

JOHN'S CORNER:

NEWS FROM THE WONDERFUL WORLD OF SOIL AND PLANTS

by John Ferguson

A new study published in the journal Nature Sustainability has found that organic farming promotes overall pest control by supporting beneficial predators. The study showed that insect pests and disease infestations were similar between conventional and organic farms, suggesting that the use of toxic chemicals were no more effective than organic methods.

I often get asked, "Why is compost recommended to treat so many problems in gardening?" Properly made compost is full of beneficial microbes that do everything from preventing disease, provide nutrients, creating soil structure, etc. Compost becomes the "guts" of the soil-plant system. It is similar to how fecal transplants (loaded with good microbes) from healthy people into autistic children relieves many of the autistic symptoms. Microbes in good compost produce scents that stimulate our brains and make us feel good. The microbial part of soil life is far more important than the chemistry and physics of the soil put together. When we get life (microbes) in the soil, the chemistry and physics naturally correct themselves. One of the many reasons good compost is often referred to as "black gold" by experienced gardeners.

A study by 17 scientists in five countries led by Washington State University published in the journal Nature Sustainability has found that 10% of farmland is now under some form of sustainable practices. These sustainable methods have increased yields and quality while lowering production costs and minimizing harm to eco-systems and people.

A study from the Chan School of Public Health at Harvard University published in the journal Nature Climate (August, 2018), has found that rising levels of carbon dioxide (CO₂) causes nutrition levels in food to decrease. The researchers emphasized that billions of people are



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currently living with nutritional deficiencies and it will get worse. From this study and others a new field of study called "planetary health" is emerging.

Scientists have discovered that when mycorrhizal fungi colonize a plants roots (help the plant grow, collect nutrients and water, and protect the plants roots from disease), it changes the type microbes that lives on the surface of the leaves of the plants. The plant-fungi interaction produces chemicals that show up in the leaves, this will allow scientists to determine which plants are colonized by mycorrhizal fungi without digging up the plant and killing it. Max Planck Institute for Chemical Ecology 2018.

Garlic's health benefits have been known for thousands of years. A report in the October issue of Life Extension was on the benefits of aged garlic. Several studies have now found that consuming 2,400 mg of aged garlic daily was able to prevent and even reverse early heart disease. They also found that that aged garlic had antiatherosclerotic effects as well. Another report in the same issue mentioned other plants with beneficial health benefits. Valproic acid comes from the plant Valeriana officinalis and has been found to induce cancer cells to die (apoptosis). The French Lilac plant Galega officinalis produces the chemical metformin which is used to treat diabetes. It also reduces blood sugar which helps fight cancer as cancers need sugar. A report in the Cincinnati News has found that toxic chemical farming has reduced the amount of vitamin-A in broccoli by over 80% and calcium by 50% in the last 70 years.

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Many people have heard of "sick building syndrome" where the air in the building is polluted from toxic chemicals that escape from carpet, furniture, paints, etc. The same problem exists in our homes and leads to many health problems. Many studies have found that plants can remove these toxic chemicals from the air. Some of the top plants for this purpose are: Peace Lily (*Spathiphyllum wallisii*), Spider Plant (*Chlorophytum comosum*), Snake Plant (*Sansevieria trifasciata*), Ficus (*Ficus benjamina*), and Pothos (*Epipemnum aureum*). A summary of the work done by NASA can be found at https://spinoff.nasa.gov/Spinoff2007/ps-3.html. Dr. Wolveron was the lead researcher and the results of all the studies are in his book below and a great way to practice indoor gardening.

