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JOHN'S CORNER:

NEWS FROM THE WONDERFUL WORLD OF SOIL AND PLANTS

by John Ferguson

A couple weeks ago I wrote an article on fire-ants. A few years ago, I was attending a workshop on environmental health and they were talking about using the artificial sweetener called "Aspartame ", to kill fire ants. It is used in several brands of artificial sweeteners, and in many low-calorie food and drinks.

According to the professors, aspartame is a neurotoxin and 4-5 packs of the artificial sweetener will kill a small fire ant mound. So, I decided to test it and collected a few packs from a restaurant (I will not consume it or even keep it in my house as it is very bad for our health) and emptied them on a fire ant mound. In a few days they were gone.

Note: In the human body aspartame breaks down into phenylalanine, aspartic acid, methanol (wood alcohol which is toxic) and above 86 degrees (F) it converts to formaldehyde a known carcinogen (What temperature is the human body?)

A paper in the journal Veterinary and Animal Science (June 2020) has found more evidence on the toxicity of glyphosate used in the herbicide Round-Up. To quote from their conclusion: "Based on the literature reviewed in this paper, some ingredients of GBHs (glyphosate based herbicides), both active and inert, appear to act as reproductive toxicants, having a wide range of effects on both male and female reproductive systems, including endocrine disruption, tissue damage, and disfunction of gametogenesis."

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The exposure to this toxic chemical comes from the feed they eat. Another reason to grow our own food or at least buy organic.

Many of us like to grow the herb called Catnip or Catmint (*Nepeta cataria*) an ornamental plant that drives cats crazy or into feline ecstasy. Researchers have identified the chemical responsible which is a terpene called nepetalactone. Terpenes are often used as communication and defensive chemicals by plants. Journal of Nature Chemical Biology 2018

Catnip is cultivated as an ornamental plant in our gardens as it attracts cats and butterflies. It is drought tolerant, deer resistant, and repels some insect pests.

We have often talked about the dangers of fluorine in past issues. A new paper in the journal American Society of Agronomy 2020 from Massey University. They found that high fluorine levels hurt a microbe called Rhizobium.

Gardeners know that this good bacteria lives in the root nodules found on many plants called legumes. This bacterium takes nitrogen (N) from the air and gives it to the plant all for free.

They found that fluorine hurts white clover and the animals that eat the clover in addition to the bacteria.

They found a major source of fluorine was from the phosphate rock material used in artificial fertilizers. This fluorine builds up over time and becomes toxic. When we water with municipal water contaminated with fluorine this toxic chemical builds up in the soil even faster.



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Researcher have found that switching from organic natural fertilizers to artificial fertilizers causes microbes to metabolism more carbon.

In healthy soils low nitrogen levels limits microbe's ability to use carbon. As a result, they excrete carbon in the form of soil glues, creating a porous, interconnected structure in the soil that allows water, air and nutrients to circulate.

When artificial fertilizers are used, the microbes can use more carbon so they excrete less glues which alters the state of the soil. As carbon is lost, the pores within the soil become smaller and less connected. This results in fundamental changes (reductions) in the movement of water, nutrients and oxygen into the soil which causes large changes to the microbe's behavior.

Low carbon soils (another way of stating low organic matter) are not very good at supporting plant growth and cycling nutrients. The side effect is also increased greenhouse emissions.

Journal Scientific Reports 2020

Gardeners and farmers have a new revenue source – Selling Edible Weeds. Many of our current vegetable crops were at one time considered weeds (ex. tomatoes). Many of these plants are extremely nutritious and have been used for centuries to help one's health. With the Covid-19, several studies have found that Elderberry syrup helps suppress the virus and make great wine and jam. The flowers are edible and pollinators love them (News From the Wonderful World of Plants #109 was on the benefits of elderberries).

Edible weed varieties harvested from participating farms in 2017 and 2018 included:

- Dandelion (*Taraxacum officinale*)
- Purslane (*Portula oleracea*)
- Wood sorrel (*Oxalis stricta*)



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- Amaranth (*Amaranthus* spp.)
- Wild mint (*Mentha* spp.)
- Sumac (*Rhus typhina*)
- Garlic Mustard (*Alliaria petiolata*)
- Japanese Knotweed (*Polygonum cuspidatum*)
- Burdock (*Arctium* spp.)
- Field Onions (*Allium vineale*)
- Stinging Nettles (*Urtica dioica*)
- Black Locust Blossoms (*Robinia pseudoacacia*)
- Ground Ivy (*Glechoma hederacea*)
- Wild Lettuce (*Lactuca* spp.)
- Lamb's Quarters (*Chenopodium album*)
- Elderberries (*Sambucus canadensis*)

Regional survey findings have revealed Purslane (*Portula olearacea*) and Stinging Nettles (*Urtica dioica*) to be the most common edible weeds species sold by farmers. The top three sales venues for edible weeds are (1) farmers' markets, (2) restaurant sales, and (3) CSA shares.

The full report is at: www.projects.sare.org

The Journal of General Virology 2020 had a recent article on the spice Turmeric that we get from the plant *Curcuma longa* of the ginger family. The chemical curcumin found in this spice has been shown to inhibit the replication of viruses like dengue, hepatitis B, and Zika. It also prevents transmissible viruses like gastroenteritis virus (TGEV) found in pigs which is a corona virus.

The compound is also found to be anti-tumor, anti-inflammatory, and anti-bacterial.

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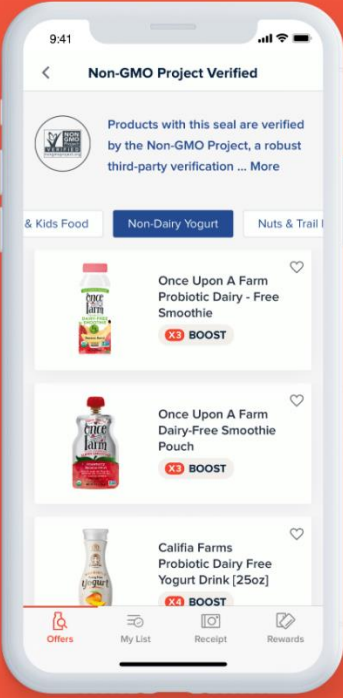
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I have often written about the dangers of eating GMO foods. This is even more important today as eating foods with glyphosate on them has been linked to increased severity of the Corona-19 virus. GMO foods often have the most glyphosate (Round Up herbicide) on them.

I received an e-mail for a new app that looks very interesting. If anyone has used it please let us know. Below is the text from the e-mail.

Here's how it works:

- Download the [Merryfield app](#), then follow the prompts to enter your information.
- Next, browse products (with attributes like Non-GMO Project Verified and USDA Organic) and activate offers from better-for-you brands.
- After that, all you have to do is go shopping, then take a photo of your receipt, showing your clean label purchases. You'll earn points instantly that can be redeemed for great gift cards in dozens of categories. Not only will you be rewarding the good habit of shopping for clean label products, but being a part of Merryfield also gives you the opportunity to give back. Merryfield donates 1% of sales directly to No Kid Hungry, supporting its mission to end childhood hunger.



Buying Non-GMO Products just got even more rewarding.

With the Merryfield app, earn gift cards when you buy participating Non-GMO Project Verified products.

MERRYFIELD

The image shows a smartphone screen displaying the Merryfield app interface. The screen is titled "Non-GMO Project Verified" and shows a list of products with "BOOST" offers. The products listed are: "Once Upon A Farm Probiotic Dairy-Free Smoothie", "Once Upon A Farm Dairy-Free Smoothie Pouch", and "Califia Farms Probiotic Dairy Free Yogurt Drink [25oz]". The app interface includes a navigation bar at the bottom with icons for "Offers", "My List", "Receipt", and "Rewards".