

JOHN'S CORNER:

NEWS FROM THE WONDERFUL WORLD OF SOIL AND PLANTS

by John Ferguson

Soil biology is critical for good plant growth and health. We now know that perennial plants like shrubs and trees want soils dominated by fungal species. On the other hand, annuals, some grasses and weedy species prefer soils dominated by bacteria.

There is now a new tool for gardeners that allows them to quickly find out information about the microbiology of their soil. The five-minute video below introduces one to this new tool. For years gardeners have used moisture, pH, oxygen meters, etc. to help get the best results from their gardens.

This new technique is quick and inexpensive as compared to sending a soil sample off to a laboratory.

This video gives a brief discussion of what fungi in soil does, as well as how the microBIOMETER® can help you measure how much fungi you have. Also, it shows how to measure Arbuscular Mycorrhizal Fungi and Saprophytic Fungi by testing at different distances from the rhizosphere.

A study by the University of California published in the journal Cell Systems (April, 2020) has found that microbes living in biofilms have a memory. They discovered that bacteria use what is known as ion channels to communicate with each other (Ions are just an element like calcium or iron that has an electrical charge).

They also found that the bacteria could retain a memory of previous events for a few hours. Researchers stated this could be the first steps in developing a biological based computer.



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Many folks I have talked with have expressed frustration in growing bulbs in the Houston area. Often their bad experience is using the wrong varieties for our area. These are typically sold at big box stores or chain garden centers.

However, there is one nursery that specializes in bulbs for the Gulf Coast and that is The Southern Bulb Company owned by Chris Wiesinger.

A great Mother's Day gift for a gardener whom loves bulbs would be his book "The Bulb Hunter" by Chris Wiesinger.

Have you ever noticed that when digging in the garden and a sharp thorn or other item causes a bleeding cut and that it stops quickly?

It has been discovered the reason why by researchers at the University of British Columbia and published in the Journal Blood Advances (April 2020).

If you are like me, you are probably wondering what is the link between human blood and the soil in our gardens? They found that the presence of healthy soil in wounds, activates a blood protein that causes wounds to be sealed off and stop the bleeding.

I remember that when I was in Boy Scouts over 50 years ago, that I was taught as an emergency measure to place soil in a wound to stop bleeding. It turns out that silicates (the most common mineral in soils) activates the blood clotting factor.

This is another reason to be an organic gardener and have a healthy soil.

Bee populations are in severe decline all over the world. So, what can an urban gardener do to help out?

An international team led by folks at Penn State University has found that flowering trees, shrubs and woody vines are among the top food sources for bees in urban environments

(Journal Ecosphere April 2020). They found that members of the maples, oaks and willows were the most important spring pollen sources.

One of my favorite bee plants is the Coral Vine (*Antigonon leptopus*) which is native to Mexico but grows extremely well along the Gulf Coast. This vine is a perennial, grows fast, no disease or pest problems, drought and weather tolerant. It blooms from late spring through the summer and well into fall. It is covered with beautiful pink flowers that can be a show stopper. It will grow up a pine tree or quickly cover an arbor or fence.

It is also a bee magnet, as they love this plant. Sometimes the bees are so numerous one can here a steady soft buzz from all the wings.



The pictures are from outside of our sales office a few years back. We have them growing at several locations on the property as they are so beautiful and beneficial.



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Researchers at the University of California have discovered that some bacteria have the ability to collect water by digesting rock, published in the journal Proceedings of the National Academy of Sciences (April 2020).

They found that in rocks made up of gypsum which is the mineral calcium sulfate combined with a few molecules of water in its crystal structure. It has the chemical formula $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$. Ca is the symbol for calcium, S is sulfur, O is oxygen, SO₄ together is called sulfate, and everyone recognizes H₂O as the symbol for water.

These microbes have evolved to secrete acids that allow them to remove the water molecules from the rock and use them as their source of water. By removing the water molecules, it changes the rock from gypsum to a rock with a different crystal structure called anhydrite. God's creation continues to amaze me.