

# ASAE Foundation

## Innovative Grant Progress Report – July 2016

### *How Much is Too Much?*

Sports Turf Managers Association  
Submitted by: Kim Heck, CAE, CEO

#### **What we set out to do**

We set a Big Hairy Audacious Goal (BHAG) of changing the world of sports field management by determining if technology can tell our members when a field becomes unsafe for play.

The answer: we don't know, yet.

#### **What we've done**

##### ***First Phase:***

We first officially engaged our academic project leader, Dr. Brad Fresenburg, University of Missouri, Columbia, and held an in-depth call with him and two STMA staff.

His first step was to identify subject matter experts, which included other academics, practitioners across all segments of our membership, and commercial members. Invitations were issued to 25 members, all of whom agreed to assist with the project. What a dedicated group of volunteers, especially with such busy sports seasons! This group is comprised of academics at institutions with large and small turfgrass programs; sports field managers who work at professional stadiums/facilities, parks and rec, schools K-12, in athletics at colleges and universities; and commercial companies that build sports fields.

A conference call with this very large group was held to identify the grant objectives. They discussed several issues that will be kept on the radar screen and delved into as the process unfolds. These issues include:

- Can all of the variables be identified for what makes an athletic surface unsafe?
- Are there specific indicators that give us an idea of when a field becomes unsafe?

- Will we be able to collect reliable injury data?
- Will we be collecting data on single or multi-sport fields? Natural grass only?
- Can we collaborate with researchers that already have monitoring in place?
- Will any equipment need to be purchased?

The group also determined that diverse geographic regions may have an impact during the information gathering phase. Thus, a series of calls representing the Southwest, South Central, Southeast, Northeast, Mid-Atlantic, Northwest and Midwest were conducted. There was consensus that the following factors are logical potential measurements of field safety:

- Field hardness
- Usage hours
- Turfgrass cover
- Bare areas
- Soil moisture
- Soil texture
- Nutrient levels
- Cultural practices
- Grass height
- Irrigation
- Sheer strength

### ***AHA Moments***

This is a complex BHAG: there are single sports and multi-sport facilities. There are natural grass and synthetic fields. Data collection can be very subjective depending upon who is gathering it. Special equipment may be needed. Through this initial phase these three “aha” moments shifted the process from the initial steps noted in the grant application. However, the end goal remains unchanged.

- Field maintenance factors relative to safety makes much more sense to collect rather than injury statistics. Our members control field maintenance.
- We need to select one segment of membership for data collection to carefully manage the process and learn from it.
  - The College and University segment was selected because they are likely to have access to the tools and resources needed to gather the data, i.e. soil moisture monitoring equipment and field hardness testing equipment. By collecting this

baseline information from this “upper level” we should be able to use the data and apply it in a trickledown effect to lower level facilities, such as K-12.

- STMA already has an assessment tool (Playing Conditions Index) that helps to determine how a field is playing at a particular point in time. Could that instrument be modified to collect data on the factors listed on page 2?

### ***Second Phase:***

The PCI was rigorously reviewed and the instrument was re-engineered to collect the data specified in the above list. The existing PCI collected information on staff, athletic activities, agronomic performance of the turf, and baseball/softball information (if applicable). Each question results in a score and the final tally produces a score that indicates the condition of the field. To fit the goals of the grant, the group added questions to enhance data collection. For our efforts to be successful, more information is needed about field performance and maintenance:

- Natural or synthetic field
- Dominant grass species
- Soil texture
- Specific sport played on the field
- Soil test results
- Percent bare ground using digital imaging to eliminate subjectivity
- Mowing equipment and height of cut
- Amount of shade present on the field
- Recent stress – drought, frost, disease, etc.
- Presence of thatch
- Hardness measurements using a Clegg Impact Tester
- Volumetric soil moisture

As the PCI is modified and we program the survey, the challenge is to ensure we are focusing on the right indicators for field safety, while also reducing subjectivity. A concern surfaced about how to monitor turf coverage, especially since visual review is needed, and there may not be consistency between reviewers.

The PCI is in the final stages of modification before being programmed as a survey. It will then be sent to the College and University segment of the association for benchmark data collection.

### **AHA Moment**

There is a free app for smart phones from Oklahoma State University that is successful in identifying turf cover, but it does not distinguish weeds from turf. A visual guesstimate would need to be given but it does provide a digital, quantitative rating relative to bare soil and green vegetation.

### **What we plan to do next**

The collegiate segment of our membership will be surveyed in late July. Once we have collected data, the panel of academics will be engaged to evaluate the results and determine if the data is statistically valid and meaningful. If the data is valid and meaningful, we will move forward and engage a statistician to develop an algorithm.

***Mission:** STMA advances professionalism in sports field management and safety through education programs, awareness, and industry development.*