

JOHN'S CORNER: NEWS FROM THE WONDERFUL WORLD OF SOIL AND PLANTS

by John Ferguson

In the journal Nature Communications (July 2020) there was a paper where researchers collected a series of seafloor sediments that were dated to be 4.3 million up to 102 million years old. The microbes found in these sediments turned out to be dormant NOT dead. Once the microbes were given some food, they woke up and started to multiply. The researchers estimate that 99.1 percent of the microbes were revived.

Numerous times over the years many people have observed that they do not get fire ants (*Solenopsis invicta*) in their flowerbeds when they use a *properly made* composted (aged) native mulch. Note: Native mulch if made properly is home to thousands of species of beneficial fungi.

A newly published study in the Journal PLOS Pathogens (2020) by the South China Agricultural University has discovered one of the mechanisms why fire ants do not like good quality native mulches.

The ants and their eggs are killed by soil dwelling fungi and the ants can smell chemicals put off by these fungi. As a result, they avoid areas (soils) that are high in these good fungi.

As a result, the fire ants look for homes in soils that are high in bacteria especially the actinobacteria which produce compounds that inhibit the growth of the pathogenic fungi that attacks fire ants.



Note: This is why folks have noticed they get a lot of fire ant mounds in their lawn after applying a fungicide for brown patch or other turf disease (they killed off the natural controls). The reasons to use modern organic methods based on biology continues to increase.

A few years ago, we talked about the importance of having "nurse logs" in our gardens and flowerbeds as these rotting logs provide many benefits. We can add another one to the growing list of benefits. We all know that rotting logs grow many species of fungus. Many of these fungi are required for ground beetles to live and be healthy. This important since ground beetles also love to eat fire ants. This is probably another reason fire ant do not like forests.

I was getting into the truck the other day and noticed out of the window two giant moths mating in the grass. I got out to take a picture and one a bright yellow color flew off but I was able to snap a picture of the other one. It remined me of another benefit of having nurse logs in our garden is than several species of giant moths require rotting logs for their caterpillars to pupate in.

I often talk about the importance of getting trace elements back into our soil. A paper published in the Journal Food Chemistry (August 2020) by researchers at the University of Utah has found another use of trace element(s). They studied trace elements in arabica coffee from over 21 countries.





They found that coffee beans from different regions had distinct chemical fingerprints and the coffees quality comes down to geology (e.g. the soils they were grown in).

This is important as scientists continue to develop the field of Food Forensics. There are several lawsuits suing 21 companies for making claims on the type coffee and where it was grown to get a higher price. For example, they will falsely claim that they are "Kona coffee" from Hawaii when they were actually much lower quality that was grown elsewhere.

They also discovered that the "terroir" or flavor related to the place they were grown for many crops, from coffee, cocoa, to wine is linked to the microbiology of the soil they were grown in.

Trace elements do not directly affect flavor but they do affect the microbial populations and diversity, not to mention the health of the plant.

Speaking of trace elements, I recently read another paper on rock dusts specifically granite dust as a fertilizer. Granite is a volcanic rock that contains over 60+ elements. It is rich in potassium (K) and many trace elements.

Plants that are grown where granite dust has been applied have much higher Brix readings. The higher the brix reading, plants are less susceptible to insects and disease and have higher nutritional density.

This is one of the reasons that granite sand is a major component of our re-mineralizer product.



Urine has been used as a fertilizer for thousands of years as it is a rich source of nitrogen (N), phosphorus (P), and potassium (K). However, many people are uncomfortable with using urine.

Many products are improved by aging them, wine, whiskey, sauerkraut, compost, native mulch, etc. A study in the Journal Environmental Science and Technology (2020), by the University of Michigan has found that aging urine gets rid of antibiotics and bacteria. By placing urine in sealed containers for 12-16 months they found that ammonia levels in the urine increase lowering acidity levels, killing most of the bacteria and destroying 99% of antibiotic resistant genes so they are not transferred into the environment.

Pomegranates (*Punica granatum*) have been considered a health food for thousands of years. A new study published in the journal Nature Metabolism (2020) have found that they have anti-aging benefits. In addition to polyphenols and antioxidants that help with blood pressure and atherosclerosis they contain urothilin-A which is known for its anti-aging benefits as it help cells stimulate its mitochondrial biogenesis.

A report in Science News (February 2020) found that there were 6,700 species of wild bees in 1950 and today there are only 3,400 species. Bees are critical for the pollination of most plants from fruits and vegetables to our ornamentals. One of the best things we can do as gardeners is to plant pollinator gardens and only use modern biological methods that are often referred to as organic.

As an extension of that, is to only purchase organically grown produce and meats. One needs to decide are you going to be part of the problem OR part of the solution.



For decades organic farmers, nutritionist, and functional medicine practitioners have stated that organically grown plants are healthier. I remember a lecture I attended many years at an organic agricultural conference by Jerry Brunetti on secondary plant metabolites. These are the chemicals plants produce to protect themselves when attacked by an insect or disease. They are also many of the anti-oxidant and anti-cancer chemicals.

A study published in the journal Nature Scientific Reports (2020) by researchers at Texas A&M looking at strawberries, has discovered that leaf wounding (like that caused by insects) produces healthier organic fruits by activating the secondary metabolism.

The fern *Pteris melanocaulon was* found growing in very toxic soil contaminated with copper and arsenic at an abandoned mine site. Researchers at the Ateneo de Manila University discovered that this fern is a hyper accumulator of copper and arsenic where it stores them in its leaves and stems. It can live and grow in soils too toxic for other plants. The study was published in the Journal Chemosphere (2020).

Toxic chemical agriculture is costing the environment over **Three trillion dollars** every year. The most liberal estimates of how we have destroyed our soils states that we have only have 60 years of food production left, conservative estimate are less than 30 years.

There are several new documentaries recently released on the extreme problems of toxic chemical agriculture and how it is destroying our health and the planet. By converting agriculture to the modern organic methods (regenerative agriculture), we can solve many of these problems from global warming, to water shortages, to famine and illness due to the poor quality of our food supply.



These movies offer hope as we know how to fix the problem.

"Kiss the Ground" is a full-length documentary narrated by Woody Harrelson that sheds light on how <u>regenerative agriculture</u> can restore balance to our climate, replenish our vast water supplies and feed the world.

The film will be available on Netflix beginning September 22. But you can <u>watch the trailer</u> now.



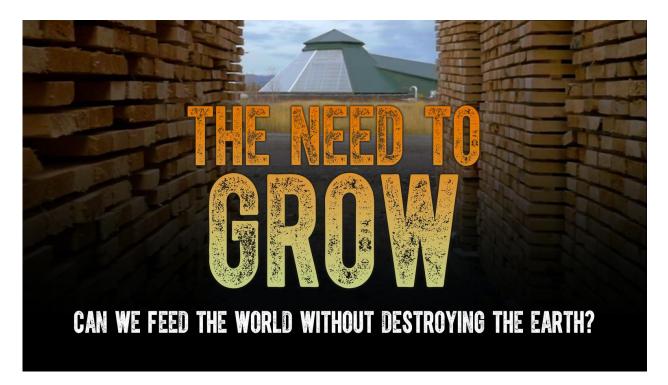
Another documentary film is called *The Need To GROW*. It is narrated by activist and award-winning actress, Rosario Dawson, and it has won a string of audience favorite and best

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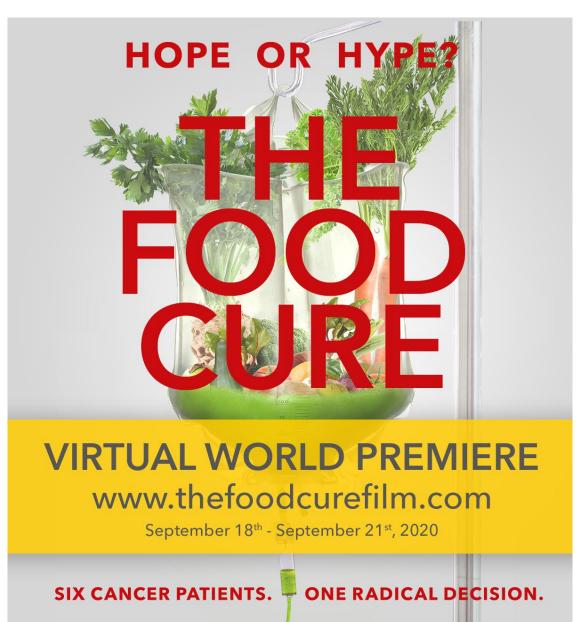
documentary awards at international film festivals. This film delivers a mind-blowing, heartopening story of people responding powerfully and creatively on behalf of the future of life.



Another documentary also called "The Food Cure" is about **Six cancer patients decide to fight their disease with plant-based diets.** Five of them choose the Gerson Therapy. A filmmaker follows their incredible stories for seven years.

Another trailer for the documentary called <u>"The Food Cure"</u>





You can find the full film below:

thefoodcurefilm.com

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If you have watched these films, it is clear that that the modern methods work better and at lower costs with huge environmental benefits. Many people have started asking why does the media and government agencies cover up these success stories?

Now that we have data from millions of covid-19 patients, several patterns have emerged. Countries that have the highest quality food supply have the lowest covid issues. Countries like the USA with one of the poorest quality food supply have the highest incidences and consequences.

The video satire below on how the CDC, media, and our politicians takes a page out of the playbook written by the tobacco, toxic chemical agricultural, and giant food corporations that they used to get us to purchase products that are bad for our health and the environment. It is now being used by the pharmaceutical companies to scare us into accepting things that will do little good and probably harm us

New Revelations on the COVID Death Count

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