New chemical control options for sports turf managers

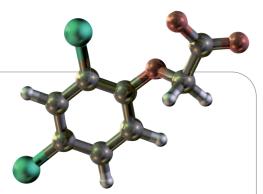
EACH YEAR new products enter the turfgrass industry designed to help sports turf managers provide athletes with high quality playing surfaces. Before their commercial debut, these products are rigorously tested at universities across the United States to determine their efficacy against various pests and if they pose any negative threats to the environment.

In response to the budget reductions placed on today's sports turf manager, some of the new products slated to debut in 2010 have been designed to reduce the number of chemical applications needed to provide high quality turfgrass playing surfaces. Additionally, the forthcoming loss of MSMA from the sports turf market has also placed

an emphasis on products to control grassy weed species like crabgrass.

Onetime (active ingredients – 16% quinclorac; 8% mecoprop; 2% dicamba) is a new postemergence herbicide from BASF. This product provides postemergence control of crabgrass and various broadleaf weeds in a single application. Onetime may be a valuable tool to sports turf managers facing restrictions on the use of 2,4-D for broadleaf weed control.

A product offering similar benefits will be sold under the trade name Solitare from FMC Corp. (active ingredients- 18% sulfentrazone and 56% quinclorac) offers sports turf managers postemergence control of crabgrass and various broadleaf weeds as



well. Research at the University of Tennessee indicates that applications of Solitare provide effective control of ground ivy. However, slight injury to certain cultivars of warmand cool-season grasses has been reported after application in some climates.

Tower (active ingredient – 64% dimethenamid-P) is a preemergence herbicide that will be labeled for sports turf use sometime in 2010. This product can provide preemergence control of certain broadleaf weed species, particularly prostrate spurge) and doveweed. Although this product has been labeled for use on golf courses for several years, Tenacity from Syngenta (active ingredient – 40% mesotrione) received federal labeling for use on sports turf in



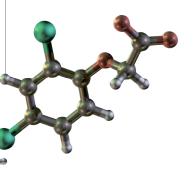
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FieldScience

September 2009. This product can be used on an array of cool-season turfgrasses to provide postemergence control of crabgrass and several other broadleaf and grassy weeds, particularly, goosegrass, creeping bentgrass, and nimble will. Tenacity will offer sports turf managers a tool to control weeds during turfgrass establishment. Research conducted at the University of Tennessee has demonstrated that Tenacity can be applied at label rates to tall fescue and Kentucky bluegrasses at seeding without compromising seedling establishment. Sports turf managers seeding high traffic areas lacking turfgrass cover may benefit from applications of Tenacity.

Onetime, Solitare, Tower, and Tenacity are only a few of the new products that will be available for sports turf use in 2010. An array of fungicides, insecticides, and fertilizers will make their way into the market after being thoroughly tested at universities across the country. The 21st STMA Conference and Trade Show (January 12-16th, 2010) in Orlando is a great venue to learn more about the benefits these products can offer sports turf managers. If there is a need for information before hand, contact a local university turfgrass extension specialist. Turfgrass managers interested in the performance of new herbicides in the transition zone, can visit http://tennesseeturfgrassweeds.org.

Jim Brosnan is the head of the turfgrass weed science research and extension program at the University of Tennessee. Greg Breeden is with UT's Plant Extension program.



Reports from the field

This section was reported by Tom Mentzer, for Syngenta Lawn & Garden, Greensboro, N.C.

ANDY PARKER, GROUNDS SUPERVISOR FOR PARK HILL (MO) SCHOOL DISTRICT: "We don't generally use a lot of herbicides. I prefer to manage weeds through other turf management practices. I seed once a month starting on March 30 and ending in the fall. We find that the dense turf canopy crowds out most weeds.

"Since our turf management program is based on good fertility, we see it as preventative for a lot of problems. The program is based a lot on reaction, and treating weed, fungus and insect problems as they arise. This helps us save a lot of money in our budget.

"I normally don't use a lot of fungicides unless I absolutely have to, but I do use Heritage and Daconil to treat specific problems like dollar spot or brown patch when they arise.

"One of my biggest challenges is keeping up our fertility and making sure the turf is ready for the season. Considering physical education classes use the fields during the day, we need to make sure the turf is right for the teams. It seems parents are becoming more aware of the turf their kids are playing on, so there's more pressure on us to make sure it's smooth, even and safe.

"Before we apply anything to the fields, I always notify the coaches and physical education teachers a couple days beforehand. I want whatever we apply to be completely dry on the turf before we allow students onto the fields."

Park Hill School District has nearly 20 acres of sports fields, all grown on native soil:

- 2 baseball fields (Kentucky bluegrass, mowed to 2-2 ½ inches)
- 2 softball fields (One is Kentucky bluegrass, mowed to 2-2 ½ inches, the other is bermudagrass)
 - 1 soccer practice field (Kentucky bluegrass, mowed to 2-2 ½ inches)
- 3 ½ football practice fields (Quickstand cold-tolerant bermudagrass, mowed to approx. ¾-inch)

Most chemical applications are liquid (though Parker does use granular from time to time)

Tony Leonard, director of grounds for the Philadelphia Eagles: "Our chemical program mainly focuses on decreasing summer patch and gray leaf spot at our practice facility. We start treating for summer patch in April with a broad spectrum fungicide and reapply every 21-28 days until early June. Our gray leaf spot program begins in mid-July through September. We rotate a number of products through the season to prevent against fungicide resistance.

"Our (stadium) field is 100 percent cold-tolerant Patriot bermudagrass. Weeds at both facilities are rarely an issue because I believe in maintaining a high, dense canopy through proper watering, mowing and fertilization. As a result, we haven't had to use a pre-emergent herbicide in 5 years. However, when we do get small, occasional occurrences of crabgrass or goosegrass, we spot treat those with the appropriate herbicide.

"To guard against fungus issues on the stadium in the spring, we apply either Daconil or Heritage. We also apply those products when we cover the field before a concert or other event."

Background facts:

- The Eagles' practice facility has 6 ½ acres of turf (mowed to 1 ¼-inch)
- The Eagles' stadium has 2 $\frac{1}{2}$ acres of turf (mowed to $\frac{3}{4}$ " 1")
- All the fields are sand-based, have good air flow and Pythium is not an issue
- All chemical applications are liquid (no granular)



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University turf programs, synthetic field providers partnering for research

WITHIN HOURS OF ONE ANOTHER two interesting news bulletins came across the wire in late August. The first said that Penn State and FieldTurf have partnered to develop the world's first facility dedicated to sports surface research; soon thereafter, an announcement from the University of Tennessee that it had agreed with AstroTurf to create the Center for Safer Athletic Fields to compare natural grass playing surfaces to synthetic surfaces.

PSU and FieldTurf's 5-year commitment will research synthetic turf, running tracks and indoor sports surfaces. The goal is to further accelerate safety within the entire synthetic sports surfacing industry. The new Center for Sports Surface Research will be an intercollegiate program managed within the Department of Crop and Soil Sciences in Penn State's College of Agricultural Sciences and headed by Andrew McNitt, an associate professor of soil science.

Penn State's McNitt has been studying synthetic turf for many years and is well regarded in the world of sports surface research, particularly as it relates to natural and synthetic turf, and conducts research relating to athletic field surface characterization and golf green construction and maintenance.

"This is the next logical step. It's a natural progression in our research. Every NFL franchise has at least one synthetic practice surface, and half of them have synthetic turf on their game field," said McNitt. "I'm getting calls from school board members, athletic directors, coaches and concerned parents daily asking for unbiased information about synthetic turf versus natural turf. If university researchers aren't going to do the research to assess and accurately compare synthetic surfaces to natural turfgrass, who is?

"People used to view synthetic turf as a threat to natural grass and something to be opposed. There is room for both surfaces. Whether we like it or not the market has already moved and as sports turf managers and turfgrass researchers we better be ready with some answers when

FieldScience

>> DR. MCNITT has led synthetic turf research at Penn State for more

the public starts asking questions or else we will be left behind in the decision making process one more time," McNitt said.

"For us at Penn State, the goal is: whether it's natural turfgrass or synthetic, we're interested in providing the best surface possible. The goals are the same!

"There are a lot of companies selling synthetic turf; what FieldTurf has done is to put some better science behind this. The center's goal is to marry human movement and surface manipulation to maximize both playability and safety," he said.

In order to implement the science, McNitt will work with Thomas Serensits, manager of the Center for Sports Turf Research. "Tom has tremendous experience formerly working for the Philadelphia Eagles and Virginia Tech doing field maintenance and implementing research. Dianne Petrunak leads the center's research and has been involved in synthetic turf research for more than 8 years," McNitt said. "Dianne's background is in plant pathology and her expertise enabled us to quickly and accurately conduct research on the relationship between synthetic turf and MRSA (see http://ssrc.psu.edu /staph/index.cfm)."

Others involved in the Center at Penn State include: Dr. John Challis, director of the Biomechanics Lab in the Department of Kinesiology; Dr. George Salvatare, the University's head athletic trainer; and Dr. Gary Purdew, head of the Carcinogenic and Toxicology Center at Penn State, among others. "Together we hope our research leads to improvement in the quality and safety of all sports surfaces including basketball floors, running tracks, wrestling mats and of course natural and synthetic turf," said McNitt.

"Our partnership with Penn State brings two industry research leaders together," said Joe Fields, chief executive officer of FieldTurf. "The original inspiration for FieldTurf was to provide a surface that would enable athletes to attain maximum performance while minimizing injuries and we believe that this partnership will help ensure that we continue to develop safe and performing surfaces to the athletes that we serve."

For more information visit http://ssrc.psu.edu/.

UT and AstroTurf

After more than a year of intense planning, The University of Tennessee has partnered with AstroTurf to create the Center for Safer Athletic Fields, which will compare natural grass playing surfaces to synthetic surfaces. The Center will be located in Knoxville at the UT Institute of Agriculture's East Tennessee Research and Education Center. This geographic location will enable scientists to conduct research on a variety of surfaces from both cool and warm season climates. The goal is improving athletic performance and reducing injuries through an on-going comparison of synthetic surfaces to natural grass.

The outdoor research facility will comprise 60 small-scale athletic

research fields constructed from a variety of playing surfaces. UT turfgrass scientists will compare the safety and performance of a range of synthetic playing surfaces to natural grass surfaces.

While determining the safety and performance of AstroTurf products compared to various natural turfgrass systems, UT turfgrass scientists will also monitor these relationships over time. Additionally, they will evaluate the environmental impacts of each system. The research should lead to the development of new, more accurate methods for testing the safety and performance of all synthetic turf systems.

Dr. John Sorochan, associate professor and turfgrass specialist with the Department of Plant Sciences in the UT College of Agricultural Sciences and Natural Resources, has been researching in the sports turf industry for more than 15 years and sits on the board member of the Sports Turf Managers Association (STMA). Dr. Jim Brosnan, assistant professor and turfgrass specialist has developed tools for testing sports turf surfaces. He is the STMA representative to the American Society of Testing and Materials (ASTM) and Technical Editor of *SportsTurf* magazine. The UT Turfgrass Team is rounded out by Tom Samples, UT Extension turfgrass specialist and Brandon Horvath, a turfgrass pathologist.

"This is a pioneering effort in conducting research with an emphasis on athletic field safety," Brosnan said. "Historically, sports turf research and maintenance have not been well supported. We are honored to partner with AstroTurf. Because of our vision for a compre-

hensive research project, we selected the only partner that controls all facets of synthetic turf manufacturing from polymer development to field installation."

"Advancing the science behind our products is critical to delivering the best solutions for athletes and the sports turf industry," said Bryan Peeples, president of AstroTurf. "This research partnership demonstrates AstroTurf's commitment to enabling our industry to provide the safest systems for the players and the environment."

Natural surfaces will be planted with bermudagrass, Kentucky bluegrass and others. Both mechanical and human studies will be performed to create "real play" conditions. Rod Walters, world-renowned in the athletic training industry, helped with the design and provided input on the infrastructure for the research areas to be involved in human performance and biomechanics. The research will be scientifically-based for statistical analysis.

"We are interested in credible, unbiased, fact-based research to test our products," said Peeples. "Taking the lead in developing standards that do not exist today allows us to develop the best products. When a client says 'Show me the data,' we will have what they need to make an informed decision."

Construction of the Center will take 6-8 weeks with ground breaking taking place this fall. For more information visit http://www.turf.tennessee.edu.



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Purchasing tips from industry pros



Purchasing: report from the front lines By Mike Andresen, CSFM

ately it seems that getting any purchase past administrators or purchasing agents at our university has become daunting. Three recent purchases that went through the state mandated bidding process were for a wide area mower, an aerifier and a 3-year paint supply con-

Our athletic director's philosophy that we "hire good people and give them tools to effectively do their jobs" rings sweet to our Facility and Grounds Department. Discussing need for those big ticket tools is not for everyday banter. The only time I discuss purchasing equipment is during the budget process. Don't constantly put your administrator in the position of listening to you cry about the condition of your equipment. And believe me, that's how they hear it. We have a place holder in long-range planning budgets for equipment replacement. If the department wins the lottery I want the boss to easily find a way to spend the windfall through us!

In working with purchasing professionals it's my job to make their jobs easy. Telling an agent we only want a specific brand machine puts that person immediately on red alert. Most purchasing agents have seen most of the tricks so you may as well come in humble and accept their rules. Besides, in our case the state makes the rule and this person is simply the messenger. Kind of like being a turf manager many times.

When we're ready to bid a piece of equipment I personally gather all the specification information on at least three like machines. I'll meet with the agent and be very honest about my professional and our

department's business relationship with distributors and manufacturers. The visibility of Athletics puts us in a unique position for potential gift-in-kind, donation or even sponsorship premiums relative to purchases. Take the time to educate the purchasing agent about the need to offer addendums to your bids that will allow for creative bidding that may benefit both your department and the supplier.

I love trade shows such as the one we have at the STMA National Conference. We draw up the wish list at the conference but we won't consider a major purchase without a demonstration at our facility. Our bid requires a demonstration of equipment and I exercise this right on the low bid or more if a couple bids are close. During demonstrations we'll take pictures and document our thoughts on the per-The purchasing agent is formance. required to be present during a demonstration and he or she documents comments and conversations as well as asks pertinent questions more related to warranties and contracts. It's impossible to document too much or have too many people watch the demonstration!

During a grueling paint bid process documentation and follow through was critical. Few things are more important to athletic departments than the field presentation for each sport. Paint budgets can be significant. Educate and develop a relationship with your purchasing agent to ensure they understand the importance of this purchase as well as the details, chemistry and nuances of paint materials and their application. Our process of evaluation was complex. All paints (white and colors) were applied at exactly the same ratios. From that point we kept a daily series of photos and a diary of comments on each product. Every couple days the purchasing agent visited the test sight to

make his own observations. When we sat down to compare notes it was striking how similar the observations were. Pre-bid education of the agent made the decision unanimous.

Avoid skirting or playing tricks with the formal purchasing process. Trust is the most important characteristic you carry. Trust with the purchasing agent and trust from the suppliers that they will and do receive a fair shot at your business. Don't waste your time or anyone else's time by being deceitful. Your reputation is on the

I've worked in the private sector and now the public. At times it would be nice to just make a call and tell a salesperson, "Please deliver this product" but there's benefit to adding people to your successful team. You are the leader of your team. When the preferred equipment or supply does not come in as the low qualified bid, remember it's not your opinion that ultimately determines if you have a satisfactory conclusion to the process. As it is with most every other aspect of our job, build the relationship first.

Mike Andresen, CSFM, is Facilities & Grounds Manager at Iowa State University and past president of the Sports Turf Managers Association.

Purchasing perspective from the director's chair

By Matt Mandia

s with most things in life, a learning curve exists for those who are not familiar with a certain task or profession. This is certainly the case when it comes to educating Parks and Recreation Directors as to the complexities and multitude of challenges encountered by turf managers in keeping sports turf surfaces in playable and sustainable condition.

Although I could be wrong, I don't believe the majority of turf managers have a degree in teaching or in the field of edu-



John Mascaro's Photo Quiz

John Mascaro is President of Turf-Tec International

Can you identify this sports turf problem?

Problem: Dead spots on field

Turfgrass Area: High school baseball field **Location:** Northeastern United States Grass Variety: Cool season mixture

Answer to John Mascaro's **Photo Quiz on Page 31**

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Facility & Operations

cation. But in order to be successful in terms of acquiring the necessary materials and equipment needed in the field, it is essential that you prepare your classroom for instruction each and every day.

Directors routinely rely on the expertise and knowledge of a multitude of areas within the field of Parks and Recreation. Specialties such as aquatic facility operations, park and open space planning, and bicycle and pedestrian trail design to name a few. Turf managers must be at that same level of expertise and knowledge so that Directors feel confident in the information they are receiving to make informed decisions that won't come back to bite them.

In the current climate of tightening municipal budgets and lack of funding for the basic core services of local government, it becomes increasingly more important that turf managers prepare a plan. The plan should include both short term and long-term needs and goals. This plan should be formulated in conjunction with the Director. Whether the Director realizes it or not, he or she is now in your classroom and this is your opportunity to demonstrate how serious you take your profession and to impress upon them, in a tactful way, your knowledge and the foresight you have put into your plan.

This is also the short period of time that you have to educate decision makers on the intricacies of your work. The biggest mistake turf managers can make in making an appeal for a new piece of equipment or large purchases of material during this meeting would be the following statements. If you want to be successful, DO NOT say:

- "Well, so and so School District or Township has one."
- "It would be nice to have."
- "The cab has air conditioning."
- "Although our current machine does the job, our guys don't like it."
- "I realize this piece of equipment is only a couple years old, but the new features on this model are more comfortable."

Although some of these statements may be true and the purchase may in fact increase productivity and produce a happier workforce, you have to understand that Directors must make very difficult budget decisions. These decisions include everything from pool and facility repairs, to programming and special community event obligations that the community expects. A well thought out and presented plan by turf managers must be part of these budgetary considerations in order to be seriously evaluated, and if done correctly, you may just get that new piece of equipment with the bells and whistles.

Here are some tips for success as I see them from the Parks and Recreation Directors perspective.

Plan ahead. If you know you have a big purchase coming up, plan for it, and don't blindside the Director the year you need it. Look ahead and request it in next year's budget that we will need this piece of equipment. This provides the Director time to contemplate the request and make every effort to make it happen in the confines of all the other capital requests for the department.

Consistently communicate with the Director in terms of

upcoming previously agreed upon purchases of fertilizer, seed and fungicides. This "touching base" approach further increases your credibility of being on top of your job and team approach to keeping your athletic surfaces in premium condition. Show that you are in tune with the budgetary pressures; believe me, it will help you in

Schedule time to have decision makers out to the parks to provide a first hand account of why you need the things that you have requested. It is a much easier sell on site than from a picture in a catalog. Also, when you encounter turf damage from misuse during wet conditions, or from turf disease, have those individuals come out and look at the situation. Seeing it first hand provides much more of a punch than pictures in an e-mail or written description.

When I started in parks and rec 18 years ago, I knew very little about turf management and the challenges of turf managers. It has become abundantly evident that I have been in our turf manager Bob Piccolo's classroom and didn't even know it.

Matt Mandia is the Parks and Recreation Director for Derry Township, PA, which is home to the world famous Hershey Chocolate Company.

What do you need in a utility vehicle?

By Brad Aldridge

n selecting a utility vehicle (UV), you're looking for one machine that "does it all"; the trick is determining how your organization defines "it." By its name of course it offers convenient flexibility, but choosing a UV is about matching the machine to your facility's unique needs.

Start by making a list of primary tasks the UV will need to handle, and then consider which models can best meet those requirements. No need to get something that tows a tractor if that's never going to happen. On the flip side, remember this might be your daily workhorse and you might find that you really need some of the extras.

Distributors can help recommend the right model. In general, sports fields require turf-friendly options such as 6x4 vehicles or turf tires to minimize ground compaction. Additionally, be sure to measure any tight spaces at your facility before you look at specific models; a UV that won't fit through a tunnel can't do its job.

While you can't foresee every future need, considering how a new UV complements your current fleet is important. If another machine goes out for maintenance, can the UV fill in? If another piece of equipment is at the end of its life, could a certain type of UV take its place and do double duty?

Don't forget that that using the vehicle's versatility may require switching between various attachments for different jobs, so take that time into consideration.

Do you need the option of full-time four-wheel drive? What top

speed and cargo box capacities are right for you? Tight turning radiuses an issue? Again, having a clear understanding of the tasks you need to complete will determine your UV needs.

Your mechanics' time is always at a premium, so choose a UV that's easy to service. A machine with sealed bearings and few grease points helps reduce maintenance time. If you have multiple machines, they should share service parts. Consider whether investing in a higher-end machine today might reduce your maintenance costs and downtime in the long run. If cash flow is a concern, leasing options can mean a lower monthly payment.

When choosing a UV, plan for what you want the vehicle to do, and the utility capabilities will support similar-level tasks as they arise.

Brad Aldridge is a product manager for John Deere Golf.

the system, what parts should I have onhand for quick replacements?

- Is there a nearby site that has this system installed? Can I visit?
- How long is the system under warranty? What does the warranty cover?

When researching a control system, don't become enamored with all the bells and whistles of a system; it's important to know what features you need for your turf area and then maximize your return on investment by selecting a control system that will get the job done.

Important considerations for a control system include: ease of use; flow management and flow sensing; moisture sensing including integration with an ET-based system; and remote-access control.

Water application

When selecting rotors or sprays, turf managers should consider the following:

• Water window: What gives the best distribution in the shortest window?

- Ease of use: Is the rotor or spray easy to adjust or fix?
- Safety/durability: How will the rotor stand up to everyday wear and tear?

A typical turfgrass system needs 85 psi to operate efficiently. A booster pump is necessary to meet that optimal design requirement. While the upfront price of a booster pump package can seem considerable, the energy savings from a high-efficiency pump can represents thousands of dollars over the life of the pump.

After the irrigation system is installed, it's important to follow the manufacturer-recommended maintenance schedule. A well-designed, properly installed and maintained irrigation system is the best way to keep your turfgrass green and healthy for years to come.

Pat Johnston is water management sales resource consultant for Horizon Distributors, Inc.

Selecting irrigation systems

By Pat Johnston

ith so many irrigation products in the market, it's important that turf managers understand what they need before they spend money on a new system. Decide what you expect from a system before you determine a total budget for the project.

The most important decision turf managers can make when considering an irrigation installation or renovation is whether or not to hire a certified irrigation designer, who can ensure that the irrigation plan meets your particular needs.

Whether or not you decide to work with an irrigation designer or directly with a distributor, here the questions you need to ask before making a decision:

- How much does the system cost? What is my return on investment?
- Who is the local distributor representative to contact for service issues?
- What kind of equipment training is included? If something goes wrong with

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STMA 2008 Compensation and Benefits Survey Results

During the fall of 2008, STMA conducted a survey of its sports turf managers on compensation and benefits. Most of the tables, graphs and charts have been re-created here. The results show that 60% of sports turf managers earn more than \$50,000, and

that 90% of the membership's employers pay for STMA national membership dues. Compensation data is also presented by certified status, level of education, number of acres managed, etc., and you will also find a tremendous amount of demographic and

benefits information included. The response rate was more than 38%, which is excellent and provides even greater assurance that the data is statistically valid.

Head Sports Turf Managers Salary

18% of STMA Members make more than \$75,000 per year 60% of STMA Members make more than \$50,000 per year

Head Sports Turf Manager Salary by Level of Education																
Please indicate the highest level of education you have completed.	Total		What is your base salary excluding bonuses?													
		Under \$35,000	\$35,001 - \$40,000	\$40,001 - \$45,000	\$45,001 - \$50,000	\$50,001 - \$55,000	\$55,001 - \$60,000	\$60,001 - \$65,000	\$65,001 - \$70,000	\$70,001 - \$75,000	\$75,001 - \$80,000	\$80,001 - \$85,000	\$85,001 - \$90,000	\$90,001 - \$95,000	\$95,001 - \$100,000	\$100,001+
High school	4.8%	2.9%	3.7%	8.2%	5.7%	3.8%	9.5%	5.8%	3.2%	4.3%	0.0%	11.8%	0.0%	0.0%	0.0%	0.0%
Some college, no degree/ certificate	21.7%	17.6%	25.9%	28.6%	30.2%	24.5%	21.4%	19.2%	16.1%	21.7%	20.0%	11.8%	0.0%	0.0%	30.0%	9.1%
1 yr. certificate	0.8%	2.9%	0.0%	0.0%	0.0%	0.0%	4.8%	0.0%	0.0%	0.0%	0.0%	5.9%	0.0%	0.0%	0.0%	0.0%
2 yr. certificate	4.4%	2.9%	0.0%	4.1%	3.8%	9.4%	2.4%	5.8%	6.5%	4.3%	8.0%	11.8%	0.0%	0.0%	0.0%	0.0%
Associates degree	17.3%	17.6%	18.5%	10.2%	9.4%	20.8%	28.6%	21.2%	16.1%	34.8%	4.0%	5.9%	33.3%	11.1%	0.0%	18.2%
Bachelors degree	43.2%	52.9%	48.1%	44.9%	49.1%	32.1%	28.6%	34.6%	41.9%	30.4%	64.0%	47.1%	50.0%	55.6%	50.0%	54.5%
Masters degree	6.9%	2.9%	3.7%	4.1%	1.9%	7.5%	4.8%	11.5%	16.1%	4.3%	4.0%	5.9%	8.3%	22.2%	20.0%	18.2%
Ph.D.	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	0.6%	0.0%	0.0%	0.0%	0.0%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%	11.1%	0.0%	0.0%

How many total acres do you manage? (Including structures, water and land)			Base salary excluding bonuses													
	Total	Under \$35,000	\$35,001 \$40,000	\$40,001 \$45,000	\$45,001 \$50,000	\$50,001 - \$55,000	\$55,001 \$60,000	\$60,001 - \$65,000	\$65,001 \$70,000	\$70,001 \$75,000	\$75,001 \$80,000	\$80,001	\$85,001 \$90,000	\$90,001	\$95,001	\$100,0014
1-10	7.6%	18.2%	16.7%	4.8%	18.4%	8.9%	2.6%	2.2%	3.6%	0.0%	0.0%	0.0%	11.1%	0.0%	0.0%	9.1%
11-40	16.2%	40.9%	23.8%	26.2%	20.4%	13.3%	21.1%	6.7%	10.7%	13.6%	8.0%	0.0%	0.0%	11.1%	0.0%	0.0%
41-70	13.2%	22,7%	14.3%	14.3%	12.2%	11.1%	5.3%	15.6%	25.0%	4.5%	8.0%	16,7%	0.0%	22.2%	22,2%	9.1%
71-100	7.6%	9.1%	4.8%	9.5%	10.2%	11.1%	10.5%	4.4%	3.6%	9.1%	8.0%	0.0%	0.0%	11.1%	0.0%	9.1%
101+	55.4%	9.1%	40.5%	45.2%	38.8%	55.6%	60.5%	71.1%	57.1%	72.7%	76.0%	83.3%	88.9%	55.6%	77.8%	72.7%

				Hea	ad Spo	rts Tu	rf Man	ager S	alary I	by Cer	tified S	Status					
I am a Certified Sports Field Manager	Total*		What is your base salary excluding bonuses?														
		Under \$35,000	\$35,001 \$40,000	\$40,001 \$45,000	\$45,001 \$50,000	\$50,001 \$55,000	\$55,001 \$60,000	\$60,001 \$65,000	\$65,001 \$70,000	\$70,001 \$75,000	\$75,001 \$80,000	\$80,001 \$85,000	\$85,001 \$90,000	\$90,001 \$95,000	\$95,001 \$100,000	\$100,001+	
Yes	14.8%	11.8%	14.8%	4.1%	20.8%	15.4%	14.3%	15.4%	6.9%	8.3%	16.0%	23.5%	33.3%	33.3%	10.0%	27.3%	
No	85.2%	88.2%	85.2%	95.9%	79.2%	84.6%	85.7%	84.6%	93.1%	91.7%	84.0%	76.5%	66.7%	66.7%	90.0%	72.7%	

