Health Impacts of Pesticides

A Town of Falmouth Fact Sheet

To safeguard the health and welfare of Falmouth residents and to conserve and protect Falmouth's environment, water, and natural resources, Falmouth's Conservation Commission has proposed a Pesticide/Fertilizer Ordinance to regulate, and sometimes prohibit, the use and sale of outdoor pesticides and fertilizers in the community.

Pesticides and Our Health

We are exposed to low levels of pesticides every day. Pesticides and their chemical ingredients contaminate our water, soil, and air. They enter our bodies through eating, drinking, breathing, and by contact with skin. The active ingredients used in pesticides have been linked to numerous health effects, including skin irritation, respiratory issues, and some cancers. According to the EPA, the health effects of pesticides depend on the type of pesticide. Some, such as the organophosphates and carbamates, affect the nervous system. Others may irritate the skin or eyes. Some pesticides may be carcinogens. Others may affect the hormone or endocrine system in the body. The proposed Pesticide and Fertilizer Ordinance prohibits the use of most synthetic pesticides on all public and private property to protect the health of our people, pets, pollinators, and waterways.

SHORT-TERM EFFECTS

- Skin rashes
- Nausea
- Diarrhea

LONG-TERM EFFECTS

- DNA defects and resultant mutations
- Cancer
- Parkinsonism
- Kidney damage
- Developmental disorders in children (including behavior changes, delayed milestones, learning disabilities, ADHD, and emotional disabilities)

Pesticides and Our Environment

Many synthetic pesticides are harmful to pets, wildlife (including threatened and endangered species), soil microbiology, plants, and natural ecosystems. Water quality testing by the Friends of Casco Bay has demonstrated that pesticides are known to migrate off lawns and other properties and flow into the Casco Bay estuary. In some cases, these pesticides were detected in stormwater flowing into Casco Bay in amounts that the EPA has determined may be harmful to fish and other aquatic life. Scientists have stated that crustaceans, including amphipods and lobsters, face numerous risks from pesticide exposures, even at low levels.

Most Common Active Ingredients Applied in Falmouth*

Bifenthrin	Lambda-cyhalothrin	Imidacloprid	Dimethylamine Salt of 2,4-D

*See reverse for health impacts specifically related to these most commonly applied ingredients.

Health Impacts of Pesticides

A Town of Falmouth Fact Sheet

Most Common Active Ingredients Applied in Falmouth

Bifenthrin

The most common ingredient in pesticides and the second most common ingredient in fertilizers that were applied to Falmouth lands by professional applicators in the past three years. It is an insecticide within the pyrethroid family and widely used against ant infestations. Exposure (i.e., inhaling) can cause sneezing, coughing, and wheezing and sometimes headaches, dizziness, convulsions, tremors, and passing out. The EPA has classified bifenthrin as a Category C product, a possible human carcinogen. This rating is based on an increased rate of urinary bladder tumors in mice, adenoma and adenocarcinoma of the liver in male mice, and bronchoalveolar adenomas and adenocarcinomas of the lung in some female mice.

Imidacloprid

The third most common ingredient in pesticides that were applied to Falmouth lands by professional applicators in the past three years. It is a neonicotinoid, which can decrease the effectiveness of the immune system and potentially cause tremors and thyroid lesions. A review of the available literature indicates that imidacloprid poisoning can involve gastrointestinal, cardiorespiratory, and nervous systems or it can be multisystem and life threatening. The State of Maine prohibited the use of this ingredient in 2021.

Lambda-cyhalothrin

The second most common ingredient in pesticides that were applied to Falmouth lands by professional applicators. Lambda-cyhalothrin also belongs to the group of chemicals called pyrethroids. It can produce symptoms of facial tingling and burning sensations, frequently accompanied by sneezing or coughing. Lambda-cyhalothrin may also cause irritation to the skin, throat, nose, and other body parts if exposed.

Dimethylamine Salt of 2,4-Dichlorophenoxyacetic Acid

The fourth most common ingredient in pesticides that were applied to Falmouth lands by professional applicators in the past three years. Also known as Weed-B-Gone, it is an herbicide and secondarily a plant growth regulator. The EPA states that 2,4-D generally has low toxicity for humans, except that certain acid and salt forms can cause eye irritation. In addition, the following symptoms may occur immediately or shortly after high level exposure to 2,4-D: severe burning in the throat and chest, skin rash, stiffness of arms and legs, lack of coordination, drowsiness, loss of appetite, vomiting, liver and kidney function changes, and stupor and coma at very high levels. Studies have found that exposure to 2,4-D appears to increase the risk of lymphoma (a type of cancer affecting the immune system). Long-term or high-level exposure may result in kidney and liver damage, and there is some evidence that suggests high-level exposure during pregnancy may increase the risk of certain birth defects.

Select Bibliography

- Taylor, Bruce, PhD., University of Maine. “Pesticides and Human Health,” October 9, 2018.
- Lorenz, E. S. *Potential Health Effects of Pesticides.* (2022, June 30). PennState Extension. https://extension.psu.edu/potential-health-effects-of-pesticides
- National Institute of Health, “Imidacloprid Poisoning: An Emerging Cause of Potentially Fatal Poisoning,” *Indian Journal of Critical Care Medicine,* 2017 November 21 (11): 786-788.
- National Environmental Public Health Tracking, Center for Disease Control & Prevention, *“Pesticide Exposure,”* https://www.cdc.gov/nceh/tracking/topics/PesticideExposure.htm.
- Wisconsin Department of Health Services, https://www.dhs.wisconsin.gov/chemical/24d.htm, June 15, 2022.
- Town of Falmouth, Maine, “Professional Applicator Registration and Reporting Data,” 2021, 2022.