

Composting Hazards

Compost is an accumulation of degrading food scraps, plants and other nutrient-rich organic matter. It is an easy and environmentally responsible way to dispose of biodegradable kitchen waste, which can then be returned to the soil as fertilizer for vegetable and flower gardens.

Composting is Good

- Composting helps to reduce the volume of material in landfills.
- Compost is used to improve soil structure and provide nutrients for growing plants.

So, what's wrong with composting? The benefits of the practice are generally well-known, but few people are actually aware of the potential hazards and dangers composting can pose.

Diseases Contracted From Handling Compost

Compost can be a breeding ground for dangerous pathogens, some of which have killed or seriously harmed unsuspecting gardeners. Inspectors should familiarize themselves with these illnesses, some of which can be contracted in other parts of the house. Listed below are some of the more common physical ailments that can result from unprotected contact with compost:

- **Aspergillosis** is a fungal infection of the lungs that is caused after the inhalation of a fungus commonly found in rotting plant matter. While normally not life-threatening, aspergillosis can be extremely dangerous if enough spores are inhaled. The disease killed a 47-year-old British man after he was engulfed in clouds of dust from the compost he had intended to use in his garden.
- The symptoms of **Farmer's Lung** resemble pneumonia, and may result from respiratory exposure to certain fungal and bacterial pathogens present in rotting organic materials, such as mushrooms, hay and sugar cane. Beware of dusty white patches, as they are a sign that dangerous spores are present. Farmer's Lung can usually be treated with antibiotics.
- **Histoplasmosis** is caused by fungus that grows in guano and bird droppings. Healthy immune systems can usually fight off histoplasmosis, although infections can become serious if large amounts of the toxin are inhaled, or if the infected person has a weakened immune system.
- **Legionnaire's Disease** is a respiratory infection that's caused by the inhalation of *L. Longbeachae*.
- **Paronychia** is a local infection that occurs in the tissue around the fingernails and toenails. Prolonged moisture and the abrasive effects of soil can create openings in the skin that allow the infection to occur, producing pain and throbbing.



- **Tetanus** is a disease of the central nervous system that's caused by bacteria that is very common in soil. While even a minor cut can allow the bacteria to enter the bloodstream, immunizations against tetanus are quite common.

How to Avoid Potential Hazards of Composting

The following general safety precautions should be followed in order to avoid transmission of dangerous fungi, bacteria and other pathogens found in compost:

- Always wear dry, breathable gloves to avoid direct contact with the skin, and to protect yourself from injury while using gardening tools and implements.
- Wear protective footwear that covers your skin adequately to avoid direct contact with compost. Do not wear them anywhere except outdoors.
- When stirring and tilling the compost, which is required on a regular basis in order for it to process and break down, always wear a nose and mouth guard or dust mask to avoid inhaling the various spores that will become airborne during tilling and turning.
- Avoid tilling on windy days.
- Do not store compost in fully closed or airtight containers. Without any air, it can actually become combustible.
- Wash your hands after dealing with compost. While this suggestion may sound obvious, many garden enthusiasts get so absorbed with their activities that they forget the potential dangers from poisoning.
- If you develop a severe cough or infection of the skin (especially if there is an open sore or puncture wound), seek medical attention immediately. You may require antibiotics or a tetanus shot.

Compost Fires

Surprisingly, a great deal of heat is created by the microbial activity, which is occasionally enough to cause a fire. In August 2009, a compost pile spontaneously combusted at the Saginaw Compost Facility in Saginaw, Michigan. However, these fires are extremely rare, as they occur only under a limited set of circumstances that would ordinarily be avoided using common sense.



According to the Alberta, Canada's Department of Agriculture, the following key conditions must be met in order for a compost pile to light itself on fire:

- dry materials that go unattended;
- biological activity;
- dry pockets of debris among a non-uniform mix of materials;
- large, well-insulated piles;
- limited air flow;
- poor moisture distribution due to neglect or oversight in monitoring; and
- unknown temperature within the pile, and time for the temperature to build up.

WARNING: While self-incineration of compost is possible, compost piles probably catch fire more often from ordinary sources, such as lit cigarettes or electrical mishaps. Also, gardeners who use ash from incinerated trash or the fireplace sometimes neglect to make sure that the ash has cooled sufficiently before adding it to the compost pile.

Inspectors can offer their clients the following tips to help avoid compost fires:

- Assure adequate ventilation of the pile to release heat. Turn the pile or use a mechanical aeration system to ensure ventilation. Narrow, short piles generally have adequate ventilation.
- Do not turn a pile that is smoldering, as the sudden infusion of oxygen can cause the pile to erupt into flames.
- Do not let the pile get too dry. The University of Missouri states, “Organic material can ignite spontaneously due to biological activity at moisture contents between 26 to 46% moisture, if the temperature exceeds 200° F.”
- Monitor the pile’s temperature, focusing on the hottest spot in the pile. Use a thermometer long enough to reach the center of the pile. Do not let the pile get too hot. If the temperature of the pile exceeds 160° F, reduce the temperature through the following methods:
 - reduce the size of the pile;
 - add water to 55% moisture;
 - mix in coarse, bulky material, such as wood chips; and
 - do not pile compost next to buildings or any flammable structures, as fire can spread easily.

Compost-Friendly Pests

Worms are often added to compost piles to aid in the breakdown of organic matter. But if the compost piles are not constructed and maintained properly, they have the tendency to attract unwanted pests. Flies, termites and beetles are attracted to the smell of decay, and they, in turn, will attract larger



predatory critters to the pile. Use the following pest-control tips:

- Do not compost eggs, meat, oils, bones, cheese or fats. Compost piles should be "vegetarian."
- Bury the compost with soil or leaves to contain the smell and to aid with the biodegrading process.
- If using a portable composter, make sure it has a cover that will discourage the entry of pests and animals.
- Beware that enclosed compost piles can overheat and create high levels of dangerous gasses, such as methane, so be sure to rotate the container or till the pile daily.
- Do not place compost near a building. In addition to the fire concerns, compost placed adjacent to buildings can promote infestation.

NOTE: These practices can also mitigate the foul smells that can plague compost piles. In summary, the benefits of compost piles can be quickly eclipsed by health hazards and nuisances if they are not designed correctly and maintained properly.