

Floral Notes *Newsletter*

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March-April 2016

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Save the date!

Who should attend: Growers, Greenhouse and Garden Center Retailers, Allied Tradespeople, Educators and Students!

NORTHEAST GREENHOUSE 2016
CONFERENCE AND EXPO

Growing the Northeast's floriculture industry for 43 years!

New Location!
Holiday Inn
Boxborough, Massachusetts
November 9 & 10, 2016

www.negreenhouse.org

New Reps to the 2016 Northeast Greenhouse Conference Planning Committee

Teri Boardman of Volante Farms recently became the official Mass. Flower Growers Association representative on the 2016 Northeast Greenhouse Conference planning committee and likewise **Geoffrey Njue** is now the official UMass Extension representative. From time to time, Robin Messer of J.P. Bartlett Co. and Tina Smith of UMass Extension will also contribute.

Employee Training for Garden Retailers

April 5, 2016

9:00 to 3:00

Publick House, Sturbridge

For garden center, horticulture retailer and roadside stand employees, master gardeners and others that serve as a resource for home horticulture. Learn about the latest research-based, unbiased information and be prepared to meet the challenges of the 2016 gardening season.

- 8:30-9:00** **Registration, coffee and pastries**
- 9:00-9:50** **Helping Customers Choose Fertilizers and What's Up with Phosphorus?**
Mary Owen, UMass Extension Agriculture and Landscape Program.
- 9:50-10:50** ***Dealing with the Most Commonly Asked about Weeds**
Randall Prostak, UMass Extension Agriculture and Landscape Program.
- 10:50-11:00** **Break**
- 11:00-12:00** ***Diagnosing Customer's Disease Problems in Landscapes**
Dr. Nick Brazee, UMass Extension Plant Diagnostic Lab.
- 12:00-1:00** ****Lunch on your own – See options**
- 1:00-2:00** **Sorting Through Bagged Potting Mixes and Soils**
Dr. Douglas Cox, UMass Stockbridge School of Agriculture.
- 2:00-3:00** **Helping Customers Choose Plants for Difficult Areas in Landscapes**
Dr. Amanda Bayer, UMass Extension Agriculture and Landscape Program.

*Total of 2 Pesticide contact hours for categories 26, 29, 31 and applicator licenses

****Lunch options:** Lunch options: Pre-purchase your lunch at time of check in for \$13 (paid directly to the Publick House). Pre-paid lunch includes: Build your own sandwich buffet (roast beef, turkey, ham, vegetable), chips, desert, drink or eat in the Publick House restaurant or fast food restaurants within a short drive.

Parking at the Publick House is located in the back of the building, drive is on the right side of the building. Go through the bakery door in the back. The conference room is located upstairs.

Cost: \$45 first registration and \$40 for additional registrations from same company. Online registrations with a credit card include a processing fee which is applied at checkout.

For more information contact: Tina Smith, Univ. of Mass, Amherst (413)545-5306, tsmith@umext.umass.edu. Event Website: <http://extension.umass.edu/floriculture/>

What a Greenhouse Grower Needs to Know About Vegetable Diseases

Margaret Tuttle McGrath

Plant Pathology and Plant-Microbe Biology Section, SIPS, Cornell University

Long Island Horticultural Research and Extension Center

The most important fact greenhouse growers producing vegetable seedlings for outdoor production need to know is that diseases developing on these plants can impact vegetable growers, even when the plants are sold to gardeners. This is because some pathogens, notably the one causing late blight, are very destructive and produce large quantities of spores capable of being dispersed long distances. Some others, notably TSWV (tomato spotted wilt virus), can infect many ornamental crops and are moved by insects. Late blight and viruses are notoriously difficult to manage. Additionally, gardeners do not have the tools to manage diseases and insects as effectively as growers, which increases the potential for problems for growers. Two recent epidemics of late blight on Long Island started with infected tomato plants in gardens (2009 and 2011).

Potential sources of pathogens of vegetable plants are seed, previously affected plantings in the greenhouse, ornamental plants, and nearby field-grown vegetable crops. Important diseases caused by pathogens that can be seed-borne include bacterial spot, bacterial speck, bacterial canker, and Septoria leaf spot of tomato; bacterial spot of pepper; and black rot of kale and other brassica crops. These pathogens are among those able to survive on planting materials (e.g. seeding trays) and/or in plant debris. Ornamental plants grown in a greenhouse with vegetables can be a source of viruses. Some viruses, for example TSWV, have large host ranges. Other ornamental plants are also susceptible to the same pathogen as some vegetables. Powdery mildew that develops on cucurbit crops such as squash is caused by the same pathogen that affects verbena. There is concern that Solanaceous ornamental plants imported from Latin American countries could harbor the late blight pathogen. In addition to infected plants being a concern, there is potential for seed of susceptible plants produced there to be contaminated because their pathogen population can produce oospores, which form from sexual reproduction. In the northeast, potato is the field-grown vegetable crop of concern for greenhouse growers. During the spring when tomato and other vegetable seedlings are being grown in greenhouses, potato is the only crop growing outdoors in the northeast that could be affected with a pathogen able to be wind-dispersed into a greenhouse (late blight). The late blight pathogen survives in potato tubers. Additional concerns are potatoes growing from unharvested tubers, cull potatoes in a compost pile, and potatoes in gardens planted with table-stock potatoes purchased at a grocery store. There are several more diseases also of concern with vegetable seedlings grown in greenhouses in the south where winter is the field vegetable production period.

While late blight is a disease that greenhouse growers need to aggressively avoid having in their tomatoes, it also provides a marketing opportunity! Late blight has occurred on Long Island and elsewhere in the northeast every summer since 2009. Gardeners who know about the destructive potential of this disease, especially if they witnessed their tomato plants die in a few days, are looking for resistant varieties. Based on evaluations conducted at LIHREC since 2012, there are several good tomato available that produce quality fruit and exhibit a high level of resistance. While seed of these is being marketed by seed companies, gardeners want to buy plants. I have seen one variety for sale at a farm stand; none to be found at chain garden centers. Jasper produces cherry-type fruit that resist cracking better than others and thus can be left on the vine longer after they ripen, plus the fruit have exceptional flavor. Mountain Magic is a campari type that also has been rated highly in fruit evaluations. Mountain Merit is the best choice among red slicing types. Defiant PhR is a more compact plant. These varieties produce fruit with better taste than Iron Lady. Plum Regal is a Roma-type tomato with resistance. Other varieties worth considering that produce quality fruit are Lemon Drop (large yellow cherry), Pruden's Purple, and Wapsipinicon Peach (novelty type producing small, sweet, yellow-

orange, fuzzy fruit). There are ‘resistant’ varieties that provide limited (Legend) or no (New Yorker and Juliet) suppression of the late blight pathogen genotype (strain) now dominant in the USA. More information is at <http://eorganic.info/node/10822>.

Black rot and TSWV are two diseases that have occurred on vegetable plants in greenhouses on Long Island. Black rot was observed in recent years on ornamental kale. It is caused by bacteria that can be in seed. Using seed that has been tested for the pathogen and/or treated with hot water is an important management practice. Precision equipment for hot water seed treatment is at LIHREC. Bacteria in seed can move through plants systemically. Affected plants should be discarded because they cannot be cured and will continue to develop symptoms and inoculum for healthy plants. Bacteria are moved to healthy plants in splashing water and on workers’ hands and tools when plants are wet. Provide water directly to soil to avoid wetting leaves. Copper fungicides provide limited control because bacteria are difficult to control and there are copper-resistant strains. TSWV has been moved from infected ornamental plants via its vector (thrips) to tomato and pepper seedlings growing in the greenhouse. These affected plants cannot be cured. If they survive, the few fruit produced that ripen on the plant (often they drop when green) will be unmarketable due to symptoms. And these plants will be a source of TSWV for healthy plants. The best approach to take in managing TSWV and other viruses is to grow vegetable seedlings in a separate greenhouse from ornamentals, and aggressively manage viruses and insects in the ornamentals. When TSWV occurs on vegetables, discard all plants. Those without symptoms may be infected but asymptomatic and/or they may be harboring thrips with TSW.

When growing tomato seedlings, it is especially important to be proactive and aggressive about managing late blight. Late blight is the most destructive disease of vegetable crops. This was demonstrated during the Irish Potato Famine. This disease affects tomato and potato, two important crops for conventional and organic vegetable growers, thus an outbreak can have major economic impact. The pathogen produces an abundance of wind-dispersed spores, so only a few infected plants at the start of a season can be the source for a major epidemic, as occurred on Long Island in 2009 and 2011. Late blight is considered a “community disease” because of its highly contagious, destructive potential; therefore everyone needs to be involved in preventing epidemics. Spores typically move up to 30 miles. It takes as few as four days after infection for a new lesion to appear and spore production to start. Due to the importance of having current information about where late blight is occurring for field-grown crops, there is a monitoring program <http://usablight.org>

Below are steps that those producing plants for gardeners should take to protect their tomato plants. There is NO tolerance for late blight in plants for gardeners because infected tomato plants in home gardens have been important initial sources of the pathogen, leading to major epidemics for commercial producers nearby. Some gardeners do not know about late blight and many do not use fungicides. They do not have the knowledge, experience, nor tools of commercial vegetable growers.

1. Produce tomato plants where the chance of exposure to the late blight pathogen is essentially non-existent.

In areas where tomato and potato plants are killed by cold temperatures during winter, infested potato tubers continue to be the most important initial source of the pathogen each season. The pathogen is not yet able to produce a dormant spore (oospore) that can survive in the absence of living plant tissue.

Do not grow potato plants in a greenhouse complex with tomato plants. Even certified potato seed could harbor the pathogen.

Do not grow tomato plants near potatoes. There should be no potato fields or potato cull piles near a greenhouse producing tomato plants. Potato crops are planted very early in the season when tomato plants are

being produced in greenhouses. Potato sprouts can become infected as they grow from a tuber harboring the pathogen. Spores produced on these plants could be dispersed by wind to nearby greenhouses.

2. Examine tomato plants regularly for symptoms. Large brown area on stem tissue may be the first symptom on tomato plants produced in a greenhouse. The pathogen also causes leaf spots. Images are available on line at: <http://www.hort.cornell.edu/lateblight>

3. Do not grow Solanaceous ornamental plants in the same greenhouse as tomato.

There is concern they could harbor the late blight pathogen if from Latin America. This has not been documented.

4. Examine petunia and other Solanaceous ornamental plants.

A strain of the late blight pathogen able to infect petunia as well as tomato and potato was detected in a northern greenhouse several years ago. Symptoms of late blight on petunia include dead brown patches on leaves; these may develop a white growth of the pathogen under highly humid conditions. While the chance is small, there always will be the possibility that a new strain of the pathogen will appear able to infect petunia or other Solanaceous ornamental plants.

5. Submit plant tissue with suspect symptoms to a plant diagnostic clinic.

6. When late blight is confirmed, destroy ALL tomato plants.

A previous attempt to save symptom-less plants was a disastrous failure. Symptoms began to develop after the retailer had sold some plants, which initiated a major epidemic.

7. Apply fungicides effective against late blight routinely as a preventive practice.

Do not use fungicides in an effort to stop an outbreak of late blight or to protect plants being grown near a potential source of the pathogen as described in Step 1.

There are no targeted fungicides for late blight specifically labeled for use in greenhouses. There is no restrictive statement preventing this use on labels of Ranman, Revus, Revus Top, Curzate, and Gavel. Dithane is a protectant fungicide that can be used with these; a protectant is not needed with Gavel which is formulated with mancozeb. Forum, Presidio, and Ridomil Gold fungicides are prohibited from use in greenhouses.

8. Help educate gardeners purchasing tomato plants by providing information about late blight.

They should understand that it is important to detect and destroy infected plants. An information pamphlet for distribution to gardeners is available at LIHREC and at: <http://usablight.org/node/50>.

The BUZZ - Top Native Perennials for Pollinator Gardens

Carrie Wiles
Marketing Manager
North Creek Nurseries
Landenberg, PA

Spread across over three acres, North Creek's plant trialing program features extensive habitat and experimental plantings. By evaluating species and cultivated varieties in a variety of environments, we are able not only to educate our staff, but also make the best recommendation for our customers and the end users of our product offering. It is from this living laboratory that North Creek has become a respected authority and trusted source for delivering reliable plant solutions that thrive in a variety of site conditions.

Guided by our New Plant Principles, we evaluate ecological, functional and aesthetic characteristics of every plant in our trial gardens. Only after these selections and species prove themselves to us do we offer them to the industry. We're constantly on the hunt for plants that stand the test of time.

North Creek's New Plant Principles:

- Our plants are excellent garden and/or landscape performers in the mid-Atlantic region.
- Our plants are not invasive.
- Once established in an appropriate site, our plants require no material input to maintain their ornamental value and garden worthiness.

Located in Landenberg, PA, our nursery is within close proximity to two key resources, the Mt. Cuba Center in Hockessin, Delaware and the University of Delaware (UD) in Newark. Mt. Cuba Center's Trial Garden, managed by George Combs, evaluates native plants and their related cultivars for their horticultural and ecological value. At the conclusion of each trial George and team translate years of research into a beautifully layout and detailed report ranking garden performance for every plant evaluated. The Coreopsis report is Mt. Cuba's most recent publication:

<http://www.mtcubacenter.org/horticultural-research/trial-garden-research/>. Cutting edge research is also being performed in these trial gardens. A new partnership between Mt. Cuba Center and UD's College of Agriculture and Natural Resources is aimed at identifying varieties of native plants that make 'eco-friendly' a selling point at retail. Enjoy the full article here:
<http://www.udel.edu/udaily/2016/jan/mt-cuba-partnership-011516.html>.

Tried and true with a mix of new, the following is a sample of top pollinators plants. The complete plant list is available [here https://ag.umass.edu/sites/ag.umass.edu/files/pdf-doc-ppt/16nativeperennialpollinatorschwiles2.2.16.pdf](https://ag.umass.edu/sites/ag.umass.edu/files/pdf-doc-ppt/16nativeperennialpollinatorschwiles2.2.16.pdf)

Asclepias sp.

Milkweed

A pollinator garden is not complete without at least one, if not a dozen, varieties of milkweed. This genus supports populations of native bees, bumble bees and honey bees in addition to monarch caterpillars. Our trial gardens are peppered with species such as *A. syriaca*, *A. tuberosa*, *A. verticillata* and *A. incarnata*. Recently added to our mix are *Asclepias* 'Hello Yellow' and *Asclepias* 'Gay Butterflies'. Both seed varieties, 'Hello Yellow' is an effervescent burst of yellow flowers while 'Gay Butterflies' produces a combination of red, orange and yellow flowers. Summer blooming gems perfect for the perennial border or patio container.



***Phlox paniculata* 'Jeana'**

Found by and named after Jeana Prewitt of Nashville, TN, this selection possesses outstanding mildew resistance with varying shades of sweetly scented, lavender-pink flowers, vibrant midsummer through early autumn. Foliage remains clean and free from mildew while flower clusters create a tiered effect along upright, multi-stemmed branches. Swallowtail butterflies flock by the dozens, plant in multiple areas of your garden to reap the full benefit of 'Jeana'. Additional varieties of merit include: *Phlox amplifolia*, *Phlox paniculata* 'Lavelle', *Phlox paniculata* 'Delta Snow' and *Phlox* 'Bee Bop'

Garden Phlox



***Viola walteri* 'Silver Gem'**



Prostrate Blue Violet
'Silver Gem' was selected for its tidy mound of striking silvery colored, heart-shaped leaves and contrasting green veins. Adding to its appeal, the undersurface of the leaves vary from pale purplish-green to burgundy. Dainty purple flowers welcome spring and start to appear in late March persisting well into November. North Creek's plant trials have proven 'Silver Gem' to be exceptionally drought tolerant and a very well behaved native groundcover. This selection was shared with North Creek by plantsman Rick Lewandowski and originated as a seedling variant discovered by Rick along a tributary of the Little Cahaba River in Bibb County, Alabama. Additional varieties of merit include: *Viola pedata*

Monarda bradburiana

From flower to foliage, this species is worthy of all praise. The tubular, two-lipped flowers carry a purple tracking and bloom from spring into summer. Flower color ranges from pink to light lavender and this species is a bit more shade tolerant than other beebalms. Depending on light conditions, the pubescent foliage ranges in color, taking on deep burgundy tones in spring and fall. A member of the mint family, this native bee balm is very attractive to pollinators and occurs naturally in open and dry, rocky woods from Alabama to Texas, north to Iowa. Additional varieties of merit include: *Monarda punctata*, *Monarda didyma* 'Jacob Cline', *Monarda fistulosa* and *Monarda fistulosa* 'Claire Grace'

Eastern Beebalm



***Physostegia virginiana* ‘Pink Manners’**

Obedient Plant



Light pink tubular flowers adorn this taller sport of *Physostegia* ‘Miss Manners’ from midsummer through autumn. Adaptable and easy to grow with a sturdy, upright habit and glossy foliage. Truly a clump forming variety that has proven to be less aggressive than *Physostegia* ‘Vivid’. This cultivar is frequently visited by bumble bees and honey bees in North Creek’s rain garden.

***Schizachyrium scoparium* ‘Standing Ovation’ Little Bluestem**

While adding texture and vertical appeal, grasses and sedges provide shelter and habitat for wildlife. ‘Standing Ovation’ has proved to be the best little bluestem available on the market. Where other varieties tend to flop as the season progresses, this selection continues to stand tall year round in a range of soil conditions. Spikey bluish-green foliage transitions to a sizzling display of oranges, reds, yellows, and purplish-blues in the autumn. Additional grasses and sedges of merit include: *Panicum* ‘Cape Breeze’, *Carex pensylvanica*, *Carex platyphylla*.



UMass Greenhouse Crops and Floriculture Extension Program

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