

# Green Gardening Solutions for Nurseries

**Manage pests, weeds & disease *without* toxic pesticides**

Nurseries and commercial greenhouse operators have tough pest issues not always faced by home gardeners. **This guide covers effective ways that nurseries can solve pest, weed and disease issues without using toxic pesticides.** The guide is organized in sections by the type of problem that a nursery might be facing.

## Additional Resources

- Northwest Center for Alternatives to Pesticides- [www.pesticide.org](http://www.pesticide.org)
- Garden Green- [www.gardengreen.org](http://www.gardengreen.org)
- Grow Smart, Grow Safe- [www.growsmartgrowsafe.org](http://www.growsmartgrowsafe.org)
- Bio-Integral Resource Center- [www.birc.org](http://www.birc.org)



## Insects

SOLUTION	USED FOR	INGREDIENTS	NOTES
<b>EcoSMART Ant &amp; Roach Killer</b>	Ants and cockroaches	Peppermint oil, rosemary oil, water, isopropyl alcohol, wintergreen oil, white mineral oil, polyglyceryl oleate, sodium benzoate, vanillin, nitrogen	
<b>Live Ladybugs</b>	Aphids		Good for greenhouses. Proper timing of releases is very important.
<b>EcoSMART Insect Killer Granules</b>	Crawling insects	Clove oil, thyme oil, sesame oil, corn cobs, wintergreen oil	Use granules version only
<b>Floating Row Covers</b>	Flea beetles, cabbage moths, other insects	Non-woven garden fabric	
<b>Red Mustard Trap Crop</b>	Flea beetles		Plant near hard surface where flea beetles live. As soon as you see damage to red mustard, flame weed paths and mustard.
<b>Terro Fruit Fly Trap</b>	Fruit flies	Sodium lauryl sulfate, acetic acid	
<b>Plants to attract beneficial insects</b>	Many insects		Sweet alyssum, dill, yarrow, angelica, dandelion, lemon balm, parsley, tansy, spearmint, and others
<b>OMRI rated Sesame Oil Spray, rotated with dilute isopropyl alcohol spray</b>	Mealybug	Sesame oil, Isopropyl alcohol	

Made by:



[gardengreen.org](http://gardengreen.org)



NORTHWEST CENTER FOR ALTERNATIVES TO PESTICIDES

[pesticide.org](http://pesticide.org)

Support from:





## Insects continued

SOLUTION	USED FOR	INGREDIENTS	NOTES
Neem Oil	Spider mites		
EcoSMART 33105 Organic Wasp & Hornet Killer	Wasps and hornets	Peppermint oil, phenethyl propionate	
Bug Blaster Bbn Conversion Nozzle	Whiteflies, aphids, mealy bugs, mites	Water, sprayed so that it gets the undersides of leaves and crevices	Be sure to buy the extension too, or you will get wet!
Waspinator Fake Wasp Nests	Wasps, yellow jackets, hornets	Cloth or nonwoven. Repels based on visual clues only, because wasps are territorial.	Best if nests aren't well established. Store fake nest inside in winter, stuff plastic bags inside to keep its shape over time.
Safer Sticky Trap for Whiteflies	Whiteflies	Attracted to yellow color, trapped on sticky paper	
Cinnamon Spray	Whiteflies		

## Rodents



## Animals

SOLUTION	USED FOR	INGREDIENTS	NOTES
Automatic Humane Non-Toxic Rat & Mouse Trap Kit with Counter	Rats and ground squirrels. Note: Although nonnative to Puget Sound, ground squirrels are native to the Columbia Basin region of eastern WA and north-central OR. Do not use this solution if in those areas, or around other native and protected species like Douglas squirrels.	CO <sub>2</sub> cartridge kills when the rat or ground squirrel pokes its head into the trap.	Follow directions carefully, try different baits if one that comes with the trap doesn't work for your rodents. Automatically re-sets itself, weatherproof.
Electric Rat & Mouse Traps	Rats, mice, etc.	Kills using high-voltage shock	Keep dry, can short out in rain. For rats, wait to turn on for a few nights so they get used to it first. Brands include Victor and PestZilla.
Rat X	Rats and mice ONLY	Corn gluten meal, salt	Remove other food sources for best results
'Fresh Cab' Botanical rodent repellent	Rodents	Balsam fir oil	Best for enclosed spaces like storage sheds
'I Must Garden' Mole & Vole Repellent	Voles and moles	Castor oil, mint oil, cedar oil	
Rugged Ranch Ratinator	Rats	Live trap that can trap up to 8 rats at a time	

## Rodents continued



## Animals continued

SOLUTION	USED FOR	INGREDIENTS	NOTES
<b>Snap Traps under a bucket</b>	Mice and rats in the greenhouse, voles and moles	Bait traps with black oil sunflower seeds & peanut butter	Cut 1 inch diameter holes around the bottom of a 5 gal. bucket (to keep birds out). Place traps in bucket, put lid on, and put weight on top to keep bucket from being tipped over. For voles, place near the row crops.
<b>Ultrasonic Rodent Repeller</b>	Rodents	High frequency sound waves repel rodents (this sound is above human hearing)	Will take a week or two for the rodents to leave. Brands include Victor and T3-R.



## Deer

SOLUTION	USED FOR	INGREDIENTS	NOTES
<b>Deer Scram</b>	Deer and rabbits	Blood meal, garlic, red pepper, cloves; odor deters deer	Sprinkle granules on both plants and ground around your plants
<b>Fencing of various kinds</b>	Deer	Non-woven garden fabric	6-8 ft tall if net or wire, 5½ ft tall if the deer can't see through the fence. Make sure they can't dive under the fence.
<b>LaTorre's Deer Out™</b>	Deer	Peppermint oil, gum arabic, hydrogenated vegetable oil	Won't harm the deer, but deters them from eating your plants
<b>Floating Row Covers</b>	Deer, birds, insects	Non-woven garden fabric	Used for row crops
<b>Motion Detector Water Sprayer</b>	Deer, other animals	Spray of water keeps animals away	Orbit 62100 is highly rated, has day only and night only settings



## Slugs & Snails

SOLUTION	USED FOR	INGREDIENTS	NOTES
<b>Corry's Slug &amp; Snail Copper Tape Barrier</b>	Slugs and snails	Adhesive copper tape	Apply to pots, table edges, around trays, etc.
<b>Iron Phosphate Slug Baits, OMRI (Organic Materials Review Institute) certified</b>	Slugs and snails	Select products that contain only iron phosphate	Sluggo® is a popular brand. Don't put slug bait on floor of the greenhouse- can kill amphibians which help patrol insects.
<b>Beer or Yeast Traps (Homemade)</b>	Slugs and snails	Can, bowl or other dish of beer; or yeast, water and sugar. Bugs drown.	Bury container partly in the soil so that top is level with the soil (or cut a hole partway up a beer can so slugs crawl in).
<b>Encourage Predators</b>	Slugs and snails		Encourage ground beetles, snakes, voles, ducks & birds, toads. Provide cover and water.

## Birds



## Animals continued

SOLUTION	USED FOR	INGREDIENTS	NOTES
<b>Bird-X Netting</b>	Birds	Plastic netting	Various types/sizes of plastic netting
<b>Floating Row Covers</b>	Birds, deer, insects	Non-woven garden fabric	
<b>Inverted Flats</b>	Birds		Place on top of sprouting seeds when the birds want to pull up the new seedlings in a flat



## Weeds

SOLUTION	USED FOR	INGREDIENTS	NOTES
<b>Bonide BurnOut®</b>	All types of actively growing weeds and grasses	Citric acid and clove oil	
<b>Occultation Tarps (Silage Tarps)</b>	All weeds. Can also use to kill temporary cover crops prior to planting.	Light-proof materials: black, heavy-duty reusable silage tarps. Black on one side, white on the other.	Water well before laying down the tarp. Avoid single use black plastic.
<b>Horticultural Vinegar</b>	All actively growing weeds and grasses	20% pure vinegar, acetic acid	Wear protective eyewear and rubber gloves. Most effective if plants are stressed from lack of water, and sprayed on a hot sunny day.
<b>Flame Weeder</b>	All weeds in gravel paths and driveways, stone walls, paving cracks	Propane flame	Best used on small plants, when they have been watered well. Follow all safety precautions.



## Diseases

SOLUTION	USED FOR	INGREDIENTS	NOTES
<b>Serenade Disease Control Concentrate</b>	Black spot, powdery mildew, rust, gray mold, late blight, scab	Bacillus subtilis	
<b>Southern Ag Garden Friendly Biological Fungicide</b>	Fungal diseases: leaf blights, powdery mildew, anthracnose, bacterial canker, apple scab, etc.	Bacillus amyloliquifaciens strain D747	Spray as soon as fungal disease starts or even before, as a preventative on susceptible plants
<b>Pure Sulfur Plant Fungicide</b>	Powdery mildew, other fungal diseases	Pure sulfur. Products with other ingredients may not be as safe for the environment	Apply before the fungus arrives, or at first signs of a problem