Water management

Do more with less

BY COLLEEN CLIFFORD

These days everyone is feeling a financial pinch from all angles due to the down economy. The environment hasn't been faring well either (much has to do with recent weather conditions, but also in large part to human mismanagement), so we're trying to recycle what we can and conserve what we cannot. The bottom line is, we're all learning to do more with less.

Even on sports fields, you can apply the "do more with less" philosophy to decrease spending and increase playability, safety, and aesthetics while benefiting the environment along the way.

Where we are right now

Water. It's one of our most important natural resources, a major component of and biological imperative for all living things. It's important that we actively protect and conserve it. The amount of fresh water on the planet is finite, equaling approximately only one half a percent of all the world's total water supply; and this limited supply is becoming more expensive and less available every year.

Based on current environmental and human usage trends, experts are predicting a severe water crisis within the next 5-10 years. While there have always been parts of the U.S. that feel the effects of a dry season more than others, recent trends show that water problems have become more widespread and frequent across the country. Overall, the current water usage rate in the United States alone is 25% higher than the replenishment rate in aquifers and other sources of fresh water.

Figure 1

Figure 2

Figure 1: "Before"—without surfactants, water sits at the surface or channels through the soil profile.

Figure 2: "After"—following surfactant application, water penetrates the rootzone uniformly.

No matter how conservation-minded you may be, as a sports turf professional you have some tough choices to make regarding water use. Generally speaking, it certainly makes financial and ecological sense to use less water, especially during periods of the year when shortage potential is higher. However, more than just logic comes into play in this equation. Players, coaches, and managers have come to expect (demand?) uniform playing surfaces, no matter what Mother Nature throws your way; they want the playing field to be aesthetically pleasing, especially if the game is to be televised.

The players also rely on your expertise in maintaining the playing field at optimum conditions; lack of uniformity can result in serious injuries to players and costly liability for managers and their employers. And those very periods when the chance of water shortage is highest is, in all probability, when your facility's use is at its peak. The additional water you use to keep your fields in top-notch condition not only adds to the stress on local aquifers, but also adds to your energy and water bills.

You want to do your part to protect the environment, but you certainly don't want to lose your job in the process. So what is a professional to do? You might want to take a closer look at surfactant usage as part of your overall maintenance plan. While it won't solve all your woes, it'll certainly go a long way in helping you do more with less.

More with less

Regular use of surfactants can help you establish and maintain uniform playing surfaces more economically, as well as promote the quick recovery of turf after special events. Because the water is penetrating more thoroughly, more roots are getting water on the first shot; this means that less water needs to be applied overall to meet the demands of your thirsty turf, even during periods of drought. By simply adding surfactants to your routine, you have helped lessen the impact on our already overburdened water aquifers, as well as keeping a few more bucks in your pocket since your water bill will be reduced.

Beyond those direct savings, surfactants can also have an indirect effect on other business-related expenses. Because you'll be using less water in combination with surfactants, you'll also have less need to irrigate and therefore will be spending less on your energy bill. As an added benefit, since you'll be irrigating less, there will be less wear and tear on your irrigation system.

Surfactant usage can also help you save money on other chemicals while making them work to their maximum potential. Just like water, applied chemicals will either stay at the surface where they don't do any good, or channel unevenly through the soil profile, concentrating in some areas of the soil while missing others altogether. And, just like water, surfactants will help soil-directed fertilizers and pesticides travel into the rootzone more evenly so that all of your plant material can take equal advantage of the benefits. Because the chemicals are spread out more evenly, you'll need to use fewer chemicals to achieve full coverage and maximum benefit. And using less means that you will also have to purchase smaller amounts.

The environment benefits from this, too. Reduced use means that there are fewer chemicals lying around to cause potential contamination. But surfactants take this one step further—fertilizers and pesticides that move into the soil more efficiently are not sitting at the surface of your playing field where they can run off or wash away to less desirable locations.

One of the largest factors in water pollution today is run-off from fertilizers and

pesticides that move across surfaces and ultimately into a body of water, instead of percolating through the soil which acts as a cleansing filter before the water reaches underground aquifers. Because the chemicals are moving into the soil profile evenly, they are less concentrated, will break down faster, and are less likely to end up in the source of your drinking water.

And the biggest pay-off of all is that you will save time. By putting surfactants to work for you, you won't be spending hours watering and re-applying chemicals to those spots that just didn't seem to take the first time around. What can you do with all this extra time on your hands? Whatever you want. **ST**

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What's a surfactant?

Soil surfactant technology has been around for almost 50 years, but has been a vastly underused resource in sports turf. Also known as wetting agents, these chemicals are used to help move water more efficiently through the soil profile. While these types of chemicals are not organic, some are formulated specifically to have minimal impact on the environment, e.g., the Primer technology developed by Aquatrols, which has been granted registration in Canada (one of the most strictly regulated countries in the world for applied chemicals).

Due to surface tension, water has a natural tendency to either sit at the surface of the soil where it evaporates, or drain through the soil unevenly so that it may be inaccessible to the roots of your turf. Surfactants are formulated to break down the surface tension of applied water, helping it to penetrate uniformly into the rootzone and provide water where it is most needed, without causing the area to become over-saturated and soggy.