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## **NEWS FROM THE WONDERFUL WORLD OF SOIL AND PLANTS**

### **Bio-Solids or Sewage Sludge Revealed Part 3 of 4**

**By John Ferguson**

In Part 2 we talked about PFAS (Perfluoroalkyl and Polyfluoroalkyl Substances), these are the 'forever chemicals' found in 99% of Americans". This past week the Wall Street Journal (April 5, 2022) had a report on this issue.

Dairy farms in Maine were shut down and had to have their meat, milk and cheese destroyed due to PFAS contamination. They did not use sewage sludge (biosolids) on their farm; however, they had purchased hay from a neighbor that used biosolids as fertilizer where the chemicals were absorbed from the soil. When the cows ate the hay, these toxic chemicals became concentrated in the meat, milk, cheese, etc.

The state of Maine found these dangerous chemicals in milk, eggs, beef, fish, and even venison (deer). There are now over 700 sites in just Maine under investigation. So far 33 farms in Maine have been found to have high levels of these toxic chemicals and three have been shut down.

As a result, the state of Maine has Banned the spreading of biosolids (and compost made from this sewage sludge) on pastures and fields in the state of Maine. Due to the extreme toxicity of these PFAS chemicals the EPA reduced the amount in drinking water to only 0.02 parts per trillion this past June!

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So how did we get into this mess? One of the ways is the Water Environment Federation (WEF) which is one of the largest lobbying and public relation organizations promoting the sale of biosolids for U.S. sewage treatment plants. Members include the U.S. composting Council, corporations like Synagro and publications like Biocycle.

Research papers are coming out almost daily on the danger of biosolids.

For example, a study in the Journal Genome Research (2019) has found drug resistant pathogens in the waste water from sewage treatment plants. These drug resistant strains were being released into the environment from the waste water discharge or when used for irrigation (purple pipe). The counts of these pathogens were higher if there is hospitals sewage going to the treatment plant. Using ultra violet light as an additional treatment significantly reduced these pathogens but is seldom used. This is another reason for gardeners to avoid products made from biosolids (sewage sludge cake).

The consumer group Center for Media and Democracy has many informative papers on issues that society is facing:

<https://www.sourcewatch.org/index.php?title=SourceWatch>

For more examples, the link below, is on the dangers of sewage sludge also known as biosolids and the effect they have on health and the environment.

[https://www.sourcewatch.org/index.php?title=Sewage\\_sludge](https://www.sourcewatch.org/index.php?title=Sewage_sludge)

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Many new research papers have been recently published on the effect's sewage sludge has on soil life, such as contamination by radioactive elements from chemotherapy, etc.

Something to think about, I know I did not. I was reading a research article published in the journal Environment International (May, 2020) by the University of Stirling in the U.K., that may affect some gardeners.

They found that the COVID19 virus can be spread by sewage sludge (also called biosolids for marketing purposes). This virus has been found in human feces or sewage up to 33 days after a patient has tested negative. Other Coronaviruses have been found viable even after 14 days.

The researchers also believe that the virus could be transmitted in the waste water from sewage treatment plants. This wastewater is sometimes used to water gardens, golf courses, sports fields, etc. and is commonly referred to as "purple pipe water".

As we discussed in previous articles, many companies that handle sewage sludge and handle waste water from sewage treatment plants, often want to dispose of this toxic waste on gardeners. For local gardeners, several compost (soil) companies in our area use sewage sludge in their products and sell biosolid compost to smaller soil yards.

One of the contaminates of this waste is painkillers like aspirin and ibuprofen which interferes with a plants growth and immune system. One of the things recently discovered is that these painkillers interfere with the flow of auxins which are a plants major growth hormone. They also interfered with the whole endomembrane system that resulted in disrupted cellular systems.

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These changes lead to faulty plant growth, an example is that roots grew up rather than down. Journal Cell Reports (2020)

A lot of our food supply is grown with sewage sludge (biosolids) as a fertilizer or the fields are watered with the waste water. No wonder we see so many reports on the news about health problems from our conventional food supply. Another reason to buy organically grown food whenever possible or better yet grow your own organically.

For example, below is an excerpt from a recent public health research paper:

**Isolation of Toxigenic Clostridium difficile from Animal Manure and Composts Being Used as Biological Soil Amendments**  
**Muthu Dharmasena, a Xiuping Jianga, Department of Food, Nutrition, and Packaging Sciences, Clemson University, Clemson, South Carolina, USA**

“IMPORTANCE Clostridium difficile infection (CDI) is a leading cause of antibiotic-associated diarrhea in health care facilities in developed countries. Extended hospital stays and recurrences severely increase the cost of treatments and the high mortality rate that is observed among the elderly. Community-associated CDI cases that occur without any recent contact with the hospital environment are increasing. Studies have reported the isolation of virulent C. difficile strains from water, soil, meat, vegetables, pets, livestock animals, and animal manure. The objective of this study was to isolate and characterize C. difficile strains from animal manure and commercially available compost products. Our results demonstrate that not only unprocessed animal manure but also finished composts made of different feedstocks can serve as a reservoir for C. difficile as well. Most importantly, our study revealed that properly processed compost is a potential source of toxigenic and clindamycin-resistant C. difficile isolates.”

Journal of Applied Environmental Microbiology (2018)

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Hospitals with infected patients dump their sewage with the pathogens above into the public sewer systems where the pathogens are in the biosolids produced.

The most recent toxic contamination being found in sewage sludge is microplastics. Microplastics have been found to change the properties of the soil, altering bulk density, water-holding capacity and microbial activity. Which in turn hurts our plants.

A paper in the Journal Environmental Science & Technology found that during the sewage treatment process the microfibers become concentrated in the sewage sludge. Levels over 15,000 per kilogram have been measured.

These microplastic act like a paper towel absorbing contaminants including PCB's and pathogens.

Another recent toxic in sewage sludge is the antimicrobials triclosan and triclocarban which have greatly increased in recent years. Millions of pounds of these chemicals are in everything from toothpaste to plastics and they are both major pollutants. These chemicals accumulate in sewage sludge and persist in the soil for a long time.

Another issue the media is not covering is that over 20 states have approved the dissolving of dead human bodies and flushing them down the sewer. As the Food Babe stated, "human goo and human sewage is being spread on farms to grow foods that can be labeled "non-GMO" on farms across America". The documentary "Biosludged" mentioned in Part 2, goes into more detail.

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