

JOHN'S CORNER:

NEWS FROM THE WONDERFUL WORLD OF SOIL AND PLANTS

by John Ferguson

We continue to learn that plants have chemical weapons to fight back against insects and disease if we let them. A new study published in *Scientific Advances* (May 16) has found that maize wafts out scents when being nibbled on by a caterpillar. These scents attract help in the form of tiny wasps that kill the caterpillar by injecting an egg that hatches and eats the caterpillar from the inside out.

Another study published in *Scientific Advances* (May 23) has found that the nutrient content of plants declines as carbon dioxide levels in the atmosphere increase. These include B vitamins, proteins and minerals. Bible prophecies tell of famine in the end times, I wonder if it is a lack of food or just a lack of nutrients.

Scientists at the Swiss Federal Institute have discovered that trees scream (produce ultra sonic sounds that we cannot hear) when they are thirsty. They also found that fungi on the root systems of trees filter out heavy metals in the soil preventing them from harming the tree. Additionally, trees use the fungal network to communicate with other trees even of different species.

Trees are great filters to clean and cool the air. For every square yard of forest floor there are 27 square yards of leaves and needles that blanket the crown.

Conifers forests also produce terpenes that rise into the air and causes moisture in the air above them to condense, which then forms clouds (reduces heating from sunlight) and eventually rain. This helps create the conditions they love which are cool and moist.

I finished reading an interesting book the other day titled "Weird Math". In there was an explanation (theory) of why cicada (*Magicicada septenecim*) has a 17 year life cycle and another cicada species (*Magicicada tredecim*) has a 13 year life cycle. Both 13 and 17 are prime numbers which in math have special properties. It seems that as the cicada species evolved the predator species that eat them have a shorter and different life cycle in terms of years. By having an unusual time of life cycle it ensured than when the predators emerged there were no cicadas to eat hence the predators died out. We are just



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beginning to understand how mathematics is applied in nature. One of the first examples is how fractals could define the shape of a coastline. Geometric progression maps how bacterial populations increase under ideal conditions. I predict that scientist will discover additional mathematical relationships in nature in the coming years.

Demand for organic foods and products continues to grow rapidly. A report from the Organic Trade Association found that there was a 6.4% increase in sales of organic products reaching \$45.2 Billion in just the food sector alone. "Demand for organic food is flourishing as consumers seek out nutritious and clean food for the health of their families and the environment".

A study in the Journal HortScience (June 2018) has found that applying *Trichoderma sp.* based bio stimulants (which are one of the most effective plant-growth promoting fungi), to melons increased the quality of the melons and resulted in significantly larger crops.

A new study from the Harvard Medical school confirms other research that show blueberries and strawberries have cardio-protective effects. Blueberry consumption has been linked to lower risk of Alzheimer's disease, macular degeneration, and urinary tract infections. Strawberries support the brain, eyes, muscles, joints and immune system. In our area both of these plants grow very well, and by growing them yourself organically you prevent exposing your family to the high amounts of toxic pesticides used by conventional growers. Plus organic home grown just taste better!

Research continues to mount on the importance of quality fat in our diet. Nuts in general are a good source of these fats IF they have not been roasted (fried) in vegetable oil. This frying at high temperatures exposes one to acrylamides which is believed to be a carcinogen. Hence always buy raw organic nuts to get the maximum benefit. Studies have found that walnuts, macadamias, and pecans have the highest beneficial fat levels. If you have trouble digesting nuts, soaking them overnight in water allows the troublesome plant compounds to break down making them easier to digest.