

Time to Give Surfactants Another Look



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Water is the most limiting factor in the establishment and maintenance of healthy lawns in many regions of the U.S. This is particularly true in California and the arid Southwest where lawns are under intense scrutiny for their water use.

But, all regions of the U.S. periodically suffer dry weather that stresses lawns. Lawn pros have many tools and strategies to help their customers conserve irrigation water and still enjoy their turfgrass lawns. Replacing clients' outdated irrigation systems significantly improves irrigation efficiency. Landscape pros can help their clients' lawns retain moisture by cutting the turfgrass higher. And, when environmental conditions are favorable, lawn pros can aerate or spike lawns to help water more efficiently reach turfgrass roots.

Another water-conserving strategy is the use of soil surfactant chemistry. But, what is a surfactant? Let's keep it simple.

BusinessDictionary.com offers (in part) this rather non-technical definition: Surface-active agent. Natural or synthetic substance that allows or promotes 'wetting' of a soiled surface and dispersion or suspension (emulsification) of greasy soils in a solution.

Golf course superintendents regularly use surfactants to alleviate soil/water issues. When Drs. Keith Karnok, Kang Xia and Kevin A. Tucker in 2004 surveyed 600 superintendents on behalf of the [Golf Course Superintendents Association of America](#), 87 percent said they used soil wetting agents, which are technically a part of the chemical class known as surfactants. Wetting agents, as their name implies, rewet an area of soil and allow for more even soil wetting. But wetting agents (i.e. surfactants) can do much more, as the authors explain in their excellent [article here](#).

Donald A. Spier, vice president, turf & ornamental, [Precision Laboratories](#), says surfactants can perform several valuable water-conserving functions,

depending on the specific chemistry of the product.

“One function of a surfactant is to move water,” says Spier. “If you have a situation where you have tight soils with a lot of heavy thatch in the lawn, the lawn can become hydrophobic, water repellent. You have the ability with surfactants to get the water that is applied by the homeowner to infiltrate better into the soil and move throughout the soil.

“Another function is retaining and holding moisture. We have chemistry that has the ability, once water is in the soil, to maintain plant-available moisture and hold it there,” he continues.

Golf course superintendents and sports turf managers regularly use surfactants, but LCOs (to this point anyway) have been less eager to use them. There are several reasons for this.

For starters, the goals of superintendents and lawn pros are different. Superintendents and sports turf pros are challenged to provide players with turfgrass of maximum smoothness and consistency, whereas clients of lawn pros expect green lush properties. This is the case whether the lawn care customers are homeowners or commercial property managers.

The question then becomes, is it time for LCOs to follow the example of other knowledgeable turf managers?

“Landscape and lawn care operators who spray liquid chemicals would benefit tremendously from incorporating a surfactant into their management programs,” claims Colleen Tocci, marketing manager, [Engage Agro USA](#).

She says soil surfactants correct water-repellent conditions in soils and improve the ability to uniformly wet and rewet soils.

“In addition to reducing the runoff of water and soil-applied chemicals at the time of application,” Tocci continues. “This means that anything else that is applied, including nutrients and pesticides, will move uniformly into the soil and to the rootzone where they are needed.”

Dr. Cale Bigelow, professor, [department of horticulture, Purdue University](#), also believes surfactants can be useful for lawn pros but he terms their use in lawn care as being primarily “situational.”

Different chemistries, different results

Like soils, there are different types of surfactants, he points out.

“There are basically three major categories of surfactants,” says Bigelow. There are products that help with water infiltration, products that help with the downward movement of water into the soil and products that aid retention of moisture within the soil. And, continues Bigelow, there are products that perform a combination of these functions.

Some surfactants reduce the surface tension of water, improving infiltration through thatch and into dry soils. Other surfactant chemistries attach to

organic matter in the root zone, providing hydration for extended periods of time. Both infiltration and hydration surfactants can be tank mixed or combined by the manufacturer in ready-to-use products.

Explains Engage Agro's Tocci: "Some soil surfactants simply break down the surface tension of water allowing penetration, and don't have a residual effect. As a LCO or landscape professional you want to get the most out of the product you apply. Therefore, a formulation that has multiple benefits, such as a block copolymer offers different properties, such as spreading, penetration and longevity."

Choosing the proper surfactant requires end-users to research the technical aspects of products and what they can expect in terms of performance. This research should include in-the-field trials.



Cost vs. benefits

"Different formulations, as well as product features, cause soil surfactants to have a range of prices," continues Tocci. "Some formulations cost more and do far more than a LCO or landscape professional needs. Review product benefits as well as the end user price to determine which products offer the features needed at the most reasonable price."

Cost is a concern to lawn care company owners and to their customers. Professional lawn care is a price-sensitive industry. The difference of several dollars per treatment may cause customers of one company to cancel their service and go with a competing company.

For property owners to pay the extra cost of having their lawns treated with a soil surfactant they must be convinced that the treatments will make their lawns look nicer, especially during the driest times of the season. The benefits of using a surfactant, including reducing clients' water bills, are not as immediate or obvious as a treatment to kill dandelions, for example.

Bigelow says customer education is key to providing the service. In a sense, he views the use of surfactants by lawn pros similar to offering lawn "insurance."

In that regard and referencing the U.S. Midwest, he suggests, LCOs apply a surfactant and water it in during May or June, generally about the time of the application of a broadleaf weed control product. A surfactant with moisture-retention chemistry will help the soil retain plant-available moisture when dry conditions arrive in July and August.

However, he advises end users to avoid using surfactants with irrigation water containing bicarbonates. Using surfactants in those cases would be a waste of money and time.

"A lawn care company can go with several choices when using a surfactant," adds Spier of Precision Laboratories. "A company can go with a product that can be spray-applied to a lawn, followed by irrigation. Or, it can do a

granular. Products are available in both forms.”

He says lawn care pros can apply surfactants as they fertilize clients’ lawns, whether they use liquid or granular fertilizers. He says lawn pros can advise clients the surfactant will provide water-conserving benefits to their lawns for approximately eight weeks. Customers might even consider several treatments of surfactants during the course of a season.

One of the most obvious uses for a surfactant is dealing with unsightly localized dry spots in home lawns. This phenomenon is caused when organic matter coats soil particles (in most cases sand) causing the particles to repel water.

“In those cases a granular product can be applied by itself, or a lawn care company can choose to apply it with a fertilizer,” says Spier, adding that the product must be watered into the soil.

While surfactants have a rightful place in turfgrass management, they will not solve issues caused by poorly designed and operated irrigation systems, turf experts point out.

“Continued ignorance on the part of homeowners about watering practices, irrigation system upkeep, etc., is not going to overcome any product,” says Dr. James Baird, turfgrass expert at the University of California, Riverside.

Adds Spier: “When you completely run out of water usefulness, this chemistry is greatly diminished, but where you have available water and are just being asked to cut back, these products are very useful.”

Given their successful, decades-long use by golf course superintendents and sports turf pros, the time seems right for LCOs to investigate what surfactants can offer to their clients’ lawns. Surfactants can help keep lawns green and healthy during very dry weather. And they are very useful in correcting unsightly localized dry spots.

Adopting the right surfactant chemistries for their customers’ unique lawn care needs can differentiate lawn care companies’ services from their competitors.

Read more: [Research Supports Water-Saving Claims](#)