Emerald LAWNS

"The Grass Really is Greener"

DEALING WITH SUMMER STRESS & DROUGHT

In the summer months, water can often become a limiting factor in maintaining high-quality turf. As we deal with water restrictions that apply to watering lawns and landscapes in the Austin area, we must be highly efficient with our water resources. This involves paying careful attention to how much water we apply to our landscapes as well as treating or correcting conditions that waste applied water or prevent water from reaching plant roots.

Water Repellent Soils

Have you noticed water running off slopes or "draining" into the street during and after you water your lawn?

During prolonged periods of heat and drought, thatch, surface and litter at or near the soil surface can become coated with wax-like substances that cause the thatch and soil particles to become water repellent. Water applied to the turfgrass may have difficulty penetrating through thatch as well as moving uniformly into and through the soil profile.

Water repellency (hydrophobicity) is commonplace on thatch/mat, surface litter and soil particle surfaces found on, at or near the soil surface (0 – 2 inches).

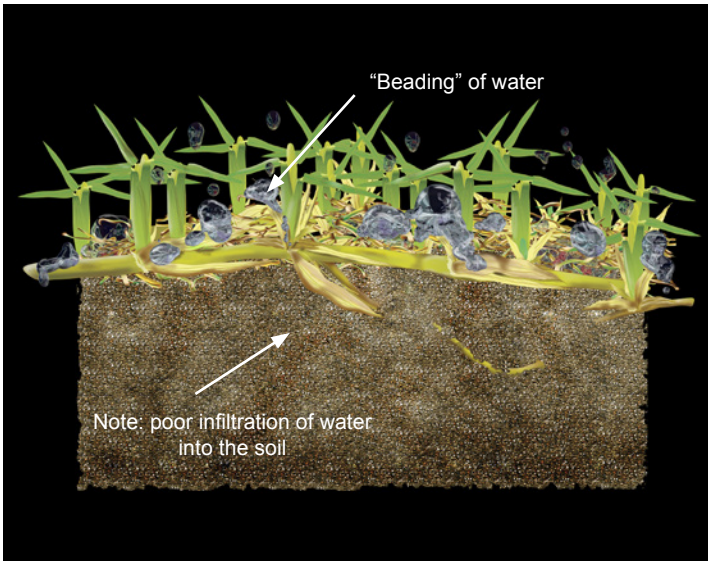
Regardless of how uniformly you apply water to your lawn, if the surface area is water repellent, water will have difficulty moving into and through the soil profile.

Non-uniform Wetting of Rootzone

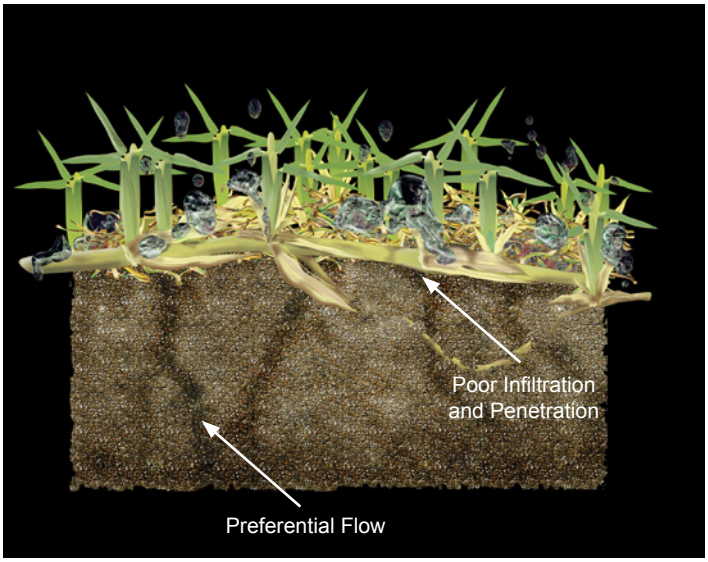
When water encounters water repellent areas as it moves through the soil, it cannot adhere to the surfaces of the soil particles. This causes a disruption in uniform movement through the rootzone. This can create areas of preferential flow (sometimes call "fingers" of water movement) that rapidly move water away from the rootzone.

Poor Water Retention

Another problem associated with water repellency is an inability of the soil to adsorb, or retain water as it moves down through the rootzone -- leaving sections of the soil without an adequate supply of water and nutrients for grass roots.



Cross section of soil profile showing "beads" of water sitting on thatch, litter and soil surface as the result of water repellency.



Cross section of soil profile showing non-uniform wetting – resulting in preferential flow (fingered water movement) of water.

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Treating Water Repellency in Lawns

Water repellency is primarily a surface phenomenon and correcting water repellency in thatch and the first 1-2 inches of soil will substantially improve the ability of lawns to survive drought conditions and during periods where water restrictions are in effect.

LUNAR

Application of LUNAR Soil Surfactant is recommended by Emerald Lawns as part of our professional turf care water management programs to correct water-repellent conditions in the thatch and soil.

LUNAR contains a blend of complementary surfactant molecules that attach to water repellent thatch and soil surfaces and correct soil water repellency conditions that disrupt the uniform distribution, hydration, retention and drainage of turfgrass rootzones.

How it Works

When water comes in contact with water repellent surfaces, it cannot grab on to the surface in order to "spread out." As a result, water molecules will rotate and draw inward – away from the water repellent surface and towards other water molecules. This "inward" movement by boundary water molecules increases surface tension and water begins to "bead." You've seen water "bead" when applied to a car hood that's just been waxed. It's the same thing. Wax is water repellent.

The larger size of these compacted water droplets often prevents penetration of water through spaces or openings in thatch, surface litter and the soil surface.

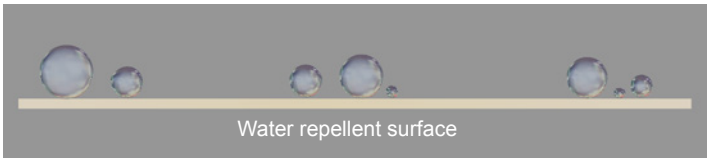


Illustration of water droplets "beading" on water repellent surface — preventing penetration of applied water.

When LUNAR is applied to the lawn, its surfactant molecules serve as sites for water molecule attachment.

When water attaches to the surfactants, it reduces surface tension and "beading" of water is replaced with a film-like "coating" that facilitates penetration through the thatch and into the soil.

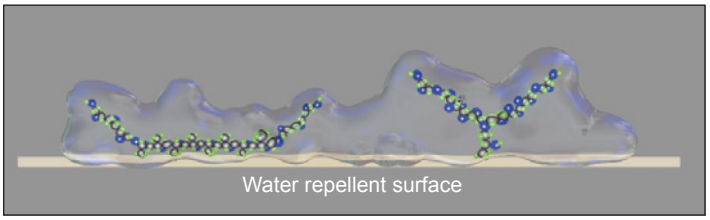
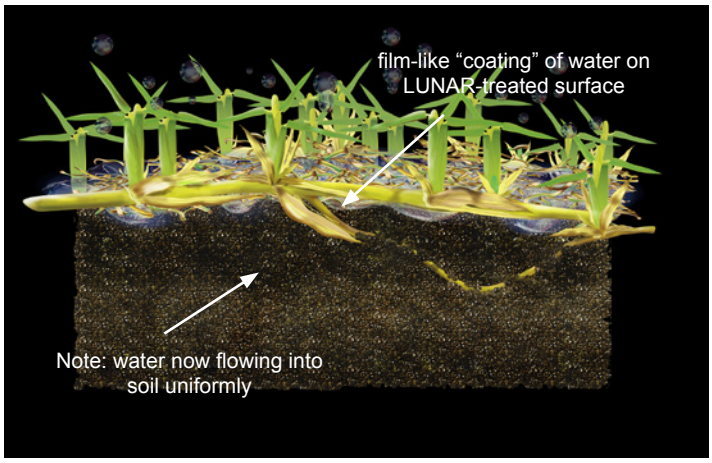


Illustration of water attaching to surfactants resulting in a reduction in surface tension. Water is now able to move through smaller pores and spaces into the soil.

Once water attaches to surfactants on soil surfaces, flow of water through the soil profile is more uniform. In addition, more water is held in the soil, creating reservoirs of water for use by roots.



Reduction in surface tension results in a film-like "coating" of applied water that quickly moves through the thatch area and facilitates penetration and infiltration of water into and through the soil.

When used in conjunction with our standard professional lawn care service, the use of LUNAR will:

- **Increase water use effectiveness and efficiency**
- **Increase infiltration rates and reduce runoff**
- **Promote uniform movement and availability of water, fertilizers and other water soluble materials into and throughout the rootzone**
- **Reduce moisture stress to turfgrass**
- **Improve recovery from summer heat and drought**

DEPARTMENT OF AGRICULTURE · TEXAS ·

Certified Applicator
Texas Department of Agriculture

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