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JOHN'S CORNER:

NEWS FROM THE WONDERFUL WORLD OF SOIL AND PLANTS

by John Ferguson

A study from the University of Main has found that adding blackberry leaf litter in stormwater catch basins creates an “ecological trap,” enticing mosquito females to lay eggs in an area unsuitable for larval survival.

Researchers have found more evidence of the link between Parkinson’s disease and pesticides. Using **very low doses** of the pesticide paraquat and common proteins found in food called lectins, it created symptoms of Parkinson’s disease in animal studies. Journal of Parkinson Disease 2018.

We are learning more every day about the importance of minerals in the soil from the health of microbes and plants to animals and humans. The majority of soils around Houston and along the gulf coast tend to very deficient in minerals. Luckily, in Texas we have sources for all 79 minerals (elements) found in the human body. A mixture of greensand, granite sand and basalt sand will provide all that is needed. Not only is it a more complete mix of minerals, it costs a lot less, it is also sustainable, and does not contribute to global warming by shipping in minerals in from thousands of miles away.

This time of year, we often hear “What can I do with all my leaves and how can I get rid of them?” If one looks at a forest there is no disease, no weeds, few if any fire ants, and lots of life and plant growth. So, what does a forest do differently? They mulch the forest floor with leaves every year. Hence, I look at leaves as a gift from God and count my good luck to get them. Leaves are attractive, light, and full of plant nutrients. So how can we use leaves in our garden?



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1) Leaves make an excellent mulch. They keep the soil warmer, protect our plants from freezes and protect our plants from damage due to driving rain in our winter storms. Leaves from pine trees can work as is, and look very attractive in the garden and tend to lay flat for easy use. However, leaves from broadleaf trees can blow around a lot (they will eventually pack down and work fine). To get around this problem, many gardeners will mow their lawns and bag the shredded leaves and then use them as mulch. Once chopped up by the mower blade that settle in nicely and rarely blow.

2) Leaves make an excellent feedstock for making compost. Compost made from leaves is very valuable as it is rich in humus and nutrients which benefits all plants.

3) Leaves are excellent food for earthworms whom grow fat and numerous under the decomposing leaves. Earthworms are often called a gardener's best friend. For more information on the benefits of earthworms see: [earthworms.pdf](#)

4) Leaves on the lawn can be good or bad. A few leaves help protect the grass runners and roots. A lot of leaves will mat down and smother the lawn preventing sunlight and oxygen from reaching the grass and they need to be removed (or mowed with a mulching blade so they are chopped up and will filter down between the grass blades and serve as a mulch).

5) As leaves break down, they encourage the growth of many species of beneficial fungi that builds soil structure and in turn the fungi are food for other organisms in the soil food web.

6) Lastly leaves build soil quality and feed the microbes that prevent diseases. They can be surfaced applied or mixed into any garden bed where they quickly break down enriching the soil.

Researcher at the Spanish Foundation for Science and Technology have found an association between esophageal cancer in people living in areas where soils have lead in them. Lung



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cancers are higher in areas that have excess copper in them. Brain tumors are more common with soils that have arsenic in them. Bladder cancer is associated with soils with high cadmium levels. *Journal of Environmental Geochemistry and Health*, 2017; 40 (1): 283.

Note: Arsenic has been used in many pesticide formulations for decades, it was also used as a component of defoliants that was used in cotton fields. It was used as a growth enhancer for poultry, hence old agricultural fields fertilized with poultry manure are often high in arsenic as well as old cotton fields. Due to the degraded nature and contamination of these soils they are full of weeds and the weed seeds. Several companies in our area use the topsoil from these old wore out, nutrient depleted and contaminated agricultural fields in their soil mixes to keep the cost down.

Soil health like animal and human health is a complex subject that we are still learning about. If one uses modern methods based on soil biology that are often called organic methods, it becomes very easy, as nature will do the work for us. It is simple: feed the soil (organic fertilizers, good compost, aged native mulch, minerals, etc.) and then the soil will feed the plants and the soil life (from bacteria to earthworms) will do all the rest.

For those interested, soil health is a combination of many factors: soil biology, organic carbon content (humus), water stables aggregation (peds), pH, texture, penetrations resistance (compaction), cation exchange capacity, anion exchange capacity, electrical conductivity, major nutrients (nitrogen, phosphorous, potassium), minor nutrients (like calcium, iron, copper, magnesium, etc.), trace nutrients (boron, selenium, etc.), and micro nutrients (over 70 more), mineralization or carbon or nitrogen, base saturation, bulk density, water holding capacity, permeability, gas exchange, and a few more. When a gardener uses the modern organic methods Nature will take care of all this for us, free of charge.



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The dangers of Round-Up have been discussed many times in this newsletter. There are now over 1,400 lawsuits against Monsanto for the cancer and other health problems it causes when exposed. However, the most common source of exposure for most people is on the food we eat. "A recent New York Times article on the fight to save the traditional Mexican tortilla reminded us to remind you:

Let's keep up the pressure on Maseca, the company selling pesticide-contaminated GMO tortillas, in Mexico, the U.S. and beyond. **Maseca, the leading global brand of Mexican corn flours, plainly states on its website:**

"MASECA is made of 100% natural corn and is vital for the good diet, its high nutritional value and is synonym of health and energy."

And yet, our tests showed that samples of both white and yellow Maseca brand flours contain traces of Monsanto's Roundup weedkiller. Tests also show that most of the flours are made with GMO corn.

That's bad news for U.S. consumers. It's even worse news for consumers in Mexico, who might rightly assume that the Mexican brand of corn flour they use to make tortillas wouldn't be made from GMO corn—because open-field growing of GMO corn is prohibited in Mexico." Organic Consumers Association 01/10/19

The only way to protect one's self and families is to buy organic or buy from local farmers markets whom you can trust. Best of all, is grow your food yourself.

Note: The better nurseries/garden centers in our area have started removing Round up from their shelves and no longer sell it.