



# Guide to Pest & Disease Control Materials McLean Urban Agriculture Tool Library

PHS McLean Urban Agriculture Tool Library at Glenwood  
Green Acres, 1801 W Glenwood Ave, Philadelphia, PA 19132

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This pamphlet will outline the uses and safe handling instructions  
for the Chemical Controls offered by the McLean Urban Agriculture Tool Library.



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**At the McLean Urban Agriculture Tool Library**, gardeners have access to additional grower supplies which support OMRI compliant pest and disease management. The foundations of Integrated Pest Management (IPM) and pathogen control for growers, both commercial and at the home scale, rely on creating healthy, ecologically diverse systems in the garden which support overall plant health. Like us, our crops will be more resilient against pathogens and pests if they are in good health and properly cared for. However, some spray applications are often still needed to help our gardens thrive and meet the needs of our communities.

The **four** primary approaches to managing your garden's IPM practices include:

## Cultural Controls

Cultural controls include growing practices which mitigate the establishment of diseases and pests in the garden. These include practices like creating airflow, intercropping, planting items which attract beneficial insects, proper trellising, pruning, proper watering, crop rotation, soil nutrient management, and so on.

## Physical Controls

Physical controls tend to be applications of physical barriers & mechanisms which block out pests. Examples of physical controls include insect netting, remay, mouse traps, sticky traps, natural and synthetic mulches.

## Chemical Controls

Chemical controls are often spray applications which manage pests and diseases. They are often considered a last resort for growers; however, some chemical controls can be used sparingly and in conjunction with other practices to manage issues very effectively in the garden until a long-term resilient solution established.

## Biological Controls

While more difficult to source for the home gardener, biological controls are available through multiple retailers. These "natural enemies" are introduced as competitors into your garden system. Beneficial insects and nematodes are examples of this.

When these controls are used simultaneously to develop a comprehensive pest and disease management plan, keeping up with daunting pests can become simplified.

## Safe Handling of Spray Applications

It is important to protect yourself & others against excessive exposure to spray applications, no matter how “safe” or “organic” a product is.

We always recommend that persons applying spray applications wear Personal Protective Equipment including:

- Shoes & Socks
- Long sleeve shirts
- Long pants
- Waterproof gloves
- Eye Protection
- Mask when handling/mixing applications

Wash any exposed PPE/equipment separately from other items. Collect runoff into a bucket.

### Other Guidelines:

- Never let garden chemicals run off into storm drains.
- Never apply spray applications with broken equipment.
- Never apply spray applications in greenhouses with fans on.
- Never apply spray applications on windy or rainy days.
- Do not apply spray applications on paved surfaces.
- Keep all measuring tools for the garden separate from those used for food.

Keep chemicals contained and securely store them away from children and pets.

If garden chemicals are ingested, please call your local poison control.

Only mix as much of a garden chemical as you intend to use.

Do NOT pour leftover garden chemicals into storm drains, down the sink, or in the toilet- this pollutes water and treatment plants are not designed to remove these chemicals from water.

Leftover chemicals can be brought to your local recycling center/hazardous waste-site

**For more information, please refer to each product's online manuals.**

## NuFilm

**What it does:** Nu-Film is a "spreader sticker." It does not manage pests or disease by itself, but it does increase the active life of spray applications by improving contact and adhesion. Nu-Film forms a soft, elastic film which holds the spray application on the crop foliage and reduces rainfall and overhead irrigation erosion of the spray residue.

**How often to use it:** as needed with paired spray application

**Dilution & Application:** ½-1 tsp/gallon. Fill sprayer halfway with water, insert primary spray application, add NuFilm last, fill up the rest of the sprayer with water and agitate. Apply at least one hour, during daylight, before an anticipated rain. Sunlight, direct or indirect. This period is needed for the film to set, film will withstand about 1 inch of rain for seven to ten days, thus ensuring that pesticide sprays are not lost shortly after application.

## Monterey Spinosad

**What it does:** Protects against foliage feeding worms and caterpillars (including leaf miners, thrips, fire ants, army worms, cabbage loopers, cabbageworms, Colorado potato beetles, corn earworms, corn borers, tomato fruit worms, and tomato hornworms)

**How often to use it:** 5-10 day intervals

**Dilution & Application:** 2 oz/gallon. Fill sprayer with water and add corresponding amount of Monterey Spinosad. Spray application. Apply to both tops and bottoms of leaves. Toxic to bees for 3 hours following treatment. Toxic to aquatic invertebrates. Apply up to 1 day before harvest.

## Neem Oil

**What it does:** Protects against insects (including adelgids, aphids, scale insects, mites, mealybugs, and certain species of moth) and diseases (including powdery mildew, rust, greasy spot, botrytis)

**How often to use it:** as needed

**Dilution & Application:** 1-2oz/gallon. Fill the sprayer with warm water. Mix neem oil & emulsifier (squirt of dish soap) separately, then pour into sprayer. Can be used throughout plant life cycle during the growing season to prevent pest infestations and disease. See bottle for more details.



## Surround

**What it does:** Surround is a broad-spectrum crop protectant for controlling damage from various insects and diseases and protecting against sunburn and heat stress. Controls pest and diseases (including apple maggot, codling moth, Colorado potato beetle, cucumber beetle, fig beetle, Japanese beetle, leafhopper, lesser apple worm, olive fruit fly, oriental fruit moth, powdery mildew, pear psyllid, plum curculio, rose chafer, stink bugs, thrips)

**How often to use it:** weekly

**Dilution & Application:**  $\frac{1}{4}$ - $\frac{1}{2}$  lb./gallon. For sprayers difficult to shake, premix in a 5-gallon bucket and pour suspension into sprayer. Fill bucket with desired amount of water, add corresponding amount of Surround WP. Shake/mix vigorously. Apply in sprayer or dip trays of seedlings before transplanting for protection in field. For crops that will not be washed, only apply in early season to avoid residue.

## DiPel

**What it does:** Protects against leaf-eating caterpillars (gypsy moth, tent caterpillar, cabbage looper, tomato hornworm, leafroller, and more)

**How often to use it:** 3-14 day intervals

**Dilution & Application:**  $\frac{1}{4}$ -1oz. Fill sprayer with  $\frac{1}{2}$ - $\frac{3}{4}$  amount of desired water. Add corresponding amount of DiPel. Add the remaining volume of water and agitate. Larvae must eat deposits of DiPel to be affected. Spray application.

## Regalia

**What it does:** Boosts plants natural defense mechanism against certain fungal and bacterial diseases. Protects against: Alternaria fruit rot, Anthracnose, Black spot, blight Botrytis, Crown rot, Powdery mildew, Pythium, Phytophthora, Rhizoctonia, Verticillium wilt

**How often to use it:** 5-14 day intervals

**Dilution & Application:** 1 oz./gallon. Fill sprayer with  $\frac{1}{2}$ - $\frac{3}{4}$  amount of desired water. Add corresponding amount of Regalia. Add the remaining volume of water and agitate. Do not mix with other applications. Spray application.



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