

FLORIDA

TURF DIGEST

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TURFGRASS
ASSOCIATION

VOL. 40 / NO. 3

Spring 2022




It Takes A World

A Water Conservation
Case Study

ALSO IN THIS ISSUE:

Reclaimed Water
Best Management Practices for the Sports Field Manager
What Do You Mean Drip Irrigation Is *Frequently Inefficient*?
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Spring 2022
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President's Message

By Lance Tibbetts, FTGA President

More Positive Changes Coming to FTGA

As I sit here and think about the past few months of my presidency, I can't be where I am without the FTGA's current board members. I have served on past FTGA and STMA boards, and it is undeniable that the group I am blessed to be with now is extremely tuned into and compassionate toward the entire green industry.

For example, during my first hour of becoming president of FTGA, I was approached by a very well-known member asking how we could help FTGA to become more diverse. I brought that member's concerns to the board, and we all decided and agreed that we needed to add a committee to make sure we are a proper reflection of our members. So, we have created a Diversity and Inclusion Committee to ensure that we acknowledge and represent all members of this great association.

With that said, I would invite any members who would like to be on this committee to reach out to me to help us get this committee heading in the right direction.

We are in an unusual time in our history. We are coming off a pandemic, and labor issues affect all of us. Inflation and supply issues are daily issues, so I want to thank all our vendors for their support and commitment to FTGA. Without you, we are not able to supply the excellent level of training, advocacy and support to our members that your commitment allows.

As we come out of our membership drive, I would like to thank you all for renewing your memberships, helping to drive memberships with new members as well as for your participation in the FTGA Turf Seminars. Again, thank you to our members and vendors and a special welcome to our new members.

Since our last gathering, which was the 68th Annual Conference, the Executive Committee and board of directors have participated in an FTGA strategic planning session. I honestly have never participated in one during my time on boards. This was an incredible experience, where every board member had an open "mic" to ensure every idea and concern was brought forth and discussed. It was a way for us, as the FTGA Board of Directors, to express ideas brought to us by members to help us plan the association's future. We are presently compiling that data, and the results of that session will be shared shortly.

The CEU Round Up is coming up in July, and the 69th Annual Conference will be held November. See page 7 for more information on the CEU Round Up.

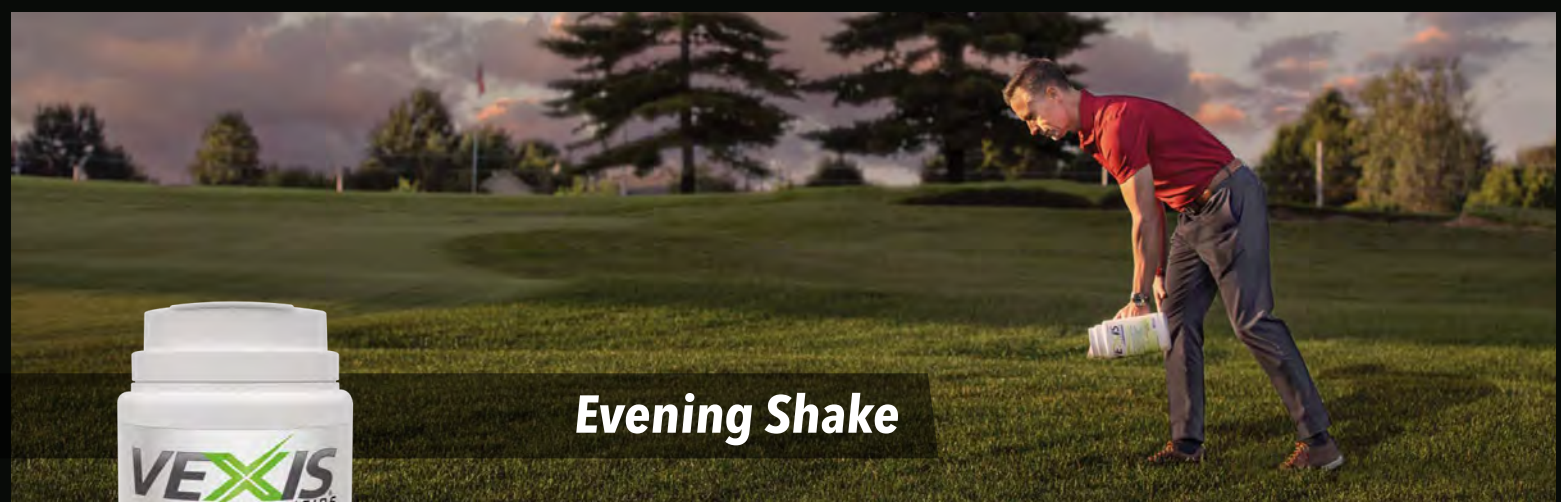
Finally, I wish you all and your families a safe and fun-filled summer. Please contact me with any concerns or suggestions you may have. 🌱



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From the Acting Executive Director

By Mac Carraway, Acting Executive Director

Spring is almost over, and the FTGA's Turf Seminars have ended. I had the pleasure this year of hosting several of them, and it has been great to see the excellent content offered to our attendees as well as to enjoy the simple pleasure of being in-person with the hard-working people in the turfgrass industry. I get it that we have adjusted to more remote meetings and webinars with tools like Zoom, but it's just not the same, especially for something such as the FTGA Turf Seminars.

On the topic of Turf Seminars, let me take the opportunity to offer my sincere thanks to the vendors who sponsor these events. Their faithful investment and participation make such a huge difference at the seminars and beyond. I enjoy seeing them interact with seminar participants, always making every effort to help them find solutions and sharing real-world experiences.

Switching gears, the FTGA Board of Directors just recently held a strategic planning session, which was professionally facilitated by our great friends at the GCSAA, Ralph Dain and Steve Randall. The session offered the board and staff the opportunity to dig deeply into setting the mission and vision of the FTGA for the coming years. What happens coming out of a meeting like that is the creation of a list of tasks which are needed to put the strategic discussions into motion. Those tasks are now underway and will be more visible as the year progresses. I would offer for now that the board made it very clear that they are committed to providing our members and sponsors with the best value proposition possible.

Also coming out of the meeting was a resolution of appreciation for our past presidents, some of whom offered their thoughts about association strategy before the planning meeting. We are hopeful that our engagement with these talented and experienced men and women will continue and grow over the next year.

On a final and somewhat personal note, I wanted to invoke the memory of my late, great friend, Bob Bartz. Bob was the long-time president of the Manatee County Chamber of Commerce. Bob built that Chamber, located in one of the smaller counties on Florida's southwest coast, into a powerhouse member organization—larger than any in the greater Tampa Bay area and made up primarily of small businesses. It is a four-time winner of Florida Chamber of the Year and is a U.S. Chamber 5-Star Accredited organization. Bob was an inspirational leader, and one of his most famous sayings was “**Work made fun gets done!**” Let me tell you something—that is as true as it gets.

So, with that said, let me challenge you to have fun with the FTGA. If you are a long-time member, you must have memories of past FTGA events such as the Conference & Shows, where there was some very serious fun going on. Your board and staff are committed to delivering you fun AND content going forward, and we need to be together in numbers for that to happen. We will be at ChampionsGate again this November 8–10, and there will be a variety of updates coming on the conference, so stay tuned, and I hope you'll save the dates and that I will see you there! 🌱

SAVE THE DATE

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It Takes A World

A Water Conservation Case Study

By Andrew Jorgensen, *On Top of the World*

Being one of the oldest land development companies in Florida, On Top of the World Communities LLC is no stranger to the rapid growth the state has experienced over the past two decades. Between the housing boom of the early 2000s, and more recently since 2012, approximately 4,000 new homes have been constructed within the master-planned community. With this comes a tremendous need for water for both daily living and landscape needs. The team realized there was a need for conservation and devised a plan to reduce the daily usage within the community.



Phillip Hisey.

When Director of Landscape Operations Phillip Hisey started working for On Top of the World Communities in 2005, the landscape and irrigation installations were very traditional. Typically, plant the normal water-loving plant material and design a system that covers the entire landscape and turf.

Efficiency and conservation were not necessarily part of the conversation. Hisey was determined to make

improvements. He began by redesigning the master landscape plans for the new homes and community common areas by utilizing more Florida Friendly plant material and switching to more drought-tolerant turfgrasses. The landscape and turf changes meant that a more efficient irrigation system could be installed that included drip irrigation for each plant, and irrigation that is more efficient for the turf. The community switched to Hunter Industries MP Rotator nozzles on all spray heads and incorporated the Hunter HydraWise system for control. Each home's water usage quickly reduced, which in turn, meant a large monetary saving for the homeowner. The initial cost of installation was slightly more than the previous systems, but the water cost savings down the road quickly compensated for that.

Hisey did not stop there. The Florida Water Star Certification is a voluntary program that encourages water efficiency inside the home by installing the proper appliances and plumbing fixtures and outside of the home based on irrigation design, landscape material and best management practices. The average Florida Water Star home can save about 48,000 gallons of water each year. Hisey was familiar with the program, but the Southwest

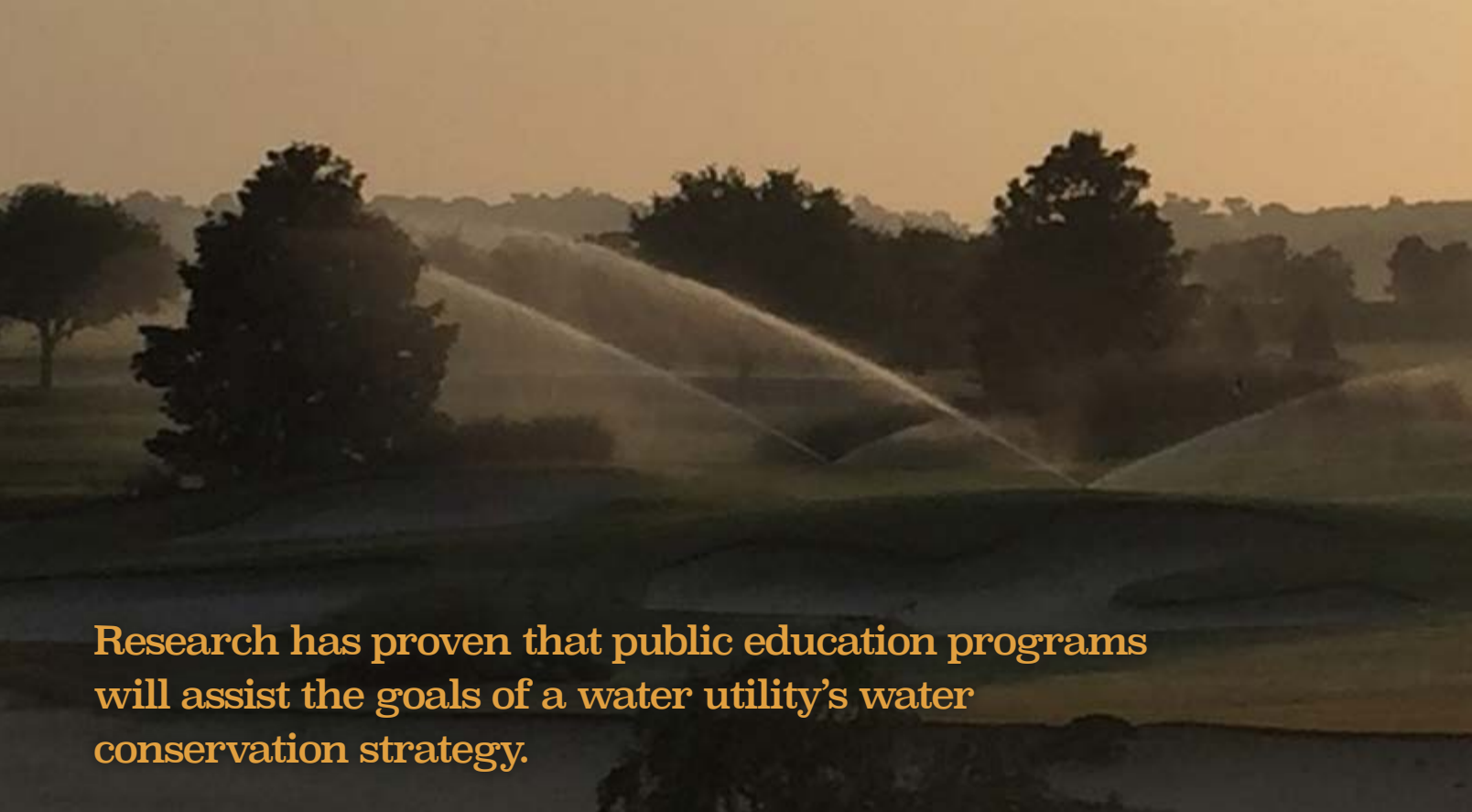


Florida Water Management District (SWFWMD), which governed water usage permits in the community, did not have the program initiated yet. Hisey then reached out to the neighboring St. Johns Water Management District (SJWMD) to see if they would certify several new homes that were in the works. St. Johns agreed, and the new homes were the first within SWFWMD to be Florida Water Star Certified, albeit by a neighboring jurisdiction. This in turn motivated SWFWMD to begin their own certification. Every home built within On Top of the World since the initial certification has incorporated the Florida Water Star design requirements into each new home's construction, exponentially reducing the overall water usage of the community.

Heading down this road, Hisey began exploring how limiting irrigated turfgrass would impact water usage, and more importantly, home sales. To meet the Florida Water Star requirements, the developer had previously experimented with the idea of using unirrigated bahiagrass in the rear of the homes. It was not a great selling point to buyers back then, but Hisey felt the climate for water conservation had changed, so he laid plans to minimize irrigated turfgrass. It took some education, but eventually the idea took off without affecting home sales. The developer has included this

feature as a positive sales point motivating conservation-minded buyers.

This culture of conservation quickly spread throughout the company, and the entire staff began to look for ways within their own realms to reduce the overall water usage. For the community's three golf courses, Director of Community Maintenance Operations Andy Jorgensen saw several ways to improve. He quickly converted old irrigation controllers that required daily adjustment to new, computer-operated controllers that utilized an on-site weather station to determine watering needs based on evapotranspiration (ET) and rainfall. He also initiated a turf reduction plan that included reducing the overall maintained and irrigated turf. Areas that are out of play were converted to native, ornamental grasses: cordgrass, muhly grass and crown grass, eliminating the need for irrigation. Wildflower plantings were developed in adjacent areas to not only reduce irrigated areas, but also provide habitat for pollinators surrounding the golf courses. During the renovation of The Links golf course in 2019, roughly 8 acres of irrigated turf were removed and converted to waste bunkers that contained native plantings. This added to the existing 16 acres of turf previously removed on the other two golf courses. The renovation also included the installation of a new, state-



Research has proven that public education programs will assist the goals of a water utility's water conservation strategy.

of-the-art Toro irrigation system with HDPE piping. The existing system was in poor condition, and several irrigation audits performed confirmed the need for improvement. Installed in the early 1980s, the system was a traditional, single-row design that did not cover all the in-play turf. The system also experienced numerous leaks each week, some that were not detectable until total failure of the pipe occurred. Jorgensen reached out to Mike Pignato with The Pignato Group to design a replacement system that was able to meet the goal of decreasing the annual water usage, while also covering more of the in-play areas. Pignato designed a new system that included part circle heads along the perimeter of each golf hole to eliminate overspray into the surrounding bahiagrass, an issue that previously meant wasting a lot of water in an area that a golfer typically does not see. The new system also provides for individual head control, meaning each sprinkler can be adjusted to apply only as much water as needed to the area surrounding it. And although the system actually irrigates more acreage, it met the goal of reducing the overall watering needs of the golf course. The efficiency improved by about 30%, and Jorgensen was happy.

As a past president of the Florida Turfgrass Association, Jorgensen learned of a proposed UF/IFAS research project to incorporate Comand compost into

soils aimed at reducing watering needs of residential turf. Jorgensen realized this potential and how it could be incorporated into his golf operation. Since the community and the golf courses are constructed on native Florida Candler sand, the talk of a product that can improve the water holding capacity of the soil was impressive. He invited the producer, LifeSoils, to On Top of the World to discuss the potential usage on golf course turf to reduce his irrigation needs. This conversation led to Jorgensen purchasing one load as an experiment. After applying in normally drought-stricken areas, Jorgensen saw the benefits and was quickly sold on the idea. This facilitated Jorgensen and Hisey to provide nine new home sites for the UF/IFAS research project to be conducted. The research included three residential lawns that had Comand compost incorporated into the soil prior to sodding, three lawns that were rototilled prior to sodding, and three control plots in which standard construction practices were used. The research demonstrated that water reduction was realized by incorporating compost into the soil prior to sodding. Applications of Comand compost are now a standard part of the operation in both the golf and landscape operations at On Top of the World.

To further improve the water efficiency of the community, Bay Laurel Center Community Development District (Utility), which serves the community's water,



Customer assistance programs provide an incentive for customers to make improvements to their home.

wastewater and reclaimed water needs has developed public education programs, provided customer assistance programs to begin reducing water use on existing homes, and established new construction standards to prevent excessive water use on all new homes.

A public education program is an essential element of a water conservation strategy. Research has proven that public education programs will assist the goals of a water utility's water conservation strategy. In addition, customers are more likely to make better decisions on their own when selecting fixtures and making landscape and/or irrigation modifications if they are educated. The Utility, along with On Top of the World Communities, provides numerous courses to our residents, aiding in their overall knowledge regarding water conservation.

Customer assistance programs provide an incentive for customers to make improvements to their home, increasing the overall efficiency, which ultimately aids the Utility in meeting regulatory requirements and reducing water resource demands. The Utility has partnered with the SWFWMD in funding multiple projects, such as:

- » Toilet rebate programs where high flow toilets are replaced with low flow 1.28-gallon-per-flush toilets.
- » Irrigation controller upgrade programs, replacing traditional irrigation controllers

at residential homes with ET weather-based irrigation controllers and Solar Sync ET rain sensors, providing real-time adjustments to the irrigation cycles based on current weather patterns. Solar Sync ET sensors measure sunlight and temperature and use ET to determine the correct seasonal adjustment percentage value to send to the controller. The controller then uses its programmed run time and adjusts to Solar Sync's seasonal adjustment value to modify the actual irrigation run time for that day.

- » The Utility implemented an Irrigation Water Audit Program provided to residential properties within the service area. The irrigation audit provides a visual inspection of the irrigation system, determines application rates, analyzes water requirements for the specific site conditions, develops recommended irrigation schedule, makes minor adjustments to components and makes water conservation recommendations.
- » Showerhead upgrade program replacing 2.5 gallon-per-minute (gpm) heads to EPA Water Sense labeled heads designed to provide less than 1.75 gpm.
- » The Utility recognized that one of the largest



water demand components on a residential property is the irrigation of turfgrass. The Utility offered a Turf Reduction Program that provides incentive for customers to remove turf and replace this area with low-maintenance shrub beds. In addition to the water savings, a reduction in turf will result in a decline in the related cost and use of fertilizers and pesticides necessary to maintain turf health. It is estimated that a reduction in turfgrass by 1,000 sq ft will provide an annual water savings ranging from 15,569–31,767 gallons (Boyer & Dukes, 2014).

Regarding the efforts associated with new home construction, the Utility has implemented requirements for all new homes to meet the Florida Water Star criteria for the Silver Level. Additionally, all developers are required to demonstrate how new homes' monthly irrigation demand is designed not to exceed 6,000 gallons per month ensuring that new homeowners are provided the tools necessary to conserve one of our most precious natural resources.

As the number of new homes under construction continued to multiply, which resulted in an increase in wastewater coming back to the plant, the need to upgrade the operation to provide reclaimed water was clear. In 2007, SWFWMD provided a cost-sharing grant to allow the utility to upgrade their facility to provide public access reuse reclaimed water with 100% of the daily flows being redirected back to the golf courses and common area landscaping. The project was completed and brought online in

2010, allowing significant offset of groundwater withdrawals. The system now provides roughly 60% of the water demands for three golf course and 100% of the common area irrigation requirements. As more homes are built, the supply of wastewater will continue to increase, allowing the groundwater withdrawals to continually decrease proportionally as well.

Thanks to the preservation-minded individuals championing the cause, water conservation is now an integral discussion in all facets of the operation. Their focus has brought about a change in culture that has resulted in a reduction of over 50 gallons of water per day, per resident. With over 12,000 residents currently residing in On Top of the World, the numbers speak for themselves—a savings of more than a million gallons per day. The team has vowed to remain focused on implementing water-saving innovations, and several additional projects are currently in the works. At least for now, we know water conservation remains a top priority for On Top of the World Communities. 🌱



Andrew Jorgensen is a past president of the FTGA and current president of the Florida Golf Course Superintendents Association. He has been with On Top of the World since 2005 and currently serves as director of Community Maintenance Operations.



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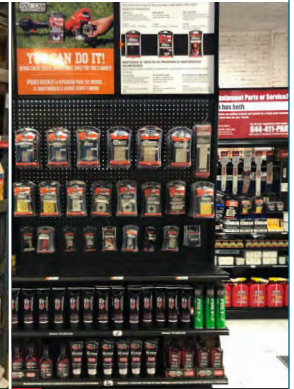
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RECLAIMED WATER

Taking a Closer Look at Reclaimed Water to Offset Fertilizer Budgets and Protect Water Quality

By Don Rainey, UFIFAS Extension - Water Resources Regional Specialized Agent (RSA) III and Susan Haddock, B.S., MBA, Commercial Horticulture/IPM Agent IV UFIFAS Extension Hillsborough

Reclaimed water is a treated domestic wastewater effluent approved for use as an alternative supply to potable water. The Florida Department of Environmental Protection (FDEP) regulates reclaimed water treatment and use. According to the Florida statute, reclaimed water is a safe alternative water supply for its designated service. Based on current wastewater treatment efficiency, residual nitrogen (N) and phosphorous (P) is present in reclaimed water regardless of advanced treatment but at significantly reduced nitrogen and phosphorous contents. For example, Table 1 provides the treatment of N and P removal efficiencies. The sample provides a breakdown according to nutrient species compared to untreated, secondary and advanced wastewater treatment values in parts per million (ppm).

For nutrient and irrigation management planning purposes, use Nitrate-N ($\text{NO}_3\text{-N}$) in formulating fertilizer equivalents; the calculation is explained later in the article.

After secondary treatment, reclaimed water is considered a safe recycled domestic water supply that may be used to irrigate sports fields and recreational areas, residential lawns, urban green spaces and golf courses. By law, reclaimed water irrigation systems require separate supply, conveyance and distribution systems, such as backflow devices, mainline metering, piping, pump, valves and sprinkler devices. Also, the public must be informed visually by using signage (do not drink) and color-coded pipes and devices in purple to differentiate potable use systems from the reclaimed supply. Ground and surface water, potable well-head

systems and natural areas must also be protected when reclaimed water is applied. Use setbacks and no-irrigation zones, for example, part-circle sprinkler heads in existing or renovated irrigation system designs.

Benefits and Proper Management of Reclaimed Water

The benefits outweigh the costs and requirements of reclaimed water. The application of reclaimed water on golf courses is a commonly adopted cultural practice for many golf course superintendents, sports field managers and landscape management professionals in Florida. Depending on the level of wastewater treatment, reclaimed water may deliver viable nutrients (N, P) to sustain turfgrass health and playability; secondarily, it may further offset fertilizer cost and labor.


There are a couple of important reasons for responsibly managing reclaimed water: the nutrient and salt content and other possible pollutant loadings. Compared to potable water supply, reclaimed water may contain levels of N and P, including contaminants of concern. For those reasons, irrigation managers should routinely factor in reclaimed water N and P values according to water treatment analysis reporting. Salinity is also a common issue during the drying times of the year; therefore, managers should incorporate best management practices (BMPs) to address these issues and provide a contingency plan to react to declining plant health or system failures.

As an owner or superintendent of your company or facility, you may consider adopting a facility reclaimed *Water Use Code of Good Practice*. FDEP and the Florida

Water Environment Association provide extensive information regarding reclaimed water processing, treatment and use. For example, reclaimed water cross-connection controls and public notification requirements for public access and activity are used and maintained. The code of good practices directs those to “do the right thing” by adhering to principles of conduct related to reclaimed water. Sports field, golf course and landscape irrigation managers may find these practices helpful, such as facility compliance checks to protect the public, wildlife and natural areas and initiate preventative and corrective maintenance.

Preventative and corrective maintenance and proper installation/placement of sprinkler devices are critical to preventing reclaimed water from contacting surface waters or natural areas. Create and routinely practice irrigation audits that prevent irrigation overspray or runoff resulting from misplaced or broken rotors. Irrigation overspray occurs when irrigation water lands on sidewalks, cart pathways, streets and other non-target areas. Irrigation overspray can create excessive volumes of reclaimed water runoff that may eventually find a stormwater drain, leading to a larger body of water. Over time, the loading of N and P can accumulate, creating a risk to surface waters, further impacting water quality issues and eutrophic conditions that may lead to possible fish kills.

Irrigation scheduling is critical in supplementing plant water needs using reclaimed water economically. Depending on your reclaimed water provider, the cost



Nutrient Form	Untreated wastewater, ppm	Concentration after secondary wastewater treatment, ppm	Concentration after advanced wastewater treatment, ppm
Total Kjeldahl Nitrogen	31.5	13.9	0.9
Organic Nitrogen	9.5	4.4	0.1
Ammonia Nitrogen	22.0	9.5	0.8
Nitrate Nitrogen	0.1	1.4	0.7
Inorganic Phosphorus	6.1	3.4	0.1

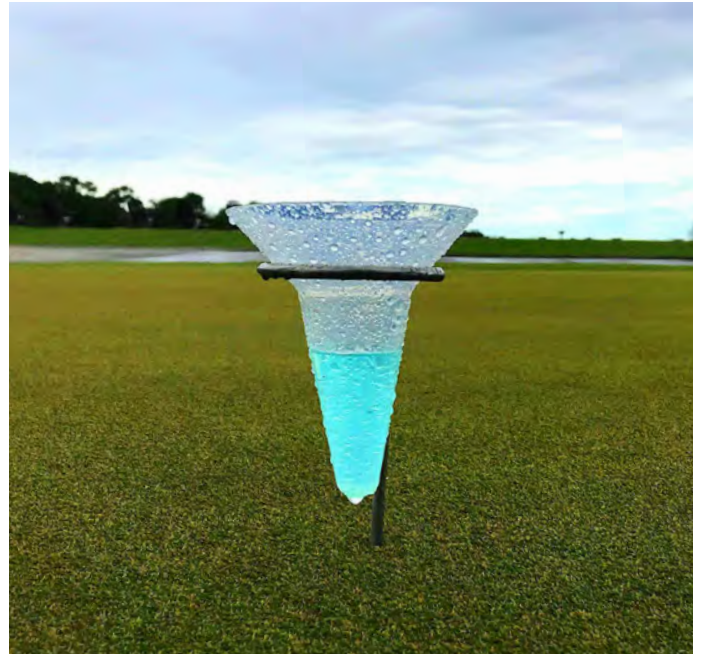
Table 1. Nitrogen and Phosphorous Treatment Efficiencies Example. Source: Toor, G. and Lusk, M. 2020



of reclaimed water varies. Reclaimed water may be supplied free of charge or cost much less than domestic potable supply water. The inexpensive cost of reclaimed water may lead to an overindulgent behavior resulting in overwatering, lack of corrective maintenance, and poor plant health issues. Therefore, it is critical to schedule irrigation run times based on the plant's water requirements regardless of supply cost.

Calculating the ppm of nutrients per volume of reclaimed water applied can be challenging and time-consuming. However, knowing the bioavailability of N, particularly nitrate-N ($\text{NO}_3\text{-N}$) levels in reclaimed water, can reduce the effective fertilizer needed or budgeted. Contact your reclaimed water provider for a water analysis report.

The water analysis report should provide the bioavailable, inorganic nitrogen levels based on ppm or mg/liter (1 mg/L = 1 ppm). Use the ppm value of $\text{NO}_3\text{-N}$ to determine the bioavailable inorganic nitrogen concentration in the reclaimed water supply. For example, according to the FDEP Golf BMP manual, applying 1 inch of reuse water containing 20 ppm nitrates adds about 1 pound of N per acre (lb. N/acre) to the soil. Irrigating 40 inches per year is about 1 lb. per 1,000 ft^2 ($\text{ppm} \times \text{inches} \times 0.053 = \text{lb. N/acre}$). This may save 10% or more of your annual fertilizer budget. It is good practice to obtain information from your provider quarterly, or at least annually, to determine the quality of your reclaimed water supply.



In summary, the benefit of reclaimed water relies on the responsible irrigation management and calculation of N and P applied using this alternative water source. Sports field and landscape managers as well as golf course superintendents are encouraged to stay informed and learn as much as they can about the origin and composition of your reclaimed water. Contact your reclaimed water provider for specific information regarding the level of treatment and content of nutrients, salts and other pollutants. Based on your provider's water analysis report and supplemental information, the manager may modify and apply irrigation BMPs to protect and conserve natural resources.

Protecting Florida's water quality is essential to our economic, social, and environmental way of life. 🌱



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BEST MANAGEMENT PRACTICES FOR THE SPORTS FIELD MANAGER: A PROFESSIONAL GUIDE FOR ENVIRONMENTAL SPORTS FIELD MANAGEMENT

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4 CULTURAL PRACTICES: MOWING

Mowing is the most basic and perhaps the most important cultural practice of managed natural grass systems that affects turfgrass quality and playability. Mowing practices impact turfgrass density, texture, root development, and wear tolerance. Failure to mow properly results in weakened plants with poor density and quality resulting in fields that offer poor play and can be unsafe.

Proper mowing height is a function of the quality of the cut, mowing frequency, the cultivar being managed, maintenance program, the sport and the intended use of the site. Other factors influencing HOC include frequency, equipment, time of year, root growth, and abiotic and biotic stress. For example, mowing frequency affects turfgrass growth as it increases shoot density, tillering, lateral growth of rhizomes and stolons, and also influences root growth. Frequent mowing increases tillering and shoot density, but if done improperly can decrease lateral stem and root growth. Therefore, mowing practices should balance these two physiological responses to enable quick turfgrass recovery through decisions related to HOC, frequency, and mowing patterns. Mowing too infrequently results in alternating cycles of vegetative growth followed by scalping, which further depletes food reserves of the plants. Proper equipment maintenance is also key to maintaining healthy turfgrass, as cutting units need to be properly maintained and provide sharp blades or consistent reel to bedknife (light) contact to reduce the risk of creating wounds that can favor microbial infection and, in some cases, dissemination of pathogens.

Mowing heights vary on the basis of a number of factors:

- Turfgrass species and cultivar
- Grass growth rate at a particular time of year
- Sport being played

- Mowing equipment
- Available labor/budget

The sports field manager must design a mowing program to produce a playing surface that is neither too short or too tall and adjust to meet changing environments, seasons, and sports.

The one-third rule (never remove more than one-third of the leaf blade at one mowing event) applies to most situations to minimize imbalances between root and shoot system development. This still allows for variation in HOCs depending upon the species and season and provides the sports field manager opportunities to optimize turfgrass health and playing quality.

Frequent mowing at the lower range of acceptable HOCs (Table 2) for species during periods of optimal turfgrass growth increases the rates of lateral growth from rhizomes and stolons and encourages tillering of bunch type grasses without being a drain on nutrient storage and root production. Frequent mowing at the lowest HOC ranges for a species during environmental stress periods gradually weakens plant health as shoot development is favored, compromising root growth and nutrient storage. Mowing too infrequently may result in a playing surface deemed unfit for use and is typically followed by a scalping mowing event that leaves excess clippings on the surface (creating shade, disease, and playability problems) and further depletes nutrient reserves of the plants as its recovery efforts are focused on regenerating shoots.

4.1 Height of Cut (HOC)

Determining the best HOC requires balancing the stress response of mowing the turfgrass species with the sport being played, playability requirements, mowing frequency,

Table 2. Recommended seasonal HOCs

Turfgrass	Range	Spring	Summer	Fall	Winter Overseeded Bermudagrass
Bermudagrass	0.5 — 2"	0.75 — 1"	0.5 — 1"	1 - 2 in"	0.5 — 2"
Turf-type tall fescue	1.5 — 3"	1.5 — 2"	3"	1.5 — 3"	n/a
Kentucky bluegrass	1 — 3"	1 — 2"	1 - 3"	1 — 2"	n/a
Perennial ryegrass	1.5 — 3"	1.5 — 2"	3"	1.5 — 2"	n/a

Source: Modified from *Sports Fields: Design, Construction and Maintenance, 2nd edition*.

weather conditions, and budget considerations. In general, turfgrass mown at a higher HOC offers a better defense to pests and other stressors. Ideal tolerance ranges for mowing height vary by species and within species (Table 2) and provides adequate density assuming water, nutrients, etc., are provided optimally.

Mowing height can also be varied seasonally to improve turfgrass responses to changes in weather and available sunlight, such as during spring greenup, the heat of the summer, and late fall as temperatures cool. Adjusting mowing HOCs incrementally a few weeks in advance of anticipated seasonal growth assists in maintaining a balance in root and shoot development.

During the growing season, the HOC is based on a number of factors, including the grass species/cultivar, nutrient management program, irrigation requirements, the type of mowing equipment, and field use. After selecting the most appropriate turfgrass mixture or blend, field use must be considered. Heavily used fields (e.g., practice fields), often are maintained at a higher HOC to help reduce wear and tear of the turfgrass. For high visibility/priority fields (e.g., game fields), HOCs can be set to meet the needs of the sport.

As day-length decreases and cooler temperatures become more frequent in early fall, turfgrass growth can be affected. In warm season climates, HOCs should be raised slightly on bermudagrass to increase the amount of green leaf tissue available for photosynthesis. This strategy can be applied to cool season fields in mid-late spring in anticipation of heat and moisture stress during the summer. Higher mowing HOC provides the following benefits: a slight benefit in terms of increased carbohydrate production and storage; insulation for crowns/stolons/rhizomes; and a dense, healthy canopy that can resist wear and in turn provides longer seasonal durability (Munshaw, et al., 2017).

4.2 Mowing Frequency

Maintaining an optimal root-to-shoot ratio is critical. Following the traditional one-third rule, mowing should be frequent enough so that no more than one-third of the top growth is removed at any one time. Removing more than one-third of the leaf surface inhibits root growth because the grass will use more energy to regenerate new shoots than for sustaining roots.

In addition to maintaining an optimal root-to-shoot ratio, mowing events should only be performed when both field and growing conditions are satisfactory to prevent

compaction and/or excessive stress. Extreme damage can occur from the use of equipment or even routine play when the field is saturated. Cool season grass under extreme drought/heat stress should not be trafficked as this can also severely damage or kill turfgrass. Under any of these conditions, stay off the field until favorable conditions for return. When mowing resumes, scalping should be avoided by lowering HOC in small increments so as not to remove more than one-third of the leaf blade per mowing event.

4.3 Mowing Patterns

Mowing patterns (especially with cool season grasses) provide the opportunity to turn a sports field into a living piece of art. At the same time, the goal of a sports field manager is to provide a playing surface where mowing pattern does not significantly alter ball roll or footing, which can sometimes be the case particularly on bermudagrass fields where the field managers repeat mowing patterns to “burn in” a striping pattern. Due to the combination of a repeated mowing and the exceptional density of the grass, the field develops grain (a particular direction of growth), impacting the speed and uniformity of ball roll with, against, or across the grain. To minimize the development of grain, periodically alter the direction of cut with mowing equipment, balancing both visual and playability goals of the field.

4.4 Mowing Equipment

Several types of mowers are available. Reel mowers are preferred for turfgrass maintained at a low HOC (<1.5”) because they produce the best quality cut compared with other types of mowers. The combination of the number of blades on the reel, the reel speed (rotational velocity), and the forward speed of the mower make up the clipping rate. It is critical that the clipping rate matches the HOC to provide the most uniform playing surface. Rotary mowers, when the blades are sharp and properly adjusted, deliver acceptable cutting quality for turfgrass maintained at a taller HOC (>2”), but note that technological advances in floating deck rotary mowers can provide quality cuts as low as 1”.

Mowing equipment should be examined before each use to ensure the best quality of cut. Mower blades should be sharpened or adjusted as often as necessary to achieve the desired quality of cut. Dull mower blades can shred leaf tissue, which increases water loss and opportunity for disease. Therefore, maintaining sharpened, properly balanced mowing blades is critical because it supports a healthier turfgrass plant.

4.5 Clipping Management

Whenever possible, clippings should be returned to the turfgrass canopy. Clipping return provides multiple benefits, such as:

- Nutrient recycling of N, P, and potassium (K), at rates up to 1 lb N per 1,000 ft² per year, as well as other essential nutrients.
- Reduced need for supplemental nutrients.
- No need to manage the disposal of clippings.

During a mowing event, if clippings clump on the playing surface, they should be evenly distributed to avoid injuring the turfgrass canopy. If clippings cannot be returned, they can be blown, dragged, or collected and composted. Composted clippings can be used as a soil amendment or as a component of topdressing during establishment of new fields or in landscaped areas (unless clippings have herbicide residues). Clippings should never be allowed to collect in or near stormwater drains or natural wetlands due to their nutrient content.

4.6 Mowing Best Management Practices

- Mow natural turfgrass fields frequently to ensure a dense uniform playing surface. If a sports field requires a change in HOC, the height should be gradually adjusted until desired HOC is achieved by following the one-third rule of leaf removal.

- Consider using a plant growth regulator (PGR) as a regular management tool to reduce mowing frequency, clipping volume, and to improve mowing quality, turfgrass density, and overall plant health.
- Increase HOC prior to times of stress (such as drought or anticipated temperature extremes) staying within the tolerance range to increase photosynthetic capacity and rooting depth of plants.
- Increase mowing frequency during periods of rapid turfgrass growth and decrease during periods of slow growth.
- Vary mowing patterns.
- Properly maintain mowing equipment to maximize quality of cut.
- Use reel mowers whenever possible for maintaining turfgrass that requires HOC below 2".
- Keep blades of reel and rotary mowers sharp and properly adjusted.
- Return clippings to canopy whenever possible to recycle nutrients and reduce the need for fertilizer inputs.
- Remove or disperse clippings when the clipping amount is excessive and could smother the underlying turfgrasses.
- Dispose of collected clippings properly. Options include composting or dispersing clippings evenly in natural areas.

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Best Management Practices for the Sports Field Manager: A Professional Guide for Sports Field Management

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The National BMP document is also being provided as a customizable template that can be edited to fit the needs for a specific region, state, or facility. SFMA provides this template so that it can be customized for individuals and/or groups in need of the document. Maintaining the integrity of the document is important as subject matter experts from academia and the sports field management profession have contributed factual and accurate information that is required to be maintained. Therefore, only select areas of the document allow for customization.

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What Do You Mean Drip Irrigation Is *Frequently Inefficient*?

By Kurt K. Thompson, IrriTech Training Inc.

While the belief that drip emitters apply water at the highest uniformity of any standard irrigation emission device is accurate, connecting that to the efficiency of drip emitters is not valid. In fact, the efficiency of many, if not most, drip zones in landscape beds is not any better than traditional overhead irrigation. This is mostly the result of not being aware of the science of drip irrigation during design and installation and the neglect of maintaining the components and adjusting the scheduling. Because of this lack of knowledge and attention, the percentage of wasted water (not the total gallons) of landscape drip zones is often significantly higher than conventional overhead irrigation. This can be explained by understanding that uniformity and efficiency, while related, are two distinctly different measurements.

DISTRIBUTION UNIFORMITY

Irrigation Distribution Uniformity (DU) is defined as “The comparison of the average of the water being applied within the entire irrigated area compared to the average of the water being applied within the driest areas of the irrigated area.” Paraphrased, the distribution uniformity is the measure of how evenly the water is being distributed within the irrigated area. This is also called “uniformity of sprinkler coverage.”

The effect of uniformity is that the lower the number, the more water is required to get the amount of water needed by the plants in the driest areas. Theoretically, perfect distribution uniformity would be 1.00, but that is not possible to achieve in the field. Industry standards define uniformities from 0.65 to 0.85 as “achievable” and below 0.40 as “unacceptable” due to the excessive amount of extra water that is needed to compensate for the weak coverage.

Distribution uniformity of sprinklers has three variables that influence uniformity: sprinkler pressure, sprinkler placement and nozzle flow. Each element affects the other three as shown in Figure 1. The closer all three variables are to the manufacturers’ optimum, the higher the uniformity. These three variables have somewhat different influences on drip emitter uniformity.

Distribution uniformity can be measured simply and with reasonable accuracy following the Irrigation Association’s



Figure 1. The Three Variables of Sprinkler Uniformity.

Irrigation Audit Guidelines that have become the industry standards (<https://bit.ly/393XXZe>).

APPLICATION EFFICIENCY

Irrigation Application Efficiency (AE) is defined as “The percentage of the total amount of water applied that goes to the beneficial use of the plant.” Paraphrased, the application efficiency is how well the water being applied is being used to benefit the plants. Theoretically, perfect application efficiency would be 100%, but that too, is not possible. In terms of the targets, “achievable” efficiency in landscape irrigation systems is from 70% to 90%.

To help explain the concept of application efficiency, imagine there is a zone valve with a run time that applies 900 gallons as measured by the water meter. Application efficiency is the percentage of those 900 gallons that ONLY ended up in the soil where the plants’ roots are located. To further explore application efficiency, think about where that percentage of the 900 gallons that did not end up in the root zone would go and what would cause those losses.

Some of the variables that prevent the water from reaching the root zone are because it:

- Leaked out of the system before getting to the roots.
- Evaporated before getting to the roots.
- Blew away on its way through the air.
- Got thrown or placed outside the target area.
- Went below the root zone.
- Was applied to soil where there are no roots.
- Stayed on the leaf surface.
- Ran off the surface out of the target area.

Now think about how you would measure water lost from a crack in the mainline, but the water never surfaces to be seen; or the water that drifts over to the neighbor’s yard instead of landing in the target area; or the water that went below the root zone because the run time was too long.

These losses cannot be easily measured in the field, if at all. That means application efficiency can only be anecdotally established by identifying the causes of losses in an irrigation system and then interpreting the impact of each cause in terms of gallons lost.

Do not let this knowledge of how the sausage is made devalue application efficiency as an important tool. It was NEVER meant to be used as a decisive benchmark by which an irrigation system was judged. It was intended as a guideline to understand how water could be better managed or even conserved in conjunction with the data collected from a thorough evaluation of the irrigation system.

So, while we have to resign ourselves to the fact that application efficiency cannot be accurately measured, we do understand the causes of both efficient and inefficient irrigation systems and can use this knowledge and science to

build and maintain highly efficient systems, particularly drip irrigation systems.

DRIP IRRIGATION AND APPLICATION EFFICIENCY

As with all of irrigation, application efficiency of drip irrigation is affected by both the hardware factors of the design and installation of the system components and the human factors of managing and maintaining the soil moisture and system components.

Drip irrigation components used in the landscape (excluding microsprays) have some advantages over conventional irrigation to achieve a higher level of efficiency. This is because the landscape drip products have built-in features that help keep an emitter applying water at a high level of uniformity.

Virtually every emitter sold for use in landscape irrigation is pressure compensating (PC), plus most drip zones have a pressure regulator at the valve. This keeps the pressure at the emitters at or near the manufacturers’ optimum to control the pressure variable of uniformity. It also keeps the flow from the emitters (gph) consistent to control the pressure variable of uniformity. The placement variable is not a significant factor of uniformity because the larger root zones of landscape plants do not require the precise overlapping coverage of turf and annuals. Therefore, unless irrigating turf or annuals with drip, emitter placement does not affect emitter uniformity. However, emitter placement most certainly DOES affect application efficiency.

No matter how uniformly the emitter places the water, placing the water into the root zone and nowhere else is the main variable of application efficiency that drip irrigation must be designed and installed to handle. The table below shows the typical causes for the losses mentioned earlier with an additional column indicating if using drip irrigation can reduce or prevent the cause:

The water never reached the root zone because it:	Can drip prevent/reduce?
Leaked out of the system before getting to the roots.	NO
Evaporated before getting to the roots.	YES (mostly)
Blew away on its way through the air.	YES
Got thrown or placed outside the target area.	YES (mostly)
Went below the root zone.	NO
Was applied to soil where there are no roots.	NO
Stayed on the leaf surface.	YES
Ran off the surface out of the target area.	YES (mostly)

For drip irrigation to reach its full potential for high-application efficiency, key elements must be part of each of the phases of the system’s life cycle—design, installation,

management and maintenance. Without these elements, installing a drip irrigation system is only a placebo and not a remedy that improves water use efficiency in the landscape. Below are the elements and the reasons for why they are so impactful on preventing wasted water:

1. The emitter placement needs to apply water required by the plants (gallons per day or week) to cover 60% to 75% of the root zone and minimize applying water where there are not or will not be any roots.

Reason: Too much water in one area results in water waste below the root zone. Too little water is bad for the plant. Water where there are no roots is wasted.

2. The flow to each plant needs to meet the individual plant water requirements by adjusting the emitter flow and quantities per plant OR group the emitters irrigating the plants with the same water requirements into separate drip zones.

Reason: Applying the same amount of water to plants with different water needs will overwater some, causing wasted water, and underwater others, causing poor plant health.

3. The tubing and piping needs provide adequate flow to the emitters as the roots grow over and restrict the tubing.

Reason: Providing redundant paths for the water to reach the emitters (loops) when the tubing is collapsed by the roots will prevent the emitters from not getting the needed water to the plants.

4. The drip zones need to be installed with service points that are easily accessible into the future.

Reason: Without at least annual inspections, drip could be damaged or malfunction, causing wasted water.

5. The drip irrigation schedules need to be created accurately and adjusted monthly to apply water as a supplement to rainfall that meets the plants' water requirements in the right quantities and for the right run times.

Reason: Run times that are too long (a very common problem) or applying water before it is needed wastes water. Not adjusting the run times and frequencies monthly over or under irrigates. Applying water after even just some rainfall wastes water from runoff or going below the roots and can harm some plants.

6. Drip irrigation systems need to be prevented from applying water when the soil has an adequate amount of soil moisture (from rainfall) or applying more water than the soil can hold. This is best accomplished by using a rain or soil moisture sensor.

Reason: Applying water when there is not room within the soil to hold the water causes runoff or waste below the root zone, or both.

7. The drip irrigation should be taken out of automatic once the plants are established and only into automatic again when drought conditions persist. This may require the selection and installation of the right plants in the right places.

Reason: Applying water that the plants do not need is wasted and can harm some plants.

8. The drip system needs to have the features that allow for simple and accurate evaluations on a regular basis to identify leaks and ensure water is reaching the emitters.

Reason: Unrecognized problems perpetually waste water.

CONCLUSION

Drip irrigation in the landscape is an essential tool in the effort to preserve as much water as possible. But not understanding and embracing the basic principles that allow it to achieve a high level of efficiency can cause drip to be less efficient than traditional irrigation methods. Learning and implementing the science of high-efficiency irrigation will have a strong return for the company or individual who makes that investment.

To learn more about drip irrigation design, irrigation uniformity and efficiency, and the science of irrigation can be found at <https://irrigation.org> or <https://IrriTechTraining.com>. 🌱



Kurt Thompson is a managing partner of IrriTech Training Inc., providing online recorded and live instruction as well as in-person instruction and presentations. He is also the owner of K. Thompson and Associates LLC, providing irrigation system evaluations, planning and troubleshooting. Kurt can be reached at Kurt@IrriTechTraining.com, Kurt@KThompsonAssociates.com, or 850-637-6650.

MEMBER PROFILE:

James Evans

A Case Study in Success



Cab Sprayer utilizing latest Teejet/Raven technology applying pre/postemergent herbicide on baseball field.



Jimmy Evans with Keith Collinsworth during one of his visits back to Tallahassee after retirement.

James “Jimmy” Evans is no newcomer to the industry. You might know his name as a relatively new FTGA Board member, but he’s been living his dream since high school. That’s when he became interested in turf management. He had taken every available agriculture class by his junior year, so he turned his academic focus to horticulture. He studied, but like so many others, Jimmy is a Tim Allen sort of person, easily learning by the hands-on method rather than staring at a book and wondering, “How might I apply this in real life?”

Jimmy credits his ag teachers, Sam Love and Bonnie Adams, with being extremely encouraging in his pursuit of a degree in golf management. His parents were supportive of his career choice, but they weren’t thrilled that he was eligible to take a year off from high school to work on a golf course, a requirement he had to meet to enter the Lake City College (now Florida Gateway College) Golf Program. Like most parents, they must have been thinking, “What could possibly go wrong with this scenario,” but they signed onto his plan.

While working full time during college at Golden Ocala, Jimmy had a chance encounter at a local restaurant with Steve Wood, the new golf course

superintendent at SummerGlen. A week after sharing their experiences at Lake City College, Jimmy was working for Steve, who worked around Jimmy’s school schedule and even went without an assistant superintendent for two years to help Jimmy grow into the position.

After graduation in 2002, Jimmy moved to Tallahassee to become the assistant superintendent at Killlearn. He says, “This was all by luck,” but you will come to see that Jimmy creates his own luck—time and again.

In 2005, when the superintendent position at American Golf opened, they took a chance on Jimmy. He served as superintendent from 2005–2018. During that time, Jimmy was able to work with many college students from FSU and Lake City/Florida Gateway College. Jimmy always tried to have the patience shown to him by the influential people who had helped mold him into who he is—a hallmark of his career.

Carl Collins became Jimmy’s director of maintenance in 2007. He took the basic foundations of management and helped Jimmy push the team further than any of them could have imagined. Working with Carl became a game of seeing how far Jimmy could challenge himself and his team. His staff of 15 bought into the plan to see

what they could do with a minimal budget and to shock Carl on his next visit.

Probably, 2015–2017 were the hardest years in Jimmy’s turf life to date. The owner took back the course, and it turned into two years of lawsuits and frustration. Loving Tallahassee, having built a reputation and not wanting to move his family, Jimmy needed an option.

Sam Funderburk, Jimmy’s long-time friend, had seen the downturn at the club and approached him with an option to purchase the 30-year-old, family-run business called Professional Pest Management (now PPM Sports Turf) in the sports turf industry. The company specialized in chemical, fertilizer and cultural applications with state-of-the-art application control and monitoring equipment.

Keith and Toma Collinsworth owned Professional Pest Management and were ready to retire. Jimmy says, “I was excited at the prospect, but completely terrified of purchasing a company; it was overwhelming.

“I was raised in a house where my father owned his own business, and I saw how he had the freedom of being his own boss. My wife, Claudia, whom I met through the golf course in 2004, was supportive and aware of the demanding nature of the turf industry, and she never once had any concern or nervousness about the potential challenges of owning my own business.”

So, Sam and Jimmy, along with two other friends, made the decision to purchase the business and never looked back. In 2019, Professional Pest Management transitioned to PPM Sports Turf and began expansion into the golf market and cemeteries. “Mr Keith” stayed on the first year to help guide Jimmy through the sports turf world and assist with customer relations and company transition. Upon his retirement, Jimmy was able to hire Keith Harrison, who worked with him at Killearn as an assistant for four years.

Jimmy says, “PPM Sports Turf solely focuses on what we specialize in but also assists in finding solutions that

are outside of our specialty. Each of our customers has specific programs developed to help them achieve their desired results.”

Since 2018, PPM Sport Turf has grown to twice its original size and extended operations from the panhandle into South Georgia and as far south as Orlando.

“The most gratifying thing about my job is being able to help people when they need it. I enjoy the challenge of resolving problems as well as preventing them.

“In the future, I see our industry hit from two major environmental impacts: water and fertilizer regulations. In addition, labor has become an issue. When Lake City College had its original Golf Maintenance program, it graduated a constant stream of golf course assistant superintendents. Further, employees have been in short supply since the Covid-19 pandemic.”

Where do we go from here to ensure the industry’s continued stability and growth in these challenging times? Jimmy has a few thoughts on this:

- We need to acknowledge the importance of electing a strong agriculture commissioner, one who understands the importance of Florida’s turfgrass industry and the contribution it makes to the state’s economy.
- Encourage people to understand why turf professionals must attend Best Management Practices training.
- Be good stewards and educate everyone we can—neighbors, members, anyone who is willing to listen—on the many benefits of healthy turfgrass. If they don’t want to listen, try spoon feeding crumbs a little at a time.
- We must support our state-based organizations. I have been an on-and-off member of FTGA since college; however, I have been a consistent, participatory member for the past five years.
- All politics is local. Get involved on the local level. You can more easily affect change at that level.



Josh Carter, Jimmy Evans, Sean O’reilly and Matt Gaudet, 2002 Lake City graduates, catching up at dinner in Palm Beach.



A high school student helping with aerification.

I regret waiting so long to advocate for our industry and not focusing more on local industry organizations. The GCSAA and STMA are wonderful, but the money raised by Florida GCSA and FTGA supports the Florida industry.

- We have to find ways to engage all ages, especially the younger generation, to enter the industry. At 25 years old, if I had been told I would own a pest control company, I would have laughed. Maintaining interest is vital, and education in every aspect of the industry is key to retaining our labor base. Fortunately, FTGA and the allied associations have upped their game on education.
- Anyone who is interested in our industry should be encouraged to explore all options. My father retired from construction in 2010, and when he was looking for something to do outdoors, I mentioned golf maintenance. He had zero experience, but one phone call to Andy Jorgenson, and he had a job within a week. My father still works with Andy today.
- Remain flexible and look for new opportunities. 2022 has been an interesting year so far with Killlearn Country Club being purchased by a local businessman whose businesses are based out of Atlanta. The acquisition has brought me back into golf by serving as an agronomic consultant for the owner through a complete course renovation project. The vision and commitment moving forward at Killlearn is one I am happy to be involved in. It is also exciting that the newly hired superintendent is a former assistant that worked with me 10 years ago.

Jimmy concludes with some wise words, “It’s amazing [not really] that when you create real relationships outside of social media friends, everything can move full circle. Relationships, advocacy, mentoring, hard work and integrity are what fuel an endless stream of opportunities. Those who sit on the sideline will never seem to find the luck of those who are fully committed.” 🌱



Jimmy Evans with his wife, Claudia Evans.



Jimmy's children with their winning submission for Aquatrols Twitter Competition. They won a DJI Mavic drone for water conservation using Aquaflex.



Andy Jorgenson with Jim Evans Sr. at On Top of The World after 12 years of working together.



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Central Florida Sports Field Management Academy

By Don Rainey, UF/IFAS Extension - Water Resources Regional Specialized Agent (RSA) III, M.Sc., Southwest Extension District

Academy Leaders:

- Don Rainey, UF/IFAS Extension - Water Resources Regional Specialized Agent (RSA) III
- Susan Haddock, UF/IFAS Extension Hillsborough County Commercial Horticulture, Integrated Pest Management Agent IV
- Dr. Jason Kruse, UF, Associate Professor / Turfgrass Management, Environmental Horticulture



Roger Dean Stadium in Jupiter, Florida.
Photo credit: Justin Wallace, Sod Solutions.

What started as a request to local UF/IFAS Extension Agent Susan Haddock for field management assistance from county and city parks, recreation departments and school athletic departments evolved into a sports field management program. This program will provide field managers and their staff with education and training on basic and advanced cultural practices and environmental stewardship principles to protect water quality while managing turfgrass that endures enormous challenges. Adopting these practices and principles will also encourage quality playing surfaces, heighten self-confidence and professionalism, and improve the public perception of athletic field management in light of Florida's water quality and conservation concerns.

The Central Florida Sports Field Management Academy is located at the Plant City, Gulf Coast Education and Research Center Campus.

Mission: Establish a professional development and continuing education cooperative between specialty turfgrass managers, national and state professional organizations, UF/IFAS Extension agents and specialists, and UF/IFAS Research and Education Centers.

- Address present and emerging concerns facing turfgrass managers based on economic, environmental, and societal factors
- Collaborate with industry leaders in delivering educational programs
- Encourage engagement with professional organizations and industry-recognized training certifications

Coming Soon—Sports Field Management 101 Certificate

This UF/IFAS Extension training program will focus on the cultural practices and environmental management principles. The training includes a standardized set of curricula and hands-on demonstrations to enhance learning.

The training will provide a comprehensive learning experience related to Florida's unique landscape and soils. Mastery of environmental communication, management and stewardship responsibilities are vital to protecting Florida's natural systems, economy and communities. 🌱

The Atala Butterfly

was thought to be near extinction in the 1950s, but it has made a strong comeback in South Florida. It uses aposematic coloration (bright warning colors) to alert predators that it is poisonous. Probably because of the security they have in their protective toxin, these butterflies are usually not frightened off easily.

For the butterfly's fascinating story, visit <https://bit.ly/3wCIYgG>.



Marketplace

Ideas, People, Events, Products, Promotions, Sound Bytes, Etc.

PEOPLE & ACCOLADES

Unsung Hero Spotlight: Michelle Atkinson, Manatee County



Michelle Atkinson, environmental horticultural agent, has been serving the UF/IFAS Manatee County Extension Office for more than eight years. She received her B.S. degree from Stetson University and an M.S. degree from the University of Florida, Gainesville. Michelle's love of water recreational activities with her family shows in her career and explains her passion for conservation and

protecting water quality. As a regular speaker at conferences and seminars, she shares her knowledge with attendees across the state and beyond.

Michelle is not only a native Floridian but also native to Manatee County. She has seen a lot of changes over the years with building and development. She understands that in order to accommodate future generations and populations we have to continue to look for sustainable practices in our landscapes.

One of Michelle's interests is looking for ways to be more efficient with maintenance by using technology. She explains, "You have a lot of power in your pocket. Smart phones are an important business tool these days." Using apps to help with diagnosis and identification, with drones to locate areas to take a closer look and for looking at the developing robotic and artificial intelligence industries that keep her researching new areas to present to the turf and landscape industries.

Michelle says, "One of my favorite parts of this job is working with people to help them understand best management practices. I love to see the lights go on for folks as we explain how things work together in our environment. Whether discussing integrated pest management topics such as beneficial insects or "right plant, right place" concepts—including choosing plants that will not require as much maintenance or where stormwater ends up, sometimes carrying things from the landscape—helping to make those connections for folks is super rewarding."

Michelle is often found with her husband and three kids in or on top of the water during her time off. She enjoys boating,



FTGA NEWS

Thank You to Our Guest Editors

Many thanks to John Mascaro and Don Rainey for serving as guest editors. Both have helped in many ways beyond editing the magazine, so we want to thank you both for all you do on behalf of the association and the industry.

Membership Drive Update

Thank you, everyone, for a successful 2022 membership drive. We welcome back and thank many loyal members for your commitment to the association. We extend a warm welcome to all the new members and remind you to take advantage of your benefits so that you reap the full reward of membership.


We would like to acknowledge our Premium and Premium Plus members for your commitment to FTGA.

Premium Plus Members

A. Duda & Sons Inc.
Harrell's LLC
John's Island Club
Massey Services Inc.

Premium Members

Club Pelican Bay	Quality Turf LC
Diamond R Fertilizer	Royal Poinciana Golf Club
Fiddlesticks Country Club	Sawgrass Country Club
FMC	SiteOne Landscapes Supply LLC
Howard Fertilizer & Chemical Co.	Syngenta Professional Solutions
Interlachen Country Club	Target Specialty Products
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FTGA LEGACY SCHOLARSHIP	

EREF UPDATE

EREF Strategic Planning Summit

Industry leaders gathered recently for the EREF Strategic Planning Summit. Stay tuned for an update on EREF and its industry advocacy in the coming months.



(L–R) Tal Coley, Chief Executive Officer, FNGLA; Mac Carraway, Acting Executive Director, FTGA / Executive Director EREF; Mary Hartney, President, FFAA; Ben Bolusky, Chief Executive Officer, FNGLA (Retiring).

Also attending the summit and representing FTGA were Eric Brown, Jason Frank, Pat Marsh, Andy Jorgensen and Jimmy Evans.

UNIVERSITY OF FLORIDA NEWS

University of Florida—Fall Armyworm Research Collaborators

The University of Florida needs the help of Florida golf course superintendents to collaborate on fall armyworm management research funded by the Golf Course Superintendents Association of America.

Researchers will study the susceptibility of populations of fall armyworm to insecticides that will provide critical information to turf managers aiding the selection of the proper insecticide in Florida and across the U.S. We need your help in collecting fall armyworms from your golf course.

Overall, the results of this research will contribute to the improvement of golf course IPM and proactive management of insecticide resistance in turfgrass.

For more information and to sign up, visit <https://bit.ly/3tsk219>



Welcome Dr. A.J. "Alex" Lindsey

Meet A.J. "Alex" Lindsey, Ph.D., the new faculty member of UF's Turfgrass program. He is an assistant professor in the Department of Environmental Horticulture, and we look forward to learning more about urban turfgrass management from him.

Dr. Lindsey earned his B.S. degree from the University of Wisconsin—La Crosse, M.S. degree from the University

Continued on next page.

IN MEMORIAM



We have just learned that **David DeBra**, FTGA Past President (1977-1978) and Wreath of Grass recipient (1980), passed away April 11, 2022. We extend our deepest condolences to his family and friends.

David owned DeBra Turf in Hollywood, Florida, a provider of equipment to the green industry. He initiated a program to rebate a portion of his company's revenues to what was then the FTGA Scholarship and Research Foundation (now Florida Turfgrass Research Foundation, FTRF).

The photo below appeared in a 1970's Florida GCSA publication, along with the original description that accompanied the article.



Left to right: Dan Jones, V.P., FTGA.; Dave DeBra, V.P., DeBra Turf, Hollywood; Max Brown, chairman, FTGA. Scholarship and Research Fund (now incorporated into FTRF), and Jud DeBra, V.P., DeBra Turf Tampa, examine the Jacobsen Greens King IV, which we hope will raise a lot of money for scholarship and research.

of Hawaii at Manoa, and Ph.D. from Iowa State University. Upon completion of his Ph.D., he was a postdoctoral research associate at Iowa State University. His main research focuses are on turfgrass performance, sustainable/alternative management practices, and soil fertility/health.



Must-See Video: Dr. Marco Schiavon on Protecting Potable Water in Florida

Dr. Marco Schiavon speaks on how protection of water resources is setting limits to the amount of water that can be allocated to turfgrass and landscape areas. Turfgrass water and nutrient needs are often overestimated, as a result, turf is overwatered. This presentation covers his future research plans to reduce environmental impacts while still providing high-quality turf. As a bonus, you will love the interaction between Dr. Schiavon and his HOA, which illustrates the need for continuing advocacy. <https://bit.ly/3xBUWJq>

COMPANY NEWS

Meet Florida Coast Equipment's New VP



Congratulations to Kenneth Catalano, who has been named VP, Commercial Landscape and Nursery at Florida Coast Equipment. Catalano is a 20-year industry veteran and previously served as director of operations for Brightview Landscape Services.

Dr. Wykle Greene Joins Syngenta

Dr. Wykle is the new territory manager for the southeastern aquatics market and Florida lawn care. He recently completed his Ph.D. program at Virginia Tech in weed science where he studied



new herbicides mixtures for use in pastures and hayfields. Originally from a farm in southeast Alabama, he's excited to be back in the south and get out and start meeting stakeholders within the industry.

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