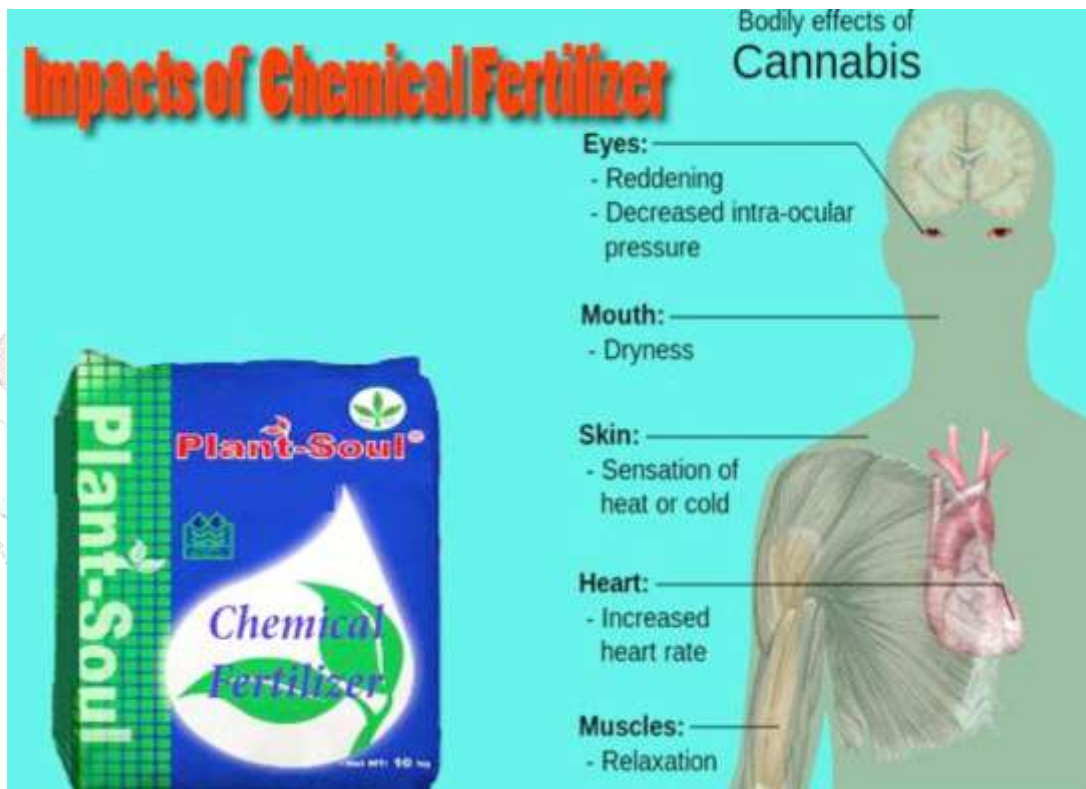


Harmful Effects of Chemical Fertilizers In Human Body

Chemical fertilizers have been linked to a myriad of health problems including cancer, reproductive health problems, neurological problems, and birth defects. According to the journal *Cancer*, children with non-Hodgkin's lymphoma were three times more likely to have grown up in a home that was treated by a professional exterminator and seven times more likely than healthy kids to have grown up in a home where pesticides were sprayed.



The Harmful Effects of Chemical Fertilizers And Pesticides

When you live in the beautiful state of Florida, our warm climate makes lawn maintenance a year-round job. At Bio Green of Orlando, our experienced lawn care technicians are happy to do the work for you. We have a passion for protecting the environment that we work on, which is why we avoid the use of chemical pesticides and chemical insecticides as much as possible. Today, we would like to discuss some of the negative impacts of traditional chemical fertilizers and chemical pesticides.

Links To Health Problems

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They Are Harmful To Children

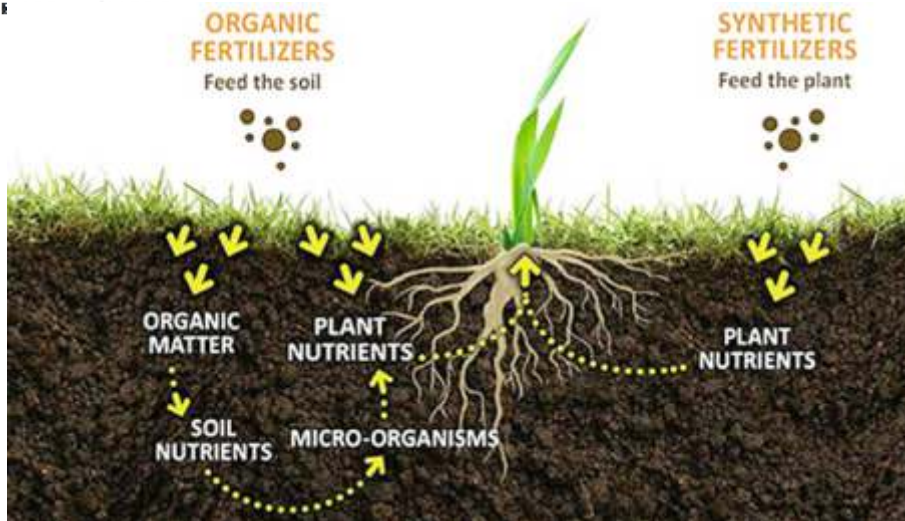
Children are much more vulnerable to chemical pesticides than adults because their bodies are still growing. According to John Wargo, the director of the Yale Center for Children's Environmental Health, over 90 percent of pesticides and their accompanying ingredients are “never tested for their effects on developing nervous systems.” Not only are children smaller than adults, but their organs are still developing, which heightens the effects of chemical exposure to their bodies. Your pets are also smaller than most adults, which makes them vulnerable to the negative effects of chemicals as well.

Groundwater Contamination

One of the biggest problems with chemical fertilizers and chemical pesticides is that it contaminates our groundwater systems. Urea, a popular chemical fertilizer, releases nitrous oxide in a chemical process that contributes to acid rain, groundwater contamination, and ozone depletion. As people continue to use urea to fertilize their lawns, some project its resulting pollution to increase seven times. According to the ESA, chemical groundwater pollution contributes to reduce crop growth levels and increase the production of allergenic pollens.

Indoor Pollution

Just because you may use chemical fertilizers or pesticides on your lawn does not mean that the inside of your home is chemical-free. You, your family, and your kids easily track the chemicals inside of your home, which can be absorbed into your skin and your lungs. According to William Baue of the Children's Health Environmental Coalition, the chemicals that rapidly decompose in the outdoors can live for years “buried in carpet fibres, furniture, and stuffed toys.” Considering the heightened negative impact of chemicals on your children and pets, this information is particularly alarming. The EPA ranks indoor air pollution as one of the top four environmental health risks in our country, so the use of toxic chemicals on your lawn needs to be avoided as much as possible.



A farmer pouring chemical fertilizer.

Chemical fertilizers have aided farmers in increasing crop production since the 1930's. While chemical fertilizers have their place increasing plant nutrients in adverse weather conditions or during times when plants need additional nutrients, there are also several harmful effects of chemical fertilizers. Some of the harm chemical fertilizers may cause include waterway pollution, chemical burn to crops, increased air pollution, acidification of the soil and mineral depletion of the soil.

Waterway Pollution

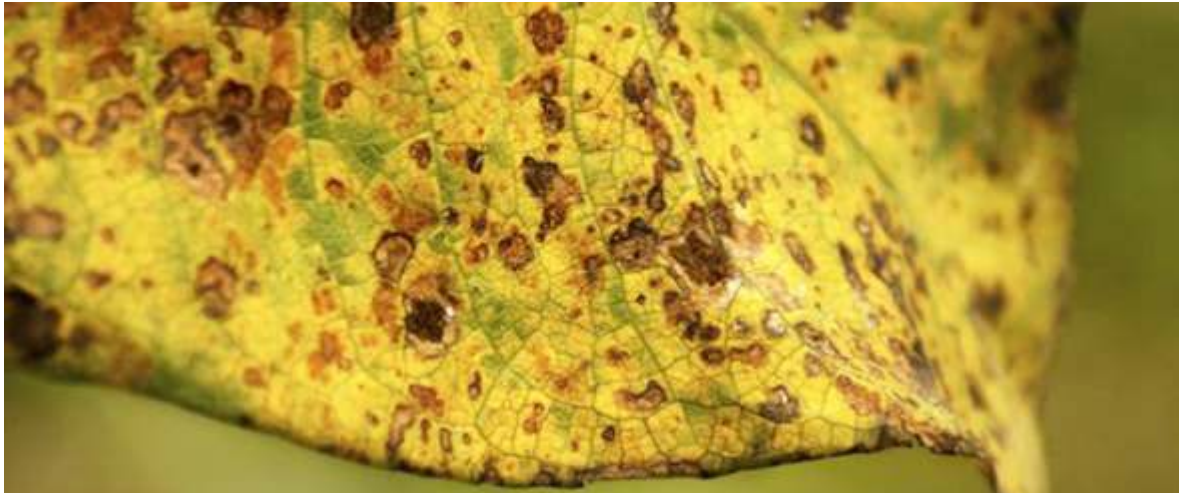


Water polluted by chemical fertilizers.

Image Credit: Ingram Publishing/Ingram Publishing/Getty Images

The use of chemical fertilizers on crops can have adverse effects on waterways caused by chemical run off of the excess fertilizer. The over-abundance of nutrients in the water reduces the amount of oxygen. The existing organisms living in the water use up the oxygen that is left. The result is oxygen depletion causing the fish to die.

Chemical Burn



Chemical leaf scorch can cause the plant to wither and die.

Chemical fertilizers are high in nutrient content such as nitrogen. Over-application of chemical fertilizer to plants may cause the leaves to turn yellow or brown, damaging the plant and reducing crop yield. This condition is known as chemical leaf scorch. Leaf scorch can cause the leaves of the plant to wither and may cause the plant to die.

Increased Air Pollution



An ice berg melting due to increased water surface temperature.

Excess nitrogen used in crop fertilization can contribute to the release of greenhouse gases such as carbon dioxide and nitrous oxide into the atmosphere. This effect is caused by using a greater amount of chemical fertilizer than the plants can readily absorb. According to the National Oceanic and Atmospheric Administration (NOAA) Climate Monitoring and Diagnostics Lab, excess greenhouse gases trapped in the atmosphere may be contributing to the increase of land and ocean surface temperatures.



Clay soil buffers excess chemical fertilization better than others.

The over-use of chemical fertilizers can lead to soil acidification because of a decrease in organic matter in the soil. Nitrogen applied to fields in large amounts over time damages topsoil, resulting in reduced crop yields. Sandy soils are much more prone to soil acidification than are clay soils. Clay soils have an ability to buffer the effects of excess chemical fertilization.

Mineral Depletion



Increasing chemical fertilizers can deplete the soil of essential nutrients.

There is an increasing concern that continuous use of chemical fertilizers on soil depletes the soil of essential nutrients. As a result, the food produced in these soils have less vitamin and mineral content. According to data produced by the U.S. Department of Agriculture Nutrient Data Laboratory, foods grown in soils that were chemically fertilized were found to have less magnesium, potassium and calcium content.

Fertilizers

Fertilizers are used to provide crops with additional sources of nutrients, such as Nitrogen, Phosphorus, and Potassium, that promote plant growth and increase crop yields. While they are beneficial for plant growth, they can also disrupt natural nutrient and mineral biogeochemical cycles and pose risks to human and ecological health.

Nitrogen

Nitrogen fertilizers supply plants with forms of nitrogen that are biologically available for plant uptake; namely NO_3^- (nitrate) and NH_4^+ (ammonium). This increases crop yield and agricultural productivity, but it also negatively affects groundwater and surface waters, pollutes the atmosphere, and degrades soil health. Not all of the fertilizer that is applied are taken up by the crops, and the remainder accumulates in the soil or is lost as [runoff](#).

Nitrate fertilizers are much more likely to be lost to the soil profile through runoff because of its high solubility and like charges between the molecule and negatively charged clay particles. High application rates of nitrogen-containing fertilizers combined with the high water-solubility of [nitrate](#) leads to increased runoff into surface water as well as leaching into groundwater, thereby causing [groundwater pollution](#). Nitrate levels above 10 mg/L (10 ppm) in groundwater can cause "[blue baby syndrome](#)" (acquired methemoglobinemia) in infants and possibly thyroid disease and various types of cancer.

Nitrogen fixation, which converts atmospheric nitrogen (N_2) to more biologically available forms, and denitrification, which converts biologically available nitrogen compounds to N_2 and N_2O , are two of the most important metabolic processes involved in the nitrogen cycle because they are the largest inputs and outputs of nitrogen to ecosystems. They allow nitrogen to flow between the atmosphere, which is around 78% nitrogen) and the biosphere. Other significant processes in the nitrogen cycle are nitrification and ammonification which convert ammonium to nitrate or nitrite and organic matter to ammonia respectively.

Because these processes keep nitrogen concentrations relatively stable in most ecosystems, a large influx of nitrogen from agricultural runoff can cause serious disruption.^[6] A common result of this in aquatic ecosystems is eutrophication which in turn creates hypoxic and anoxic conditions - both of which are deadly and/or damaging to many species.

Nitrogen fertilization can also release NH_3 gases into the atmosphere which can then be converted into NO_x compounds. A greater amount of NO_x compounds in the atmosphere can result in the acidification of aquatic ecosystems and cause various respiratory issues in humans. Fertilization can also release N_2O which is a greenhouse gas and can facilitate the destruction of ozone (O_3) in the stratosphere.

Soils that receive nitrogen fertilizers can also be damaged. An increase in plant available nitrogen will increase a crop's net primary production, and eventually, soil microbial activity will increase as a result of the larger inputs of nitrogen from fertilizers and carbon compounds through decomposed biomass. Because of the increase in decomposition in the soil, its organic matter content will be depleted which results in lower overall soil health.



Harmful Effects of Fertilizers on Health

The Effects of Fertilizers on Health. Synthetic fertilizers can seriously harm your plants and the nutritional content of the foods you are growing. Unfortunately, that's not all they can harm. Direct contact or exposure to the chemicals found in fertilizers can kill infants or cause health problems in many adults.

A study showed that children who live in homes that use synthetic fertilizers and pesticides have over six times a greater rate of getting leukemia. If you're a groundskeeper at say a golf club, beware! This is the most high-risk profession for cancer because of toxic chemicals. What most people fail to understand is that these chemicals do not need to be ingested for them to harm you. Basically just being around them will increase your risk because they are absorbed through the skin. We can see how dangerous are the Effects of Fertilizers on Health.

Potassium, which is a main ingredient in fertilizers, can cause stomach pains, dizziness, diarrhea, convulsions, and mental impairment. Too much of a certain chemical will slowly creep up on you. Your body can only handle so much at a time, so if you start to feel ill it never hurts to check with your doctor!

There are certain steps you can take in your own day-to-day routine to make sure you're protected from these harmful chemicals. First, mow your lawn less often and use the highest setting. The taller the grass the most it will crowd out weeds and form deeper roots. It also uses less water, which is always a plus in our eyes! Don't bag your grass clippings; rather, let them fall back into your lawn as they contain good nutrients. Fertilizing your lawn in the fall and when your lawn is dry is the best for you and the environment because when it's frozen or wet you'll be creating a lot of dirty run off water.

Last but not least, something that so many people brush off is testing your soil to see exactly how much fertilizer is actually needed. You can buy a testing kit at most gardening stores and then you won't be seeping extra chemicals into the grounds around you!

