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JOHN'S CORNER:

NEWS FROM THE WONDERFUL WORLD OF SOIL AND PLANTS

by John Ferguson

Researchers at Penn State University have found that bumble bees can sense which plants have nutrient rich pollen and they choose a plant based on the quality of the pollen (Proceedings of The National Academy of Sciences/Science Daily). Hybridization of plants have resulted in many species having inferior pollen quality. Plants grow on nutrient poor soil also have lower quality pollen.

There were some interesting data in the recent spring issue of "Tree Planters Notes" published by the USDA Forest Service on weeds:

- If one yellow nutsedge plant is allowed to mature, it can produce more than 2,400 seeds.
- A mature wild purslane (*Portulaca oleracea L.*) can produce more than 52,000 seeds.
- A single redroot pigweed (*Amaranthus retroflexus*) can produce 117,000 seeds
- One tuber of purple nutsedge produced 1,168 plants and 2,324 tubers in just 6 months.

I remember another article on nutsedge. Nutsedge reproduces by both seeds and stolons that form new tubers (plants). The example given was on day one, there is one plant, a week later, there is five plants, a week later there is 25 plants by the end of a month there can be over 3,000 plants! They reproduce geometrically, hence we have to stop them early, or a simple easy task becomes a mountain of work to remove.

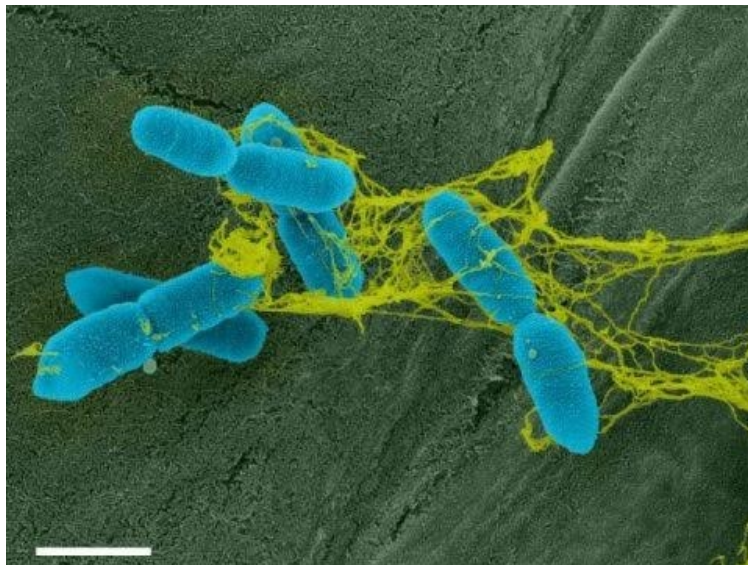
For gardeners this tells us that weeds; **MUST** be prevented from going to seed. This includes our lawns, flowerbeds, fencerows, and other areas. Weeds are easy to control (hoeing, flaming, vinegar, and other methods), **IF** we get to them when they are little and before they have time to spread or seed out.

Another article in "Tree Planters Notes" was on Black Walnuts and the chemical juglone that they produce. They recommend that some species like Pines, River Birch, etc. not be planted within 35 feet

of edge of the drip line from a mature Black Walnut. The allelopathic effects extend far beyond the drip line.

A paper released by the Rodale Research Institute (which has been running a study for 35 years comparing conventionally and organically grown corn and soybeans). Only in the first few years during the transition period were the yields from the organic system less than conventional. The organic system produced consistently matched or surpassed the conventional system. In adverse conditions, the organic system produced 31% more than conventional systems. The yields of the organic system have continued to improve over the years as the quality of the soil improved.

Researchers from the University of Wisconsin in the journal PLOS Pathogens, 2016 (via Science Daily) have identified one method that plant roots use to protect themselves from bad bacteria (*R. solanacearum*) known to cause destructive wilt in a wide range of plants. On pea and tomato, roots the plants secreted sticky DNA that entangles the bacteria. When the roots were exposed to harmless bacteria, no DNA was excreted.



This is a false-color electron micrograph depicting bacteria (blue) and the DNA-based trap (yellow).

Credit: Tran et al.; CCAL



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The University of Queensland in Australia (Scientific Reports, 2016) found that people who visit parks for 30 minutes or more are much less likely to have high blood pressure or poor mental health like depression. In Australia, the savings to public health budgets would be immense. Australia spends \$A 12.6 billion a year on depression alone.

Most gardeners love butterflies and take steps to protect and encourage them. Using aerial drone's researchers have found that Mexico has not kept its promise to protect the Monarch butterflies winter reserve area. The photos the drones took clearly show that illegal logging is taking place. You can read more at <http://www.takepart.com/article/2016/06/22/drones-uncover-illegal-logging-monarch-butterfly-habitat?cmpid=tpanimals-eml-2016-06-25>

In the June 25th issue of Science News, researchers found that killing bacteria in our gut may hurt our brain. In animal studies, their results found a powerful connection between the functioning of the brain and bacteria in the gut.

Food for thought: Mental health and dementia issues are becoming rampant in our society today.

- We add chlorine to our water systems to kill bacteria and then we drink it
- Antibiotics kill bacteria, we feed them to our poultry, swine, and cattle, and then we eat the meat from them full of antibiotics
- In addition to being an herbicide, glyphosate is patented as an antibiotic as it kills bacteria and as a mineral chelater to clean pipes as it ties up nutrients and prevents them from being absorbed by plants or animals. We then eat food containing high levels of glyphosate (particularly genetically modified food (GMO's)) which kill bacteria.

There is an interesting article last week in the E-newsletter "takepart" called "Shredded Wheat: 100 Percent Whole Grains With a Touch of Weed Killer". It talks about the latest tests showing contamination by glyphosate in many food products. It is found at <http://www.takepart.com/article/2016/06/23/glyphosate-shredded-wheat?cmpid=tpfood-eml-2016-06-25>



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There was another interesting article called "The 8 most SURPRISING places you'll find GMOs". It is at: http://www.naturalnews.com/054461_hidden_GMOs_food_ingredients_non-GMO.html

Another interesting article came out by The Health Freedom Alliance on many of our common food producers and the toxic chemicals in the food. It can be found at: <http://www.healthfreedom.org/many-mainstream-american-food-suppliers-are-laden-with-unhealthy-additives-to-humans/>

There was an interesting article on the Natural News website last week titled "Nine chronic diseases caused by pesticides". It is found at: http://www.naturalnews.com/054463_pesticides_diseases_infertility.html

Many people suffer from seasonal allergies. An article that describes the relation between allergies and our food supply is at: <http://ecowatch.com/2016/06/27/mark-hyman-get-rid-seasonal-allergies/> Several studies have shown that the fats in raw butter protect our brains as it is used in the mycelium sheath around the nerve fibers to protect them. The FDA is stopping the sale of raw butter. An article can be found at: <http://www.farmtoconsumer.org/blog/2016/06/23/raw-butter-communicable-disease/>

The reasons to purchase organic foods, garden organically and grow our own fruits and vegetables organically continue to mount.