April 2023 Creation Care Green Tips

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**The Products We Buy: Facing the Challenges of Our Modern, Industrialized, Chemically-driven System**

1.  Many of us use **salt** as a winter pavement de-icer, but its use has a dangerous downside:  one teaspoon of salt (chloride) can poison ten gallons of water, and when it ends up in Minnesota's lakes, rivers, and wetlands, irreparable harm is done to their water and the plants and creatures living in them. The *Minnesota Conservation Volunteer* magazine cautions us to **shovel early and often** so less salt is needed, and to **sprinkle sparsely** by leaving 3 inches between salt grains.  A coffee mug's amount of salt is adequate for a 20-foot driveway or 10 sidewalk squares, but using a **handheld spreader** can apply it consistently.  Ordinary sodium chloride will not work at ground temperatures **below 15 degrees**, so choose **calcium chloride** when it is very cold.  Extra salt that dries on pavement will be washed away into bodies of water, so **sweep up extra salt** when it is visible on the pavement.

2.  Pioneered in the 1950s by Maplewood-based 3M Co., a class of chemicals known as **per- and polyfluoroalkyl substances (PFAS)** became widely used to suppress fires, repel water, fend off stains and make non-stick cookware, among other things.  These chemicals, often called "forever chemicals," can accumulate and persist in the human body for long periods of time, and have been linked with **developmental and immune problems, fertility issues and some cancers.**Late last year, the Environmental Protection Agency (EPA) declared two of the chemicals as hazardous substances, which not only clears the way for quicker cleanup of the toxic compounds, but could possibly make 3M Co. responsible for billions of dollars over PFAS liabilities.  3M Co. has just recently announced it would stop using the chemicals in its products by 2025, but existing chemicals will remain in the environment, while questions about replacement chemicals are being considered.  Meanwhile, Minnesota has been working to clean up water supplies using funds from an **$850 million settlement** struck with 3M in 2018 after suing over environmental contamination.

3.  Found in fast-food wrappers, firefighting foams, nonstick cookware, carpeting, water-repellent sports gear, dental floss, cosmetics, and countless other consumer products, **PFAS**(per- and polyfluoroalkyl compounds) chemicals are in our air, water, and soils throughout the world, and are even found in the bodies of polar bears.  A recent study revealed levels of PFAS in rainwater that exceeded the limits set for drinking water by the EPA.  These man-made chemicals do not degrade over time, making cleanup a difficult and costly effort, with few known ways of completely destroying the substances.  The Defense Department recently banned the incineration of PFAS, while landfills will fail to contain them, with many landfills no longer accepting waste known to be contaminated with PFAS.   The Minnesota Pollution Control Agency (MPCA) is researching several approaches to cleanup and the destruction of these "forever chemicals," but given proprietary methods and nondisclosure agreements in the PFAS destruction industry, it may be difficult to assess what actually works.

4.  Lead, a neurotoxin that is unsafe for any living creature at any level, can have serious and irreversible effects on **brain development and a wide range of organ systems.** According to the Minnesota Environmental Partnership (MEP), Minnesota still has nearly **100,000 lead drinking water service lines** across the state contaminating drinking water.  While lead has been **prohibited** in paint since 1978, water pipes since 1986, and gasoline since 1996, it is still used in the production and use of **lead fishing tackle and ammunition** across Minnesota.  The Minnesota Dept. of Natural Resources (DNR) estimates that **40% of Minnesota trumpeter swan deaths** are due to lead poisoning, while common loons and bald eagles are experiencing population-level impacts from lead poisoning.  In 2020, food shelves in Minnesota had to discard over **7% of all donated venison** due to lead contamination, while it is estimated that over **half a million pounds a year** of tainted meat is consumed by hunters and their friends and families.  LET YOUR POLICY-MAKERS know that it is time to get the lead out of Minnesota.

CLIMATE GEO-ENGINEERING

The failures of governments around the globe to reduce greenhouse gas emissions, and the continued increase in global temperatures are making it clear that the Paris Agreement goal of 1.5C maximum rise in global temperatures will not be achieved without more drastic measures. Numerous proposals for a geo-engineering approach have been considered, including: 1) fertilizing the oceans to increase plankton growth and uptake of CO2 from the atmosphere; 2) giant mirrors placed in space to reflect sunlight away from the earth; and 3) injecting reflective particles or radiation-absorbing aerosols into the stratosphere to reduce sunlight reaching the earth (solar radiation management).

These proposals are causing considerable controversy among climate scientists, raising monumental questions about the potential, but unknown impacts of such drastic attempts to manage climate outcomes. Some climate scientists are arguing for international agreements/treaties to ban such "technological fixes", because such efforts would divert attention and discourage the current global efforts to replace fossil fuels with renewables. And they argue that there is no global governmental mechanism to coordinate global experiments. Others, such as the U.N. Environmental Program and some billionaires, like George Soros and Bill Gates, are proposing research and demonstration projects to test such climate management schemes.

Sources: Time, 2/24/23; Axios, 2/25/23; Inside Climate News, 2/27/23

OUR POISONED BODIES

In the mid-late 1900s various industrial chemicals were found widely dispersed in the environment and as toxic contaminants in human tissues (e.g. DDT, PCBs). Many health and environmental effects were eventually discovered and uses of these chemicals were curtailed or banned. Humans still carry small body burdens of these chemicals and undoubtedly we are experiencing serious chronic health effects from the many years we were exposed. Now we are facing a similar situation from numerous newer chemicals/products that were characterized as harmless by their manufacturers. Below are a few examples:

\*\*Micro-plastics, the result of environmental fragmentation of different plastic wastes, are now contaminants in every ecosystem and organism on earth, including humans. Human effects include inflammation, low sperm counts and smaller babies. Some of the health effects of these small plastic particles may result from the hundreds of chemicals used to make plastics. Source: Fast Company, 6/11/22

\*\*Glyphosate, the active ingredient in Roundup weed killer, was marketed to be " as safe as table salt" and it has become the most used herbicide in the U.S. Recent studies have shown that glyphosate is toxic to DNA, is found in 80% of U.S. adults and children, and is now classified as a human carcinogen by the European Union. Early life exposure to glyphosate causes liver inflammation and metabolic disease in humans. Source: CBS News, 7/12/22

\*\*PFAs, the so-called "forever chemicals", are now found in all ecosystems on earth and in most organisms, including humans. They are common in 80% of U.S. waterways and most sewage treatment discharges. They are bioaccumulated and found in human blood and breast milk. Some of these chemicals are known to cause immunological, hormonal and thyroid toxicity, and are classed as carcinogens. They readily pass through the placenta into the human fetus. Source: The Guardian: 10/18/22; 10/28/22