

Pest and Disease Management of Urban Fruit Trees: How to Manage Your Backyard Fruit Tree



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Background

- Pests and diseases are a serious issue for fruit trees. It is essential that fruit trees are properly managed in order to prevent further spread and high populations.
- However, managing fruit trees can be difficult for backyard tree owners in an urban setting. The conventional management methods used for commercial orchards are not always applicable or best for managing urban fruit trees.
- Backyard fruit tree owners can instead utilize an integrated pest management (IPM) approach to manage prevalent pests and diseases such as codling moth, spotted wing drosophila (SWD), and pear rust in their urban fruit trees.



Figure 1. Pear rust infected pear leaf. Photo by Throckmorton Plant Sciences

Figure 2. 1/8-inch-long male spotted wing drosophila. Photo by Mike Bush (Brun & Bush, pg.17, 2013).



Research Question

What methods of managing codling moth, spotted wing drosophila, and pear rust in urban fruit trees are most effective, accessible, and practical for backyard fruit tree owners?

Internship & Methods

- I interned with City Fruit and completed a literature review researching best methods of managing codling moth, SWD, and pear rust.
- In addition, I interviewed orchardists, organic farmers, and community gardeners with expert fruit tree care knowledge.
- To conclude best practices, I combined first-person accounts from experts with current literature.

Results

Two key findings on best practices of pest and disease management:

- Prevention of pests and diseases can eliminate the issue before it begins.
 - To do this, buy pest and disease resistant cultivars (varieties that are selectively bred to be pest or disease resistant)
 - Evaluate your commitment and ability to manage your tree.
- If prevention is unattainable, consistent integrated pest management (IPM) of fruit trees is essential.
 - There are **four main IPM methods** of management that are best for pests such as codling moth and SWD:

Netting: cover tree fully with a mesh net wide enough to be tied at the base of the tree trunk, as demonstrated in *Figure 5*.

Banding: for codling moth, band tree trunks with cardboard during winter months to encourage larvae to form cocoons in the cardboard

Trapping: for SWD, set apple cider vinegar traps to catch and identify the first SWD of the season

Organic pesticides: utilize organic pesticides like Spinosad against both SWD and codling moth

- There are **two main IPM methods** for managing pear rust:

Physical removal: remove nearby host plants, such as Juniper and Cedar trees to prevent the initial spread of the disease

Fungicides: apply fungicides before rust is visible on the leaves. Mixtures of lime-sulfur, sulfur, and Bordeaux all can be used as a fungicide

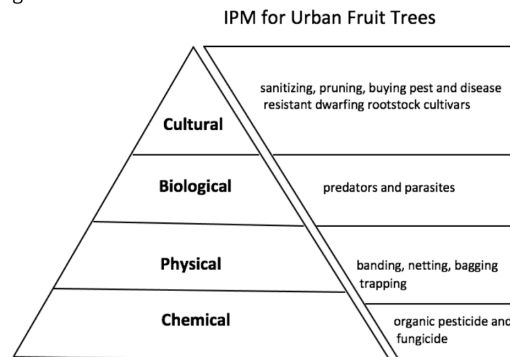


Figure 3. Infographic describing the different types of methods in the IPM framework, including chemical, biological, physical, and cultural methods.

Significance

- A single unmanaged fruit tree can cause a spread of pest and diseases through an entire urban area and have serious impacts on fruit production.
- As annual fruit production decreases due to high pest populations, food insecurity issues increase.
- Pests and diseases are a natural part of fruit tree ecosystems.
- However, it is essential to provide backyard tree owners with the knowledge and methods necessary to keep pest and disease populations low, in order to prevent food insecurity and damage to the urban environment.

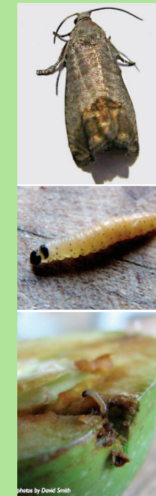


Figure 4. Codling moth adult (top), Larvae (middle), Larvae infested fruit (bottom). Photo by City Fruit



Figure 5. Netted fruit tree done in beginning of April to manage codling moth. Photo by City Fruit

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