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JOHN'S CORNER:

NEWS FROM THE WONDERFUL WORLD OF SOIL AND PLANTS

by John Ferguson

Trees are healthy! One study found that in areas without trees there was an abundance of disease carrying mosquitoes. Conversely, areas with lots of native trees had very few disease causing mosquitoes. Another study that covered 35 counties in the USA, found that in areas with greater tree cover, children had far less cases of diarrheal disease.

A recent paper in the Journal Nature Biotechnology has found that genetic modification (GMO's) of crops for insect pests has failed. Pests have developed resistance to the Bt toxin in less than 5 years instead of the 30 or more that Monsanto promised! The study looked at multiple crops in 7 countries and 15 different pest species.

Speaking of Monsanto, the European parliament unanimously agreed to prohibit the sale of glyphosate herbicides (Round-Up) effectively immediately across all 28 countries. This is due to all the health problems from cancer to autism associated with glyphosate.

Northwestern University Fienburg School of Medicine has found that the herbicide *paraquat*, which causes cell death due to oxidative stress, is linked to Parkinson's disease in addition to lung fibrosis. This herbicide is banned in the European Union.

A paper in the Journal Nature Communications by the University of Tuebingen in Germany has found that composting Biochar creates a very thin organic film or coating that significantly improves the biochar's fertilizing capabilities. It increases the char's ability to store nutrients and form further beneficial organic substances.

As carbon dioxide (CO_2) continues to rise in the atmosphere researchers at Arizona State University, applying mathematics to study biology has found a profound effect of CO_2 on

plants. We have known for some time that plants grow faster with increasing amounts of CO_2. They found that although plants grew faster they contained fewer nutrients. Other research on fruits and vegetables from 2004 found that everything from proteins to calcium, iron, and vitamin-C has significantly declined since 1950. This new finding coupled with the fact that many newer hybrids and especially GMO crops, do not contain the required nutrition to keep us healthy and explains why our food supply is in such poor shape. More reason for one to grow their own food.

The International Panel of Experts on Sustainable Food Systems (IPES-Food) has found that malnutrition costs the world $3.5 trillion dollars per year. Obesity will cost $760 million alone by 2025. Exposure to endocrine disrupting chemicals cost $557 billion in Europe alone, and antimicrobial-resistant infections are expected to increase from $ 20 billion to $34 billion per year in just the USA. So why does the EPA, FDA and USDA still allow these chemicals to be used to feed livestock as our "cheap food" is not really cheap.

There is some interesting new research coming from the Rodale Institute. The preliminary results have found that certain compost *extracts* reduced weed expression and germination by 43%.

Recently Brenda was talking about gardening on strips of land around one's house. Research has found the same idea/concept can really improve agriculture. There is a series of research on going at several universities called "STRIPS". They have found that strips of prairie grasses and wildflowers around agricultural fields reduce erosion (95% reduction), promote better soil fertility, help water soak into the soil; provide a home for beneficial insects, increase yields and lower total costs.

When we think of insects, we often think of insect pests or we think of butterflies and bees. What we tend to forget is that insects feed birds and many other animals. A 27-year long study from Germany has found that the insect biomass there has declined by 75% over the last 27 years.

The University of California-Davis has found a mechanism why insects attack monocultures. They found that in multi-species plantings with lots of diversity, plants produce chemicals that make them taste bad to insects.