



Q & A: Treating Diseases and Pests

Q. Can you recommend a natural mosquito lotion? I came across a recommendation for a mosquito lotion in a medical newsletter we get. It uses natural oils. The product is "Go 'Way" by Healing Naturals. Available at www.healingtreenaturals.com. Search under "Products" for Go Way.

Q. What do I do about septoria leaf blight? It is taking over my tomatoes!

1. Mulch! As soon as you plant your tomatoes. This prevents the fungus, which is in the soil, from splashing up when it rains or you water. Water the tomatoes close to the ground to reduce splashing.
2. A new category of anti-fungal treatments (organic) is represented by Serenade. I have used it on peaches (against brown rot), peas (against aschotya leaf blight), strawberries (against grey mold) and tomatoes (against late blight -- phytopthera infestans). It works by coating the leaves and fruit with a friendly bacteria, thereby preventing other pathogens from finding room on the leaf surface to take up residence. It is listed as effective against septoria leaf blight. Garden catalogs sell it. Buy the concentrate unless you have just a few plants to protect.

Slugs and cabbage worms

Q. I recently planted a second planting of kale seedlings and within a week they disappeared. Whatever is eating them is not bothering the spinach in that bed, nor the carrots just next to the spinach, nor the turnips in that same area. Do you know what could be eating kale and not the other vegetables? I don't mind the holes, but my youngest son doesn't like the ugly leaves with holes in them. I don't yet know enough to figure out what the pests are and what to do about them.

1. Most likely, you have the cabbage worm. It eats all brassicas: cabbage, broccoli, brussels sprouts, collards. The moth is white with dark spots, one on each lower wing. You may see hundreds flitting around. They lay small white eggs on the undersides of leaves. The eggs hatch into small green larvae which are hard to see, as the larvae blend in with the color of the leaves. As they eat, they get bigger! Usually the worms go for the new, tender and juicy leaves in the center of the plan, which is the growing tip. A little damage here causes great damage, as the chewing is a large proportion of the small leaf. To control: check every day twice a day for three days to get eggs and larvae. This hits them hard. Then you can check less frequently. Scrape off the eggs with your fingernail. Squish the larvae.

2. The second pest you may have is slugs. Go out at night, say, 9:30-10 when it's dark. Take a flashlight and a small container with water (an inch or two) into which you have put ordinary table salt. Hunt for slugs crawling up the stems, and along the leaves. Pull off the slugs and drop into the salt solution. They will start to sizzle as they exude mucous to ward off the salt

solution. If they are able to crawl up the sides of your container, you have not used enough salt. Do this three nights in a row, and then less frequently after this. Pay attention to slugs after a rain.

3. You can also use diatomaceous earth (crushed diatom shells), a white powder, which you can spray in a circle on the soil around the stem, or spray on the innermost leaves. The crushed diatoms act as razor blades on the slugs "feet" and they avoid crossing the line. If it rains, you will have to re-apply.
4. Another way to control slugs is to make a 10% solution of household ammonia in a spray bottle. Adjust the nozzle for a narrow stream. Go out at night with a flashlight and spray once or twice. They will drop to the ground (and die). Your son will like doing this – like using a laser gun.

So, your first task is to LOOK CLOSELY for eggs and larvae in the first case, and slugs in the second. The third rule for organic growing is OBSERVE NATURE: Don't shoot the messenger.

By the way, how do you prepare your kale that your son notices the holes? We usually cook it with other vegetables (a potato-kale soup, which is blended), or cut it coarsely as a stir fry. It is hard to see the holes.

Tomato diseases

Q. [My tomatoes have curled leaves. Any idea what this is?](#) Tania found the following web link about tomato leaf curl. In short, curling tomato plant leaves indicate too much water.

http://www.cleveland.com/insideout/index.ssf/2009/07/curling_tomato_plant_leaves_in.html

“The problem your tomato plants are experiencing is most likely not a disease, but a temporary physiological disorder. Basically it is the plant's reaction to too much water. It is more common during wet springs. You could be applying too much water, the soil might be poorly drained, or there could be a combination of the two factors. Within a few days of the soil drying out a bit, the leaves should uncurl. At that point, begin to monitor how much water you apply to the soil. Allow the top one to two inches to dry before applying more water. After the growing season, you can deal with improving the drainage, if that is a compounding factor. Additionally, some tomato varieties are more susceptible to tomato leaf roll than others. Consider growing other cultivars.”

Note: I found similar suggestions online that too much water could be the cause of pepper leaves curling upward and so it is likely similar for other plants. If the excess rain leaches out a key nutrient, there will eventually be some chlorosis (yellowing) of the leaves. We have found spinach to be very sensitive this way: chlorosis sets in if too much rain.

Q. [We had varied problems with the tomatoes this season: 3 caterpillars covered with white eggs - I cut them off the plants.](#) If the caterpillar was large and green, you had the tomato hornworm. Look this up on the internet if necessary. The white eggs were probably laid by a

braconid wasp, a beneficial. The eggs hatch and burrow into the caterpillar, killing it. Next time, let the caterpillar feed. You will be improving the complexity of your ecosystem (Third principle of organic gardening). Several fruit have had black spots on the bottom of the fruit. These big patches rather than spots? If so, could be blossom end rot, for which remedy is regular watering! 3-4 fruit have been half eaten by something - could a bird do that? - I've seen nothing else. If the bites are small inverted cones, could be birds. If small shallow bites, could be chipmunks. Slugs could also chew out rounded areas, which they will do at night.

Q. Boy, am I disappointed. I got the soil analysis from that recommended company and followed it to the letter. They didn't recommend any calcium. I sprayed the magnesium as instructed and added the small amount of nitrogen where recommended. Today I see that my tomatoes have blossom end rot – the ones that are ripening. So I am adding some calcium to the tomatoes; hope they can use it at this stage. In calcium-rich soils such as ours, blossom end rot is caused by irregular and insufficient watering, not by calcium deficiency. We have had quite a run of hot, dry weather, and you probably did not water regularly and sufficiently. Veggies require 1"/week. Tomatoes benefit from a mulch (e.g., straw) to moderate water stress.

Q. At your Organic Gardening workshop you recommended Serenade for late tomato blight. Do you know of a local store that carries the product? Or perhaps a place that I can order it on the internet. I have a garden plot at the Tudek Park Community Gardens and I want to be ready.

The tomato blight preventative is Serenade. We got ours at <http://www.yardlover.com/serenade-garden-disease-control-32oz-concentrate>. This is the concentrate. You can also get a dilute spray bottle for ready application from this same site. Since Serenade also covers many other diseases (powdery mildew, gray mold of strawberries, etc.), the concentrate may be more cost effective. For local availability, try College Gardens Nursery. Keep in mind concentrate vs spray bottle.

One should wash vegetables before ingesting. According to the company, the bacteria will stay on the plant 5-10 days.

Basil disease

Q. My basil looks terrible! Spots, discoloring in leaves. What is the matter?

You may have had one or more things attack your basil. Here are a few links that will aid you in reviewing your plant's symptoms. Most likely you had a leaf spot, but I can't imagine that killing the plant so quickly. I did a Google search on basil, diseases of.

Usually postings by agricultural extension centers are the most useful. I like this one from Clemson University:

<http://www.clemson.edu/extension/hgic/plants/vegetables/crops/hgic1327.html>

Scroll down to "Diseases" and look at the leaf spots.

Older leaves tend to turn yellow and fall off, and some spots can be due to insect damage, but I don't know what affected your plants so quickly... wish you had taken photos!!

We do have "basil blight" in our basil. It came in last year. It's a downy mildew and shows up as a yellow streak on the leaf (some look striped!) because it affects the cells between two of the veins. Here's an article on that with a photo of the underside of the leaves. I have photos from last year I can send or post:

<http://www.washingtonpost.com/wp-dyn/content/article/2010/06/15/AR2010061501079.html>

Wikipedia has some interesting info:

<http://en.wikipedia.org/wiki/Basil>

You may also find it helpful to review the descriptions at:

<http://www.gardeningknowhow.com/herb/basil-diseases.htm> and

<http://www.gardenguides.com/88156-basil-plant-diseases.html>

Strawberry leaf curl

Q. My strawberries have curled leaves and reddish margins. What is the matter with them? The pH for that area was high (7.3) and maybe that's it although I did amend with sulfur and boron and aragonite and some other things. Timberleaf said desired pH level was 6.8. The magnesium reported level was 216 and desired level was 169.

If the vast majority of your strawberries have the leaf-curl, reddish margins, I am thinking it is not a disease, but rather a soil deficiency. Strawberries (and most other fruit) like well-drained soil, which you (and we here at Neo-Terra) do not have. High or low pH can tie up major and trace elements. Phosphorus, critical to young plant growth, gets tied up if the soil is too acidic or too basic.

Magnesium can leach easily. A Mg deficiency can cause cupped leaves (not the same as a curl, but maybe this is how it manifests itself in strawberries). You might try a magnesium foliar feeding. Magnesium is most easily applied using epsom salts. Try 1 tablespoon per gallon per 100 sq.ft. of bed area.

When you do the foliar feeding, spray the underside of the leaf by turning your spray nozzle in an upward direction and spraying from below. There are more stomates on the underside of the leaf than on top. The stomates are the tiny holes in the leaves through which the leaf passes air and water vapor. Of course, runoff from any kind of spraying will drain onto the soil and be taken up by the roots.

Keep using the amendments Timberleaf recommends. It takes a while – years – to bring down soil pH.

Field guides for diseases, weeds

Q. Can you recommend any good books for identifying diseases? Here are three good books on disease identification, both mentioned on our web page, "Organic Garden Primer NEW":

1. MacNab, Sherf and Springer. Identifying Diseases of Vegetables. Available through College of Agricultural Sciences, Penn State University, University Park, PA 16802. This is mostly high quality color photos for a wide range of vegetables. Doesn't cover what to do, only identification. Here is the link to order. Cheap at twice the price, and cheaper here than on Amazon:

<http://pubs.cas.psu.edu/PubTitle.asp?varTitle=Identifying+Diseases+of+Vegetables&Submit=Go>

2. David Deardorff and Kathryn Wadsworth. What's Wrong With My Plant? (And How Do I Fix It?) Timber Press. Portland, Or. 2009. Paperback. Tested with Master Gardeners in State of Washington. Excellent, once you figure out the system. Similar to those mushroom guides which ask of any characteristic whether or not your plant has this symptom. If yes, follow one arrow. If no, follow the other arrow.

3. The Organic Gardener's Handbook of Natural Pest and Disease Control: A Complete Guide to Maintaining a Healthy Garden and Yard the Earth-Friendly Way, edited by Fern Marshall Bradley, Barbara W. Ellis, and Deborah L. Martin, Rodale, New York, 2009, 408 pp., \$24.99, ISBN 978-1-60529-677-7. Hort Ideas reviewed this book very favorably, saying, "We think the organization of the Handbook is excellent and recommend it highly as a primary go-to resource whenever pest or disease problems arise." Tania and I have an old version and used it extensively in the early years. While we have not looked at this one, we expect it to be superior in all regards and worth getting.

Q. Do you recommend a certain weed guide? I am trying to incorporate biodynamic plants into the garden for their composting value, such as stinging nettle, lemon balm. .There is so much to learn, I sometimes feel overwhelmed.

The main drawback of using weeds to sequester minerals is that these have to be in your soil to start with, and the roots of your weeds have to be able to go down deeply enough to pull them out. For you to produce even small amounts of minerals, you would have to plant your entire garden to these weeds. The following book has a nice chart on plants and minerals.

Robert Kourik, Designing and Maintaining Your Edible Landscape Naturally, Metaphoric Press. Santa Rosa, CA 1986. Excellent permaculture principles book, perhaps more useful for techniques than Bill Mollison's Permaculture. Great section on fruit trees. May still be available through Peaceful Valley Farm and Garden Supply, Amazon, or even through your local library or interlibrary loan.

Yes, it's easy to get overwhelmed. Jeavons provides comfort in his one sentence advice: start small and learn the principles before expanding. We have a gardening friend who was bitten last year by the biointensive bug. He (machine) dug 5 large beds, each 5 x 40'. When I emailed him earlier this spring he had not done anything, being too busy with work (and overwhelmed by all that bed space and the scale of his earlier vision). When we started we double dug an old garden bed and planted 100 sq. ft. in spring greens. We were feeding our neighbors we had so much surplus!

Q. Do you have experience with growing the Mexican marigold, *t. minutea* as discussed in the book? We do not use Tagetes. Minutea. I have heard great things about this. It helps control nematodes. Of course, if you do not have nematodes, why bother? For carrots, whose forking is due to nematodes, we use a prior cover crop of rye or barley, which has worked well for us.

Ticks

Q. I have an infestation of ticks in our finca in Panama. I don't want to use "arrivo" which is what the workers want to spray. Do you know of any product that will get rid of them without poisoning the soil and the workers? Thank you!!!! I recently heard of a simple device called "tick tubes." These are cardboard tubes stuffed with cotton balls treated with permethrin, a synthetic pesticide. Mice use the cotton balls to make nests, and the ticks riding on the mice die. Search under "tick tubes." Here is one site:

<http://www.ticktubes.com/works.html>

Amazon sells them: <http://www.amazon.com/Damminix-27203-Tick-Tube-24-Pack/dp/B000OWB7ME>

You can also make your own: <http://frugalberry.com/best-low-cost-solutions-for-ticks/>

The use of permethrin is lot lower with tubes than general spraying.

Yellow jackets

Q. Oh dear. We have some sort of yellow jacket making an in-ground nest in the central bin of our three part compost. My husband has an allergy to bee stings. The exterminator uses ampicide or something like that...admits it's a poison. He says he can't guarantee that it is not harmful in compost and recommends I try SEVIN. So far we have not used anything. What is so great about SEVIN? What other options do I have?

1. These bees seem to burrow into the compost or the ground. They were poked by mistake when we were flipping the compost from bin to bin. They got pretty upset.
2. Are these important pollinators? I have had to have bees nests removed in various parts of the yard in the past but not right in the middle of the compost!
3. Is there any way to attract the bees to another less intrusive site? I know you are building nests for bees, but maybe these are a specific type that I don't have?
4. Are there any options for eliminating the nest without resorting to toxic poisons?

You likely have yellow jackets. They do not occupy the same nesting site the next year. But in the meantime, the current nest will continue to produce eggs, larvae and the next generation, rising to a crescendo in the fall. Here is one good summary:

<http://extension.oregonstate.edu/gardening/node/467>. As to solutions, here is one worth trying. You can get Dr. Bronner's peppermint soap at Nature's Pantry.

<http://www.motherearthnews.com/green-homes/an-effective-non-toxic-solution-for-getting-rid-of-yellow-jackets-nests.aspx#axzz2VdYXWTz9>

Yes, they play an important role in your garden. As wasps, they feed on larvae of other insects, often larvae we'd rather not have in the garden. They are not pollinators as far as I know. Nests are difficult to move. The solution proposed above is worth a try. Do this at night.

Voles

Q. Can you recommend a vole repeller? They've been eating our veggies! Especially our root crops! What do you do?

We follow a two-fold strategy: solar operated vibrating vole repellents and mechanical live traps. We get some damage still, but much less than without using the above. The Pest-A-Cator 1010S is the one we use. We found one on Amazon in the spring of 2013 for under \$24 (http://www.amazon.com/dp/B000TG8AVG/ref=asc_df_B000TG8AVG2328710?tag=thefind0067010-20&creative=395261&creativeASIN=B000TG8AVG&linkCode=asn)

For the live trap, check out the wind-up trap at Farm-Tek which attracts on two bases: a hole to investigate, and the smell of another rodent already trapped:

<http://www.farmtek.com/farm/supplies/ProductDisplay?catalogId=15052&catalogId2=10001&ftCatalogId=10001&searchMethod=wcSearch&searchType=ANY&searchBeginIndex=0&searchDefaultPerPage=10&ftSearchBeginIndex=0&ftSearchDefaultPerPage=10&mfPartNumber=102478>

Q. I've been struggling with mice in our hoop houses, but as of last check have been able to keep my greens going this winter, after a total loss last winter. I also have a groundhog-trapping initiative which is not working out, despite using cantaloupe as bait following Hav-a-Hart's recommendation. hmmm....

A friend of ours, Kenny Point, has improved on the Hav-a-hart method:

<http://www.veggiegardeningtips.com/how-to-quickly-easily-trap-nuisance-groundhogs/>

Since we have a double-ended trap, we closed off the open end opposite the one near the hole with hardware cloth wrapped so as not to interfere with the closing of the opposite door. We then put chunks of cantaloupe inside the trap, rubbed chunks on the trap sides so juice would run down, and put a few chunks down the hole.



We surrounded the hole and main trap end with fencing to guide the groundhog into the baited trap. VOILA! Next morning, groundhog in trap. See pic left.

Unfortunately, there was a second groundhog, and he was more wily. For him, I used smoke bombs. Worked like a charm. Between the two of them they took out probably half our carrot crop. They had five burrows going.

On voles, we've tried a variety of sonic repellents. Some work above ground (good to protect greens), others below (good to protect root crops). Some are solar powered, which is fine in the summer, but worthless in the winter greenhouse. We found that the solar-powered ones don't last very long -- one or two seasons, but that may depend on the brand. It is hard to find reviews that focus on long-term performance. Also, as the season advances into the late summer and early fall and days get shorter and nights longer, the sonic emissions decline -- at a time when your root crops are bulbing out and the mice are toking up for winter!

This past year we tried one that uses 4 D cell batteries. It worked all summer to protect our beets and carrots (roots) and when fall came, I moved it into the greenhouse to protect winter beets and carrots. I harvested these recently and no damage at all! Here is the one I used: P3 Super Sonic Molechaser - P3-P7907 (Reviews below)

http://www.amazon.com/P3-Super-Sonic-Molechaser-P3-P7907/dp/B0006M1YHK/ref=cm_cr_pr_product_top/191-3323786-7029731

For above ground protection, search under "sonic vole repellents." The two we have were made in Europe many years ago, still work, but I could not find them online.

Damping off

Q. Our seedlings keel over before they get very big. There is a brown area on the stem just above the soil surface. What is this and how can we prevent it?

What you have is most probably called damping off, which is a fungus attacking new seedlings. The cause is too much moisture from overwatering. Here are the remedies:

1. Reduce your watering! It is better to water from the bottom of the tray than the top!
2. Improve air circulation by using a small fan to keep the air moving. This is useful both indoors and outdoors in greenhouses.
3. Both chamomile tea and cinnamon have anti-fungal properties as described here: <http://forums2.gardenweb.com/forums/load/organic/msg0414472321061.html> and <http://organicgardening.about.com/od/diseases/qt/chamomiledampingoff.htm> . For the chamomile tea, mist your seedlings 2x-3x per week. Brew a weak batch of chamomile tea, one tea bag to two cups of boiling water. Allow the infusion to cool, then dilute it so that it is a pale yellowish color. Add the cooled, diluted tea to a spray bottle and use as needed. This mixture will be good for about a week. Spray the seedlings regularly until they are planted out into the garden to ensure that you don't have any problems with damping off.

You can also sprinkle some cinnamon on top of the soil. Here's a 60 second video on using cinnamon: http://www.youtube.com/watch?v=9yxTm_FT6Kc

4. Use a sterile planting medium (we don't do this, and have found the above takes care of it).

Insect pests

Q. We're getting some kind of worm on our blueberries! They are tunneling into the fruit and damaging it! Never had these before!

1. This may be the fruit fly larvae on your blueberries (the spotted wing drosophila). Here is an image:

http://www.google.com/imgres?imgurl=http://msue.anr.msu.edu/uploads/images/8-23-swd_blueberries-CARLOS.jpg&imgrefurl=http://msue.anr.msu.edu/news/spotted_wing_drosophila_fruit_infestation_in_harvested_berries&h=461&w=450&sz=80&tbnid=O-HdP7-5J9Z_sM:&tbnh=99&tbnw=97&zoom=1&usq=__B51UTT1axYi897x0KwFVaozjiHQ=&docid=8E49vcnRsxm2OM&sa=X&ei=r3wKUrSKAfL9yAG7I4HQDg&ved=0CEwQ9QEwBw&dur=13543#imgdii=

2. By comparison the blueberry maggots don't have that dark region in the larvae: http://msue.anr.msu.edu/news/monitoring_and_management_strategies_for_blueberry_maggots This article's suggestions for control are largely non-organic controls, but one product, Entrust, will handle both the maggots and the fruit fly worm. Spinosad will handle the maggot.

Q. We keep getting the Mexican bean beetle and larvae on our bush beans, and they defoliate the plants and reduce our yields substantially. What can we do that's organic?

Here are a couple of suggestions for you to try next year if you are not already doing these:

1. Row covers to keep beetles off. This will work with bush beans but not pole. Since beans are self-fertile, the row cover will not affect pollination. We're increasingly using row covers

against cabbage moth (brussels, collards), flea beetle (rutabagas), cucumber beetle (cucumbers) and beet miner fly (beets). On rutabagas we use a standard row cover, but on the others I prefer making "houses" with tulle (bridal veil fabric) as these are somewhat transparent, allowing easy viewing without lifting the row cover.

2. Row covers save scraping off eggs and squishing the larvae, but scraping will work on pole beans in addition to bush beans. When we suffered this infestation we had to do this every day for a considerable period of time. It is messy, distasteful work.

3. Pyrethrin or rotenone compounds will work, and are organic. Neem can also work, and I have seen neem/pyrethrin combinations in 1 pint containers (concentrate). Must apply to underside of leaf where they tend to hide out.

This site also adds additional pointers:

<http://www.weekendgardener.net/garden-pests/mexican-bean-beetle-061006.htm>

Q. Your use of tulle fabric to make "houses" sounds intriguing. Can you give me more details on how to go about this? I want to use these against the Mexican bean beetle.

The tulle we have used for three years works in keeping out beet miner flies (and cabbage moths off collards and brussels, and cucumber beetles off cucumber vines), but is neither durable nor UV resistant. We got two years out of the first one, and only one out of the second one, as I tore it. I have explored other perforated fabrics and have learned a few things.

First, for UV resistance, polyester is better than nylon, and nylon is better than polypropylene.

Second, mosquito netting, probably more durable, is 6x the cost of tulle.

Third, there is a large range in the number of holes/sq. in. (which is one parameter used to describe mosquito netting), ranging from 100 holes-1200 holes/sq.in.

Fourth, vining plants (e.g., cucumber tendrils) catch the fabric and insinuate themselves into the netting, making removal of netting without damaging it difficult.

Fifth, netting comes in different "weights" which is important, as the thicker it is the more durable it is likely to be, and the longer the elapsed time to degradation.

This winter I purchased online some of this thicker netting (called "standard tutu net") and used this to make another beet cage. It has 144 holes/sq.in. (12 holes on a side) and will keep out the beet miner fly (and your bean beetle). I paid \$1.25/yd for 54" wide fabric. The 6 yds I bought cost \$14.50 with shipping (from http://www.tutu.com/fab_net.html). For experimental purposes, you might prefer something cheaper. Last year I purchased online a 40 yd bolt 52" wide of tulle (pronounced "tool" and also known as bridal veil fabric) for \$24 including shipping (from <http://www.papermart.com/premium-colored-tulle-in-bolts/id=10925#10925>). For a small amount of this latter, you could go to Jo-Ann Fabrics and buy enough to cover your bush beans. Comes in various colors (I found apple green restful on the eye, but the color fades with

exposure). Pole beans are another story. Perhaps you'll want to convert some of the pole beans to bush, and leave a few out as experimental controls.

I sew pieces into a rectangular box, and hold the box up with metal poles (emt – electrical metal tubing) at the four corners with an old sock on top to protect the thin fabric from the pointed pole. Another pole in the middle works to prevent sagging. It is easy to water through the netting. If you decide to go this route, I can help you sew a box on my old sewing machine. When I lay out a box, I try for one piece to cover two sides and the top, and then two side panels. This minimizes cutting and sewing, but depends on the size of your bed.

Q. We noticed that one of our potatoes had a horrible black area on the main stem, which we've never seen before! Is this that awful potato blight?

In investigating the answer to your question Tania found the “garden” section on Wikipedia! What you have is potato blackleg: <http://gardener.wikia.com/wiki/Blackleg>. They advise lifting and destroying the affected plants, and to "never plant seed tubers that are soft and rotten. The practice of cutting seed tuber in half to make them go further increases the risk of attack.”

Searching under "blackleg stem rot on potatoes, images" Tania found photos like this one: <http://www.gapphotos.com/imagedetails.asp?imageno=108861> and one posted by the Ohio extension office at: <http://ohioline.osu.edu/hyg-fact/3000/3106.html>.

This website indicates there are other host plants for the disease or species affected by it including paw-paws, of which we have three in our own garden!

<http://www.plantwise.org/?dsid=21910&loadmodule=plantwisedatasheet&page=4270&site=234>

The website fails to elucidate the role of each listed (i.e. whether it is a host for the disease or is adversely affected by it), though it sounds like blackleg prefers potatoes.

Q. My husband, Kirk, and I took your organic gardening class offered through Centre Region Parks and Rec and later attended the tour of your amazing garden. You said we could contact you with questions. Well, we have a millipede infestation in our home. As of yet, we have not been able to find the nest(s) but know the general direction from which the millipedes are coming. Aside from locating the nest, do you have a suggestion as to how we can keep them from invading our home? There are hundreds coming in every day!

We get a few millipedes, but nothing like what you're getting. I checked out millipedes on the internet and found a number of sites under search terms "millipedes in my house," including this one: <http://webmail1.mail.aol.com/36478-211/aol-6/en-us/Suite.aspx>

The author recommends sealing cracks around the foundation of your house, and installing door sweeps on the bottom of your doors. Millipedes like moisture, so the author recommends fixing leaky gutters that may be dumping water near your foundation. Also, crank up your dehumidifier (if you have one) to dry out your house a bit more.

Two safe insecticides that could work, near your foundation, or near where you think they are

coming in, are diatomaceous earth and boric acid. You can find the former at garden supply centers (try College Gardens Nursery) and the latter at a drug store. Both stick to the feet of the insects and act as desiccants. You can use these inside, too, perhaps against the baseboards and perimeters of affected rooms.

For the hundreds you mention, use your vacuum. They can lay 300 eggs at a time, so make removal paramount. Knock-down sprays with pyrethrins are fine, as these are a natural insecticide that breaks down relatively quickly. If you are concerned about synthetic chemical sprays, stay away from those with long, technical-sounding ingredients, including the permethrins, which are synthetic and longer-lasting forms of pyrethrin. At the end of the article cited above, the author lists a number of commercial products, which you might be able to find at a hardware store or garden supply center. Here is the author's suggestions on these:

"The most widely available forms of millipede pesticides are aerosol sprays, powders or dusts, residual granules, and liquid sprays. If you like the aerosol idea, I would recommend: 250 Propoxur Spray (active ingredient propoxur), CB Borid Turbo (active ingredient boric acid), or CB Intruder HPX (active ingredients cyfluthrin and pyrethrins). If you prefer powders or dusts, I would suggest: Drione Dust (active ingredients pyrethrins, piperonyl butoxide, and amorphous silica gel), Delta Dust (active ingredient deltamethrin), or MotherEarth D (active ingredient diatomaceous earth). For granules, look for: Demand G (active ingredient lambda-cyhalothrin), or EcoExempt G (active ingredient plant oil [hexa-hydroxyl]). And finally, for liquid sprays, look into: Cyper WP (active ingredient cypermethrin), Talstar P (active ingredient bifenthrin), or Suspend SC (active ingredient deltamethrin)."

Let me know how you fare!

Q. We planted a new fig tree last year, and this year are getting some figs! We noticed what looked like a giant fruit fly on the fruit! Is this something we have to worry about?

Fortuitously, we just happened to have received a Penn State extension advisory posted on November 16, 2012 titled **African Fig Fly: Another Invasive Drosophilid Fly Discovered in Pennsylvania**. Authors are Drs. David Biddinger and Neelendra Joshi, Penn State Department of Entomology; Kathy Demchak, Penn State Department of Plant Science. Here is the article:

"*Zaprionus indianus* Gupta (Diptera: Drosophilidae), commonly known in Brazil as the African Fig Fly (AFF), is an invasive species recently found in Pennsylvania for the first time. First discovered by the Pennsylvania Department of Agriculture in early October in Grape and Tomato Pest Survey traps, it was found immediately after by Dr. David Biddinger at the Penn State Fruit Research and Extension Center in Biglerville. Adult flies were found in apple cider vinegar traps used for the seasonal monitoring of Spotted Wing *Drosophila* (SWD), another recently introduced invasive pest of small fruit crops in Pennsylvania that Dr. Biddinger first detected in Pennsylvania and Maryland in July.



Left: Spotted Wing Drosophila (SWD) male in comparison with the African Fig Fly (AFF). Right: African Fig Fly (AFF) and its black-bordered, white “racing stripes”.

“Reviewing SWD samples from 2011, Dr. Biddinger also found it had been present in Adams county in the fall of 2011, so it has been here for at least two seasons. For what is considered to be a tropical pest, this is important because they not only survive the extremely mild winter of 2011-12, but also the more typical previous winter. Of note, however, is that while SWD trap catches have greatly increased in the last two weeks despite heavy frosts, the same vinegar traps are no longer catching AFF. AFF is now recorded from Adams, York, Dauphin, and Clearfield counties according to the Pennsylvania Department of Agriculture.

“*Z. indianus* adults are easily distinguished from all other fruit flies in our region because of a pair of silvery-white stripes from antennae to thorax tip that are outlined along both sides by black stripes. A humorous nick-name given to the fly by PDA has been the “Speed Racer Fly” since it has prominent “racing stripes.” Adults of this species are slightly larger in size than the Spotted Wing Drosophila and the background color of the body is lighter than most other drosophilid flies we commonly find in our SWD vinegar monitoring traps.

“Native to Africa, the Middle East, and Eurasia, it is now found in much of South and Central America where it is mainly a pest of figs. It was first found in Florida in 2005, where it quickly spread and out-competed other fruit flies. New records were found for Michigan, North Carolina and Connecticut in September of this year and it appears to be spreading throughout the South as far west as Texas. *Z. indianus* is considered as a generalist insect feeding on various tropical fruits, but it has potential to damage small fruits (cherries, blueberries, blackberries, strawberries, and raspberries). In Pennsylvania, so far it has been found later in the season and mostly in grapes, but has also been found in SWD monitoring traps in cherry, raspberry and blackberry plantings. Its presence and damage potential in grapes and other crops is under investigation by Dr. Biddinger’s lab and Penn State small fruit specialist, Kathy Demchak. Monitorings effort throughout the state will continue next season by PDA and Penn

State and records for new hosts and new county records should be forwarded to either institution.

“Since it does not have a large, sharp ovipositor like SWD females, AFF appears to only attack damaged and over-ripe fruit and the harsher winters of Pennsylvania may prevent it from establishing as aggressively here as it did in Florida. Indeed, so far numbers of adults collected in vinegar traps have been only a fraction the number of SWD collected. An exception, however, has been from net collected samples in a grape vineyard where numbers of AFF greatly outnumbered SWD. While it appears from our samples that grape is not a preferred host of SWD, it may be that grape is preferred by this new fruit fly. There is also concern in the South that it will become a pest of blueberries.”

Deer

Q. How do you get rid of deer?

Here are two devices that might work:

1. A sonic repeller available at ACE Hardware for \$20. Tania uses this to protect her elderberry shrubs, and it seems to work.

<http://www.acehardware.com/search/index.jsp?kwCatId=&kw=repeller&origkw=repeller&f=Taxonomy/ACE/19541496&sr=1>

2. The second is made by Havahart, which makes the reputable live animal traps. This link shows it as a two-pack with 6 posts for \$79 (free shipping), but in the "Related Products" column on the right, you can get a single pack with 3 posts for \$47 (shipping extra). I am assuming the scent component comes with the repellents. Amazon sells it for \$52 with free shipping.

http://www.havahart.com/store/electronic-repellents/b5250?utm_source=google&utm_medium=cse&CAWELAID=1509369373&CAGPS PN=pla&gclid=CL2njKutjsACFcZQ7Aod8QEA5A#desc

Amazon link at: http://www.amazon.com/Havahart-5250-Electronic-Deer-Repellent/dp/B000BQRF60/ref=sr_1_1?s=lawn-garden&ie=UTF8&qid=1407868981&sr=1-1&keywords=havahart+5250

If you get these, let us know how well they work, especially the second one, which we have not yet tried.