

Issues of gmo food



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Organic or Inorganic?

Americans should consume more organic foods or foods that contain organic ingredients because it reduces the risk of diabetes, heart disease, certain types of cancer. The term 'organic' means natural/deriving from living organisms or grown without chemicals and harmful pesticides.

"The health of a nation's food system is a critical issue of national security," (Michael Pollan). Diet is important for the human body to function properly. A French study, released in 2018, reported that adults who consumed a larger amount of organic foods had 25% less incidents of cancer than those who did not consume organic foods. The adults who consumed the most organic foods, to include fruits, vegetables, meats, etc., showed a significant drop in the number of lymphomas and postmenopausal breast cancers. There are three common factors found in non-organic foods increasing the risk of major diseases; chemical fertilizers, GMO, and added sugars. Carbohydrates are also a major factor in organic and inorganic foods for the cause of disease.

"Fertilizers is a natural or artificial substance containing the chemical elements that improve growth and productiveness of plants." (Letricia Dixon). They are applied to a soil or plant tissue to supply them with more nutrients essential for their growth. Most fertilizers contain nitrogen, phosphorus, and potassium, also known as NPK.

A few of the ingredients found in chemical fertilizers such as ammonium nitrate are phosphorus, sulfur, ammonia, potassium, and nitrogen.

Ammonium nitrate is not only a common chemical fertilizer, but a deadly explosive. Most Americans are unaware that by using ammonium nitrate as a

fertilizer, it can kill off hundreds and thousands of fish in nearby bodies of water. If it leaches into the plants being fertilized, the high level of acid can potentially burn the plants and cause toxic levels of salt concentrations in the soil causing concern for future crop growth. Ammonium sulfate is rarely used anymore but has been produced for over 150 years and although it is safer than ammonium nitrate, it was originally produced from coal coke used to produce steel, or from the manufacturing process of coal gas and has a negligible effect on the PH in the soil. Chemical fertilizers allow farmers to produce a larger number of crops of higher quality in a shorter amount of time, but the long-term effect that this has on the soil is detrimental.

According to a research study performed by Jafar Massah in 2016, the long-term use of chemical fertilizers causes soil degradation, soil compaction, decreases permeability by 81.4%, available water by 34% as well as an increase in soil penetration resistance, all resulting in poor soil and poor-quality crops. It is more common for farmers to use chemical/synthetic fertilizers because they are cost-effective in the range of \$25-80 per 8,000 square feet.

Organic fertilizers come from decomposed plants and animals and cost significantly more than a chemical/synthetic fertilizer. The environmental impact the organic fertilizers have is *HUGE*. The buildup of toxicity with an organic fertilizer is highly unlikely due to the ability of the organic materials to decompose. Even after the plants being fertilized receive all the nutrients they need; the organic fertilizer continues to replenish and improve the soil for years without harm to bodies of water close by. This type of fertilizer has

been used for thousands of years. The cost of organic fertilizer is about \$50-\$95 per 8, 000 square feet.

GMOs are genetically modified organisms, which means crops are developed with genetic engineering. Genetic engineering, also known as biotechnology, is a method of plant or animal breeding. GMOs are resistant to insects and disease, have a tolerance for herbicide and drought, enhance nutritional content and reduce food waste. The American Academy of Environmental Medicine released studies in 2011 that prove genetically modified foods can leave behind toxic waste inside the human body with potential long-term health risks. Genes that are inserted into genetically modified foods could transfer into the DNA of bacteria living in the human body. This study also showed that chronic illnesses jumped from 7% to 13% in 9 years, just since genetically modified foods were introduced in 1996. These chronic illnesses include autism, food allergies, digestive problems, and reproductive disorders. Due to the genetically modified foods being designed to resist herbicides, they contain a higher, more toxic residue of herbicides. Herbicides are linked to birth defects, cancer, sterility, hormone disruption, water resource pollution, and are unsustainable.

Added sugars are America's number one cause for diabetes and obesity. The American Heart Association recommends no more than 6-9 teaspoons of added sugars per day, that's 24-36 grams of added sugars. The average American consumes about 19.5 teaspoons/82 grams of sugar per day. Added sugars are linked to cardiovascular disease which is America's number one cause of death. Americans who consume more than the recommended amount of added sugars have a 38% higher risk of dying from

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a cardiovascular disease or diabetes. A diet rich in added sugars also causes premature aging, high blood pressure leading to stroke, tooth decay, liver and kidney disease, and obesity. Obesity in America is an epidemic that needs to be stopped.

Ingerid Arbo and Hans-Richard Brattbakk, both NTNU researchers, fed slightly overweight people different diets, studied their genes, and observed the effect the food had on their genes. The researchers found that a diet with an average of 65% carbohydrates causes several genes associated with dementia, type 2 diabetes, heart disease, and some cancers to “work overtime.” According to the scientific research, carbohydrates should only make up 33% of an average person’s diet. However, the Dietary Guidelines for Americans recommends that carbohydrates make up 45-65% of American’s diets. Eating these many carbohydrates causes inflammation in the human body, affecting the genes that are correlated with major diseases. While both organic and inorganic foods contain carbohydrates, carbohydrates act as a sugar, starch, or fiber and are more commonly found in foods higher in added sugars. The carbohydrates consumed by the human body should be healthy carbohydrates that are naturally produced by the product being consumed.

For foods to be USDA certified organic, they must contain 95-100% organic ingredients. Food does not always have to be ‘certified organic’ in order to be beneficial. Foods can be beneficial even if they only contain 70% of organic ingredients. Organic foods or foods that contain organic ingredients have a higher nutritional value because with the absence of pesticides and chemicals, the plants boost their production of vitamins and antioxidants,

also known as phytochemicals. Antioxidants are produced in your body to help prevent cell damage.

Americans like to argue that ALL organic foods are more expensive and that is fallacious. Some organic food prices are higher than non-organic foods and others remain the same price. While organic dairy products such as milk, yogurt, eggs, and cheese on average across America are double the price, grain products such as oatmeal, cereal, brown rice, and bread remain the same price or are lower than inorganic grain products. Other products that do not have a *significant* price change are bananas, grape juice, and frozen chicken breasts (varying by store).

If Americans incorporate higher amounts of organic foods in their diets, the rate of chronic, deadly diseases and obesity across the country would drop significantly. Over all, there are several organic products that have little to no change of price in comparison to the inorganic foods. Americans should also take into consideration the difference in price of the foods they consume versus what the price of their health care costs would be if they develop a chronic illness. If the people of America still find expense to be the main issue, they can still consider buying foods that, at minimum, *contain* organic ingredients or foods that exclude the added sugars, and GMOs. The amount of carbohydrates in the foods they are consuming and whether they are naturally derived carbohydrates or “man-made” carbohydrates that are acting as a sugar, starch, or fiber should be taken into consideration as well. Eliminating chemical fertilizers and incorporating higher amounts of healthier carbohydrates as well as organic foods, will make America a *healthier* country.

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