

NEWS

March 2015 / Volume 38 Number 3

for the commercial vegetable, potato and berry grower

Board Continues Implementation of Strategic Plan

This past year PVGA and PVMRP went through a strategic planning process, funded through a grant from PDA. The strategic planning process, led by Penn State Extension facilitators Judy Chambers and William Shuffstall, consisted of four regional focus groups designed to collect stakeholder input on challenges and priorities, followed by a day-long strategic planning retreat at State College with PVGA, PVMRP and other stakeholders. The result is a plan with 5 key goals focusing on marketing, research, education, advocacy and crisis management. There are objectives and strategies for each goal. For example, the marketing goal includes increasing the number of GAP-certified growers. Another example under the advocacy goal is to provide workshops and other tools to help PVGA members with grassroots advocacy.

At the State College planning retreat last spring, PVGA and PVMRP members developed this statement of core values,

which describes our industry. *We are a diversified industry using a variety of production and marketing methods to supply fresh and processing vegetables. As primarily family farms, we share a respect for our heritage and way of life and a responsibility for environmental stewardship. Our growers sell directly to consumers through roadside farm markets, community farmer's markets, and CSA's as well as working with auctions, cooperatives, retailers, restaurants, wholesalers, brokers, processors and others to market and distribute our products. Our stakeholders include our suppliers, the PA Department of Agriculture, Penn State Extension educators and researchers, and other agricultural organizations. Our most important stakeholders are our customers who enjoy and have come to depend on our great tasting fresh vegetables year after year.*

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Farm Show Booth Earns Record \$56,000 Profit

This year's PVGA Farm Show Food Booth earned a record profit of over \$56,000 – thanks to the efforts of over 200 volunteers.

Sales, at \$197,300 also set a new record – up almost \$10,000 from the previous sales record set in 2013. Thanks to the help of over 40 volunteers each day who filled 350 shifts during the eight and half days of the Farm Show, PVGA earned a profit of about \$160 for each volunteer shift.

The only new menu item this year was a fried pickles. The menu also included batter-dipped vegetables, blooming onions, berry and pumpkin funnel cakes, strawberry slush drink, raspberry lemonade, vegetable soup, chicken corn soup, broccoli-cheese soup, chili, broccoli-cauliflower and bean salads, carrot/celery sticks, dill pickles, mixed berry pie and pumpkin pie, and vegetable wraps. Sales included:

- 11,000 servings of batter-dipped vegetables
- 6,850 Strawberry Surprise drinks;
- 5,150 bowls and 222 quarts of vegetable, chicken corn, broccoli/cheese and chili soups or about 506 gallons;
- 4,800 blooming onions;
- 3,550 raspberry lemonades
- 2,500 funnel cakes;
- 2,000 bowls of broccoli/cauliflower and bean salads;
- 1,700 dill pickles;
- 1,200 fried pickles
- 700 pieces of Very Berry and pumpkin pie; and
- 640 vegetable wraps

Bill Reynolds, PVGA Secretary-Treasurer and Brian Campbell, PVGA Past President, each managed the booth for several days this year. The Board of Directors is working

toward having other persons besides the Executive Secretary able to manage the booth. This was particularly important this year because the Farm Show ended only one week prior the Mid-Atlantic Convention – most years there are two weeks between these two major events for the Association. Jack Grace and his daughters Jackie and Nancy of Grove City graciously volunteered for the fifteenth year to oversee the soup-making operations and assist in overall management for the entire week.

This year's booth again featured a large flat screen television where pictures from PVGA members' farms were shown throughout the week. Nancy Grace put together the slide show from pictures submitted by members.

Michael's Concessions of Northampton, a family business that operates concessions at fairs and carnivals throughout the year did the actual preparation and frying of the batter-dipped vegetables, blooming onions, fried pickles and funnel cakes while PVGA volunteers served and sold them. PVGA volunteers also helped prepare the vegetables. The produce for the batter-dipped vegetables and blooming onions was supplied by Keigel's Produce.

The Honor Roll of this year's volunteers is listed on pages 14 and 15 to recognize those who made the effort to come to Harrisburg to help out. If you didn't help this year, please volunteer to help next year. The more new volunteers we have, the less time we need to ask of our veteran volunteers. The Farm Show Food Booth, along with the Ag Progress Days Food Booth, make it possible for the Association to support research and promotion activities.

NEWS



**Pennsylvania
Vegetable Growers
Association**

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

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Richfield

Board Continues... *(continued from page 1)*

The PVGA Board of Directors is working to include the objectives and strategies of the strategic plan in the Association's work plan for 2015. The Executive Committee met with William Shuffstall, one of facilitators, on February 25, to learn how to work with the PVGA committees to develop action plans the strategic plan objectives. Four of the major committees, Administrative, Educational, Government Affairs and Marketing and Research, then met in person on the afternoon of March 2 in Harrisburg. Usually these committees only meet by telephone conference call in the fall but it was felt it would be better to meet in person to work out plans for implementing the strategic plan. The Board of Directors then met that evening to receive the reports from the various committees.

The Education Committee recommended that updating the PVGA website and creating a Facebook page for PVGA were top priorities. PVGA Director David King a few days later created a Facebook page for the Association at <https://www.facebook.com/PAVegetableGrowers> - be sure to check it out and "like" it. The updated PVGA website at www.pvga.org is scheduled to go online by April 10. The PVGA website is designed to be resource for growers while the Pennsylvania Vegetable Marketing and Research Program's website at www.paveggies.org will be used for consumer information on Pennsylvania vegetables. The electronic PVGA Update will continue to be emailed to members about twice a month - if you do not receive this email from PVGA send us your email address at pvga@pvga.org. The committee also recommended that conference calls between extension experts and growers be scheduled during the growing season to allow growers to be updated on current problems in the field.

The Government Affairs committee recommended continuing the annual visits to legislators and developing annual policy resolutions. They also felt it would be good to invite government officials to the various local grower meetings to allow growers to interact with the officials and enable the officials to see working farm operations. The committee also recommended the Association continue its affiliation with the United Fresh Produce Association and initiate contact with the Driftwatch group which is concerned with 2,4D and dicambria drift. They also recommend workshops or sessions on grassroots advocacy at the Mid-Atlantic Convention as well as consideration of forming a separate labor committee.

The Marketing and Research committee recommended more grower input into the research priorities and projects that are funded. They also recommended encouraging greater grower participation in the Pennsylvania Vegetable Marketing and Research Program.

The Administrative Committee recommended getting pesticide credit approval for surrounding states for the presentations at the Mid-Atlantic Convention. They also suggested seeking groups that might supply help at the Farm Show Food Booth. They recommended that income from a second booth at the Farm Show might fund an additional person for the Association. The committee recommended that the Mid-Atlantic Convention consider outdoor covered exhibit spaces and more marketing sessions. Some additional member services that were recommended were bulk buying opportunities, Good Agricultural Practices training and accounting services as well as PVGA funded variety trials.

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In Memory Kolleen Seibel

Kolleen Seibel, 35, wife of PVGA member Kevin Seibel of Mount Pleasant Mills, passed March 12. Born in South Korea, she was the daughter of Homer and Shirley Boll of Lebanon County. Besides her husband and children, she is survived by her four young children at home - Paris, Asia, Tanzania and Finland - as well six brothers and sisters and their spouses plus nieces and nephews. Kolleen enjoyed crafts, antiques, flowers and spending time with her family and friends. She attended Richfield Mennonite Church where the services were held.

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.

National News Briefs

FDA Looks at 'Culture Shift' in Implementing Food Safety Act

The Federal Food and Drug Administration is going through a "culture shift" as it looks to implement a new food safety act that will bring sweeping changes to how the agency regulates food. The Food Safety Modernization Act will require farmers to keep records to document the steps they take to ensure food safety.

"There will be profound changes within FDA to implement these standards," Mike Taylor, deputy commissioner of the FDA, said during a seminar held as part of the 96th annual American Farm Bureau Federation Annual Convention. "Central to our work is to change the mindset at FDA and put education before regulation."

The agency is working to train officers that will be dedicated full-time to food safety, as opposed to having regulatory oversight in multiple areas, Taylor said. Additionally, the FDA is taking the approach that the majority of farmers and food processors are concerned about food safety.

"It is about science-based standards that can be tailored to particular operations," he said. "Our job is to facilitate compliance, and provide education and technical assistance."

At the same time, the FDA is working to better educate consumers on how they can prepare foods safely at home.

"We are starting this year to help with an educational program that can change behaviors for some consumers," he said. "It is difficult because you can't regulate what happens in the home."

As the FDA looks to implement the new rules, it is focusing on three broad themes: a farm-to-table approach, practical common standards and holding imported foods to the same standards as those produced in the United States. Currently, FDA inspectors only examine around 2 percent of imported foods, so the new food safety standards shifts the onus to importers, who must provide verification that the items meet U.S. standards.

In both drafting and implementing these new rules, the FDA is focused on voluntary compliance instead of enforcement, Taylor said.

"Our operating assumption is that most people want to do the right thing. We'll get a bigger public health bang for our buck if we're working together with stakeholders on implementation," he said. "We really see the agriculture community as a primary constituency, a collaborative partner."

*From the **Pennsylvania Agricultural Alliance Issues Update**, Penna. Farm Bureau, March 2015.*

New OSHA Reporting Requirements In Effect

The Occupational Safety and Health Administration (OSHA) has new workplace accident reporting requirements effective January 1. All work-related fatalities must be reported to OSHA within eight hours (current rule) and all in-patient formal admission hospitalizations, amputations and loss of eyes must be reported within 24 hours. NOTE: Act 169 of 2014 (House Bill 1907 sponsored by Rep. Stan Saylor-R-York) requires hospitals to be clearer regarding whether the patient is in the hospital for observation versus being formally admitted. Employers normally exempt from routinely keeping OSHA records are required to comply with this Rule. Notifying OSHA may be done utilizing a regional OSHA office, calling 1-800-321-6742, or reporting the accident on-line at www.osha.gov/report_online.

Link: <https://www.osha.gov/recordkeeping2014/>

*From **AG-ONE Newsletter**, Penna. State Council of Farm Organizations, Issue 2015-01, January 5, 2015.*

Congress Holds Joint Hearing on EPA Proposed Water Rule

Rep. Bill Shuster chaired a joint House and Senate hearing on the impacts that a proposed federal expansion of the Clean Water Act would have on state and local governments. The move is the start of efforts by some members of Congress to prevent the Environmental Protection Agency and U.S. Army Corps of Engineers from expanding their authority under the Clean Water Act. Last year, the agencies drafted the "Waters of the United States" rule, which would give the EPA and Army Corps authority over nearly every water body in the country.

Shuster, a Pennsylvania Republican who chairs the House Transportation and Infrastructure Committee, has been a vocal critic of the proposed rule, saying the federal government is overstepping its authority. Shuster led the hearing between his committee and the Senate Committee on Environment and Public Works, and took comments from the EPA, Army Corps, and state and local government officials.

Last year, Shuster introduced legislation that would have prevented the EPA and Army Corps from enforcing the rule. The legislation was approved by the House, but was not acted on by the Senate before the 113th Congress adjourned at the end of December. In early February, legislation was introduced in the 114th Congress that would prevent the WOTUS rule from moving forward. Shuster said he's concerned about the impact the rule will have on farmers and landowners, along with the problems it will cause for local governments.

"I am confident that the House and Senate will be able to work together to stop this dangerous rule in its tracks," Shuster said. "This proposal would open the door to a new level of government overreach that would include federal regulations of bodies of water as small as ponds, ditches, and wetlands on private property."

Marty Yahner, a member of Pennsylvania Farm Bureau's State Board of Directors thanked Shuster for chairing the hearing and supporting legislation that will prevent WOTUS from moving forward.

"This illegal power grab clearly goes far beyond the power granted to the EPA by Congress through the Clean Water Act. Farmers, like me, are very concerned about the proposal giving unprecedented power to government agencies over how farmers can use their land," said Yahner, who co-owns a beef and cattle farm in Cambria County. "I'm also worried that the proposed rules will adversely impact the next generation being able to farm."

Farmers are concerned that, if this rule moves forward, it will force them to get federal permits to perform even routine tasks on their farms. While both federal agencies said the rule was intended to "clarify" jurisdiction under the Clean Water Act, it instead created a raft of uncertainty.

*From the **Pennsylvania Agricultural Alliance Issues Update**, Penna. Farm Bureau, March 2015.*

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National News Briefs (continued from page 3)**FAA Proposes Regulations for Drones**

The Federal Aviation Administration has unveiled proposed regulations that would allow farmers and other businesses to use unmanned aircrafts—commonly known as drones—as part of their operations. Drone technology has the potential to provide a number of benefits for agriculture producers, including advanced crop scouting and pest management. However, under current regulations, drones are not allowed to be used for commercial operations, leaving a gray area as to whether they can be used by farmers.

Under the proposed regulations, drone owners would be able to operate small unmanned aircraft, under 55 pounds, for non-recreation uses. Regulations would limit the height that aircraft can fly and would restrict their use to only daylight hours. FAA officials are also considering a special set of regulations for smaller drones that weigh less than 4.4 pounds.

Drone operators would be required to maintain a visual line of sight for their vehicles. Operators would be required to be 17 years or older, pass an aeronautical knowledge test and obtain a certificate from the FAA. Drone operators would not need a private pilot certificate such as a license or medical clearances, the FAA said. Drones would be unable to fly at heights above 500 feet and could not move more than 100 miles per hour. Drones would have to yield the right of way to any other type of aircraft, manned or un-manned. No operator would be allowed to control more than one drone at a time.

The regulations will be subject to a 60-day comment period before they are finalized.

A Penn State extension educator is using a grant from the Pennsylvania Soybean Board to test how farmers could use drones for crop scouting. Craig Williams, an extension dairy and crop educator, used a drone on a farm in Northern Pennsylvania as part of an overall soybean grant, to observe pests and fertilizer applications.

“There’s a lot of potential for drone use in agriculture today,” Williams told *Penn State News*. One of them is using the vehicle to do flyovers, using the attached cameras to check on crop progress. “By enabling farmers to look straight down on their field, they can determine if there was a mechanical problem with the planter that repeats itself across the field, see if parts of the field have a different soil type that calls for additional nutrients to be added to the area or perhaps find a wet area that needs tile drainage,” Williams said.

The drone Williams used for the soybean field survey had cameras that allowed him to look at patterns in plant growth along with how certain varieties are absorbing nutrients.

“We’ve followed these plots all the way from planting to harvest and have been looking at the green color of the soybeans from when they are in a vegetative stage to the point where they are getting ready to harvest and we can see the gray-brown colors of the varieties,” said Williams.

From the Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, January and March 2015.

Federal Budget Would Cut Crop Insurance, Fund “Waters of U.S.” Rule

In his federal budget proposal, President Obama has suggested an 18 percent cut to the crop insurance budget, which would translate into additional costs for farmers. In the Fiscal Year 2016 budget proposal, the president suggested a 10 percent premium reduction for revenue policies with a harvest price option, said Mary Kay Thatcher, a policy specialist with the

American Farm Bureau Federation.

These cuts would raise costs for farmers who take advantage of revenue coverage with the harvest price option. Thatcher said she expects that if the premium costs are increased, most farmers would purchase lower coverages.

The budget also calls for a \$5 million increase of funding for the U.S. Army Corps of Engineers for staffing and permit reviews for the “Waters of the United States” rule, which would expand the agency’s authority under the Clean Water Act.

From the Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, March 2015.

Federal Tax Bills Moving

Two federal tax bills that could provide a benefit to farm families have passed the House of Representatives. H.R. 636 would permanently extend Section 179—which allows farmers to even out their expenses from year to year—with a maximum deduction of \$500,000, reduced dollar for dollar when expenditures exceed \$2 million. The current maximum deduction is \$25,000 reduced dollar for dollar when purchases exceed \$200,000. Bob Stallman, president of the American Farm Bureau Federation, said farmers need tax policy that gives farmers long-term certainty, instead of year-to-year changes.

“Setting the maximum deduction at \$500,000, rather than the current rate of \$25,000, would give small businesses the certainty they need to invest in the future,” Stallman said.

In addition, the House passed H.R. 644, which would establish a permanent expanded deduction for food donations. Under current law, only farmers who use the accrual method of accounting can take advantage of the deduction for donated food. This bill would enhance the deduction to include cash-method accounting. The bill would also make permanent a tax incentive where farmers who donate conservation easements can deduct 100 percent of their income for the year they donate and carry over donations in excess of that for an additional 15 years. Farm Bureau wrote letters in support of the bills.

From the Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, March 2015.

Farm Bureau Asks For Safe and Accurate Food Labeling

Farm Bureau is asking Congress to adopt a food labeling act that will help consumers know the difference between marketing gimmicks and genuine food safety concerns.

Stacey Foreshee, a Farm Bureau member from Kansas, testified before a House subcommittee encouraging Congress to pass H.R. 4432, the Safe and Accurate Food Labeling Act. The act would give the federal government the authority to set food labeling standards on genetically modified ingredients instead of a patchwork of state laws.

Forshee, who owns a cattle ranch with her husband, said she has seen the benefits of biotechnology crops, including higher yields on fewer acres, reduced use of pesticides and improvements in overall soil health.

“As a hard-working American family who lives off the land and the products it provides, we would never allow a product we grew or raised to enter the food supply unless we knew it was safe,” Forshee told the House Energy and Commerce Subcommittee on Health.

Since 1996, farmers have grown an abundance of soybean and corn thanks to the benefits of genetic modification. Traits in

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these crops have allowed farmers to reduce their usage of pesticides—by 1.2 billion pounds—since 1996, the American Farm Bureau Federation said.

The federal Food and Drug Administration has taken a science-based approach to examining GMO foods. Simply labeling foods as “GMO free” will “mislead consumers into believing such food products are materially different, create undue risks and should be avoided—all of which are scientifically false,” Forshee said. Deviating from the FDA’s approach would only undermine the livelihood of farmers across the country, without actually addressing food safety, she said.

From the Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, January 2015.

My American Farm Viewed by 1.5 Million Kids

The American Farm Bureau Foundation for Agriculture has seen growth in the popularity of their “My American Farm” education series. The web-based education resource has reached 1.5 million youth since its inception four years ago. The program is supported by DuPont Pioneer.

“Over the past four years, we have reached more than a million school-aged youth through the My American Farm platform – from kiosks at agriculture conferences to desktops in the classroom,” said American Farm Bureau Federation President Bob Stallman. “With support from DuPont Pioneer, we are increasing youth engagement in agriculture in classrooms coast-to-coast to improve overall literacy of production agriculture and inspire future food leaders.”

The education-game platform works to engage children, pre-K through fifth grade, to learn more about agriculture. My American Farm offers 19 games, all designed around agriculture, and includes educator resources like lesson plans and activity sheets. DuPont Pioneer has contributed more than \$1.4 million to the program.

From the Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, February 2015.

Farm Bureau, Tech Companies, Reach Agreement on Big Data

A group of farm organizations, led by Farm Bureau, and agriculture technology providers have come to an agreement on data privacy and security. The agreement will encourage the development of new technology-driven tools that can help the nation’s farmers become more productive, but also gives them peace of mind in terms of security. The coalition supporting the principals include, AFBF, Beck’s Hybrids, Dow AgroSciences LLC, DuPont Pioneer, John Deere, The Climate Corporation – a division of Monsanto, and several crop commodity organizations.

“The principles provide a measure of needed certainty to farmers regarding the protection of their data,” said American Farm Bureau President Bob Stallman. “Farmers using these technology-driven tools will help feed a growing world while also providing quantifiable environmental benefits. These principles are meant to be inclusive and we hope other farm organizations and companies join this collaborative effort in protecting farm-level data as well as educating farmers about this revolutionary technology.”

The changing role of technology in agriculture have given farmers greater access to data collected on their farm. That data, such as harvest reports and nutrient usage, gives farmers a greater set of information for them to make informed manage-

ment decisions. But at the same time, the collection of data by combines and other machinery has opened up the question of who owns the data and what can be done with the information. Farm Bureau played a lead role in working with major equipment and seed companies to establish clear guidelines on data collected at the farm level.

The agreement reached by Farm Bureau and technology companies will help move the development of agriculture technology, including displays in tractors, mobile devices and wireless precision agriculture. An important component of the agreement is farmer education outreach, including a transparency evaluation tool for farmers. That tool will help farmers compare issues within contracts from agriculture technology providers (or ATP), to see how they align with these agreed-upon principals.

The agreement includes:

Ownership: The group believes that farmers own information generated on their farming operations. However, farming is complex and dynamic and it is the responsibility of the farmer to agree upon data use and sharing with the other stakeholders with an economic interest such as the tenant, landowner, cooperative, owner of the precision agriculture system hardware, and/or ATP etc. The farmer contracting with the ATP is responsible for ensuring that only the data they own or have permission to use is included in the account with the ATP.

Collection, Access and Control: An ATP’s collection, access and use of farm data should be granted only with the affirmative and explicit consent of the farmer. This will be by contract agreements, whether signed or digital.

Notice: Farmers must be notified that their data is being collected and about how the farm data will be disclosed and used. This notice must be provided in an easily located and readily accessible format.

Third-party access and use: Farmers and ranchers also need to know who, if anyone, will have access to their data beyond the primary ATP and how they will use it.

Portability: Within the context of the agreement and retention policy, farmers should be able to retrieve their data for storage or use in other systems, with the exception of the data that has been made anonymous or aggregated and is no longer specifically identifiable. Non-anonymized or non-aggregated data should be easy for farmers to receive their data back at their discretion.

Data Availability: ATPs agree they should provide for the removal, secure destruction and return of original farm data from the ATP, and any third party with whom the ATP has shared the data, upon request by the account holder or after a pre-agreed period of time.

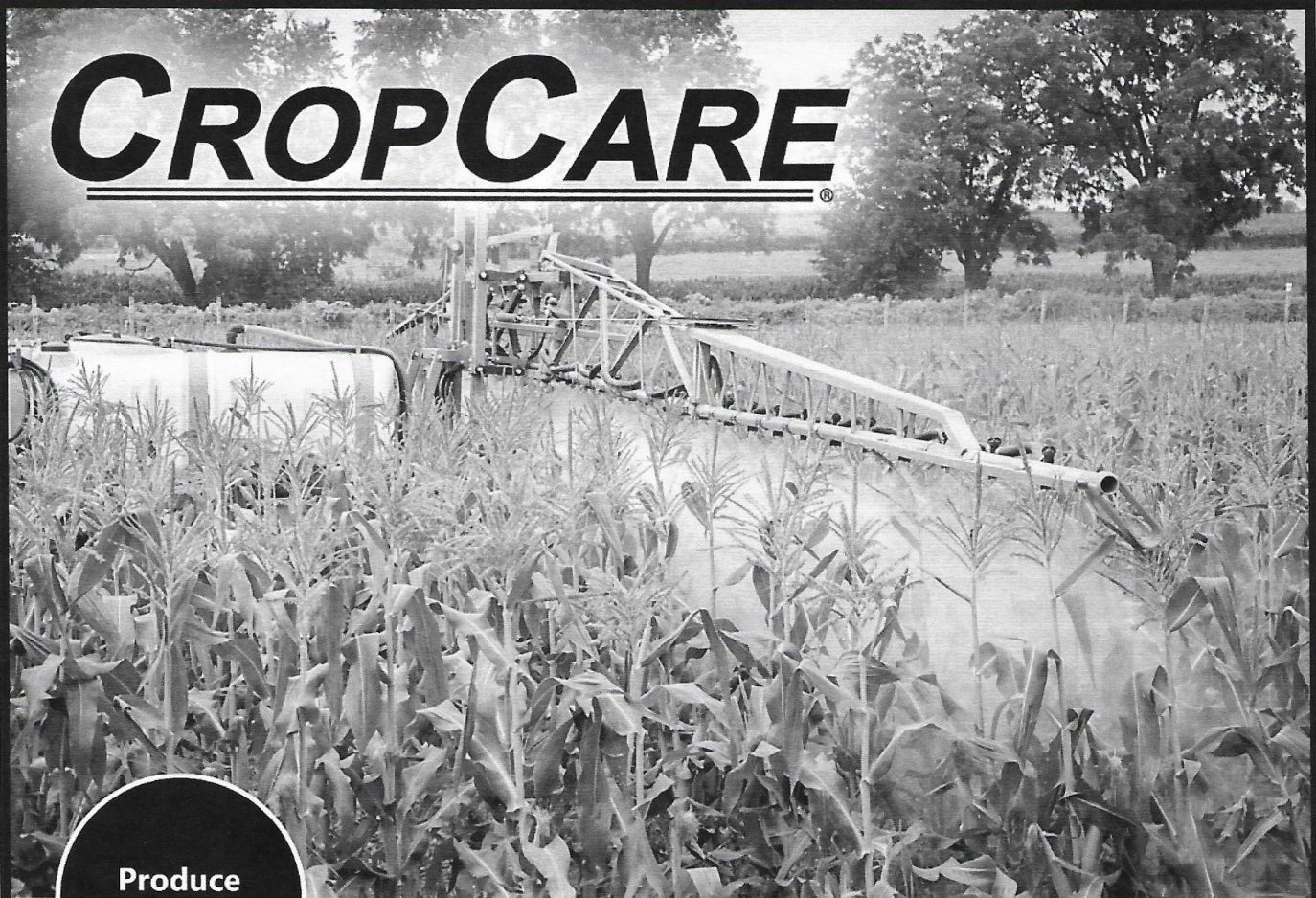
From the Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, March 2015.

Farmland Losses to Development Retreat during the Great Recession

The Great Recession experienced in the United States slowed the conversion of farmland into housing developments, shopping malls, golf courses and other nonagricultural uses. The USDA National Resources Inventory is conducted every five years and recently reported that annual losses of farmland to development were down 38% from the period preceding the recession. The United States has approximately 300-million acres of prime farmland which include the right amount of water,

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State News Briefs

Greig Reflects on Four Years as Agriculture Secretary

When he was Crawford County Farm Bureau president, George Greig never dreamed that his agriculture career would take him to Harrisburg. But it's all part of the twists and turns that life can take. More than four years ago, when Greig received a call from Tom Corbett's transition team asking him to become the next Secretary of the Pennsylvania Department of Agriculture, it was a job he was uncertain that he would take. In truth, much of the encouragement to take the job came from his wife, Christine. Greig quickly fell in love with the job. And over the four years of the Corbett administration, agriculture achieved a number of significant victories.

"I had no idea how vast this job was," he said. "We've accomplished a lot in these past four years."

Perhaps the largest victories for farm families in recent years was the legislation in 2012 that eliminated the inheritance tax for farms, and a subsequent law a year later that extended the same benefits to small business owners. Inheritance tax is an issue that farm families had fought for decades.

"Farm Bureau for years has led this fight for inheritance taxes," Greig said. "It is vital to eliminate the tax if we are going to pass on farms."

During the past four years, Pennsylvania also was finally able to modernize its outdated vehicle code laws that created a gray area as to whether modern farm equipment could legally operate on the road. During a tour at Ag Progress Days, Greig made a point of showing Gov. Corbett the newer equipment used by farmers.

"I told him that we can't have equipment manufactures making smaller equipment for Pennsylvania farmers because our laws were outdated," he said. "Those changes were a big step forward for farmers."

Pennsylvania also reached a significant milestone during the Corbett administration with more than 500,000 acres of farmland preserved. Pennsylvania leads the nation in the amount of acreage preserved, and the state's farmland program has gone a long way in stemming the tide of turning over valuable farmland, Greig said. Pennsylvania also trademarked PA Preferred, bringing a level of stability to the program. PA Preferred is the state's official marketing program to showcase products made in the state. Previously, the logo was subjected to change, which made some companies hesitant to market themselves under the program. With a trademarked logo, PA Preferred has enrolled more than 1,800 producers, Greig said.

Greig's last day on the job was Jan. 20, with the transition of Gov. Tom Wolf taking office, and Russell Redding serving as the next agriculture secretary. He returned to Crawford County and got right back to work. Greig has served as a township supervisor for years, a job he kept throughout his tenure as secretary. He plans on running for the post again this fall.

Greig has a farm to return to—a former dairy that now raises crops—and a hunting lodge that he owns with his brother in West Virginia. His attention was diverted from both businesses over the past four years. As far as what the future holds, Greig has not ruled out any possibilities. State law will prohibit him from taking some jobs or seeking certain elected positions for at least a year. Regardless of what the future may hold, Greig said he's amazed at the direction that life has taken.

"I worked my way up from county president to Secretary of Agriculture," he said. "I'm honored to have been a part of it."

From the Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, March 2015.

Sustainable Agricultural Practices Survey

You are invited to participate in a survey as part of an effort by the Pennsylvania Association for Sustainable Agriculture (PASA) to gather information on the state of sustainable agriculture practices in Pennsylvania.

This project was made possible by a grant from the Pennsylvania Department of Agriculture (PDA). Your responses are confidential and your personal contact information will not be released to the public, nor shared with the Pennsylvania Department of Agriculture (though the PDA will receive a summary of the data received).

Complete the survey by going to: <https://www.surveymonkey.com/s/K5RFT7X>.

If you have any questions or concerns please contact Helen Kollar-McArthur (helen@pasafarming.org) or Kristin Hoy (kristin@pasafarming.org).

Bipartisan Bill Introduced for Industrial Hemp

A bipartisan group of senators have introduced legislation that would allow for limited use and growing of industrial hemp in Pennsylvania. The bill, introduced by Sens. Judy Schwank and Mike Folmer would give the green light to the creation of a pilot program for the growing and manufacturing of industrial hemp. The 2014 Farm Bill allowed for states to develop limited programs for growing and using hemp.

Current federal law classifies hemp as a controlled substance. The plant is related to marijuana but contains trace amounts of the chemicals that cause psychoactive reactions.

"Misconceptions are withholding Pennsylvania from an opportunity for our agricultural and business industries to thrive," said Folmer, a Lebanon County Republican. "We are long overdue on utilizing the prospects that the Farm Bill of 2014 has offered to us as a state."

The 2014 Farm Bill limits states to develop "pilot" programs for research, either with the assistance of a college or within the Department of Agriculture.

"People should understand that the bill will only provide Pennsylvania a limited opportunity for hemp development and marketing today," said John Bell, PFB's Government Affairs Counsel. "Federal law still treats hemp as a controlled substance and puts extensive restrictions on its use. Further changes in federal law must still happen to provide the legal assurances needed by farmers and investors to seriously commit future resources in hemp production and marketing."

Senate Bill 50 would facilitate and regulate the growing and use of industrial hemp in the Commonwealth, under the administration of a five-member Industrial Hemp Licensing Board established within the Department of Agriculture. Members of the board would be nominated by the governor and approved by the Senate. One member of the board would represent a statewide agriculture organization. The bill would classify hemp as an oilseed.

"From paper to fuel, clothing to biodegradable plastics, the return of industrial hemp would give Pennsylvania's farmers the opportunity to grow an in-demand crop that benefits tens of mil-

(continued on page 9)

State News Briefs (continued from page 8)

ions of people all over the world,” said Schwank, a Berks County Democrat who is minority chair of the Senate Agriculture & Rural Affairs Committee.

Farm Bureau supports the industrial use of hemp.

From the Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, March 2015.

Wolf Proposes Severance Tax for Natural Gas

Gov. Tom Wolf has proposed a severance tax on natural gas, with proceeds supporting the state’s public education system. The tax plan, modeled after West Virginia’s severance tax, would call for a 5 percent tax, plus 4.7 cents per thousand feet of volume on extraction. The Wolf administration predicts the tax will generate more than \$1 billion by 2017. Wolf said the severance tax will help Pennsylvania make up for prior losses in education funding.

Pennsylvania currently does not have a severance tax on natural gas production; however it assesses an impact fee with the majority of that funding going to municipalities impacted by gas drilling. Under Wolf’s proposal, the severance tax would continue to make payments to communities where drilling is occurring, along with protections for property owners with gas leases. In addition, the severance tax would make exemptions for gas that is given away for free, comes from low-producing wells and from wells brought back into production after not having produced marketable quantities of gas.

Natural gas companies would be prohibited from deducting severance taxes from royalty payments, Wolf said.

From the Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, March 2015.

Northwestern Pennsylvania Farmers Eligible for Loans

Farmers in Erie, McKean and Warren counties are eligible for low-interest loans through the U.S. Department of Agriculture due to November storms. A severe winter storm and flooding impacted areas near Lake Erie from Nov. 11 to 26, 2014. Farmers in those three counties can apply for low-interest emergency loans through their local Farm Service Agency. Each application is considered on its own merit, based on losses, resources and ability to repay.

From the Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, March 2015.

Eighteen Farms Added to State Preservation Program

Pennsylvania has added 18 farms, totaling nearly 1,500 acres to its nation-leading farmland preservation program. Since its inception in 1988, Pennsylvania has preserved 504,252 acres of farmland in 57 counties.

“It’s an honor to again chair the meetings of the board of our nation-leading farmland preservation program,” said Agriculture Secretary Russell Redding. “The program’s success comes through the work of staff at all levels of government, support from a public who values farmland, and from the farmers themselves who offer their land for preservation. I look forward to the program’s future success.”

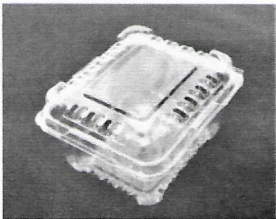
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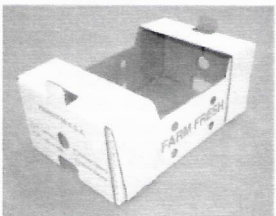
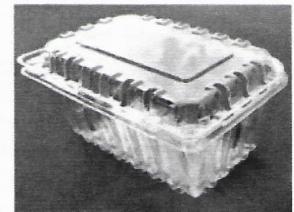
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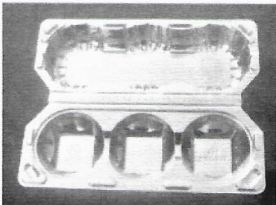
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FARMDATA: A Smartphone Records Management System for Produce Farms

FARMDATA is a smartphone enabled internet-based record keeping system designed and field tested by produce farmers. Focus areas include field and greenhouse plantings, harvest, pack, inventory, distribution, e-invoicing, labor tracking, fertilizers, compost, cover crops, tillage, irrigation, scouting, spraying, and seed orders. The goals of FARMDATA are to replace clipboards and paper records across the produce farm, from the field to the packing house and beyond. More importantly, FARMDATA is designed to save growers valuable time both during the busy growing season and in the winter when planning for the coming year.

The Digital Clipboard: All produce farms can benefit from better record keeping – knowledge is power, and good records improve farm efficiency and profitability. Digital records are highly useful, since they can be easily copied, searched, and analyzed at the touch of a button. Unfortunately, digitizing farm records at the end of a growing season can be painstaking – dealing with lost records, or incompletely logged information only makes the task even more difficult. A five-year partnership between the Dickinson College Farm and the Dickinson College Department of Mathematics and Computer Science has resulted in an exciting, effective solution called FARMDATA.

FARMDATA improves record keeping by using “smart” data entry forms that minimize user errors, perform calculations automatically, and store useful crop production information. Growers and their staff can rapidly input valuable production data from the field. Multiple users can make live updates to the database at the same time, and growers can search their production records from the field, desktop, or any internet connected device. Each grower’s database is password protected and only accessible by registered users that the grower can delete or add at any time.

For organic growers, FARMDATA contains many features designed to facilitate easy annual inspections and reporting. The development team partnered with Pennsylvania Certified Organic to optimize FARMDATA to meet the needs of certifiers – these special features include easily viewed comprehensive field records, compost accumulation and management logs, and plantings linked to seed orders for verification of organic seed use.

Thanks to public funding from the USDA’s Northeast Sustainable Agriculture Research and Education program (NE-SARE), FARMDATA is available for free public downloads to your farm website. Interested users are invited to take a guest tour of the site at <http://farmdata.dickinson.edu/guest.php>.

To view an archived training webinar by the project developers, go to <http://memberassembler.com/hub/farmdata-webinar>.

*From the **Vegetable, Small Fruit and Mushroom News**, Penn State Extension, <http://extension.psu.edu/vegetable-fruit>, February 26, 2015.*

National News Briefs (continued from page 6)

fertile soils and length of growing season favorable to field and specialty crop production. Every state has experienced a loss of prime farmland to development each year.

An improvement in economic growth as revealed in several leading indicators may not result in substantial losses of farmland as in the past. This is due to the land’s increasing value when used for agricultural production and the general public’s interest in purchasing locally grown foods. People also favor a continuing preservation effort through federal, state and local programs. Pennsylvania leads the nation in the effort to preserve farmland for agricultural production which offers additional benefits by providing open space improving the quality of life for generations to come.

*From the **Pennsylvania Agricultural Alliance Issues Update**, Penna. Farm Bureau, January 2015.*

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 - ◆ Rigid Plastics: Benches, Trays, Triple-rinsed Drums, Plastic Pallets, Clean Tanks, etc.
 - ◆ #5 PP Supersack Tote Bags
 - ◆ Drip Tape: Roll or Tie in Large Bundles
 - ◆ #4 LDPE Potting Soil Bags
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MARKETING

USDA Releases 2013 Annual Summary for Pesticide Data Program

The U.S. Department of Agriculture's (USDA) Agricultural Marketing Service (AMS) has posted data from the 2013 Pesticide Data Program (PDP) Annual Summary. The PDP summary confirms that overall pesticide chemical residues found on the foods tested are at levels below the tolerances established by the Environmental Protection Agency (EPA) and do not pose a safety concern. This information, along with an explanatory guide for consumers, can be found at www.ams.usda.gov/pdp.

The 2013 PDP Annual Summary shows that over 99 percent of the products sampled through PDP had residues below the EPA tolerances. Residues exceeding the tolerance were detected in 0.23 percent of the samples tested. The PDP pesticide residue results are reported to FDA and EPA through monthly reports. In instances where a PDP finding is extraordinary and may pose a safety risk, FDA and EPA are immediately notified. EPA has determined the extremely low levels of those residues are not a food safety risk, and the presence of such residues does not pose a safety concern.

Each year, USDA and EPA work together to identify foods to be tested on a rotating basis. In 2013, surveys were conducted on a variety of foods including fresh and processed fruits and vegetables, infant formula, butter, salmon, groundwater, and drinking water. AMS partners with cooperating state agencies to collect and analyze pesticide chemical residue levels on selected foods. The EPA uses data from PDP to enhance its programs for food safety and help evaluate dietary exposure to pesticides.

According to USDA, "The Pesticide Data Program provides reliable data through rigorous sampling that helps assure con-

sumers that the produce they feed their families is safe. This report confirms again that pesticide residues are below levels deemed safe."

The FDA issued the following statement:

"The U.S. Food and Drug Administration is responsible for assessing whether pesticide chemical residues found on food make the food unlawful under the Federal Food, Drug, and Cosmetic Act. FDA is able to conduct its own tests, interpret the reported violations, and determine if additional testing is needed in order to take enforcement action, as appropriate."

The EPA statement is as follows:

"PDP is invaluable to EPA in its work to evaluate pesticide residues in food. EPA remains committed to a rigorous, science-based, and transparent regulatory program for pesticides that continues to protect people's health and the environment."

Since its inception, the PDP has tested 112 commodities including fresh and processed fruits and vegetables, dairy, meat and poultry, grains, fish, rice, specialty products, and water. In 2013, the program expanded to include samples of infant formula, raspberries and salmon. The data are a valuable tool for consumers, food producers and processors, chemical manufacturers, environmental interest groups, and food safety organizations.

The findings of the Pesticide Data Program Annual Summary, Calendar Year 2013 can be downloaded at www.ams.usda.gov/pdp. Printed copies of can be obtained by contacting the USDA, Agricultural Marketing Service, Science and Technology Program, Monitoring Programs Division by e-mail request @ amsmpo.data@ams.usda.gov.

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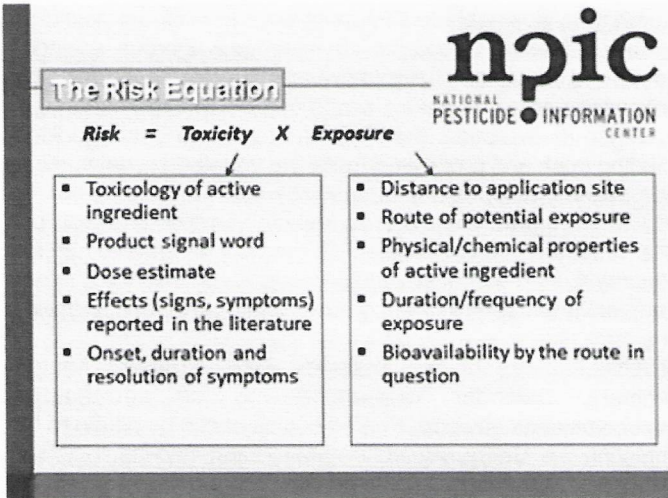
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MARKETING

Health Effects of Pesticides: Get the Facts

Emelie Swackhamer

People want to know how pesticide use could affect them. Residents who live near your fields, people who buy your produce, employees of your farm, members of your family and even you may be interested in information about the potential health effects of the pesticides you use. If you give people off-the-cuff answers that are meant to be reassuring, but not based on science, you may prompt them to be less careful than they should be. Conversely, some responses may prompt people to act out of fear instead of truly understanding risks.



Where can you find research-based information about the health effects of pesticides? Internet searches turn up a large number of articles. Some are highly technical and would take a good deal of time and knowledge to interpret, some describe observations that are not scientific and others are designed to sell products and services. Finding reliable sources of research-based information on the internet is not always straightforward.

So, how do pesticides affect people? It seems like it should be a simple question to answer, but it really is not. One very useful source of research-based information on health effects of pesticides is the National Pesticide Information Center (NPIC). The NPIC is a cooperative effort between Oregon State University and the United States Environmental Protection

Agency (US EPA). The NPIC is a source that really tries to sift through all of the research-based information that is out there and produce a summary that people can use to make informed decisions. On this site, you can access comprehensive, unbiased information from research that has been done to define the acute and chronic health effects of specific pesticides. This information is found in the **General** and **Technical** fact sheets offered by NPIC for many active ingredients in commonly used pesticides. For example, the site provides general and technical fact sheets for glyphosate, the active ingredient of RoundUp, and imidacloprid, a neonicotinoid insecticide. These two pesticides are commonly used, and the general public may ask questions about them because they have read about them in the news.

You can access NPIC through the NPIC website at <http://npic.orst.edu/>. You can also call them at 1-800-858-7378 to speak to someone directly. Their hours of operation are Monday-Friday between 8:00 a.m. - 12:00 noon Pacific Standard Time. Many of their fact sheets are also available in Spanish, and they have Spanish speaking telephone representatives available. If you want a printed copy of any of their fact sheets mailed to you, ask your local county Penn State Extension office.

The information provided by NPIC does not in any way replace or supersede the restrictions, precautions, directions or other information on the pesticide label or any other regulatory requirements, nor does it necessarily reflect the position of the US EPA.

Knowledge can influence your attitude and behaviors when you use pesticides. It is always better to understand the potential hazards of the products that you use.

*Ms. Swackhamer is with Penn State Extension in Lehigh Co. From the **Vegetable, Small Fruit and Mushroom News**, Penn State Extension, <http://extension.psu.edu/vegetable-fruit>, January 21, 2015.*

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United Fresh Unveils Enhanced Fresh Facts® on Retail Report

The 2014 Year in Review edition of the FreshFacts® on Retail report is now available. The report, which annually examines overall retail trends in produce from the prior year now features insights into performance and consumer data for fresh produce. The FreshFacts® on Retail report, produced in partnership with the Nielsen Perishables Group and sponsored by Del Monte Fresh Produce, is released quarterly by United Fresh, concluding each year with the Year In Review edition. Each report measures retail price and sales trends for the top 10 fruit and vegetable commodities, as well as value-added, organic and other produce categories. New features which will appear throughout 2015 in the quarterly editions include the addition of consumer behavior measures, such as household penetration and basket size, seasonal rotation of spotlight categories and insights to help readers understand the produce buying behavior of specific generations. "United Fresh's Retail-Foodservice Board worked together to enhance data and presentation of content within the FreshFacts® on Retail report adding greater value to the publication," said Jeff Oberman, Vice President, Trade Relations and Retail-Foodservice Board staff liaison. "We look forward to the coming year's reporting that will feature increased category spotlights, deep dives into generational data, and insights on produce's impact across channels and the total store." Highlights of the "Year in Review" report include: • A look at U.S. household spending on fresh foods vs. center store • Price and volume trends for the Top 10 Fruit & Vegetable Commodities for 2014 vs. 2013 • Category spotlights on avocados, grapes and tomatoes, as well as organic produce • Analysis of the value-added fruit and vegetable categories • Generational spotlight on the produce purchasing habits of millennials For information on obtaining a copy of this report, contact PVGA at 717-694-3596 or pvga@pvga.org.

State News Briefs *(continued from page 9)*

The preserved farms are in: Allegheny, Berks, Bucks, Chester, Lancaster, Lehigh, Montgomery, Susquehanna, Union and York counties.

From the Pennsylvania Agricultural Alliance Issues Update, Penna. Farm Bureau, March 2015.

Farmers Required to Keep Copies of Workers Compensation Certificates for All Contractors and their Employees

MSC Business Services encourages all farmers to keep copies of workers compensation insurance certificates for all custom work providers, contractors and their employees hired by the farm, to meet workers compensation requirements.

Farmers who utilize custom work in their businesses, including professionals like carpenters or electricians, should keep copies of the vendor's workers compensation insurance certificates. During an insurance audit, the auditor has the right to request copies of the certificates. If copies of certificates are not provided, the total custom hire expense can be added to the farm's Labor Expense, greatly increasing the required workers compensation insurance premium due. The increase could cost thousands of dollars. MSC Business Services works with Farm Bureau members to help with accounting, payroll processing and other needs including workers compensation questions. For more information call: 717.731.3517.

From Farm Bureau Express, Penna. Farm Bureau, December 26, 2014.

Attorney General Reaffirms the Value of ACRE Law

In opening remarks offered at a briefing held by her office at the Farm Show, Attorney General Kathleen Kane offered strong and supportive comments on the value of Pennsylvania's ACRE and the commitment of her office in carrying out the law's

(continued on page 29)

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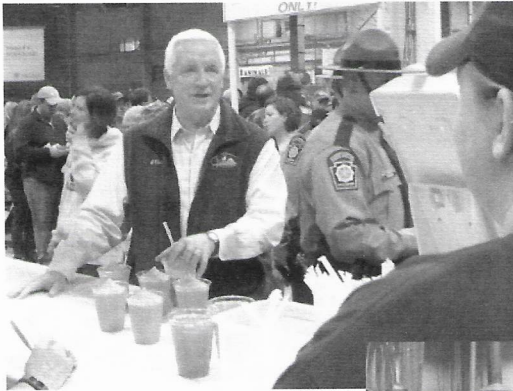
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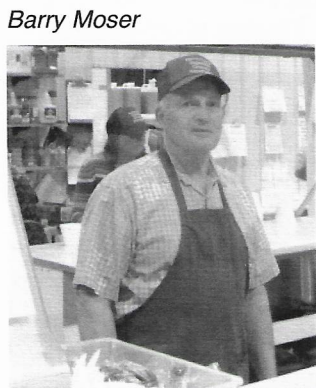
NEWS

Farm Show Volunteer Honor Roll

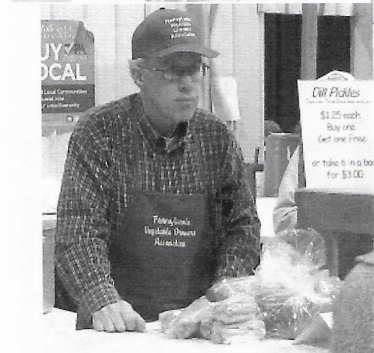
Following is the list of farms and individuals who volunteered time to staff the Farm Show Food Booth this year. We apologize for any names that might be omitted. Asterisks (*) indicate the number of days persons helped (if more than one).



Governor Tom Corbett



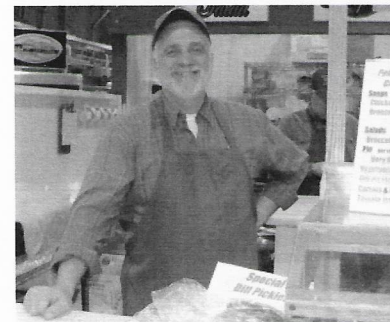
Barry Moser



Bob Keller



Susan Richard



Ken Martin



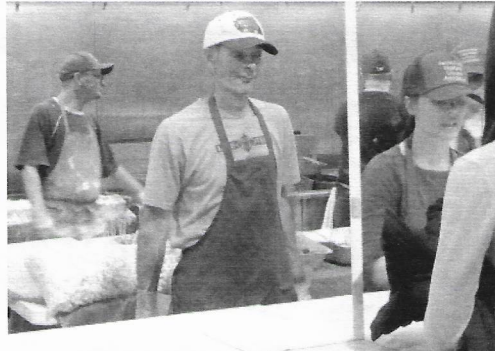
Erica Campbell and Carvell Mace, Jr.

- Dave Adams
- Robert Amsterdam & Susan Richards
- B & R Farms
 - Robin & Boots**** Hetherington
 - Blair Hetherington
 - Katie Hetherington Cunfer
 - Morgan Hetherington
 - Kevin Bond
- Barefoot Farm
 - David and Laura Hartzell
 - Myriah Hartzell
- Baronniers Farm
 - Robert Baronner
 - Gordon Perry
- Timothy Beard
- Dennis Bender
- Doris Bender
- Rebecca Bender
- Robert & Nancy Bernhardt
- Natalie Bishop
- Steven*** & Roberta Bogash
- Joseph Bogash
- Brian Campbell Farms
 - Brian** & Erica** Campbell
 - Brooke Campbell
 - Evan Campbell
 - Laura Campbell
 - Tyler Avery
- Brook Lawn Farm
 - James & Romaine Erb
 - Diana Erb
- Lynn Brown
- Tim Brown
- Francis & Jennifer Broyan
- Burger Farms
 - Leonard Burger Jr.
 - Lenny Burger III
- Tom Butzler
- Urbane & Janet Byler
- Ralph Cardenuto
- Charming Dell Farm
 - Ethan Eshleman
 - Neal Eshleman
- Ed Charney
- Tom & Ellen Childs
- Copenhaver Farms
 - Ronald & Brenda Copenhaver & family
 - Jessie & Martha Copenhaver
- Crop Production Services
 - James Jordan
 - Karen Lewis
 - George Umholtz
 - Rob Erlemeier**
- Dan Schantz Farm & Greenhouse
 - Angela Djerf
 - Nick & Cassie Feudale
 - Kevin & Lise Hensch
 - Lisa Nicholas
 - Kimberly Specker
 - Cathy Thomas
- Kenneth Dearolf**
- Donald & Marion Deckman
- Larry Dixon
- Karen Doyle
- Ted Dymond**
- Fred W. Eckel Sons Farms
 - Donald Green
 - David Green
 - Robert & Rachel Lunger
- Nic Ellis
- John Esslinger
- Jay Eury
- Kathy Evans
- Earl Ferry
- Foxleigh Farm
 - Carville Mace
 - Carville Mace, Jr.
- Frey's Farm Market
 - Dennis & Becky Frey
 - Velma Stauffer
- Furmano Foods
 - Don Bergey**
 - Don & Sue Geise
 - Dave Geise
 - Terry Greaser
 - Scott Hoffman
 - Jim & Phyllis Kohl
 - Ken & Dawn Martin
 - Deb Masser
 - Mike Masser
 - Dan & Ruth Miller
 - Steve & Andrea Reinard
 - Mike Stroup
- Stephen & Gayle Ganser
- Karen Gingrich
- Graceland Farm Market
 - Jack Grace*****
 - Nancy Grace*****
 - Jackie Grace*****
- Gray's Apple Ridge Orchard
 - David & Pam Gray
- Janessa Graybill
- Groff's Vegetable Farm
 - Earl & Edith Groff
 - Mary Ann Leaman
- Hardings Farm Market
 - Steven Harding
 - Emily Harding
 - Stephanie Harding
- Dan Harner
- Bryan & Julene Harnish
- Harvest Valley Farms
 - Arthur & Kathy King**
 - Caleb Costanzo**
 - Sarah Zanotti**
- Adam Lauer
- Harvest View Farm
 - Kenneth & Cathy Metrick
 - Amy Metrick
- Tony Hatfield-Nicholson
- Diane Heimbach
- Christopher High
- Walt & Rachel Heisey
- Wilmer & Edna Hoover
- Wayne Irish
- Richard Johnson
- Michael Kahl
- Brent & Julie Kaylor**
- Keigel's Produce
 - Ben Bieganski
 - Ben Birchfield
 - Andrea Faust
 - Kathy Fuller
 - Jordan Hilt
 - Alan Massenburg
 - Kevin Mccart
- Kemmerer Farms
 - Jonathan Andreas
 - Justin Andreas
 - Adam Kemmerer
 - Alan Kemmerer
 - Nathan Kemmerer

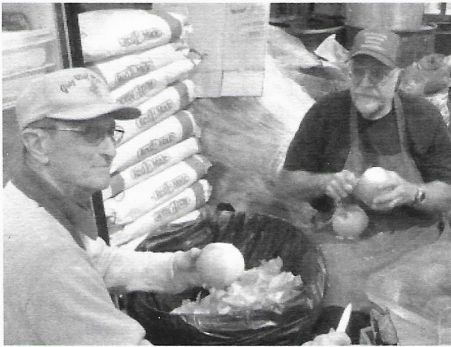
NEWS

Ben King**
 Elam King
 Klinger Farms
 Lois Klinger
 Rick Klinger
 Kristen Joyce
 David Kreider**
 Lloyd & Mary Lois Kreider
 Theodore & Mary Kulp
 Roger Lauver
 Pine Valley Farm
 Irvin Leid
 Grace Burkholder
 James Burkholder
 Peter Burkholder
 Dustin Leid**
 Jordan Leid
 Evelyn Nolt
 Linda Weaver
 Mary Ann Weaver
 Steve & Carol Lutz***
 Ken Martz
 Mast Farms
 Ernest Mast
 Dawson Mast
 McPherson Greenhouses
 Michael McPherson**
 Robert McPherson**
 Eugene Strouse**
 Neil & Audrey Merkel
 Miller Plant Farm
 David Miller
 Brent Clever
 Joan Flickinger
 Chris Johnson
 Dustyn Miller
 Steve Slyder
 Steph Sciortino**
 Lynne Shive
 Greg Watson**
 Jeffrey & Kay Mizer
 Barrie Moser***
 Angie Moyer
 Ben & Tonya Moyer
 Neil Myerov
 Michael Myers
 Matt Ness
 New Morning Farm
 Dean Martin
 Megan Mitchell
 Stephanie Sparrell
 John O'Barr
 Mark Oakley
 Eric Oesterling**
 Pallman Farms
 Brian Pallman
 Bruce Pallman
 Doug Pallman
 Ashton Carpenter
 Kevin Kelly
 Wendy O'Malley
 Paulus Farm Market
 James Paulus
 Daniel Crouse
 Penn Valley Farm
 Robert & Lois Keller
 Jonathan Keller
 Karen Keller
 Stephanie Keller
 Sophia Bomberger
 Walter & Robin Peregrin

Robert Pollock**
 Chris Powell
 Ernest Pyle
 Ryan Pyle
 Fred Ranck
 William Rankin**
 Reiff's Farm Market
 Ed Reiff
 Nathan Reiff
 Teresa Reiff
 Leon Ressler
 William & Lois Reynolds***
 Craig & Chris Richard
 Richfield Mennonite Church
 Cindy Hoffman
 Twila Knouse
 Jeff** & Anita Maneval
 Tony Ridall
 Risser-Marvel Farm Market
 Greg**** & Tina Forry
 Dustin Forry
 Steve Sample****
 Hilary & Martha Schramm
 Dave Schreck
 Whitney & Corina Scott
 Kolleen Seibel
 Jack Shafer
 Rob & Leah Shenot***
 Tim Shultz
 Jeremy & Megan Simmons
 Heather Skorino
 Hannah Smith
 Allen Sollenberger**
 Priscilla Stahl
 James & Lonnie Stauffer
 Brian Steer
 Countryside Produce
 John and Anna Ruth Stoltzfus
 Lavina Stoltzfus
 Strawberry Lane
 Keith Kaucher**
 Noah Kaucher**
 Jonathan Srite**
 Thomas & Kim Strzelecki
 Styer Farm & Market
 Thomas & Daisy Styer
 Sara Styer
 Alex Surcica
 Tomato Barn
 Steve Funk
 Jennifer Rohrer
 Trauger's Farm Market
 Hayes Hissim
 Joel Royney
 Randy Treichler
 Cheryl Troxell***
 Van der Grinten Farms
 Caitlyn Van der Grinten
 Diane Van der Grinten
 Audrey Walters
 Mervin Weaver
 Alan Wentz
 Tim White
 Whitenight's Farm Market
 Dale Whitenight
 Brian Whitenight
 Janelle Wiker
 Rebecca Williams
 Donald Wise
 Cindy Yingling
 David Zimmerman



Art King and Sarah Zanotti



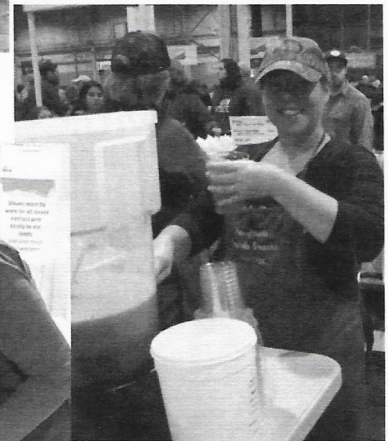
Tim Beard and Mervin Weaver



Adam Lauer and Carol Lutz



Lois Klinger



Kim Strzelecki



Tom Strzelecki and Alan Kemmerer

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GENERAL

Who are the High Tunnel Growers in Philadelphia?

Thomas McCann

During the next few months we will run a series of stories showcasing some of the wonderful individuals and organizations who participate in urban agriculture in Philadelphia. This first article provides an overview, context, and some background information on how these urban farms have gotten started growing food in the heart of Philadelphia.



Urban High Tunnels

Over the past 15 years in Philadelphia, the movement in community gardening has gained momentum and a number of these community garden growers began thinking of ways to produce larger quantities of food in the city. Inspired individuals began growing food on vacant lots, old baseball fields, under used public recreational spaces and anywhere they could get permission to produce food. This led to not only cultivating produce but to cultivating communities themselves. Sometimes the

line between community garden and urban farm is blurred. For discussion purposes, community gardens are typically areas where multiple people have plots in one area, but grow separately, and usually for their own consumption. Urban farms, on the other hand, are locations where all produce in that space is grown by one person or organization, with its food typically being sold. There are approximately 20 urban farms in Philadelphia, ranging in size from 1/8th of an acre to about 4 acres. Of these 20, 19 are run by not-for-profit organizations that have an educational mission along with food justice and feeding the hungry.

Rural and suburban small-scale farms often have financial difficulties, and that is no different for the non-profit organizations that undertake most of the urban agriculture in the city. They generally value their roles in providing fresh, nutritious, affordable and local food to the communities they serve, rather than prioritizing profit. Conflicts can arise between the financial sustainability of such programming, and the mission of the organization. A balance must be reached between providing valuable community services, including access to fresh nutritious produce, and earning sufficient income to pay the farmers.

Urban growers differ from traditional commercial vegetable producers in more rural locations in several important ways:

- Almost all urban farms are run by non-profit, mission driven organizations
- Most farms do not have electricity
- Only a small number of farms have their own source of water.
- Typically very little farm machinery available.
- Volunteer labor used on a daily basis, most likely new volunteers each time
- Small sites – typically between 1/2 to 4 acres
- Farmers are generally in their 20's and 30's
- All seek positive ways to bring healthy, low cost nutritious food to communities in need.

(continued on page 19)

Gleaning Opportunities

John Mackley

Gleaning networks are being organized in several south central Pennsylvania areas, particularly in Lancaster, Dauphin and York county areas. Vegetable and fruit growers who would be willing to have volunteers glean their fields after the saleable harvest has been finished. The produce is donated to area food banks that are non-profit, 501(c)(3) agencies.

There are several important steps that need to be taken in order to ensure a successful gleaning project. This idea cannot be accomplished without volunteers who harvest the produce and without farmers who are willing to support this way of combating food insecurity and hunger by allowing the gleaning of their fields following the harvest.

The gleaned produce gathered by volunteers is NOT sold but is given to local food banks and other service agencies which work with the poor and hungry. Growers who would be interested in allowing gleaning on their farms or who have questions can contact me directly by phone at 717-386-2722. I thank you in advance for your support and appreciate your willingness to help those who are in need. God Bless.



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GENERAL

High Tunnels... (continued from page 18)

- No pesticide application
- Usually have more complex networks of partners, including funders

Penn State Extension in Philadelphia County is continually focusing on ways to improve the viability and existence of these small-scale producers. This includes disseminating current research in agriculture, addressing concerns of pest management and disease prevention, as well as business planning and education around current agricultural practices. Additionally, Dr. Bill Lamont has provided the majority of our farms with critical infrastructure support.

Over the past 15 years, Dr. Lamont has sourced USDA funding for 15 high tunnels at 12 different farms throughout Philadelphia. These structures allow our growers to receive advantages in early season and late season production, which translates into dollars, improving the sustainability of the farm sites for these not-for-profit organizations. Dr. Lamont also sparked the creation of the Penn State Extension High Tunnel Alliance, which provides continued support for these relatively new high tunnel producers and gives guidance and labor when needed. This network also improves each grower's ability to focus on the driving mission behind their organization.

Even with such limited resources, amazing things are happening here. These farms have improved the surrounding communities, drawn interest in neighborhoods that were otherwise forgotten, continued to teach nutrition, and sought innovative ways to become sustainable and support themselves.

Over the next few months, interviews with some of these small-scale farmers will be featured as a way of expanding the interesting and often overlooked story of the urban farmer.


*Mr. McCann is with Penn State Extension in Philadelphia County. From the Vegetable. **Small Fruit and Mushroom News**, Penn State Extension, <http://extension.psu.edu/vegetable-fruit>, February 25, 2015.*

It's Time to Schedule an Airblast Sprayer Calibration

Proper calibration is a must to make sure pesticide applications get to the target at the proper rate. The Penn State Pesticide Education Program uses calibration units that enable us to collect the output from each nozzle. With the collected information, we troubleshoot any problems like worn or plugged nozzles or broken or wrong whirl plates. The end result is a calibrated sprayer ready to go for the growing season. Growers may sign up to have their sprayers calibrated at the Penn State Pesticide Education website.

Now is the time to schedule us to calibrate your air blast sprayers. If you would like more information or to have your sprayer/s calibrated, please go to the pesticide education sprayer calibration at: <http://extension.psu.edu/pests/pesticide-education/applicators/air-blast-sprayer-calibration-information>. On the webpage is a link to an online request form to sign up to have your sprayer/s calibrated. Also included is a pre-calibration checklist and a video that provides instructions to prepare your sprayer for calibration. We do have to charge \$50 for the first sprayer and \$30 for additional sprayers to help cover costs.

*From Penn State Extension as reprinted in the **Pennsylvania Agricultural Alliance Issues Update**, Penna. Farm Bureau, March 2015.*



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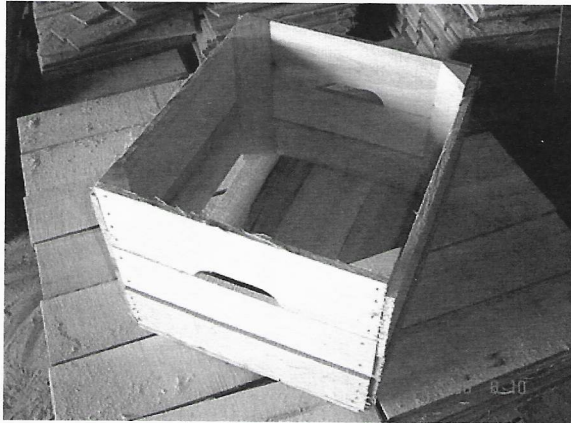
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GENERAL

Upgrade and Calibrate to Optimize Your Backpack Sprayer

Lee Stivers

Backpack sprayers are very useful tools for crop farmers to have on hand. Whether your farm is large or small, newly established or centuries old, certified organic or conventional, there is a spot for a backpack sprayer or two on your farm. However, to make the most of a backpack sprayer, we recommend that you make some upgrades to the sprayer wand assembly and of course, keep your sprayer calibrated.

There are a many advantages to using backpack sprayers on the farm. Commonly used for spot-spraying herbicides, backpack sprayers can also be used to apply fungicides, insecticides, foliar fertilizers, and many other products very efficiently. Backpack sprayers are inexpensive, so you can have multiple sprayers set up for specific uses. Backpack sprayers are simply designed, so are easy to fill, clean, repair and maintain. Unlike larger sprayers, backpack sprayers are connected directly to the operator's arm and brain, allowing higher precision applications.

John Grande and Jack Rabin of Rutgers did some really great work on backpack sprayers a few years ago, and have posted a comprehensive set of resources for growers at <http://snyderfarm.rutgers.edu/outreach.html> on selecting the best models for their needs, upgrading standard parts to improve function, calibrating backpack sprayers, and measuring small amounts of products as used in backpack sprayers. In this article, we'll concentrate on just a couple of these.

Spray wand conversion: Most backpack sprayers are generally well designed and built, with the exception of the spray wand. The spray wand consists of a flexible hose connected to the tank pump, a stiff wand with a trigger handle, and a simple flood nozzle at the end. These parts are usually made of plastic, with little to no ability to make adjustments. John Grande has developed a method to dramatically improve the functionality of a backpack sprayer by replacing the plastic spray wand with one custom assembled using compatible, off-the-shelf components from a sprayer supply company. The total cost of retrofitting a backpack sprayer with a new wand is around \$200.

The new wand includes several key components. First, it includes a CF valve, which solves a key problem of calibrating a backpack sprayer with a typical wand. In most backpack sprayers, the output from the nozzle increases and decreases as the pressure in the tank varies. You can't really calibrate a sprayer unless the flow rate is uniform over time. With a CF valve built into the spray wand, the sprayer will only spray when the tank pressure is high enough to maintain output pressure and hence, flow rate. When the pressure drops below the CF valve's working pressure, flow stops completely, a clear sign to the operator that they need to pump more air into the tank in order to continue spraying.

Another important component of the retrofitted wand is the inclusion of a standard nozzle body and cap. This allows you to change nozzles depend-

ing on the product, application, or conditions. It is a simple thing to switch between flat fan, hollow cone and flood nozzles, or nozzles of different droplet sizes. Finally, adding a barbed swivel to the wand so that it can be easily pointed and positioned makes operating the sprayer a lot more comfortable.

Sprayer calibration: Now that you have the backpack sprayer retrofitted, it is important to calibrate it so that you can apply products accurately and according to labelled rates. Three factors are required to be determined for calibration:

A constant spray output or volume. The retrofitted wand will give us a constant output, and the manufacturer of the nozzle will provide the output rate for each nozzle at a given pressure. But you can check the output rate by following these steps: Half fill the sprayer with water, pump the sprayer, point the tip into a container, and squeeze the trigger handle for one minute (timed). Determine the volume collected per minute and convert the flow rate to gallons per minute by dividing by 128 (since there are 128 ounces in one gallon). Now you have nozzle output in gallons per minute (GPM).

A constant walking travel speed. It is very important to practice your walking speed, and to do this on the actual ground you will be walking on when operating the sprayer. Mark off 100 feet on the uneven ground, and time how long it takes to walk it. Do this several times so that the time is consistent. Most people's comfortable walking speeds fall in the range of 2.0 MPH (34 seconds to walk 100 feet) to 2.5 MPH (27 seconds) to 3.0 MPH (23 seconds). Now you have your walking speed in miles per hour (MPH).

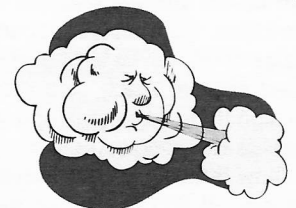
Knowing and maintaining the spray width. Each nozzle type is manufactured with a spray angle and a recommended spray height which provides a known width listed in the parts catalog. Make sure you hold the boom at a constant height when spraying. 20" and 30" widths are common for 110 degree nozzles. Alternatively, you can spray water on an asphalt surface and measure the effective band width.

You now have the measurements you need to calculate the output of your sprayer, as you will be operating it, in gallons per acre (GPA).

(continued on page 28)

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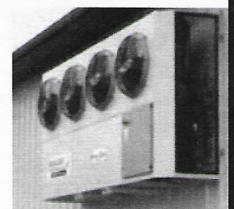
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Tomatoes Most Humbling

Steve Bogash

Tomatoes can be a very challenging to grow commercially. Managing nutrients, diseases, and insect pests all contribute to this annual test of our spirits. If it was not for the high potential for profits few would grow tomatoes.

After growing tomatoes for research since 2000 and acting as an Extension Educator since 1997, it is clear that growing tomatoes commercially is an annual challenge. Whenever I start to feel like I've got this crop figured out, a new problem arises. Early on in my trip down tomato lane there was learning to manage yellow shoulders and blossom end rot. Later on it was boron and other micronutrient deficiencies and toxicities. More recently, the move into high tunnels has brought Leaf Mold to front and center. It is a very good thing that tomatoes have such high revenue potential or no one would grow them.

First, why do we grow fresh market tomatoes? Whether in high tunnels or in the field, no crop has a greater potential for revenue per acre than tomatoes. Assuming a field population of 4,840 plants per acre (43,560 ft² / rows 6' apart, with plants spaced 18" apart in the rows) and a conservative yield of 20 lbs. of fruit per plant, it is very possible to get yields of 3,800 25 lb. boxes of tomatoes per acre. Assuming a low auction price of \$15 per box, even modest yields can generate in excess of \$57,000 per acre. Since high tunnel tomatoes are 3-4 weeks earlier than the field season, are of higher quality and often produce much higher yields per plant, gross revenues per plant from a tunnel are often much higher on a per square foot basis than field culture. When you factor in direct market sales and specialty tomatoes such as grafted heirlooms it becomes clear that tomatoes are worth the effort.

Choosing what variety or varieties to grow is one of the most important decisions that a grower can make. Modern determinate hybrids such as Red Deuce, Red Bounty, Red Mountain, Scarlet Red, and Primo Red each bring with them specific characteristics that impact production and marketing. 2014 was a banner year for Leaf Mold (*Passalora fulva*) in high tunnels. Usually this disease is limited to the lower leaves which can be readily removed from the plant up to the first fruiting cluster. In 2014, clients brought samples of plants that were completely covered from the bottom leaf to the top of the plant. As I looked at the infected plant samples I wondered if I was looking at a new more virulent strain of the disease, a varietal susceptibility issue, or just an abnormally bad season. A PVMRP research project for 2015 housed at the Penn State Southeast Agriculture Research and Extension Center will seek to identify which determinate red slicing tomatoes have resistance to Leaf Molds.

While Leaf Mold management can be a real problem for high tunnel growers, it's the bacterial diseases that had the greatest impact in 2014. While Bacterial Spot and Speck can greatly reduce fruit quality, it's Bacterial Canker that can decimate your fields. Bacterial Canker was a huge problem in 2014 throughout much of PA and the Mid-Atlantic in spite of greater use of hot water seed treatment. The best advice for tomato growers going into 2015 is to plan your disease management program as if bacterial diseases will strike:

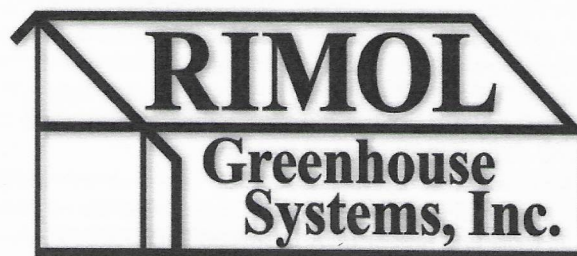
Treat tomato seeds using hot water baths and closely follow all protocols for time and temperature.

Purchase plants only from reputable sources that hot water treat their tomato seeds.

(continued on page 22)

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VEGETABLE PRODUCTION

Tomatoes Most Humbling (continued from page 21)

Keep your propagation areas pristine. Never store cardboard boxes under benches. Keep hose ends off of the floor. Remove dead or damaged plant tissue from the area. Keep potting media covered when not actively filling pots or trays.

If reusing plastic trays, start off by hosing off all visible organic matter, then soak them in a solution containing a registered sanitizing agent containing chlorine, quaternary ammonia salt, or a peroxide based sanitizer per label directions.

Plant into fields that have not had bacterial disease for at least 3 years (longer is better).

Use a very proactive disease management program that includes Actigard, Regalia, coppers, mancozeb and crop stimulants such as GreenStim, Kalibor or Stimplex. Various combinations of these materials helped to keep plantings alive and harvestable in 2014 that had Bacterial Canker within the field.

Scout your fields and tunnels early and often for signs of disease and cull plants if necessary.

Pressure wash sprayers and tractor tires between uses especially after applications in suspect fields. In the same vein, disinfect all tools and rubber boots between fields.

If using wooden stakes, always use new stakes in your tomatoes. Reuse them in peppers or other crops next year, but the value of tomatoes easily allows for the use of new stakes. It is nearly impossible short of kiln drying your tomato stakes to completely kill all bacteria on them.

Tomato growers hold an annual battle with Yellow Shoulder and Blossom End Rot. Getting the right balance of potassium, calcium, and magnesium while still maintaining sufficient nitrogen for good plant growth is key to reducing culls from these disorders. Writing that is much easier than actually implementing it in the field or tunnel. Growers must start with a preplant soil test, apply sufficient nutrients to produce an ample crop, then monitor and adjust tissue analysis nutrient levels from before the first blossoms appear with fertigated liquid or soluble fertilizers. Once the first blossoms appear, work to keep tissue nutrient levels in the ranges below:

Nutrient	Abbreviation	Tissue level ranges
Nitrogen	N	3.5-4%
Phosphorus	P	0.8-1%
Pottasium	K	3+%
Calcium	Ca	2.5-3%
Magnesium	Mg	0.5-.9%
Sulfur	S	0.3-1.2%
Manganese	Mn	40-500 ppm
Zinc	Zn	20-50 ppm
Boron	B	25-75 ppm
Copper	Cr	5-20 ppm

The pH and alkalinity of your irrigation water greatly impacts tomato plants' (peppers too) ability to take up nutrients from the soil solution. Tomatoes grow best at a pH range of 6.2-6.5. Most growers removing water from limestone-based aquifers need to inject acids in order to reach this pH range. Since the pH scale is a base 10 logarithmic scale, even seemingly small changes in the pH number are actually large changes in actual pH.

Western Flower Thrips (WFT) a vector for Tomato Spotted Wilt Virus, have become public enemy #1 for tomato growers. Their rapid reproduction rate, love of tomatoes, coupled with resistance to our most commonly used insecticides, make WFT arguably our most serious insect pest.

Every year is a bit different. 2013 was a major year for WFT in field-grown and high tunnel tomatoes while in 2014, generally only greenhouse and high tunnel growers had damaging populations. WFT are largely resistant to most common insecticides, so growers should look to biological control to manage these minute pests. To be successful with biocontrols growers must become acquainted with the nuances of managing and utilizing populations of beneficial insects and mites in concert with biopesticides in the field, tunnel and greenhouse. When you factor in managing spider mites, several species of aphids, whiteflies, and the occasional lepidopteran pest the task of keeping your tomatoes healthy and productive seems to get ever more complicated.

The big question for the 2015 season is which challenge or challenges will teach us once again that tomatoes are a most humbling crop. Every time that we get a handle on one major hurdle another is always lurking nearby. Soil and tissue test well and often, scout your crops regularly, practice IPM, pay attention to the Late Blight reports and be proactive in all things regarding tomato management.

*Mr. Bogash is with Penn State Extension in Cumberland County. From the Vegetable. **Small Fruit and Mushroom News**, Penn State Extension, <http://extension.psu.edu/vegetable-fruit>, March 23, 2015.*



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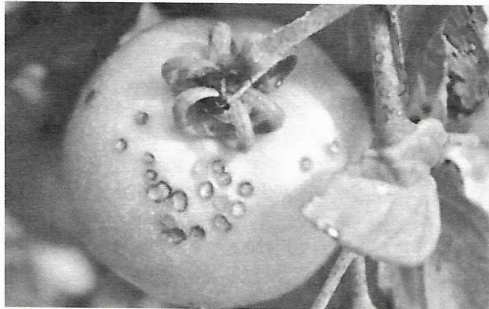
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Bacterial Spot of Tomato: Biology and Management

Beth Gugino

Bacterial spot is becoming an increasingly devastating disease of tomato in the mid-Atlantic region. Not only can the pathogen directly damage the fruit, severe foliar infection can lead to defoliation reducing both the quality and quantity of marketable fruit. This may be due in part to the increasing frequency of severe weather events that favor disease development as well as shorter rotations between tomatoes due to the economic value of the crop.



cy of severe weather events that favor disease development as well as shorter rotations between tomatoes due to the economic value of the crop.

Foliar lesions are initially small, dark brown or black and circular and may be surrounded by a yellow halo. As the lesions expand, they coalesce and portions of the leaf or the entire leaf will turn yellow and die. Lesions on the pedicels can cause flower abortion. Lesions will develop on immature fruit as a result of infection of the fruit hairs. The fruit lesions are initially small, dark brown and raised. As the fruit ages, the lesions will increase in diameter and have a scabby or corky appearance.

Young bacterial spot foliar lesions can be difficult to distinguish from those of early blight or Septoria leaf spot however as the lesions expand, early blight lesions will develop concentric rings while lesions from Septoria will become tan in the center will small black dots called pycnidia. Early blight fruit lesions will develop similar concentric rings as on the leaves while Septoria will not cause fruit symptoms.

The primary sources of bacterial inoculum are infected seed, infected crop debris and contaminated equipment (tools, greenhouse structures, stakes, etc.). The bacteria are splash dispersed through overhead irrigation and during wind-driven rain events. They enter the plant through both natural openings and wounds caused by severe weather, insect or mechanical damage. The optimum temperature for infection is between 75 and 86°F while disease development is favored by temperatures that fluctuate between 68 and 95°F. Warmer night temperatures between 72 and 82°F will favor disease development while cooler night temperatures around 61°F will suppress disease progress.

The disease is caused by a group of xanthomonad bacteria once called *Xanthomonas campestris* pv. *vesicatoria* and divided into four groups (A, B, C, and D). Now, the groups have been taxonomically reclassified into four different species including *X. euvesicatoria*, *X. vesicatoria*, *X. perforans* and *X. gardneri*. *X. euvesicatoria* is the one that also affects peppers.

When managing bacterial spot as well as other bacterial diseases, it is important to keep in mind that bacteria readily multiply and spread under warm wet conditions; much faster than fungal pathogens. Once the bacteria land on a plant they then need a natural opening or wound to infect unlike a fungal pathogen that can directly penetrate the plant tissue. Therefore, in order for protectant bactericides to be effective, they must be applied and come in contact with the bacterial cells prior to them

(continued on page 24)

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VEGETABLE PRODUCTION

Bacterial Spot of Tomato... (continued from page 23)

entering the plant. This is in contrast to some fungicides that can stop the fungal infection process even after the pathogen has initially entered the plant. Unfortunately, our ability to detect bacterial pathogens associated with the seed and/or transplants is not below the threshold to cause disease so an integrated approach that focuses on excluding bacteria from production system is critical for successful bacterial disease management. Since it is primarily the immature fruit that are more susceptible, minimizing potential spread from the seed through the main fruit set will minimize potential harvest losses.

Also plant stress whether due to environment or resulting from soil compaction, weed and pest pressure and field operations can also play a large role in plant susceptibility to bacterial pathogens. Implementing strategies to optimize planting and growing conditions can help also help reduce losses.

Bacterial Spot Management Strategies:

Select pathogen-free seed from a reputable source. - Although often easier said than done, it is important to purchase the highest quality seed possible. The seed extraction process will not reliably eliminate bacteria from the seed so treating the seed either with a chlorine bleach to disinfect the seed surface or a hot-water seed treatment to disinfect the seed surface as well as eliminate bacteria that may be under the seed coat may be necessary. In order to not reduce seed germination and viability it is important to follow established seed treatment protocols. With funding from the Pennsylvania Vegetable Marketing and Research Program/Pennsylvania Vegetable Growers Association and the Northeast IPM Program, four sets of hot-water seed treatment equipment have been purchased and are available for use by growers in Pennsylvania (check with your local extension educator about availability).

Sanitation during transplant production. - Sanitation is an essential component to transplant production. Whether you are growing your own transplants or purchasing from a supplier, sanitation practices need to be in place to reduce potential losses to bacterial diseases. Some of these practices include:

Removing all plant material including weeds from the greenhouse between crops.

Using sterile potting mix and new trays, if possible. If re-using trays, sanitizing them with a disinfectant once all the organic matter has been removed. Keep in mind that disinfectant products will be neutralized and become ineffective in the presence of organic matter.

Disinfect tools and equipment and greenhouse surfaces before the growing season. Wood can harbor bacterial pathogens between seasons so minimizing the use of wood in the greenhouse is important.

Avoid co-mingling seed lots (as well as tomatoes and peppers) both during seeding and within the greenhouse to minimize potential cross-contamination.

Minimize handling of the plants and movement within the greenhouse as much as possible.

If symptoms are observed, remove the entire flat and adjacent flats to prevent further spread. Many of the seedlings may be infected but are not yet showing symptoms and may not develop symptoms until planted in the field.

During transplant production minimize leaf wetness through timing of watering, managing relative humidity and ventilation. Either bottom watering or using low pressure nozzles for watering will minimize potential damage to the plant

and ports of entry for the bacterial. Also do not handle plants when they are wet or allow them to drop on each other when preparing for shipping.

In the field, follow a minimum three year crop rotation out of solanaceous crops including pepper. The bacterial spot pathogen cannot survive in the soil in the absence of crop residue. Also manage any solanaceous weeds or volunteer that can harbor bacterial spot between seasons.

Minimize crop stress by promoting good soil drainage, adequate crop fertility and maximizing air circulation. Utilize drip irrigation whenever possible.

Separate seed lots when possible to minimize potential spread if one seed lot is infested. Separate sequential plantings and work in the youngest planting first. Once the main fruit crop is set, late-season foliar symptoms and potential spread to the fruit are less problematic. Plowing down crop residue soon after harvest is complete will facilitate the decomposition of crop residue and reduce spread to younger successive plantings.

In the field, fixed-copper based products are still the primary tool for managing bacterial spot in tomato. There is increasing concern about the potential development of copper resistance within bacterial populations in Pennsylvania as has developed in other production regions in the U.S. The current status of copper resistance in PA is currently not known but the collection and screening of select isolates is being planned for the 2015 growing season. In non-certified organic systems, copper can be tank mixed with mancozeb to enhance the bactericidal effect of fixed copper and this will also help manage any copper resistant strains, if present. An increasing number of research-based trials have demonstrated that when applied starting early in the season, Actigard 50WG (a.i. acibenzolar-S-methyl) can help reduce bacterial spot incidence and severity. This product works to trigger the plant's own defense system to produce proteins and other products that enable the plant to suppress pathogens. Typically, these defense mechanisms are only triggered when a plant detects a pathogen. Priming or the pre-activation of the plants defenses enhances the plants defense response. This is not a silver bullet and should be used in conjunction with an IPM program.

In the greenhouse, bacteriophage (viruses that infect bacteria) can be used to reduce bacterial populations on the plant surface. These viruses are very specific to the bacterial species and when they come in contact, the virus injects its RNA into the bacterial cell where it replicates and eventually causes the bacterial cell to lysis or break open. Streptomycin-based products can also be used during transplant production to manage bacterial populations on the surface of the transplants.

In order to be effective, an integrated approach to the management of bacterial spot on tomato needs to be employed from seed selection through fruit production. Although a challenge to manage, understanding the biology and epidemiology of bacterial spot can help identify strategies to reduce losses in the field and can help explain why management efforts may have failed.

Dr. Gugino is with Department of Plant Pathology and Environmental Microbiology at Penn State Univ. From the Vegetable, Small Fruit and Mushroom News, Penn State Extension, <http://extension.psu.edu/vegetable-fruit>, January 16, 2015.

Plant Disease Basics

Beth Gugino

Disease management begins with the fundamental understanding of the three factors that must be present and interact for disease to develop. These include: 1) a susceptible host crop; 2) the pathogen and 3) an environment that is favorable for the pathogen. This concept is called the disease triangle and all disease management practices can be related back to breaking/disrupting one or more of these interactions.

Many of the concepts/tools important for organic disease management are the same as for growers who use conventional IPM tools; however, there is an even greater emphasis on prevention and being proactive rather than reactive since in-season management tools are more limited. Keep in mind that disease management requires the integration of multiple strategies in order to be successful and that knowledge is the key to success.

- Know what diseases can occur on your crops and how they impact yield (directly affect fruit or reduce photosynthetic area which impacts fruit quality)
- Know the symptoms and signs
- Know the biology of the pathogen (sources of inoculum, how it spreads, conditions that favor development)
- Know the available management practices/strategies both in the short-term and long-term

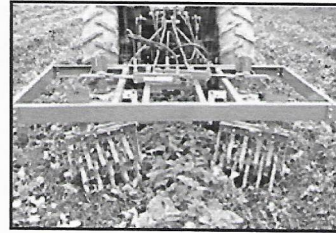
The following is a general list of concepts important to the organic management of plant diseases.

Resistant cultivars are still one of the most important disease management tools. For late blight, tomato cultivars with specific late blight resistance genes now include Defiant, Mountain Magic, Mountain Merit, Plum Regal and Iron Lady (also with tolerance to early blight and resistance to Septoria leaf spot). Other cultivars with observed resistance to late blight include Jasper and Matt's Wild Cherry. Pumpkins with homozygous resistance to powdery mildew are more effective than those with heterozygous resistance (from only one parent). Peppers with resistance to Phytophthora blight include Paladin, Aristotle, Alliance, and Revolution. Aristotle and Revolution also have resistance to bacterial leaf spot (race 1 -3). For a list of recommended cultivars for our production region and there corresponding disease resistance see the recently updated tables at the beginning crop section in the 2015 Commercial Vegetable Production Recommendations (purchase a copy from Penn State Extension or go to <http://pubs.cas.psu.edu/FreePubs/pdfs/AGRS028.pdf>). It is important to understand not only what diseases are more prevalent in the crops that your growing but also what races or pathovars are predominant because that can affect the effectiveness of the host resistance.

Sanitation reduces potential sources of pathogen inoculum. Use new or cleaned and disinfected planting materials (flats for transplants, tomato stakes, etc.). Clean greenhouse surfaces. Hose down equipment between fields (especially important for soil-borne pathogens like white mold or Phytophthora blight that can easily be spread through movement of the soil). Chlorine-based materials, hydrogen peroxide and peracetic acid are allowed by the NOP. If you have successive plantings, work the newest plantings first to reduce potential movement of pathogens and plow down crop residue as soon as possible after harvest to minimize pathogen spread. Also locate subsequent plantings upwind or as geographically separated as possible.

(continued on page 26)

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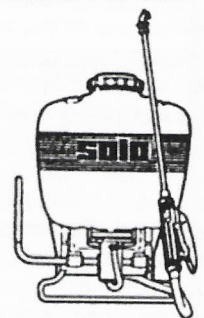
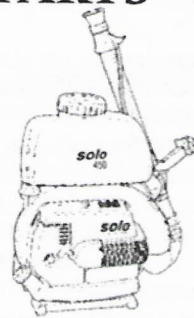
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VEGETABLE PRODUCTION

Who Are Our Pollinators?

Tianna DuPont, Christina Grozinger, and Shelby Fleischer

Approximately three quarters of our major food crops are pollinated. At the same time domestic honey bees hives are down by 59% compared to 60 years ago. Here we will look at



Photo credit Mary Ann Frazier, Penn State Extension.

how wild bees provide insurance against ongoing honey bee losses. Keep a look out for upcoming articles on factors affecting pollinators and ways farmers can promote pollinator health.

Plant Disease Basics *(continued from page 25)*

Purchase clean pathogen-free seed whenever possible from a reputable source. If saving seed, only save seed from healthy plants. Many pathogens can be harbored in the seed and spread to the crop next season. Consider hot-water seed treatment if seed-borne pathogens especially bacteria are a concern. Several hot-water seed treatment equipment stations have been purchased with funds from the Pennsylvania Vegetable Marketing and Research Program and PA Vegetable Growers Association that are available for use (check with your local extension educator). Chlorine-based products can also be used to surface disinfest the seed. Plant only visibly healthy transplants.

Crop rotation is important to reduce the potential build-up of soil-borne pathogens and to facilitate the degradation of crop residue which can harbor many pathogens. The pathogens that cause many common diseases like early blight on tomato and black rot on brassicas cannot survive in the soil on their own once the crop residue is decomposed. However, keep in mind that crop rotation is not effective for soil-borne pathogens that have a wide host range, can survive saprophytically on organic matter or do not overwinter in this region (e.g. cucurbit powdery and downy mildews). Crop rotation is most effective when used proactively.

Promote soil health through use of organic amendments, green manure crops, cover crops, reduced tillage, etc.

Create conditions that are unfavorable for disease development. Most pathogens require either a period of free moisture on the leaf or high relative humidity to infect so in general, the longer you can keep leaves dry, the less likely diseases are to develop. Leaf wetness can be minimized through use of drip irrigation, weed management (weeds in the same plant family as the crop can often harbor pathogens), trellising plants, maximizing air circulation through plant spacing and row orientation, etc. For soil-borne pathogens, improving soil drainage or planting on raised beds can help. Use plastic or straw mulch to reduce soil splashing that can spread pathogens and to reduce direct contact of the fruit with the soil.

Use disease forecasting to help determine disease risk and be aware of current disease outbreaks in the region. Forecasting for cucurbit downy mildew is based on 1) regional disease occurrence, 2) when conditions are favorable for disease development and 3) the forecasted weather in the eastern US. This information is used to determine the relative risk of

Honeybees

Honey bees are the rockstar pollinators. Everyone knows about them. There are 2.5 million honeybee hives in the United States alone managed by an estimated 120,000 beekeepers. Many of these hives (~2 million colonies) are managed by 28,000 commercial beekeepers, who manage anywhere from hundreds to thousands of hives and move them from one part of the country to another to pollinate multiple crops.

Native Bees

With the recent declines in honey bee populations, researchers are looking more closely at wild bees and the work they do in agricultural crops. There are at least 17,000 other species of bees described globally, and 4,000 native bee species in North America. Although honey bees get all the attention, native bees can be efficient and sometimes superior polli-

(continued on page 27)

downy mildew development in a given region. During the season, forecasts are updated every Monday, Wednesday and Friday and are available at the Cucurbit Downy Mildew ipmPIPE website (<http://cdm.ipmpipe.org>). Other forecasting systems assume that the pathogen is present and use in-field weather station data or interpolated weather data to determine how favorable conditions are for disease development and recommend when fungicides are needed (e.g. TomCast for early blight and BLITECAST for late blight). You can find information on late blight outbreaks at <http://usablight.org/> and information regarding general disease outbreaks in Pennsylvania at <http://extension.psu.edu/plants/vegetable-fruit>.

Scout your crops regularly, thoroughly and by cultivar if they differ in disease susceptibility. Fungicides will be most effective at slowing disease development when applied when the very first symptoms develop or preventatively when disease outbreaks are reported in the region. Keep disease maps for future reference and to help inform crop rotations. For help with disease diagnosis, contact your local extension office or submit a sample to the Penn State Plant Disease Clinic (see <http://plantpath.psu.edu/facilities/plant-disease-clinic>).

Use fungicides when cultural practices are not adequate and the disease is in an early stage of development. Fungicides can be an important tool during the season when intervention or prevent crop loss is required (e.g. Cucurbit downy mildew, late blight on tomato/potato, powdery mildew, etc.). Products that act by affecting the plants' natural defense mechanisms (e.g. Regalia, Companion) are most effective when applied prior to the onset of disease. Other OMRI-approved products are most effective when applied preventatively or at the first sign of disease. Products for the management of soil-borne pathogens are best applied before planting at the transplant stage.

Rogue and destroy symptomatic plants to reduce disease spread and incorporate crop residue at the end of the season. Removing symptomatic plants when symptoms are first observed can help reduce pathogen spread to the rest of the field and successive plantings. Incorporation of crop residue immediately after harvest will facilitate faster break down by soil microbes thus reducing pathogen survival in the soil.

Dr. Gugino is with the Department of Plant Pathology and Environmental Microbiology at Penn State University. From the Vegetable, Small Fruit and Mushroom News, Penn State Extension, <http://extension.psu.edu/vegetable-fruit>, February 25, 2015.

VEGETABLE PRODUCTION

Who Are Our... (continued from page 26)

nators compared to honey bees. For example, in one study researchers looking at 600 fields in 41 cropping systems found fruit set can increase twice as much with wild-insect visitation compared to honey bees.

In Pennsylvania, native bees are important pollinators of many of our key crops. Bumble bees, for example, can perform "buzz-pollination" (which honey bees can't do) which is more efficient for pollinating crops like tomatoes. Bumble bee colonies also do well in greenhouses, while honey bee colonies need to be outdoors. In pumpkins, one of PA's largest crops, researchers identified bees from 10,000 pumpkin flower visits. Over 92% of the bees they found were wild bees. Bumble bees and squash bees were the most abundant. These native bees can do a huge amount of the work. Bumble bees are out earlier in the morning when the pumpkin flowers are first open. They will work even when it is cool and cloudy. Because of the way they work the flowers, they deposit more pollen at every flower that they visit. Dr. Winfree and colleagues found that 46 species of native bees in Pennsylvania and New Jersey watermelon flowers could fully pollinate crops in 90% of the fields studied. Native bees were responsible for 62% of the pollen grains deposited on watermelon flowers. Wild bees are also important pollinators in Pennsylvania apple orchards where researchers have identified 190 species of native bees. Some like the hairy footed flower bee and horn faced bee are extremely efficient pollinators. Quick flying horn faced bees set about 2,500 flowers every day. In comparison honeybees may only visit 200 flowers per day. Below is a listing of some of the common native bees you will find on your crops.

Blue orchard mason bees - Shiny metallic blue, small and industrious, these bees are important pollinators in orchards. Mason bees fly fast and visit many flowers. They are active early in the spring and will fly in poor weather conditions, making them good pollinators for early blooming crops. Mason bees are solitary bees. Each female finds a nest in a tube like cavity such as a hollow reed or hole. She stores food in the cavity, lays an egg and seals it with mud. Then she repeats this process until the tunnel is filled with eggs.

Japanese orchard bee - Similar to the blue orchard mason bees, this bee is an extremely efficient orchard pollinator. But it is only active in the spring. It can set up to 80% more apple flowers per day compared with flowers set by one honey bee.

Bumble bees - Bumble bees are important pollinators of cucurbits, tomatoes and berries. Most nest underground. When queens emerge in the spring they act like solitary bees at first, collecting pollen and nectar, building a nest and laying eggs. But after the first batch of workers emerge, bumble bees start to divide up labor and the queen concentrates on laying eggs, much like a honey bee queen. For the Common Eastern Bumble Bee the colony grows to between 100 and 200 bees. But at the end of the season only the new queens overwinter and the rest of the colony dies. Bumble bee colonies can also be purchased commercially for pollination services, but it is of course much cheaper if you have habitat that can support wild bees!

Squash bees - Squash bees are cucurbit specialists. As ground nesters they burrow in well drained areas in or near squash or pumpkin fields. They fly about half a mile to a mile between crops or habitat.

Small carpenter bees, southern blueberry bees, sweat bees, and plasterer bee are also common native

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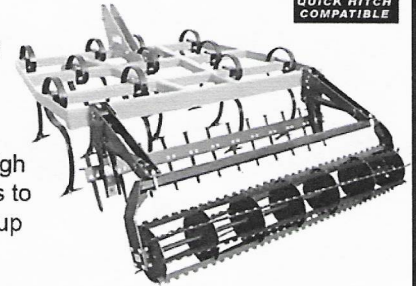
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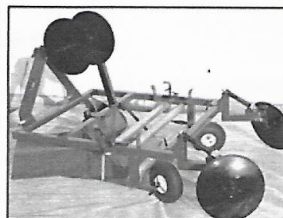
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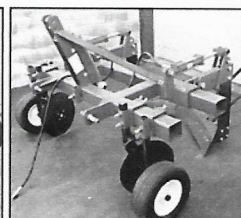


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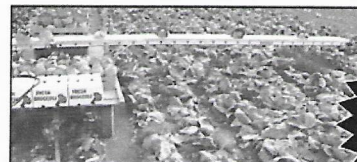


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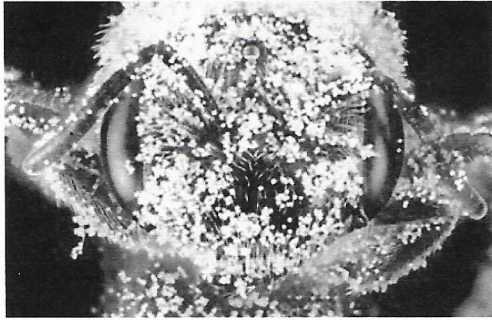
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VEGETABLE PRODUCTION

What Can We do to Encourage Native Bees?

Tianna DuPont

Pollinators need a diverse, abundant food source and a place to build their nests and rear their young. As land managers, if we keep these two elements in mind we can encourage native bee populations.



*Small
Striped Bee
(Halictus).
Photo
USGS Bee
Inventory.*

Natural Areas - Diverse and abundant native bee populations are found in areas where there are many patches of natural habitat. Specifically, studies indicate fields 1,000 to 6,000 yards from the nearest natural patch will have the most pollination from native bees [8, 9].

Provide Forage - Pollinator habitat should have a diversity of flowers that bloom at different times to sustain a diverse group of pollinators throughout the growing season. Flowering plants in your hedgerows, riparian buffers, set-aside areas and gardens can all provide essential food. Not all flowering plants are equal! Some species provide lots of nectar, others provide lots of pollen, and pollen nutrients of different plants vary. It is important to encourage the growth of a wide variety of flowering plant species to best feed your bees, especially generalists like bumble bees. For specialists, like the squash bee, the specific host (squash or pumpkin) must be in the landscape.

Nesting Sites - Nearly 70 percent of bee species nest underground. Most other bees choose to nest in wood tunnels, occupying existing holes in snags or chewing into the pithy center of stems [10]. Because many ground dwelling bees only range a few hundred yards from their nest, it can be even more important for land managers to provide nesting habitats directly on the farm. Bumble bees often prefer undisturbed areas such as hay fields and pasture [11]. Many bees prefer to nest in sunny, bare patches of soil [12]. When you excavate a pond or ditch leave the piles of excavated earth. Ground dwelling bees may nest in bare areas of mounded earth. Consider keeping some dead snags. Some solitary bees nest in abandoned beetle tunnels in snags.

Cover Crops - Include flowering plants in your cover crop mixtures and give them time to flower to provide additional bee forage. Penn State's Dr Shelby Fleischer is working on building summer and fall cover crop mixtures that flower successively providing continuous forage for bumble bees and honey bees. The current summer mix trial includes buckwheat, mustard, sunflower, sunhemp and cowpea. The fall planted mix includes peas, vetch, clover and an oat nurse crop. We are still learning about cover crops for bee forage.

Reduced Tillage - Many native bees nest in the ground. Sometimes they nest right in the area where the crop is grown and other times in attractive areas in field edges. Think about ways to avoid disrupting this nesting habitat in some areas of the farmscape. For example in one study farms that practiced no-till had triple the rate of squash bee visitation rates [13]. In other studies farms with pastures or hayfields had more bumble bees.

Irrigation - During times of drought, irrigation may also encourage native bee pollinators. In one of two years (a dry year) of a study of pumpkin pollinators in Virginia, fields with irrigation had significantly more squash bees than those that did not [14]. Researchers don't know why irrigation might increase ground dwelling native bees, but they speculate it might be differences in soil temperature or ease of making a nest.

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*This article is part of a five part series describing pollinators, pollinator threats and on-farm conservation strategies as part of a collaboration between Penn State's Center for Pollinator Research and Penn State Extension Vegetable and Small Fruit Team. Ms. DuPont is with Penn State Extension. From the **Vegetable, Small Fruit and Mushroom News**, Penn State Extension, <http://extension.psu.edu/vegetable-fruit>, March 20, 2015.*

GENERAL

Upgrade and Calibrate... (continued from page 20)

GPA = (Nozzle GPM X 5,940) / (MPH X spray width inches)

If gallons per 1,000 square feet is more useful for your purposes, substitute 136 for 5,940 in the formula above.

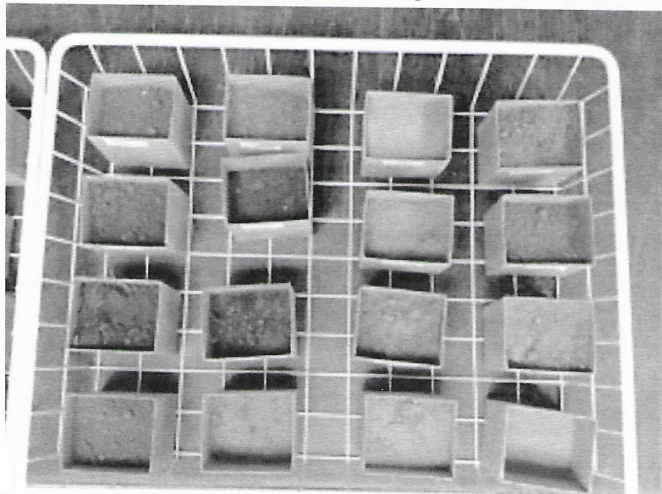
Further details on backpack sprayer selection, modifications, and calibration can be found at *Don't Overlook Backpack Sprayers for Small-Scale Farmers* <http://snyderfarm.rutgers.edu/snyder-backpack-sprayers.html>.

*Note: information for this article is drawn from "Don't Overlook Backpack Sprayers for Small-Scale Farms" (see above) by John Grande and Jack Rabin, Rutgers. Ms. Stivers is with Penn State Extension in Washington Co. From the **Vegetable, Small Fruit and Mushroom News**, Penn State Extension, <http://extension.psu.edu/vegetable-fruit>, March 18, 2015.*

Soils and Copper Fungicide Use

Meredith Melendez

During my field visits to Mercer County, New Jersey, organic farms, growers often express concerns about negative soil health impacts from copper based fungicides. In an effort to evaluate soil copper use and the resulting soil copper levels, soil was sampled at fifteen farms throughout the state.



Soils sampled for copper levels.

Both conventional and organic farms participated in this study which was funded by The Phillip Alampi Fund. Two composite samples were taken from each farm, one where copper fungicides had been applied and one where copper fungicides had never been used. Total and soluble copper levels were higher on copper applied soils compared to the non-copper applied soils. Even though copper levels were higher in these soils, the levels were not high enough to cause plant toxicity symptoms, reduce plant growth, nor were the soils showing signs of reduced microbial activity.

Best management practices developed for copper based fungicides use:

- Read and follow the product label.
- Certified organic producers should verify that the product is listed on their organic system plan and that it is approved by their certifier.
- Adhere to the listed re-entry period as stated on the product label.
- Crop rotations should be used to reduce multiple year applications to fields.
- Copper based fungicides are preventative and should be used prior to infection.
- Track rainfall amounts to make decisions on repeat sprays. Less than one inch of rain does not warrant re-application, between 1 and 2 inches of rain the spray interval can be cut in half and greater than 2 inches of rainfall warrants a full reapplication.
- Care should be taken to spray only the foliage of the target crop and minimize ground spraying of copper.
- Soil copper levels should be monitored annually through an accredited soil testing laboratory.
- Growers should be mindful of animal manures and feeds that may serve as additional copper inputs.

*Ms. Melendez is with Rutgers Cooperative Extension. From the **Plant and Pest Advisory**, Rutgers Cooperative Extension, <http://plant-pest-advisory.rutgers.edu/>, October 9, 2014.*

Who Are Our... (continued from page 26)

bees on Pennsylvania and New Jersey Farms. See the Xerces Society "Pennsylvania Citizen Scientist Pollinator Monitoring Guide" for a nice guide to ID your native bee visitors. Rutgers also has a nice publication with color photos of common native pollinators "Native Bee Benefits."

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NEWS

State News Briefs (continued from page 13)

goals and objectives. ACRE gives farmers an opportunity to request a review by the Attorney General if they feel a municipality is acting illegally in restricting normal agricultural practices. During her remarks, Kane said her office is committed to carrying out the spirit of the ACRE law. "Our office has been very proactive in reaching out to municipalities and educating them and concerned citizens on the commonwealth's regulation of agriculture operations," she said. "Agriculture is a keystone to Pennsylvania's strong economy and cultural identity, and the Office of Attorney General is committed to partnering with all stakeholders to protect this valuable industry." Between July 2013 and July 2014, the Attorney General found that municipalities were illegally regulating agriculture in seven out of nine reviews the office completed in response to farmer requests. The office is actively working to correct the illegal restrictions.

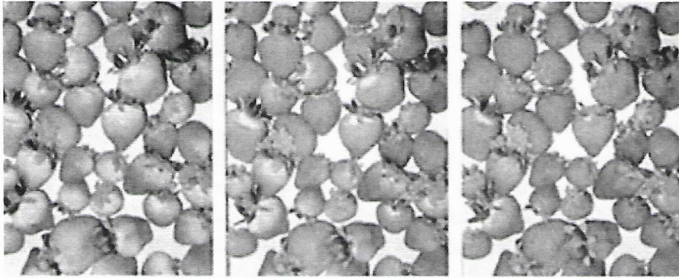
*From **Farm Bureau Express**, Penna. Farm Bureau, January 16, 2015.*

BERRY PRODUCTION

That's a Berry Good Question – Strawberry Ripening after Harvest?

Kathleen Demchak

Q. I've read in one or two places that strawberries continue to ripen after harvest, but most other articles I've read say they don't. Do they continue to ripen after harvest or not?



Left to right: Strawberries held at room temperature at 0, 24, and 48 hours (6, 30, and 54 hours after harvest).

A. The answer isn't simple, as there are a number of components to ripening, including color development, flavor and aroma development, and fruit softening. The conclusion from work by Marvin Pritts, published back in 1987 (and others), was that berries would develop adequate color if harvested when about 75% ripe, and shelf-life would be longer than if berries were harvested fully colored. Even berries picked as little as 25% ripe continue to develop color. But the question still is... Even though the berries might develop color after harvest, how quickly does this happen, and to what extent? Is it enough to make a difference in fruit appearance on the shelf? To help answer this question, this fall we took some berries from day-neutral research plots at PSU (some were less than 75% ripe), put them in a single layer in a vented container at room temperature - about 72 degrees, and took a photo every 24 hours, starting about 6 hours after harvest.

A noticeable increase in redness occurred in the first 24 hours (see the photos above). By the end of 24 hours, and even more so after 48 hours, color had changed from quite unripe to acceptably red. At 48 hours, however, a couple of the berries were also beginning to show signs of diseased spots. We didn't include the photo from 72 hours; at that time, the berries were even more fully colored, but there was also some serious mold growing.

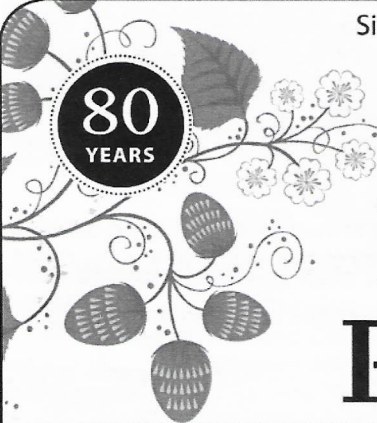
So, yes, berries do develop more red color after they are harvested, and they also soften. Other studies have shown development and changes in volatile production after harvest as

well, but that if berries are picked too unripe, some "off" aromas can develop during storage, though this varies with cultivar. Fully-colored berries usually have the highest sugar content (this varies with weather preceding harvest, of course) and the best flavor.

What does this all mean? As one study summed up, quality of berries picked less than fully-ripe tends to improve, while berries picked fully ripe and then stored tends to degrade. So considering all of the above factors, for direct on-farm sales, where the fruit will be moved very quickly, we still recommend harvesting berries when fully-colored, only picking what you can sell that day, and refrigerating them to increase the shelf-life. However, for growers moving berries through auctions where berries usually are not refrigerated, or selling wholesale, there are some advantages to picking berries less than fully red, though you shouldn't count on this alone to delay development of decay significantly.

Ms. Demchak is with the Department of Plant Science at Penn State Univ. From the **Vegetable, Small Fruit and Mushroom News**, Penn State Extension, <http://extension.psu.edu/vegetable-fruit>, December 5, 2014.

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Weed Management Update for 2015

Rich Bonanno

In 2015 there are a few new herbicide options for vegetable crops including a section 3 label expansion for Dual Magnum. The section 3 labels are usually available for full, nationwide use and include beans, sweet corn, potato, pumpkin, and tomato. Dual provides excellent control of annual grasses, hairy galinsoga, nightshade, and yellow nutsedge. Always read and follow all Worker Protection Standards information on the label. This information can be found in the Agricultural Use Requirements box.

Prowl H2O (pendimethalin) registered crops include: asparagus, beans, corn, melons, onions, peas, potato, pepper, sun-flower, brassica head and stem, carrots, garlic, leek, egg-plant, tomato, grapes, pome and stone fruits and strawberries. It can be either pre-plant incorporated or applied to the soil surface prior to transplanting. If applied to the soil surface, treated soil falling into the transplant hole may delay crop growth. Preplant incorporated treatments are generally safer. Prowl may be surface applied between plastic mulch, however, do not apply over the top of pepper plants and do not apply within 60 days of harvest. While similar, an advantage over Treflan is that Prowl will control velvetleaf. Prowl is also good on lambsquarters, including triazine-resistant lambsquarters.

There are some new options for sweet corn weed management. As long as the corn is planted at least 1 inch deep, Zidua (pyroxasulfone) provides residual control of yellow nutsedge, crabgrass, panicum, foxtails, and barnyardgrass as well as the broadleaves: pigweed, carpetweed, nightshade, and purslane. It provides weak control of lambsquarters. No surfactant is needed, and Zidua is a little safer to use in early, cold soils than Prowl for other crops. New sweet corn varieties are on the market that will tolerate either Liberty (Rely, glufosinate) or Roundup (glyphosate). These sweet corn varieties are "Liberty Link" which has both Bt and resistance to glufosinate stacked traits, and "Semini's Performance Series Sweet Corn" which also has resistance to glyphosate and Bt stacked. No refuge is required because of short growing time of sweet corn compared to field corn, but stewardship requires the grower to disc in stalks after harvest. Field corn growers using these technologies have reduced their herbicide use by 33% to 50%. Using a residual herbicide at planting is still a useful option followed by a post-emergence application of either Liberty or Roundup depending on variety.

When tank mixing pesticides, mix in the proper order. The order is Wettable Powders (WP), Water Dispersible Granules (WDG), Flowables (F) (DF) (SC), Water-dispersible liquids (AS), Emulsifiable Concentrates (EC), and Solutions (S). Always follow the pesticide label when using adjuvants such as spreader stickers, surfactants, etc. When suggested, use the right product at the right rate.

Dr. Bonanno is with the University of Massachusetts Extension. Compiled by Katie Campbell-Nelson, also with the Univ. of Massachusetts Extension. From Vegetable Notes for Vegetable Farms in Massachusetts, Univ. of Mass. Ext., Vol. 27, No. 3, March 19, 2015.

Board Continues... (continued from page 2)

The Board voted to hire Troxell Administrative Services to provide administrative services and office space for the next year at a rate of \$61,800, an increase of three percent. They also decided to schedule in-person meetings of the major committees for the day before the December Board meeting in State College as well to schedule a summer conference call Board meeting in late July.

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