



▲ **Figure 4. Rush** Henrietta field after first game.

the imported fine textured soil as possible to maintain the sand as the growing medium.

In the event you have no choice but to use soil grown sod, here are some tips\*.

- First, don't even consider a sand-based field unless you have the resources and commitment to maintain it properly.
- Set up a mockup profile as discussed with the rootzone and sod

proposed for your project; see how it goes.

- Use a sod just mature enough to harvest. Do not use old sod.
- Have the grower cut the sod as thin as possible, minimizing the amount of fine textured soil transplanted.
- Consider having a rootzone mix designed with a sand coarser than greens construction sand but still meeting accepted performance parameters.
- Practice good pre and post plant care, especially with regards to post plant watering.

A sod grown on a soil media similar to that on which it will be transplanted is still the best way to minimize the risk of soil compatibility problems. My intent in sharing these experiences was not to debunk or challenge any standards, but to offer some information and hope to those that may want a sand-based field but no easy access to sand-grown sod.

\* My experience is predominately with cool-season grasses. These tips and your outcome may or may not apply to warm-season grasses. ■

*Norman W. Hummel Jr., PhD, is President, Hummel & Co. Inc., a soils consulting service and soil physical testing laboratory. [www.turf-doctor.com](http://www.turf-doctor.com).*

# •Improved Footing •Faster Recovery •Safer, Softer Landings

- Tolerates non-stop action •Perfect for transition zone climates
- Handles heavy overseeding •Players love the way it plays
- Ideal for intramural fields, practice fields and game-day venues
- Sold only as certified sod or sprigs •Easy to manage



**TIFSPORT**  
CERTIFIED BERMUDAGRASS  
[www.tifsport.com](http://www.tifsport.com)



▲ **Top Left:** Excess skin soil is being removed from the base path to improve surface drainage. **Bottom Left:** A tractor is being used to spread the amendment evenly over the entire skinned area. **Middle:** The amendment is being rototilled into the existing skin soil at the recommended rate. **Right:** Notice the color is dull because the amendment is dusty from the tilling process.

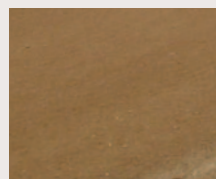
# NO MORE MUDDY SKINNED AREAS

**T**his article is the second in a series about muddy fields. The first one, “No More Muddy Football Fields” (July 2013), was about construction, reconstruction, and renovation practices that minimize muddy conditions on grass fields. This article is about alleviating muddy skinned areas of ball diamonds for both baseball and softball fields by replacing or amending the existing soil.

The number one complaint for skinned areas has to do with moisture—either too much or too little. Skinned areas with too much moisture will be wet, soft, and

muddy, while skinned areas without enough moisture will be hard, dry, and dusty. It’s important to remember, the recommendations that keeps fields from becoming muddy in wet climates also work for skinned areas in dry areas of the country. Soil texture and soil porosity are key elements for keeping fields playable in both wet and dry weather.

The opinions presented here are based on my 30 years’ experience with skinned area renovation and installation, along with feedback from hundreds of owners, coaches, and players. All of the examples are based on real world situations in renovating and building community fields, park and recreation fields, and high school and college fields.



Soil texture and soil porosity are key elements for keeping fields playable in both wet and dry weather.

## THE IDEAL SKIN

The ideal skinned area has many or all of the following qualities: First and foremost, the skinned area is graded for surface runoff of water. It is playable soon after a heavy rain with excess water evaporating quickly. It has the ability to retain moisture yet deal with excessive rainfall. It re-



# IT'S NOT JUST A MOWER.



# IT'S A TIME MACHINE.

The Jacobsen HR-9016T™ wide-area mower cuts time and space. Boasting a massive mowing capacity of up to 16.5 acres per hour, the HR-9016T reduces the amount of time and labor you're spending on mowing sports fields and other green spaces. The HR-9016T is also a breeze to maintain because each of the eight cutting blades is powered by a quiet, hydraulic motor that eliminates belt and pulley maintenance. Trim your mowing costs with the Jacobsen HR-9016T wide-area mower.



**JACOBSEN**



U.S. General Services Administration  
Contract GS-07F-0013M (utility vehicles)  
Contract GS-06F-0042K (turf equipment)



AFNAF  
Contract F41999-10-D-0007

1.888.922.TURF | [www.jacobsen.com](http://www.jacobsen.com)

Find your local Jacobsen dealer at [www.jacobsen.com/dealer-locator](http://www.jacobsen.com/dealer-locator)

sists rutting and washing out during a heavy rain event. And last but not least, it is easy to maintain, not dusty, and aesthetically pleasing. More qualities make the best possible skinned area.

### AMENDMENTS V. CONDITIONERS

*Amendments* are relatively new for skinned area soil applications. Recently, crushed lava, shale, clay, and brick have been introduced for amending skinned areas. After crushing is complete the amendment is screened into a uniform range of sizes of 1/8 inch or less. Sometimes sand, silt, and clay is added to the mix depending on the texture of the soil to be amended. Amendments are typically added to skinned area soil that has a textural classification of “sandy clay loam” (the most common skin soil) at a rate of 50% amendment and 50% existing skin soil. At this rate, the physical properties of the existing soil are changed. The goal is to add enough amendment for bridging of the particles to create macropore space. A higher percentage of macropore space allows air and water to enter the profile then dry out quickly through surface evaporation. To take the guesswork out of the amendment process, make sure to choose a supplier who will test the physical properties of the existing skin soil and the amended soil. The amendment ratio varies from field to field depending on the texture of the soil to be amended.

*Conditioners*, on the other hand, have been around for a long time and have become a staple in the industry. Conditioners are either calcined clay, vitrified clay, or cal-

cined diatomaceous earth products. They are usually incorporated into the existing soil at a rate of 10% by volume. However, this rate is not high enough to be effective in bridging together to create macropore space and therefore does not change the physical properties of the existing soil. Nevertheless, they are a good choice for field managers on lower budgets because playability is definitely improved when conditioners are incorporated.

Before installing the amendment, prepare the skinned area by performing some simple renovation techniques. First of all, grade the infield for positive surface runoff of water with no standing water anywhere on the skin, infield grass, or foul territory. Remove all lips, mounded ridges, and hills leading from the grass to the skinned area. If there's any excess skin soil, remove it at this time to achieve the proper grade for surface runoff.

Next, seed or sod the edges before installing the amendment. In the North, the best time to seed is between August 15 and September 30. In the South, sod would be a better choice and can be installed anytime the sod is available. However, mid-August through late fall is usually the best time to sod the edges of both Northern and Southern fields because they may not be used at this time.

Now the field is ready for the amendment. Spread the amendment over the skinned area at the recommended rate. For the most part, an operator with a tractor can spread the majority of the material. Some hand work will be necessary along the edges and base paths.

For a 50/50 mix, rototill 1 inch of the amendment into 1 inch of the existing skin soil for a total of 2 inches of amended soil. Again, some hand work may be necessary along the edges and the base paths using a walk-behind rototiller.

Don't be disappointed in the color of the skin after tilling is complete. It's because the amendment got dirty during the tilling process. After the first rain, the amendment color will dominate because the rain will have washed the dust particles off the amendment.

### REPLACING THE SKIN SOIL

In some cases, removing and replacing the skin soil is the only option. Some fields have an existing skin soil with many rocks over 3/8 inches in diameter. Other fields have a limestone skin area that's just too abrasive. The only way to improve the quality of both of these examples is to remove and replace the existing skin.

The first step is to grade the field for surface runoff of water. Perform the same renovation techniques that were described above in amending the skin soil. After renovation is complete, the removal process can begin. The reason for grading the field first is so a consistent depth of

▼ The final product looks like this after the first rain.





skin soil can be removed at a minimum of 3 inches deep. Then, the new material can be installed at a 3-inch depth over the entire skinned area. Now the field is graded perfectly for surface runoff. The final grade will mirror the grade that was established in the first step.

The companies that offer the amendments usually sell a skin soil that is made for new installations. It could be crushed material in a range of sizes of less than 1/8 inch to less than 3/16 inch with sand, silt, and clay added for stability. This blend has the same qualities and physical properties as the amended skin soil described above with one added advantage: the blending process at the plant is perfectly controlled with the right amount of sand, silt, and clay.

### NEW CONSTRUCTION

For new construction, use the same blend of material that was described above for replacing the skin soil. Before installing the new material, make sure the subgrade is a mirror of the planned finish grade which is designed for surface runoff of water and a minimum of 3 inches deep.

Either the amended soil or the newly installed crushed material, with sand, silt, and clay is a great advancement in achieving the best



▲ After grading for surface runoff, 3 inches of skin soil is being removed in preparation for the new skin material.

possible skinned area for any baseball or softball field. And best of all, muddy conditions are alleviated. ■

*Jim Puhalla is the president of SportScape International, Inc., Boardman, OH specializing in sports field design, consulting, and construction supervision, and coauthor of three sports field books.*

**DIAMOND PRO**  
PROFESSIONAL GROUNDSKEEPING PRODUCTS

**DOUBLE PLAY**  
TWO PRODUCTS ONE BAG  
DP COMBO

**DOUBLE PLAY**  
INFIELD CONDITIONER

**PROFESSIONAL GROUNDSKEEPING PRODUCTS**

- RED INFIELD CONDITIONER
- GRAY INFIELD CONDITIONER
- DOUBLE PLAY™ INFIELD CONDITIONER
- PROFESSIONAL VITRIFIED INFIELD CONDITIONER
- ATHLETIC FIELD MARKING DUST
- GREEN DIVOT SAND™
- MOUND / HOME PLATE CLAY
- PROFESSIONAL MOUND CLAY
- MOUND / HOME PLATE CLAY BRICKS
- CALCINED CLAY PROFESSIONAL
- CALCINED CLAY TOP DRESSING
- CALCINED CLAY DRYING AGENT

**STAY CONNECTED**  
TO EVERYTHING DIAMOND PRO

800.228.2987 diamondpro.com

# MICHIGAN STATE'S DR. DAVID GILSTRAP: NO HOLDS BARRED ON THE SPORTS TURF INDUSTRY

*Editor's note: Dr. David Gilstrap has been teaching turf students at Michigan State since 1993 and after 21 years he is stepping down as coordinator of the 2-year turf program having been a major influence on many of the most successful turf managers working today.*

**SportsTurf:** What have been the most significant changes in turfgrass education you've experienced in your years at Michigan State?

**Gilstrap:** As far as formal education, the most significant changes have occurred in classroom technology and the methods by which instructors are expected to teach. Early on, I used transparencies or the blackboard, and the students had to take notes. Now, my PowerPoints are posted on the web so that students can print them off ahead of lecture and use to them to take notes. Fewer and fewer of them seem to be even doing that, however.

Now, unless you're taking attendance or giving pop quizzes, more and more students simply don't come to class, and it's only on exam days that you realize how large of a class it is. The fact that during lectures you are elaborating on the presentations, having meaningful discussions, and perhaps giving additional testable material doesn't matter to many students when you are spoon feeding them otherwise. From my perspective, I feel that we don't have as many outstanding students as we used to, and that the overall quality of students has declined over the past several years.

**ST:** What have been the most significant changes in turfgrass maintenance you've experienced in your years at Michigan State?

**Gilstrap:** From my perspective, it's been the increased expectations of sports fields, both in appearance and playability. This, in my opinion, has been urged on by the turf managers themselves who have shown just how good athletic fields can be. Learning and adhering to the basics can carry you a long way.

Now it's at the big-time stadiums that field maintenance has evolved to an elite level of expertise that is specific to us. I mean, that's not a golf course that had to host back-to-back major, major events like the Rose Bowl does this year. And, except for Willie Nelson's, golf courses aren't used for concerts.

It's also at this level, and we're speaking of my particular expertise, that fungicide use has become rampant. On a per unit area, there are MLB teams applying more fungicides than even golf greens get. The manager's rationale is "It's a relatively small area, I'm not that good with diseases, and I can't afford a screw up." I know that we're talking about enclosed areas, but this is Kentucky bluegrass and perennial ryegrass or bermudagrass—not creeping bentgrass and annual bluegrass, both of which are much more disease susceptible than Kentucky or bermuda.

**ST:** What's been special about your program?

**Gilstrap:** It was the first program to focus primarily on

▼ Heather Nabozny, left, head groundskeeper for the Detroit Tigers and a former Gilstrap student, with David at Comerica Park in 2008.





# John Mascaro's Photo Quiz

John Mascaro is President of Turf-Tec International

*Can you identify this sports turf problem?*

**Problem:** Green circles on field  
**Turfgrass area:** Municipal athletic field  
**Location:** Portland, Maine  
**Grass Variety:** Kentucky bluegrass

**Answer to John Mascaro's Photo Quiz on Page 33**



Background illustration courtesy of istockphoto.com

## FASTEST SPORTS TURF DRAINAGE IN THE INDUSTRY!



- **High Compressive Strength**  
11,400 PSF
- **High flow rates**  
80% more available open space



“ When it was decided to rebuild our field, the Hydraway® drainage system was a great alternative. It was convenient for retrofitting the field with its high inflow rate and compressive strength during construction. In August 2009, an afternoon thunderstorm arose over the ballpark at 3 pm on game day. By 3:30, the only things visible on the field were the infield and bullpen tarps. At 3:45, the stadium had received 3.17" of rain. The Zephyrs were on the field, playing by 7:30 with compliments from the Pacific Coast League and its umpires. ”



— Thomas Marks  
Head Grounds Keeper

**Hydraway**  
Drainage Systems

800-223-7015 | [hydraway.net](http://hydraway.net)





▲ **Left:** Dr. Gilstrap with his family in 2012; from L to R: Madeline, Paula, Katy, and Harry. **Middle:** Slappy Gilstrap performing at Willie Nelson's Fourth of July picnic in 1978. **Right:** Preparing for a calibration lab class circa 2003.

sports turf management instead of golf. And, I'm not sure but it still might be. The program's roots date back to 1989 when the owner of the Detroit area Toro dealer at the time, who had also done quite well operating the Barefoot Lawn franchises in Michigan, donated money. The program was christened the Lawn Care Technology Program and the idea was that lawn care companies would send their employees to MSU for education and training. Its coordinators, in quick succession, were Drs. Roch Gaussoin (now at Nebraska), Eric Miltner (formerly at Washington State and now with Agrium Advanced Technologies) and Paul Rieke, who changed the program's name to Lawn Care/Athletic Field Maintenance.

I took over in 1993 and quickly realized that the only hope for the program was to shift its focus to sports. The only lawn care students were those who already had their own small lawn cutting businesses going and wanted to learn more about turf, mainly applying fertilizers and spraying herbicides. That's been the case over the years with the last person having interest in lawn care having graduated about 5 years ago. As far as the original plan for this program, no lawn care company ever sent an employee to MSU.

As part of my vision to put athletic fields in the program's forefront, its name became Sports and Commercial Turf Management in 1996. Enrollment grew over the years to about half what was in the 2-year golf program, whose numbers were declining since its heyday during my first several years at MSU.

### **ST:** How did this favorable work environment develop?

**Gilstrap:** There are several reasons for this. The first is that being a sports turf manager has become recognized as a profession rather than a vocation. The second is the success of minor league baseball, especially when ownership realized that there were college graduates (and interns) who had specialized in taking care of their fields. And, they could be hired for not that much more than they were paying former lawn care employees or school janitors on summer break. What they didn't know is that it would cost much more to retain the good ones.

Another reason is that field conditions, especially when they were poor, were getting more attention at the MLB and NFL levels. Disgruntled owners wanted things fixed, and GMs figured out they needed to hire college educated, experienced professionals. This led to favorable publicity for sports turf managers who were successful and who usually credited their education as being a key asset.

Consequently, more people began considering sports turf as a pos-

sible career. And as the number of students increased, the more interns there were, the more graduates, the more resumes being circulated, etc. This has caused upward pressure to hire those with college educations. Routinely, job postings specify such among the qualifications needed, particularly at the upper echelons of our industry.

Now I have many good friends who came up through the ranks without having formal turf educations, and I value their opinions and appreciate all the good they have done. However, they are contrary to what I have tried to accomplish, and I've told many of them exactly that, hopefully in a good-natured way. I can especially tell if they agree with me when they ask how much it would cost for their son or daughter to go through my program. If they're from out of state, the conversation moves to another topic.

### **ST:** What role has STMA played?

**Gilstrap:** Students are of course interested in scholarships, but we have much fewer available than does the golf program. In state, the Michigan Turfgrass Foundation has a big one designated for sports turf students, and MISTMA does the best they can. Over the years, my program's students have done well with the SAFE scholarships, and that recognition and support is greatly appreciated.

Also, the Annual Conference and trade show is a great benefit to the students. And while the Student Challenge contest seems to be important to some attendees, I've never tutored the students beforehand, and I certainly haven't wanted them studying in their hotel rooms, when they could be out networking and generally having fun in the manner that many college students enjoy.

### **ST:** What are some of the biggest challenges facing sports turf managers today?

**Gilstrap:** Besides traffic and Poa, I would say it's keeping up with all of the regulations and associated paperwork so that you and/or your organization doesn't get cited or sued.

### **ST:** Can you speak to internships and how they have evolved?

**Gilstrap:** Internships are the cornerstone of any turf management program. Our golf program already had the model in place, which was that our spring semester courses were shortened so that our student could be on their internships at the end of March. This has and still gives us an advantage in that they get to be there before the season begins, as in professional baseball. Then, typically by the time any interns from other programs show up, our intern already has 5 weeks of training.

At first, there really weren't any internship in sports turf, so I had to procure them one by one. All along, I knew that most of the best ones would be in professional baseball since the dirt work was an art and not something we could teach them in classes. Also, there would be long hours that they needed to experience to know if they really



wanted to do sports turf as a career. After several years, my grads were getting good positions and they wanted interns. Many of them wanted to provide a better internship than they themselves had had.

My students used to have many choices about where to go, but with other programs competing for them, this isn't so true anymore. This brings me to a problem I have with some places hiring several interns, in some cases more than ten, and working them in shifts to avoid paying overtime. While I can certainly understand this from a business perspective, the students aren't getting the true experience of being one of the first to get there and last to leave, so to speak. Consequently, they really aren't finding out what they would be getting into career-wise.

**ST:** Which former students have attained the most notoriety in sports turf management?

**Gilstrap:** It has to be Heather Nabozny, who graduated in 1994 and became MLB's first female head groundskeeper with the Tigers in 1999, and 2008 grad Greg Elliott, who now has two rings (and big playoff checks) from being head groundskeeper with the San Francisco Giants. Both of them went straight to the big leagues from Class A teams. The 2012 World Series was the first time that both head groundskeepers were from the same program. They were set to reunite in SF if the series got to six games. I had USA Today and Fox Sports cued up, but the Tigers got swept and that story died.

**ST:** What can sports turf managers do to continue advancing their professionalism in the eyes of the public?

**Gilstrap:** They need to be more active in their communities. Reach out to local service clubs, who are always looking for speakers. Make a brief presentation and then field countless questions about caring for a lawn. Get to know reporters and give them your cell phone number. Wear clean clothes and be well groomed in case the cameras are rolling. Basically, promote yourself and you'll be helping market your organization. Your bosses will love it, and hopefully you'll be rewarded.

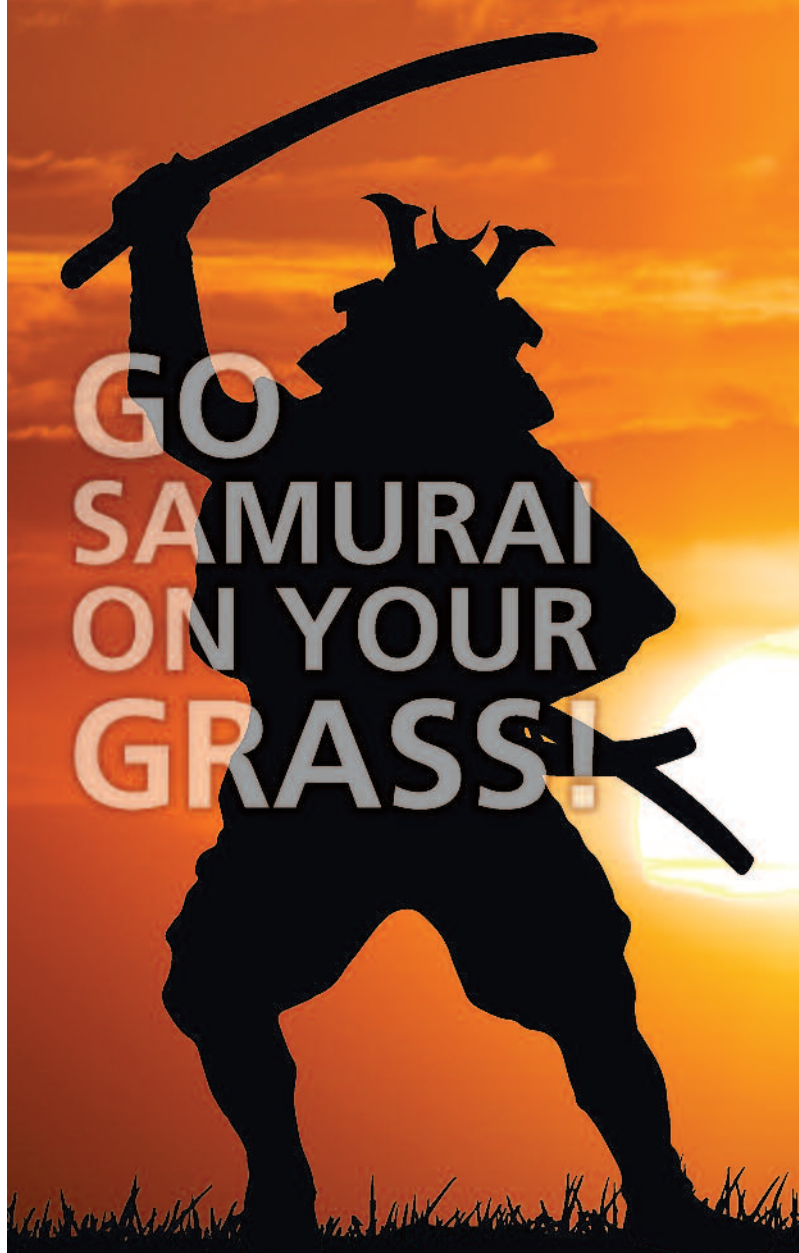
**ST:** How did you get into turf?

**Gilstrap:** Well, it took awhile since I spent 15 years trying to make it in the Austin music scene. One of the many day jobs I had was driving a cab, and by happenstance it led me to an interview with a statewide lawn and garden distributor. I had gotten a general ag degree from a small cow college in Texas, which enabled me to know somewhat about growing things. So, after a 15-year hiatus, I had a full-time job and said goodbye to the nightlife.

I started out packaging vegetable seeds and then moved into sales. In looking through the catalog, I noticed several products that could be sold to the golf courses I'd been playing while a musician. I had success and garnered enough pull with the superintendents (mostly Aggies) to be elected to the board of the Texas Turfgrass Association.

At my first meeting, Dr. Ed Runge, head of the Soil and Crop Sciences Department at A&M, apologized for not yet finding a suitable candidate for the fellowship that had been recently created by the association. Feeling I needed another change in my life, I retook the GRE that I had first taken 17 years earlier. The results indicated that perhaps

*Continued on page 40*



**Poa annua...Clover...Dandelion...Sedge** they're invading your turf. Cut them down with the chosen weapon of masters: **Katana® Turf Herbicide.**

Katana delivers exceptional control of *Poa annua*, and slices through more than 50 sedges, fescue, broadleaf and grassy weeds. And with Katana's newly expanded label, you can take the battle to professionally managed sports fields.

**Don't Be Just Another Turf Warrior: Be a Samurai. Wield Katana.**



**G pbi/gordon**  
**CORPORATION**  
An Employee-Owned Company

800.884.3179 | [GordonsProfessional.com/katana](http://GordonsProfessional.com/katana)

Always read and follow label directions. Checkered Flag/Label Design®, Gordon's® and ProForm® are registered trademarks of PBI-Gordon Corporation. Katana® is a registered trademark of Ishihara Sangyo Kaisha, Ltd. 10/13 03026

# HOW TO GET THE BEST PERFORMANCE FROM YOUR CREW

*Editor's note: We asked some prominent professional baseball head groundskeepers how they lead their crews to get maximum performance on the diamond. We heard from: Keith Winter, Fort Wayne TinCaps; Britt Barry, Dayton Dragons; Bill Deacon, New York Mets; Luke Yoder, San Diego Padres; and Greg Burgess, Greenville Drive. Here are their responses:*



▲ **Left:** Seattle Mariners' crew in action during an STMA Regional Conference in 2012. Photo by Anthony Murillo.  
**Right:** Crew painting a logo at TD Ameritrade Park in Omaha. Photo courtesy of Dan Blank.

**SportsTurf:** How do you manage workers' expectations of the job?

**Winter:** In the hiring process, it is important to find out what the applicant's perception is of the job. In professional baseball, the "grind" is a reality I bring up early in all interviews. Education and work experience are important, but work ethic, perseverance, and a clear vision of what the job is about are just as important.

**Barry:** Before the season begins, we hold a meeting with the crew. We get pizza and

hand out crew shirts for the year. At this time we go through the expectations of the season, for example what to improve from last year, changes for this year, etc. This way everyone is on the same page moving forward into the season.

**Deacon:** When we hire someone or promote someone I sit and talk with them about what I expect from them, what the organization expects and we try and be realistic; it isn't all fun and good times there are going to be things that you have to do that you won't like. For me the good outweighs the bad and I try and make it the same for