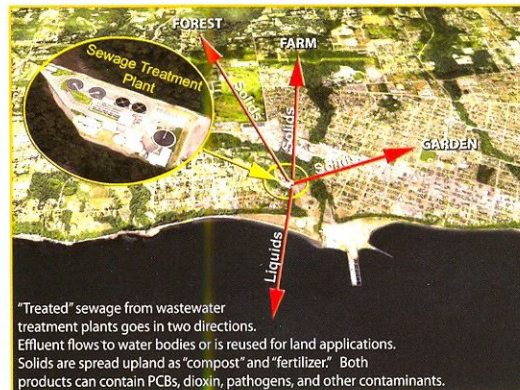


SEWAGE SLUDGE IS SOLD AS COMPOST FOR FOOD & GARDENING WHAT ARE THE HIDDEN DANGERS?

IT IS YOUR RIGHT TO KNOW!



Everything that goes down the drain ends in a Waste Water Treatment Plant (WWTP). Septage (sewage in a septic tank) may be hauled there, as well as radioactive waste, fracking fluid, superfund leachates and hazardous industrial waste. They contain a complex mix of thousands of contaminants and various pathogens. Yet, sewage plants are not designed to treat all that enters them.



- WWTPs create 60% of WA State's Puget Sound pathogen pollution
- WWTPs create superbugs/antibiotic resistant genes and bacteria that transfer to food
- WWTP contaminants can be taken up by crops and sea life humans eat
- WWTP sewage sludge is sold for compost/fertilizer without labeling all contents
- WWTP wastes harm soils, air, water, wildlife, plants, food & human health

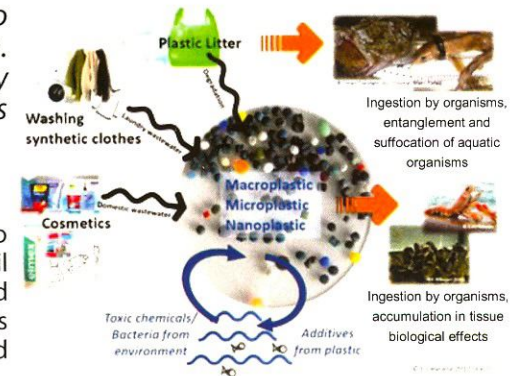
YOU HAVE THE RIGHT TO KNOW WHAT IS IN YOUR FOOD!

YOU HAVE THE RIGHT TO KNOW WHAT IS IN YOUR GARDEN COMPOST!

All products taken internally, applied, or put down the drain have the potential to enter sewage systems or become runoff into streams, lakes and the ocean. Everyday products such as pharmaceuticals, personal care products, laundry detergents, and pesticides contain endocrine disrupting compounds, carcinogens and other contaminants. These enter our soils, our waters and our food.

THEREFORE, IT IS YOUR RIGHT TO KNOW!

It is the right of the people to know if their food is grown or otherwise produced in soil to which sewage sludge has been applied as a fertilizer, micronutrient source, soil amendment, soil conditioner or compost. Without disclosure, consumers of food products may unknowingly ingest broad classes of toxic metals, chemicals, biochemicals and microorganisms, many of which accumulate in organisms and through the food chain. These products should be **LABELLED!**



ABOUT SEWAGE

With the 1972 Clean Water Act (CWA), the U.S. Environmental Protection Agency (EPA) implemented pollution control programs such as setting wastewater standards for industry and water quality standards for all contaminants in surface waters. The Act made it unlawful to discharge any pollutant from point sources into navigable waters unless a permit was obtained.(1) So, with government financial help, municipalities built wastewater treatment plants.

Different municipalities process wastes differently, but they all separate solids (which become "sludge") from liquid (which becomes "effluent"). Treatment plants typically do what is called "secondary treatment." Some do "tertiary treatment," meaning the effluent discharged into water bodies is "cleaner." This results in more toxins and pathogens left in sewage sludge. Regardless, the effluent remains full of harmful contaminants.

Everything that humans discharge or excrete, as well as materials contributed by medical facilities, businesses and industries, are sent to sewage plants. Sewage can contain pharmaceuticals, endocrine disrupting chemicals, chemotherapy drugs, toxic metals, and synthetic hormones - including estrogens and testosterone, personal care products, hospital wastes, industrial wastes, antibiotic resistant bacteria, flame retardants, stormwater runoff, animal wastes, plastic microbeads, plus viruses, fungi, protozoa, parasites, prions associated with a brain wasting disease, plasmids and bacteriophage that enable the horizontal transfer of gene sequences between and among bacterial genera and species.

WWTPs CREATE "SUPERBUGS"

University of Michigan School of Public Health research suggests wastewater treatment processing contributes to the selective increase of antibiotic resistant bacteria and the occurrence of multi-drug resistant bacteria ("superbugs") in aquatic environments.(2)

These strains of bacteria resist several or all antibiotics. Each year drug-resistant bacteria infect more than 2 million people nationwide and kill at least 23,000.(3) These even lurk in hospitals.(4)

- In 1981, the EPA reported that out of 300 total coliform (bacteria inhabiting the colon) isolates:
 - ⇒ 82% were resistant to two or more antibiotics.
 - ⇒ 46% of these were capable of transferring antibiotic resistance to a sensitive strain of E. coli.(5)
- Antimicrobials hinder important WWTP processes, compromise sewage treatment and promote drug resistance. (6.a,b)
- WWTP discharges contribute to spreading antibiotic resistant genes in the environment and bacterial communities of a receiving river. (7)
- Canadian researchers discovered one of the deadliest kinds of antibiotic-resistant bacteria in a raw human food – raw squid, widening the potential exposure for consumers.(8)



ABOUT SEWAGE SLUDGE

With sewage now discharged to wastewater treatment plants, something needed to be done with the daily tons of sludge generated by every municipality. Options for handling sewage sludge were to landfill it, burn it, or claim it to have

beneficial properties and call it "biosolids." Most municipalities chose the latter. This toxic substance, if recycled, could now be deemed safe for human use.

Sludge consists of complex and unpredictable *contaminated waste mixtures* that includes robust pathogens, unregulated metals, and tens of thousands of unregulated synthetic chemical compounds, many of which are toxic, persistent, and can enter the food chain, along with PCBs, dioxins, neurotoxins and mutagens.

The EPA, the U.S. Geological Survey (USGS), state agencies and some universities have analyzed sewage sludge. Findings are typical. For example, the EPA findings of 84 sewage sludge samples collected from 74 randomly selected publicly owned treatment plants producing 1 million gallons/day in 35 states were:

- 27 metals, 3 steroids, 3 pharmaceuticals, 4 anions and all but one flame retardant (BDE-138) in every sample;
- 9 pharmaceuticals and 6 steroids in 80 samples;
- 4 semivolatile organics and polycyclic aromatic hydrocarbons (PAH) in 72 samples;
- BDE-138 flame retardant in 54 samples.(9)

Elsewhere, 9 different sewage sludge products from 7 states were analyzed for 87 emerging organic contaminants entering waste water treatment plants:

- 55 were detected in at least one product
- 30 - 45 were detected in any one product (10)



**BUYER BEWARE!
SEWAGE
SLUDGE AS
COMPOST !!**

State, federal and local governments promote land application of sewage sludge as a nutrient-rich organic natural fertilizer and claim it has agricultural (farmland and forest) beneficial properties. Municipalities sell or give it to farmers for fertilizing their soils on which animals may graze or for other food production purposes, or spread it in forests. Spread on animal feed lots, farm animals can ingest the toxins which recycle back to humans who eat these animals or their byproducts. Forest foragers and those recreating in forests will seldom see posted warning signs that sewage sludge was spread.

Some municipalities bulk their sewage sludge with wood or other materials and sell it to the public by tonnage, or package it for nurseries as "organic" or "natural" compost. Labels only need list arsenic, cadmium, lead, mercury, nickel, selenium, copper, zinc, molybdenum and potassium, nitrogen and phosphorus levels.(11.a,b) There is no requirement to label other contaminants in the compost.

Human food crops and food animal feed crops, or the seed of feed crops, therefore, present opportunity for toxins contained in sewage sludge to enter the nutrient cycle of human consumers. Many of the toxins accumulate in our bodies and can be passed to fetuses, and later to infants via breast milk.

Consequences of human exposure to the food may not be realized for years.(12)

Dr. David L. Lewis, author of *Science for Sale*, a career USEPA scientist and the agency's only scientist to ever be lead author on papers published in *Nature* and *Lancet*, received a Science Achievement Award from USEPA Administrator Carol Browner. At the same time, the USEPA planned to terminate him. His "fault?" He denounced sewage sludge as safe for fertilizer and human health.(13) It is **BUYER BEWARE!**

HEALTH & PROPERTY

Residents living within approximately 1 km of land application sites generally complain of irritation (e.g., skin rashes and burning of the eyes, throat, and lungs) after exposure to winds blowing from treated fields. A prevalence of skin and respiratory tract infections have been documented, including 2 deaths, one from septicaemia and one from pneumonia.(14, 15)



Documented cases exist of food uptake of sewage sludge contaminants, loss of property and property values -- including farm land, crops and animals, as well as long term soil damage from sewage sludge in soil. (16.a,b)

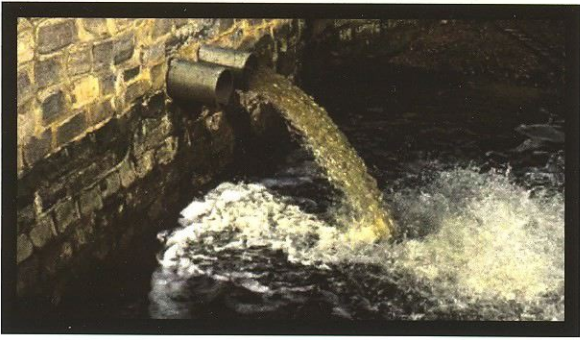
Now you understand why consumers and property owners need to **BE AWARE** of how food is grown and what is in commercial compost.

ABOUT WASTEWATER: SEWAGE EFFLUENT & RECLAIMED WATER IMPACTS TO SEA LIFE, SOIL & HEALTH

Because current wastewater treatment systems were designed before [many] contaminants were known to be harmful at such low concentrations, treatment does not effectively remove them, and they persist when emptied into water bodies....These contaminants are difficult to identify before the waste enters streams, rivers and lakes. Reuse of treated sewage effluent on landscaping, golf courses, [school and play grounds] and agricultural fields can contribute to the [pollution and health] problems.(17)

- The USGS found low concentrations of a broad range of chemicals in streams adjacent to cities and agricultural areas. Included were human and veterinary drugs, natural and synthetic hormones, detergent metabolites, plasticizers, insecticides, and fire retardants. One or more of these chemicals were found in 80% of the streams sampled.(18)
- At the 2014 Salish Sea Conference held in Seattle, WA, over 20 scientific papers were presented on sewage treatment plant contaminants of emerging concern impacts on Salish Sea marine life. Each study researched only one or a few of these contaminants. Considered together, the point was made that treatment plant eliminations harm marine systems.(19)

Indeed, both the WA State Departments of Health and Ecology say 60% of the Puget Sound's pathogens are from WWTPs.(20. a,b)



More studies drive home the point of problems in our waters from sewage effluents:

- **Hormones** in Land-Applied Biosolids Could Affect Aquatic Organisms(21)
- **Intersexed fish** is greatest near towns or near heavily farmed land. One major source of these **endocrine disruptors** is thought to be the post-treatment "cleaned" water from municipal sewage treatment plants.(22)
- The quantity of **heavy metals** from sewage treatment plants deposited in the French Bay of Vidy is considerable and, because of sediment instability, constitutes a potential hazard for biota. (23)
- **Tiny plastic particles** in facial cleansers and soaps end up in fish and shellfish and are spread on land with sewage sludge. A bottle of facial cleanser can have 350,000 microbeads.(24. a-d)

BIOLOGICAL OXYGEN DEMAND (BOD)

BOD is the amount of oxygen in a body of water needed by organisms to break down organic matter at certain temperatures over a specific time period. In a 2013 Investigate West Story, *Killing the Urine-eating Bugs*, by Robert McClure, Dr. Peter Maier criticizes how sewage is considered treated.

When a BOD test is carried out, carbon-eating bugs present in the waste immediately go to work on solids, demanding oxygen all along. Carbon-eating microbes are in full swing by the fifth day of the test (BOD5).

Nitrogen-eating bugs are slower getting started as there aren't many in the waste to begin with. They may not get up to full speed until maybe the sixth to the eighth day. It can take up to 30 days for those bugs to digest urine-based waste.

The nitrogen-eating bugs continue eating waste and requiring oxygen from streams where effluent waste is dumped, starving the water of oxygen normally available to fish and other aquatic life. The nitrogen that the bacteria haven't eaten acts as a fertilizer and increases algae growth downstream from the sewage plant.

In sum, point source pollution permits (National Pollutant Discharge Elimination System permits) are based on biological oxygen demand of carbon eating bacteria, ignoring nitrogen eating bacteria needs that, after WWTP "treatment," enter water bodies and suck up oxygen critical to marine life.

IN SUMMARY, what is sent to WWTPs ends up in sewage sludge to be spread on soils, and winds back up in water systems. What is emitted directly into water bodies negatively impacts marine systems, moves up the food chain to be consumed by humans who expel it back into WWTPs, and round and round it goes.

The practice of spreading and promoting sewage sludge on land undermines the basic physics, chemistry, microbiology, structure and function of soils. Soil ecosystem disruption from spreading sewage sludge alters and diminishes the native soil microbiome and diminishes the soil agronomic characteristics and quality.

The data is replete with impacts of "treated" sewage to water, air, soil, and the health of humans and wildlife. Two excellent sources are:

- <<http://www.sludgefacts.org>>
- <<http://www.sludgenews.org/resources/>>

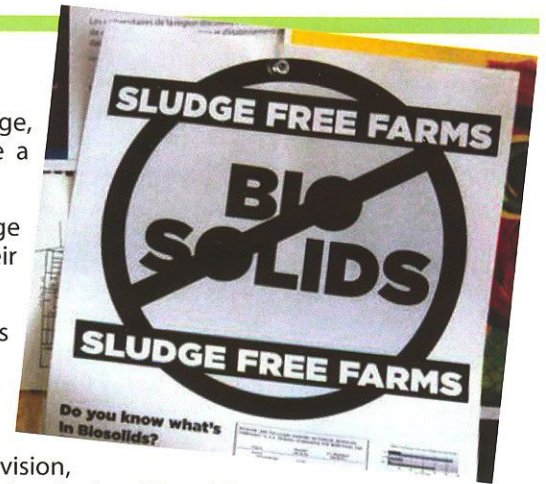
PROMOTE LABELING TO PROTECT LIVES

Mandatory labeling of both commercially sold human foods exposed to sewage sludge, and composts containing sewage sludge promoted for growing food can provide a critical method for tracking potential adverse health effects.

Identifying seeds produced with or without being grown in or exposed to sewage sludge would protect *farmers' rights to know* what they are purchasing and protect their right to choose what they grow.

Certified organic farmers are prohibited from selling human foods or food animals exposed to sewage sludge.

Numerous US and foreign markets, food processors and distributors refuse foods produced with sewage sludge. These include, but are not limited to, Allen Canning Company, Siloam Springs, Campbell Soup Company, Comstock Michigan Fruit Division, Dean Foods Vegetable Company, Green Bay WI (Birds Eye products), Del Monte, Heinz, National Food Processors Association, Nestle USA, Perez Packing, Firebaugh CA, Progresso (Pillsbury, Green Giant, Totinos, Jenos, Haagen Dazs), Martha White, Old El Paso, Seabrook Farms, Stanislaus County Farm Bureau, Tri Valley Growers, Van Den Berch Food Co, Vermont Family Farms Milk, Western Growers, Whole Foods and others.



DO THIS!

- ✓ Ask your grocers which products they sell were grown with sewage sludge, and to **LABEL** all foods (whole or those with ingredients) that were!
- ✓ Ask your compost vendor if the compost contains sewage sludge and to **LABEL** composts that do!

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