



NEWS FROM THE WONDERFUL WORLD OF SOIL AND PLANTS

By John Ferguson

We continue to learn almost daily how microbes are directly related to health, from our soils to our digestive system. A new research paper has found that 1,400 genes that originated from microbes have been found in 218 species of insects studied.

These insects includes butterflies and moths and the genes originated from bacteria, viruses, fungi, and plants. The study suggests that these genes might have been essential for these species to survive. Journal Cell 2022.

Climate change is an important issue to gardeners as it causes extremes in weather as we have seen in exceptionally hard freezes to heat waves, floods, and droughts the last couple years. Gardeners can be part of the solution.

One reason to compost one's waste, and purchase good quality compost, is that it prevents greenhouse gasses. When organic material goes into a landfill, methane is produced. We have all seen the commercials about landfills capturing the methane, however what the landfill companies do not tell you is that 90% of the methane is released to the atmosphere before the landfill cell is covered and the gas capture system is installed.

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The amount of methane may seem small; however, methane is 80 times as efficient at trapping heat as carbon dioxide!

Artificial fertilizers are strongly linked to the production of nitrous oxides which are 200 times as efficient at trapping heat as carbon dioxide. Hence by just using organic fertilizers a gardener can eliminate this source of greenhouse gasses.

Fluorinated gases account for another 3% of the total climate change gasses. When we use fluorinated water the fluoride ion can combine with other chemicals to produce these heat trapping gasses. Hence getting healthy soils that capture and hold rainwater is another way a gardener can reduce their carbon footprint. One of the best ways to do this is use compost and aged (partially composted) native mulch. In addition, they provide the exact nutrition plants need as they were made from plants which then reduces the need for expensive fertilizers.

Lastly, when plants grow, especially trees they capture a lot of carbon to form their tissue. This carbon comes from carbon dioxide in the air removing it from the atmosphere. When this plant material is composted or made into a native mulch, the carbon is converted into the magical and wonderful stuff we call humus. Depending on the type of humus the carbon is stored in our soils sometimes for many centuries where it does not contribute to climate change.

Oregon State University did a study in Houston directly after hurricane Harvey. They found 162 different toxic chemicals, including pesticides, flame retardants, phthalates, polycyclic aromatic hydrocarbons, and many industrial chemicals.

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There were many sources of these toxic chemicals from industry, to homeowner's yard gardening chemicals. Houston has 41 superfund sites 13 of which were flooded and we do not know how much toxic chemicals were released. Additionally, 89 industries reported "unintentional releases".

Another major source of these toxic chemicals was household cleaners which residents were exposed to as they cleaned up after Harvey and which were eventually released into the environment. International Journal of Environmental Research and Public Health, 2022

The point I am making is that we are constantly exposed to toxic chemicals and our immune system can only handle so much. Hence, one of the best ways to protect your health is to avoid as many of these chemicals as possible.

In regards to gardening the modern biological methods often referred to as "organic" work better, cost far less and without the health risk.

Speaking of hurricanes, they produce a lot of downed tree limbs, pine cones, leaf litter, etc. Applying this material to our flower beds is one of the best ways to improve the quality of our soil.

The rotted bits of wood last a long time, providing energy for the microbes, as it decomposed it enhances a soils ability to hold water and nutrients. These combined help us have healthier and more beautiful plants.

Additionally, some of the fungi that decompose these woody materials produce enzymes that break apart heavy clay soils turning them into a fertile beautiful loam.

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