

## Pests in our garden

September 2013, compiled by Tracy Hueppelsheuser.

For optimal pest prevention and control, it is best to take an integrated approach, called 'integrated pest management', or IPM; use several tools and tactics, at appropriate times during the year. No one tool will solve the entire problem, and every little bit helps. Having some tolerance for imperfections in your produce is helpful as well. Lots of great references are available on the topic of integrated pest management; here is one from University of California, Davis:

<http://www.ipm.ucdavis.edu/GENERAL/whatisipm.html>

Control methods that we can use in our community garden include: cultural and mechanical practices (i.e. row covers, netting, fencing, hoeing, cultivation, hand removal of pests, crop rotation, appropriate variety choice, time of planting, time of harvest, etc.) Application or encouragement of any beneficial insects can be useful. Products such as insecticidal soap (primarily for aphids), and Bt (*Bacillus thuringiensis*) for caterpillars would both be suitable tools in our gardens, and can be effective if applied at the right time for the right pests.

Here is a short list of some of the pests that have been encountered in our garden. I have included some links for more information. Some of these links are from the USA or elsewhere. While the biology information is relevant, note that some insecticides listed are not available in Canada (and we cannot use most of them in our community garden anyway!).

This is just a beginning. I encourage garden members to add information and resources.

<b>Pest</b>	<b>Host</b>	<b>Damage</b>	<b>Links:</b>
Pea moth	Peas	Caterpillars in pea pods at harvest	<a href="http://bayer.warinteractive.com/pestspotter_new6fc1.html?fn=details&amp;con=2105&amp;pestId=742">http://bayer.warinteractive.com/pestspotter_new6fc1.html?fn=details&amp;con=2105&amp;pestId=742</a> <a href="http://pnwhandbooks.org/insect/vegetable/vegetable-pests/hosts-and-pests/pea-green-and-dry-pea-moth">http://pnwhandbooks.org/insect/vegetable/vegetable-pests/hosts-and-pests/pea-green-and-dry-pea-moth</a>
Pea leaf weevil	Peas	Scallop shapes out of leaves mostly on new plants (April, May). New	<a href="http://www1.agric.gov.ab.ca/\$Department/deptdocs.nsf/all/prm11287">http://www1.agric.gov.ab.ca/\$Department/deptdocs.nsf/all/prm11287</a> <a href="http://www.youtube.com/watch?v=yk8EV5_ppOI">http://www.youtube.com/watch?v=yk8EV5_ppOI</a>

		plants can be killed.	
Crucifer flea beetle	Cole crops	Tiny shot-holes in leaves, spring-summer	<a href="http://cru.cahe.wsu.edu/CEPublications/PNW640/PNW640.pdf">http://cru.cahe.wsu.edu/CEPublications/PNW640/PNW640.pdf</a>
Tuber flea beetle	Potatoes	Tiny shot-holes in leaves (spring), tracking and small pin prick holes in tubers at harvest	<a href="http://cru.cahe.wsu.edu/CEPublications/PNW640/PNW640.pdf">http://cru.cahe.wsu.edu/CEPublications/PNW640/PNW640.pdf</a>
Cabbage butterfly, Cabbage loopers	Cole crops	Green caterpillars feeding on leaves, making randomly shaped holes in leaves	<a href="http://horticulture.oregonstate.edu/content/cabbage-white-butterfly">http://horticulture.oregonstate.edu/content/cabbage-white-butterfly</a> <a href="http://www.bhg.com/gardening/pests/insects-diseases-weeds/stop-cabbage-loopers/">http://www.bhg.com/gardening/pests/insects-diseases-weeds/stop-cabbage-loopers/</a>
Cabbage aphids	Cole crops	Tiny grey-green oval insects in growing points of plants.	<a href="http://www.ipm.ucdavis.edu/PMG/r108300811.html">http://www.ipm.ucdavis.edu/PMG/r108300811.html</a> <a href="http://horticulture.oregonstate.edu/content/cabbage-aphid-green-peach-aphid">http://horticulture.oregonstate.edu/content/cabbage-aphid-green-peach-aphid</a>
Beet leafminer	Chard, spinach, beets	Blotchy mines in leaves. Can make leaves unusable.	<a href="http://www.organicgardening.com/learn-and-grow/spinach-leafminer">http://www.organicgardening.com/learn-and-grow/spinach-leafminer</a> <a href="http://extension.umass.edu/vegetable/insects/leafminer-beet-and-spinach">http://extension.umass.edu/vegetable/insects/leafminer-beet-and-spinach</a>
Carrot rust fly	Carrots, parsnips	Small burrowing and tracking along roots by small white larvae. Enables rot organisms to get into carrot and cause decay.	<a href="http://www.westcoastseeds.com/topicdetail/topic/carrot-rust-fly/">http://www.westcoastseeds.com/topicdetail/topic/carrot-rust-fly/</a> <a href="http://clark.wsu.edu/volunteer/mg/gm_tips/CarrotRustFly.html">http://clark.wsu.edu/volunteer/mg/gm_tips/CarrotRustFly.html</a>
Mosquitoes	Any standing water	Black 'wigglers' in standing water, i.e. the bin under the eaves of the greenhouse. Must dump the bin every 2 weeks to prevent completion of life cycle and emergence of nuisance and biting mosquitoes.	

## Beneficial insects in our garden.

Insect	Benefit	Links
Hover flies	Adults look like bees, are pollinators. Larvae are unwinged white/green legless larvae and feed on aphids on leaves.	<a href="http://www.ipm.ucdavis.edu/PMG/NE/syrphid_flies.html">http://www.ipm.ucdavis.edu/PMG/NE/syrphid_flies.html</a>
Lacewings	Adults are graceful green or brown winged insects. Larvae are unwinged aggressive, tiny ‘alligators’ that feed on aphids and other small plant feeding insects.	<a href="http://www.ipm.ucdavis.edu/PMG/NE/green_lacewing.html">http://www.ipm.ucdavis.edu/PMG/NE/green_lacewing.html</a>
Ladybugs	Adults are beetles, red, orange, etc. Larvae are mostly black, unwinged, ‘little dragons’, which eat aphids and other small plant feeding insects. Some tiny black ladybugs eat spider mites (‘Spider mite destroyer’). Other tiny beetles are black and white and eat the powdery mildew fungus present on currants, cucurbits, and maples.	<b>Ladybugs of Alberta: Finding the Spots and Connecting the Dots.</b> By John Acorn. 2007. The University of Alberta Press. <a href="http://www.currentresults.com/Invasive-Species/Invasive-Land/ladybug-species-803241.php">http://www.currentresults.com/Invasive-Species/Invasive-Land/ladybug-species-803241.php</a> <a href="http://www.ipm.ucdavis.edu/PMG/NE/spider_mite_destroyer.html">http://www.ipm.ucdavis.edu/PMG/NE/spider_mite_destroyer.html</a> <a href="http://bugguide.net/node/view/14200">http://bugguide.net/node/view/14200</a>
Parasitic wasps	Tiny wasps that you won’t see; but you can see the ‘aphid mummies’ which are housing the wasp larvae, and killing the	<a href="http://www.youtube.com/watch?v=rLtUk-W5Gpk">http://www.youtube.com/watch?v=rLtUk-W5Gpk</a> <a href="http://www.ipm.ucdavis.edu/PMG/NE/aphidius_spp.html">http://www.ipm.ucdavis.edu/PMG/NE/aphidius_spp.html</a> <a href="https://greenmethods.com/biocontrols/aphidius/">https://greenmethods.com/biocontrols/aphidius/</a> <a href="http://www.buglogical.com/trichogramma/">http://www.buglogical.com/trichogramma/</a>

	aphids. Numbers build up over the summer, following the buildup of aphids. Other parasitic wasps kill caterpillars, such as leafrollers that are common on shade trees, berry plants, and other perennials.	
Predatory midges	Tiny flies that you won't see; but you can see the small orange larvae that feed on aphid colonies and spider mite colonies.	<a href="http://site.cleanairegardening.com/info/aphid-midges-to-the-rescue-beneficial-gardening-insects.html">http://site.cleanairegardening.com/info/aphid-midges-to-the-rescue-beneficial-gardening-insects.html</a> <a href="http://entnemdept.ufl.edu/creatures/beneficial/f_acarisuga.htm">http://entnemdept.ufl.edu/creatures/beneficial/f_acarisuga.htm</a>
Ground beetles	Large, fast moving beetles living on the ground which are predators of many pest insects that spent time on the ground or in the soil. Some species even eat slugs!	<a href="http://canadianbiodiversity.mcgill.ca/english/species/insects/insectpages/carabidae.htm">http://canadianbiodiversity.mcgill.ca/english/species/insects/insectpages/carabidae.htm</a> <a href="http://www.cbif.gc.ca/spp_pages/carabids/phps/bc_e.php">http://www.cbif.gc.ca/spp_pages/carabids/phps/bc_e.php</a> <a href="http://islandnature.ca/2011/03/gorgeous-ground-beetles/">http://islandnature.ca/2011/03/gorgeous-ground-beetles/</a>