What He *Did* and *Didn't* Want In Life

By Lori Ward Bocher

Some people get to where they are in life by knowing what they want. Others get there by knowing what they don't want. For Kris Pinkerton, current WGCSA president, it has been a combination of both.

Kris, superintendent at Oshkosh Country Club, grew up on a dairy farm near Waupun, Wis. That's when he learned one thing he *didn't* want in life. "I chose at the age of 18 not to pursue dairy farming because of the tremendous stress I saw my father live with," he says. "Farming had been fairly prosperous for our family because we were pretty decent at it. But it was seven days a week, all day long, all the time. I just couldn't see myself doing that."

Full time staff. L to R Back row: Jim Kinderman, Larry Karel, Gene Leuthold, Kevin Harmsen and Kris Pinkerton. Front row L to R: Seth Petersen, Paul Ziemann and Andy Putzer.

So when he graduated from high school in 1981, he knew what he *didn't* want to do. But he *didn't* know what he did want to do. "I was very uncertain of my destination at that time. To be honest with you, I was kind of lost for a while," Kris admits.

Consequently, he didn't pursue further education at this point. "I was looking for employment off the farm," Kris recalls. "That led me to a golf course. I started as Larry Karel's assistant at Rock River Country Club in Waupun." He *didn't* know it at the time, but the golf course position turned out to be something he *did* want in life because he's been at it ever since.

"I think it was the similarities between golf course work and farming, being outdoors, that kept me at it in the beginning," Kris explains. "At that age I didn't have the foresight to think that some day I would be my own superintendent. But I enjoyed the job very much, just loved working outdoors. There was a tremendous amount of gratification for me in grooming and manicuring the golf course. That inspired me to at least stay with it long enough until I had some foresight to know that I wanted to continue in this career."

Needed more education...

Kris's boss left the course in 1986, and Kris stayed on as an interim superintendent. He also took some night classes in horticulture and chemical application at Blackhawk Technical College in Janesville and in small engine mechanics at Moraine Park Technical College in Fond du Lac. "In 1987 I realized I was not in a position to continue as a superintendent without further education," he recalls. "So in the winter of 1987-88 I went to the University of Massachusetts for their two-month short course in turfgrass management."

This gave him the confidence he needed to stay on as superintendent at Rock River Country Club in Waupun. Then, in June of 1990, he moved on to a job as superintendent at Waupaca Country Club for three years. And in June of 1993 he moved to his present job at Oshkosh Country Club.

Although his education worked

for him, Kris would not encourage others to take the same path. Why? "Because of how our business has changed," he answers. "And because it was an awful long struggle for me to get to where I am today. Most of my education I had to achieve by taking night classes. And I've taken a ton of GCSAA seminars to get CEUs. I got my certification in 1993. It's a very difficult row to hoe nowadays if you don't have the two- or four-year degree."

Hungry for more experience...

Once he knew what he *did* want to do in life and got the education he needed, Kris found that he was hungry for more experience. This hunger led him to his third place of employment, Oshkosh Country Club. "One of the things that led me to Oshkosh was the opportunity to do a lot of renovation and construction on the golf course," he says. "I was awfully hungry for that. That was one of the big lures that brought me here."

Kris was "hungry" for renovation and construction projects for many reasons. One, he wanted the experience – to do something besides just maintaining a course. Two, he wanted to build his resume. And, three, he likes to keep busy. "I'm not the kind of guy who likes to sit still very much," he admits. "Since coming here seven years ago, we haven't sat still at all. There's been a tremendous amount of work done on this golf course. A project every year, and some real heavy-duty construction about every other year."

Oshkosh Country Club has 275 golfing members who play about 15,000 rounds of golf a season on the 18-hole course. Kris has only worked on private courses, and he prefers it that way. "I enjoy working for a board of directors," he says. "And I think there's more job security with a private course. We've seen some public facilities – privately or publicly owned – change ownership or be leased to a management company. That leads to a lot of uncertainty and change for the professionals, be it the golf professional, the superintendent, or the clubhouse manager."

Kris has especially enjoyed the board of directors and green chairman he works with at Oshkosh. "It's been very comfortable here working for a board of directors that has a common goal and is working in a consistent direction as far as the golf course," he says. "They brought me here to upgrade the facilities, and we've maintained that direction for seven years. The one person who steers this golf course is the green chairman, Kurt Koeppler, and we've had a good working relationship, too."

How does Kris maintain this good relationship? "For the most part, it's keeping the line of communication open at all times," he answers. "He always knows how he can get a hold of me, and I have three different telephone numbers to get a hold of him. I keep him aware of what's going on – not so much on a day-to-day basis, but when events change, especially those that influence revenue. Like the weather. If we have a flood, I'll tell him what's going on and when we predict carts will be let back on the course.

"We work on projects together. We work on budgets together. We go out together and look at things on the course," Kris continues. "But the main emphasis is on communication. And being honest. We're not always right. Sometimes we regret the decisions that we've made. But being honest will prevail in the end."

Craved involvement...

Once he was firmly entrenched in his profession, Kris found something else that he *did* want to do in his life: become involved in the WGCSA. He joined the board of directors in 1994. "I craved involvement at that time," he says. "I wanted to do my part. I wanted to know what was going on. I was excited about being a member of the organization, and I tried three years to get on the board but was unsuccessful. I was appointed to a position in 1994 when someone had to leave the board."

In 1995 he was on the education committee. In 1996 and 1997 he served as treasurer. "We put our records onto a computer program at that time, which was very exciting," Kris points out. "We made that transition very nicely. Those were two good years." In 1998 and 1999 he was vice president under Scott Schaller, the president. And in November of 1999 Kris was elected president of the organization.

In his first year as president, Kris has found much of his time taken up by national matters. "As much as possible, we've tried to keep our membership aware of the changes happening with the GCSAA and its PDI (Professional Development Initiative)," Kris explains. "They're upgrading the requirements for Class A membership and placing a greater emphasis on the Class A superintendent.

"If this passes at the annual meeting in February, a Class A member will have to have a pesticide license or be able to pass a test provided by the national organization. Also, continuing education will now be mandatory for the Class A superintendent," Kris continues. "They're trying to make this a branded membership classification so they can hold it up higher, so they can say to employers, 'You know that you're getting a good superintendent with a Class A member.' These changes are very controversial. A lot of people don't like change."

And what does Kris think of these changes? "With the issue of ongoing requirements for continuing education, I feel this is a positive change," he answers. "The golf course profession is dynamic with technological advancements and increasing superintendent responsibilities. The need for ongoing education, as little as 10 hours per year, demonstrates that Class A superintendents are actively seeking education to stay abreast of the latest developments.

"As for the requirement to have a current pesticide license or be required to take the proficiency exam, we should have done that years ago," Kris continues. "We are the environmental stewards of the property we manage. Hopefully taking this proactive step will help

GCSAA when they have to meet with environmentalist groups or regulatory agencies."

Goals for WGCSA...

For his upcoming year as president, Kris has specific goals. "First and foremost is to continue providing membership services to the best of our ability as a board of directors," he says. "I think we've done a fairly decent job of that. But, with changes in the direction of our national organization, we need to better position ourselves as a state organization so that we can provide more services in a more timely manner."

For example, Kris would like to shorten the amount of time it takes to get new members on board. "When a new member's application comes in, I'd like to be able to turn it over quickly," he explains. "Get the welcome letter out. Get meeting notices, *The Grass Roots* and everything else to them so they're welcomed in a timely manner. Right now we don't send anything out until after the board of directors has had a meeting to vote new members in.

"But it's hard to get nine volunteers together at one time to conduct business, especially in the summer," he adds. "I would like to be able to take care of business more efficiently and in a more timely manner. This quite possibly could mean changes in how we do business. Because we are all volunteers, we may need to look at hiring an executive secretary or executive director somewhere down the road."

Another goal is to make sure the WGCSA is generating enough income for turfgrass research. "A tremendous amount of work has been put into the OJ Noer Research Center – developing the building, buying the land for the plots," Kris realizes. "And a great deal of work has been put into getting and keeping qualified professors and researchers into each of the departments.

"We as an organization must make sure there's money here to support research," he continues. "Research benefits golf course superintendents more than any other group in the WTA (Wisconsin Turfgrass Association), I believe. We've always supported research, but the issue needs to be addressed a little harder next year."

What are some of his ideas to increase research revenue? "Broadening our membership base, without raising dues, for the sole purpose of generating research funds may be a viable option," Kris answers. "We have had the good fortune of seeing tremendous membership growth these past five years without any structured membership recruitment. Maybe it's time to knock on some new doors!"

Doing his best...

"There are always a lot of issues to deal with because we're in such a diverse business and things are always changing," Kris says. "Our board is being pulled in lots of directions. My philosophy is to do the best that you can with what you have to work with, and to try to do what's right for as many people as you can. Along the way you're going to make somebody mad or upset. But that's part of life."

When he's not on the course or at a board meeting, Kris has an unusual hobby: skeet shooting. "I've been doing that for four years now," he says. And how did he get started with skeet? "I work with quite a few hunting enthusiasts," he explains. "We decided one time that we were getting kind of bored over the winter, and maybe we ought to shoot trap. The trap idea led to checking out the skeet field. Once my assistant, Jim Kinderman, tried skeet, it's been all skeet ever since. We shoot registered now (targets recognized by the National Skeet Shooting Association). It has taken over what valuable time that we do have left over."

Kris also spends time with his family. His wife, Michelle, is a junior accountant with the Menasha Corporation. They have two children – Natasha, 11, and Hunter, 3.

Today, nearly 20 years after graduating from high school and knowing only that he *didn't* want to farm, Kris is a much more confident and self assured young man. Slowly but surely, he has discovered what he *does* want to do in life. And he's taken the steps that have led him to a satisfying career, good relationships with his colleagues, and a chance to be involved – to do his part for – his profession.

Wife Michelle, daughter Natasha, age 11 and son Hunter, age 3.

"STAY OFF THE GREENS!!"

Understanding Soil Water

By Dr. Wayne R. Kussow, *Department of Soil Science, University of Wisconsin-Madison*

At least in the southern half of the state, the 2000 season started out abnormally wet, but got progressively drier as the season wore on. In July, we experienced a period of nearly 2 weeks without meaningful rainfall. This weather pattern led to some interesting concerns and comments. Early in the year, the big issue was bunker drainage. Later in the year, concerns arose regarding moisture stress, localized dry spot, and the need for hand watering. From these concerns, I've deduced that it's time to review some of the basics of water retention by soil, soil water movement, and the plant availability of soil water. The intent is to give you a solid basis from which you can deal more effectively with some of your water problems.

The Basic Forces

Two forces act upon water and govern its retention and movement in soil matric and gravitational.

Matric force gets its name from the fact that it is due to the attraction of water molecules to the solid particles that make up the "matrix" of soil. This is the force that holds water in soil and controls water movement after soils have drained. The amount or strength of the matric force acting on soil water is determined by how much solid surface area there is in soil and the sizes of the spaces between adjacent soil particles. The finer the texture of soil, the greater the amount of matrix surface area and the greater the number of small voids or pores. Therefore, the finer the texture of the soil, the greater the matric force exerted on water and the greater the amount of water held in the soil.

Gravitational force acts against matric force, pulling water downward in soil and causing drainage to occur. Contrary to popular belief, gravitational force is not the same in all soils. Gravitational force is the product of what is known as the acceleration of gravity and the mass (weight) of the object upon which it is acting. Acceleration of gravity varies with distance from the earth's center of gravity, but for practical purposes can be thought of as being constant. In contrast, the mass of water in soil is not constant. The greater the depth of soil, the more water it can hold and the greater the force of gravity acting upon that water.

Putting this all together, we can come up with some general statements regarding the amount of water retained by soil. The finer the texture of soil, the greater the amount of matric force and the greater the amount of water the soil will hold against the force of gravity. But for a soil of given texture, the greater the depth of the soil the greater the mass of water, the greater the gravitational force, and the less the amount of water retained.

Water Movement Into and Through Soil

When rain or irrigation water falls upon a dry soil surface, the water is initially drawn into the soil very quickly by matric force. But the pores at the soil surface soon fill with water. As soil pores fill with water, the water films on soil particles become thicker and thicker and eventually join together.

The further the bound water is from the soil particle surfaces, the less and less matric force is acting upon the water. Eventually, gravitational force exceeds matric force and water begins to move downward through the soil as a wetting front. In the wetting front, all the soil pores are filled with water (i.e., are"saturated"). Therefore, this type of water movement in soil is called saturated flow.

The rate of saturated flow of water through soil is commonly referred to as the soil's percolation rate.

It exists only as long as the soil pores are saturated with water.

The saturated flow rate of soil is governed by large pores because this is where there is the least amount of matric force acting upon the water. The larger the pore, the more rapidly water moves through it. In fact, when the radius of a pore doubles, its saturated flow rate increases 16 times. This is why coarse textured soils, which have a few very large pores, drain quickly while fine textured soils do not. Perhaps the largest pores naturally existing in soils are earthworm channels. These channels are very effective in increasing soil drainage rates. There is, however, something very important to understand about large pores and their influence on soil drainage. They must be open to the soil surface. Should they become sealed by fine material, soil percolation rates can decrease dramatically. A similar effect results from surface soil compaction, but for a somewhat different reason. When soils are subjected to traffic, it is the largest pores that are least stable and most susceptible to collapse. In essence, the openings of large pores at the soil surface are converted to small pores and there is a marked reduction in water infiltration and percolation rates.

When rainfall or irrigation ceases and the wetting front continues to move downward, water held in large pores above the wetting front drains while the smaller pores those in which the matric force is greater than that of gravity retain water. Eventually there is not enough water to maintain saturation at the wetting front and the downward movement of water slows to the point where any further movement is difficult to detect. It is at this point that all of the water in the soil is being held at a matric force equal to or greater then the gravitational force. We then say that the wetted soil is at its field capacity (FC), which is the maximum amount of water the soil can hold against the force of gravity.

Once soils reach the state of being at their FC, any further movement of water is caused by

unbalanced matric forces in the soil. This type of water movement we refer to as unsaturated flow.

From a practical sense, this is the most important type of water flow in soil. Saturated flow exists only when there are saturated soil zones and these exist but for relatively short periods of time. More important, unsaturated flow is responsible for water movement to plant roots from all directions in soil. This multi-directional flow of water is a unique feature of unsaturated flow and exists as such because, unlike with gravitational force, matric force operates in all directions.

Unsaturated flow of water results when soil becomes drier in one zone than another. This can result from water evaporating from the soil surface or from plant roots taking up water. What this difference in soil moisture content does is create soil zones where the water is held with different amounts of matric force. The drier the soil, the greater the amount of matric force acting on the water that remains. The response in soil is for water to move from zones of lower matric force to zones of higher matric force. More simply stated, matric forces cause water to move from wetter to drier zones of soil.

Water movement in soil by way of saturated flow is much, much faster than unsaturated flow. The quantity of water that moves via unsaturated flow depends on the magnitude of the difference in matric forces that develop and the number of soil pores that contain water. If we put these two facts together, we come up with the conclusion that unsaturated flow of water in soil is greater in fine than coarse textured soils. This creates an interesting situation in sand-based putting greens. They have high saturated flow rates, but do not transmit water as well to plant roots as do finer textured, native soils.

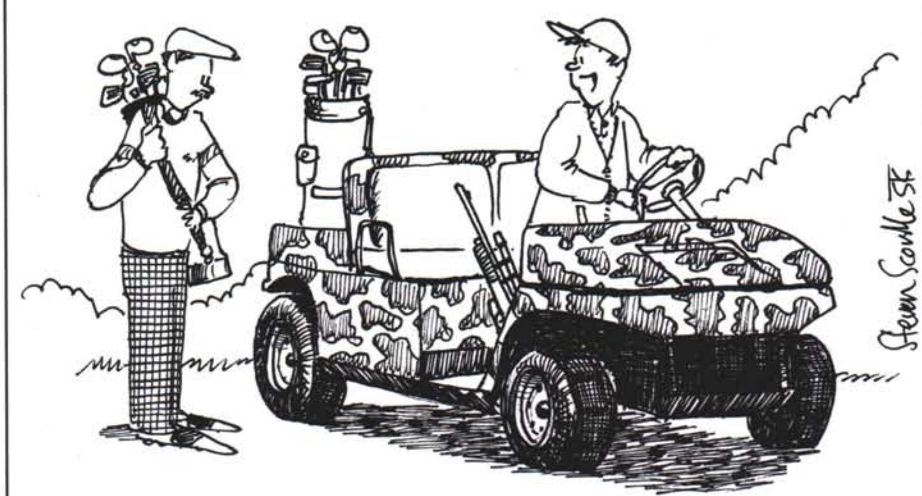
Table 1. Plant available water in different soils and putting greens.

Soil	Field capacity	Permanent wilt	Available water Percent (vol)	Available water Inches/12 inches
	----- % water by volume ----			
Sandy loam	22.0	8.9	13.1	1.6
Silt loam	32.3	14.4	17.9	2.1
Clay loam	32.7	21.2	11.5	1.4
Clay	40.2	29.2	11.0	1.3
80/20 mix	11.0	3.1	7.9	0.9
Pure sand	5.4	2.0	3.4	0.4

Plant Available Water

Soil can hold no more water than that allowed by its FC. Any water in excess of this amount drains through the soil to the groundwater. This is why I can't help but smile when someone says, "I don't understand it. Rainfall last month was 2 inches above average yet my turfgrass is wilting." That 2 inches of above-average rain has long drained away and no longer contributes to your supply of plant available water.

Not all of the water held in a soil when at its FC is available to plants. As water is withdrawn from soil, moisture films on particle surfaces become thinner and thinner and are held with greater and greater matric force. There is a point where the water remaining is held with such a high matric force that plants can no longer overcome this force. At this point, the plant is on the verge of death and we say that the soil water is at the permanent wilting point (PWP). This leads us to the definition of plant available water (AW). Plant available water is that held between FC and permanent wilt. In other words, AW= FC PWP. The



"I'M HOPING TO GET A DEER AND SOME BIRDIES."

quantities of water we're talking about are indicated in Table 1.

From the data presented in Table 1, we see that available water can range as low as 3.4 % by volume in a pure sand putting green to as high as 17.9 % in a silt loam soil. You'll also note in Table 1 that available water is expressed as inches/12 inches of soil as well as % by volume. This type of conversion is necessary anytime the concept of available water is employed to develop an irrigation program. The conversion is very simple as long as you have a reasonable estimate of available water expressed as % by volume. All that you have to do is divide the %AW by 100 and multiply by the depth of soil of interest to you. If your soil depth is in inches, then your answer is inches of AW in how many inches of soil you specified. An interesting exercise is to calculate the inches of AW for different soil depths. This quickly impresses upon you the importance of the depth of rooting of turfgrass with regard to water supply. As an example of this, I sometimes hear golf course superintendents complaining that during the heat of summer the rooting depth on their putting greens is only 2 inches. Applying the data in Table 1 for a putting green with an 80/20 root zone mix, we find that after irrigating to bring the mix to its FC, the amount of AW to a 2-inch depth is around 0.16 inch. What does this say if your daily evapotranspiration (ET) rate is 0.25 inch? The situation is actually much worse than indicated here.

In Wisconsin, on a clear day with temperatures in the 90s and a mild breeze blowing , turfgrass ET rates can approach 0.3 inch. Under these conditions and particularly with sand putting greens, afternoon wilt can occur even when the root zone soil still contains 75% of its AW. The reason this happens is simply the fact that, even with this amount of AW, the turfgrass is losing water faster than it can take it up. I'm telling you this to make a very important point. When we apply the concept of AW as a tool in helping us decide how frequently and what rate irrigation is advisable, we cannot operate on the basis that our water supply is 100% of the AW. Rather, we have to select some percentage of AW we're going to allow to be depleted before the need for irrigation arises. A reasonable figure is 50% of AW. This won't cover those days with exceptionally high ET rates, but is practical in the long run.

Application of the 50% AW criteria is a simple matter if we have knowledge of daily ET rates, know the depth of rooting of our turfgrass, and have a reasonable estimate of the inches of water we have to work with. Until now, the major stumbling block to doing this has been that of obtaining reliable estimates of daily ET rates. That obstacle no longer exits thanks to the efforts of Dr. William Bland and his group in the Department of Soil Science at UW-Madison. They've developed an elaborate computer model that calculates daily ET rates, which can be accessed via the following web site: www.soils.wisc.edu/wimnext/water/html. All you have to do is go to the web site and click on Wisconsin and Minnesota. The ET rates given are estimates of actual plant ET rates and not estimates of the type of ET rates obtainable from weather stations. Weather stations record the rate of water evaporation from open pans, which is often used as "potential" plant ET. Depending on the circumstances, weather station potential ET values can seriously over- or underestimate actual plant ET.

Now I'll attempt to analyze a couple of irrigation regimes to gain some idea of how well they meet turfgrass water requirements. To do this, I'll be applying the criteria of not exhausting more than 50% of AW, using data from Table 1 and applying the Bland ET rates in July of this year in the

Madison area. What I want to do first is address the statement I often hear "I like to keep my greens on the dry side." To do so, I