

JOHN'S CORNER:

NEWS FROM THE WONDERFUL WORLD OF SOIL AND PLANTS

by John Ferguson

A study in the Journal HortScience (May 2018) has found that plants grown in soil media grown with high levels of available silicon (Si) accumulated more silicon in their tissues especially in their roots. This made the plants more resistant to abiotic (non living factors) and biotic (living or dead factors) stresses.

A massive study by Utah State University with 98 scientists and thousands of field staff in 21 countries have found that the largest 1% of trees in mature forests comprised 50% of forest biomass worldwide. Big trees provide functions that small and medium size trees cannot. The study shows that it is critical to protect our mature forests for the ecosystem services they provide.

Research from the University of Bath has found that microbes are good investors. They have learned that even though of different species, they will work together for the common good. For example slime molds normally live as single cell creatures, but if food is scarce they will come together to form a slug-like feature and may eventually form a fruiting body (Science Daily, May 2018).

Research from the Soil Health Institute composed of dozens of Universities, has found that improving soil health provides the following benefits: boosts crop yield, enhances water quality, enhances water storage and infiltration, increases a plants drought resistance, reduces greenhouse emissions, increases carbon sequestration, provides pollinator habitat, and builds disease suppression. Soil improvement is the single most cost effective tool a gardener can do to have a beautiful lawn and garden. I remember growing up and my grandmother listening to Dewey Compton on his gardening radio show saying "It is far, far, far, far, cheaper to put a one dollar plant in a ten dollar hole, that a 10 dollar plant in a one dollar hole". This is still the biggest mistake gardeners do, they purchase low quality soils, mulch, and compost and when the plants die, they say I guess I do not have a green thumb.

A survey of 28 studies reported in Life Extension (June 2018) found that people experiencing their first psychotic episode were deficient in folate (one of the B vitamins) and vitamin D. Maybe another reason



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gardeners are healthier and happier as we get plenty of sunshine required for our bodies to make vitamin-D.

The fruit we know as pomegranate is full of health promoting bioactive compounds called polyphenols like tannins and flavonoids. Multiple studies now show that pomegranate has tremendously powerful chemo-preventative agent against prostate, breast, colorectal, and lung cancers (Life Extension (June 2018)). This is another good reason to grow our own fruits and vegetables organically.

One of the most persistent problems gardeners deal with is weeds. A company in Switzerland has developed the first robotic weeder. It is solar powered and will move through a field and with artificial intelligence apply herbicides directly and only to the weed. I expect to see in the near future robotic weeders that are chemical free and use laser energy and or electrical current to kill weeds.

In past issues we talked about how dangerous fluoride in our water systems is to microbes in the soil and to many plants. The Fluoride Action Network has filed a lawsuit against the EPA under the Toxic Substance Control Act for lying and falsifying safety data on fluoride. They presented over 2,500 pages of scientific documentation detailing the dangers and health risks. As an example, a study published in the journal Environmental Health Perspectives has linked the fluoride in the urine of pregnant women to lower intelligence in their children. "At these levels a staggering loss of six IQ points". There are now 220 animal studies that link fluoride exposure to the disruption of various aspects of brain function. Over 40 animal studies that show fluoride interferes with the animals ability to learn and remember, and an additional 53 human studies show that fluoride exposure is associated with loss of IQ. Note: Many of these studies are at levels of exposure a lot less than what is in our water systems! Additionally, from our study on minerals (elements) last year, fluoride prevents the absorption of iodine (I) from the soil that is critical to the health of microbes, plants and animals.

Most gardeners love our butterflies and bees as well as other pollinators. For years we have known that a class of pesticides called neonicotinoids have been killing them and the EPA and USDA has failed to remove them despite overwhelming evidence. In April 2018 the European Union voted to ban neonicotinoids as they found them linked to the decline in butterflies, bees, aquatic insects, and birds. Below is a link to a short video by Michael Pollan, a well known author, nutritionist, and activist on health. This is about how Russet Burbank potatoes are grown for the fast food industry. It illustrates the importance of growing and cooking our own food.

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