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Supporting Sustainable Agriculture  
in the Southern Appalachians through  
Educational Programs and Outreach



...e-news

See it, Learn it, Do it at the True Nature Country Fair



**JUST TWO WEEKS  
AWAY!!!**

Learn bread-baking, spoon-  
making, sheep herding,  
garden season extension,  
spinning, medicinal herbs,

primitive skills, old time music, wild plant I.D, and more! The 5th annual True Nature Country Fair on October 8th, 2011 at Highland Lake Cove in Flat Rock, NC has something for everyone. [OUR SCHEDULE IS ONLINE](#) and you can [buy tickets in advance](#). Buy your adult tickets online and get a free kids pass! Also, don't forget about [One Bowl](#), our local foods dinner with an artisan focus. For directions and other details, [visit the website](#) or contact Karen Vizzina at [earthstarnc@earthlink.net](mailto:earthstarnc@earthlink.net) to get involved. **SEE YOU THERE!!!**

### News Bits

News Bits are reader-submitted news, events, and opinion. Submit your bit via email.

#### **The Fight for Healthier Food**

Health expert Jillian Michaels, a regular contributor to everydayhealth.com, has conducted an exclusive interview with chef Jamie Oliver on "The Fight for Healthier Food." To listen, visit the following link: <http://www.everydayhealth.com/healthy-living/jamie-oliver-on-the-fight-for-healthier-food.aspx>

#### **Save the Date!**

The 19th annual Organic Growers School Spring Conference will be held March 3 & 4, 2012 at the University of North Carolina at Asheville. Join over 1700 farmers, gardeners, chefs, homesteaders, and other food activists for the southeast's largest sustainable food conference. Registration and

### Tech Notes

it's the little things...

At our September CRAFT tour at Useful Plants Nursery, we picked up a couple of tidbits for you from Debbie Lienhart and Chuck Marsh. Here goes...

1. When Chuck first started the nursery, he built a



few PVC  
hoophouses to  
get himself going  
on a postage size  
stamp piece of  
land. **He used  
bamboo in  
addition to the  
PVC to reinforce  
the structure of  
the houses, and**

the same houses still stand today, despite years of wind, snow, and other weather. No matter the size of your DIY house, use this technique to make it nature-strong!

schedule to be posted online in late December. For more details, or to sponsor, contact Meredith McKissick at [meredith@organicgrowersschool.org](mailto:meredith@organicgrowersschool.org)

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2. We all know that growers like to geek out about growing mediums and particular pots and the folks at UPN are no exception. They proudly showed off their **"Rootmaker" trays, which support the growth of fibrous root systems.** Air holes in each cell prune the roots at each stage of growth, leading to finer branching, and more root surface area. The resulting plants are able to access nutrients and water with greater ease, and acclimate better as they mature. These trays are designed specifically for nursery production, but need not be limited in their use, as all plant roots benefit from air pruning as they begin to develop. Unlike the elusive winstrip trays, Rootmaker products are available for purchase...all the time. Visit [www.rootmaker.com](http://www.rootmaker.com).



## Access the Archives

Are you a newer subscriber? Did you know that we archive our eNewsletter so you can access tech notes and farmer/gardener articles from the past? [Visit our website to access the eNewsletter archives.](#)

## MEET CRAFT

### Useful Plants Nursery

by Andrea Van Gunst



CRAFT's September tour at Useful Plants Nursery was well attended and on a beautiful Saturday afternoon at Earthhaven Eco-village: many thanks to Chuck and Debbie for hosting us! We started our tour by sitting down to hear more about the nursery industry and to listen to the story of how Useful Plants got started and how it got to where it is today.

Chuck was the original founder of Useful Plants Nursery (UPN) and it started in his front yard at Earthhaven. He started UPN because he found it hard to find good plants to buy from other nurseries and he wanted a source for local, high-quality plants with a year-round availability. His business expanded over the next 6 years and it grew to be Chuck, 1 intern and 1/4 - 1/2 acre of nursery space. The business began to formalize in 2008 and in 2010

Debbie came on to join Chuck as a business partner. At this time, Debbie and Chuck hired on workers as well as apprentices. They have figured out a good work division between them where Debbie manages the website, the books, sales, does a lot of the driving to deliver plants and works with the plants as well. Chuck has a vast knowledge of horticulture and he spends a lot of his time tending the plants and teaching others how to plant and grow.

Folks on the tour appreciated Debbie and Chuck's honesty about the economics of running a nursery. Debbie stated that while \$60,000/acre is a typical gross income for a nursery, it is in reality quite hard to make a net profit. They are constantly evaluating their business to better understand how to make it more profitable.

Their customer base currently breaks down to be 1/3 landscapers, 1/3 public (at earthhaven and tailgate markets), and 1/3 from plant sales. Debbie mentioned that trying to sell more unknown plants to the public was extremely hard so when they realized that 2/3 of their sales were to the public, they began to grow more known plants and varieties. Chuck also said that to run a successful nursery, you need to keep changing what you grow; you need to keep looking for the next niche that has not yet been filled.

We then started our walking tour of Useful Plants. Debbie and Chuck were recently awarded an AgOptions grant for a large greenhouse and it almost finished. They are just starting to get mister systems set up, propagation benches moved in, etc. They have lots of space to grow into this new greenhouse but they also showed us their other expansion –they plan to do more forest growing for the nursery. This will allow for a more organic feel with potted plants placed inside other pots that are sunk in the ground. Customers will then be able to walk through and see trees and shrubs in a more natural habitat.

Debbie showed us some of her grafting successes with persimmons and showed us how to start plants from cuttings. They also showed us their soil trays ("RootMaker") that are specifically designed to grow fibrous roots. We ended our tour with a trip up the hill to Chuck's backyard where Useful Plants began. Debbie noted that it's important for folks who are aspiring to farm but have no land to see that a lot a lot can be done in not very much space – Chuck made an income for himself in the first years from several small hoop houses and not more than 1/4 acre of space. We ended up in one of the first hoop houses, a simple design of pvc and bamboo has kept this hoop up for many years and is a great example of what can be built on a small budget. Our potluck was delicious as ever – thanks to everyone for coming out, bringing delicious food and such enthusiasm to learn.



CRAFT is a farmer-led training program for aspiring growers. Membership is rolling, so join today! [Details available online.](#)

## Farmer's Corner

### Ask Tom



Hello -- Thanks for the latest newsletter. Great info! I've been having tomato leaf blight on almost all my tomato plants. Is there any way to eliminate this? Thanks!

Patricia Roshaven

Patricia –

Blight is both a specific and a generic term for leaves that wither and die. Many diseases can affect tomato leaves. This link from NCSU offers a collection of scary pictures that may help identify the particular problem that affected your plants.

[http://ipm.ncsu.edu/Production\\_Guides/Tomatoes\\_gallery/AG-405WebAppendix.pdf](http://ipm.ncsu.edu/Production_Guides/Tomatoes_gallery/AG-405WebAppendix.pdf)

This photo shows early blight on tomatoes. Despite their similar names, early and late blight are different diseases. Early blight is soil borne and infects the tomato plants from soil that is splashed onto lower leaves and then it moves up the plant. In dry years tomatoes can often outgrow early blight so yield is not greatly affected. Organic and plastic mulch help avoid that initial infection from the soil. Removing yellow leaves with the characteristic target spot also helps, if you can take the time to do that at your scale. The main organic management method for early blight is vigorous plants.



Correct pH, regular irrigation, and soil supplements matching the soil test results are some of the best ways to ensure vigorous plants. In most years early blight is a nuisance but will not threaten the success of your crop. Remember that tomatoes are heavy feeders and a long crop will need

supplemental nutrition to keep the plant growing actively.

Late blight is a completely different disease. The first step in managing late blight is to get in the proper frame of mind. I suggest putting on the Jaws soundtrack. Late blight is the same disease that led to the Irish potato famine. One August I was anticipating my best tomato crop ever when ten days of rainy, misty weather moved in. A few days after I saw the first blight damage, the foliage was gone, the fruit were infected, and the crop was a total loss. That disappointing experience led to a SARE-funded research project on our farm and on Pat Battle's farm in Celso. We tested compost tea, hydrogen peroxide and copper sulfate – all organically approved control methods. None worked outside but copper worked great under cover. In my view, copper fungicides are the only organic solution to late blight.



Copper fungicides have three problems. The first is that copper is a nutrient at low concentrations but it is toxic to plants at high concentrations. Excessive spraying over several years can damage your soil indefinitely. The second problem is that copper is a preventative fungicide. It does battle with fungal spores on the leaf surface. Once the invaders infect a leaf, that leaf is lost, so copper must coat every leaf before the fungal spores arrive. Unlike early blight, late blight is air borne. It blows in from other states and drifts down on the tops of plants. The leaves appear water-soaked and black. The third problem with copper is that it washes off in the rain.

Despite all this gloom and doom, organic tomato culture is not hopeless. First, not every year is a late blight year. When the weather turns dry in late August and September, late blight may never appear. Growing tomatoes under cover is another solution – one that has worked very well for us. Greenhouses and cold frames are expensive, but without direct rainfall, copper fungicides stay on the leaves and are very effective at preventing late blight.

Breeders at the NCSU Mountain Horticultural Crops Research and Extension Center have an active tomato breeding program. They isolated the genes that resist both early blight and late blight. Some of their crosses include heirloom tomatoes so our hope is that we will soon have heirloom flavor in a blight resistant tomato. A few blight resistant varieties appeared in the Johnny's catalog this year. Growers are trialing others in hopes of having even more varieties in the next several years. (Please note that I referred to a breeding program. A genetic engineering to disease resistance approach is ruled out for organic production.) Check with Dr. Dilip Panthee at the Mt. Hort. Center if you are interested conducting trials for some of these new varieties..

For now, here are my recommendations for organic tomato growers:

- Use vigorous plants and mulch to manage early blight.
- Use drip irrigation to avoid long periods of wetted leaf surfaces.
- Invest in cold frames or greenhouses for "insurance" against late blight
- Plant no more tomatoes outside than you are willing to lose
- Find an acceptable copper spray on the OMRI list and use it weekly as soon as late blight is reported in the area.
- Use a mist blower to ensure good coverage deep into the plant foliage.
- Use plastic mulch to intercept copper overspray (your certifier will ask about this issue).
- Keep spraying even if late blight gets into your coldframe. (You may lose leaves but you can protect

the new growth with weekly sprays.)

- Try out the new resistant varieties to see if they work for you.
- Rotate tomato crops to leave soil-borne diseases behind.

If you're interested in reading more, Debbie Roos of the Chatham Co. Extension office wrote a great article on blight that you can find [here](#).

You can take the Jaws soundtrack off now. Tomato blights are manageable but we need to plan ahead to do it well.

Happy Growing.

-- Tom

**Farmers: Got a Question for Tom? Email it to [enews@organicgrowersschool.org](mailto:enews@organicgrowersschool.org)**

## Gardener's Corner

### Ask Ruth



*Dear Ruth,*

*Something is attacking my greens. I've never seen them before, but my neighbor says they are harlequin bugs. They are orange, white, and black and look kind of like a stinkbug.*

*Freaking out,  
Dave in Fairview, NC*

Dear Dave,

Your neighbor's right! These distinctive black, orange, and white bugs could almost be called pretty ~ if they weren't so tenacious. I had never encountered them until about ten years ago when my kohlrabi took a major downward dive. The plants seemed to die in just a few days, but in truth the harlequin bugs were probably sucking the lifeblood from the plants long before I noticed they had

invaded.

**Harlequin bug**, *Murgantia histrionica*, is a shield-shaped true bug and is most prevalent in the southeast. It damages plants by sucking sap from the leaves, stalks, flowers, and fruit with its needle-like piercing mouth parts. Their black & white eggs are barrel-shaped and have a circular lid. The adults and nymphs look alike at a glance ~ they both sport the distinctive harlequin bug colors, but the nymphs are smaller and wingless. The nymphs molt several times before they become a winged adult (adults are about 3/8" long). Plants in the brassica family (broccoli, cauliflower, cabbage, collards, kale, mustard, wild mustard, turnips, etc.) are among their favorite foods, but harlequin bugs will also attack other plants when their favored foods become scarce. During milder winters they have been spotted ~ in all stages of their life cycle ~ as far north as



*harlequin bug eggs*

Virginia.

**Linda Blue**, Buncombe County Extension Agent and longtime OGS volunteer-extraordinaire, has this to say about harlequin bugs, "Unfortunately, as far as I know there are no good organic controls for harlequin bugs - difficult even with synthetic chemicals. Other than hand removal to a container of soapy water, one could try something like pyrethrum, but you'd have to directly contact the insects with the spray."

**I asked a few farmers** at the tailgate market what they do. **Anne Grier** of Gaining Ground Farm recently sprayed Neem Oil for harlequin bugs; she reported that it wasn't very effective; she had a less than 25% knockdown result. **Alex Brown** of Full Sun Farm said that Pyganic (a pyrethrin spray) doesn't work on harlequin bugs. He suggested trying Molt-X. I googled Molt-X, and it does list "true bugs" on the label *and* it is OMRI approved for Certified Organic growers with restrictions. I first heard about Molt-X last spring ~ when **Meredith McKissick** of Crooked Creek Farm used Molt-X for cabbage maggots and she got a bonus outcome ~ her arugula was undamaged by flea beetles. Intrigued that Molt-X may be the solution, I did a price check on the internet. Surprise! The pint size container was listed at \$149. Although it takes a miniscule amount to do the trick, the expected shelf-life on the pricey insecticide is 15 months. That cost may be beyond the means of most gardeners to protect a handful of plants...it would be more cost-effective to buy greens at the tailgate markets!

**A gardener at Monticello** (Thomas Jefferson's home) suggested this routine for harlequin bugs. Spray plants thoroughly with Safer Soap to soften the insect's shell. Then 3 days later, spray with pyrethrins. The bugs will be more vulnerable to the pyrethrin because of the Safer Soap. As Linda pointed out, *the spray must contact the insect*. Home gardeners may have an advantage here. Since farmers are often using tractor-mounted sprayers, the product may not reach into all the nooks and crannies of the plant. A home gardener can use a hand sprayer and reach most areas of the plant (be sure to include the undersides of leaves).

According to one study, harlequin bugs are able to "sequester glucosinolates from its host plants for use in defense against predation [by birds]." That means they can accumulate the **stinky-factor** from cruciferous plants and use it to make themselves distasteful to birds. Bummer. We can't count on birds to control this bug!



Last year harlequin bugs turned up in my garden and then returned with a vengeance this year. Between the dry weather and those bugs, by mid-August my garden looked fried. They really love collard greens, and I sacrificed my collards to the harlequin bugs hoping they would leave the kale alone. It worked until they decimated the **trap crop** (collards) and moved on to the kale. Here's the catch: If the harlequin bugs are left undisturbed while they eat the trap crop, they are constantly reproducing and their numbers are growing exponentially ~ until the plants and garden floor can be positively writhing with creepy harlequin bugs in various stages of their life cycle. This larger population will be much harder to eradicate.

**Parasitic wasps & parasitic flies** can be purchased for release in the garden, or you can try to attract native ones by growing flowering plants that produce nectar or pollen. They will parasitize the bugs and help control bad bug populations. Plant beneficial insect

plants (umbral plants like Bronze Fennel, Dill, & Queen Anne's Lace) to attract parasitic wasps and flies, and other beneficial insects to your garden area.

#### Conclusions for garden scale control of harlequin bugs:

- 1) **Keep your garden and surrounding area free of debris/weeds all year long.** Debris/weeds will provide habitat for the bugs during the season and protection for bugs over the winter.
- 2) Harlequin bugs are difficult to control, so **be proactive**. *Pay attention as soon as you see one single bug.* Scout for eggs and bugs. Eggs hatch more slowly in spring when temperatures are colder. Squish eggs and hand-pick the bugs off your plants and drop them into a jar of soapy water. Bugs will be easier to catch in early morning when they are moving more slowly. Act early and destroy bugs before they have wings and before they reach their reproductive stage.
- 3) **Plant resistant varieties** ~ *NC State Plow Sharing, Sept. 2001 suggests: Cabbage - Copenhagen, Market 86, Headstart, Savoy Perfection, Drumhead, Stein's Flat Dutch, and Early Jersey Wakefield; Collards - Green Blaze; Cauliflower - Snowball X and Snowball Y; Radish - Red Devil, White Icicle, Globemaster, Cherry Belle, Champion, and Red Prince*
- 4) **If you spray**, remember that the spray must contact the bug to be effective. Try Safer Soap, pyrethrins, or sabadilla. Spray very early in the morning or late in the day in order to prevent leaf burn and avoid contact with honey bees.
- 5) **Remove or till in any plant material** or crop residue left over after harvest. Till affected area *after the weather turns cold* to reduce populations.
- 6) As always, **maintain healthy plants** by providing adequate water and fertilization. Healthy plants will be less susceptible to insect damage.

Good luck with these bugs Dave, and thanks for writing,  
Ruth

**Gardeners: Got a question for Ruth? Email it to us**

[enews@organicgrowersschool.org](mailto:enews@organicgrowersschool.org)

**Ruth Gonzalez** is a former market farmer, gardener, local food advocate, and founder of the Tailgate Market Fan Club where she blogs at <http://tailgatemarketfanclub.wordpress.com>. In her job at Reems Creek Nursery, Ruth offers advice on all sorts of gardening questions, and benefits daily from the wisdom of local gardeners.

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