

NEWS

for the commercial vegetable, potato and berry grower

February 2015 / Volume 38 Number 2

Celebrate National Ag Day by Visiting Your Legislator

Wednesday, March 18, is National Ag Day, at day set aside by the Agricultural Council of America to highlight to the public the vital role agriculture plays in our society. PVGA is urging its members to celebrate Ag Day by making plans to visit their state and federal legislator's office to discuss the Association's priorities for 2015. Copies of the Association's priorities will be sent to members separately.

The Pennsylvania General Assembly is not in session the week of March 18th, so state legislators will likely be available in their local offices on the 18th or another day that week. It isn't so important to make the visit exactly on March 18th, but to make it a point to schedule an appointment with your legislator this spring (before you get any busier!) to go over the priorities with him or her.

While you're there, take a sample of your one of your farm products. If you don't have something from your farm at this time of year, get some processed Pennsylvania vegetable products from the grocery store or a nearby farm market. Even a small basket of fresh vegetables from the grocery store of crops

that you grow might be appropriate. It emphasizes to the legislator the role of our industry in providing nutritious food to Pennsylvanians.

If you want to team up with some neighboring growers to go as group, that is even better. If one of your farms has a market, greenhouse or high tunnel in operation now, you might want to invite the legislator to come visit your market or farm. If you visit your legislator in his office, you might also consider inviting him to your farm or market later in the year like July or August when the General Assembly recesses for the summer.

You as a grower taking the time to visit your legislator gives him or her the opportunity to personally meet you and understand how government decision can hurt or help your business. If they have met growers in person and are familiar with their businesses, they are more likely to be conscious of how their decisions can affect your business when they are deciding how to vote on different issues.

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2015 PVGA Annual Award Goes to Glenn Hetherington

PVGA President Rob Shenot presented the Association's 2015 Annual Award and a Life Membership to Glenn Hetherington, a former Director and President of the Association, during the Annual Fruit and Vegetable Growers Banquet at the Mid-Atlantic Fruit and Vegetable Convention in Hershey on January 27.

The PVGA Annual Award is presented each year to someone who has demonstrated a longstanding record of service to the Association and/or the vegetable, potato, or berry industry in Pennsylvania. Glenn Hetherington served as a Director of the Association for 30 years from 1982 to 2012 including two years as President from 1988 to 1990.

Born in 1943, Glenn R. Hetherington, grew-up, played and worked on the 128 acre family vegetable growing operation in Ringtown, Schuylkill County. He graduated from Ringtown High School in 1961 where he played baseball and basketball. He was a 4-H member and on the potato judging team. His father, Ray (also a former PVGA Director) and mother, Helen, grew a wide variety of vegetables that they sold locally – huckstering on the streets of nearby towns and selling at the Philadelphia market. They also grew some chipping potatoes to supply the WISE Chip Co. in Berwick.

Glenn graduated from Penn State University with a B.S. degree in Agricultural Engineering in 1965 and went on earn his



Glenn Hetherington (right) received the PVGA 2015 Annual Award and a Life Membership at the Banquet during the Mid-Atlantic Convention in Hershey.

Masters' degree, also in Ag Engineering. In 1967, he accepted a position with Firestone Tire and Rubber Company in Akron, Ohio as a tire design engineer. Upon passing the licensing exam he became a certified "professional engineer," a license that he held in both Pennsylvania and Ohio.

As the saying goes, "You can take the boy off the farm but you can't take the farm out of the boy" - Glenn made the decision to return to the family farm in 1977 as his father was having some health problems and Glenn's heart was not in the tire industry but on the farm. The farming operation had not changed that much and they still grew a variety of vegetables – tomatoes, cabbage, pumpkins, cucumbers, squash and potatoes for the Philadelphia market, the Berwick Co-Op, vegetable brokers, and WISE Potato Chip Co.. Soon Glenn began making improvements to the operation. As reliable labor became more difficult to come by he looked to expand growing the crops that required less hand labor and used more mechanization.

In 1981, he designed and built a potato storage for storing chipping potatoes long term. Glenn's goal was to provide WISE Chip Co. with the best quality chipping potatoes he was able to grow and store. Over the years, the variety of vegetables grown on the farm became fewer and fewer, the last to go were toma-

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NEWS



Pennsylvania Vegetable Growers Association

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

President

Robert Shenot '16
Wexford

First Vice President

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York

Second Vice President

Jonathan Strite '16
Harrisburg

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William Reynolds '16
Waynesboro

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Kenneth Martin '17
New Berlin

Eric Oesterling '18
New Alexandria

Michael Orzolek '18
State College

John Shenk '17
Lititz

Jeffrey Stoltzfus '17
Atglen

Thomas Strzelecki '18
Wapwalopen

Randy Treichler '18
Three Springs

Mark Troyer '18
Waterford

Timothy Weiser '16
York Springs

Executive Secretary
William Troxell
Richfield

2015 PVGA Annual Award... (continued from page 1)

toes and cabbage. He was now growing and storing 50 acres of potatoes for WISEs with a rotation of small grain, primarily oats.

In 1987 and 1991, he was able to expand the operation when he purchased additional acres and what is now the "home" farm. In 1995, he built another potato storage with the capacity to hold 25,000 cwt on the new home farm. The operation had now expanded to 130 acres of potatoes with small grain and hay in the rotation.

Over the years, Glenn worked with Penn State Extension and the local county agents on a number of vegetable and potato variety trials. There were many "twilight" meetings held at the farm. He and his mom cooperated for many years with the late Dr. Alan McNab to collect data for what was to become the Blightcast late blight predication program. Numerous potato variety trials were planted in conjunction with Dr. Plasted from Cornell University and Dr. Barb Christ at Penn State. Most recently he worked with the PSU horticulture department on a nematode study in connection with verticillium wilt in potato ground. He also cooperated with the Natural Resource Conservation Service and implemented numerous conservation practices on the farms.

In 2007, he was awarded the "Farm Cooperator of the Year" by the Schuylkill Conservation District in recognition of the efforts and best management practices he had implemented on his operation in order to conserve soil, improve water quality and better the environment.

In 2009, he installed a grain drying and storage system on the "home" farm and then expanded the storage capacity to 90,000 bushels in 2011.

In 2012, Glenn decided that it was time to "semi-retire" and gave up his life-long passion of growing potatoes due to difficulty in obtaining labor, the physical demands of growing the crop and the increasing uncertainties and frustrations with his primary market. So, in 2013, he decided to add more acres to the operation and purchased a 100 acre farm. Proving that "you're never too old to learn" he started at the beginning of the learning curve with growing corn and soybeans using the no-till system. For a farmer that had plowed in order to plant potatoes and turned the ground over to harvest them, and had the very first roll-over plow in the Ringtown Valley, this was a very new concept to understand!

Presently the operation includes 602 owned acres; 425 acres of which are cropland, plus an additional 125 acres of rented land. Of the 550 farmed acres, 300 acres are planted to corn, 175 acres in soybeans and 75 acres are enrolled in the CREP program. Glenn hasn't gotten away from growing vegetables totally. This past summer he planted and maintained a vegetable garden - sharing most of the sweet corn with the local raccoon population!

He met his wife, Martie, at the Vegetable Growers Conference in Hershey in 1978. At that time, she was a County Ag Agent working for Penn State Extension in Bucks County. They were married in 1984. They have a four-footed family of two cats, two dogs and three frogs!

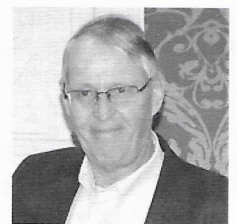
In 2014, Glenn was appointed a Director on the Board of the Schuylkill Conservation District following eight years of service as an Associate Director. He is also a member of the Farm Bureau. Most recently, he was appointed to serve as a Director on the Schuylkill County Ag Land Preservation Board.

Life Memberships Awarded to Orzolek and Zacherl

Michael Orzolek and David Zacherl were also awarded Life Memberships in the Pennsylvania Vegetable Growers Association at the annual Fruit and Vegetable Growers Banquet at the Mid-Atlantic Fruit and Vegetable Convention in Hershey on January 27, 2015. Life Membership is an honor granted by the Board of Directors to individuals who have a longstanding record of service and dedication to the Association.

Michael Orzolek

Dr. Orzolek is Professor Emeritus of Vegetable Crops at Penn State University. He was on the faculty at Penn State from 1981 to 2012. He is a well-recognized leader in the field of vegetable production. He has been heavily involved with the use of plastics in horticultur-



Dr. Michael Orzolek

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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.

PVGA Members Elect Directors, Adopt Policies

The General Membership of the Association held their Annual Meeting on January 28, 2015, at the Hershey Lodge and Convention Center during the 2015 Mid-Atlantic Fruit and Vegetable Convention. The results of the mail balloting for the election of six Association Directors were announced. The members also adopted additions to the Association's Policy Resolutions besides receiving reports on the Association's activities for the year.

Four First-Time Directors Elected to Board

Until 2012, members of the Board of Directors were elected by the members attending the Annual Meeting. In 2011, the members approved changes to the Association's constitution that allowed the Board of Directors to set guidelines to have the Directors elected by mail ballots prior to the Annual Meeting. Since only about 30 to 50 members typically attend the Annual Meeting, it was hoped the mail ballot would encourage greater participation in the election process, which it has. In 2013, a total of 136 valid ballots were returned while in 2014 at total of 179 valid ballots were returned. This year 193 ballots were postmarked by the January 15 deadline. This year's ballots were counted by election judges Arthur King, John Esslinger and Robert Pollock. Incumbent candidates Brian Campbell and Thomas Strzelecki were elected along with four newcomers: Eric Oesterling, Michael Orzolek, Randy Treichler and Mark Troyer. Candidates Paul Mock and Rita Resick were not elected.

Mr. Campbell is a fresh market grower in Berwick, Columbia County, who was first elected to the Board in 2007. He specializes in sweet corn, pumpkins, broccoli, lettuce, and other crops which he ships in wholesale quantities. He also operates a roadside farm market which he started when he was 14 years old. A 1990 graduate of Penn State University, he and his wife have two daughters and a son, ages 14, 16, and 18. He



PVGA Board of Directors (left to right): Jonathan Strite, Brian Campbell, David Miler, Robert Shenot, Randy Treichler, Jeffrey Stoltzfus, Michael Orzolek, David King, Thomas Strzelecki, Lois Klinger, Fred Dymond III and Christopher Harner. Not pictured are William Reynolds, John Shenk, Eric Oesterling, Mark Troyer, Timothy Weiser and Kenneth Martin.

is currently Past President of the Association and chair of the Leadership and Recognition Committee.

Mr. Strzelecki is a fresh market grower in Wapwalopen, Luzerne County and has been a Director of the Association since 2012. He grows a variety of fresh market vegetables and berries for wholesale and retail customers. He has been involved in every end of the produce industry from chemical and fertilizer sales to wholesale broker and retail store sales. He is managing partner of Covered Wagon Produce, a farm partnership with his parents. Tom is also a Director and past Treasurer of the Scranton Farmers Night Market and a member of the Association's Convention Task Force and Educational Committee. He is married to his wife Kimberly and they reside in Peckville.

Mr. Oesterling began his career as a Penn State Extension Agent in 1981. He was responsible for informal education in commercial and home horticulture in Westmoreland County and
(continued on page 4)

Officers Re-elected, Budget Approved

The Association's Board of Directors re-elected Robert Shenot of Wexford as the President of the Association at a special meeting held immediately after the Annual Meeting of the General Membership on January 28, 2015. Other officers re-elected were David Miller of York as First Vice President, Jonathan Strite of Harrisburg as Second Vice President and William Reynolds of Waynesboro as Secretary-Treasurer. At their regular meeting on January 26, 2015, in Hershey, they also adopted the 2015 budget that anticipates \$432,200 in income and \$421,200 in spending.

Officers are elected by the Board of Directors each year to one-year terms. By tradition, the President and Vice Presidents are elected to two one-year terms with the Vice Presidents moving up to the next higher office after two years. Brian Campbell of Berwick, President in 2012 and 2013, serves as the Past President. The Past President sits on the Executive Committee with the other four officers.

The budget adopted by the Directors has a projected surplus of \$11,000 and allocates a same amount for research as last year's budget - \$56,000 for vegetable research, \$10,000 for tomato breeding technician and \$14,000 for small fruit research or a total of \$80,000. Last year, due to various circumstances, the tomato breeding technician was not hired so that \$10,000 was not actually expended last year.

The budget leaves a projected General Fund balance of \$236,700 at the end of the year, well above the target level balance of \$156,100. The Association purposely maintains a sizeable balance in the General Fund to enable it to self insure itself against unexpected decreases in revenue. Bad weather during the Farm Show or Convention can significantly decrease the income in any given year but the General Fund reserves will enable the Association to maintain its support for research, promotion and other activities even though income may be lower than expected.

The Board approved funding for the following small fruit research project for 2015: "Evaluation of Strawberry Cultivars and Selections for Plasticulture and Matted-Row Production" by Kathleen Demchak and Richard Marini at Penn State and Timothy Elkner with Penn State Extension - \$3,000. Last year the Board had also committed \$8,000 annually for five years to a multi-state project on high tunnel strawberry production funded by a Specialty Crop Research Initiative grant. The project includes researchers at Penn State University, Michigan State University, Cornell University and others. PVGA contribution is part of the required industry matching funds required by the grant program.

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NEWS

PVGA Members Elect... *(continued from page 3)*

southwestern Pennsylvania. He enjoyed working with vegetable and fruit growers in western Pennsylvania and across the state for over 35 years. Eric retired from Penn State Extension in 2012.

Mr. Troyer owns and operates Troyer Growers in Waterford, Erie County, consisting of 1,600 acres of grains and 400 acres of potatoes for processing and chips. He is a board member and past president of the Erie County Farm Bureau as well as chairman of the Pennsylvania Potato Research Board.

Mr. Treichler, his wife and son run Star Hollow Farm, a small intensive vegetable and poultry farm in Huntingdon County, which they started in 1992. Produce is marketed weekly in Washington, DC, through a 450-member CSA, a farmers market and several small wholesale accounts. He is a 20-plus year member of PVGA and a founding member of the Pennsylvania Association for Sustainable Agriculture (PASA) and Pennsylvania Certified Organic (PCO). He was also an 18-year member of Tuscarora Organic Growers Co-op. (The farm is not currently organic.) He has served on the board of directors of the Tuscarora Co-op and the International Center of Tropical Agriculture in Colombia. He has degrees in Farm Operation and International Agricultural Development and has worked on crop and livestock farms in Iowa and California, and for the California Dept. of Food & Agriculture and the California Rice Growers Association prior to starting Star Hollow Farm. They are currently in the process of forming an LLC for the farm.

Dr. Orzolek is Professor Emeritus of Vegetable Crops in the Department of Plant Science at The Pennsylvania State University. Before his retirement in July 2012, he had a three-way appointment – 60% Extension, 22% Research and 18%

Teaching. Since his retirement he has kept active conducting applied field research and moved his office to the Horticulture Research Farm at Rock Springs. He has done extensive research on stand establishment, plastic mulches, high tunnels, weed management and tillage systems. Mike is still the current Director of the Penn State Center for Plasticulture and the CP High Tunnel Research and Education Facility at Rock Springs. Dr. Orzolek formerly was Extension Vegetable Specialist at the University of Delaware from 1974 to 1981. He received his B.S. in Biology from Alliance College, his M.S. in Horticulture from West Virginia University, and his Ph.D. in Horticulture/Botany from the University of Maryland.

**Eleven Policy Resolutions Adopted
State Issues****Wildlife Crop Damage**

1. Supporting the restoration of funding for the Game Commission wildlife fence program.

Produce Promotion

2. Supporting follow-up on the "PA Preferred" marketing campaign to ensure product signage is accurate and to enforce penalties for misrepresentation.

Transportation

3. Supporting a 10% gross weight tolerance for trucks exiting fields with agricultural products.

Taxes

4. Supporting a coordination of the limit for the fast write-off deduction between state and federal tax codes so farmers only need to keep one set of depreciation records.
5. Supporting the amendment of the Clean and Green Act to eliminate authority for annual adjustment of assessed use values of Clean and Green properties in years other than years that a county implements countywide reassessment of all properties.
6. Supporting the amendment of the Clean and Green Act to provide that conveyances of a portion less than ten acres of a farm enrolled in Clean and Green to an adjoining farm enrolled in Clean and Green not be subject to roll-back taxes.
7. Supporting the exemption from real estate taxes of new ag related buildings for five years.

State and Federal Issues**Farmers' Market Nutrition Program**

8. Supporting a change in the wording on the vouchers for Farmers Market Nutritional Program from "to be used to purchase produce eligible under Pennsylvania's FMNP program" to state the following: "to be used to purchase Pennsylvania grown produce only."

Water Resources Management

9. Supporting the exemption of high tunnels from storm water management plan requirements.

Federal Issues**Farm Policy/Farm Programs**

10. Supporting the establishment and use of geographical regions within states by USDA-NRCS for determining cost tables for EQIP Incentive Programs.

Taxes

11. Supporting a permanent limit of \$500,000 for the fast write-off deduction (Section 179).

Celebrate National... *(continued from page 1)*

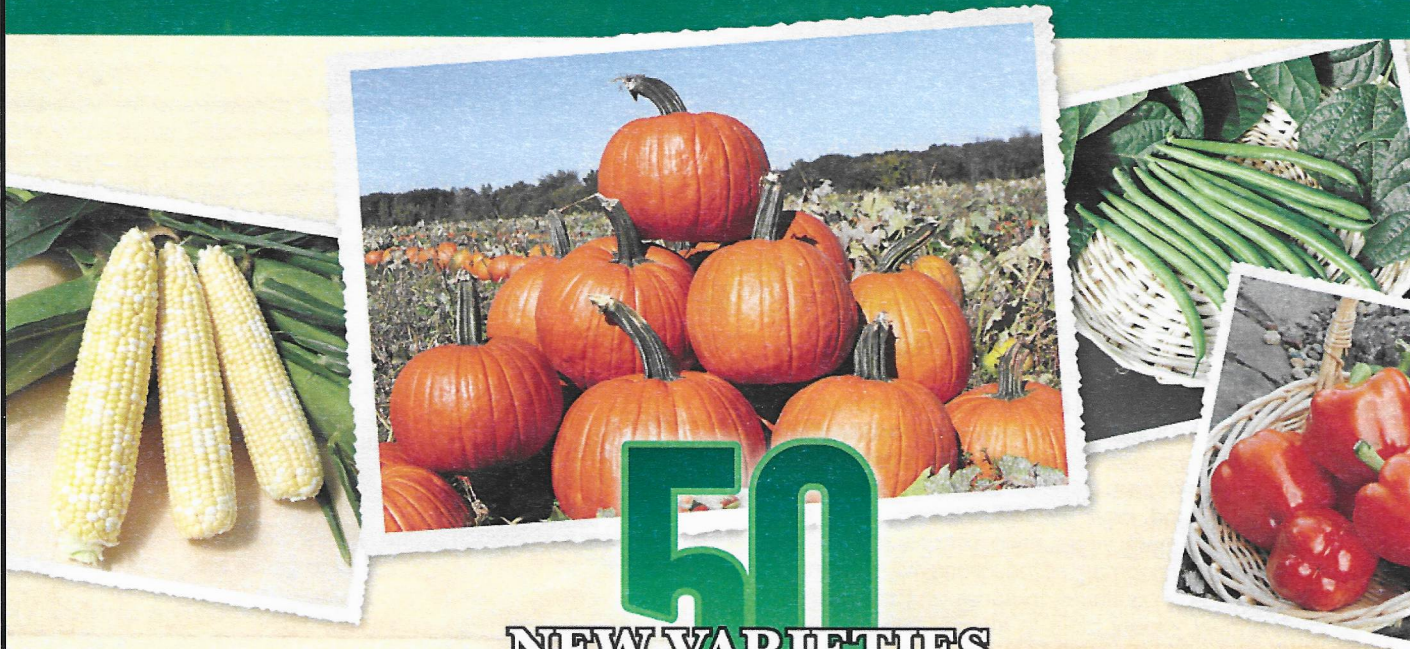
While personal visits are the ideal, if you can't find time to visit, at least mail a copy of the Associations' state or federal legislative priorities to your state and federal legislators. Just a short handwritten note explaining that you are a PVGA member and asking that your legislator keep PVGA's priorities in mind would be a big help in making our legislators aware of the industry's needs. If a legislator gets one copy of the Association's priorities from a voter in his or her district, it will have more impact than the same set of priorities mailed from the PVGA office. If they get copies of the priorities from several growers in their district, it will have an even greater impact.

When you are calling to make an appointment, if your legislator is not available but a staff person is available, go ahead and take the time to meet with the staff person. Staff people are often the ones who brief the legislators on what their constituents are saying to them on a particular issue, so getting PVGA's priorities and your farm's story before a legislative staff person is equally important. This is particularly true for federal representatives and senators who have more constituents and also larger staffs.

Remember to visit at least one of your five legislators: your state representative, your state senator, your federal representative and/or Senator Robert Casey or Senator Pat Toomey. To find your local legislators and their offices, consult your local telephone directory's blue or government pages, go to <http://www.legis.state.pa.us/> or call PVGA at 717-694-3596. We would greatly appreciate if you could let PVGA which legislators you have contacted. Please send us an email at pvga@pvga.org, call us at 717-694-3596, or fill out slip on the back page of the newsletter and mail it to us.

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NEWS

Life Memberships... (continued from page 2)

al crop production for many years, with his latest efforts being in the use of plastics in high tunnels and more recently on movable high tunnels. He has worked with all phases of the plasticulture system.

He obtained a Bachelor of Science Degree in Biology from Alliance College. He then went on to attend the University of West Virginia and obtained a Master Degree in Horticulture. His first position was teaching biology at Jefferson Community College, in Watertown, New York, which he did for a brief period. He then went to the University of Maryland and earned a Ph.D. in Horticulture. He then served as an Extension Vegetable Specialist with the University of Delaware before coming to Penn State in 1981.

He has been in leadership positions in the American Society for Plasticulture as President from 2000-2002 and also was President of the Comite International des Plastiques en Agriculture from 1997-2000. He is director of the Center for Plasticulture at Penn State University.

Besides his regular extension and research duties at the University, Dr. Orzolek has closely worked with PVGA since coming to Penn State. He has been involved in planning the vegetable educational program at the former Pennsylvania Vegetable Conference and now the Mid-Atlantic Fruit and Vegetable Convention for many years, even after his retirement. He was involved in the development of the Pennsylvania Simply Sweet Onion program and continues to serve on that committee and conduct annual variety trials to identify new varieties that could be included in the program. He is also a regular vol-

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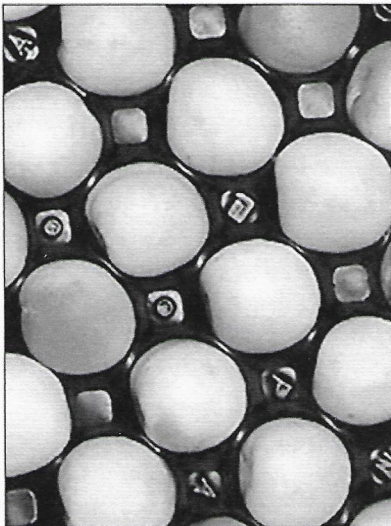
Officers Re-elected... (continued from page 3)

The Association is supplying \$56,000 towards funding vegetable research projects jointly with the Vegetable Marketing and Research Program Board, the same as last year's record amount. The Vegetable Marketing and Research Program Board allocated an additional \$20,000 in assessment funds to fund a total of \$76,000 in vegetable research.

In other action, the Board:

- approved the December meeting minutes and the year-end financial reports;
- decided to encourage all members to meet with their state and federal legislators in their local offices in March;
- approved \$100 sponsorship grants for auction meetings and assistance for group transportation to the Convention for 2016;
- approved state and federal legislative priorities for 2015; and
- received reports on the Farm Show Food Booth, Simply Sweet Onion program and various other issues.

The next meeting of the Association will be held on Monday, March 2, 2015, in conjunction with the Association's Legislative Visitation Day in the Capitol in Harrisburg on March 3. Prior to the Board meeting, the Educational, Government Affairs, Administrative and Marketing/Research Committees will meet to prepare action plans for implementing the strategic plan developed last spring.

Penn State Extension

Are you interested in food safety certification for your farming operation?

Are you interested in hosting a GAPs Twilight Tour?

Penn State Cooperative Extension and Pennsylvania Department of Agriculture are partnering to provide GAPs Twilight Tours throughout our state.

These informal, informational gatherings on local farms are open to the public and are designed to help farmers learn how to assess food safety risks in their operation and what to expect from a third party GAP audit.

Ask real PDA auditors your food safety questions, receive valuable information from both Extension and PDA, and lead a walk-through mock audit of relevant parts of your operation to see your farm through an auditor's eyes.

PENNSSTATE



Cooperative Extension
College of Agricultural Sciences

If so, please call or email Hannah Grose, Program Assistant for Food Safety at 717-334-6271 Ext 325 or hbg11@psu.edu

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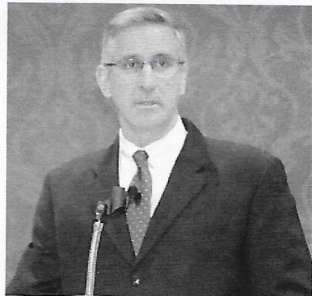
Pennsylvania
Martin's Repair Shop LLC **Cedar Grove Farm Store**
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NEWS

2015 Convention is a Big Success

The 2015 Mid-Atlantic Fruit and Vegetable Convention continued the tradition of offering fruit and vegetable growers throughout the mid-Atlantic states a first-rate, three-day educational conference with a large industry trade show. Just over 900 persons registered with PVGA for the three-day event. With 250 speakers and guests, the attendance for the vegetable portion of the Convention was about 1,170, the third highest vegetable registration. About 670 fruit growers from Pennsylvania, Maryland, New Jersey and Virginia plus 400 exhibitor representatives put total attendance at about 2,240.

For the eleventh year the program featured a keynote address for all the Convention attendees on the opening morning. Over 400 persons gathered to hear keynote speaker Russell Redding – who was Dean of Agricultural and Environmental Sciences at Delaware Valley College when he was invited to speak but who was the governor's appointee to be Pennsylvania's next Secretary of Agriculture by the time he spoke. He emphasized the importance of developing and maintaining human capital – the employees and family members – in agricultural industries. This year's keynote address was sponsored again by DuPont Crop Protection.



Russell Redding, Pennsylvania's Acting Secretary of Agriculture, presented the Keynote Address at the Mid-Atlantic Convention in Hershey.

The three-day Convention featured eight concurrent educational sessions on all three days including, for the sixth year, two sessions in Spanish. In addition, the Convention included five pre-convention workshops on January 26 plus a farm market bus tour. The workshops covered getting started in organic vegetable production, farm food safety, irrigation water quality, pesticide applicator license training and agricultural literacy. The farm market bus tour included visits to Strite's Orchard and CSA, Ashcombe Farm and Greenhouses, Hollabaugh Brothers Farm, The Round Barn and the Hauser Estate Winery. Over 165 exhibitors had their products on display in the exhibit halls all three days.

Tad Kuntz of the State Horticultural Association was the Convention Joint Committee chairman for 2015 while David Miller was the chairman of the PVGA Convention Planning Task Force. The educational sessions were organized by the following individuals:

- General Vegetables: Steven Bogash – Penn State Extension and Dr. Michael Orzolek - Penn State University
- High Tunnels: Steven Bogash - Penn State Extension and Dr. William Lamont - Penn State University
- Drip Irrigation and Potatoes: Dr. William Lamont - Penn State University
- New Equipment, Greenhouse Ornamentals and Tough to Manage Weeds: Steven Bogash – Penn State Extension
- Tomatoes and Snap Beans: Kenneth Martin- Furmano Foods
- Sweet Corn: Dr. Shelby Fleischer, Penn State University and Dr. Timothy Elkner – Penn State Extension
- Vine Crops and Pumpkins: Dr. Timothy Elkner and Thomas Butzler – Penn State Extension
- Organic Vegetables: Dr. Elsa Sanchez - Penn State University

- Soil Health /Cover Crops: Dr. Beth Gugino - Penn State University and Tianna DuPont – Penn State Extension
- Leafy Greens: Dr. Beth Gugino - Penn State University
- Post Harvest and Onions/Garlic: Tianna DuPont – Penn State Extension
- GMOs: Dr. Shelby Fleischer - Penn State University and Lee Stivers – Penn State Extension
- Pollinators and Pollination: Dr. Shelby Fleischer and Dr. David Biddinger - Penn State University
- Small Fruit: Kathleen Demchak – Penn State University
- Apps for Agriculture: Lee Stivers – Penn State Extension
- Labor/Farm Management: Lynn Kime – Penn State Extension
- Marketing: Heather Mikulas, Brian Moyer, and Carla Snyder – Penn State Extension; Shannon Dill – University of Maryland Extension; Michelle Casella and Richard VanVranken – Rutgers Cooperative Extension; Julie Bancroft – Pennsylvania Apple Marketing Program; and William Reynolds – Reynolds Pumpkin Farm.

Other members of the PVGA Convention Planning Task Force were: Thomas Childs, James Crawford, Fred Dymond III, John Esslinger, Gary Faulkner, Peter Ferretti, Thomas Ford, Bruce Hellerick, Arthur King, Lois Klinger, Eric Oesterling, Robert Pollock, Steve Sample, Jeffrey Stoltzfus, Thomas Strzelecki, Thomas Styer, Randy Trichler and Grant Troup

Ag Choice Farm Credit and MidAtlantic Farm Credit sponsored a grower reception prior to the annual Fruit and Vegetable Growers Dinner on January 27. PVGA presented its Annual Award and Life Membership to Glenn Hetherington and announced Life Memberships for Michael Orzolek and David Zacherl (see articles on pages 1 and 2). The State Horticultural Association presented their annual award to Robert Crassweller.

Sponsors for the banquet included Kirby Agri, Inc., Knouse Foods Cooperative, the State Horticultural Association of Pennsylvania and the Pennsylvania Apple Marketing Program (Platinum Level \$1,000 or more); Adams County Nursery, Hess Brothers Fruit Co. and Rice Fruit Company (Gold Level \$500 to \$999); Frey Brothers, Inc., Maryland State Horticultural Society, New Jersey State Horticultural Society, Nourse Farms, Pennsylvania Farm Bureau, Pennsylvania Vegetable Growers Association, Rockford Package Supply, The Core Group (Bear Mountain Orchards, Bream Orchards and El Vista Orchards) and the Virginia State Horticultural Society (Silver Level \$250 to \$499); and Baker Ag Lime, BioSafe Systems, Signs of the Seasons and Wafler Nursery (Bronze Level \$100 to \$249). Bayer CropScience sponsored the tote bags for Convention attendees.



Dr. Richard Roush, Dean of Penn State's College of Agricultural Sciences, shares welcoming remarks on Banquet during the Mid-Atlantic Convention in Hershey.

The American Fruit Grower magazine sponsored three of the tree fruit sessions and the American Vegetable Grower magazine sponsored three of the vegetable sessions. AgChoice Farm Credit and Mid-Atlantic Farm Credit sponsored daily coffee breaks for attendees. Bayer CropScience provided

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NEWS

Life Memberships... (continued from page 6)

unteer at the PVGA booth at Ag Progress Days. While Dr. Orzolek has been attending meetings of the PVGA Board of Directors since he came to Penn State, he was just elected to a three-year term as a Board member this January.

He and his wife Judy have three daughters and two grandchildren.

David Zacherl

David Zacherl served for many years on the Board of Directors of the Association and was president of PVGA from 1978 to 1979. He served during the time when two of the most important decisions in the history of the Association were made. In 1977 he was one of three members of the Board appointed to work with the State Horticultural Association of Pennsylvania to organize a joint fruit and vegetable educational meeting and trade show. The first joint meeting of the two associations (joined by the fruit growers



David Zacherl

from Maryland and New Jersey) was held in Hershey in 1978 – the event that is now the Mid-Atlantic Fruit and Vegetable Convention. During his presidency in 1978, the Association also hired William Christian as the first PVGA Executive Secretary. Prior to that time, the directors and officers with assistance from Penn State University staff performed all the work of the Association.

Zacherl's Farm was established in 1848 when George Casper Zacherl came from Germany and purchased 150 acres near Shippensburg in Clarion County. The farm was the first farm enrolled in the Conservation Program in 1937. His great grandson, David Zacherl, at age-19, took over the farm with his mother after his father's death and in 1943 was the first to construct a farm pond in the state of Pennsylvania. He was commended in 1981 for owning the first farm in Clarion county to implement a "no till" corn crop. Contour farming, strip cropping, no till & crop residue are properties implemented by the farm to preserve and improve the land. In 1994, David was named Conservation farmer of the year. While David, age 92, is still actively involved in the farm, he is assisted by the fifth generation - his son Steve.

A farm market, now in its 50th year, was opened in 1965 to sell produce such as sweet corn, cabbage, potatoes, and toma-

atoes that he was growing. In 1974 an apple orchard was added. The farm market now features corn, peppers, potatoes, squashes, onions, tomatoes, beans and beets grown fresh on the farm, along with fresh fruits, preserves, home made baked goods and more! The market never opens until the sweet corn is ready!

National News Briefs**Obama Signs One-Year Agreement on Taxes**

President Obama has signed a series of bills that provides some measure of tax relief to farm families. However, the one-year agreement does not give certainty for tax programs for any meaningful length of time. The bill will help farmers manage their expenses and costs as they look to their 2014 tax bill. The one-year deal increases the amount that farmers can deduct under Section 179 and extend bonus depreciation on new capital purchases.

"Thanks to tax provisions like Section 179, small business expensing and bonus depreciation, hard-working Americans will be free to put their money directly back to work on their land and in their local communities," said Bob Stallman, president of the American Farm Bureau Federation.


Section 179 depreciation limits are increased to \$500,000 from the current threshold of \$25,000. There will be an additional 50 percent bonus depreciation for the purchase of new capital assets, including agriculture equipment. The agreement would also provide enhanced deductions for the donation of food and conservation easements.

While Farm Bureau was pleased with the Congressional action, we will work with Congress in passing long-term tax relief for farm families.

"Farmers and ranchers need more than just a temporary tax fix," Stallman said. "They need certainty that these provisions will be there in the coming years as they make long-term business decisions. Farm Bureau looks forward to working with Congress to ensure agriculture can count on these tax provisions not just this year, but every year."


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

(continued on page 12)



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NEWS

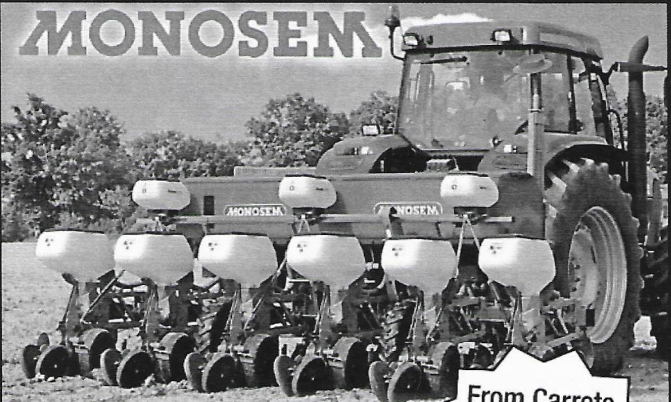
Thanks to PVGA Volunteers, the Farm Show Booth Sets Sales Record!

With sales exceeding \$197,000 this year, the PVGA Farm Show Food Booth set a new record, exceeding the previous sales record set in 2013 by almost \$10,000. Net profits are expected to be about \$57,000, also a new record. That is all possible due the efforts of nearly 300 PVGA members, family and friends who come to Harrisburg each year to help one or more days.

Good weather throughout the week brought in large crowds to the 99th Pennsylvania State Farm Show. And while large crowds helped sales, an increase in prices for several of the items, especially the batter-dipped vegetables, ultimately accounted for most of the increase in sales over last year.

The Association had requested permission to add fried pickles, an item that has been often requested, to the menu this year. This was done in anticipation of a possible second location for the Association in 2016 and there were no plans to offer the fried pickles this year. However, the approval of the new item was unexpectedly (to PVGA) announced to the press and the public, so customers started asking for the fried pickles as the Farm Show opened this year. With more and more requests coming in and less-than-hoped-for sales of funnel cakes, one of the funnel cake fryers was re-purposed for making the fried pickles on the third day of the Farm Show. We expect sales of this new item to increase in coming years as more people learn about it.

A more complete report on the Farm Show Booth will be published in the next newsletter. The bottom line is that its success depends on volunteer help - if you are not already volunteering, please make plans to help in 2016!



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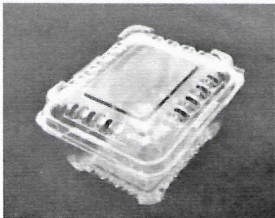
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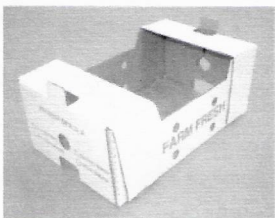
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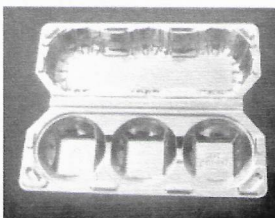
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NEWS

National News Briefs (continued from page 10)**Federal Spending Bill Funds Government through September**

Before leaving for the holidays, Congress completed a federal spending bill that will keep the government funded through September. The spending bill is mostly positive for agriculture, including funding for agriculture research programs and plant health and inspection services.

At the same time, the bill exempts livestock producers from potentially burdensome greenhouse gas requirements by the Environmental Protection Agency, and relieves livestock farmers from potential EPA permitting requirements. The bill also starts the processes of draining the momentum from the EPA and U.S. Army Corps of Engineer's misguided "waters of the U.S." rule. The spending bill will require the agencies to withdraw a small portion of their overall regulatory attempt to expand their authority under the Clean Water Act.

This is not a complete victory. Farm Bureau is continuing its push to have the agencies "Ditch the Rule" altogether. If allowed to move forward, the EPA and Army Corps would have jurisdiction over nearly every water body in the country. What could result is the need for federal permits for normal farming practices, such as crop spraying or installing a fence.

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

USDA Supports Farm to School Program

The U.S. Department of Agriculture has awarded more than \$5 million in grants to projects in 42 states that will help put more local foods in school cafeterias. The Farm to School Program encourages schools to buy more food from local farms. Between 2011 and 2012, school districts across the country bought and served more than \$385 million in local foods.

"USDA is proud to support communities across the country as they plan and implement innovative farm to school projects," said Agriculture Secretary Tom Vilsack. "These inspiring collaborations provide students with healthy, fresh food, while supporting healthy local economies. Through farm to school projects, community partners are coming together to ensure a bright future for students, and for local farmers and ranchers."

One of the projects receiving funding is Common Market, a Philadelphia-based food hub that purchases food from farmers in Pennsylvania and New Jersey and distributes to schools and

other institutions. Funding will allow the market to promote their "An Apple a Day" program.

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

White Potatoes Restored to WIC Program

The USDA Women, Infants and Children (WIC) program provides monthly government vouchers which assist qualified families in purchasing a wide variety of foods listed by the USDA with the exception of white potatoes. The policy was recently reversed with the passage of the latest federal spending bill in December which now includes white potatoes in the program that may be purchased with the vouchers. Potatoes are inexpensive and provide beneficial nutrients which include potassium, vitamin C and fiber. White potatoes were originally removed from the WIC program because they are used to make French fries which may contain higher levels of fat. However, potatoes purchased for home cooking are generally boiled or combined with other dishes and not prepared as French fries.

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

Pennsylvania H2A Wage Rates Increase

The U.S. Department of Labor has increased Pennsylvania's wage rate under the H2A farmworker visa program to \$11.29 per-hour from \$11.06. This wage is effective for all H2A worker wages earned, effective December 19, 2014.

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

New Ink Being Used on Immigration Documents

On July 1, 2014, U. S. Citizenship and Immigration Services (USCIS) began using a new secure blue ink for many of its secure stamps. More information is available in this bulletin on the CBP website (http://www.cbp.gov/sites/default/files/documents/20140701_USCIS%20Stamp%20.pdf).

The older secure red ink was retired and is no longer used by USCIS. You will now see the following list of stamps with secure blue ink:

- Department of Homeland Security (DHS) Parole Stamp
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- Refugee Stamp (Section 207)
- Asylum Stamp (Section 208)

(continued on page 13)



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NEWS

National News Briefs (continued from page 12)**Initial / Replacement Form I-94 Stamp**

Employers should be aware of this recent change in secure ink color when examining acceptable documents presented by employees during the Form I-9 Employment Eligibility Verification process. Lists of acceptable documents appear on the last page of Form I-9, Employment Eligibility Verification.

Employers cannot reject an unexpired acceptable document presented by a worker, nor can they specify which documents they will accept. Employers are reminded that they must accept the documents presented by a worker when completing Form I-9 as long as those documents appear genuine on their face and relate to the person presenting them.

From U.S. Citizenship and Immigration Services.

2015 Convention... (continued from page 8)

free tote bags and International Paper provide name badge lanyards.

On the second night of the Convention, PVGA hosted the sixteenth annual Ice Cream Social. Generous portions of ice cream and a choice of toppings (including Hershey's chocolate syrup, of course) were accompanied by potato chips and other snacks donated by Utz Potato Chips and Herr Foods. A musical jam session featuring volunteer convention attendees provided entertainment in the Lodge lobby.

This was the 38th year for the combined fruit and vegetable meetings in Hershey that have become one of the premier grower meetings in the eastern part of the country. The planning committees will meet in March to begin planning for next year's edition of the Mid-Atlantic Fruit and Vegetable Convention.

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NEWS

State News Briefs

Redding Tapped for Agriculture Secretary Position

Governor Tom Wolf selected Russell Redding to serve as the next Secretary of Agriculture. Redding, who was previously Dean of Agriculture and Environmental Sciences at Delaware Valley College, will make his second tenure as Agriculture Secretary.

Redding served as secretary under Gov. Ed Rendell and previously served as a deputy secretary during Rendell's administration. Redding is a Farm Bureau member from Adams County who comes from a farm background, and also has a wealth of experience in education.

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

General Assembly Names New Leaders, Chairs

The Pennsylvania General Assembly made several changes to committee chairs and also selected leadership for the House and Senate chambers. Rep. Mike Turzai, a Republican from Allegheny County, was selected speaker of the House. Sen. Joe Scarnati of Jefferson County will continue to serve as Senate President Pro Tempore. In the House, Rep. Martin Causer, a Republican from McKean County, was chosen as chair of the Agriculture and Rural Affairs Committee, with Rep. John Sabatina, a Democrat from Philadelphia, serving as minority chair. Rep. John Maher, an Allegheny County Republican who previously chaired the Agriculture and Rural Affairs Committee, will now chair the Environmental Resources and Energy Committee. Rep. Keith Gillespie, a York County Republican, will chair the Game and Fisheries Committee with Rep. Ted Harhai, a Westmoreland County Democrat serving as minority chair.

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

Food Hub to Help Farmers, Schools in Three Counties

A federal grant will help seven school districts in a three-county area of Central Pennsylvania offer more local foods in cafeterias. School districts in Adams, Cumberland and York counties hope, by late spring, to start purchasing fresh fruits and vegetables from area farmers. The federal grant, from the U.S. Department of Agriculture, will allow the Northern York School District, which is spearheading the project, to hire a food procurement specialist. The procurement specialist will identify farmers in the three-county area that could supply produce to schools. Around 25,000 students attend the seven school districts.

The idea for a regional food hub was the brainchild of Carol Richwine, an agriculture science teacher at Northern York School District and a Farm Bureau member. Richwine has expanded her curriculum to include the science behind food production. As a result, the school has expanded the use of school gardens, with the tomatoes, cucumbers and other vegetables grown by students going into the cafeteria.

Out of those initial projects came the idea to offer even more local foods in the schools, and work on a regional approach that would help districts save money on food costs, but also support local farmers. At the same time, the project will also allow agriculture science teachers like Richwine to use the food hub system as a teaching tool.

"This should be a win for everyone," she said. "It seems so logical and there are so many good reasons why we should do this."

Richwine is working with Carla Snyder, a Penn State Extension educator based in Adams County who specializes in market development. Snyder and other Extension educators held an agriculture summit in 2011, and one of the main themes farmers addressed was the need for additional distribution outlets, particularly for smaller to mid-size farms. As Snyder and other educators looked for potential solutions, they became aware of Richwine's work and decided to partner together on the food hub.

(continued on page 17)

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State News Briefs (continued from page 16)

"I see this as a pilot project that can be replicated throughout the state and nation," Snyder said.

What makes this project unique is the overhead costs are low, Snyder said. Some food hubs use warehouses and delivery trucks to bring goods to a common distribution point. But food destined for school cafeterias will come directly from the farm, reducing overhead costs, she said.

"This is a more efficient use of resources and it makes it much more sustainable," she said. "It can be easily replicated and more easily done than purchasing trucks and running buildings."

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

Teacher Education Program Returns with New Name but Same Focus

In 2014, our annual teacher education program was vaulted to the national stage with the National Ag in the Classroom Workshop, held last June in Hershey. This year, our annual workshop returns to its roots in State College with a new name, but the same commitment of providing educators with a wide exposure to the diversity of Pennsylvania agriculture, and how it can serve as the basis for lesson plans across curriculum.

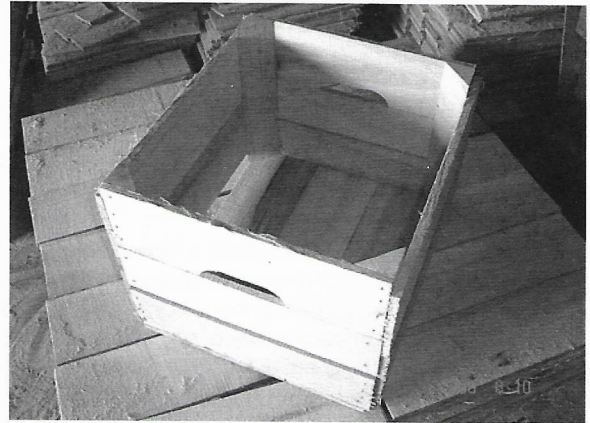
The Educator's Ag Institute, sponsored by the Pennsylvania Friends of Agriculture Foundation, will promote a week of learning for teachers in pre-kindergarten through 12th grade. While at the conference, educators will tour a number of Penn State's agriculture facilities, participate in hands-on lessons and leave with a host of materials for use in their classroom. The Educator's Ag Institute is open to new educators, along with those who have previously attended our Ag in the Classroom workshop. We will add new tours and features annually. Participants will also have the chance to tour several area

(continued on page 18)



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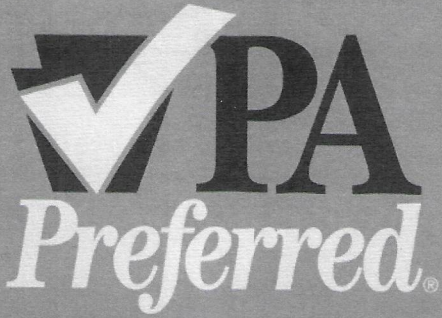


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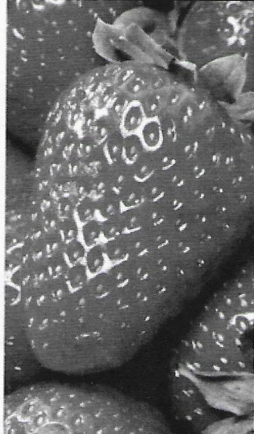
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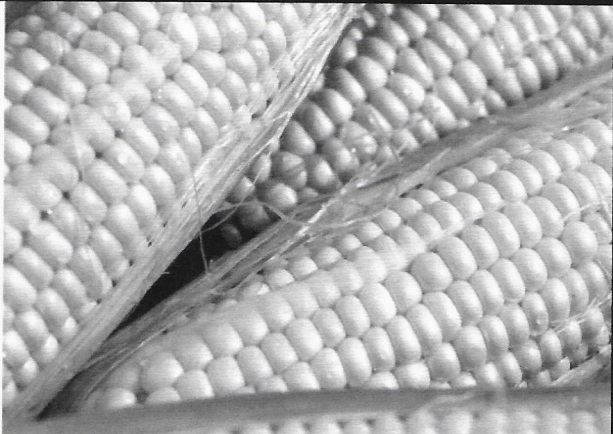
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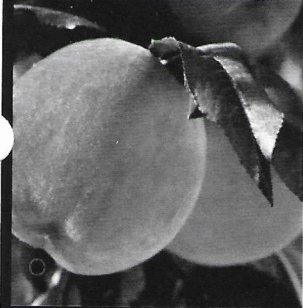
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NEWS

State News Briefs (continued from page 17)

farms and hear from farmers on how they raise healthy crops and livestock. Educators will also receive continuing education credits for attending.

The Pennsylvania Friends of Agriculture Foundation, a charitable organization supported by Pennsylvania Farm Bureau, is again looking for assistance from county Farm Bureaus to promote our workshop to local educators. We also encourage county Farm Bureaus to consider sponsoring educators to attend this worthwhile workshop. The Educator's Ag Institute helps spread positive and factual information about agriculture and expands consumer understanding about our industry. For more information, contact the foundation at 717.731.3555 or www.pafbfriends.org.

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

Farm Bureau Offers Comments on Revised Food Safety Standards

Pennsylvania Farm Bureau has sent a series of comments to the federal Food and Drug Administration on its revised food safety standards. While the FDA has made some changes to its sweeping food safety regulations, there are still a number of changes the agency needs to make in order to develop a system that is fair, and workable for agriculture, Farm Bureau said in comments.

Last year, the FDA released a host of new standards aimed at reducing the levels of food-borne illness, and in doing so put additional requirements on farmers. Agriculture organizations including Farm Bureau raised a series of concerns regarding the new regulations, and the FDA redrafted four of their seven proposals, based on those comments. In a second round of comments, Farm Bureau encouraged the FDA to revise its definition of a farm that includes the term "one general physical location" to describe a farm. Most farms involve owned and rented ground on separate parcels and locations, and vary in size and scope depending on climate and location, Farm Bureau said in comments. Food safety regulations must be scale-appropriate and recognize the wide variety of farms, Farm Bureau said.

A one-size fits all approach to food safety may seriously hamper smaller growers who would be unable to afford to establish certain practices. Currently, the FDA has set a dollar threshold on which farms would have to abide by those standards, but that threshold considers all farm sales and not just fresh produce.

"We appreciate FDA's recognition that diversity is a key risk management practice and support changing the exemption only to include produce sales rather than including all food sales," Farm Bureau said in comments.

As part of the food safety standards, the FDA also set water quality standards that are arbitrary, unreasonable and not based on science. FDA's standards are based on recreational water standards, go above and beyond what is required by the World Health Organization and testing is required too frequently to work for agriculture, Farm Bureau said. Farm Bureau also encouraged the FDA to allow for non-electronic reporting and record keeping and to be

stringent in protecting privacy for farmers with the transmission of data. Additionally, Farm Bureau encouraged the FDA to partner with state and local agencies, many of which have a better handle on local needs.

"It is also critical that FDA inspectors understand that the farm is vastly different than a food manufacturing facility," PFB said. "FDA must train inspectors to understand routine, acceptable on-farm practices."

Lastly, Farm Bureau told the FDA it must consider the economic impact of the rule, and what it will do to the future of food production.

"While we understand the need for continuous food safety improvements, the farm-level impact on producers must be considered in any new regulation," Farm Bureau said. "It is increasingly important to target limited resources in a manner that achieves the greatest results for all accountable parties."

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

Penn State Research Shows Anabaptist Children At Greatest Risk for Farm Accidents

Research by Penn State has shown that more than 75 percent of farm deaths in Pennsylvania involving children over the past decade occurred on farms owned by Amish and Mennonite families.

As a result, farm safety experts are looking to create specific outreach into the state's Anabaptist community to reduce the number of farm fatalities. But at the same time, every farm family can take steps to avoid having a tragic accident take the life of a child.

That was the message provided by Dr. Dennis Murphy, who is an extension safety specialist for Penn State, during a presentation held at Pennsylvania Farm Bureau's 64th Annual Meeting in Hershey.

Penn State analyzed Pennsylvania farm fatalities involving children 18 years old and younger between 2000 and 2012 to

(continued on page 25)



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Learn Successful Strategies for Writing Winning Grants for Local Foods

Do you operate a local food related business, organization, or farmers market? Are you seeking funding to expand your work and impact on the local food system?

Penn State Extension is pleased to be working with the U.S. Department of Agriculture's (USDA) Agricultural Marketing Service (AMS) and National Institute for Food and Agriculture (NIFA), and the four Regional Rural Development Centers in offering workshops that will help potential grant applicants understand, develop, and submit their Federal grant applications for the \$30 million Farmers Market and Local Food Promotion Program. This effort is known as the Agricultural Marketing Service Technical Assistance (AMSTA) project.

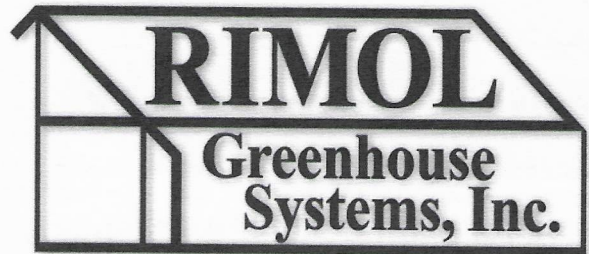
As you may know, the USDA views the Farmers Market and Local Food Promotion Program as a key to revitalizing rural economies by supporting local and regional food systems. The expectation is that these grant workshops will allow communities and businesses nationally to develop and submit competitive grant proposals that stimulate economic activity while also meeting the increasing demand for food that is grown locally or regionally. This grant writing workshop will walk participants through all you need to know to navigate and apply for the upcoming 2015 USDA Farm Bill grants which provide funding for food system projects including:

Local Food Promotion Program grant consists of two types of funding, a planning grant and an implementation grant for a

(continued on page 24)

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NEWS

Cultivating Young Leaders Through Farming

Heidi Witmer



What does it mean to do a job well, with "craftsmanship"? Young Thomas, 14 years old crouches down in the narrow row next to a bed of what will eventually be a cucumber patch, contemplating this question. He and 2 other members of his crew were given this not so simple task, and now they have to get to work. Their mission is to turn a bed of rich soil on the LEAF Project host farm in Centerville, Pennsylvania, into a well-manicured flattened bed, with 2 drip tapes, covered in a thin layer of black plastic, carefully lined with a wire trellis down the middle of the row so as not to rip the plastic or the delicate drip tape. But that wasn't all. After that, they had to measure and then puncture holes into the plastic and dig to the perfect depth, and deposit the seeds.

Thomas and his cucumber crew are youth interns in their 2nd week at LEAF (Leadership Education And Farming) Project, a farm-based youth employment program in south central Pennsylvania. During an 8 week intensive summer internship, LEAF youth spend half their time doing hands-on farm tasks at our host farm. The rest of the time, LEAF youth work with executive chefs of the region to learn how to create something amazing from the food they raise, work on partner farms learning about meat, cheese, and fruit production, work with hunger relief organizations to provide programming and nourishment for food-insecure people, and teach our community about food systems. For many of the youth this is a first job, and it is a first time they they have real risk and responsibility.

For Thomas, an intelligent, fun loving, yet earnest young man, he takes it to heart when he and his crew hear from the executive director that what they are doing matters. Heidi Witmer meets with all the crews on this particular day to make sure they

know that the food they raise will go to 6 area restaurants, farmers markets, or to people in need, and for every one of these constituencies, she says LEAF needs to provide customers with quality. But she uses a different word even more consistently when talking to the crews, "craftsmanship." Heidi explains, "As teenagers, many of the youth have been written off and not given responsibility for fear they will destroy something. LEAF youth are given real risk and responsibility. They are taught about the concept of craftsmanship and, as a result, take pride in their work and learn as much as they can."

Back in the cucumber patch all has gone well so far. The bed is flat, the tape is laid, the plastic is taught, and the trellis is straight. However, when it is time to plant the seeds and water them in, Thomas gets a little distracted. The holes he makes for seeds are all over the place. He doesn't notice until he is done and he takes a step back to observe. Soon Heidi comes over to point out some of the problems. Initially, Thomas is a little frustrated. He felt like he did everything well, everything except perhaps the last step, and he thinks doing 90% of the job well should count for something. Heidi asks Thomas to look at it from the perspective of the cucumber. "I want you to take a 'seed's eye-view', some of the holes where you've planted cucumber seeds are far away from the trellis. Think about how far that cucumber is going to have to travel across very hot plastic in the middle of the summer to get to the trellis. Now think from a 'customer's point of view', the cucumber may be stunted or may never get to be a cucumber". Thomas quickly got the point and though the time was up for this task, he vowed to come back and fix the job.

A week or two later, Thomas and his crew got a similar job, preparing a bed to be planted with pepper transplants. This time, as in all the times since his cucumber experience, he takes his time with each step, he makes sure he is on the right track and, he proceeds with craftsmanship in mind.

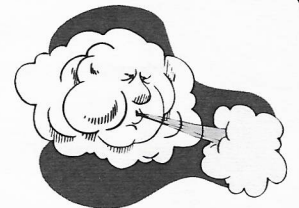
Ms. Witmer is Executive Director of the LEAF Project.



Allysa Hertzog (front) and Madeline Winn (back) wash cabbage.

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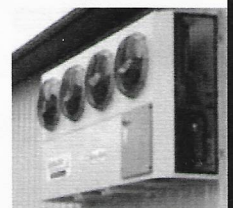
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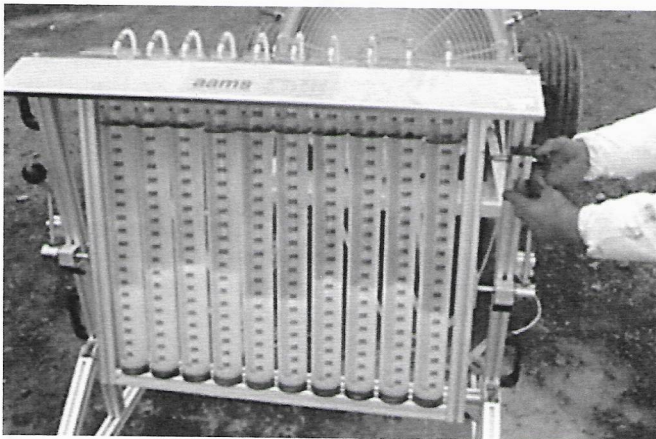


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It's Time to Schedule an Airblast Sprayer Calibration

Robert Pollock

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.



Penn State's sprayer calibration unit.

(continued on page 31)

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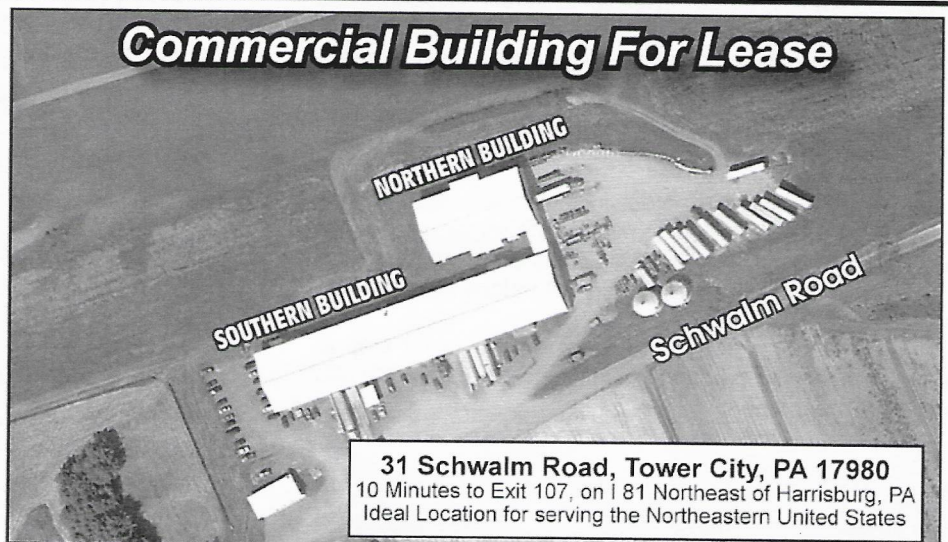
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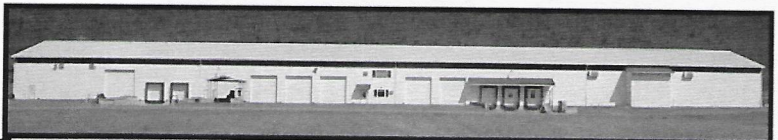
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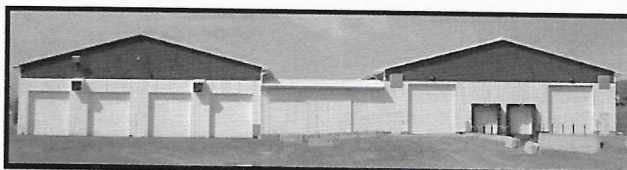
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VEGETABLE PRODUCTION

Evaluating Plasticulture and Strip Tillage With and Without Row Covers for Producing Organic Muskmelon and Summer Squash

Jason Lilley and Elsa Sanchez

Research was conducted to evaluate producing muskmelon or summer squash in a strip tillage system compared to a plasticulture system. Within these production systems the effectiveness of spunbonded polypropylene row covers was also tested.

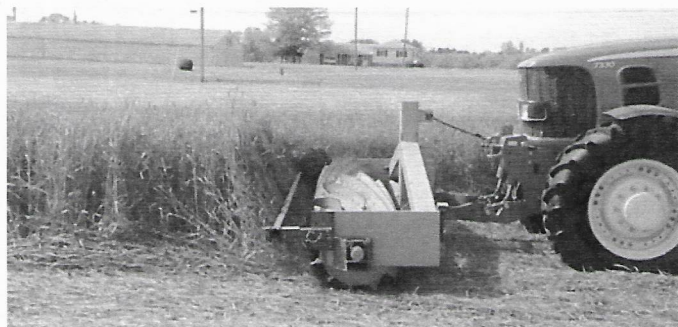
Organic cucurbit production involves using a variety of management strategies for the many pests and diseases that attack cucurbit crops, while maintaining healthy soils. Plasticulture systems, the use of polyethylene mulch on raised beds with drip irrigation, are commonly used for the production of many cucurbit crops. While plasticulture systems have many benefits, disadvantages include plastic disposal issues and costs and the intensive tillage required for installation. Strip tillage systems have been shown to decrease soil erosion, increase soil moisture retention and increase soil microbial communities.

Striped cucumber beetles (*Acalymma vittatum*) and bacterial wilt (*Erwinia tracheiphila*) are two of the most damaging problems in cucurbits. Bacterial wilt is vectored by the striped (and spotted (*Diabrotica undecimpunctata*)) cucumber beetles. Infected beetles spread the bacteria by feeding and excreting frass on plants. Bacterial wilt can reduce cucurbit stands by up to 60% (Leib et al., 2000). Installing row covers is a management strategy commonly used for the cucumber beetle/ bacterial wilt complex.

Research at Penn State's Russell E. Larson Research and Education Center in Rock Springs, PA was conducted in 2013-14 to evaluate producing muskmelon (*Cucumis melo 'Athena'*) or summer squash (*Cucurbita pepo 'Lioness'*) in a strip tillage system compared to a plasticulture system. Within these production systems the effectiveness of spunbonded polypropylene row covers was also tested.

Crops were managed following the National Organic Standards. A cover crop seeding mix of 75% winter rye (*Secale cereal*) and 25% hairy vetch (*Vicia villosa*) at a rate of 90 lb/A was planted in early September, the fall before both growing seasons.

A roller crimper was used to terminate the cover crop at flowering of the winter rye, and again when the hairy vetch had formed 2 pods per vine.



This water filled front mounted roller crimper kinks the stems of the cover crop every 8" along the stem, interfering the flow of nutrients and killing the plant. This is most effective when the plant is developing seeds, yet before the seeds mature.

Strip tillage plots were prepared by making two passes with a Hiniker™ 6000 strip-tiller on seven foot center-to-center row spacing.



Hiniker™ 6000 single row strip-tiller with cleaning coulters (right) that remove crop residue from planting zone, a cutting disk to cut through the remaining crop residue and soil surface, opening a zone for the cultivation shank that lifts soil from 8-9 inches deep, creating a one foot wide planting strip. This is all followed by a beater basket (left) that breaks up soil clods. Two passes over the same row were needed for sufficient planting zone preparation.

Plastic mulch plots were prepared using a chisel plow, rototiller, and a bed shaper and plastic layer to form 2.5 foot wide and six inch high raised beds covered with 1.25 mL embossed black polyethylene mulch. Drip irrigation was used in both the plastic mulch and strip tillage systems.



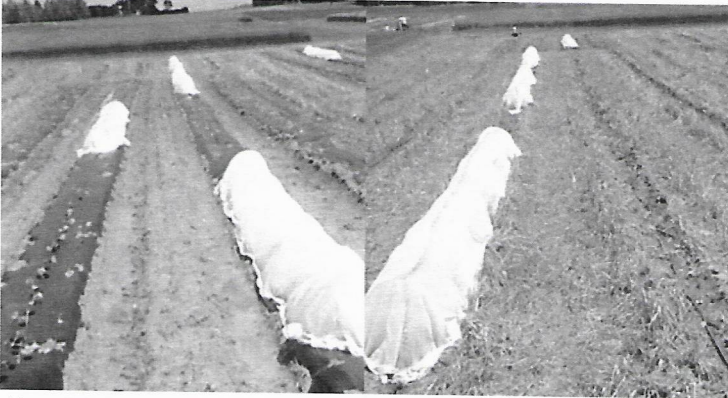
One foot wide strip tillage row with drip irrigation. Note the cover crop residue remaining between rows.

At transplanting row covers were installed immediately after transplanting over half of the test plants, while the other half were left uncovered. Agribond™ AG-30 was used for the summer squash experiment while Agribond™ AG-19 was used for the muskmelon experiment.

(continued on page 23)

Evaluating Plasticulture...

(continued from page 22)



(Center) Row covers installed over one row within each plot (plasticulture and strip tillage). (Far left and right) One row in each plot was left uncovered.

Row covers were left on until 50% of the summer squash plants in strip tillage plots had at least one blossom. Row covers were removed from the muskmelons 10 days after blossoms were observed in the strip tillage plots.

Strip tillage plots were weeded by hand after row covers were removed and once more mid-harvest. Four to 6 inches of wheat straw was placed between rows in the plasticulture plots and they were not weeded in the row.

Due to waiting for the appropriate stage of cover crop development to effectively kill it with the roller crimper, planting muskmelon and summer squash transplants was not achieved until relatively late in the season (June 26, 2013 and July 10, 2014). This late planting date is of smaller consequence for summer squash because there is a short time to harvest (50 days for 'Lioness'), showing potential to be used in this system as a second or late season planting. For a heat loving long season crop such as muskmelon ('Athena' melons takes 75 days to harvest), this late planting proved risky as colder temperatures set in before harvest was completed in 2014.

Row covers had a significant effect on plant size at row cover removal. Row covers significantly increased average air and soil temperatures compared to plots without row covers, significantly increasing plant size at row cover removal. Row covers also served to protect the young plants from pests at a time when they were most susceptible to insect damage and disease. The combination of the increased rate of plant development and the extended time without pest damage greatly decreased the incidence of bacterial wilt in other studies (Hernandez, 2013; Rojas et al., 2011). Bacterial wilt incidence was low in all treatments evaluated in these experiments.

Row covers increased yields for summer squash in strip tillage, but had negative impacts on yields from plasticulture plots due to mechanical damage to the leaf petioles by the row cover. Intense plant damage was observed in 2013 with moderate amounts in 2014 as a result of late row cover removal. Row covers were anticipated to increase yields of plasticulture plots had this damage not occurred. Row covers generally had little impact in muskmelons. Muskmelon yield increases as a result of row cover use were only observed in the 2013 plasticulture plots, and in the 2013 strip tillage plots where the non-row cover plot produced no marketable fruit due to a late planting date.

(continued on page 24)

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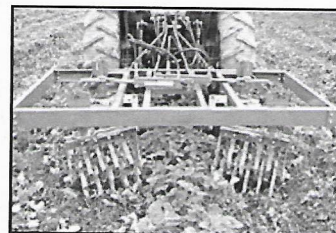
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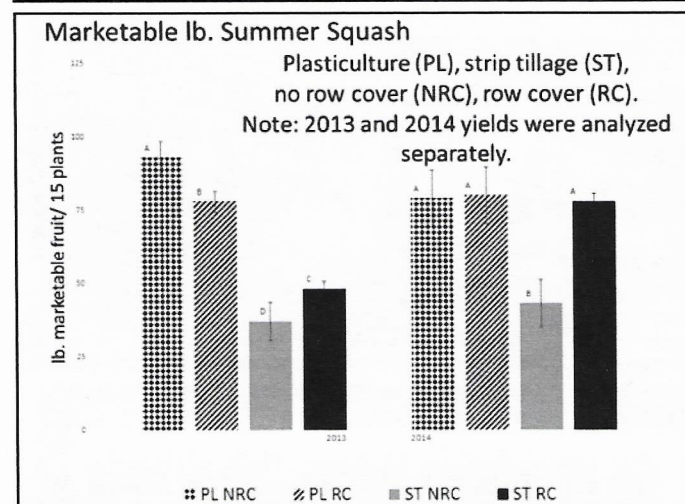
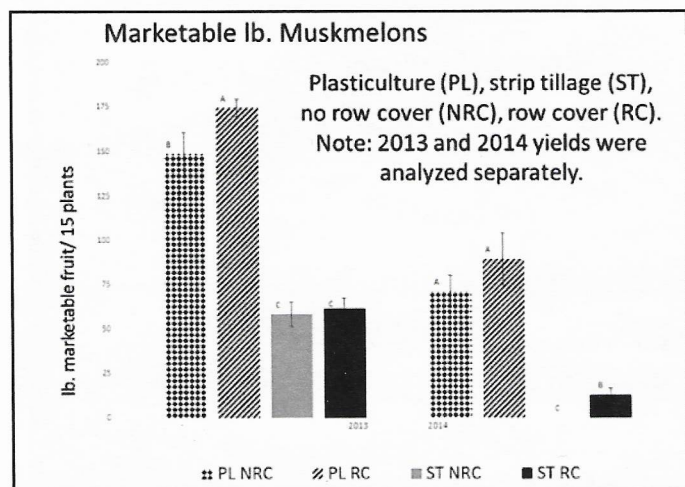


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VEGETABLE PRODUCTION

Evaluating Plasticulture... (continued from page 23)

Plants grown in the strip tillage system had significantly lower yields than in the plasticulture system in both seasons, with one exception. In 2013, muskmelon yields from plants grown in the strip tillage system were only 37% of yields from plants grown the plasticulture system. The decreased yield from plants grown in the strip tillage system compared to the plasticulture system was even lower in 2014. In 2013, summer squash grown in the strip tillage system with row covers produced only 62% of the yields from plants grown in the plasticulture system. Yet, in 2014 this treatment resulted in yields that were equal to those observed in the plasticulture system. The overall trend of lower yields in the strip tillage plots follows a trend of equal or lower early season nitrate levels in strip tillage plots followed by dramatically lower nitrate levels at season's end. Soil temperatures were also significantly higher in plasticulture plots.

This research showed that the use of row cover creates increased air and soil temperatures, and therefore increased rates of plant growth, while decreasing pest pressure during the early stages of crop development. Other studies have shown row cover use to be beneficial for cucurbit growers in regions and years of high pest pressure, primarily due their ability to significantly reduce incidence of bacterial wilt and increase yields (Hernandez, 2013; Rojas et al., 2011). The potential for increased summer squash yields observed in this research along with early season pest management in both crops makes row cover use an important tool for cucurbit growers.

The use of the plasticulture system resulted in higher soil nitrate levels and elevated soil temperatures and higher yields than the strip tillage system in most comparisons. The high temperature requirements of muskmelons, along with the long growing season makes muskmelon production following the above described strip tillage field preparation not an economically viable option. While some yield losses are acceptable in this system due to decreased time needed to prepare the field and decreased input costs, the lower yields observed in the muskmelon trials were beyond an acceptable level. While the summer squash grown in the strip tillage system with row cover matched the productivity of the plasticulture system in the 2014 season, it resulted in significantly lower squash yields in 2013. The need for specialized tillage equipment, and the lateness of planting, and increased weed pressure are all obstacles to the successful use of this production technique for these crops. Further research should be conducted on the use of earlier maturing cover crops for earlier planting in strip tillage systems. An investigation of alternatives to plastic mulch may also unveil new methods for seeing the benefits of plastic mulch without the environmental consequences associated with its use.

References:

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- Rojas, S.E., Gleason, M.L., Batzer, J.C. and Durry, M. 2011. Feasibility of delaying removal of row covers to suppress bacterial wilt of muskmelon (*Cucumis melo*). *Plant Disease* 95:729-734.

*Mr. Lilley and Dr. Sanchez are with 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>, February 12, 2015.*

Learn Successful... (continued from page 19)

broad variety of food system activities including: growing, aggregating, processing, or selling regionally produced food.

The Farmers Market Promotion Program grant is designed to support farmers market activities and promotion. Workshops will offered at the following Pennsylvania locations. The workshops are free and open to the public. Refreshments will be provided.

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- Slippery Rock – March 17, Sustainable Business Accelerator Slippery Rock University 165 Elm Street Slippery Rock, PA 16057
- Philadelphia – March 24, 675 Sansom Street, Philadelphia, PA, 19106—3/24/2015
- Gettysburg – April 17, 70 Old Harrisburg Road, Gettysburg, PA, 17325-3404 —4/17/2015

Register at: <http://goo.gl/forms/RtaMYMlFm>

Link to Website: <http://www.amsta.net/>

Link to Facebook page: <https://www.facebook.com/AMSTAProject>

Getting Started Using Biocontrols to Manage Insects and Diseases in High Tunnels

Steven Bogash

Biological control of insects, mites and diseases has the potential to greatly expand the number of effective options in our pest management toolbox. Growers now have new tools to manage insects, mites, and diseases that have become nearly impossible to control using conventional pesticides. Western Flower Thrips (WFT) have shown varying levels of resistance to most of our conventional pesticides. Soil-borne diseases such as fusarium and verticillium cannot be managed with conventional fungicides and must be targeted with fumigants to prevent infection. Biologically-based controls such as released insects and mites along with biopesticides comprised of specialized fungi and bacteria provide a new arsenal of weapons for the grower/farmer.

The adoption of biologically-based methods requires that growers change their pest management strategies to a very proactive approach as control happens at a very different speed when compared to conventional insecticides like pyrethroids with their rapid knockdown. Introducing a parasite or predator into the crop once an insect population has reached severely damaging levels will result in substantial crop losses before the pest is brought under control. On the other hand, an insect pest such as WFT which is resistant to many conventional pesticides requires the adoption of a biologically-based program. Often, it is not so much of a question as to whether to adopt biologicals' as it is how to start.

State News Briefs (continued from page 18)

try and find any common links between the accidents. The majority of accidents involved males, and half involved children under the age of 5, Murphy said. At the same time, 78 percent occurred on Anabaptist farms, he said. However, no one factor, such as equipment or entrapment has become a leading cause of farm fatalities, Murphy said.

"It is really hard to find just one area to pin it on," he said. "There are so many areas."

Murphy suggested that parents pay special attention to providing safe areas of supervised play for children.

"A farm can be like a giant playground for children," he said. "Working and watching the kids at the same time does not work."

One possible solution is for parents to partner with local churches or rural health providers to create temporary child care centers for when parents are particularly busy on the farm, such as during harvest.

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

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Most mid-Atlantic growers know that WFT will find their way into their high tunnels every year. Let's look at some of the options that you can employ once you open the page to biocontrols:

Biopesticides

Grandevo and Grandevo PTO:

The active ingredient is *Chromobacterium substugae* strain PRAA4-1 and spent fermentation media. Grandevo functions primarily as a stomach poison, so it must be ingested by insects and mites to be effective. It does not have systemic activity; therefore, it must be on the feeding surfaces to be effective. Like other stomach poisons, excellent plant coverage is necessary, so use plenty of water and pressure to get complete coverage. Grandevo is more effective on newly hatched larvae and nymph stages of insects and arthropods, so regular scouting and early applications are necessary for good control. We used Grandevo extensively in 2014 at the Penn State Southeast Agriculture Research and Extension Center (SEAREC) in our tunnels and got excellent control of WFT, aphids, spider mites and Broad mites in our high tunnels. In discussions with numerous growers at winter meetings the reports have generally been very positive for this novel biopesticide. Grandevo is OMRI approved.

(continued on page 26)

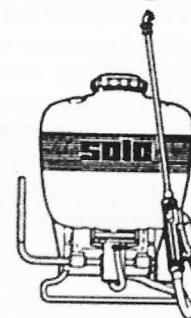
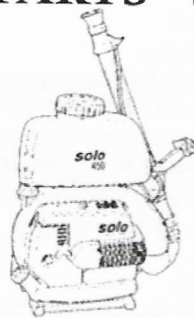
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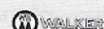
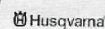
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VEGETABLE PRODUCTION

Getting Started... (continued from page 25)

Met 52:

The active ingredient is *Metarhizium anisopliae* Strain F52. Met52 functions as a contact insecticide. Spores and or mycelia from the pathogenic fungus *M. anisopliae* that come in contact with the insect penetrate the insect's exoskeleton and grow within the haemolymph (insect's blood) killing the insect or mite. The spores or mycelia do not need to be ingested, but must come into direct contact with the pests. Upon application, the spores or mycelia attach to the insect or mites cuticle then germinate to form an appressorium which penetrates the pest's cuticle. Blastospores are then formed in the haemolymph which begins a systemic infection that kills the insect in 4-5 days. Like Grandevo, we also used this material extensively at the PSU SEAREC in 2014 with excellent results. Although a biocontrol, this material is not OMRI approved due to one part of the process under which it is produced. If you tried Met52 when it was first released and were not impressed due its' handling challenges, it is time for another look as it no longer requires refrigeration and goes into solution much easier.

Venerate XC:

The active ingredient is heat-killed *Burkholderia spp.* strain 396 cells and spent fermentation media. This material kills insects by enzymatically degrading the exoskeleton and interfering with molting and is labeled on tomatoes, peppers and cucumbers to control a wide range of 'worms' and for the suppression of aphids, mites, whitefly, WFT, pepper weevil and plant bugs. Venerate XC has just been released to the grower market, so all trials have been on research farms in the U.S. Reports from one researcher in Florida indicated good control of Broad mites in peppers.

Other bioinsecticides include:

Botaniguard (*B. bassiani*): manages a wide range of insect pests.

Gnatrol (*B. thuringiensis subsp. Isrealensis*): specific to management of fungus gnats.

PFR 97 (*Isaria fumosorosea Apopka Strain 97*): manages a wide range of insect pests.

DiPel (*B. thuringiensis subsp. kurstaki*): DiPel and the other Bt kurstakis' primarily manage early instar lepidopteran pests.

Insect Predators for WFT Management

Neoseiulus cucumeris or *Amblyseius cucumeris*.

This predatory mite has become the basis for many greenhouses WFT management programs. Since we know that WFT will be an annual problem, growers generally arrange for regular deliveries on a weekly or bi-weekly schedule to prevent the buildup of WFT populations. In the absence of WFT cucumeris will eat spider mites or pollen.

Orius insidiosus, Minute Pirate Bug, *Orius sp.*

Orius has become a major component in our managing insects and mites in our high tunnel peppers at the PSU SEAREC. They were originally identified on Black Pearl pepper plants at the farm from what is apparently a native population. The one downside to Orius is that they are warm to hot weather predators, so other controls must be used early in the high tunnel growing season. They will consumer pollen in the absence of insect prey, so maintaining "Banker Plants" is an important part in using Orius. In 2014, we grew both Black Pearl

and Purple Flash peppers as banker plants. While we have a natural population at the farm, Orius can be purchased. Orius does not work well on tomatoes due to the trichoderms (sticky hairs).

Stratiolaelaps scimitus formerly known as *Hypoaspis miles*.

This predatory mite is a scavenger that lives in the top level of soil and consumes both WFT pupae and fungus gnat larvae. They establish and reproduce quickly and are about the only method to manage WFT pupae.

Storing Biocontrols

Storing biocontrols is very different from that of conventional pesticides. Some biocontrols like insect and mite predators and parasites have very limited shelf lives and must be applied very shortly after delivery. As a rule, learn as much as you can about the specific insect or mite you are purchasing, so that you can apply it correctly. In general, biopesticides have longer shelf lives, but do not hold up very well in extreme heat and have defined shelf lives of a year or less even when stored properly. Products vary widely in their storage and handling. For example: Actinovate AG can be stored at room temperature for about a year while RootShield and RootShield Plus have 6 month shelf lives when refrigerated between uses. PFR-97 must be kept frozen between uses and Cease can last for several years when stored at normal room temperatures.

Moving between released insect predators or parasites, biopesticides, and conventional pesticides is possible, but there are many cases where one product will kill or reduce the efficacy of another. Fixed copper fungicides can impact the survival of both bacteria and fungal-based biopesticides. Biopesticides also have the potential to kill released predators. One resource to consider is a free app from Biobest "Side Effects Manual" at <http://www.biobestgroup.com/en/side-effect-manual>.

Some of the best websites to get acquainted with predators and parasites of insects and mites are:

IPM Labs - <http://www.ipmlabs.com/>

Biobest - <http://www.biobestgroup.com/>

Koppert Biological Systems - <http://www.koppert.com/>

Bioline - <http://www3.syngenta.com/global/Bioline/en/products/Pages/ProductList.aspx>

Be sure to carefully read the label, all packaging, and when available, technical data sheets and other supporting information from the supplier in order to get the most from any biocontrol.

Pests such as WFT and most soil-borne diseases can best be controlled through biocontrols, so learning which method or material to use and when to use it is rapidly becoming a required skillset for growers. In addition, most of the new pest controls gaining approval from EPA fall into the biocontrol realm, so the shift from conventional pesticides is already well underway. Our challenge as growers, consultants, and researchers is in learning how to adopt these materials in order to grow the highest quality crops.

A great place to learn more about biocontrols in general is the upcoming "Third Annual Biocontrols School" that will be held at the Lancaster Farm and Home Center on November 5 and 6, 2015.

Mr. Bogash is with Penn State Extension in Cumberland Co. From the **Vegetable, Small Fruit and Mushroom News**, Penn State Extension, <http://extension.psu.edu/vegetable-fruit>, February 11, 2015.

Potato Virus Y: A Re-Emerging Disease of Potato and Tobacco

Susan B. Scheufele

In recent years, growers have been reporting increased losses in potato and tobacco across the valley, the state, and the nation, due to Potato Virus Y (PVY). PVY is an aphid-transmitted virus that affects many crops in the Solanaceous family including potato, tobacco, tomato, and pepper, as well as many Solanaceous weeds. PVY can cause 50-80% yield losses in heavily infected potato fields, and also causes reduced storage quality, tuber necrosis and reduced sprouting. PVY has been present throughout the US for decades affecting mainly the seed potato industry, but has recently re-emerged as a major threat to potato and tobacco production for several reasons including the emergence of new strains of the virus that cause tobacco and tuber necrosis, widespread planting of potato varieties that show little or no PVY symptoms leading to undetected reservoirs of the pathogen in seed stocks, and climate change affecting the magnitude and timing of flights of aphid vectors.

PVY Strains & Symptoms:

For decades the PVY strain that was present in the US and Canada, known as PVY^O for ordinary, caused noticeable mosaic symptoms in most varieties. Symptoms of PVY^O on potato and tobacco may include leaf streaking, mottling, or mosaic, or in severe cases could cause leaf death, leaf drop and plant stunting. In tobacco, vein-banding or vein-clearing is common. Symptoms on potato vary by cultivar, with some varieties showing only mild foliar symptoms while others, especially Alturas, Dark Red Norland and Yukon Gold, are extremely susceptible and show rugose mosaic symptoms (wrinkly deformation of leaves). Since the PVY^O strain caused noticeable symptoms on foliage, growers could rogue out infected plants visually, and levels of PVY in seed lots and crop damage and loss remained low. However, since the 1980s, new varieties of potato have been released which do not show typical stunting and mosaic symptoms, and may exhibit no symptoms at all, but still carry the virus. These "carriers" contribute to the undetected spread of the disease through fields and seed lots. Varieties that serve as PVY carriers include: CalWhite, Gem Russet, GemStar Russet, Russet Norkotah, Shepody, and Silverton Russet.

Furthermore, new strains of PVY have been making their way into the North American potato system which cause different symptoms, or no symptoms at all. PVY^N, the N standing for necrotic (dead), caused a major problem for tobacco growers in the 1980s. PVY^N induces severe necrosis on tobacco rendering it unmarketable, but only mild leaf mottle and necrosis on potato foliage, and therefore often went undetected in potato fields and seed lots. Although PVY^N has all but disappeared in the U.S., new strains which contain genetic material from both PVY^O and PVY^N have emerged and become predominant in the U.S. potato production areas. These new strains, with some



Potato plant with PVY^O mosaic rugose symptoms.



Yukon Gold with PVY^O photo: potatovirus.com

characteristics of both parents, are dubbed PVY^{N:O} and PVY^{NTN}. Both cause severe necrosis on tobacco foliage, mild foliar symptoms on most potato varieties, and they can cause necrotic flecking and rings on potato tubers of susceptible varieties such as Yukon Gold, Yukon Gem, and Waneta. Yellow flesh varieties tend to be more susceptible to tuber necrosis.

Disease Cycle

Infected seed tubers are by far the most important source of PVY. Seed tubers are certified by state departments of agriculture to ensure little to no viruses is present. "Foundation" seed is the best grade and should have less than 0.55% total virus (including viruses other than just PVY) while "certified" seed may have anywhere from 0.56-5.0% total virus. Investing in Foundation seed is the best way to keep PVY off your farm. Seed buyers should ask for the post-harvest test data to determine the true virus levels in seed and they should ask for strain identification

if the seed does have low levels of PVY. It is important the potatoes grown in tobacco production areas be free of the PVY^{N:O} or PVY^{NTN} strains since these will cause severe leaf necrosis in tobacco. Once the virus is present in a field it is transmitted mechanically or is vectored by aphids. Mechanical transmission is inefficient in the field but can occur by movement of virus particles through plant sap via wounds caused by wind, workers, and equipment moving through the field.

Aphids are much more efficient at transmitting the virus and are considered the most important mode of disease spread. PVY is non-persistently transmitted, meaning that aphids can pick up virus particles on the tips of their mouthparts while probing or feeding in a matter of seconds and can spread the virus just as quickly to healthy plants—the virus does not have to move through the aphid vector at all as in persistently transmitted virus diseases. Since the virus is spread quickly through aphid probing, foliar applications of insecticides are not very useful in reducing spread of the virus by aphids, since some insecticides actually cause aphids to twitch and increase their probing activity. More than 50 species of aphids can spread PVY, including species which are not considered pests of potato or for which potato is not a preferred host. Systemic insecticides applied at planting are important to prevent the colonizing aphids, mainly the green peach aphid and potato aphid from developing on potato. Other aphids migrating from other crops, e.g. grains, soybeans, trees, and moving through potato in search of another host are likely responsible for the bulk of the virus spread.

Other Solanaceous crops may harbor the disease without showing symptoms. This includes crops such as tomato and pepper as well as many weed hosts such as hairy nightshade. These asymptomatic carriers serve as reservoirs for PVY and

(continued on page 28)

POTATO PRODUCTION

Potato Virus Y... (continued from page 27)

contribute to undetected spread of the disease throughout the season, but luckily, true seed cannot be infested with PVY and so you don't need to worry about the virus surviving between crops in weed seed.

Transmission of viruses occurs most easily in young plants, and the virus can more easily move throughout the plant when it is young. Furthermore, if young plants are infected, the virus has more time to build-up within the plant and cause more severe symptoms or migrate to the tubers. Weather and other environmental conditions also influence the severity of PVY, and the expression of symptoms in different crops and cultivars.

Management

Use only certified disease free seed tubers. For many years seed certification programs were highly successful in maintaining low levels of PVY in seed stock, but due to the presence of new strains that show mild or no symptoms, the widespread planting of symptomless "carrier" varieties, and changes in aphid populations, it has become harder to produce disease free seeds. Seed certification programs do post-season testing which reliably detect the virus and classify seed lots as "foundation" or "certified", meaning they harbor less than 0.55% total virus, or 0.56-5.0% total virus, respectively. Here are some tips for ensuring your potato seed is clean:

Ask for results from post-season "winter" or "Florida" tests. This data is now available and should be published online for each of the 17 states with certification programs (e.g. ME, NY, MI, WI etc.)

Locate a promising lot of seed in the published book of results and ask the supplier the 3 questions below:

Ask for the number of potatoes emerged or % emergence. The winter grow-outs are done on a lot of 400 tubers—if only 40 of them germinate then the effective size of the test is cut ten-fold.

Ask for the percent of emerged tubers that tested positive for virus ("virus" effectively equals PVY, as 99% of virus on seed lots is PVY). Look for seed with no detectable virus. Do not plant seed with >2% virus!

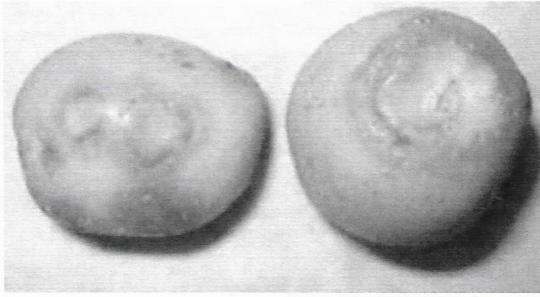
If the lot tested positive for virus, ask which strain was present—if the N or NTN strain is present don't purchase from that lot.

Choose potato varieties carefully.

Plant resistant varieties: Eva is the only truly resistant variety currently available. It is a round, white variety for fresh eating or for storage with good taste and appearance and is also resistant to golden nematode, common scab, early blight and hollow heart.

Avoid planting symptomless varieties: CalWhite, Gem Russet, GemStar Russet, Russet Norkotah, Shepody, and Silvertop Russet.

Avoid planting highly susceptible varieties: Yukon Gold, Yukon Gem, Dark Red Norland and Waneta.



Yukon Gold tubers with PVY^{NTN} showing symptoms of potato tuber necrotic ringspot disease (PTNRD) photo: potatovirus.com

Reduce areas of bare soil around or within the crop. Aphids find plant tissue based on the color contrast between the foliage and the bare ground, so if there is no bare ground the aphid cannot "see" the crop.

Plant a barrier crop. Plant a border of non-host crop such as rye, sorghum, or wheat, several yards wide around your potato or tobacco planting. Migrating aphids will be more likely to land on the barrier, and when they probe the barrier crop to see if it is a suitable host their mouthparts will be effectively

cleaned of virus particles. Remember not to leave any bare ground between the crop and the barrier.

Control Solanaceous weeds. These include all of the nightshades which can be symptomless carriers of the virus, increasing disease severity and spread.

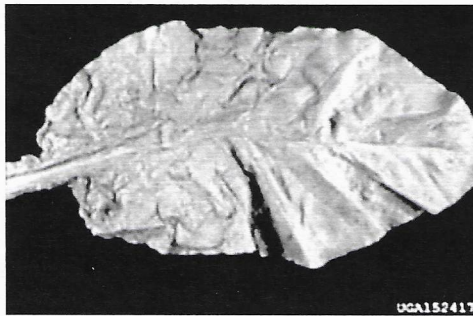
Rogue out affected plants. Infected plants will spread virus to their neighbors so walk the field and pull out any plants with signs of leaf mosaic or necrosis. Some of the new strains do not cause mosaic symptoms but some do, as does PVY^O, and losses in yield and storability can occur from any PVY strains. Volunteer potato plants that pop up in spring should always be rogued out, as these could be infected with PVY or other diseases such as late blight. Learn to identify symptoms: check out this picture gallery, which will be updated frequently with more symptoms on different cultivars.

Aphid control. Systemic insecticides applied at planting are very important to prevent the colonizing aphids, mainly the green peach aphid and potato aphid, from developing on potato. Controlling populations of colonizing and migratory aphids in-season with foliar-applied insecticides is often ineffective and is not considered a valuable control strategy. There is some evidence that newer behavior modifying pesticides may be of use, including: Assail, Belay, Admire Pro, Fulfill, Movento, and Platinum, but the jury is still out on these. Using horticultural oils to repel aphids may be helpful but sprays

need to be started early and made regularly (twice per week) all through the season until after vine-kill when all foliage is completely dead.

Plant early and kill vines early. Aphid populations skyrocket in the late season, so planting early may allow you to get in more growth free of high densities of aphid feeding and potential disease spread. Growers may hesitate to kill vines too early because tuber size may be compromised, but if PVY is present, killing vines will prevent it from spreading to tubers causing total loss. Virus transmission from foliage to tuber takes 14-26 days depending on plant age and variety – it can move much faster in some. Again, if you are using horticultural oils for aphid control it is important to maintain oil sprays to end of season until green material is gone (i.e. after vine kill).

Dr. Scheufele, is with the Univ. of Massachusetts Extension and gives special thanks to Dr. Stewart Gray, Cornell University, for some of the information in this article. From **Vegetable Notes for Vegetable Farmers in Massachusetts**, Univ. of Massachusetts Extension, Vol. 27, No. 2, February 19, 2015.



Tobacco with necrotic symptoms of PVY

BERRY PRODUCTION

Tribute to Cathy Heidenreich

Kathleen Demchak



Mary Catherine (Cathy) Heidenreich
May 30, 1958 – December 16, 2014.

The berry crops world lost a wonderful person in December 2014. Cathy Heidenreich was born in Camden, New York, to the late Ralph and Mary Oyer Matteson. She died from injuries sustained from an automobile accident on December 16, 2014. She was Co-Editor of the Cornell/Penn State "That's a Berry Good Question" column.

She received her Bachelors from the University of Rochester as a French Language honors scholar, and Masters from SUNY College of Environmental Science and Forestry in Syracuse. She was employed since 1986 by Cornell University in Geneva and Ithaca as an Extension Support Specialist in the Agriculture and Life Sciences Departments of Horticulture and Plant Pathology. Cathy was very humble, but took great pride and joy in her work with berry growers and Extension agents throughout the state and region. She was an integral developer of the Cornell Berry Website and the on-line Berry Diagnostic Tool. She wrote for and edited the NYS Berry Newsletter that was delivered electronically to several thousand subscribers across the country. She worked on research projects that covered every facet of berry production – from her favorite topic, berry diseases – to those topics that she found more challenging including berry nutrition and business management. She truly enjoyed helping others – both professionally and personally, and was one of the kindest people you could ever met. She was always there in a heartbeat to help with projects, offer an ear, or provide moral support. In her own words, she expresses what was most important to her:

Is plant pathology my life? An integral part, of course, but not the be all and end all by any means. I have a heavenly Father who meets my every need, a wonderful husband who is the light of my life, a loving family, a wonderful church and three ornery cats who make every day interesting, to say the least. What do

I do when I'm not at work? Pray, spend time with my husband, read, watch birds, garden, quilt, hike, camp, bicycle, walk, play the recorder, and enjoy life to the fullest!

Cathy is survived by her husband Gregg of Lyons, NY and brother, David and his family of Camden, New York, along with many aunts, uncles, nieces and nephews. She is also survived by many colleagues and growers who truly enjoyed knowing and working with her.

*Ms. Demchak is with 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>, January 2015.*

Spotted Wing Drosophila (SWD) Impact Assessment for 2014

Kathleen Demchak

Hannah Burrack in the Department of Entomology at NC State has put together a survey to quantify spotted wing drosophila's impact on berry growers in the Eastern U.S. While Hannah coordinates the survey, she shares the information with others. In fact, you can see the last 2 years' results when you visit the site with the survey hyperlink below.

This is a very simple, straightforward survey that will only take a few minutes of your time. Having this information is very useful for researchers attempting to obtain funding to find management solutions for spotted wing drosophila. Please take a few minutes out of this cold windy winter to provide your input. Thanks!!

Take the survey online at <http://swd.ces.ncsu.edu/2014/12/measuring-the-impacts-of-spotted-wing-drosophila-in-2014-your-help-needed/>

*Ms. Demchak is with 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>, January 16, 2015.*

GREENHOUSE PRODUCTION

Vegetable Transplant Production Aids

Matt Needham

Many growers use RootShield to give their transplants a healthy start on their journey to the field. RootShield Granules can be incorporated into your soil mix or RootShield WP can be applied as a drench or injection. RootShield will start protecting the vegetables' roots 24 hours after application and will protect the roots for 10-12 weeks. With a 0 hour REI and the added benefit of RootShield continuing to grow on the roots after transplanting, RootShield is the perfect addition to your vegetable growing program.

Recently, RootShield Plus Granules and RootShield Plus WP have been approved for use in California and are approved for use in most of the other 50 states. RootShield Plus is the next generation of RootShield. RootShield Plus is EPA registered and has enhanced control of Phytophthora and aggressive hot season Pythium in addition to the 5 major diseases controlled by RootShield WP and RootShield Granules

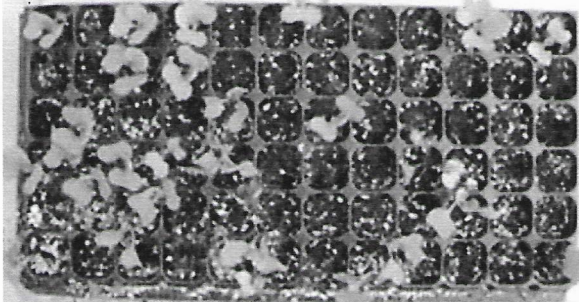
(continued on page 30)

GREENHOUSE PRODUCTION

Minimize Diseases in Vegetable Seedlings in the Greenhouse

Sally Miller

The greenhouse environment can be highly conducive to the build-up and spread of plant pathogens. Fungi, water molds, viruses and bacteria may become established on young plants, sometimes without noticeable symptoms. Damping-off pathogens, like *Pythium* and *Rhizoctonia*, may kill some seedlings but leave others with damaged root systems that will prevent them from reaching their full potential in the field.



Damping-off in cabbage seedlings.



Bacterial spot in tomato seedlings.

Plant pathogenic bacteria present on only a very small number of seeds (e.g. 1 in 10,000) can become a significant threat in some greenhouses. Viruses can be transmitted via insect vectors: Tomato spotted wilt virus, transmitted by thrips, can be a serious problem in Ohio. Other viruses, particularly Tobacco mosaic virus (TMV) and Tomato mosaic virus (ToMV), are very easily spread from plant to plant via infected sap. The following practices will reduce the threat of diseases becoming established in seedlings:

1) Select resistant varieties – no vegetable varieties are resistant to all diseases, but varieties can be found with resistance to persistent problems such as bacterial spot in pepper, ToMV and/or TMV in tomato, pepper and eggplant, and black rot and *Fusarium* yellows in cabbage and broccoli.

2) Use “clean” seed that has either been tested and shown not to harbor bacterial diseases, or treated with a sanitizing procedure such as soaking in dilute chlorine bleach or hot water. Cabbage seed hot-water treated to prevent black rot is available and highly recommended.

3) Use new or sanitized plug trays or flats and pathogen-free mixes – many pathogens can survive in plant debris attached to old flats, in soil or in re-cycled planting mix.

4) Sanitize equipment, install solid flooring, raise trays from the floor and cover vents with insect-proof netting.

5) Limit movement of personnel and equipment between

greenhouses – workers should wash hands thoroughly before entering a greenhouse, and either clean and sanitize boots before entering or use footwear dedicated to that greenhouse. Clothing must also be clean to avoid spreading pathogens or insect pests from greenhouse to greenhouse. No one should be permitted to smoke or use tobacco in the greenhouse due to the risk of transmitting TMV to seedlings from hands contaminated by TMV in tobacco products. Dipping hands in milk inactivates the virus.

6) Clean benches and greenhouse structures thoroughly after the crop – first use soap and water, rinse, then apply a disinfectant to destroy any remaining pathogens or pests.

7) Prohibit the planting of exotic or experimental varieties, or plants from saved seed, in the same greenhouse with commercial seedlings unless all seeds are treated to kill bacteria and viruses.

8) Scout often – it is important to look in the canopy once seedlings start to crowd each other for spots, wilting, or other symptoms, but handle plants as little as possible. Get a diagnosis if in doubt. Samples can be sent or brought in person to the OSU Vegetable Pathology Laboratory in Wooster for diagnosis – see http://www.oardc.ohio-state.edu/sallymiller/t08_pageview3/Diagnostics_Services.htm for instructions. Depending on the disease, entire flats, as well as flats of healthy seedlings surrounding the flat with diseased seedlings, may need to be destroyed.

9) Be a dry grower – many disease problems are brought on by overwatering. Diseases are promoted by wet conditions, so relative humidity should be low, air circulation should be high and plants should be watered only enough to ensure growth and minimize the risk of drought stress.

10) Use pesticides as needed. Several products effective against pathogens and pests are available and permitted under greenhouse conditions. See the Midwest Vegetable Production Guide for lists of approved products <http://mwvguide.org/>.

Dr. Miller is with the Department of Plant Pathology at The Ohio State University. From VegNet, Ohio State Univ., <http://vegnet.osu.edu>, Vol. 22, No. 5, April 8, 2014.

Vegetable Transplant... (continued from page 29)

(*Pythium*, *Rhizoctonia*, *Fusarium*, *Thielaviopsis* and *Cylindrocladium*). If planting your transplants into field soil containing existing populations of pathogens, it is helpful to use a broad spectrum preventative fungicide like RootShield or RootShield Plus.

CEASE prevents fungal diseases like Powdery Mildew and *Botrytis* and bacterial diseases such as *Pseudomonas*, *Xanthomonas* and *Erwinia*. CEASE is safe alternative to copper products, that leaves no unsightly residues, and has been proven safe for beneficial insects, including bees. CEASE has also been very successful when used as a soil application to prevent *Pythium*, *Rhizoctonia*, *Fusarium* and *Phytophthora*.

MilStop can be used alone or in combination with CEASE to prevent foliar fungal disease. MilStop kills powdery mildew on contact and has a very convenient 1 hour REI. With the power to suppress fungal diseases like *Botrytis*, rust, downy mildew and powdery mildew, it is a great tool to integrate into your fungicide rotation.

Mr. Needham is the BioWorks West Region Technical Sales Manager.

It's Time to Schedule...

(continued from page 21)

Calibrating air blast sprayers is challenging. You may be applying the correct amount of water per acre, but the distribution may be incorrect. One scenario is the tree row on the left may be getting 60% of the spray and the tree row on the right side may be getting 40% of the spray; however, you don't know which nozzle/s are causing the problem. The result may be insect and/or disease damage and reduced packout which ultimately lowers income.

The Penn State Pesticide Education Program has 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, broken or wrong whirl plates, etc. The end result is a calibrated sprayer ready to go for the growing season.

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 webpage at <http://extension.psu.edu/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.

Mr. Pollock is with Penn State Extension in Indiana Co. From the Vegetable, Small Fruit and Mushroom News, Penn State Extension, <http://extension.psu.edu/vegetable-fruit>, January 16, 2015.

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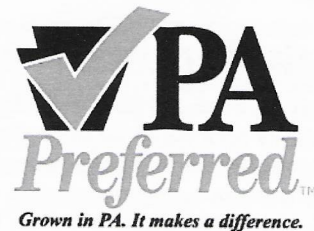
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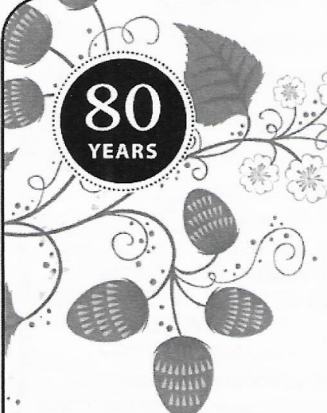
Applications for the PVGA Rudolph Grob Memorial Scholarship are due on March 31. This \$1,000 scholarship is available to children and grandchildren of PVGA members who are pursuing a career in the vegetable, potato, or berry production industries. For an application, contact PVGA at 717-694-3596 or pvga@pvga.org.

Farm Market Intensive Study Day

Tuesday, March 31, 2015 – 9:00 a.m. to 3:30 p.m. – The Country Barn in Lancaster

This all day activity sponsored by Penn State Extension is being graciously hosted by The Country Barn and includes an all-star lineup of industry professionals and practitioners as our guest experts. The idea is to use The Country Barn as an exploration laboratory as we work to enhance our understanding of key principles and tools useful for growing the profitability of retail farm marketing enterprises. All retail farm marketers will find this day meaningful. Contact John Berry at 610-391-9840 or 610-554-2561 or johnberry@psu.edu.


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