DURHAM MASTER GARDENER NEWSLETTER
June 2009

Michelle Wallace, Durham County Extension Agent – Consumer Horticulturalist and MGV Coordinator
North Carolina State University Cooperative Extension Service

In This Issue:

This month we look at companion gardening. We finish our discussion on mulch. We hear about the field trip.

Durham County Center
721 Foster Street
Durham, NC 27701
MGV Desk: (919) 560-0528
Hort. Agent: (929) 560-0526
Fax: (919) 560-0530

Picture courtesy of Rick Fisher

Deer Ticks

2009 is turning into a bad year for the deer tick, aka the blacklegged tick. In April the groomer discovered a deer tick on my Lakeland Terrier and as I am writing this article I am finishing up a treatment of Doxycycline, prescribed to treat a deer tick infection. When in August 2007 I wrote an article on ticks for the Newsletter, I barely mentioned the deer tick, as it wasn't considered to be much of a problem in North Carolina. However, two years later it is now a problem.

Like all ticks, deer ticks (*Isodes scapularis*) are parasites that need to feed on blood during three out of the four stages of their life cycle. Ticks are not insects but are arachnids, members of the spider family. Essentially the life cycle of the deer ticks looks like this: egg→immature larva the size of a grain of sand→sexually immature nymph→sexually mature deer tick. Beginning life as an egg, the tick will hatch into larva; during this stage they will wait for an appropriate host, such as a bird or mouse, to wander by. Attaching itself to its prey, it will suck blood until engorged when it will fall off into the leaf lit-

ter. Here the larva will morph into an eight-legged nymph, resembling a poppy seed. This time it will seek a larger prey, perhaps a rabbit or squirrel, for a second meal of blood. After feeding on the blood, the nymph will fall off only to emerge as a sexually mature deer tick. At this point its host is larger, preferably either a deer or man. After feeding on blood for a week, it will drop off to lay its eggs. This whole process can take two years but the truly important stage to control is the nymph stage as that is when the deer tick passes on Lyme disease 90% of the time; it can be very hard to find a pest the size of a poppy seed on one's body. The larva doesn't carry the disease; it picks up the disease from its first blood meal from a diseased host: "If the mouse is infected with the bacteria that causes Lyme disease or other tick-borne disease agents, the larva will become infected and be able to transmit the disease(s) during its second and third feeding."[1]

Typically the nymphs appear in the spring and summer of the second year. The nymphs will molt into adult ticks in the fall when the males and the larger females will mate on a large mammal. Although they will attach themselves to a mammal, the males do not feed at this point so it is only the females at this point who can pass on disease.

Deer ticks hide out in moist vegetation such as in grass; my deer tick probably found me while I was raking up magnolia leaves from the grass. All the rain we received during this spring not only nurtured our flowers but also deer ticks. Hiding in the grass, the deer tick will attach itself to anyone who brushes by—this usually occurs at the ground level, not from trees. This is just another reason to see that the grass is mowed on a regular basis. Because the ticks are so small—even the adult deer ticks are tiny—wearing light colored clothing helps to expose them as does tucking pant legs into your socks, thereby making it harder for the ticks to climb over you before discovery. Nymphs are most plentiful between May and August. If you should find a tick, do not apply petroleum jelly or burn it with a lit cigarette; instead, grasp it with a pair of tweezers and pull until the tick is free. Wash the area, applying an antiseptic. Experts recommend that you mark your calendar when you rid yourself of the tick while preserving it by placing it in a plastic bag and freezing it for identification as different tick species carry different diseases. Inspect pets often to be sure they remain free of ticks, as they are susceptible to many of the diseases carried by ticks.[2] The good news is that ticks need to feed on their host 24-48 hours before they can transmit disease. All tick-borne diseases will manifest themselves between 3-14 days. Lyme disease can only be transmitted if the deer tick is on the host for a period longer than 24 hours. And remember, the single most important tick prevention is to closely inspect your body daily for ticks.

[1] www.health.state.mn.us/divs/idepc/dtopics/tickborne/ticks.html, p. 2.

Report on the Field Trip to Sandhills Horticultural Gardens, April 22, 2009

Pinehurst, NC – It was on a beautiful blustery day when 33 master gardeners toured the wonderful Sandhills Horticultural Gardens. Established in 1978, the gardens encompass 32 acres and include gardens of many styles and designs. Students of the Sandhills Community College Landscape Gardening Department maintain the gardens and as part of the course curriculum they work not only on garden maintenance but design and hardscaping. They boast two notable graduates of the college: the chief horticulturist at both the White House and Monticello.

A local Moore County Master Gardener led our group, navigating us through the Hackley Woodland Garden that featured many specimens of

[2] For more information on tick-borne diseases in dogs and cats go to www.peoplespharmacy to hear an interview with Dr. Edward Breitschwerdt, Professor of Medicine at the College of Veterinary Medicine at UCSU.

shade-loving plants for the Sandhills area. The azaleas and rhododendrons were absolutely gorgeous! The holly garden contains the largest holly collection on the East Coast and includes 28 holly species. The Sir Walter Raleigh Garden, which was more formal in design, included a small maze and herb garden. We walked along wood decking to the Desmond Native Wetland Trail, a nature conservancy and bird sanctuary, which featured plants indigenous to wetland areas. The cameras were clicking!

Following our tour we walked over to the SCC cafeteria for lunch amongst the students. Some of our crowd headed back home while others made a stop at Big Bloomers nursery in Sanford. It was a great day for gardeners!

Please stay tuned for details on our fall field trip.

Garden Musings: An Ode to Pepe

Something happened to my garden this spring: plants, such as my *Alocasia* 'Portodora' after returning faithfully for three seasons decided not to return this year, along with various cannas and a *Kniephofia* I had had for years. One nice side effect of sudden vicious deep freezes, such as the one we experienced last January or February is that I can blame their demise on Mother Nature instead of placing the fault squarely on my shoulders. And, as I ruthlessly explain to my friends, death is a common, yea necessary, occurrence in the garden. However, other plants returned with a vengeance: my perennial begonias, *Begonia grandis*, normally raise their sleepy heads in late May, late enough for me to wonder whether they will return. This year, they looked downright perky the end of March. Jim Massey told me his crinums appeared six weeks early in his garden.

Those plants that decided to reappear returned with a vengeance. Those promiscuous hellebores decided to make up for the vicious thinning last fall and grew and grew and grew. I estimate that I have at least six or seven generations of hellebores living in giant, impenetrable islands in my garden, islands that are impregnable to anything but copperheads—as I discovered last year. Since my chance meeting with the copperhead, I treat these islands with respect, giving them a wide berth during copperhead season, which in my paranoid mind exists for three out of the yearly four seasons.

Originally when I put in my hellebores, they were relatively new on the market and spindly specimens of the species wore a healthy $25.00 price tag. Two years later when the babies surrounded the mother plant, I was beside myself with maternal pride. Two years later these babies had given birth and I had three generations co-existing beside one another. From then on things got out of control in my hellebore world. Hellebores crept along, taking space from other plants: their march reminded me of the German *Blitzkrieg*.

I always forgave the hellebores their licentious behavior because their February and March flowers always manage to delight me. However this year their foliage was so thick that the flowers were either buried or nonexistent. Obviously it was time for my secret weapon: Pepe.

Pepe works for Sara Wilson of Sugar Lake Nursery [see November 2006 Newsletter]. I called Sara, telling her that the plants were going to suffocate me—always a sign the garden is overgrown—and that I needed Pepe. The only person I know who isn't scared of copperheads and has the tenacity to pull out mature hellebores, whose roots run deep, is Pepe. The fact I had a copperhead encounter in a bed of hellebores is the only proof I need to know that my hellebore islands are copperhead spas. In six hours Pepe, darling Pepe, had thinned the islands so you could see the individual plants. Miraculously he exterminated the millions of babies. Slowly I was finding my breath, realizing suffocation was no longer in the offing.

Then Pepe tackled the three camellias I have that always run amok. They are *C.* 'Snow Flurry' and they are the first to bloom in the fall. They are not *C. sasanquas* but are closely related. I welcome the arrival of these blooms as it means cool weather is to follow. However, these camellias grow in all sorts of directions: these are feral camellias, untamed, with a mind of their own. That would be all well and good except one of them always gets the camellia gall, which is harmless to the plant but which looks dreadful. Every spring and summer new growth is laden with these unattractive thick and distorted leaves. Pepe effortlessly brings these creatures under control, eliminating those branches laden with gall, but somehow he manages to avoid the all-too-common mindless round blob shape that I abhor.

The *Magnolia grandiflora* is undergoing its yearly shedding. Fifteen years ago a tree man (I cannot call him an arborist) cut off the magnolia's skirt, for reasons I still do not appreciate, while I was at work. The result is six straight weeks of massive untidiness, during which the magnolia threatens to drown the garden in its leaves. Magnolia leaves are tiresome as they do not compost well but manage when turned upside down to capture enough water to harbor the next generation of mosquitoes. I can keep up with the leaves except for the one week when the leaf shedding turns into a downpour. Then I need Pepe to bring the rapacious magnolia under control.

Pepe then turned his attention to the *Poncirus trifoliate*, the hardy orange. This specimen I nurtured for four long years before it deigned to bloom and produce its inedible oranges. This spring it managed to lose its formerly trim silhouette, becoming leggy, unable to decide which direction to expend its energies. Trimming the *Poncirus* takes a little caution as it has wicked daggers on its branches; these medieval daggers only exist to harm—I would rather trim a dozen rose bushes than tackle one *Poncirus*. Somehow, without armor, Pepe can tame this monster, for which I am eternally grateful.

The result of six hours of Pepe's time is that my garden is under control, the hellebores are no longer matted islands but are individual plants, my 'Snow Flurry' is without its leaf gall, and Pepe did not encounter any copperheads. Life is good.

Mulch—Part II

In the March Newsletter we discussed organic mulches along with the reasons to mulch and a brief history of mulching. This month we continue the discussion, exploring some soil additives and looking at inorganic mulches. Much of the following information comes from Mulch It! A Practical guide to Using Mulch in the Garden and Landscape (Storey Publishing LLC, 2001). *References to this book will be placed in brackets* [ ].

One advantage to using an organic mulch is it may improve the soil. There are also soil amenders that may also be used as mulch:

Coffee Grounds should be spread lightly and a layer should never be more than one inch thickness as the grounds will tend to cake. The disadvantage to using coffee grounds is that it takes a lot of grounds to make a difference.

Compost—partially decomposed compost is a "fantastic feeding mulch," which quickly disintegrates into humus [47]. Municipalities have yard waste collection sites but generally these are not good composting sites as often they are simply "big piles of leaves, grass clippings, and whatever else they collect." These piles are not turned; as a result they may not decompose properly. If you do take compost from these sites, store for a couple of months, turning it occasionally, and test the pH [49]. After a few months it should be fine.

Manure is the excrement from herbivorous farm animals—do *not* use dog or cat manure as they can spread harmful diseases. To use as compost it should be well rotted. The drawback to using well-rotted farm manure is that it can encourage weed growth. Fresh manure will burn

the plants while the packaged dry manure may contain harmful salts [48].

Peat Moss is "partially decayed, humus-rich plant matter from waterlogged soils, such as those in bogs" [49]. Taking peat moss from bogs is controversial as many conservationists believe more peat moss is taken from bogs than can be sustained. And, as a mulch, contrary to popular belief, peat moss has little value. Once it dries, it is extremely difficult to moisten, it decomposes slowly and it does nothing to improve the soil except for aerating it.

Paper can be a valuable mulch as it is a valuable resource to control weeds. While there is paper produced specially to be used as mulch, the most common paper available to us is our daily newspaper. Cover it with pine bark chips and no one will know that you are using an effective weed suppressant. Biodegradable black paper works the same way as black polyethylene but is slow to decompose. Roofing paper is both expensive and not practical; it also warms the soil around the roots, something our plants do not need in our hot summers [52-3].

Most **Inorganic mulches** fail to add anything to the soil although Stalite-PermaTill is an excellent additive to the soil because it increases the porosity of the soil and helps with nutrient exchange. It can also be used as a structural soil for roof top gardens and can be used to amend really horrible clay soils that have poor drainage. The JC Raulston Arboretum uses it to amend all their soils. The mix is approximately fifteen gallons of Stalite-PermaTill mixed in with one-half yard of soil along with lots of organic compost. **Aluminum Foil** is expensive and ugly in the garden but it will repel aphids. Bear in mind that it increases the aluminum content in the soil, possibly making it toxic. **Burlap** will decompose if made from an organic source such as jute or sisal while synthetic burlap—and burlap is increasingly synthetic—will not. It can prevent erosion on steep slopes but weeds easily poke through its porous construction [55]. **Fiberglass** is another product that is both expensive and ugly when used as mulch.

Geotextiles are textiles composed of polypropylene, a byproduct of petroleum. These fabrics are useful in the suppression of weeds. Their woven composition permits air and water to penetrate the soil while their dark color discourages weed germination. However, bear in mind that they add nothing to the quality of the soil, they should be covered with pine bark chips, and some weeds will penetrate the weave, leaving a hole.

Plasticulture is the agricultural process that the use of plastic mulches has spawned. Plastic comes in different colors—black, red, clear, and aluminized. **Clear plastic** is used for sun solarization and will literally cook the soil underneath, killing off weed seeds and pathogens if it is carefully secured to the ground during the months of July and August. Plastic "of any color practically eliminates moisture evaporation. Water condenses on the underside and drips back into the soil. This also tends to keep the seedbed in a friable condition" [58]. However, water cannot penetrate plastic so many gardeners find they have to install soaker hoses under this type of mulch. Another downside is that the soil cannot breathe under a plastic mulch so roots may suffer from oxygen depletion. **Black plastic** prevents weed growth as no light penetrates the plastic. **Red plastic** is relatively new on the market and works similarly to black plastic. "USDA tests show SRM-Red increases tomato production from 12 to 20 percent compared to black plastic mulch" [60]. However, it had no such affect on strawberry yields. Red plastic works by reflecting infrared light back up the plant, which causes tomato plants to grow more quickly. Lay plastic mulches over moist soil, weighing it down at intervals. Make X or T shaped holes for placing plants.

Stone mulches heat the soil. These permanent mulches come in a variety of forms from gravel and pebbles to flagstones. Limestone chips, of course, will raise the pH of the soil, which is

detrimental around acid-loving plants such as azaleas. Stone mulches are heavy, expensive, and do not deter weed growth.

Do you have a greenhouse? Then **vermiculite** might be the perfect mulch for you. Use a layer between ½-1 inch in thickness. Do not use it outside as it will add nothing to the soil but will fly away in a heavy wind.

When choosing a mulch, there are some factors worth considering: (1) cost is important if the mulching area is large; (2) availability must be considered; you might have your heart set on cocoa shells only to find there are none to be had in your area; (3) application ease: some mulches such as pine bark nuggets are much easier to apply than heavy stone; (4) appearance: many of us mulch for its decorative effect so you might want to avoid the pine bark nuggets dyed red if you dislike that artificial appearance while plastic adds little to the appearance of the garden; (5) water retention/penetration: plant mulches should allow for water penetration, something that is unnecessary for paths, for example; (6) permanence: fine mulches disintegrate more quickly while coarser mulches last longer; (7) some mulches, such as grass clippings, can emit unpleasant odors [64-65].

There are some basic rules to follow when mulching: (1) don't spread your organic mulches too thinly. Generally, the finer the mulch, the thinner the layer [76]. (2) Remember that plant and tree roots need to breathe so don't overmuch: "Let your soil breathe." Wet leaves form an impenetrable mass for example. (3) Replace old mulch on a regular basis. The roots of mulched plants can be lazy as the mulch is doing some of their work; many of these roots stay close to the surface as the mulch helps to retain moisture in the soil. If you remove the mulch in the middle of the summer, many of these plants will literally fry. (4) Try to keep mulch from getting compacted by fluffing it up if necessary. Refresh your mulches in ornamental beds. (5) In vegetable beds you might want to change your mulch from year to year: "This advice is based on the same principle that it is not a good idea to plant the same crop in the same place year in and year out. A good mulching may last for several seasons. When finally it does decompose, it should be replaced by something else. Plants and soil seem to like variety the way you and I do" [77-8]. (6) As a rule of thumb, sandy soils need a thicker mulch than do our dense clay soils. (7) Remember that darker mulches absorb heat whereas lighter colored mulches reflect the light, thereby heating the soil less.

There are a couple of things to look out for when using organic mulches: (1) be cognizant of signs of nitrogen deficiency: the bacteria that break down organic mulches need nitrogen, which they take from the soil. If your plants are turning yellow and are stunted, this might be the cause. Apply nitrogen and water in well. (2) Mold can grow on organic mulches especially in moist or shady conditions. To cope with this problem, turn the mulch regularly and tell yourself repeatedly that mold is more offensive to our eyes than it is to our plants. (3) Mushrooms and slime molds can be unappealing, albeit harmless, but are the result of the natural decomposition process. (4) If a disease such as artillery fungus, *Sphaerobolus stellatus*[3], has infected your mulch you must remove the mulch: *do not till it into the ground* [82].

Companion Gardening

Until Darcey Martin spoke to us about companion gardening at the April general membership meeting, I had given little thought about growing certain plants together for optimum results. Companion gardening is symbiotic gardening at its best. Taller plants can supply needed shade to shorter plants; some plants repel pests while others, like sunflowers, may attract them, leaving the companion plant pest free. Other plants may attract beneficial insects. Just as there are

[3] For more information on artillery fungus, see http://www.ces.ncsu.edu/depts/pp/notes/oldnotes/gp1.htm.

some people we prefer to others, this also seems to be the case with plants: some plants like particular plants better than others. In particular, most plants appear to dislike fennel, placing it way down in plant popularity polls.

Companion gardening is an old method of gardening; the Romans knew about it as did the Native Americans, who would plant the "Three Sisters" together: squash, corn, and beans.[4] The Greeks and the Romans knew the benefit of planting olives and grapes near one another. We know that a monoculture leads to a greater dependence on pesticides. To avoid a monocultural garden, mix up your crops, planting tomatoes throughout the garden rather just in one place. Intersperse herbs and flowers in your vegetable garden; marigolds have an aroma many pests dislike while their roots emit an essence that repels nematodes.[5] Mints, which can grow out of control, repel aphids while rue, which can cause a skin reaction, wards off Japanese beetles. Load up on basil, a member of the mint family as it also deters aphids.

Basil, it appears, is one of the magical ingredients in a successful garden. Not only does it deter aphids but also white fly detests basil so it might be a good companion plant for gardenias, which white flies find incredibly sexy. However, rue and basil are not a good mix so forego the rue as the rue "will poison the basil."[6] Another good all purpose herb to grow is parsley as aphids dislike it.

Some combinations are toxic: hyacinths and dianthus do not agree with one another. Hyacinths will kill off the carnations if the latter is introduced into a bed of hyacinths while the opposite is also true: established beds of dianthus will kill off the hyacinths.[7]

Potatoes—which I have never considered growing—have strong dislikes it seems. If you want potatoes, do not clump them around any fruit trees, tomatoes, or cucumbers. Put them with sunflowers only if you like stunted sunflowers; however potatoes will mesh well with beans and eggplant, which in turn will ward off the Colorado potato beetle. Do we even have the Colorado potato beetle here in North Carolina? Apparently we do—and this presents the problem of combination plant books: they are essentially lists. Read them and you will becoming acquainted with pests you never knew you had to worry about, pests such as the Colorado potato beetle, the carrot root fly maggot (which loves parsnips, a vegetable I am guaranteed never to grow), or the white cabbage moth.

Did you know there is a cabbage white butterfly to worry about? Well, if you grow cabbage you do not want this butterfly to lay its eggs in the cabbage you are planning to eat eventually so be sure to surround your cabbages with some dill or mint; aphids can plague cabbages so you might want to add orange—not yellow as aphids like the yellow—nasturtiums to repel the aphids; if the cabbage worm appears, plant some tansy and bury sticks of rhubarb in amongst the cabbage patch to protect the plants from clubroot. If after all this you still want to grow cabbages, you might need strips of tarred twines with twists of tinfoil attached to repel the cabbage-fly larvae. Lastly, apply some mentholated spirits if you should spot mildew.[8] I can honestly say that after reading this my desire to grow cabbages quickly evaporated.

Nasturtiums can be thugs in the garden but a blessing in the greenhouse if you are lucky enough to have one. Orange, not yellow nastur-

---

[4] www.seedsofchange.com/enewsletter/issue_55/companion_gardening.aspx, p. 1

[5] *Ibid*., p. 2. Does anyone besides me remember when Everett Dirkson, Senator from Illinois, wanted marigolds declared as the national flower of the US?

[6] Little, p. 87.

[7] Little, Brenda. *Secrets of Companion Planting: Plants that Help, Plants that Hurt* (Leatherwood Press, Chicago, IL, 2008), p. 54.

[8] Little, pp. 52-3.

tiums, keep away aphids but they also attract white fly, a plague in many greenhouses. The mustard oil secreted by nasturtiums is very attractive to these pests so that they will go to the nasturtiums, spurning the enticements of the other plants. The nasturtiums act as a decoy. Pair them with radishes if you like hot radishes.

Did you know that garlic makes roses smell sweeter?[9] Sage will protect cabbages against the cabbage moth but will make cucumbers bitter. Keep the tomatoes away from rosemary, potatoes, and fennel (nothing seems to tolerate fennel) but plant marigolds nearby to protect them from nematodes. Tomatoes dislike members of the cabbage family—and vice versa. According to Louise Riotte, if planted next to roses, tomatoes are instrumental in preventing black spot.[10] Smokers should wash their hands before handling tomato plants as they can unwittingly transfer tobacco disease to the tomato plants. Grow basil parallel to the tomato plants to deter disease.

These books on companion gardening are not particularly interesting gardening books for reading; rather, they serve as reference books. Growing corn? You will quickly learn to plant marigolds nearby to repel the Japanese beetles. Cucumbers, peas, and beans also complement corn. Did you know cucumbers repel raccoons? Eggplants need green beans as the Colorado potato beetle prefer eggplants to almost anything else, including potatoes.

The point is these books are strictly references that are helpful when you know what to plant and what pests you would like to avoid. Other sources of information on the subject of companion gardening are: http://www.ces.ncsu.edu/chatham/ag/SustAg/plantingguide.html and http://www.ghorganics.com/page2.html.

[9] Little, p. 87.

[10] Riotte, Louise. *Carrots Love Tomatoes* (Storey Publishing, North Adams, MA, 1998), p. 26. To make the spray from tomato leaves, put leaves (unspecified amount) in a blender, adding enough water to liquefy. Add four pints of water and one T. cornstarch. Strain and spray. It is the solanine, a "volatile alkaloid" in the leaves that deters black spot.

An Interesting Tip

Well, it's not much—a tip—for a longer lasting clean water for bird bath is to place 5 pennies in the water. Its slows the mung and lurgy growth (scientific term for the stuff that grows in bird baths)