my hands, and I bet you do too.

We have received raves from many members about the new ability to renew memberships and register for events online. However, we want to accommodate everyone. So, for those who prefer the familiar way of doing things, we are happy to accept renewals and registrations by mail and fax.

Our job at the FTGA is to fight for you and to keep you informed of emerging environmental issues and regulatory changes. For example, Seminole County will vote on a summer ban on February 28. As we go to print with this issue of the Digest, we do not know the outcome, but we will inform you via an email grassroots alert. As a member-based association, we need your help to do our job by renewing your membership to help fund the FTGA, staying on top of the issues and to getting involved by attending meetings and speaking out at every possible opportunity. Together, we make a great team.

Who Says Change Is Easy?

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(Continued from page 4)
extensive knowledge to this year’s Turf Seminars.

Q1 has been an educational whirlwind, and 2017 is still young. Stay tuned to learn about the upcoming Great CEU Round-Up in July and the FTGA Conference & Show, September 25–27, 2017.

**IMPORTANT!**
The deadline to join or renew your membership has been extended to **March 31, 2017**. You must join or renew by that date to be included in the 2017 Membership Directory & Industry Guide.

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THE TALE OF TWO STUDIES
REVISED

Editor’s note: The Florida Turf Digest has received requests to look back at two massive research projects as they relate to nitrogen. Both released findings in 2013 and are still relevant to aid members in advocacy. The first highlights research by the University of Florida study funded by the Florida Department of Environment Protection. The second looks at nutrient and messaging recommendations based on more than 200 studies approved by three groups in the Chesapeake Bay Watershed. Resources listed in this article will bring newer members up to speed and refresh the memory of long-standing members as we attack the challenges facing the Florida green industry.

In January 2013, the preliminary results from the Urban Warm-Season Turfgrass Fertilization and Irrigation Best Management Practices to Minimize Nutrient Leaching Project, a study funded by the Florida Department of Environmental Protection (FDEP), were released at a symposium at the Frank Stronach Plant Science Research and Education Center in Citra, Florida. The study took more than seven years to complete and produced more than 1 million data points for analysis.

Principal University of Florida researchers included Drs. Laurie Trenholm (Gainesville), John Cisar (Fort Lauderdale), J. Bryan Unruh (Jay) and Jerry B. Sartain (Gainesville). The study consisted of six projects. Below is a partial list of the projects, including some turfgrass varieties, test sites and a few key findings taken directly from the publication “Warm-Season Turfgrass N Rates & Irrigation BMP Verification” and the executive summary.

Nitrogen Projects
Nitrogen (N) was the focus of five out of the six projects:

- **Project 1—Nitrate Leaching from Newly Sodded Grasses** conducted on St. Augustinegrass in Fort Lauderdale, St. Augustinegrass and zoysiagrass in Gainesville and St. Augustinegrass, and centipedegrass in Jay.
- **Project 2—Nitrate Leaching from Established Grasses** conducted on St. Augustinegrass and bahiagrass in Fort Lauderdale, St. Augustinegrass and...
zoysiagrass in Gainesville, and St. Augustinegrass and centipedegrass in Jay.

Project 3—Nitrate Leaching Due to N Source (and Timing) conducted on St. Augustinegrass in Fort Lauderdale (included timing), and St. Augustinegrass and zoysiagrass in Gainesville.

Project 4—Nitrate Leaching During Fall/Winter Months conducted on St. Augustinegrass and zoysiagrass in Gainesville, and St. Augustinegrass and centipedegrass in Jay.

Project 6—Slow Release N Study conducted on centipedegrass in Jay.

Key Findings
One or more of the general key findings from the N-based projects are summarized below. To learn about methods and materials as well as complete data and findings for each project and for specific turf varieties studied, view the links in the resources at the bottom of this section.

Project 1
- N fertilization should be withheld for a minimum of 30 to 60 days after sodding to reduce potential nitrate-N leaching. Higher leaching rates are due to lack of a root system following harvest and greater soil mineralization.
- Orthophosphate leaching was greater during the first 30 days of the experiments compared to the second 30-day period and is likely due to the increase in rooting of the newly laid sod.
- Fertilizer timing and N rate did not influence the speed of centipedegrass establishment from seed.

Project 2
- Healthy turfgrass mitigated nitrate nitrogen (NO3-N) losses, even at high rates of applied N. Where grass was not healthy or did not provide good cover, NO3-N losses were much higher and increased as rate of applied nitrogen (N) increased.
- Generally, once grass was established, NO3-N losses were lowest during the summer growing period.
- Long-term fertilization with extremely high rates of N results in greater turf injury and disease and therefore greater NO3-N losses.

Project 3
- When applied to a healthy stand of St. Augustinegrass, there were few differences in NO3-N losses due to source.

Project 4
- Dormant grass has less ability to take up N fertilizer than grass that is actively growing.
- Nitrate-N leaching following sod installation was heightened.
- If N application is required to meet contractual obligations where summer fertilizer bans exist, this research suggests that it would be better for additional N to be applied in November or December rather than from January through March to reduce potential NO3–N loading.
- Turf quality and color were not enhanced enough to warrant winter N application.

Project 6
- Initial applications of high rates of N to healthy turf have limited impact on nutrient leaching.
- Subsequent applications of high rates led to significant turf deterioration which resulted in substantial nitrate-N leaching.
- Fertilizers with nutrient release dictated by microbial action (methylene urea and natural organics) had the lowest levels of nitrate-N leaching.

Since 2013, UF researchers have performed more analysis on the data, and we hope to bring you that information in future issues of the Digest.

Resources
In 2013, the Chesapeake Stormwater Network delivered the final, approved “Recommendations of the Expert Panel (Panel) to Define Removal Rates for Urban Nutrient Management” (http://bit.ly/2k5WDC). While the study analyzed data to revise programs that are unique to the Chesapeake Bay Watershed (CBW), the core of its focus was urban nutrient management (UNM) practice and how to reduce the overall nutrient load. The panel describes UNM as, “Identifying how the major plant nutrients (nitrogen, phosphorus and potassium) are to be annually managed for expected turf and landscape plants and for the protection of water quality.” Those findings are of interest to members of the Florida green industries, and they will have a familiar ring.

The CBW is comprised of approximately 3.8 million acres of urban pervious lands, which represents 10 percent of the entire area. It includes portions of New York, West Virginia, Maryland, Delaware, Virginia and all of the District of Columbia. Of this landmass, the Bay States targeted 45 percent of the pervious lands to meet reduced nutrient restrictions by 2025. Pervious lands include residential lawns, landscaping, gardens, parks, rights of way, vacant lots, golf courses, athletic fields and other open areas.

The Panel reviewed more than 200 studies and examined data to understand the following factors before submitting recommendations:

- Turfgrass Nitrogen (N) and Phosphorus (P) dynamics
- Homeowner fertilization behaviors
- The effects of P fertilizer restrictions in watersheds outside of the Bay
The effect of various outreach campaigns to change those behaviors. In addition, the Panel reviewed historic and current fertilizer sales trends and confirmed the technical assumptions for fertilizer inputs to pervious lands. BMP panels also evaluated existing literature and made recommendations to the full Panel. The consensus was released in the report.

**Parallel Findings**

Many of the results from the Chesapeake study echoed the findings in the Florida study and the research presented by UF faculty at FTGA educational events. For example:

- “Nitrate leaching is greatest during the seasons of the year when the grass is dormant.”
- “When it comes to urban N load reduction, nitrate leaching is not synonymous with total N loads delivered to the Bay.”
- “The amount of runoff volume is largely determined by lawn slope, soil compaction and turf density.”
- “Organic N may be derived from lawn clippings, leaves and eroded sediments blown or washed off lawns and into storm drains.”

**Messaging**

Messaging and outreach efforts to change fertilization behavior are characterized as either retail or wholesale. Retail outreach includes direct engagement such as certification of applicators, field trips, direct technical assistance provided through extension services, etc. Wholesale outreach uses passive methods—traditional and social media campaigns as well as other non-personal methods of reaching the public.

Nationwide surveys found that homeowners’ highest turfgrass priority is the look of their lawn, which has led to deeply rooted fertilization behavior. However, surveys also suggested outreach programs not only reached the target audience but also could have the desired effect of reduced fertilization. Note: There was no way to confirm a survey participant’s actual reduction in application.

The Panel concluded targeted retail messaging and commercial applicator training held the most promise for changing homeowner fertilization behavior. This nugget from the study represents the FTGA’s golden opportunity. Advocacy efforts can have the desired effect, but giving up at the first sign of pushback is a sure recipe for defeat. Use the resources in this article to help you craft your unique voice in retail outreach based on solid research. It’s never too late to build upon each small success until victory is achieved.
Focus on Advocacy

By Mac Carraway, Executive Director, Environmental Research & Education Foundation

It is FTGA Turf Seminar time in Florida, and the Environmental Research & Education Foundation (EREF) is part of the traveling road show that goes along with these excellent green industry educational sessions. Being there gives us a chance to talk a little bit about the overall mission of EREF, to update attendees on the latest news, and to meet folks who do not know us well yet.

Since its creation, EREF has spent much of its effort in connection with advocacy and education related to the fertilizer ordinance efforts of local governments in Florida. It is no secret that EREF advocates that summer fertilizer “blackouts” are inconsistent with current research and do not protect water quality, despite some unfortunate conventional wisdom that persists in the activist community.

Progress in moving toward reasonable winter or cool-season residential restrictions, combined with exemptions for golf, sports turf, farms and licensed lawn care professionals, was strong in 2016—a good thing.

Right on the heels of these discussions are the serious ongoing challenges regarding the use of water—which leads to discussions of water supply, water regulation and water conservation. Without much trouble, you can look around the state, especially in the major water management districts (WMD) (South Florida WMD, St. Johns River WMD and Southwest Florida WMD) and find numerous publications regarding their regional water supply planning (RWSP) efforts.

These enormously complex, costly and important RWSPs undertaken by the WMDS (and by local governments and regional water supply authorities)
are required by Florida statute and seek to evaluate the relationship between population growth, future water use and future water supply. It should come as no surprise that those RWSPs identify challenges on the horizon, with projected water supplies falling short of projected water demand.

Part of the RWSP process includes the evaluation of alternative water supply (AWS) projects as well. For example, reclaimed water has become an enormous benefit to this process, providing an irrigation alternative to potable and/or aquifer water. Many in the green industry already utilize reclaimed water in their operations.

Make no mistake—these RWSPs mean business. They are directly connected to the comprehensive plans required by local governments. Ultimately, local, regional and state ordinances and regulations will reflect the results of the RWSPs and will have a direct and material impact on all of us in the green industry.

As to that last statement, it is already clear that activists and some regulatory entities see the green industry as a source for “easy” water conservation. There is a temptation in some circles to regard all or most supplemental irrigation of landscapes to be non-critical and therefore available for substantial reduction or elimination. Those of us in the green industry would strongly argue differently, stating that the emphasis should be directed toward education, conservation and collaboration—all in the context of a fair allocation of effort among all stakeholders in reaching a sustainable outcome.

That is easier said than done, especially when policy makers and local elected officials start to be anxious about a future of water shortages and high-cost water supply projects. In that context, it is important to look at some guiding elements of the green industry position on water supply:

- Framing water-supply discussions as people versus landscapes is a false choice and an
argumentative trap for a variety of reasons including the fact that landscapes offer substantial environmental and human-health benefits on their own and that education and water conservation are only beginning to yield the benefits that exist in application.

- The green industry exists in a decades-old culture of conservation and natural resource protection of its own making—it is a leader in responsible water use and is part of the solution, not the problem.

- The green industry is driven by science-based solutions. It supports independent peer-reviewed research and partnerships with regulators and local governments to reach mutually beneficial and sustainable water-supply outcomes.

- Florida’s growth and prosperity are built in part on the beauty and sustainability of its responsibly managed greenspaces. Crippling them with premature and excessive restrictions undermines the economic health of all of Florida. This is a truly challenging time but also an exciting one. In a recent article for the FNGLA Greenline, University of Florida Institute of Food and Agricultural Sciences Senior Vice President Jack Payne articulated the enormous steps that UF has taken to focus on water research, acknowledging the challenges discussed above for both the green industry and for traditional agriculture in Florida. Also, last year’s Florida legislature passed an updated water bill enhancing research and spending on efforts to address these challenges. Elected officials at all levels are becoming increasingly engaged and educated about these issues—a good thing in the complex challenge to make good water policy.

EREF is making every effort to do its part in forwarding education, conservation and collaboration, and to stand for the green industry, particularly when policy-making efforts diverge from current science and best practices. Thank you for your continued hard work to demonstrate the green industry’s commitment to natural resource protection. Thank you also for your continuing support of EREF.

Mac Carraway is the Consulting Executive Director of the Environmental Research & Education Foundation. You can learn more about the EREF and its mission at www.EREFlorida.com. Follow the EREF on Twitter at @EREFlorida.
WILDLIFE FEATURE PHOTO

A bald eagle takes flight over the Tara Woods community in North Fort Meyers.
Photo submitted by and courtesy of Samuel Jokich, retired, Naples, Florida (http://samuel-jokich.pixels.com).

If you would like to submit a wildlife photograph for this feature, please email a high-resolution image in .jpg format as an attachment to FTGA Media Operations Manager Emily Cox at emily@ftga.org. We are specifically interested in highlighting wildlife in turfgrass habitats.
Meet FTGA Member
Jason Franciosa,
intelliSky Drone Analytics

Between the time Jason Franciosa left college and founded intelliSky Drones, he led an adventurous life. Always on the cutting edge, that part of his life has not changed as he works in a space where the future intersects the present. Only the landscape has been altered.

Franciosa hails from East Longmeadow, Massachusetts, and he graduated from the University of Massachusetts–Amherst. While in college, he was enrolled in ROTC, and after graduation, he joined the Army as an intelligence officer. From 2011–2015 he served in Hawaii and was deployed throughout the Pacific region.

While serving in the Army, Franciosa ran a platoon of 38 soldiers and four 22-foot intelligence, surveillance and reconnaissance (ISR) drones. The aircraft under his command represented $25 million in equipment. Half of his soldiers were pilots, and the other half were maintenance staff. His drone platoon provided ISR support for an infantry brigade of 6,000+ soldiers. He later ran an intelligence shop that took the data from multiple ISR platforms and converted it into actionable information for the ground commander to make decisions.

After his discharge, Franciosa met a Colombian businessman and started a drone company in Bogota, Colombia. It was a natural fit as his acquaintance was a remote-controlled airplane hobbyist with extensive government contacts. Franciosa understood the operational and technical side of the business. With this company, he worked with the Colombian National Police, Air Force, palm oil farmers, land surveyors and many more clients. One of Franciosa’s projects involved land-mine detection using hyperspectral sensors to help safely eradicate these dangers from rural areas in Colombia.

When Franciosa returned to the United States, he partnered with Stephen Koshansky, an Army buddy and MIT graduate student, and they established an aerial imagery software business focusing on making drone data both useful and simple to understand. After analyzing many industries, they determined turfgrass was one that could benefit greatly from this technology, as there were not many other companies focusing on this niche market.

Bringing Franciosa’s unique expertise into a tightly focused market allowed them to develop the best possible solution for the turfgrass industry. The market was at the embryonic stage, and those in the turf community were receptive to the idea, so the partners were encouraged. They studied the industry and have worked with experts and golf course superintendents to refine the software and algorithms that run the drone and analyze the data.

The software has the ability to historically overlay images so superintendents can determine how an application or a treatment is working over time. By viewing time-sequenced images, changes in...
turf can be matched against actions taken. It can also minimize the guesswork when taking corrective measures.

The quadcopter is controlled from a smartphone. When the Digest asked Franciosa how difficult it was to survey a course, he responded, “You touch with your finger on a map where you want it to go, hit ‘start’ to make it take off and wait for it to land. Then you pick it up and bring it inside. Plotting the course is as easy as playing a video game.”

So what does this all mean? By taking the detection and monitoring of turfgrass into the 21st century, turfgrass managers can reduce costs and prevent disasters by monitoring problems and optimizing inputs with this amazing technology. The software and the drone will be coming to a golf course near you soon.

When asked what Franciosa’s next venture might be, he replied, “I’m not sure just yet. For now, I am focusing on creating the most useful tool on the market for the turfgrass industry.”

If you have any questions about this new technology or would like to learn more about Franciosa, he can be reached at (772) 777-8086 or at Jason@intelli-sky.com.
## Index of Advertisers

<table>
<thead>
<tr>
<th>Advertiser</th>
<th>Page</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerification Plus Inc.</td>
<td>18</td>
<td><a href="http://www.aerificationplus.com">www.aerificationplus.com</a></td>
</tr>
<tr>
<td>AMVAC</td>
<td>Back Cover</td>
<td><a href="http://www.amvac-chemical.com">www.amvac-chemical.com</a></td>
</tr>
<tr>
<td>Central Life Sciences</td>
<td>2</td>
<td><a href="http://www.centralantcontrol.com">www.centralantcontrol.com</a></td>
</tr>
<tr>
<td>Country Club Services Inc.</td>
<td>11</td>
<td><a href="http://www.countryclubservices.net">www.countryclubservices.net</a></td>
</tr>
<tr>
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<td>13</td>
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<td>7</td>
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</tr>
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<td>10</td>
<td><a href="http://www.pikecreekturf.com">www.pikecreekturf.com</a></td>
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<td>17</td>
<td><a href="http://www.qualityturf.com">www.qualityturf.com</a></td>
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