

PENNSYLVANIA
VEGETABLE GROWERS

NEWS

for the commercial vegetable, potato and berry grower

July 2016 / Volume 39 Number 7

August is PA Produce Month



**AUGUST
is PA Produce Month**

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Pennsylvania Vegetable Marketing and Research Program

For the eleventh year, the Pennsylvania Vegetable Marketing and Research Program is celebrating August as Pennsylvania Produce Month. The Program is offering growers and marketers a special point-of-purchase kit that contains large and small posters and special price cards for the month-long promotion of fresh local vegetables. These point-of-purchase materials are also available at the produce auctions across the state. Posters and price cards have also been offered to supermarkets across the state. The Program will send out a press release to newspapers across the state. It has also engaged Penn State Extension and Kitchen Table Consultants in reaching out to consumers with social media – Facebook, Twitter and Pinterest – to remind them that this is the peak season for vegetables. If you are not yet a part of this promotion, please call the Program at 717-694-3596 to see how you can participate.

State Budget Agreement Is Good for Agriculture

Agriculture Secretary Russell C. Redding touted this year's historic budget agreement and the ancillary bills that will not only address many of the most pressing challenges facing the industry today, but will also position it for future growth.

"This is a terrific budget for Pennsylvania agriculture," said Secretary Redding. "The investments we will make in this industry under this year's budget reflect agriculture's importance to Pennsylvania's economy and the priority Governor Wolf and the legislature put on its competitiveness today and tomorrow. Not only are we investing more in targeted, priority areas, this bipartisan budget agreement addresses many of the largest problems we face today that challenge future growth.

"I want to thank the governor and the members of the General Assembly for championing and advocating for the industry and our 58,000-plus farm families, our hardwoods industry, and many of our most important partners, including the University of Pennsylvania's School of Veterinary Medicine and Penn State's College of Agricultural Science and Extension."

For the state Department of Agriculture, the budget for fiscal year 2016-17 includes increases in key areas, including \$1.7 million more for the agency to meet its core functions of protecting consumers, food safety and animal health. It also includes \$2 million in dedicated funding to the department for avian influenza preparedness, along with \$800,000 to the University of Pennsylvania's New Bolton Center for avian research.

Other key line items of the department will see 10 percent increases, including funding for the state's dairy, beef, wine, mushroom and hardwoods industries; funding for state-spon-

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Needed: YOUR HELP at Ag Progress Days

PVGA is again looking for your help at the PVGA Food Booth at Ag Progress Days. We need volunteers all three days to help prepare and serve Vegetable Stir-Fry, Lamb Stir-Fry, Corn-on-the-Cob, Diced Watermelon and Cantaloupe, Strawberry Surprises, Raspberry Lemonade, Blueberry Pie and assorted Whoopie Pies. Plan to come and help out for half a day. The profits from the booth are used to help fund vegetable and small fruit research at Penn State.

Ag Progress Days are August 16 to 18 this year. Shifts are 8:30 a.m. to 1:00 p.m.; 10:30 a.m. to 2:30 p.m. and 1:00 p.m. to 5:30 p.m. Contact PVGA at 717-694-3596 or pvga@pvga.org if you can help. During Ag Progress Days you can text us at 570-541-0737.

NEWS



**Pennsylvania
Vegetable Growers
Association**

*An association of
commercial vegetable,
potato and berry growers.*

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Executive Secretary
William Troxell
Richfield

State Budget Agreement... (continued from page 1)

sored shows at the Pennsylvania Farm Show Complex; and support to the PA Preferred branding program for agricultural products made and grown in Pennsylvania.

The department's State Food Purchase program will see a \$750,000, or 4.1 percent, increase in FY 16-17. This builds on the \$1 million in additional funding appropriated last year to launch the Pennsylvania Agricultural Surplus System, or PASS. PASS will again have \$1 million available to implement in FY 16-17.

Both Penn State's College of Agricultural Science and Cooperative Extension, plus the University of Pennsylvania's School of Veterinary Medicine, will each receive a 2.5 percent increase, which marks the second year of additional funding following years of level support.

Some of the related pieces of legislation that accompany the general appropriations bill address priority needs of the Wolf administration.

The fiscal code bill authorizes the department to use \$165,000 in unused funding from prior years for farm succession planning grants. With more farmers nearing retirement, ensuring existing operations have a plan to keep land in production agriculture by transferring ownership to the next generation has been a priority for Governor Wolf's administration. With this funding, grants of up to \$3,000 will be awarded to offset costs associated with transitioning farms to new owners committed to agriculture.

The tax code bill also includes an exemption from realty transfer taxes for those operations that have an agriculture conservation easement. This provision will prevent a crippling effect on the state's nation-leading farmland preservation program, as there are 1,500 applicant farms on the backlog list waiting to be preserved and hundreds of easement purchase agreements pending final signature that could potentially be affected if subjected to realty transfer taxes.

Additionally, related to farmland preservation, the budget agreement includes \$5 million to the program from new cigarette tax revenues.

Lastly, the budget agreement expands the scope of the family farm inheritance tax exemption to include all business structures and trusts solely for members of the same family. Additionally, it makes timbering operations eligible for a sales and use tax exemption – extending to Pennsylvania's hardwoods industry a benefit long-enjoyed by other sectors of the agriculture industry.

The legislature also approved an important bill unrelated to the budget that amends the Clean and Green program. Sponsored by Representative Martin Causer, who chairs the House Agriculture and Rural Affairs Committee, House Bill 806 requires, among other things, that counties "lock in" use values and prohibits changes to those values unless there is a county-wide reassessment. This would create more predictability for the farm owner as values have increased significantly in recent years. In some counties that have gone years without a reassessment, use values exceed county assessed values, or fair market values, thereby eliminating any incentive to protect farmland and forest lands from development.

For more information on the fiscal year 2016-17 budget, visit www.budget.pa.gov. For more information on the Pennsylvania Department of Agriculture, visit www.agriculture.pa.gov.



The **Pennsylvania Vegetable Growers News** is the official monthly publication of the Pennsylvania Vegetable Growers Association, Inc., 815 Middle Road, Richfield, PA 17086-9205
phone and fax - 717-694-3596, email - pvga@pvga.org website - www.pvga.org

Our Mission:

The Pennsylvania Vegetable Growers Association serves Pennsylvania's commercial vegetable, potato and berry growers through education, research, advocacy and promotion.

Our Vision:

The Pennsylvania Vegetable Growers Association will be the driving force in ensuring the future viability of the commercial vegetable, potato and berry industries in Pennsylvania.

Inquiries about membership, this publication or advertising rates should be directed to William Troxell, Executive Secretary, at the above addresses.

Congress Adopts Biotechnology Labeling Bill

Congress approved a bill to create national standards for the labeling of food products containing genetically modified organisms. The bill received approval in the Senate 63 to 30 and in the House 306 to 117. It now heads to President Obama for consideration. If signed, the bill would call for mandatory labeling, but would prevent a patchwork of state-by-state laws by creating national standards. In addition, the bill would direct the U.S. Department of Agriculture to develop labeling standards. Meat and dairy would not fall under the labeling law, even if the animals were fed GMO feed. It would also exempt products such as soup where meat is a primary ingredient. The USDA would have no authority to recall products that do not comply with labeling requirements.

From *Farm Bureau Express*, Penna. Farm Bureau, July 15, 2016.

The bill passed by Congress, supported by both Sen. Robert Casey and Sen. Pat Toomey, includes:

Pre-emption of state labeling requirements on food or seed beginning on the day the bill is signed into law; this includes Vermont's mandatory labeling law.

Mandatory national disclosure standard administered by USDA;

Options for compliance: On-pack text, symbol, or electronic or digital link with adjoining text "Scan here for more food

information" or something similar;

Within one year after enactment USDA would study consumer access to QR codes and make disclosure adjustments if necessary

Recognition that the meat and milk from animals fed GM feed is not considered GM;

USDA would establish a process to consider de minimis allowable levels of biotech ingredients, and allow USDA to determine other factors that would require labeling;

Small businesses (as defined by the Secretary of Agriculture) would also have the additional compliance option of using a 1-800 number with adjoining text same as above and website;

"Very small" food manufacturers would be exempt from the labeling requirements;

Small or very small package sizes as defined by the Secretary will be eligible for "reasonable alternative disclosure options."

USDA will have access to records and may audit for enforcement, however no penalties are defined.

Two years total after date of enactment for disclosure implementation.

From the NDFC Newsletter, Northeast Dairy Farmers Cooperatives, July 8, 2016.

State News Briefs

Pennsylvania Budget Deal Finalized

Pennsylvania lawmakers reached agreement on a new \$31.6 billion spending plan and revenue package that provides support for agriculture but does not call for broad-based tax increases. Members of the Pennsylvania General Assembly approved, in early July, the spending package which Gov. Tom Wolf allowed to become law. Nearly two weeks later, lawmakers voted on a tax package to pay for the agreed upon spending, which Gov. Wolf signed. The tax bill also clarifies that all farm families, regardless of their business structure, should not be subject to the state's inheritance tax and that realty transfer taxes should not be applied to conservation easement purchases. The budget agreement does not call for an increase in sales or personal income taxes. Instead, lawmakers turned to an increased and expanded tobacco taxes, additional gambling options, reforms in the state's liquor system, and other sources to pay for new spending. The budget does not address pension or property tax reform. However, it contains funding for priority agriculture areas including a 2.5 percent increase for Penn State Extension, a 10 percent increase for PA Preferred and 2.5 percent increase for veterinary activities through the University of Pennsylvania. PFB thanks Senators Jake Corman and Elder Vogel for their efforts in securing funding for agriculture priority issues.

From Farm Bureau Express, Penna. Farm Bureau, July 15, 2016.

Lawmakers Fix Inheritance Tax Law and Address Other Tax Issues

Recent legislative action by the Pennsylvania General Assembly is correcting a problem resulting from interpretation of the state's inheritance tax law that exempted farm business from paying the tax. Lawmakers also address two other tax issues beneficial to farm families. The General Assembly

passed Farm Bureau-supported legislation in 2012 to eliminate the state's inheritance taxes on family farmers. However, technical interpretations by the Pennsylvania Department of Revenue made since the law passed have limited the opportunity for many farm families to benefit from the tax exemption. Transfers of farm assets and ownership shares in the family farm business did not qualify for inheritance tax exemption if the transfer involved a corporation or trust. PFB worked to change the law to clarify that agriculture and small businesses, regardless of their business structure, should be exempt from paying inheritance taxes. A provision included in the state's tax code and adopted as part of the new state budget closes the loophole. The change was made retroactive to when the farm exemption went into effect. Families who paid the inheritance tax based on the Department of Revenue's interpretation should be able to apply for and obtain tax refunds. Lawmakers also passed legislation to more clearly state the exemption from realty transfer taxes fully applies to sales of conservation easements. The legislation will also provide, beginning in July of 2017, an exemption from state sales tax to commercial timbering businesses similar to the exemption provided to farming. Pennsylvania Farm Bureau thanks the efforts of Sen. John Gordner, who led a multi-year fight to close the loophole and relieve farm families from having to pay the inheritance tax.

From Farm Bureau Express, Penna. Farm Bureau, July 15, 2016.

General Assembly Passes Bill to Correct Assessment Flaws in Clean and Green Program

The Pennsylvania General Assembly adopted legislation strongly supported by Farm Bureau, which will make two major and positive changes in valuation of properties enrolled Clean and Green. House Bill 806, introduced by Rep. Martin Causer,

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who chairs the House Agriculture & Rural Affairs Committee, now heads to Gov. Tom Wolf for consideration. The Clean and Green Act is supposed to provide a reduced property tax rate for properties used in production agriculture, forestry or dedicated for open space. But in several counties, landowners in Clean and Green are being assessed a higher tax value than what would be assessed if the property wasn't enrolled. House Bill 806 will prohibit Clean and Green properties from receiving a higher tax assessment than assigned by the county under fair market value. The bill will also prohibit a county from making yearly increases in Clean and Green values in any year that the county has not done a countywide reassessment of all properties. The change will eliminate in the future the substantial annual increase in property taxes that has occurred on Clean and Green properties whose counties adjusted values each year.

From Farm Bureau Express, Penna. Farm Bureau, July 15, 2016.

USGS Report Points to Water Quality Improvements in Bay Watershed

Monitoring of water quality in the Susquehanna River and its tributaries points to improvements in several key areas, according to a federal report. A report by the U.S. Geological Survey found that monitoring stations in Pennsylvania are recording reduced levels of nitrogen, phosphorus and sediment levels in the Chesapeake Bay Watershed.

While there are documented reductions in those nutrients, the levels are still above limits established by the federal Environmental Protection Agency in its Chesapeake Bay cleanup plan, Mike Langland, a USGS hydrologist told members of Pennsylvania Farm Bureau's Natural & Environmental Resource Committee.

"We have some work to do, but we are heading in the right direction," he said. Reductions in nitrogen and phosphorus can be contributed to a number of factors, including best management practices used by farmers, improvements at wastewater treatment plants and a reduction in the number of coal-fired power plants used for electricity generation, Langland said.

The USGS survey collects data from 117 collection points in the watershed, including 34 in Pennsylvania. While improvements are being documented in several locations in Pennsylvania, there is still a concern in the southeastern portion of Pennsylvania's Bay Watershed, with its concentration of agriculture and housing developments, Langland said.

Here's what the USGS report shows in terms of water quality improvement in the Susquehanna River Watershed. The report looks at data collected between 2005 and 2014.

Nitrogen

Out of 17 monitoring stations in Pennsylvania, 14 are showing improvement trends.

The highest concentration of nitrogen loads is found in the southeastern portion of the state. However, some of the largest reductions have been found in monitoring stations in those areas. "In comparison to the rest of the watershed, the biggest reductions are in the Susquehanna River, but we have a ways to go to meet the goals," Langland said.

Phosphorus

Out of the 17 monitoring stations in Pennsylvania, 13 are showing improvement trends.

Throughout the Bay watershed, there's been a 68 percent reduction in phosphorus per-acre loads. Marked improvements have been found in Pennsylvania's southeastern corner and the Eastern Shore of Maryland.

Sediment

Of the 17 monitoring stations in Pennsylvania, eight are showing improvement trends.

Throughout the Bay watershed, there's been a 50 percent reduction in suspended sediment.

From Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, July 2016.

DEP, Conservation Districts, Begin Farm Visits

Pennsylvania's state and local agencies will begin a more concentrated program of farm inspections in the Chesapeake Bay Watershed this summer. Visits by the Department of Environmental Protection (DEP) and conservation district staff will focus on verifying whether farms have developed and are following their plans for erosion and sedimentation control and manure management.

The visits are part of a revised strategy by DEP for improvement of water quality in the Bay. The state's "reboot" strategy is being driven by the federal Environmental Protection Agency, which is claiming that Pennsylvania is behind in meeting nutrient reduction goals in the watershed. Conservation district visits will focus on conservation practices and documents that farmers are required to have under current state law. That includes a written soil conservation plan, along with a manure management plan for animal farm operations and farms that use animal manure. Compliance of farms with state planning requirements has been part of the state's strategy for the bay cleanup since 2011.

Pennsylvania Farm Bureau has serious concerns with the EPA's approach in cleaning the Chesapeake Bay Watershed. The EPA's model used to determine the amount of nutrients reaching the bay failed to account for voluntary practices adopted by farmers. That's why Pennsylvania Farm Bureau partnered with Penn State on a best management practices survey, conducted this spring. Once those results are compiled, they will be shared with the appropriate state and federal agencies. Pennsylvania Farm Bureau wants to make sure that the men and women of agriculture are not unduly burdened during the Chesapeake Bay cleanup.

Farmers have made strides in reducing the nutrients reaching local tributaries that feed into the bay watershed. Farmers should get credit for those water quality improvements. Some of those conservation plans followed by farmers in their businesses may not have been recorded in formal plans. Help is available for farmers who need to update, or write, their conservation plans. Contact your local conservation district, or National Resource Conservation Service, for more information.

From Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, July 2016.

Educator's Ag Institute Brings Farming to the Classroom

Teachers from across Pennsylvania spent time in State College exploring the myriad of ways to include agriculture in lesson plans. The Educator's Ag Institute, organized by the Pennsylvania Friends of Agriculture Foundation, gives educa-

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tors the tools to bring agriculture alive in their classrooms through a variety of lesson plans and workshops. Those lesson plans are adaptable for all types of curriculum and grade levels. Teachers also had the chance to tour nearby farms and research facilities at Penn State. Pennsylvania Farm Bureau's Young Farmer & Rancher Committee also recognized three educators for their efforts to promote agriculture to students. During the institute, the Pennsylvania Friends of Agriculture Foundation recognized Lisa Klipa, a teacher at Praise Christian Academy in Allegheny County, as the Teacher of the Year. The award is given annually to an educator who does an outstanding job incorporating agriculture into their curriculum.

PVGA annually contributes \$500 to help support the Ag Institute.

From Farm Bureau Express, Penna. Farm Bureau, July 15, 2016.

Minimum Royalty Bill Passes House Committee

A bill that would protect natural gas leaseholders and their royalty payments passed a state House Committee. House Bill 1391, sponsored by Rep. Garth Everett, a Lycoming County Republican, will establish that a minimum royalty payment will not be less than 12.5 percent. The bill was approved by the House Environmental Resources and Energy Committee and now heads to the full House for consideration.

Some natural gas companies have been taking out post-production costs from royalty payments, bringing payments well below the 12.5 percent level. House Bill 1391 would establish the minimum payment, regardless of the costs incurred by natural gas companies to transport gas to market. Several state lawmakers who co-sponsored the legislation said they will continue to push for the protection of gas lease holders.

"There has been a great deal of work done with legislative colleagues and stakeholders on this issue for some time and House Bill 1391 represents a more simplified effort to provide fairness for natural gas drilling lease holders," according to the joint statement. "We anticipate the floor debate to include an amendment process and we look forward to a spirit of cooperation as we get to the final passage of this legislation."

From Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, July 2016.

USFRA Ag Progress Days Workshop: Communicating Sustainability

Participants can learn new ways to talk to consumers about sustainable farming and ranching during Sustainability Communications Training at Ag Progress Days this summer.

The U.S. Farmers and Ranchers Alliance (USFRA), in conjunction with Pennsylvania Farm Bureau (PFB) and Penn State University's College of Agricultural Sciences, will host the workshop on August 16 at 2:30 p.m. The training session, which is free and open to farmers and ranchers, will focus on new messaging that can be used when talking with and answering questions from consumers about sustainability. It will be held in the Special Events Building on the Ag Progress Days grounds in Centre County.

USFRA conducted research to determine the key areas of sustainability that consumers are most concerned about. They include, water, air, soil, and habitat. The training session will provide tools, including hard copy takeaways, for communicating your message of sustainability in those key areas. The event is one of several training sessions USFRA will host throughout

the summer of 2016. USFRA, of which PFB is a member, was created to earn consumer trust in U.S. food and agriculture.

From Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, July 2016.

Spotted Lanternfly Quarantine Expanded, State Continues Progress in Combatting Invasive Species

State Department of Agriculture officials announced that the Spotted Lanternfly quarantine has been expanded to Lower Macungie Township, Alburtis and Macungie Boroughs in Lehigh County and New Hanover Township in Montgomery County after small populations of the pest were found. The most recent detections are in municipalities adjacent to previously quarantined areas. The pest had not been found in the United States prior to its initial detection in Berks County in the fall of 2014.

"While no one wants to hear that there are additional findings, this affirms that our surveillance efforts are working," said Agriculture Secretary Russell Redding. "It is extremely difficult to eradicate these pests but thanks to the ongoing survey efforts and commitment by local, state, and community members, who have been working together continuously to find the pest in the early stages, we are minimizing the impact of the species. New detections allow the control program to target its outreach and control efforts, working to end the spread of the insect."

Areas where the pest has been found are now under quarantine. The general quarantine restricts movement of any material or object that can spread the pest. This includes firewood or wood products, brush or yard waste, remodeling or construction materials and waste, packing material like boxes, grapevines for decorative purposes or as nursery stock, and any outdoor household articles like lawnmowers, grills, tarps and other equipment, trucks or vehicles typically not stored indoors. The last detection of the pest was confirmed in November 2015.

From Pennsylvania Department of Agriculture.

Pennsylvania Makes Largest Change to Liquor Sales in Decades

Pennsylvania lawmakers approved the first significant overhaul of the state's liquor system in decades. A bill signed by Gov. Tom Wolf will allow grocery stores to sell wine, allow wineries to ship wine and provides for six-pack sales in gas stations.

The bill opens new options for wine sales, including allowing restaurants and hotels to sell up to four bottles of wine for take-out. The same option will be available for grocery stores that currently sell beer. Bed and breakfast establishments will also have the option of offering wine to guests.

Wineries will also have the chance to be licensed as "direct wine shippers," which gives them the authority to send wine to in-state residents. It also creates an excise tax of \$2.50 per gallon of wine sent to consumers, which will be used to support programs under the Pennsylvania Wine Marketing and Research Program Board. In addition, the bill removes Sunday sales restrictions at state-owned stores and allows gas stations to be licensed for six-pack sales.

From Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, July 2016.

IRRC Rejects Proposal to Cap Generating Systems Qualifying for Net Metering

The Independent Regulatory Review Commission rejected a proposal from the Pennsylvania Public Utility Commission that

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would have capped the capacity of generating systems operated on farms and private lands that would receive “net metering” treatment of excess electricity supplied to the public. “Net metering” essentially allows farmers and other generators of renewable energy to receive a rate on excess electricity supplied that offsets the retail rate they pay for electricity they consume.

The PUC had proposed to cap the generating capacity of systems qualifying for net metering treatment at 200 percent of the annual amount of electricity the generator’s actually uses. Net metering is one way that renewable energy users are able to pay back the costs of the system. Farmers have utilized methane, wind and solar systems on their properties to run their businesses. Net metering helps pay down those up-front operating costs. Pennsylvania Farm Bureau opposes caps on net-metering, and lobbied the PUC and General Assembly against adoption of proposed regulations during the public comment period.

“Development of solar and wind energy systems provide farmers the opportunity to manage their farms in a more economically efficient and environmentally efficient manner,” PFB said in comments.

From Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, June 2016.

Pensions Set To Eat Up More of State Budget

Pennsylvania’s public pension problem is only getting worse. And each day without legislative action to combat the \$55 billion in underfunded pension liability, the state’s debt will only grow. In the coming years, Pennsylvania’s pension obligation is set to take up an increasingly larger amount of public money.

In 2017, the state is projected to spend \$527 million more than the previous year on pension payments. By 2021, the state will use \$3.6 billion of taxpayer dollars for pension payments. That shrinks the amount of money available for other needs, like State Police, road construction and agriculture programs—without an increase in taxes for a new source of revenue.

The good news is, however, Pennsylvania is expected to reach the peak of its pension debt during the 2017-2018 fiscal year—at \$63.9 billion—and will soon begin a long climb towards solvency.

Pennsylvania has two public pension systems—one for state government workers and the other for school district employees. A number of factors have led to the state’s current pension crisis, including poor market performance and underfunding by previous legislative actions. Employees enrolled in both systems have repeatedly met their obligation by contributing into the system.

School districts across the state are also facing similar problems. Each of the state’s 500 school districts have approached the problem differently, but the common theme is that school budgets will be increasingly dedicated to pension payments, at the detriment of other programs and spending. Pennsylvania Farm Bureau is concerned the state’s mounting pension debt will have an unfair impact on farm families—particularly at the local level. It’s likely that many school districts will turn to increased property taxes to pay for pension obligations. As farmers are the largest landowners in many school districts, the tax burden will unfairly fall to them. PFB is also concerned that without changes to address the problem, promised benefits could be lost. PFB has long advocated for pension reform,

including moving public sector employees to a defined contribution plan, and having public sector employees contribute a higher percentage to their pension plans.

From Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, June 2016.

New Slate of FFA Officers Selected

Pennsylvania FFA has selected a new slate of State Officers for the 2016-2017 school year. The new officers are:

State President—Libby Baker-Mikesell, Perry County

State Vice President—Jacob Kline, Lebanon County

State Secretary—Sarah Gonzalez, Lancaster County

State Treasurer—Madeline Buss, Somerset County

State Reporter—Jill Palmer, Fulton County

State Sentinel—Garrett Jenkins, Lancaster County

State Chaplain—Tricia Hojnowski, Bradford County

The new officers were chosen during the 87th PA FFA Convention held recently in State College.

Officers give up a year of their post-high school career to travel the state promoting agriculture. State officers represent Pennsylvania agriculture at events, and frequently speak to businesses throughout the state about the commonwealth’s leading industry. They also visit chapters to help with leadership development among FFA members. State officer candidates go through an intensive interview process, and are chosen by a committee of their peers.

From Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, July 2016.

Golfers Drive Foundation Forward

The Pennsylvania Friends of Agriculture Foundation will continue to spread the message of agriculture thanks to the support of golfers and donors. Pennsylvania Farm Bureau, which provides support to the foundation, hosted an annual golf tournament in Hershey to raise money for the foundation. The 24th Annual Richard Prether Pennsylvania Friends of Agriculture Golf Classic raised \$45,000 to support the foundation’s activities.

Since 1993, the event has generated more than \$779,000 in contributions to the foundation. The foundation funds a number of projects, including the popular Mobile Ag Ed Science Lab program, and the annual Educator’s Ag Institute. The Ag Lab program operates as a classroom on wheels, delivering agriculture-themed lessons to children in kindergarten through eighth grade. In addition, the foundation recently started the “Ag on the Go” program, which takes lessons taught in the labs to schools that cannot host an Ag Lab.

“Pennsylvania farmers want children across the state to have the opportunity to learn about farming, the environment and where their food comes from. Money raised from the golf tournament helps the foundation achieve those goals,” said PFB President Rick Ebert, who also chairs the foundation.

The foundation thanks the 128 golfers and sponsors who made the outing a success, including platinum sponsors Nationwide Insurance and Firestone Farm Tires.

From Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, July 2016.

National News Briefs

New Rules Pave Way For Drone Use in Agriculture

Agriculture producers and businesses will be able to use drones for farm scouting with new rules from the Federal Aviation Administration. FAA officials unveiled a new set of rules for the commercial use of unmanned aircraft—commonly called drones—weighing less than 55 pounds.

Here are some of the highlights from the FAA's new rules for drones:

Commercial operators must avoid all piloted aircraft and keep drones in sight at all times. Operators can use a visual observer to track the drone.

Operators can fly at a maximum height of 400 feet above the ground, or higher if the drone is within 400 feet of a structure. Flight is restricted to between daylight and twilight.

Operators cannot fly drones over anyone who is not participating in the operation, not under a covered structure or inside a vehicle. Operation from a moving vehicle can only occur in sparsely populated areas.

Operators must be at least 16 years old and obtain a remote pilot airman certificate.

The FAA is working on establishing privacy education as part of the drone registration process, and is also providing guidance to state and local governments about insuring privacy.

From Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, July 2016.

Tough Outlook for Agriculture Economy

As farms head into the growing seasons around Pennsylvania, market forecasts are suggesting a tough economic year ahead. Dairy prices are expected to remain low for the foreseeable future due to lower demand and oversupply. And while grain prices are creeping upwards, there is still a substantial supply.

"Overall, the commodity picture is pretty tough right now," said John Anderson, an agriculture economist with the American Farm Bureau Federation.

During the spring, corn and soybean prices saw a slight rebound, but it's tough to forecast if those prices will remain stable by the time the grain is harvested, Anderson said. While there is still a healthy reserve, weather issues in South America have pushed up demand, he said. But any economic forecast does not factor in how weather may influence overall harvests, Andersons said.

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Mock Harmonized GAP Audit Twilight Meeting is August 18

This Mock Harmonized GAP Audit will be held at the Fulton Center for Sustainability Living at Wilson College at 1015 Philadelphia Avenue in Chambersburg, Franklin Co., from 6:00 to 8:00 p.m. Growers will be able to observe what GAP auditors are looking for in their visits so they can be better prepared for an audit of their own operations and meet the new FSMA regulations. There is no cost to attend but please RSVP to Jeff Stoltzfus at 717-394-6851 at jhs3@psu.edu.

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NEWS

Ag Biz Masters to Host Dr. David Kohl at Ag Progress Days

Join other Young and Beginning Farmers at Ag Progress Days and meet Dr. David Kohl! The following events will be held on Wednesday, August 17, 2016, at the AgBiz Masters tent located at E715 on East 7th Street. The Ag Progress Days grounds are at 2710 W. Pine Grove Road in Pennsylvania Furnace. Thanks to funding received from AgConnect, the events are free to attendees.

AgBiz Masters Reunion and Networking

10 a.m. - 11:15 a.m. - Catch up with other AgBiz Masters participants and alumni during this networking social. Plus, interact with industry supporters and Dr. David Kohl! A short graduation ceremony will be held at 10:15 a.m. to recognize recent graduates. You are welcome to bring your family and friends attending Ag Progress Days with you. Light refreshments will be served.

National News Briefs *(continued from page 9)*

"This time of year is always difficult to forecast," he said. "We are expecting big acreages, but we are still at the point where fundamentals can change as the year goes on. The weather will dictate where things go from here."

Recently, AFBF President Zippy Duvall testified before a Congressional subcommittee on the economic factors that are facing farm families. For instance, net farm income is estimated at \$55 billion for 2016, which would be around a \$1 billion drop from 2015 levels.

"It is this long-term expectation of much lower farm income that is most concerning. For many of our major commodities, there is little domestic demand growth on the horizon," Duvall said. "Add to this a strong dollar amplified by weaker economic growth in many countries and the production expansion by our major competitors, and one also has to be concerned over limited hopes for significant export demand growth."

During the hearing, Duvall told the House Subcommittee on General Farm Commodities and Risk Management that there were several steps Congress could take to ease the farm economy:

- Approve the Trans-Pacific Partnership to raise overall farm income thanks to new export opportunities.
- Stop the Waters of the U.S. rule, which places additional costs and burdens on farming;
- Reverse spill prevention and control requirements that add costs without clear environmental benefit;
- Establish a voluntary, nationwide labeling standard for genetically modified food to avoid a patchwork of state laws and allow farmers to continue to use biotechnology.

"The bottom line is that farmers and ranchers are being forced to tighten their belts and pay much closer attention to their financial situation," Duvall said. "They will be in greater need of safety net and risk management programs than has been the case for some time—for some, since they started farming."

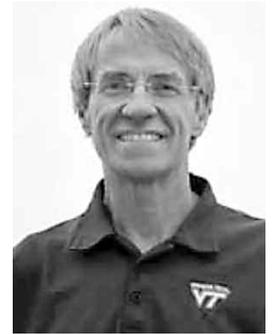
From **Pennsylvania Agricultural Alliance Issues Update**, Penna. Farm Bureau, June 2016.

Views from the Road

12 p.m. - 12:30 p.m. - Attend this fast-paced presentation by Dr. David Kohl who will provide an economic update on the agricultural industry.

10 Steps for Preparing Your Farm Business for the Future

1 p.m. - 1:30 p.m. - Join other young and beginning farmers for this presentation on tips to prepare your farm business for the future by Dr. David Kohl.



Dr. David Kohl

Celebrate your current or past involvement in AgBiz Masters while you are at Ag Progress Days! Young and beginning farmers attending any of the three events will receive \$6 in food coupons to use at Ag Progress Days.

RSVP is not required for any event., except for recent graduates being recognized at the graduation ceremony.

Questions? Contact Raechel Sattazahn at 800-349-3568 ext. 6016 or rsattazahn@agchoice.com.

Next Grower Conference Call is August 9

In the fall of 2014 it was suggested that we conduct grower conference calls during the season to allow growers to talk about problems they are experiencing during the season – and hear recommendations from Penn State experts for solving them. These calls were successful last year and we will continue them in 2016.

So if you're too busy to get off the farm, join us on one or more of the following Tuesday evenings from 8:00 p.m. to 9:00 p.m.:

August 9 • September 6 • October 4

To participate in the calls, call toll-free 1-877-643-6951 and then enter pass code 55835024# at the scheduled time. All callers will be able to speak if they wish or they can just listen in on the discussion. Please do not call the toll-free number at other times – no one will answer. For any questions, contact the Program at 717-694-3596.



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MARKETING



Join us for our 20th Annual Are You Crazy? Retail Farm Market Bus Tour to explore some of the premier farm markets in Northern Pennsylvania and the Finger Lakes region of New York. This two-day tour will be September 13 and 14, 2016. It will depart from and return to the Lehigh County Penn State Extension in Allentown

This tour is for retail farm market professionals and is held at the height of the season to enable participants to learn from their regional farm market peers during their best and most robust season.

Our special 20th anniversary tour will include:

- Behind the scenes tours and information directly from market owners
- Unique display and merchandising ideas
- Information on market expansion and farm transition
- Commercial juice pressing facility tour
- Overnight stay on Seneca Lake's edge at the Ramada Geneva Lakefront
- Rolling classroom sessions to discuss 2016 farm market trending topics
- Networking opportunities with fellow farm market peers

The tour includes stops at the following farm markets on the first day:

- Roba Family Farm - North Abington Township, PA
<http://www.robafamilyfarms.com/>
- Stoughton Farm - Newark Valley, NY
<http://www.stoughtonfarm.com/>
- Bigsby Market - Freeville, NY
<http://www.thebigsbymarket.com/>
- Red Jacket Orchards - Geneva, NY
<http://www.redjacketorchards.com/>

The stops for the second day are:

- The Apple Shed - Newark, NY
<http://reisingersapplecountry.com/>
- Reisingers Apple Country - Watkins Glen, NY
- Iron Kettle - Candor, NY
<http://www.ironkettlefarm.com/>

The hosts are Brian Moyer and Carla Snyder from Penn State Extension

The registration deadline: is Friday, August 12, 2016 and the fees are: \$280 for one per room, \$225 for two per room, \$206 for three per room and \$197 for four per room. Registration fee includes the overnight stay at the Ramada Geneva Lakefront in Geneva, New York, bus fare, lunch on both days, and breakfast on the second day. Note that dinner on the first day will be on your own. To register, call 610-391-9840 or go to <http://www.cvent.com/events/are-you-crazy-retail-farm-market-bus-tour/event-summary-cd388ee6b7224bc5825d48ed24bb499f.aspx>.

Each year this tour brings unexpected learning opportunities and beneficial networking connections to its participants. We look forward to two full, well-rounded days of interactive education and networking!

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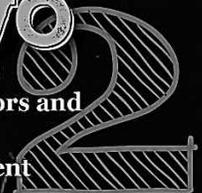
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 Constructing a Balance Sheet
 Constructing an Income Statement
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▶ YEAR TWO

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 Benchmarks
 Growth and Transition Management
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WHAT'S INVOLVED IN AGBIZ MASTERS?



AgBiz Masters is an educational learning series that runs November through March, covering a variety of business and financial management topics for young and beginning farmers. The program's blended learning approach includes on-demand, eLearning modules and activities, and face-to-face regional workshops.

Online modules take about one to two hours to complete and include online discussion forums, exams and assignments to relate the topics to your personal farming situation. Materials are accessed via the web at your convenience. Text modules and exams are available for participants without internet access.



A regional kick-off meeting and two face-to-face workshops are held to supplement the online learning and allow discussions and feedback among participants and industry facilitators. Workshops are held in 13-15 locations across Pennsylvania, Maryland and other states. Farm tours are also hosted across the AgBiz Masters area to expose participants to different facets of agriculture.

REGISTRATION FOR AGBIZ MASTERS IS EASY!

1. Complete the AgBiz Masters registration form or register online at www.AgBizMasters.com.
2. Submit your registration and \$225 payment (made payable to AgChoice Farm Credit) by October 31, 2016 to:

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Mechanicsburg, PA 17050
717-796-9830 (fax)
rsattazahn@agchoice.com



Participation in AgBiz Masters earns you up to eight (8) SmartStart credits each year from AgChoice Farm Credit and may qualify you for a reduced interest rate on a new AgChoice loan! Learn more about SmartStart at www.agchoice.com/farms/smartstart.

REGISTRATION DETAILS

Register today for AgBiz Masters to help secure a strong future for your farm operation! The registration fee for one year of AgBiz Masters is \$225 and must be received prior to the October 31 registration deadline. Please note that your \$225 fee covers one or two people per registration per year. You may be eligible for additional scholarship reimbursements to help cover the registration cost. For more information on what scholarships you may qualify for, please visit www.AgBizMasters.com.

To learn more about this program or to request a registration form, please contact Raechel Sattazahn at 800-349-3568 ext. 6016 or rsattazahn@agchoice.com.



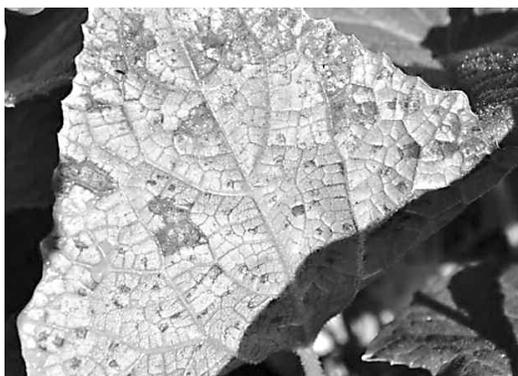
VEGETABLE PRODUCTION

Be on the Lookout: Downy Mildew Confirmed on Cucumber in Several Counties

Beth Gugino

Reports of downy mildew on cucumber continue to increase and now include Lancaster, Chester and Delaware Counties in PA as well as new reports on cucumber in NJ, NY, MI and Ontario, Canada. Earlier this week was the first report on cantaloupe in northeastern OH in Medina County. Disease spread is most likely in the northeastern and southeastern portions of PA in the upcoming days. These reports of downy mildew are not surprising given the confirmed reports on cucumber in many of the surrounding states including multiple counties just south east of these reports in New Jersey, Maryland and Delaware. The infections likely occurred last week when the conditions were more favorable and symptoms are just now becoming visible. It is important to be scouting your cucumber fields frequently for symptoms.

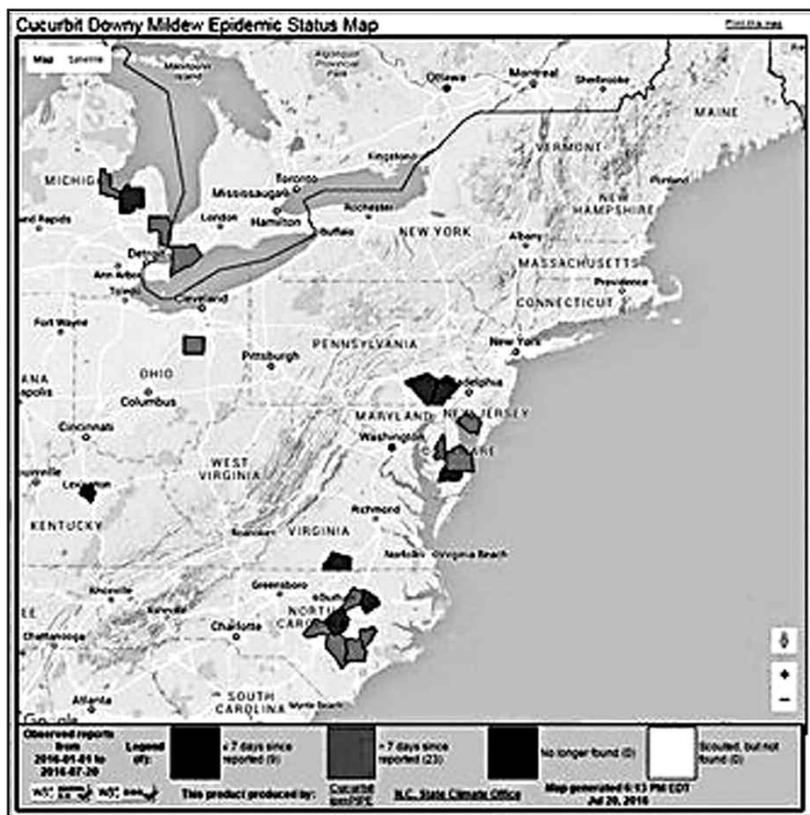
Although the threat of disease spread across the state is very low over the next couple of days, it is highly recommended that a protectant fungicide be applied to all cucumber (and cantaloupe) crops across Pennsylvania. For conventional growers, including downy mildew specific fungicides such as Ranman (FRAC code 21), Previcur Flex (FRAC code 28) and Zampro (FRAC code 45 + 40) applied in alternation/rotation with products such as Tanos (FRAC code 11 + 27), Forum (FRAC code 40), Curzate (FRAC code 27) or Zing! (FRAC code 22 + M5; contains chlorothalonil) into a program should be considered especially if rain is forecasted. For certified organic production, copper-based fungicides remain the primary tool and can be used in combination with products like Serenade, Regalia and Actinovate for suppression.



Watersoaking common on the underside of cucumber leaves with downy mildew. Once dry, purplish-gray sporulation will be visible in those same spots. Photo: Beth K. Gugino.

*Dr. Gugino is with the Dept. of Plant Pathology and Environmental Microbiology at Penn State Univ. From the **Vegetable, Small Fruit and Mushroom Production News**, Penn State Extension, extension.psu.edu/plants/vegetable-fruit/news, July 20, 2016.*

Highlighted counties are where CDM outbreaks have been reported as of 20 July 2016. Red indicates the reports were made within the past 7 days. Map source: Cucurbit Downy Mildew ipmPIPE website. <http://extension.psu.edu/plants/vegetable-fruit/news/2016/be-on-the-lookout-downy-mildew-confirmed-on-cucumber-in-lancaster-and-chester-co.-pa/image-galleryzoom>



Wanted: Fire Blight Samples From Pennsylvania

Kari Peter

The Tree Fruit Pathology Lab at FREC is seeking fire blight samples again this season from around the state of Pennsylvania in commercial orchards and home landscapes for evaluation for antibiotic-resistant strains of the bacteria and other projects. If you have fire blight present in your orchard/yard, please contact Dr. Kari Peter for instructions for sampling.

Thanks to our very cool May this year, we're getting a slight reprieve from fire blight issues compared to the last two seasons. Case in point: this time last year and in 2014, I could drive throughout Adams County and spot trees with fire blight while driving 50 mph; not quite the same experience in 2016 (a good thing). Fire blight is still lurking around and, similar to last year, we would like to continue to collect disease samples from as many counties in Pennsylvania as possible, so we need your help.

Before you cut out any samples and send them along: please contact Kari Peter kap22@psu.edu or 717-677-6116 Ext 223 to receive instructions for sample collection.

If you email, please indicate the county where you are located.

For those located in Adams and surrounding counties: The Tree Fruit Path Crew would be able to come to your site and collect samples.

*Dr. Peter is with Penn State Univ. From the **Vegetable, Small Fruit and Mushroom Production News**, Penn State Extension, extension.psu.edu/plants/vegetable-fruit/news, July 1, 2016.*

Additional Reports of Late Blight in Maryland

Beth Gugino

Although late blight has not been yet confirmed in Pennsylvania this season, this past week it was confirmed on tomato in four additional counties, in Garrett County, Maryland just south of Somerset County, PA as well as in southern MD and two counties on the Delmarva Peninsula.

In Pennsylvania, even though, the high daytime temperatures and general lack of rain statewide have been unfavorable for late blight development, keep in mind that the cooler evening temperatures (between 65 and 70°F) and high relative humidity will still encourage disease development if the pathogen is present so regular scouting remains important.

To identify late blight, look for lesions that are irregular in shape and initially water-soaked and pale-green before turning more gray-brown in color. Under humid conditions, the lesions on the underside of the leaves will sporulate giving them a white fuzzy appearance. The lesions will tend to develop on the upper to middle part of the plant as opposed to early blight and Septoria leaf spot (tomato only) that start on the lower leaves and progress up the plant.

The past several years, US23 has been the predominant genotype along the east coast and all the reports in the east so far this season have been US23. US23 affects both tomato and potato and is sensitive to the fungicide active ingredient mefenoxam. Remember that both tomato and potato are susceptible to late blight at any growth stage from a seedling to a mature plant. If observed roguing out not only the symptomatic plants and but also roguing out the surrounding non-symptomatic plants is important. Many of these plants are also likely infected but have not developed symptoms yet and may not for several days or weeks depending on the environmental conditions.

Unless you have planted a late blight resistant tomato cultivar (e.g. Plum Regal, Mountain Magic, Mountain Merit, Defiant, Iron Lady) the only way to manage late blight during the growing season when conditions are favorable for disease is with the use of protectant and/or late blight specific fungicides. Without careful scouting and the use of fungicides, you could potentially lose your crop in as few as 5 days. Initiating a pro-



Foliar symptoms of late blight on tomato.

tect fungicide program will also help manage other diseases such as early blight and Septoria leaf spot.

For organic production, copper is still one of the most effective in-season tools and is most effective when applied before symptoms are observed. Copper tank mixed with Actinovate and alternated with Regalia would be one suggested organic program. Since Regalia functions

(continued on page 16)

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VEGETABLE PRODUCTION

Basil Downy Mildew Confirmed in New Jersey and Western Pennsylvania

Beth Gugino

Basil downy mildew continues to be a constant challenge for growers especially as the growing season progresses and the number of confirmed reports across the region increases.

This pathogen, which is different from the one that causes downy mildew on cucurbits, can be spread both in the wind and be seedborne. Symptoms include yellowing or chlorosis of the foliage which looks very similar to a nutrient deficiency however when conditions are cool and wet purplish-gray sporulation of the pathogen can be visible on the underside of the leaf (similar in appearance to cucurbit downy mildew). Additional pictures and more information about disease monitoring can be found in a more comprehensive article written by Dr. Meg McGrath, Cornell University.

Growers, producing basil for re-sale to consumers, can now make one application of Subdue Maxx (mefenoxam) as a soil surface spray at a rate of 3.75 oz/5000 sq. ft to plug production trays after seeding and before seedling emergence. Subdue Maxx has a 48-hr REI and 21-day PHI. Or one application of Heritage (azoxystrobin) could be applied at a rate of 0.9 oz/5000 sq. ft to emerged plants in plug production trays. Heritage has a 0-day PHI and a 4-hr REI. The supplemental 24 (C) labels with additional information for PA can be accessed through the Crop Data Management Systems, Inc. (CDMS) website.

Additional in-season management options include Ranman (cyazofamid), Revus (mandipropamid) and multiple phosphorous acid products. For organic production, growers should consider using Actinovate AG, Regalia, Milstop, Oxidate or Double Nickel 55. In cultivar trials, the sweet basil cv. Eleonora has shown partial resistance downy mildew.

Dr. Gugino is with the Dept. of Plant Pathology and Environmental Microbiology at Penn State Univ. From the Vegetable, Small Fruit and Mushroom Production News, Penn State Extension, extension.psu.edu/plants/vegetable-fruit/news, July 6, 2016.

Additional Reports... (continued from page 15)

to boost the plants defense system, initiating applications early in the season is recommended.

If you suspect late blight on your farm, please contact your local Penn State Extension Office or let me know via email or by phone at 814-865-7328. We are interested in collecting samples so we can better understand how the pathogen population is changing both within and across growing seasons. Also for the information regarding where the latest confirmed outbreaks have been reported and to receive email or text alerts about when late blight has been confirmed with a personally defined radius from your location visit <http://usablight.org>.

Dr. Gugino is with the Dept. of Plant Pathology and Environmental Microbiology at Penn State Univ. From the Vegetable, Small Fruit and Mushroom Production News, Penn State Extension, extension.psu.edu/plants/vegetable-fruit/news, July 13, 2016.

Downy mildew on basil. The purplish gray sporulation of the pathogen is visible on the lower leaf surface. These spores are how the pathogen travels long distances.



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VEGETABLE PRODUCTION

Wanted: Samples of Bacterial Diseases on Tomato (and Pepper)

Beth Gugino

Over the past several years, bacterial diseases have become an increasing problem in tomato and pepper fields across Pennsylvania. Last year it was tomato while this year it seems to be more on pepper depending on where you are in Pennsylvania.

During the growing season, copper-based products are the primary tool used to reduce bacterial spread within and between plants. Copper is typically applied in a fixed form which lowers its solubility in water. Once applied to the plant surface, copper ions are slowly released when the plant surface becomes wet. When copper ions come in contact with a bacterial cell, they function to denature proteins thereby destroying enzymes necessary for the bacterial cell to function. Since copper is a protectant, once the bacteria enter the plant it is no longer exposed to the copper ions.

One increasing concern is the reduced efficacy of copper due to the development of resistance within the different tomato bacterial populations. In the U.S., bacterial spot resistance to fixed copper has been reported in Florida, Georgia, North Carolina, California, Tennessee, Oklahoma and Ohio while bac-



Bacterial fruit and foliar lesions caused by the bacterial pathogen Xanthomonas campestris pv. vesicatoria.

terial speck resistance has been reported in California and Virginia. Fortunately, copper resistance has not been reported with bacterial canker. Resistance develops due to selection pressure from frequent use of copper and is distributed through the movement of seed and transplants. In regions where copper resistance is a problem growers have had to reduce their reliance on copper-based fungicides and if used, tank mix it with mancozeb.

In Pennsylvania, it is not known if copper resistance within the bacterial populations affecting tomato is contributing to the

increased difficulty growers are having managing these diseases. With support from the Pennsylvania Vegetable Growers Association and Pennsylvania Vegetable Marketing and Research Board, we are collecting tomato (as well as pepper samples since bacterial spot is a major problem this season in some regions) samples. We will isolate the bacteria associated with these samples, determine the genus and species of the bacteria and then screen them for copper resistance. Please

(continued on page 18)

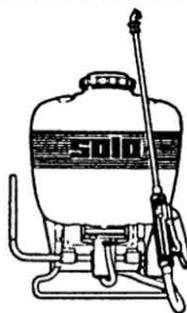
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VEGETABLE PRODUCTION

Using Neem and Azadirachtin for Insect Control

Angie Madeiras

The neem tree, *Azadiracta indica*, is native to India. Extracts from the seeds of this tree have been used as medicine, a cosmetic, and as a pesticide for centuries. Today, there are several pesticides on the market based on neem. They are most commonly available as emulsifiable concentrates.

Types of Neem Products. Neem extract is often separated into two components, azadirachtin and clarified hydrophobic extract of neem oil. These components are used to make the three types of neem products described below. It is important to distinguish these three types of products from each other as they work in different ways.

1. Azadirachtin is the active ingredient in neem oil that is considered to have the greatest pesticidal activity. Products such as Azatrol, AZA-Direct, and Molt-X are based on azadirachtin. Many are OMRI-approved. Azadirachtin acts as an insecticide primarily by inhibition of molting; it is also a feeding deterrent. It must be ingested in order to have these effects. In addition, it discourages oviposition.

2. Products based on clarified hydrophobic extract of neem oil, which is neem oil from which much of the azadirachtin has been removed, include Trilogy and Green Light. This portion of the extract is similar to other plantbased horticultural oils and works in much the same way, by suffocating insects on contact. Many of these products are also OMRI-approved.

3. Clarified hydrophobic extract of neem oil may also be used to make insecticidal soap. Soaps made from neem oil list potassium salts of fatty acids as their active ingredient. Although neem soap has not been studied directly, it most likely works in the same way as other insecticidal soaps, which is by disrupting insect cuticles. Bon-neem Insecticidal Soap is derived from neem oil, but at present neem soap is not OMRI-approved because it is considered synthetic.

Neem extracts contain numerous compounds in addition to azadirachtin. Some of these may also have insecticidal activity, but these chemicals have not been well studied.

Considerations For Azadirachtin Use. Azadirachtin is taken up by plant roots and translocated throughout the plant. It breaks down rapidly in sunlight, and on the plant surface it has a half-life of 1 to 2.5 days. It persists for much longer inside plant tissues, although its systemic activity is gradually diluted as plants grow. Azadirachtin products may therefore be effective longer when plants can take it up from the root zone. This is important considering that the minimum application interval for many products is 7 days.

Note that azadirachtin is most effective at temperatures > 70°F and in soils with pH < 7. It is generally more effective

Wanted: Samples of... (continued from page 17)

contact me at bkgugino@psu.edu or by phone at 814-865-7328 if you are interested in submitting a sample or send a sample to 219 Buckhout Lab, University Park, PA 16802. This season, I am also conducting a fungicide evaluation trial for bacterial spot to provide growers with additional information that they can use to make management decisions.

Dr. Gugino is with the Dept. of Plant Pathology and Environmental Microbiology at Penn State Univ. From the Vegetable, Small Fruit and Mushroom Production News, Penn State Extension, extension.psu.edu/plants/vegetable-fruit/news, June 29, 2016.

against chewing rather than sucking insects; however, a few studies have demonstrated fair to good efficacy against aphids and leaf hoppers. Because it inhibits molting, it is most effective on insects in juvenile stages and has little effect on eggs or adults. Research has also shown that foliar applications appear to decrease spider mite populations. In all cases, it is best used preventatively, before insect populations build to critical levels. Some insect damage will be incurred since azadirachtin must be ingested to be effective.

(continued on page 19)



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VEGETABLE PRODUCTION

Using Neem... (continued from page 18)

Considerations for Neem Oil Use. Due to its mode of action, neem oil is generally more effective against soft-bodied insects such as aphids and mealy bugs. Neem oil has no systemic activity and works by direct contact alone. Thorough plant coverage is therefore essential. Neem oil is effective against insects at all life stages. Like azadirachtin, it also breaks down rapidly in sunlight and can be washed away by rain, making frequent applications necessary.

Phytotoxicity can be a problem with any horticultural oil. Avoid spraying when temperatures are above 85°F and/or humidity is > 90%. Agitate spray mixtures frequently to avoid separation. Oil is incompatible with some other pesticides, notably copper products. Do not apply sulfur within 30 days of oil application. Some plants may be more sensitive to neem oil than others. If the sensitivity of a particular plant species or variety is unknown, spray a few plants to test for phytotoxicity before spraying the entire crop.

General Considerations. Neem is relatively non-toxic to humans, although some people may experience irritation of the skin and mucous membranes upon exposure. Handlers should wear long sleeved shirts and long pants, rubber gloves, and shoes with socks. All pesticides must be used in accordance with the label: the label is the law. Do not apply any pesticide in excess of label recommendations.

Neem products are relatively non-toxic to insects and arachnids that do not eat plants. It is also relatively non-toxic to bees at recommended field rates; however, if azadirachtin is repeatedly applied at high rates, bees may be exposed and may bring contaminated pollen back to larvae in the hive. Avoid applying any type of neem product to open flowers or at times when bees are actively foraging. Apply in late evening or early morning to minimize bee exposure.

Neem and Plant Pathogenic Fungi. Azadirachtin products are ineffective against plant pathogenic fungi and are not labeled for that use. Most neem oil products are labeled for the control of several plant diseases caused by fungi, but data from scientific trials indicates that they are relatively ineffective except in the case of certain powdery mildews. It is believed that horticultural oils prevent fungal spore germination and penetration of host tissue. Horticultural oils are fungistatic rather than fungicidal; that is, they temporarily slow or stop growth of a fungus rather than killing it. This effect is likely to be short-lived due to the low residual activity of these products.

*Ms. Madeiras is the Univ. of Massachusetts Plant Disease Diagnostician. From **Vegetable Notes for Vegetable Farmers in Massachusetts**, Univ. of Mass. Extension, Vol. 28, No. 10, June 16, 2016.*


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VEGETABLE PRODUCTION

Foliar Fertilization of Vegetable Crops

Gordon Johnson

Growers will apply most (>90%) of their plant nutrients for vegetable crops as soil applications (preplant, sidedressed, fertigated) based on soil tests and crop nitrogen needs.

To monitor vegetable nutrient status during the growing season, tissue testing is recommended just prior to critical growth stages. Growers can then add fertilizers to maintain adequate nutrient levels during the growing season or correct nutrient levels that are deficient or dropping.

Foliar fertilization is one tool to maintain or enhance plant nutritional status during the growing season. Often quick effects are seen and deficiencies can be corrected before yield or quality losses occur. Foliar fertilization also allows for multiple application timings post planting. In addition, there is reduced concern for nutrient loss, tie up, or fixation when compared to soil applications.

However, foliar fertilization has limitations. There is the potential to injure plants with fertilizer salts, application amounts are limited (only small amounts can be taken up through leaves at one time), multiple applications are often necessary (increasing application costs) and foliar applications are not always effective, depending on the nutrient targeted and plant growth stage.

Where foliar fertilization does have a good fit is for deficiency prevention or correction, particularly when root system function is impaired. This commonly occurs when there is extended rainy weather and soils are waterlogged. Foliar fertilization is also necessary when soil conditions, such as low pH, causes the tie up of nutrients so that soil uptake is limited. Foliar fertil-

ization can also be used to target growth stages for improved vegetable nutrition thus improving color, appearance, quality, and yield.

Foliar fertilizers are applied as liquid solutions of water and the dissolved fertilizers in ion or small molecule form. Foliar nutrient entrance is mostly through the waxy cuticle, the protective layer that covers the epidermal cells of leaves. Research has shown that there is limited entrance through the stomata. While the waxy cuticle serves to control water loss from leaf surfaces, it does contain very small pores that allows some water and small solute molecules to enter into the underlying leaf cells. These pores are lined with negative charges. Fertilizer nutrients in cation form or with neutral charges enter most readily through these channels: this includes ammonium, potassium, magnesium, and urea (NH₄⁺, K⁺, Mg⁺⁺, CH₄N₂O respectively). In contrast, negatively charged nutrients (phosphate-P, sulfate-S, molybdate-Mo) are much slower to move through the cuticle (they must be paired with a cation). Movement through the cuticle is also dependent on molecular size, nutrient concentration, time the nutrient is in solution on the leaf, whether the nutrient is in ionic or chelated form (complexed with an organic molecule), and the thickness of the leaf cuticle.

Another factor in foliar fertilizer effectiveness is what happens once the nutrient enters into the leaf area. Some smaller molecules or those with less of a charge are readily transported in the vascular system to other areas of the plant (NH₄⁺, K⁺, Mg⁺⁺, Urea). Other larger molecules and more strongly positive

(continued on page 21)

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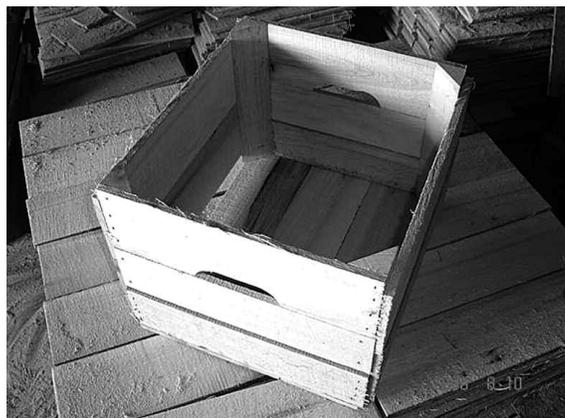
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VEGETABLE PRODUCTION

Foliar Fertilization... (continued from page 20)

charged nutrients stay near where they enter because they bind to the walls of cells in intercellular areas that contain negative charges. Tightly held nutrients include Calcium, Manganese, Iron, Zinc, and Copper (Ca⁺⁺, Mn⁺⁺, Fe⁺⁺, Zn⁺⁺, Cu⁺⁺). Therefore, when applied as foliar fertilizers, calcium does not move much once it enters plant tissue, the negatively charged nutrients such as phosphorus and sulfur are very slow to enter the plant, and iron, manganese, copper, and zinc are slow entering and do not mobilize once in the plant.

The following is a list of the major plant nutrients that are effective as foliar applications, fertilizer forms best used for foliar applications, and recommended rates;

Foliar applications of nitrogen (N) can benefit most vegetables if the plant is low in N. Urea forms of N are the most effective; methylene ureas and triazones are effective with less injury potential; and ammonium sulfate is also effective. Recommended rates are 1-10 lbs per acre.

Foliar potassium (K) is used on fruiting vegetables such as tomatoes and melons. Best sources are potassium sulfate or potassium nitrate. Recommended rate is 4 lbs/a of K.

Foliar magnesium (Mg) is used on tomatoes, melons, and beans commonly. The best source is magnesium sulfate and recommended rates are 0.5-2 lbs/a of Mg.

Foliar calcium is often recommended, but because it moves very little, it must be applied at proper growth stages to be effective. For example, for reducing blossom end rot in tomato or pepper fruits, foliar calcium must be applied when fruits are very small. Best sources for foliar calcium are calcium nitrate (10-15 lbs/a), calcium chloride (5-8 lbs/a) and some chelated Ca products (manufacturers recommendations).

Iron (Fe), manganese (Mn), or zinc (Zn) are best applied foliarly as sulfate forms. Rates are: Fe, Mn, 1-2 lbs/a, and Zn ? lb/a. While these metal micronutrients are not mobile, foliar applications are very effective at correcting local deficiencies in leaves.

The other micronutrient that can be effective as a foliar application is boron. Boron in the Solubor form is often recommended at 0.1 to 0.25 lbs/a for mustard family crops such as cabbage as a foliar application. Boron is very toxic to plants if applied in excess so applying at correct rates is critical.

For foliar fertilizers to be most effective they should remain on leaves or other targeted plant tissue in liquid form as long as possible. Urea and ammonium nitrogen forms, potassium, and magnesium are normally absorbed within 12 hours. All other nutrients may take several days of wetting and rewetting to be absorbed. Therefore, it is recommended that foliar fertilizers be applied at dusk or early evening when dew is on the leaves, in high volume water, and using smaller droplets to cover more of the leaf. Applications should also be made when temperatures are moderate and wind is low. While foliar fertilizers are sometimes applied with pesticides, for best effectiveness and reduced phytotoxicity potential it is recommended that they be applied alone. Use only soluble grade fertilizers for foliar applications (many are already provided in liquid form) and adjust water pH so it is slightly acidic.

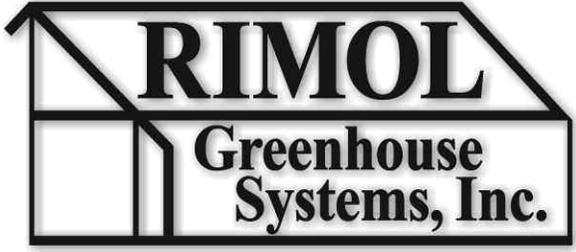
Foliar fertilizers are most effective when applied to younger leaves and fruits. Research has shown that as leaves or fruits age, cuticles

thicken, and these thicker cuticles absorb significantly lower amounts of nutrients such as potassium. However, younger plant tissue is also the most susceptible to potential fertilizer burn.

Because foliar fertilizers are in salt forms they can damage (continued on page 22)

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VEGETABLE PRODUCTION

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Susie Walden, Sonia Walker and Matt Kleinhenz

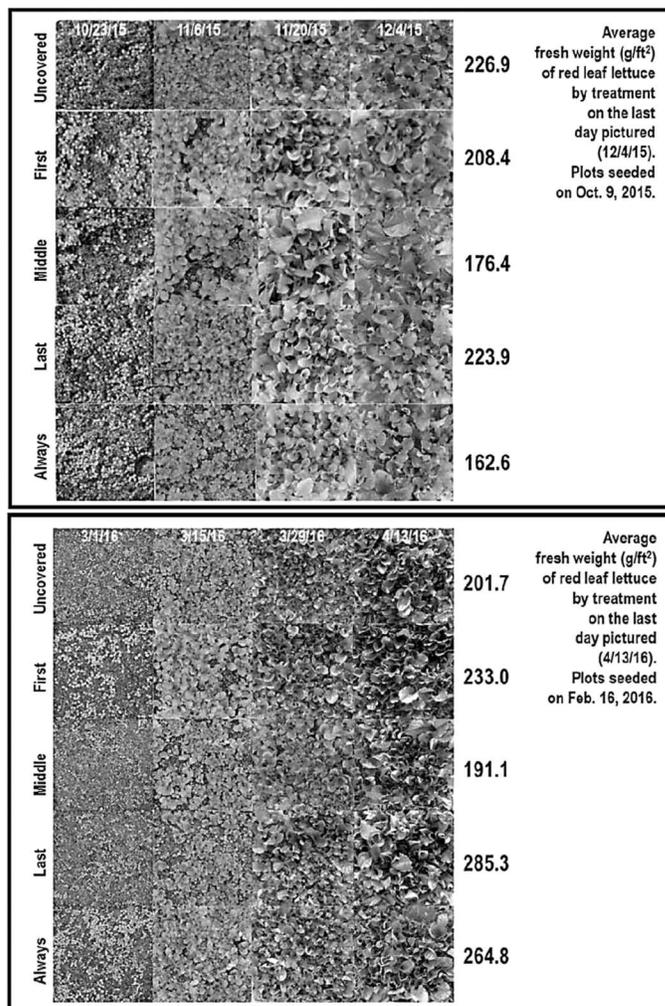
Growing and selling leafy vegetable crops, including lettuce, fall-to-spring is increasingly important to more and more growers. Demand for locally-grown and freshly-harvested leafy vegetables September to May (actually, year-round) is strong. As a result, traditional views of fall-to-spring as the time to suspend sales are being replaced by the recognition that they can be lucrative, as long as products are appealing in terms of price, appearance, taste/texture, potential nutritional value, and other factors. Achieving yield and quality targets fall-to-spring is difficult because growing conditions change significantly and can be extreme.

We are investigating ways to help growers be more effective fall-to-spring, especially when they use high- or mid-tunnels. Updates on this research are available anytime; additional articles will be included in VegNet, and summaries will be shared in presentations and plot tours and at our website and Facebook. Please call or email us if you want more information. An example of what is available is below.

We seeded (360 seed/sq. ft.) 'Outredgeous' lettuce and 'Red Pac' choy in a single-layer, unheated, 30 ft. x 80 ft. high tunnel at OARDC on October 9, 2015 and February 16, 2016. The tunnel contains twenty, 4 ft. x 12 ft. wood-framed raised beds and half of each bed was seeded to each crop on each day. The crops were grown for eight weeks and harvested and evaluated four times between seeding and final harvest (i.e., Oct. 9-Dec. 4, 2015 and Feb 16-Apr 13, 2016).

More important, individual beds were covered with a 1.1 mil vented film for four weeks between seeding and final harvest but at different times during that period. One set of beds (control) was never covered. Four other sets of beds were covered for either: a) the first four weeks after seeding, b) the middle four weeks between seeding and final harvest, c) the last four weeks before final harvest, or d) from seeding to final harvest. All covers were put in place over standard low tunnel hoops. The appearance and yield of the lettuce at different points in the eight-week growth period are shown in the pictures on the following page. Each column is labeled with the date the pictures were taken. Each row is labeled with the experimental treatment (when the cover was in place). The numbers to the right of each row represent the average yield (grams/sq. ft.) of the treatment the date the picture was taken. Note the different color and amount of leaf mass by seeding and picture date. Similar trends were noted in the choy, although treatment effects on color were slightly less dramatic. Why is color important? It is often the first criterion a buyer uses to assess product quality AND it is related to a key component of a food's potential nutritional value. In short, where there is color (especially blue, purple, red, yellow, orange, pink), there is antioxidant capacity. Where there is antioxidant capacity, there can also be health benefits. That said, historically, growers have often had to choose to either increase yield (biomass) or enhance color (visual appeal, potential nutritional value). Overall, this research is designed to help eliminate the need to choose between these two goals. We partner with growers to develop methods offering high yield and quality. Brix was also measured on these crops and will be reported another time. (article continued on the next page) Contact Matt Kleinhenz (ph. 330.263.3810; kleinhenz.1@osu.edu) for more information.

The authors are with The Ohio State Univ. From **VegNet**, The Ohio State Univ. Ext., Vol. 23, No. 3, May 3, 2016.



Photos by Susan Walden.

Foliar Fertilization... (continued from page 21)

plant tissue if applied at rates that are too high. Generally a 0.5-2% fertilizer solution is recommended. Certain vegetables are more sensitive to fertilizer salt injury than others. Vegetables with large leaves with thinner cuticles (such as muskmelons) have greater risk of salt injury when compared to crops, such as cabbage, that have thick cuticles. Apply foliar fertilizers at recommended rates and dilutions for each specific vegetable crop.

In addition, some fertilizer sources are much more likely to cause injury than others. In the past this was given as the salt index for a fertilizer, the lower the salt index the less osmotic stress the fertilizer would place on the plant tissue. A better index would be the osmolality values for the fertilizer material. For foliar nitrogen materials, osmolality values (mmol/kg) for common N sources are as follows: Urea = 1018, UAN-28 = 1439, Ammonium sulfate = 2314, Potassium nitrate = 3434. This shows that potassium nitrate has over 3x the osmotic stress potential compared to urea when applied as a foliar fertilizer. This means that potassium nitrate has much more potential to cause salt injury to plants than urea and must be used at lower rates.

Dr. Johnson is the Extension Vegetable & Fruit Specialist at the Univ. of Delaware. From the **Weekly Crop Update**, Univ. of Delaware Coop. Ext., Vol. 24, Issue 1, March 4, 2016.

Blackleg is Once Again Being Observed in Potato Fields Across the Mid-Atlantic Region

Beth Gugino

In May 2016, an aggressive form of black leg caused by the bacterial pathogen *Dickeya dianthicola* was confirmed in a potato seed lot being grown in New Jersey. This is the same pathogen that caused widespread yield losses across the region in 2015 when it was first confirmed in the U.S. It subsequently has been detected and confirmed in DE, PA, MD and VA this season. *Pectobacterium atrosepticum* which has long been associated with blackleg has also been detected.



Blackleg symptoms on potato. (Photo credit: Tianna DuPont)

Symptoms of blackleg caused by *Dickeya* infection are very similar to those caused by *Pectobacterium atrosepticum*. It can manifest itself as poor seed emergence as well as a water soaking and blackening of the stem pith and vascular system under wet conditions. The leaves then become yellow and curl upward. It also caused a soft rot of potato tubers since the bacteria are able to degrade or feed on the pectate found in the cell walls causing them to break open and leak their cell contents. The disease is favored by cool temperatures below 65°F and moist conditions.

Unfortunately, the pathogen is seedborne and once symptoms develop in the field, management tools are severely limited and primarily preventative. Since the pathogen is primarily seedborne, it tends to be associated with specific seed lots. In one case this season, a seed lot planted on two different farms in two neighboring states both developed blackleg which was

confirmed to be caused by *Dickeya dianthicola*. Although this problem has primarily been associated with some seed lots originating from Maine, it has also been confirmed in other seed production regions of the U.S. and Canada.

Efforts are being made to address the situation however despite potential losses of up to 100%, APHIS recently announced that the pathogen has been classified as a non-reportable/non-actionable pathogen which indicates that no national level regulatory action will be taken. A link to the USDA/APHIS website for information on *Dickeya dianthicola* detection and control can be found on the [USDA APHIS website](#).

This season it is important to identify problematic seed lots and work to eliminate them from the production system. If you suspect black leg in your field, please contact by email atbkgugino@psu.edu or by phone at 814-865-7328 or the [Penn State Plant Disease Clinic](#). We are interested in collecting samples for confirmation of blackleg as well as determining whether it is caused by *Pectobacterium* or *Dickeya*.

Dr. Gugino is with the Dept. of Plant Pathology and Environmental Microbiology at Penn State Univ. From the *Vegetable, Small Fruit and Mushroom Production News*, Penn State Extension, extension.psu.edu/plants/vegetable-fruit/news, June 29, 2016.

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BERRY PRODUCTION

Orange Rust on Brambles—an Ongoing Saga

Cassandra L. Swett

We all get a little rusty as we get older, but one thing that we don't want to see getting rusty is our brambles. There are several rust diseases that affect brambles. I'm just going to focus on orange rust, which is the most important rust disease in the northeast. We are definitely seeing a bit of orange rust this year, with the cool wet springs. You'll see this disease on blackberries, black raspberries and purple raspberries. Orange rust does not affect red raspberries.

This is an unusual fungus—it grows systemically throughout the whole plant. So once a plant is infected, it will stay infected the rest of its life, and be a persistent source of inoculum for other plants. Over time, orange rust stunts and weakens plants so they will not bear fruit, but plants do not typically die. All in all, not a disease you want in your bramble field.

Orange rust is caused by two species:

Arthuriomyces peckianus, which is more common in the northeastern US.

Gymnoconia nitens, which is more common in southern states and primarily affects blackberry.



Orange rust stunting black raspberry plant. Note the “spindly” elongated shoots. Photo credit: Mike Ellis

When To Control Orange Rust: Life Cycle

Infection by orange rust occurs when it's persistently wet (for more than 12 hours in a day) and between 43° F and 72° F.

The fungus cannot infect if it's hot for most of the day or if it's very dry. Above 85°F the fungus cannot infect at all.

The life cycle of orange rust is much more complex than your typical fungal pathogen, so I'm just going to boil it down to the simple take homes:

First: In a new field, orange rust can come in on infected plants, or can spread from nearby brambles—either other fields or wild brambles.

Second: Rust overwinters on infected leaves on the soil surface and on old canes, so if rust gets established your field, it will likely persist at low levels through the life of the planting.

Third: There are two periods of infection that are important to control:

1) about 3-4 weeks in the spring, around the time of shoot emergence, after the last frost.

2) about 3-6 weeks in the fall, from the time when primocane growth slows until first frost.

Understand that these are estimates—what really determines infection is the weather—again, persistently wet and between 43°F and 72°F.

Fourth: It is important to protect both leaves and emerging shoots / buds. The time of year and history of the field can

inform you about whether you need to protect leaves, buds or both.

In the spring - Protect against leaf infections if you are detecting rust for the first time; if you have a history of rust in your field, also protect against emerging shoot / bud infections.

In the fall - Protect only against emerging shoot / bud infections. This has to do with the type(s) of spore present in your field:

If you **Have Not** had rust in your field in recent years, you should not have the overwintering spores, which infect buds. You should only have spring spores, which only infect leaves.

If you **Have** had rust in your field in recent years, then you probably Do Have overwintering spores, which infect buds.

Control Methods

Scout and remove infected plants in the spring - Once a plant is infected, it must be removed. Otherwise it will continue to provide inoculum, allowing spread to other plants. It does not do much good to keep it, because after a couple of years the plant will stop yielding.

Spring is a critical time to scout for and remove orange rust-infected plants in the field, because this is the only time you will see the bright orange spores. Scout early, as soon as new shoots start are emerging, after the last frost. Be particularly diligent when it's a wet spring—this year is a great example. The disease is easily identified as orange pustules on the underside of young leaves. You will not be able to detect orange rust after sporulation ends (early to June, onwards).

Chemical control

- Chemical control is an important complement to removal. Once you remove all infected plants, you will want to spray to prevent the spores from infecting new plants.

When to spray -

Weather can be a good indication that you need to spray—it

has to be wet and between 43°F and 73°F to get infection. It

is typically too cold between November and March and too hot between June and mid-August. In our region, the critical control periods for chemical protection are:

- About 3-4 weeks in the spring, around the time of shoot emergence, after the last frost.

- About 3-6 weeks in the fall, from the time when primocane growth slows until first frost.

Spring protection - Apply fungicides upon first discovery of the blisters, preferably before they burst open and release spores.

If the field has a history of the disease, sprays should be initiated before blisters appear.

Direct this application to the foliage, since you are preventing leaf infections. If you have had rust in previous



Scout for orange pustules on the underside of young leaves, early in the spring. Photo credit: Mark Bolda

(continued on page 25)

BERRY PRODUCTION

Orange Rust...

(continued from page 24)

years, **also** do a spray directed to the base of the cane, to protect the developing buds from getting infected by overwintering spores.

Fall protection - Apply fungicides if you detected rust in the field in the spring. Direct towards the base of the cane, to protect the developing buds (both floricanes and primocane); for floricanes varieties—also spray the primocane shoots, to protect the buds on next year's floricanes.

What to spray

- Rally (formerly called Nova) (myclobutanol)
- Pristine 38 WG (pyraclostrobin + boscalid)
- Cabrio 20EG (pyraclostrobin).

Fungicide recommendations for orange rust control, from the **2016 Midwest Fruit Pest Management Guide, developed by the Midwest Fruit Workers Group.** (<https://ag.purdue.edu/hla/Hort/Documents/ID-465.pdf>) The page numbers refer to the Management Guide—a link to the guide is provided here and in Resources below, if you would like to get more information.

See Raspberry Leaf Spot and Septoria Leaf Spot of Blackberry and Raspberry—page 115.

When to spray - Apply on a 10-14 day schedule—use the shorter interval in wet weather. Alternate Rally with Pristine and Cabrio to prevent fungicide resistance. Do not apply more than two sprays without alternating. An example of a 14 day-interval program for northern MD, would be:

In the spring - Starting after the last frost, at shoot emergence:

- April 10: Rally 40WSP (Nova)
- April 24: Cabrio 20EG
- May 8: Rally 40WSP

In the fall - When primocane growth slows, until the first frost:

- September 20: Rally 40WSP
- October 4: Pristine 38WG
- October 18: Rally 40WSP
- November 1: Cabrio 20EG

Material	Rate/Acre	Comments
Rally 40WSP (Rally was formerly called Nova)	2.5 oz.	For late leaf rust and powdery mildew, begin applications when disease first appears and repeat on a 10 to 14 day schedule. See Cabrio, Pristine, and Rally for Control of Orange Rust, page 114.
Cabrio 20EG	14 oz.	See notes on Abound, Cabrio, and Pristine, pages 114 - 115.
Abound	6.2 - 15.4 fl.oz.	
Pristine 38WG	18.5 - 23 oz.	See Pristine 38WG (page 115) about Pristing mixing instructions.
Quilt Xcel	14 - 21 fl.oz.	30 day PHI
Tilt	6 fl.oz.	

Note that with high disease pressure, you would want to spray on a 10 day interval over these same time periods.

Some notes on these fungicides

- Rally may have a bit better curative activity than the others because of its greater systemicity, which would make it the material of choice during or after a rainy period with inoculum already present. Do not apply more than 1.5 lbs (24 oz.) of Rally per year (label restriction)
- Since Pristine has two active ingredients, it has the broadest spectrum of activity.
- Avoid applying strobilurins (Cabrio or Pristine) more than three times each season, to prevent resistance development.

(continued on page 26)

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BERRY PRODUCTION

Potato Leafhopper and Berry Crops

Kathleen Demchak

Damage from potato leafhoppers is showing up in strawberry and raspberry fields, and by some accounts, seemingly came out of nowhere. This pest moves up from the South in the spring, and by early summer is established in a wide range of crops in the Mid-Atlantic region.

When fields are mowed or even just weeded, leafhoppers that had been present in them may quickly find a home in a different location. Often this is a strawberry or raspberry planting. Usually the first noticed symptom of pota-



Potato leafhopper damage. Note the yellow discolored areas along the leaf edges. Photo: Kathy Demchak

to leafhopper presence is a downward curling of the strawberry or raspberry leaves with yellow discolored areas along the leaf edges. This symptom is



Potato leafhopper on raspberry. Photo: Kathy Demchak

caused by feeding injury, as the leafhoppers inject a toxin into the plants' leaves. With raspberries, primocane elongation may slow enough that plants appear to stop growing. Injured leaves may appear to be more closely spaced along the cane than usual.

Even though a high proportion of the leaves might be affected, it is often surprisingly difficult to find the leafhoppers themselves, which are tiny light green or yellowish-green wedge-shaped insects. The adults fly quickly when disturbed, so sometimes you can brush the foliage to see whether small light-green insects fly out that you can then try to track and identify. The nymphs however, cannot fly, and so are often more easily found. Adults or nymphs are found on the leaf undersides rather than the top, and will usually move sideways when disturbed.

Damage is often most serious in new strawberry plantings, where the plants have few leaves yet and are dependent on a small amount of foliage. If the plantings are drought-stressed, growth slows even more. Damage then accrues on leaves which become marginally able to translocate needed photosynthates. This is just one rea-



Potato leafhopper early-instar nymph. Photo: Kathy Demchak

son why it is important to make sure that sufficient water and nutrients are available to the plants, and that leafhoppers are controlled with an insecticide if necessary.

Be sure to minimize toxicity to beneficials by choosing safer materials and apply them at times when bee exposure will be minimized. A number of insecticides are available that are effective.

*Ms. Demchak is with the Department of Plant Science at Penn State Univ. From the **Vegetable, Small Fruit and Mushroom Production News**, Penn State Extension, extension.psu.edu/plants/vegetable-fruit/news, July 1, 2016.*

Orange Rust... (continued from page 25)

- While Abound (azoxystrobin) is labeled for use on brambles, it does not have orange rust (or any other rust for that matter) on the label.

Resistant cultivars

- Red raspberries are all resistant. If you have persistent orange rust problems, this may be a good option.
- Blackberry varieties reported to be resistant include: Choctaw, Commanche, Cherokee, Cheyenne
- Susceptible blackberry cultivars include: Navaho, Ouachita, Chickasaw, Chester, Triple Crown. All black and purple raspberries are susceptible
- Note: Triple crown is reported as resistant in Kentucky trials, but it appears to be susceptible in our region.

Site selection

- Avoid planting near woodlots or riparian corridors that have wild brambles.

Clean planting material

- Getting plant material from a clean source is critical to preventing establishment of orange rust in your field.

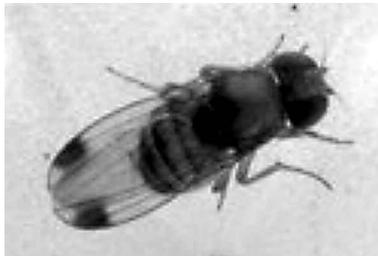
Resources

For additional information on orange rust and other bramble diseases:

- *Orange Rust on Brambles*, by Mike Ellis. OhioLine <http://ohioline.osu.edu/factsheet/plpath-fru-30>.
- *Midwest Fruit Pest Management Guide 2016* Midwest Fruit Workers Group, Purdue University. Fungicide recommendations for bramble disease control. <https://ag.purdue.edu/hla/Hort/Documents/ID-465.pdf>
- *Midwest Small Fruit Pest Management Handbook* Richard C. Funt, Michael A. Ellis, Celeste Welty, The Ohio State University. Comprehensive information on orange rust biology and cultural control. <http://pested.osu.edu/documents/CommStudy/2b%20Midwest%20Small%20Fruit%20Pest%20Mgmt..pdf>
- *Mid-Atlantic Berry Guide*, Penn State. <http://extension.psu.edu/publications/agrs-097>
- Swett Lab: Berry Pathology. <http://extension.psu.edu/publications/agrs-097>

Spotted Wing Drosophila Are Here

Kathleen Demchak



Spotted wing drosophila male.
Photo: Alex Surcica

It's official—we have our first SWD capture at the Horticulture Research Farm at Rock Springs.

Spotted wing drosophila (SWD) is also being found in surrounding states in low numbers. Ours was a female found in a wild black raspberry patch along the edge of the woods. Both Trece 3-

part lures and Scentry lures together with apple cider vinegar are attracting many more fruit flies than apple cider vinegar alone. Growers should be aware that SWD is around, and if you have susceptible crops like raspberries, blueberries, and other thin-skinned fruit, be monitoring, and probably also be treating since it's likely that SWD is around.

A few Pennsylvania growers reported finding larvae in late-season strawberries. Though it's possible the larvae were in fact SWD, in other cases in the past, larvae found in late season strawberries have proven not to be SWD in Pennsylvania, instead being offspring of other types of fruit flies or sap beetles. Larvae of other fruit fly species do look identical in appearance to SWD larvae, being typical "maggots" with no noticeable head. Larvae of sap beetles are larger, and have a head. If other fruit flies or sap beetles were the problem, there would be some sign of berry damage or softening from a disease or moisture, or holes (however tiny) in the fruit.

If the fruit had just turned ripe and was completely intact except for damage from the ovipositor, the likelihood that the larvae were that of SWD is much higher. The only way to tell for sure, however, is to take a sample of the fruit, and allow the adults to hatch out. This is done by placing the fruit on an absorbent layer such as sand or paper towels in an airtight container from which the flies cannot escape. The sand or paper towels absorb moisture from the decomposing fruit that would otherwise drown the insects. Then after a week or so, the adults hatch out. The container and contents can be frozen to keep the adults from flying away when you open it.

There are some improvements in lures, should growers wish to monitor for SWD. Research trials in New York and Ontario found a new lure by Scentry to be more specific and capture SWD adults earlier than other baits used in the past. A summary of work conducted there and elsewhere can be found at Cornell's spotted wing drosophila blog.

Penn State Extension's spotted wing drosophila information series.

There are number of good fact sheets and web sites available to help with identification and control. A 2015 factsheet that discusses monitoring methods and pesticides is available online from the University of Maryland.

We'll be monitoring at a number of sites in PA, as in years past.

Ms. Demchak is with the Dept. of Plant Science at Penn State Univ. From the **Vegetable, Small Fruit and Mushroom Production News**, Penn State Extension, extension.psu.edu/plants/vegetable-fruit/news, July 1, 2016.

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