

# TREATED SEWAGE SLUDGE FERTILIZERS

Donald Good, Ontario Lawyer states: "Never adopt a practice that undermines the confidence of consumers in the safety of the food you produce. The application of sewage sludge to farmland does just that."

## WHAT ARE BIOSOLIDS?

Biosolids are made from the solid waste that remains in human sewage – called sludge. In Halifax, this sludge is derived from residential, commercial, industrial, street run off and, hospital sources and is being mixed with a liming agent to create the resultant "soil amendment" product also known as "stabilized biosolids". The Province of Nova Scotia is promoting a plan to apply biosolids to our agricultural farmland. It is high in organic content and nutrients, so in theory, makes good "fertilizer". However, there are a multitude of other noxious components in biosolids other than just feces and a liming agent. Sludge has the potential to contain a complex and biologically-active and unpredictable mixture of industrial waste products, blood, vomit, personal care products, heavy metals, synthetic hormones, pharmaceuticals, illicit drugs, antibiotics, solvents, flame retardants, carcinogens, pesticides, and numerous pathogens including bacteria and viruses. The liming agent used is cement kiln dust, an industrial waste product that contains numerous heavy metals including thallium, an estrogen-mimicking compound, and is mixed in an almost 50:50 ratio with the sludge. This process raises the pH, potentially killing most of the bacteria found in the sludge. If fecal coliforms number less than 1000 microbes per gram of dry weight, the biosolids are considered to be "Class A". N-Viro Systems Canada is processing and stabilizing Class A sludge and is transporting it to rural areas for land application onto agricultural soils. With the current high cost of synthetic fertilizers, some farmers are turning to biosolids as an aid to grow forage or food crops. N-Viro hopes to land apply 34,000 tonnes of sludge on Nova Scotian farmland covering up to 4,800 hectares every year with the approval of the Department of Environment ( Approval # 2005-0455546-A02).

## WHAT HAPPENS TO ALL THOSE CONTAMINANTS?

The "stabilization process" of sludge does not remove or degrade most of the contaminants. Thousands of pollutants have been detected in urban sewage sludges yet testing in Nova Scotia is limited to only 11 heavy metals, two bacteria (such as E. Coli and Salmonella), dioxins, furans, and PCB's. Bacterial digestion of dewatered sewage sludge can cause reactions between organic matter and residual chemical substances forming more dangerous compounds. There is no way to determine what substances make it into the final product. Current industrial technologies and treatment processes could be creating risks of unknown magnitude for public health since its use on agricultural land will subsequently become part of our food chain. Comprehensive testing for most of the substances listed above has not been done before biosolids have been spread on farmland in Nova Scotia. Of particular concern, and in typical sludges, are the presence of flame retardants and thallium – both of which can cross the placenta and enter fetuses. Experts are concerned about the long-term build up of heavy metals in the soil which are likely to be bio-accumulative and persistent. Over time, metals such as cadmium, zinc, and copper can build up to levels high enough to severely damage soil micro-organisms and reduce future crop yields. Does it make sense to remove the pollutants from sewage, in order to create a cleaner effluent entering water courses, only to spread the same pollutants on our food sources? Land application of biosolids is not "recycling". It is pollution transfer.

## NEW EVIDENCE IS EMERGING....

A tremendous amount of new knowledge about what substances exist in biosolids and how they **behave** has come to light in recent years. Contrary to claims made by proponents of biosolids, soil scientists specializing in sewage sludges have determined that contaminants can leech into groundwater sources or enter other water courses via field run-off. It has been shown in field studies that pathogen re-growth can occur even after the pasteurization process has been done. Pollutants can be taken up by some vegetables and forages; others will remain in the soils for decades. The vast multitudes of persistent, organic chemicals that affect human health will never be tested for. Although more testing is recommended for biosolids, it is important to note that many independent Canadian labs do not have the technologically-advanced equipment needed to detect meaningful concentrations of contaminants that are normally present in most urban sludges nor can they provide information about which levels of contaminants are toxic versus which are safe.

## ARE THERE OTHER ALTERNATIVES?

Yes, there are many other means to dispose of sewage sludges than land application. Plasma Assisted Sludge Oxidation (PASO), by Fabgroups Canada, is an invention which reduces sludge to 5% of its original mass by oxidizing it with a plasma torch. This technology is an excellent alternative to incineration, thermal drying, bio-gas production, wet-landing, land-filling or land applying and, through heat recovery, has the potential to generate hot air, hot water, or electricity through cogeneration. The process is simple, safe and robust and uses no fossil fuels and produces negligible dust and air or water emissions. PASO promises to be the most beneficial and sustainable biosolids handling alternative available. The residual ash is dry, inert, odorless, and sterile.

## MORE CONCERNS AND QUESTIONS TO CONSIDER:

- Did the Province consult with farming communities or engage in discussions with rural residents before approving the use of sludge on agricultural land and in and around their communities?
- Are the risks of liability to farmers using biosolids being addressed adequately or responsibly by the Province?
- Who will assume these risks? (Farmers? N-Viro? HRM? Province?)
- Will our agricultural industry be compromised if public perception about the safety of our locally-produced food is questioned?
- Will the Buy Local Initiative suffer as a result of treated sewage sludge being used by some producers?
- Should it be acceptable that consumers do not have the right to know, via labeling, which foods result from land application of biosolids and where the product is being spread?
- Why are there no risk assessments being done in areas where disposal of treated sewage waste is occurring to measure public health effects?
- Should taxpayers have to bear the costs of comprehensive testing when treatment processes cannot remove most contaminants?
- Must the public continue to bear the burden of paying for the transportation, processing, distribution, and resultant negative environmental or health care costs that this practice of using sludge creates?

## WHAT ARE OTHER ORGANIZATIONS SAYING ABOUT BIOSOLIDS?

**The Nova Scotia Federation of Agriculture** does not directly condemn the use of biosolids nor do they encourage farmers to use it as a soil amendment on agricultural land due to negative public perceptions about the industry's use of it and food safety concerns.

**The Organic Council of Nova Scotia** has deemed this product incompatible with not only organic agriculture but with any socially and environmentally responsible land-stewardship practice. Present regulations do not consider potential synergistic effects of multiple contaminants that may exist in biosolids. They warn that any farmer using biosolid fertilizer, who may want to convert to "organic" status in future, may not be able to do so due to long term contamination of the soil.

**The Ecology Action Center**, in adhering to the "pre-cautionary principle", has called for a moratorium on the spreading of biosolids on agricultural land due to an absence of comprehensive testing on the product.

**The Nova Scotia Environment Network**, representing over 50 environmental groups, also has expressed grave concerns with the use of this product on food safety issues and the potential for land and groundwater contamination in the years ahead.

**Nova Scotia Fruit Growers Association** requires members to adhere to the Canadian Horticultural Council On-Farm Safety Program - which does not allow the use of biosolids on agricultural land.

**Wild Blueberry Producers Association of N.S.** does not support the use of biosolids as a fertilizer for the wild blueberry industry.

**Kings County Federation of Agriculture** has passed a Resolution supporting a moratorium on the use of biosolids on farmland.

**Loblaw Companies** requires all suppliers to use the Canadian Horticultural Council's food safety programs and to pass an annual food safety audit. In the food safety program, the use of municipal waste (biosolids) is prohibited.

**Canadian Federal Government** in 2009, commissioned an independent scientific study to examine all recent research about biosolid contaminants. They found that a "notable lack of sound science" concerning the significance of emerging contaminants which include pharmaceuticals, personal care products, and industrial pollutants that are in biosolids destined for land application.

Brought to by: *Bio-Solids & Waste Water Caucus with the Nova Scotia Environmental Network at [www.nsen.ca](http://www.nsen.ca) (see link for Working Groups/Caucuses) or please contact Marilyn Cameron at: [p.m.cameron@ns.sympatico.ca](mailto:p.m.cameron@ns.sympatico.ca), tel. 542-5330.*