June is NYS Forest Pest Awareness Month and the focus is on the emerald ash borer, arguably the most destructive forest pest ever seen in North America. It has the potential to change our forests and ecosystems as well as cause great harm to our landscape trees. We need all eyes watching in order to minimize the damage from this beetle. Please read the article on page 10 and do your part to help slow down this green menace.
Jolene

Soil is not a Dirty Word

By Pete Hagar

Soil is not a dirty word. Soil is an important natural resource that either directly or indirectly supports most of the planet’s life. Life depends on our soils. Plants grow in the soil and animals get their nutrients from the plants or other animals that eat plants. Many animals and organisms make their home or take shelter in the soil. Microbes in the soil cause the breakdown and decay of dead organisms, a process that in turn adds more nutrients to the soil. How we care for our soils has important consequences for our future.

It’s been a long time since I studied Soil Science and Agronomy, but a lot has changed in the understanding of how soil works and how our methods of farming affect its health. New research and methods of improving soil health are important to farmers more successful in the future.

One of the most interesting speakers I have seen in some time was Ray Archuleta, a Conservation Agronomist with the Natural Resources Conservation Service. Archuleta confessed to being a “former soil destroyer” even while being an agronomist with the NRCS. He related that commonly accepted management tools such as tillage, fertilizer and pesticide use can disturb the soil and upset the symbiotic relationship between fungi, microorganisms and crop roots.

Continued on page 9.
Great gardens are products of great soils. In addition, soil is a huge reservoir for holding carbon and the more carbon we can “lock up” in our soils and green plants, the less CO2 goes off into the atmosphere to add to the burden of climate change.

How can we as gardeners and farmers protect this most valuable resource, our soils? One way is by planting cover crops. Planting cover crops can save you time and money in the long run as well as other significant benefits such as:

- **Cut fertilizer costs.** Legume cover crops such as clovers convert nitrogen gas in the atmosphere into soil nitrogen that plants can use.

- **Reduce the need for herbicides.** Cover crops suppress weeds by acting as a smother crop that outcompetes weeds for water and nutrients.

- **Reduce the need for other pesticides** by:
  - Hosting beneficial microbial life that discourages diseases
  - Creating an inhospitable soil environment for many soil borne diseases
  - Encouraging beneficial insect predators and parasitoids that can reduce insect damage
  - Producing compounds that reduce nematode pest populations
  - Encouraging beneficial nematode species

- **Improve yields by enhancing soil health** by:
  - Speeding infiltration of excess surface water
  - Relieving compaction and improving soil structure (tilth)
  - Adding organic matter that encourages beneficial soil microbial life
  - Enhancing nutrient cycling

- **Prevent soil erosion.** Quick-growing cover crops hold soil in place, reduce crusting and protect against erosion due to wind and rain. The key is to have enough stalk and leaf growth to guard against soil loss. Succulent legumes decompose quickly, especially in warm weather. Winter cereals and many brassicas (mustards) planted in late summer or fall will put on significant growth even when temperatures drop into the 50s and often are more winter-hardy than legumes.

- **Conserve soil moisture.** Residue from killed cover crops increases water infiltration and reduces evaporation, resulting in less moisture stress during drought. Lightly incorporated cover crops trap surface water and add organic matter to the soil that increases infiltration to the root zone of the garden plants.

- **Protect water quality.** By slowing erosion and runoff, cover crops reduce pollution caused by soil sediments and nutrients. By taking up excess soil nitrogen, cover crops prevent nitrogen leaching into groundwater.

- **Lock up carbon.** Considerable amounts of carbon can be locked up in the biomass created by the roots of the cover crops.

Growing cover crops, like planting a variety of plants (vegetables, herbs, and flowers) and adding composted materials (kitchen and/or yard wastes and animal manures) helps revitalize your garden soil and improve the soil for future plant growth. Cover crop top growth adds organic matter when it is tilled into the garden soil. Its root system also provides organic matter and opens passageways that help im-

---

*Cover Crops 101*

*By Emily Selleck, Community Educator, Horticulture*
Cover crops continued....

prove air and water movement in the soil. This in turn improves the soil’s overall resilience and ability to handle periods of prolonged wetness and drought that seem to be part and parcel of climate change.

How do you select which cover crop is best for your particular situation?

Think about your goals for using a cover crop such as:
- Providing nitrogen
- Adding organic matter
- Improving soil structure
- Reducing soil erosion, especially on slopes
- Providing weed control
- Managing nutrients
- Furnishing moisture-conserving mulch

Narrowing your goals to one or two primary and perhaps a few secondary goals will simplify your search for the best cover crop species for you.

Cover crops such as annual ryegrass, oats, and buckwheat do not overwinter. These crops are easiest to work with in the spring since their tops have died back during the winter. Perennial ryegrass and winter rye produce a massive amount of top growth in the spring and may be difficult to incorporate. How does one choose what cover crop to plant?

For New York conditions, annual ryegrass is a vigorous grower with an extensive root system that occupies the same root zone as garden plants. Winter rye is another good choice that is best for late planting. Other popular and useful choices of cover crops are oats, winter wheat, sweet clover, and buckwheat.

To plant a cover crop, rake the garden area smooth removing debris or large stones. Broadcast the seed according to the rates on the package. Seed can be purchased at your local garden center or farm store.

For more information on cover crops:
You Can Grow Vegetables in Containers

By Jolene Wallace

This year we are seeing a growing interest in raising vegetables in containers, raised beds, or small spaces. More of our neighbors are interested in growing their own vegetables but don’t have the space, time, or inclination to put in a large garden. The good news is that all you need to grow vegetables in a container is one that holds a growing medium and has good drainage. This year I am growing tomatoes, bush beans, peppers, radishes, basil, and lettuce in containers on my porch. It only gets afternoon sun, so I “follow the sun” by carrying the pots out near the driveway in the morning and back to the porch in the late afternoon. This is one of the many benefits of container gardens; if they are not too large they are easy to move around. Want a cooking garden near the kitchen door? Get yourself some pots, buckets, bags, or basins. Enjoy the relaxing scent of herbs while reading or visiting with friends on the patio? Small pots on the patio table would be just the thing for you. You can even grow herbs in tin cans strung together and hung in a sunny spot.

Poor soil is another reason to consider container or raised bed gardening. Because you are choosing the growing medium you are not at the mercy of what you have available under your feet. There is also less weeding and is manageable for folks of all ages. The secret to growing vegetables in containers is to be sure the container is deep enough to accommodate the roots of the plant. If you know what the mature size of the plant will be, you know how deep the container needs to be. Many of the seed companies market container-sized varieties that are clearly marked as such and nurseries and garden centers have a variety of transplants that are container ready. Another essential feature of the container is good drainage. You can be sure that you are providing adequate drainage by drilling numerous ½ holes in the bottom of what you are planting in. Even the smallest pot needs at least one drainage hole. Use potting mix, not potting soil, as it drains well and is light enough for the roots to penetrate easily as they grow. If you use a potting mix that contains a slow-release fertilizer you won’t need to feed your containers for a while but if not you will need to feed them regularly with either a water-soluble fertilizer or a slow-release one. Read and follow the instructions on the label.

Your container garden will need more frequent watering than an in-ground garden. Check it daily because windy conditions or high temperatures can dry the soil out quickly, especially when the plant is a mature size. Stick your finger one inch down into the soil. If it feels dry, add water slowly until it runs from the drainage holes. Lifting the pot can give you a good idea of the moisture content too. Wet potting mix is much heavier than dry.
Container Vegetables, continued...

Vegetables that can be staked or trellised can be grown in larger containers. It’s always a good idea to place the trellis or whatever you choose for the plant to climb on at the time you plant to avoid damaging the roots by placing it when the plant is larger and the roots more extensive.

Take a look around the house, garage, shed, or thrift store for containers that you can use to grow some fresh vegetables. If you have a porch, balcony, or even steps leading up to your apartment, you have the room to grow vegetables at home.

We would be happy to provide you informative fact sheets about container gardening. Call us at 561-7450 or email me at jmw442@cornell.edu.

Plant a Few Extra Rows of Vegetables

Plattsburgh Gardeners!
2013 Plattsburgh Campaign to Plant A Row for the Hungry (PAR)

Did you know that the Interfaith Food Shelf feeds 500 families a month? This year let’s help them fill the shelves with fresh produce from our gardens. Plant an extra row or two and donate it to the Interfaith Food Bank and to local free meals programs. For more information go to http://www.plattsburghcommunitygarden.org/

For more information about Plattsburgh PAR or to volunteer contact:
Beth Dixon
dixba@verizon.net

Giroux’s Poultry Farm, Inc.
“FARM FRESH EGGS”
ORGANIC COMPOST
CRAIG R. GIROUX
WILFRED E. GIROUX
CHAZY, NEW YORK 12921
(518) 846-7300
Garden Tips for June

By Amy Ivy

Poor Germination

If your carrots, parsley, spinach and/or chard didn’t come up as well as you expected, you’re not alone. We’ve had many reports from people who had spotty germination with some of their direct sown seeds in May. We’re chalking this up to uneven temperatures, too dry, too windy, you name it. If you had poor success but your seeds were fresh, try planting again as soon as possible and hope the weather conditions will even out.

A quick review: the term ‘direct sown’ means seeds that are planted right in the ground, as compared to seeds started indoors and then transplanted into the garden as young plants, or transplants.

Rowcover

Rowcover is a generic term for a lightweight, breathable fabric-like material that is laid over crops to provide some protection. The material is very much like dryer sheets and is sold under a wide variety of brand names such as Remay, Agribon, and others.

Rowcover provides only a couple of degrees of frost protection, so a single layer is not very significant if the temperature drops below 30 degrees at night as we saw on May 13th and 14th. A second layer, laid right on top of the first on those frosty nights gives quite a bit more protection but that second layer needs to be removed during the day to let enough light reach the plants underneath.

Rowcover is best at creating a sheltered environment for young seedlings and transplants, mostly by blocking the wind. Young plants have tender tissue that hasn’t toughened up yet, and they can be significantly battered by wind. When plants can spend the first few weeks in your garden under the protection of rowcover, they get off to a strong start on the season. An added benefit of rowcover is it can keep cucumber beetles and flea beetles off susceptible crops, giving the plants a chance to become established and sturdy before having to cope with those pests.

It’s usually best to prop rowcover up above young plants on low hoops, which are simply lengths of 9 gauge wire or flexible PVC pipe bent into an arc and pressed into the ground on either side of your plant rows. You can use rocks or boards to hold down the ends and sides so they don’t flap in the wind. You can even bury the sides with soil but that makes it difficult to lift up the cover periodically to check on your crops.

Weeds

The bane of every gardener is weeds. I know just how hard it is to keep up with them, to pull them before they go to seed or tower over your crops. But try extra hard this month to get them when they first sprout and your job will be a lot easier the rest of the summer. Try to not let them get more than an inch tall and it will be a lot easier to scuffle them loose. A stirrup hoe works very well at slicing off baby weeds just below the surface as they begin to emerge, without disturbing your garden soil too much. Just run this hoe down...
your rows and aisles once a week and you’ll find it’s a quick and easy job.

**Early summer pests**

Two of the worst early summer pests in the vegetable garden are cucumber beetles which attach cucumbers, melons and squash (including zucchini and pumpkins), and flea beetles which attack all members of the mustard or crucifer family including broccoli, cauliflower, Brussels sprouts, arugula, Chinese cabbage and radish.

Unfortunately I don’t have any simple tips for dealing with these pests. Rowcover as I mentioned earlier, is one of the most effective ways to protect your plants. You may have to resort to spraying, and there are both organic and conventional products available to home gardeners that can help.

Check the label of any product before buying or using it to make sure that your plant (the host) and the particular pest you’re targeting are listed. When in doubt, contact our office and talk to Jolene Wallace in Clinton County (Plattsburgh), Emily Selleck in Essex County (Westport), or Richard Gast in Franklin County (Malone).

For more information about these 2 pests plus many more, visit Cornell’s Insect Diagnostic Lab’s posting of super helpful factsheets at: http://www.entomology.cornell.edu/cals/entomology/extension/idl/idlfactsheetlist.cfm

And for lots of information specific to New York relating to your yard, garden or lawn, visit http://blogs.cornell.edu/horticulture/ and follow the links to whatever interests you.
Pulling Up Color

By Chelsea Baxter, 4-H & Nutrition Program Educator

The weather is getting warmer and the plants are starting to come out in full bloom! This science activity allows youth to observe the elaborate systems of transportation for water and nutrients that occurs inside of plants.

Materials:

- Stalks of celery and daisies (the latter if possible)
- Newspaper or plastic tablecloth
- Small container (yogurt cups or juice glasses work well)
- Pitcher of lukewarm water
- Eyedropper
- Vegetable food coloring
- Sharp knife (for use by adults)
- Celery stem
- Daisy or daisy mum, if available
- Direct sunlight or a desk lamp

Focus: Have youth observe the celery stalk or daisy stem. Say something like, “How do you suppose a stalk or stem gets the nutrients and water to all parts of the plant? Let’s find out!”

The Activity:

*Prepare your surface with a tablecloth or newspaper and have a pitcher of lukewarm water handy.

Have children fill their container about 1 inch deep (about 1/3 cup) with water.

Add at least 20 drops of food coloring to the container with water.

Cut the bottom end of all four celery and daisy stems, so that each has a fresh cross-section cut.

Have children place one celery stem and one daisy stem, cut side down, in each container.

Place containers in direct light from bright sunlight or a desk lamp.

*Let the children know that you will be returning to this activity in about 30 minutes.

When you return:

Make cross-section cuts along the celery stems at various points. Have the children look for evidence that the colored water is moving up the stems.

Cut the “strings” or vascular bundles, in the cross section.

Explain:

The roots of a plant absorb water from the soil. As the water enters the roots, it pushes the water already inside of the plant stem upwards. The water molecules in the pathways then stick to each other and also to the sides of the stem. Once the water has reached the top of the plant (leaves) it is evaporated into the air.

This newsletter is also available on our website:

http://blogs.cornell.edu/cceclintoncounty/
under Gardening: News

North Country Gardening
Soil is not a Dirty Word continued...

Continued from page 1.

Such management tools can break down the structure of the soil, leading to poorer water infiltration, more run off and erosion, and fewer soil organisms to help glue the soil together and provide the pores that allow for infiltration of water and the cycling of nutrients.

When soil is managed for microbial habitat, there are fewer disturbances of soil, more diversity of species and more living roots. “The goal is to have a live root for as long as possible,” said Archuleta. “Tillage causes disruption of pore space, which impacts the water cycle. With conventional tillage, there is low aggregate stability; with no-till, aggregate stability is very good, and natural vegetation has high stability.”

Along with limited tillage, another focus is feeding the soil and the soil organisms. Archuleta is strongly in favor of allowing animals to distribute manure on the fields. “Manure is energy, not a waste product,” said Archuleta. “It’s food for your microbes. Microbes break down and reduce the bulk density of soil. Manure improves the physical, chemical and biological complex of soil.”

So while the sight and smell of large manure spreaders driving down country roads may wrinkle your nose, farmers are feeding the soil with natural fertilizer, recycling the nutrients that the crops removed and continuing the cycle of life.

The glues are manufactured by the microbes, fungi, and earthworms that live and work in the soil. Tillage or physical disturbances that result in bare soil are the physical equivalent of a tornado that creates a hostile workplace for these organisms. For years we have believed that tillage was necessary to incorporate organic matter and prepare the seed bed for planting. Who hasn’t rototilled their garden to a smooth soft bed of fluffy soil? But, by disturbing and aerating the soil we are breaking it down and collapsing the pore spaces that are critical to the nutrient cycle.

---

Ken Campbell owner  (518) 293-7972

Campbell’s Greenhouse  Buy Direct From The Grower

Located At:
35 Ryan Road
Saranac, NY 12981

Mailing Address:
P.O. Box 339
Dannemora, NY 12929

Are you curious about all that’s going in our 4-H program?
Check out the Clover Express at the link below! Call our office if you’d like to find out more about how you can get involved.

http://www.ccecc4hce.blogspot.com/
Invasive Species Put Trees at Risk

By Jolene Wallace

The emerald ash borer (EAB) is a destructive beetle that has the potential to destroy the 900 million ash trees in New York. Our forests and landscapes could be irrevocably altered. The question is not if we will have the beetle, but when.

The EAB is small, about 3/8 to 1/2 inch long and is bright, metallic, emerald-green. Its natural range is eastern Russia, northern China, Japan, and Korea. It probably came into the United States in crating materials or cargo ships. It was first discovered in 2002 in Michigan and Ontario, Canada. It’s likely that it was more widespread than that but had yet to be discovered. According to the Emerald Ash Borer Information Network, www.emeraldashborer.info, it has now been found in Michigan, Connecticut, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Massachusetts, Minnesota, Missouri, New York, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, Wisconsin, Ontario, and Quebec.

The EAB itself does little harm but as the eggs, which are laid in bark crevices and bark flaps on the ash trunk or branches, hatch, the larvae, which have distinct bell-shaped segments, chew through the bark and into the cambium of the tree. The cambium is the part of the tree where nutrients flow. As the larvae feed on these nutrients they form serpentine galleries, s-shaped feeding tunnels. The tree, which can no longer transport the nutrients and water it needs, begins to die from the top down.

Other signs that an ash tree is infested with EAB are D-shaped holes where the adult beetle has emerged from the tree in late spring, increased woodpecker activity, and epicormic branching, shoots sprouting from the trunk of the tree.

The EAB has already killed 10s of millions of trees in the United States. There is no chance of eradicating it but it can be slowed down. The EAB is a strong flyer but transport to new areas by humans accounts for much of its spread. Moving firewood is the most common way that we aid in the transport of the EAB.

Effective May 1, 2013 the Animal and Plant Health Inspection Service (APHIS) added all, or parts of, 21 counties in New York to a list of regulated counties. These regulations, which we should abide by although we are not yet a regulated county, imposes restrictions on the transport of regulated items which include ash trees of any size, including nursery stock, any parts of ash trees including leaves, bark, etc, any item made from ash wood, firewood from any species of tree, and some wood chips and bark mulch.

For details of the restrictions visit www.dec.ny.gov.animals

Serpentine Gallery caused by larvae

What you can do
- Learn to identify ash trees.
- Look for signs of EAB infestation
- Don’t move firewood
- Report suspected infestations
- Stay informed
Mosquito Season

With the large amount of rain we had in May and the increasingly warm temperatures, the conditions are favorable for mosquitoes. One way to cut down on these nuisance pests is to eliminate standing water around your home and property. Mosquitoes need very little standing water to breed. Take a walk around your property and empty or dispose of any receptacles that can hold stagnant water. Old tires, buckets, and unused pots are just a sample of the items you may have around your property. The tray under your container plants is an often overlooked site where mosquitoes can breed!

Events and Happenings

INVASIVE SPECIES PROGRAM—Wednesday, June 12
Master Gardener volunteers will be at the Chazy Public Library on Fiske Road in Chazy from 6:00-7:30 PM to talk with you about the emerald ash borer, the Asian longhorned beetle, weeds, and other gardening topics. Bring your questions to this free program. RSVP to 561-7450 or email Jolene at jmw442@cornell.edu.

FARMERS MARKET—Our Master Gardener Volunteers are at the Plattsburgh Farmers and Crafters Market at the pavilion on Durkee Street every Saturday morning from 9:00 am till noon. Each week we have information on the latest gardening issues in Clinton County. Come in to see us!

Invasive Species, continued...

We have a wealth of information in our office about the EAB and a number of other forest pests that we would be happy to share with you. If you would like a color brochure, an EAB wallet sized ID card, or would like to arrange for us to do a program for your organization or group, please let us know.

Epicormic Branching

Note: While this invasive pest probably arrived in the United States in packing materials or via cargo, please be aware that the U.S. has almost certainly sent insects to other countries in the same way. The threat is being taken seriously and research is on-going.

North Country Gardening
North Country Gardening
June 2013

Cornell Cooperative Extension Clinton County
6064 Route 22 Suite 5
Plattsburgh, NY 12901

Phone: 518-561-7450
Fax: 518-561-0183
http://blogs.cornell.edu/ccceclintoncounty/

Better Living from the Ground Up

CURRENT RESIDENT OR:

This issue made possible thanks to donations from:
Our Business Sponsors
Readers Like You
and
The Chapel Hill Foundation
Thank You!!

Cornell Cooperative Extension provides equal program and employment opportunities