Outline

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Pesticides are overused and cause a variety of problems for the environment. Pesticides are used by homeowners as well as farmers to prevent and treat problems with pests. Homeowners use pesticides to prevent weeds from growing in their lawns as well as to ward off mice, rats, and insects from their homes. Farmers use pesticides to prevent insects and other pests from destroying the crops that are planted. Homeowners use more pesticides per acre than farmers do. Pesticides are released into the environment during their production, transport, improper storage, use, etc. Pesticides are released into the environment when they are mixed and moved into storage tanks, sprayed, and rinsed from equipment. A common herbicide, glyphosate, is released into the environment in high concentrations during its production.

This overuse of pesticides can cause short and long term health damage to wildlife, people and insects. Human health effects include multiple forms of cancer, heart problems, damage to DNA, birth defects, paralysis, and damage to various organ systems. Pesticides can be toxic to organisms that aren't directly targeted, such as birds, fish, beneficial insects, and pets. Bees are an especially vulnerable and essential species which are negatively affected by pesticides, which also affects the plants that they assist through pollination. Atrazine can inhibit photosynthesis in vulnerable herbs which could end in the extinction of some of these herbs.

Removal of pesticides from the environment through various methods. Pesticides can be removed from water by filtration. New pesticides can be formulated for use in urban areas. Physical adsorption is an inexpensive technique to remove certain harmful substances from water. Chemical treatment practices are also used to cleanse water, such as iron-enhanced sand filters, chlorination, and advanced oxidation processes. Sodium persulfate is used as an oxidizing agent in removing 17 different pesticides. It is photolyzed to form free radicals, which oxidize the pesticides into smaller and smaller materials, and eventually become carbon dioxide and water. Ozonation can remove up to 100% of certain pesticides from wastewater. Pollutants can be photodegraded with UV rays when combined with other techniques. Carbon-based pollutants can be efficiently oxidized with hydrogen peroxide and a ferrous solution to remove 98.5-100%

of organophosphate pesticides from wastewater. Hybrid technologies are the best way to remove pesticides. It is important to consider toxic byproducts when choosing a treatment technique.