

Sustainable Agriculture

Looking forward for this generation
and the next...

at **UGA**



Spring 2014

It's been a tough winter, but there is still a surprising amount of activity going on in preparation for the spring growing season. It will come and we have a number of ideas and tools for it in this issue. Unfortunately with the very wet and cold weather, we have had a number of plant diseases popping up in greenhouses and hoop houses. See the article on how to manage late blight and its implications for next summer in the *Growers Corner*. In addition to weather challenges, we have had a number of invasive insects moving into the state over the past several years. A new potential problem is the brown marmorated stink bug. Read on to see how you can help.

It's not all bad though. We have a time-saving tip for those of you that transplant into beds laid with plastic and an idea for promoting more farm to chef collaboration through "speed dating".

I hope the weather has not been too hard on you. Here's wishing for spring!

Julia Gaskin
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Upcoming Events

March 10-ongoing: Free Farm Commons Webinars
March 11-ongoing: Soil Health Webinars series
March 25: Grazing and Forage Field Day
March 26-28: National Food Hub Conference
April 26: Southeastern Sustainable Livestock Conference

Find more information on these events at
www.SustainaAgGa.org

Also find basic principles of sustainable agriculture, Extension bulletins, research publications as well as archived copies of this newsletter at the above website.

Grower's Corner

There's a New Pest in Town:

Brown Marmorated Stink Bug

The brown marmorated stink bug (BSB) is a rapidly spreading invasive pest that damages fruit, vegetable and ornamental crops in the U.S. Strangely, only the adult form has been spotted in Georgia, with no sign of nymphal populations (very young growth stage). Scientists want to document the establishment and spread of this invasive species and determine if this pest is reproductive in Georgia. To do this, they need farmers and gardeners help.

How you can help!

Take a look at the pictures below and see if the stink bug matches those in your crops. Send digital images of a suspected stink bug – adults and/or nymphs - to Rick Hoebeke, the curator of the Georgia Museum of Natural History, UGA, Athens, GA and an expert in identification of this pest at rhoebeke@uga.edu.



Nymph stage (1st instar)

Nymph stage (1st instar)

- Stays near eggs,
- Dark reddish eyes,
- Yellow-reddish underbelly with black stripes.



Older Nymph stage



Adult stage

Older Nymph (instar) and Adult stages

- "Shield" shaped body,
- Mottled Brownish grey,
- Rounded shoulders,
- Antenna have black and white banding,
- Brown-grey underside.

In addition, please ship specimens in a crush-proof container to E. R. Hoebeke, Collection of Arthropods, Georgia Museum of Natural History, UGA, Athens, GA, 30602. To prepare this insect for the trip, capture one alive, place it in a container and put it in the freezer to kill it. Then carefully wrap and mail it. Please include the city, town, or county the stink bug was collected in, date of collection, where it was found – house, plant, etc., and contact information.

For more information, you can check out these websites,

- Stopbmsb.org

- njaes.rutgers.edu/stinkbug/identify.asp

or contact Glynn Tillman, USDA ARS Research Entomologist at Glynn.Tillman@ars.usda.gov.

Dr. Glynn Tillman
USDA ARS

*Photos: Stopbmsb.org and
njaes.rutgers.edu/stinkbug/identify.asp*

RC Pinhead: A Plastic Mulch Labor Saver

Using plastic to grow vegetables presents a dilemma for many farmers. They want to reduce their dependence on fossil fuel, but it is a very effective way of reducing weeds. For weed sensitive crops that can be transplanted such as onions, using plastic may be a grower's first choice. One of the labor sinks for using plastic on a smaller scale is hand-punching the holes for transplants. Although there are commercial products called peggers available, these can be expensive for a small grower.

Farmers are an innovative bunch and the farm manager and crew at the Durham Horticulture Farm – Ryan McNeil and Carl Hall - are no exception. They built an inexpensive pegger for onions that can be adapted for spacing holes for other crops. We christened it the RC Pinhead in their honor. Here's how it works.



The RC Pinhead mounted on an old Cole Planter for use with the tractor. Ryan McNeil, one of the creators is standing by.

The RC Pinhead uses a 6-inch PVC pipe with a 6-inch coupler and several bushings and a 7/8 inch steel rod as an axle.



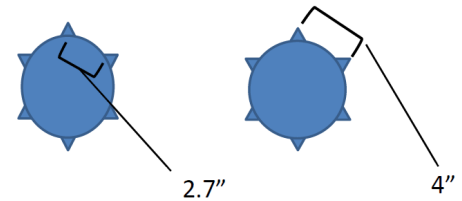
A close up of the RC Pinhead with the PVC bushings and steel rod axle.

Holes were drilled into the PVC pipe and bolts were fastened in to punch the transplant holes. They made a frame to hold the axle from an old Cole planter that had two cultivator sweep arms. They removed the sweep blades and widened the bolt holes in the sweep's arms to hold the steel rod axle. This arrangement allows the Pinhead to be pulled behind a tractor. It has also been used manually by pushing it down a bed when the ground was too wet for a tractor.



A close up of the bolts that punch holes for the transplants.

Things to consider if you want to make one yourself include the bed width and the hole spacing you need. The RC Pinhead is designed for beds about 38 inches wide where you would have laid a 5-foot wide plastic. We planted four rows of onions on this width bed and these are spaced about 4 inches apart. Divide the perimeter of the 6-inch PVC pipe up evenly so that the spikes line up as it turns. For example, the perimeter is 21 inches. If this is divided by 8, you obtain a 2.7-inch spacing on the pipe where you will drill the holes. However, this is not the spacing of the holes in the plastic. The actual spacing on the bed is determined by the length of the bolts used. Using a 3-inch bolt, the 2.7-inch spacing gives you about a 4-inch spacing.



An illustration of the difference between the holes drilled in the PVC and the bed hole spacing.



Using the RC Pinhead manually when the soil was too wet for a tractor.

The RC Pinhead saved us 2.5 to 3 hours of labor on 1,600 ft.² This would be about 75 hours over an acre. The estimated total costs is less than \$100. An exact cost is hard to calculate since old parts and pipes were scavenged from the farm.

Parts List for RC Pinhead

- 1 6-inch PVC pipe cut to length for your bed width (outside perimeter about 21 inches)
- 2 6-inch PVC Couplers
- 2 6-inch to 4-inch bushings (note use 6-inch to 2-inch bushings if these are available, and omit 4-inch bushings)
- 2 4-inch to 2-inch bushings (if 6-inch to 4-inch is used)
- 2 2-inch to 1-inch bushings
- 1 1-inch (7/8) steel rod for axle
- 24 3-inch bolts with washers and nuts

*Julia Gaskin, Ryan McNeil and Suzanne Tate
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Tomato Late Blight found in Georgia Greenhouse

Late blight, caused by the fungal-like pathogen *Phytophthora infestans*, was recently confirmed on tomato plants that were grown using organic methods in a heated greenhouse near Atlanta. Late blight can quickly decimate a tomato planting when conditions are correct. Late blight outbreaks are favored by moisture or high humidity combined with mild days and cool nights. In this case, some foliage and fruit were lost, but losses were kept to a minimum by early recognition and remediation. This outbreak was likely due to wet conditions in January which increased humidity levels, although the disease was likely already present at low levels.

Late blight occurrence has been sporadic in Georgia. Most outbreaks occur in the more northern areas where temperatures are cooler. However, late blight has been found in the Piedmont of Georgia for the past two seasons due to wet, periodically cooler summer conditions. In general, tomato late blight outbreaks have become more prevalent in the eastern US in recent years and this may be due in part to strains of the fungus that are adapting to warmer temperatures. Working in favor of growers

is the fact that the late blight pathogen is a poor survivor without the live tomato plants. Therefore, good sanitation of old plant materials and tomato free periods are important to prevent initial outbreaks.



Typical fruit, stem, and leaf lesions. The firm, brown lesions are unique compared to most other diseases.

So what is the significance of this latest outbreak to Georgia growers?

With the increased production of tomatoes in high tunnels and heated greenhouses, the tomato season has been extended and therefore the time that late blight may be active. Currently tomatoes are being produced almost year round in north Georgia. The disease may have remained active into the fall of 2013 due to last year's wet conditions, allowing spores to enter later plantings in greenhouses. In this way, the pathogen may be able to survive the entire winter. Depending on the weather conditions this year in Georgia, this could contribute to another outbreak of the disease this summer.

Late blight is a community disease. What happens on your farm can impact your neighbors. Unlike other foliar diseases such as early blight or powdery mildew, low levels of disease cannot be tolerated due to the potential for destructive outbreaks. Also, unlike most other tomato pathogens, the organism does not survive well without a host and disease outbreaks are sporadic. Vigilance is important this winter to make sure you are not harboring the disease.

If you have greenhouse grown tomatoes, inspect them regularly for any leaf blighting. Get a diagnosis from your county extension office to confirm the cause of any suspicious disease. Keep humidity

down to the greatest extent possible with good air circulation around plants. Keep foliage dry at all times. If possible, increase night time temperatures to reduce condensation. Have a tomato free period on your farm of at least a month. Late blight, like most tomato diseases, does not spread to unrelated crops. In greenhouses and high tunnels, plan for long rotations between plantings of the same crop. This should be standard operating procedure for preventing problems in all type of crops. Destroy all old plant material and clean houses thoroughly between plantings. Do not produce transplants in the same houses where older plants are being grown.

All of these measures will also decrease the incidence of the more common tomato greenhouse diseases such as powdery mildew and leaf mold, as well as the tomato russet mite. If potatoes are grown this spring, inspect them for the disease and, if possible, harvest potatoes before planting summer tomatoes. Use certified disease-free seed potatoes and, if purchasing tomato transplants, inspect them for any disease symptoms. Growing your own tomato transplants may be a better option.



Typical fruit, stem, and leaf lesions.

If an outbreak occurs, remove and destroy all infected plant material either by containment in garbage bags or by burying. Do not throw old plants on top of a discard pile. Leaf lesions quickly dry up but stem and fruit lesions may remain active for some time. Coppers are somewhat effective in an organic system if applied before an outbreak, although repeated copper applications are best avoided when possible. For organic growers, the best solution for disease is prevention. For more information or to report outbreaks, contact Dr. Elizabeth Little at UGA (elittle 'at' uga.edu) or your local extension office.

Late blight resources from Cornell, including more images: http://www.longislandhort.cornell.edu/veg-path/photos/lateblight_tomato.htm

Dr. Elizabeth Little
Department of Plant Pathology
University of Georgia

Extension

Farm to Chef Networking Day

UGA Cooperative Extension in Carroll County along with Tanner Health System hosted a Farm to Chef Networking day in November 2013. The program brought over 50 food producers and chefs together to discuss streamlining food distribution networks in order to bring more locally grown food to restaurants, schools, and institutions in the Carroll County area. The first part of the program featured a panel discussion that included, a farmer, a chef, and a director of school nutrition, which allowed participants to hear what different stakeholders needs were, the challenges they have, and ideas of how to buy and sell more to each other.



Bryan Hager, moderated the panel speakers Farmer Tommy Searcy, Chef Glenn Barnett, and Director of School Nutrition Linette Dodson

The second part of the program gave each farmer and chef an opportunity to talk one on one during a “speed dating” session. Each farmer had three minutes to sit down with a chef and discuss what they produced at their farm before moving on to the next chef. The chef had the opportunity to discuss what type of products they would be looking

for as well. This one-on-one networking was a great way for farmers and chefs to talk with many different people in such a short amount of time.



Farmer Bryan Hagar speed dates with Chefs from The Creek Corner

The final part of the day's program was a farmer focus group meeting. With the help of a trained evaluator, farmers were asked a series of questions. Questions discussed included, ways to increase farmer productivity and number of farmers, as well as methods for increasing collaboration between farmers and local restaurants. Based on the discussion, UGA Cooperative Extension and Tanner Health System plan to have specific educational workshops and work together to achieve the needs of the farmers.

*Paula Burke
Carroll County Extension Agent
University of Georgia*

Organic Production Gains New Faculty Member

Suzanne O'Connell may have only joined the University of Georgia's Certificate Program in Organic Agriculture team this winter, but she already has deep roots in the sustainable agriculture community. O'Connell has a long history of working in vegetable and ornamental production outside of academia. She spent her 20's working on organic farms, traditional greenhouse operations, and apple orchards in New England before returning to school to work on her masters and doctoral degrees.

O'Connell, who recently graduated with her Ph.D. from North Carolina State University's College of Agriculture and Life Sciences, joined the faculty of

the UGA College of Agricultural and Environmental Sciences in November.

She's currently teaching Organic Agricultural Systems, Hort 3125, as part of her Asst. Professor appointment with the Department of Horticulture. She plans to focus her research efforts on organic high-tunnel production as well as the integration and impact of various cover crops in horticultural production systems in Georgia.



Dr. O'Connell explaining how to prune cucumbers at the S. Milledge teaching greenhouse during Hort 3125

O'Connell received her bachelor's degree in political and environmental science from Barnard College of Columbia University in 2000. She went on to North Carolina State University to earn both her master's degree in horticultural science in 2008 and her Ph.D. in horticultural science with a minor in soil science in 2013. While at NC State, she also worked as a research assistant for the Center for Environmental Farming Systems and in 2011 was awarded a U.S. Fulbright research award to study small-scale agricultural systems in Honduras.

O'Connell's research will focus on optimizing organic high tunnel production systems and on the efficacy of cover crops to build soil fertility. She is looking forward to working with Georgia farmers to be informed about the trends and challenges they face producing sustainable and organic horticultural crops in Georgia and contribute to these efforts.

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