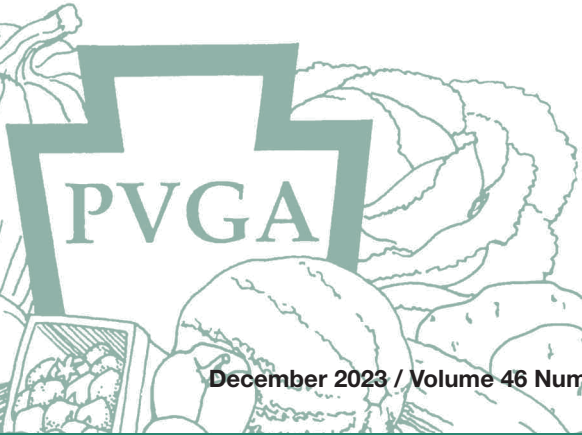


PENNSYLVANIA
VEGETABLE GROWERS

NEWS



December 2023 / Volume 46 Number 12

for the commercial vegetable, potato and berry grower

A promotional banner for the 2024 Mid-Atlantic Fruit & Vegetable Convention. The central text is contained within a green oval shape. The text reads: "2024 MID-ATLANTIC fruit & vegetable convention JANUARY 30-FEBRUARY 1, 2024 HERSHEY LODGE Hershey, Pennsylvania www.mafvc.org". The banner is surrounded by six small images of various fruits and vegetables: red tomatoes, yellow lemons, red cherries, orange pumpkins, green bell peppers, and yellow corn cobs.

Don't Miss the 2024 Mid-Atlantic Fruit and Vegetable Convention

The 2024 Mid-Atlantic Fruit and Vegetable Convention will be held at the Hershey Lodge from January 30 to February 1. Multiple concurrent educational sessions will be featured all three days along with a large industry trade show. Eric Finkenbinder,

meteorologist with abc27 will be this year's keynote speaker. A Lancaster and Berks Counties farm market bus tour and several pre-convention workshops will be offered on January 29, 2024.



Convention Keynote - Challenges of Our Changing Local Climate

Eric Finkenbinder lives in Perry County where he enjoys most of his time on the family farm or in his backyard working on one of his many hobbies. His time on the farm showed him the importance of detailed, local weather forecasts which is why he pursued meteorology at Penn State. He received a B.S. in meteorology in 2003 and started working at his hometown news station. This will be Eric's 21st year with abc27 where you can see him during the weekday evening newscasts at 5, 6, 7 and 11 p.m. Eric also provides science and agriculture stories for the station and writes a weather outlook for Lancaster Farming, a weekly regional newspaper.

When he is not forecasting or working in the fields, Eric enjoys learning new ways to improve his vegetable and fruit gardens, beekeeping, forest regeneration projects, helping his daughters with 4-H projects, or perhaps learning another new hobby. He is a member of the Capital Area Beekeepers Association and American Chestnut Foundation.

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NEWS



*Pennsylvania
Vegetable Growers
Association*

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

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Directors Meet in State College

The PVGA Board of Directors held their "fall" meeting on Tuesday, December 12, at the Ramada Inn in State College. This meeting is preceded by meetings of the various PVGA committees which make recommendations to the Board for the Association's activities for the coming year.

The committee meetings were all held virtually in the weeks before Board meeting. While in-person meetings have an advantage in allowing personal interaction, the virtual meetings do make it much more convenient for committee members to participate in the relatively brief meetings. One of the main goals of the system of committees is to involve non-Board members in reviewing the past year's activities and discussing the direction of the Association in the coming year. The committees that meet prior to the meeting are the Executive, Leadership and Recognition, Administrative, Educational, Government Affairs, Farm Show Booth, Potato, Berry, Simply Sweet Onion, Vegetable Research and Vegetable Marketing. All the Committees except the Executive Committee involve one or more non-Board members. Members who would be interested in participating in a committee should contact the Association at 717-973-5915 or pvga@pvga.org.

Dr. Blair Seigfried, Associate Dean of Penn State's College of Agricultural Sciences; Dr. Beth Gugino, Assistant Dean; Mary Wirth, Director of College Relations; and Dr. Erin Connolly, Plant Science Department Head all attended part or all of the meeting. They reported on various initiatives within the College related to research and extension. A College research strategic plan is being developed with agricultural technology/robotics, climate-smart/regenerative agriculture systems and food safety being some of the focuses of that plan. A new research greenhouse complex on the University Park campus is being considered. They also noted that the filling of several extension positions important to the vegetable industry in Columbia, Franklin and Philadelphia Counties has been paused at least temporarily.

The Association's financial reports showed that income should exceed the expenses for the year. The 2023 budget included a \$3,900 deficit but the Association may end the year with more than a \$10,000 surplus. As of November 30, the General Fund balance value was \$253,545, the Keystone Fund balance value was \$224,645 and

the Simply Sweet Onion Committee balance was \$17,484. The Board received reports from a review of the financial records from 2019, 2020 and 2021 which found them to be in line with balances reported previously.

Because there was uncertainty over the Association's ability to request research donations, the Board voted to not include that in the membership letters this year. They also voted to ask the members to amend the Articles of Incorporation to the original language used prior to the amendments made in 2019.

The Leadership and Recognition Committee announced that the nominees for the five Director positions up for election by the members will be six of the incumbent Directors: Brian Campbell, Peter Flynn, Arthur King, Amy Metrick, Michael Orzolek and Mark Troyer plus Morgan Bond. The Committee also made recommendations for the Annual Award, Life Memberships and Distinguished Service Awards which will be announced at the Mid-Atlantic Convention. Nominees for various other awards were also reported.

The Scholarship Committee reported they planned to award \$6,000 in scholarships to four applicants.

The Administrative Committee presented a draft budget for 2024 which included \$25,000 for "start-up" funds for a small fruit extension position and \$55,000 for vegetable research plus funding for setting up a subsidiary charitable foundation and for a five-year strategic planning session. With a project income of \$548,900 and projected expenses of \$592,950, the draft budget projects a deficit of \$44,050 for 2024 which would put the projected year-end balance at \$217,000. The Board voted to annually increase the target year-end reserve balance by the current rate of inflation rather than just 2% as was done previously. That will make the target year-end balance \$198,000 so that even with the projected deficit the target year-end balance would be easily exceeded to provide adequate financial reserves.

Membership for 2023 was reported at 830 compared to 862 in 2022 and 793 in 2021. Last year the Association offered persons who had never been Association members a "Buy One Get One" free deal where they would receive a second year's membership if they joined for the first time in 2023. Eighty-nine people qualified

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The Pennsylvania Vegetable Growers News is the official monthly publication of the

Pennsylvania Vegetable Growers Association, Inc.,

908 North Second Street, Harrisburg, PA 17102

Phone and fax: 717-973-5915 • 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 Tammy K. Linn, Executive Director, at the above address.

PVGA Annual Meeting

The Annual Meeting of the General Membership of the Pennsylvania Vegetable Growers Association will be held on Wednesday, January 31, 2024 at 11:30 p.m. in the Crystal Room of the Hershey Lodge in Hershey, Pennsylvania, during the Mid-Atlantic Fruit and Vegetable Convention. All members are invited and encouraged to participate in the meeting.



The results of the mail balloting for the Board of Directors will be announced at the meeting. The members will also receive reports on membership, finances, and the other activities of the Association.

The Board of Directors is asking the members to approve amendments to the Association's Articles of Incorporation. In 2019 the Articles had been amended to allow the Association to apply for status with the Internal Revenue Service (IRS) as a 501(c)3 charitable organization rather than the current status as a 501(c)5 agricultural organization. The IRS subsequently advised the Association that it would not qualify as a 501(c)3 organization and the application for the change was withdrawn. The IRS advised the Association to consider forming a subsidiary 501(c)3 organization which the Board intends to do. However, since the status of the Association itself will remain a 501(c)5, the Board is asking the members to approve amending the Articles of Incorporation with the state Bureau of Corporations to the original language that did not reference status as a 501(c)3 organization. Specifically, Article IV of the Articles would be changed to the following language: The corporation is incorporated for the following purposes: To unite in common organization those engaged in the production, handling or processing of Pennsylvania grown vegetables, potatoes and berries and of others whose business welfare depends at least partially upon the efficiency of the Pennsylvania vegetable, potato and berry industries; to initiate, guide and direct the efforts of Pennsylvania vegetable, potato and berry growers and allied industry along the lines of economic production, research and investigation, grading and standardization of products, advertising and such other functions as may aid in improving the economic efficiency of the vegetable, potato and berry industries of Pennsylvania. In addition, Articles X and XI would be eliminated or amended to delete references to any requirements for 501(c)3 organizations.

In addition, the following additions to the Association's Policy Resolutions are being proposed for adoption by the members at the Annual Meeting. The underlined text is to be added to the resolutions and the struck-through text is to be deleted.

The Association is on record as:

State Resolutions

1. Supporting increased efforts by the issuing agencies to provide recipients of Senior and Women-Infants-Children Farmers Market Nutrition Program

2. Opposing requirements for permanent sewer systems for temporary housing for agricultural workers.
3. Opposing state mandated over-time pay for agricultural workers.
4. Supporting the development by PennDOT of an intermediate driver's license for immigrant workers with proper documentation (e.g. tax identification or social security number, proof of employment or legal residency) with an annual review. However, this will not qualify to the workers to be registered to vote under the motor/voter act until the immigrant becomes a U.S. citizen."
5. Supporting the elimination of the Adverse Effect Wage Rate for H-2A employees as currently calculated and replacing it with a minimum wage rate that is 110% of the federal minimum wage.
6. Supporting the expansion of the definition of "farm use" to include produce deliveries from farm to market for farm tag availability.
7. Supporting the ability of farm operators to contract or delegate licensed hunters to harvest wildlife for crop damage without opening it to the public.
8. Opposing the reallocation by the General Assembly of funds from the Game Fund to any other agency so as to jeopardize the Game Commission's eligibility for federal Pittman Robertson funding.
9. Supporting an antlerless only, shotgun only season before the archery season in special regulations areas.
10. Supporting the opening of the regular rifle whitetail season one week earlier.
11. ~~Opposing hunting on Sundays with the exception of hunting crow; coyote and fox, as well as woodchuck in cultivated fields with express written permission of the landowner (2005 and 2017);~~
12. ~~Supporting the following requirements/restrictions if Sunday hunting expansion were to become law: (2019)-~~
 - a. ~~Trespass laws be amended to address Pennsylvania Farm Bureau "trespass policy";~~
 - b. ~~Hunting be allowed only with written private landowner permission;~~
 - c. ~~Hunting for deer be allowed "on state game lands and state forests with "No Sunday Hunting" signage provided at no charge for adjacent private lands at the owner's request;~~
 - d. ~~Hunting be expanded to include antlerless deer and woodchuck only on Sundays;~~
 - e. ~~Sunday hunting for antlerless deer be limited to:-~~
 - i. 1st Sunday of archery;
 - ii. 1st Sunday of flintlock;
 - iii. Friday, Saturday, and Sunday after the Thanksgiving holiday

NEWS

Directors Meet in State College continued from page 2

for this offer. The Board decided to evaluate this offer after the third year to see how many of these new members renew their membership in 2025. Finally the Committee recommended the following donations/sponsorships and promotions for 2023:

Farm Show Reception Sponsorship	\$500
Ag In The Classroom Program	\$500
Ag Science Education Mobile Lab	\$500
Capitol Hunger Garden	\$200
Delaware Valley College A-Day Program Ad	\$125
Ag Progress Days Booth	\$550
Farm-City Day Vegetables	+\$50
Farm Show Vegetable Day Cooking Demonstrations	\$1,225
Pasa Conference Program Advertisement	\$450
Keystone Cornucopia Reception	\$200
Ag Council Research Tour for Legislators	\$100
Farm Show Livestock Sale	+\$100
Farm Show Bus Transportation	+\$300
Farm Show Food Court Table Cleaning	+\$600
Farm Show Visitor's Guide Advertisement	\$700
Banquet Sponsorship	\$500
Ice Cream Social	\$800 to \$1,100
<i>shaded items were approved by not actually expended in 2023</i>	

The Farm Show Food Booth Committee is preparing for the 2024 Farm Show and working to recruit enough volunteers.

The Educational Committee recommended maintaining the budget for educational meeting grants for Penn State Extension sponsored meetings but also continuing to organize a series of PVGA on-farm grower meetings around the state. This year the Association helped sponsor a meeting at the Snyder Co. Produce Auction in January and organized twilight meetings Shenot Farm

and Market in Allegheny County, Bridgeside Farms in Franklin County, Burger's Farm Market in Luzerne County and Strite's Orchard in Dauphin County. The Association also will continue to help sponsor the "Are You Crazy?" Farm Market Tour. The Committee recommended offering members the opportunity to receive the newsletter digitally and also creating a place on the website for classified ads.

The Government Affairs Committee recommended that the Association maintain its membership in the Pennsylvania Agricultural Alliance and the International Fresh Produce Association. They also recommended 10 additions and 2 deletions to the Association's Policy Resolutions. They are outlined in the separate article on the Annual Meeting where the resolutions will be considered by the members.

The Board adopted the following legislative priorities for 2024:

State

- Elimination of unemployment compensation fees for H-2A workers.
- Adequate agricultural research and extension funding.
- Relaxed stormwater management requirement for high tunnels.
- Reduction of stormwater fees for farmland.
- Farmers' Market Nutrition Program funding.
- Coordination of the state Business Depreciation Deduction Limit with the federal limit.

Federal

- Immigration and farm labor reform including the replacement of the Adverse Effect Wage Rate system.
- Reform of the Municipal Separate Storm Sewer System regulations.
- Reasonable water-use Food Safety Modernization Act rules for small growers.
- Continued Specialty Crop funding.
- Adequate agricultural research and extension funding.
- Continued nutrition program funding.
- Reasonable cost healthcare options for the self-employed and small employers.
- Inheritance tax elimination.
- An increase in the Business Depreciation Deduction Limit to at least \$1,000,000.

The Board also received reports from the Vegetable Promotion, Vegetable Research, Potato, Berry, Simply Sweet Onion and Penn State Liaison Committees. The Berry Committee is planning to continue their virtual monthly Berry Grower Exchange meetings and also to hold an on-farm twilight meeting.

The Board's next meeting will be January 29, 2024, in Hershey prior to the Mid-Atlantic Convention.

Penn State Plant Pathologist to Research Diseases in Organic Vegetables

A plant pathologist in Penn State's College of Agricultural Sciences has received support from the U.S. Department of Agriculture's National Institute of Food and Agriculture to study plant diseases in organic vegetable operations.

Sharifa Crandall, assistant professor of soilborne disease dynamics and management, will use the \$800,000 grant from the agency's Organic Transitions initiative to investigate methods to suppress soilborne pathogens in vegetable high tunnels.

She explained that crop pathogens that disperse through the soil are a significant problem for farmers — mainly when they infect vegetables during high tunnel production in the Northeast and Midwest — and especially for organic farmers for whom fumigants and other chemicals aren't an option.

Steaming the soil to high temperatures and anaerobic soil disinfestation are two disease management methods that potentially



Sharifa Crandall, assistant professor of soilborne disease dynamics and management in Penn State's College of Agricultural Sciences. Credit: Penn State. Creative Commons

Penn State Plant Pathologist to Research Diseases in Organic Vegetables

can kill problematic plant pathogens without synthetic fungicides or fertilizers and could be used in combination to suppress soilborne diseases.

“However, there is little science-based research on the efficacy of these methods or data on the recovery of the microbiome and nutrients after steaming and anaerobic soil disinfestation,” Crandall said. “For these pathogen management approaches to be effective, it is paramount to understand the underlying ecological mechanisms behind these approaches and to capture the willingness of farmers to adopt such technologies.”

This project has three components: comparing the efficacy of soil steaming and anaerobic soil disinfestation for suppressing soilborne diseases of vegetables, including a focus on high tunnel tomatoes; determining soil microbial community recovery after steaming or anaerobic soil disinfestation and impacts on plant health; understanding the factors that affect farmers’ willingness to adopt sustainable soilborne disease management practices.

The team will conduct its experiments at a USDA Agricultural Research Service facility in Ohio and on organic farms in Pennsylvania and Ohio.

Results will be shared through peer-reviewed publications, extension materials, factsheets, webinars and farmer conferences. The target audiences include partnering organically certified farmers, those interested in or transitioning to organic production, industry partners, federal and academic scientists, and the public.

Crandall will be joined by Penn State colleagues Mihail Kantor, assistant research professor in the Department of Plant Pathology and Environmental Microbiology, and Suzanna Windon, assistant professor in the Department of Agricultural Economics, Sociology, and Education. Anna Testen, research plant pathologist with the USDA Agricultural Research Service in Wooster, Ohio, also will support the study.

From Penn State.

Francesco Di Gioia Receives Penn State Research Award



Francesco Di Gioia, assistant professor of vegetable crop science, received the Early Achievement in Research Award from the Penn State College of Agricultural Sciences.

Di Gioia came to Penn State in 2018 following a postdoc at the University of Florida and USDA ARS. His lab at Penn State focuses on addressing the needs of Pennsylvania’s vegetable industry by developing and facilitating the adoption of new technologies and

efficient production systems. Immediately on arrival, he invested the first couple of months visiting vegetable farms and meeting growers, industry leaders, colleagues, and professionals to identify the primary challenges, opportunities, and research needs of the industry. This essential groundwork has established a robust framework for him to build a research program that integrates research and extension projects, covering a range of growing systems, production methods, and crops.

As a graduate student, post-doc, and faculty member, he has edited a multilingual book in English, Spanish and Italian and co-authored 73 peer-reviewed publications appearing in highly ranked journals and book series. Of these publications, 45 were produced while here at Penn State with seven of them first authored by his students. His work has been cited on Scopus 1,398 times, resulting in h-index of 23 and an i10 index of 36.

Since joining Penn State, Di Gioia has secured more than \$7 million through 29 contracts and grants from more than nine funding agencies, including the U.S. Department of Agriculture’s

National Institute of Food and Agriculture through its Organic Research and Education Initiative and Specialty Crops Research Initiative, the USDA Agricultural Research Service, Open Philanthropy, the Pennsylvania Vegetable Grower Association, the Pennsylvania Vegetable Marketing and Research Program, the Pennsylvania Department of Agriculture, and industry partners.

His research excellence is amplified in the letters of support for his nomination that identify him as an excellent collaborator and outstanding leader so early in his career, building multi-regional networks across research, Extension, and education projects. His service to the college, University, and his disciplinary field are also impressive, having served on four editorial boards and as a special guest editor for several high-profile journals as well as a peer reviewer for manuscripts in a number of high-quality journals. He is also active in the American Society of Horticultural Science, including holding leadership positions in working groups. His service continues as a panel member for grant proposals across several agencies.

An important mission of Dr. Di Gioia’s research is to train the next generation of horticulture scientists and professionals. Overall, he has advised or co-advised five M.S. students who immediately after graduation have been successfully employed in the agricultural industry. He has also mentored a postdoctoral researcher that is now employed as a researcher in a multinational seed company (he is also in the process of hiring a new postdoc), and is currently advising three Ph.D. students, while a fourth Ph.D. student started this the Fall semester. Dr. Di Gioia has taken every opportunity to offer research internships and work opportunities to sixteen undergraduate students (including five minority students) from Penn State and other academic institutions. Notably, every year he has offered minority students the opportunity to do research in his lab through the Pennsylvania Space Grant, the Summer Research Opportunity Programs or through the NSF INCLUDES SEAS Islands Alliance.

In sum, Dr. Di Gioia has already earned the respect and admiration of his colleagues—his recent invitation as the Keynote Speaker for the International Soil Disinfestation Meeting held in Spain is a testament to this. He has been involved in planning the educational program for the Mid-Atlantic Fruit and Vegetable Convention for the past several years as well as making several presentations to growers at the Convention.

From Penn State.

NEWS

In Memory**John F. Peters**

John Fell Peters, age 93, of Gardners passed away on Saturday, October 14, 2023 at Messiah Village in Mechanicsburg. Born in Gardners on November 22, 1929, John was the eldest son of the late John B. and Mary E. Koller Peters.

John served as past president of both John B. Peters, Inc. and of The Peters Orchards. He also served as a director of Knouse Foods. John was a trustee of Dickinson College, and a board member at PNC Bank, formally CCNB and the Gettysburg Hospital. John was a member of the Carlisle Rotary, The Salvation Army, Zembo Temple, the Penn-

sylvaniana Cherry Board, the Adams County Fruit Growers Association, and the Farm Bureau Association as well as the Pennsylvania Vegetable Growers Association.

John's many accomplishments started early in life graduating as class valedictorian from Rumson High School, Rumson NJ. He went on to attend Dickinson College, class of 1952. John also completed a graduate program at Cornell University in Agriculture. John was an active member of the local community and the Carlisle United Methodist Church (previously Allison United Methodist Church), singing in the choir. John was an avid reader and historian, enjoyed classical music, and cherished his work and family.

John had many wonderful experiences during his time running the Peters Orchards - notably, he had the distinguished honor of driving President Dwight Eisenhower around the orchards to show him the numerous ponds used for irrigation. John spent almost every day of his adult life at the Peters Orchards farm, caring for the land and the people who worked it. John was a devoted steward of the orchards during his life. His name and the farm were practically synonymous. John will be most remembered by his work on the farm.

John is survived by his beloved wife of 54 years Mary Reisinger Peters; daughter Mary Peters Kuhn and her husband Stephen Kuhn of Mechanicsburg; daughters-in-law Ellen Peters Otto of Carlisle and Stacey Peters of Red Creek, New York; brother William Peters and his wife Shelbia of Biglerville and sister Susan Wirths of Frederick, Maryland. John is also survived by seven grandchildren: Elizabeth Peters, John C. Peters, Allison Kuhn, Mary Ellen Kuhn, Jack Kuhn, Kensey Peters and Brian Peters.

In addition to his late parents, John was preceded in death by his sons John R. Peters and Harry K. Peters; brothers George Peters and Earl Peters and sisters Mary Sandels and Virginia Aires.

In lieu of flowers, memorial contributions in John's name may be made to the Carlisle United Methodist Church, the Rotary Club of Carlisle, or the Alzheimer's Association at www.alz.org.

Arrangements were entrusted to the Hoffman Funeral Home & Crematory, Carlisle.

Penn State Offering FSMA Training Courses

The Food Safety Modernization Act(FSMA) is the most comprehensive change to produce farming in the past 70 years. Farms with less than \$28,000 in gross sales are not covered under this Act. Also growers who exclusively grow crops not normally consumed raw like potatoes, pumpkins, and sweet corn, for example are not covered by FSMA

One of the requirements of the law is that all growers covered under the Act attend a Grower Training Course. Participants will receive a notebook and receive a certificate of attendance. The cost is \$35 per grower. The course will cover seven hours of instruction time that will be spent on the following modules:

Introduction to Produce Safety
Worker Health, Hygiene, and Training
Soil Amendments
Wildlife, Domesticated Animals, and Land Use
Agricultural Water (Part 1: Production Water and Part 2: Post-harvest Water)
Postharvest Handling and Sanitation
How to Develop a Farm Food Safety Plan

After attending the entire course, participants will be eligible to receive a certificate from the Association of Food and Drug Officials verifying that they have completed the training.

Dates and Locations:

- January 16, 2024, Madisonburg, 8:00 a.m.
- February 29, 2024, New Holland, 8:00 a.m.
- March 12, 2024, Clarion, 8:00 a.m.
- March 15, 2024, Greensburg, 8:00 a.m.
- March 25, 2024, Oxford, 8:00 a.m.

To register for the above trainings, please visit <http://extension.psu.edu/fsma-grower-training> or call 1-877-345-0691. Checks, credit cards, and debit cards are accepted.

Penn State will also be offering this training on Monday, January 29, 2024, at the Mid-Atlantic Fruit and Vegetable Convention, at the Hershey Lodge in Hershey. The cost for this training is \$50. To register for the training at the Mid Atlantic Fruit and Vegetable Conference, please call 717-973-5915.

Please direct any questions about the program to Jeff Stoltz-fus at 717-394-6851.

Convention Proceedings

If you cannot attend the Convention, you can purchase a copy of the Proceedings which contains summaries of many of the vegetable, small fruit, greenhouse and marketing presentations. Use the form on page 34.



NEWS

Celebrating the 20th Anniversary of the Mobile “Ag Lab” Program



On October 19, the PA Friends of Agriculture Foundation, a charitable organization supported by the PA Farm Bureau, unveiled their newest traveling trailer at Londonderry Elementary School. Celebrating the 20th anniversary of the Mobile “Ag Lab” program, which brings agriculture to Pennsylvania schools, the Foundation invited special guests to attend and help set off confetti cannons at the event.

The Mobile Agriculture Education Lab program was the brain-child of four farming families back in 2003. Marlin Miller, Richard & Shelva Mains, Horace & Evelyn Waybright, and Clement & Donna Haldeman made the initial investment in the very first trailer by giving their time and money to kickstart program. Today, the Foundation organizes six different trailers in order to serve the entire state of Pennsylvania throughout the school year. During Thursday’s program, Chris Hoffman, Chairman of the Foundation’s Board of Directors, paid respect to these families, saying, “These are the farmers who saw the need for this program in our state and worked hard to make it happen.”

The Wenger Group was represented at the celebration and recognized for their gift of \$100,000 toward the funding of this brand new trailer, which replaces one of the first trailers in the fleet.

As Hoffman explained, “This is just one replacement out of six. Each trailer has a lifespan and will need to be replaced in time. Every donation to the Foundation helps us build funding so that we will never have to interrupt our programming at schools.”

Kathy Barry, owner of Kathy Barry Agency, also attended the event and spoke on her financial support of the lab in the Lower Dauphin School District, in memory of Keith Oellig. Oellig had been a member of the Dauphin County Farm Bureau and was passionate about bringing agriculture education to students in the area.

Morgan Sheffield represented the PA Department of Agriculture and spoke to the grant funding the Foundation has received for this program.

Lastly, Rebecca Lehman, FFA State Officer, said a few words on the importance of the program and how it brings children into agriculture and can give them inspiration to join FFA or other programs in high school.

Students from Londonderry got to enjoy a birthday song, animal hats, activity sheets, a “farm fan,” and a confetti cannon pop at the end of the program on Thursday. All grades at Londonderry had the chance to experience the lab in action earlier this week.

The Pennsylvania Friends of Agriculture Foundation is a charitable organization supported by the Pennsylvania Farm Bureau. The Foundation has been educating the public and promoting agriculture, the largest of the Commonwealth’s industries since its inception in 1986. To learn more about foundation programs, go to www.pfbfriends.com.

PVGA annually helps support the Mobile “Ag Lab” Program with a \$500 donation.

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CONVENTION

Don't Miss the 2024 Mid-Atlantic Fruit and Vegetable Convention *continued from page 1*

Special Urban Ag Session

Urban agriculture has a big impact globally. Recently, scientists have placed the annual value of food production, nitrogen sequestration, energy savings, and stormwater runoff avoidance at \$33 billion. This amount doesn't even include the social, cultural, well-being, and community development contributions.

Given the significance of urban agriculture, starting in 2023, the Mid-Atlantic Fruit and Vegetable Convention has included a full day of sessions for urban farmers. The lineup of speakers, shown below, includes university specialists and others involved in urban agriculture. A luncheon will be offered to allow for added networking opportunities.

- 9:00 Intro - Russell Thorsen, PASA Farming
- 9:15 Urban Ag Beekeeping (Part 1) - Robyn Underwood & Jeff Eckel, Penn State Extension
- 9:45 Urban Ag Beekeeping (Part 2) - Robyn Underwood & Jeff Eckel, Penn State Extension
- 1:30 The Giving Grove - Urban Orchards - Naim Edwards, Michigan State Univ.
- 2:15 High Tunnel Rainwater Harvesting & Solar Pump System - Raymond Balaguer, University of Florida Extension
- 2:30 Urban Soils Project in Philadelphia - Patrick Drohan, Penn State
- 3:15 Urban Farming Site History Assessment Tools - Russell Thorsen, Pasa Sustainable Agriculture
- 4:00 An Integrated Approach of Expanding Urban Agriculture to Advance Food Systems for Urban and Suburban Communities - Kefeni Kejela, USDA

We hope you'll join us for this second Urban Agriculture session at the Mid-Atlantic Fruit and Vegetable Convention.

Pre-Convention Workshops and Farm Market Tour

Producing Vegetable Transplants - Crystal Room

\$70 includes lunch

9:00 am - 4:00 pm

Have you considered growing your own vegetable transplants? Or maybe you would like to brush-up on the fundamentals? Participate in this pre-convention workshop where you'll learn from growers, industry, and Extension personnel about topics important to healthy transplants. Learn the basics like water, heat, potting soil, and disease control to more specialized education on equipment, seed treatments, and specific crop and equipment advice from three reputable Pennsylvania growers. Whether you're getting started in producing transplants or desire to improve your current system, this workshop is sure to improve your skills.

- 9:00 **Equipment Used to Start Transplants** - David King, Harvest Valley Farm
- 9:45 **Heating the Greenhouse** - Ben Beiler, DS Stoves
- 10:15 **Soil Media** - Dustin Frey, Frey Brothers, Inc
- 11:00 **Seed Treatments with Hot Water Demo** - Glen Bupp, Penn State Extension
- 11:30 **Container, Nutrients** - Dr. Gordon Johnson, Univ. of Delaware Extension (retired)
- 12:15 **Lunch**
- 1:00 **Watering Techniques, Hardening Off** - Dr. Gordon Johnson, Univ. of Delaware Extension (retired)
- 1:30 **Disease Control** - Joanne Lutz, Griffin Greenhouse Supplies

- 2:15 **Break**
- 2:30 **Growing Tomato Transplants** - Jonathan Martin
- 3:00 **Growing Cucurbit Seedlings Especially Seedless Watermelon** - David Miller, Miller Plant Farm

Food Safety Modernization Act Grower Training - Wild Rose Room

\$50 includes lunch

9:00 am - 4:30 pm

This training is for fruit and vegetable growers and others interested in learning about: produce safety, the Food Safety Modernization Act (FSMA) Produce Safety Rule, Good Agricultural Practices (GAPs), and co-management of natural resources and food safety. This PSA course is one way to satisfy the grower training requirement of the FSMA Produce Safety Rule as outlined in Section 112.22(c). Participants in the course will learn about:

- Microorganisms relevant to produce safety and where they may be found on the farm;
- How to identify microbial risks, practices that reduce risks, and how to implement produce safety practices on the farm;
- Requirements in the FSMA Produce Safety Rule and how to meet them.

continued on page 9

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After attending the entire course, participants will be eligible to receive a certificate from the Association of Food and Drug Officials (AFDO) that verifies they have completed the training course. The Pennsylvania Food Safety Resource Center is providing funds to cover AFDO certification fees and course material costs for this workshop.

Begin with the End in Mind: An Overview of the Farm Transition Process - Empire Room CD

\$25 (no lunch)

9:00 am – 12:00 pm

Join the Penn State Extension Farm Transition Team for this half-day workshop. We will focus on the vital components needed to ensure your farm transitions in the manner and to the people you desire. All farm and ag business owners and operators of all levels are welcome.

9:00 **Business and Retirement Planning** – Jodi Gauker & Paula Ledney, Penn State Extension

10:00 **Transition and Estate Planning** – Samantha Gehrett, Penn State Extension, & Brook Duer, Penn State Center for Ag and Shale Law

11:00 **Case Study and Questions** – Entire Farm Transition Team

Sustainable High Tunnel Vegetable Production -
Magnolia Room AB

\$70 includes lunch and educational materials

9:00 am - 4:30 pm.

This full-day workshop featuring several highly qualified academic and industry experts will offer a unique opportunity to deepen your knowledge on novel sustainable high tunnel technologies and crop management solutions. The workshop has been designed to address the needs of both beginning and advanced high tunnel growers, technicians, students, and professionals and will cover a series of aspects considered critical for the short- and long-term sustainability and profitability of high tunnel production systems. Topics covered include: a) high tunnel construction, siting and feature considerations for adequate temperature and crop ventilation management; b) soil health and sustainable management of soilborne pests and pathogens; c) ways to include cover crops in the crop rotation and benefit from their multiple functions; c) organic amendment, nutrient management and in-season crop monitoring for the rationale fertigation of conventional and organic high tunnel crops; d) cucumber and other profitable crops alternative to fresh-market tomatoes and lettuce, and best crop rotation strategies for year-round production; e) variety selection for different vegetable high tunnel crops with general recommendations and specific suggestions; f) novel technologies and solutions for spraying in high tunnels and their calibration; g) proactive crop disease management, and g) bio-

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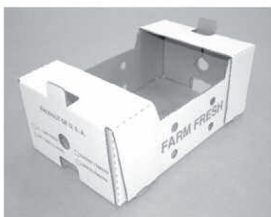
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continued from page 9

control solutions for pest management in high tunnel crops. The workshop will be highly interactive with Q&A (question and answer) and discussion session after each presentation. Lunch and coffee break will offer the opportunity to establish a contact and network with speakers, industry professionals, other attendees, and representatives of the companies sponsoring the workshop. The workshop includes at least one presentation that will provide Pesticide Core Credits.

- 8:30 **Registration**
 9:00 **High Tunnel Construction, Siting, and Feature Considerations for Adequate Temperature and Crop Ventilation Management** – Dr. Matthew Kleinhenz, Ohio State Univ.
 9:45 **Soil Health and Sustainable Management of Soil-borne Pest and Pathogens** – Dr. Francesco Di Gioia and Joe Ono Raphael, Penn State
 10:30 **Cover Crops in High Tunnels** – Dr. Annette Wszelaki, Univ. of Tennessee
 11:00 **Developing Integrated Nutrient Management to Enhance Organic Vegetable Production in High Tunnels** – Prof. Xin Zhao, Univ. of Florida
 11:45 **In-season Monitoring and Nutrient Management via Fertigation** – Dr. Francesco Di Gioia, Penn State
 12:15 **Lunch Break and Sponsor Presentation**
 1:00 **Variety Selection in High Tunnels: General Strategies & Specific Suggestions** – Dr. Becky Sideman, Univ. of New Hampshire
 1:45 **Cucumber High Tunnel Production** – Dr. Wenjing Guan, Purdue Univ.
 2:30 **Beyond Tomatoes and Lettuce: Crop Rotations to Maximize Profit and Minimize Soil Issues** – Dr. Annette Wszelaki, Univ. of Tennessee
 3:00 ***Proactive Vegetable Crop Disease Management in High Tunnel** – Steve Bogash, ProFarm
 3:30 ****Biocontrol Solutions for the Management of Key Pests in High Tunnel** – Carol Gleinster, IPM Lab (Pesticide core credit)

Recall Readiness - Empire Room AB

\$75 includes lunch

9:00 am - 3:00 pm

Food recalls happen -- even to good farms/companies - and being prepared is the best way to minimize their financial and reputational damage while also protecting public health. Join us for this interactive discussion and tabletop exercise during which you and your fellow attendees will navigate typical food recall decisions, regulatory requirements, and communication demands. And if your farm/company has a written recall plan, bring it so you can take notes, ask the facilitator plan-specific questions, and make real-time updates throughout the session. The presenters will be Amy Philpott, founder of Philpott PR Solutions LLC and Emily Moyer of the International Fresh Produce Association.

Pennsylvania Pesticide Applicators License Training - Magnolia Room D

\$85 includes lunch and manual

9:00 am - 4:00 pm

If you intend to purchase and/or apply restricted use pesticides for the purpose of producing an agricultural commodity on land which is owned or rented by you, then you need a Pennsylvania Department of Agriculture Pesticide License. To become a certified private applicator, testing is required. This full day session

on January 29 will cover the basics and prepare you for the pesticide applicator's exam which will take place the next morning, January 30, from 8:30 a.m. – 11:30 a.m.

Maximizing Productivity: Strawberry Production Workshop - Cocoa Terrace/Cocoa 1

\$80 - includes lunch

9:00 am - 4:30 pm

Strawberry production A-Z will be covered, starting with factors to consider before planting such as soil health and site preparation, production systems including matted-row, plasticulture, and indoor production, fertility, varieties, and insect, disease and weed management. Marvin Pritts from Cornell University, and David Handley from the University of Maine will be the presenters. Workshop presented by the North American Strawberry Growers Association.

- 9:00 **Welcome, introduction to workshop** (Marvin Pritts and David Handley)
 9:10 **Understanding the Strawberry Plant**, (Marvin or David)
 9:30 **Factors to consider before planting** (labor, local climate, site, how you want to market) (Marvin or David)
 10:00 **Soil health, site preparation, crop rotations** (Marvin Pritts)
 10:45 **Fertility and nutrient management** (Marvin Pritts)
 11:15 **Varieties: Cool climate performance** (David Handley)
 11:35 **Varieties: Warm climate performance** - Jayesh Samtani
 1:00 **Matted row production and variants, including weed mgt** - David Handley

continued on page 11

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CONVENTION

Don't Miss the 2024 Mid-Atlantic Fruit and Vegetable Convention

continued from page 10

- 1:50 **Plasticulture and variants: Zones 6 and Cooler** - Marvin Pritts
- 2:15 **Plasticulture and variants: Zones 7 and Warmer** - Jayesh Samtani
- 2:50 **Insect and Disease Mgt** - David Handley
- 3:50 **Alternative systems** (greenhouse, substrate production) - Marvin Pritts

Software Solutions for Farm Management (Young Grower Alliance) - Empire Room CD
\$15 no lunch included
2:00 pm - 4:00 pm

This workshop is meant to highlight software used by growers and available from industry professionals that make modern farming easier. This includes programs like a pesticide spray program manager, weather station data collection, and more. There will be several highlights of programs available commercially as well as a grower panel discussing efforts made by growers to use non-commercial programs to improve their farms and farm-stand operations.

09 Farm Market Bus Tour

The Bus Tour is now Sold Out
Buses depart the Hershey Lodge Chocolate Lobby at 7:45 am and will return at about 5:30 pm

We will be visiting four farm markets on this year's tour:
Reiff's Farm Market – Ephrata, PA. Reiff's Farm Market is a second-generation, family-owned farm and greenhouse business. They grow over 40 different varieties of peach-

es, nectarines, and plums in a 12-acre orchard, 30 acres of sweet corn, and 8 acres of potatoes, pumpkins, and strawberries on their 60-acre farm. These crops stock the market, along with produce from nearby growers. The farm market includes a bakery. A 15,000-square-foot greenhouse rounds out the farm market's offerings.

Weaver's Orchard – Morgantown, PA. Weaver's Orchard is a 4th generation family farm. Customers can enjoy time harvesting their many pick-your-own crops or browse the farm market which offers a wide range of items including fresh produce, value-added items, local cheeses and other dairy products, and free-range meats. The farm market features a bakery, full-service deli, and café, plus a garden center. Weaver's Orchard offers educational experiences, events and tours for the public, as well as serving as a venue for private parties. www.weaversorchard.com/

Lunch: Stampede Barbecue – Mohnnton, PA. Highly recommended by our local tour hosts. Stampede is opening their restaurant on the day of the tour just for our group, so we'll be able to enjoy some quality time together while we enjoy a buffet of hot items on a winter day. Lunch will feature a choice of meats, sides and desserts. stampedebarbecue.com

Brecknock Orchard – Mohnnton, PA. Brecknock Orchard has been growing and marketing fruit and vegetables grown on their farm for over 75 years. We'll visit their farm market and bakery, and learn from team members about the many different farm and educational experiences that this business offers their customers, including pick-

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CONVENTION

Don't Miss the 2024 Mid-Atlantic Fruit and Vegetable Convention continued from page 11

your-own fruit, vegetables and flowers from May through October, festivals throughout the year and farm tours. We'll also hear about point-of-sale technology that has worked for them. www.brecknockorchard.com/

Plum Creek Farm Market & Creamery – Bernville, PA. This operation started as a roadside stand just west of Reading, selling fruits and vegetables from their farm. The roadside stand quickly grew to become a bakery, cafe, and ice cream shop. At the end of 2022, they built a pretzel factory and started wholesaling their famous soft pretzels. God has taken them on a memorable journey from selling produce on a small roadside wagon to where they are today. www.plumcreekfarmmarket.com.

Specialty Mushrooms - Cocoa Suite 6

\$35 (no lunch included)
12:00 pm - 4:30 pm

Mushrooms are an increasingly popular commodity with customers. However, there are many different specialty species and considerations for adding mushrooms as a crop. If you have been thinking about growing mushrooms, developing a new niche, or generating creative revenue streams off your land, this workshop may help get you to the next step. The workshop will include an in-depth overview of specialty mushrooms and considerations for successfully cultivating popular species. At the end of the workshop, specialty mushroom growers from Pennsylvania and Maryland will offer their practical experience and knowledge as part of a grower's roundtable.

- 12:00 **An Overview of Specialty Mushrooms** – Dr. John Pecchia, Penn State Univ.
- 1:00 **Getting Started with Producing Specialty Mushrooms** – Dr. John Pecchia, Penn State
- 2:30 **Quiet Creek Herb Farm & School of Country Living: An Overview of Shitake Mushroom Production** - Sylvia Rensel, Quiet Creek Herb Farm
- 3:30 **Grower Round Table** - Kyle Beaver, Ten Mile Mushrooms; Matt Sicher, Primordia Mushroom Farm; and Courtney Cohen, Spore and Seed - A discussion of the practical aspects of starting a specialty mushroom farm or diversifying your farm production with mushrooms.

Previously "To Be Announced" Sessions

Several sessions were listed as "To Be Announced" in the November newsletter. They have now been announced as follows:

Tuesday Morning, January 30, 2024

13 Tree Nut Production - Empire Room AB

- 9:00 **Hazelnut Production in New Jersey** - Megan Muehlbauer, Rutgers
- 9:45 **Tree Nuts Grown in Pennsylvania** - Emelie Swackhamer, Penn State

Tuesday Afternoon, January 30, 2024

27 Success in Retail Marketing - Cocoa Terrace/Cocoa 1

- 1:30 **Our Retail Success Stories – A Grower Panel**
James Abma, Abma Farms, Wycoff, NJ
James Giamarese, Giamarese Farms, East Brunswick, NJ
Greg Donaldson, Donaldson Farms, Hackettstown, NJ
Rebekah Alstede-Modery, Alstede Farms, Chester NJ

Wednesday Morning, January 31, 2024

33 Organic Vegetable Production - Magnolia Room D

- 9:00 **Side-by-Side Comparisons of Organic Weed Management Systems in Onions and Squash** – Dr. Bryan Brown, Cornell Univ.
- 9:30 **Using Biocontrols Effectively** – Dr. Karly Regan, Certis Biologicals
- 10:15 **Transitioning to Organic 101** - Kegan Hilaire and Sage Dennis, Rodale Institute
- 11:00 **Performance and Quality of Sweetpotato under Protected Culture Systems** – Dr. Luis Duque, Penn State
- 11:30 **PVGA Annual Meeting** - Crystal Room

37 Labor/Farm Management - Empire Room CD

- 9:00 **H-2A: Worker Recruitment, Visa Issues, and Travel** - Gideon Cooper, LaborMex
- 10:00 **H-2A: Job Order Filing and New Worker Regulations** - Timothy Welsh, Phoenix Labor Consultants
- 10:30 **H-2A: Housing Regulations** - Jesus Dias, Virginia Workforce Connection
- 11:00 **H-2A: Grower Panel - Voices of Experience** - Laura Wiley, Joseph Robinson, Diane Kearns, Jaime Williams, Speakers

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CONVENTION

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Wednesday Afternoon, January 31, 2024

- 47 Labor/Farm Management - Empire Room CD**
- 1:30 **The Fair Labor Standards Act: What You Need to Know** - Audrey Thompson, Penn State Center for Ag & Shale Law
 - 2:30 **Upskilling Domestic Labor** - Sieger Bokschoten, Telamon
 - 3:15 **Pending Regulations Regarding the Employer/Employee Relationship** - Brook Duer, Penn State Center for Ag & Shale Law
 - 3:45 **Agriculture Workforce Needs Listening Session** - Sara Gligora, Pennsylvania Dept. of Ag. [TENTATIVE]

Thursday Morning, February 1, 2024

- 52 Soil Health and Cover Crops - Crystal Room**
- 9:00 **Role of OM on Soil Health and Nutrient Management** - Dr. John Spargo, Penn State
 - 9:30 **Growing Soil at Braddock Farm** - Nick Lubecki, Grow Pittsburgh/Braddock Farm
 - 10:15 **Integrating Cover Crops and Anaerobic Soil Disinfection to Enhance Soil Health in an Organic Tomato Cropping System** - Joe Ono-Raphel, Penn State
 - 11:00 **Composting and Vermicomposting at Spiral Path Farm** - Will Brownback, Spiral Path Farm
 - 11:30 **Soil Microbes Determine Health of Crops** - Dr. James White, Rutgers Univ.

Thursday Afternoon, February 1, 2024

- 67 Labor/Farm Management - Empire Room AB**
- 1:30 **Managing Conflict on the Farm** - Neal Fogle, Penn State Extension
 - 2:15 **Managing Stress on the Farm** - Dr. Suzanna Windon, Penn State Extension
 - 3:00 **Managing Employees on the Farm** - Linda Falcone, Penn State Extension

Reduced Registration for Spouses, Children or Employees
 Remember the Convention offers a reduced pre-registration fee for additional persons attending from a member farm. The first person from the farm must pay the \$80 pre-registration fee but spouses, adult children, or employees are eligible for a \$65 pre-registration fee. The purpose is to make it more feasible for growers to bring additional persons from their farms to experience the educational opportunities available at the Convention. Remember, one \$70 PVGA membership qualifies all persons from the farm for the membership registration rates. And children under 16 and all students are admitted free.

Annual Growers Banquet
 Many of you plan to gather with friends for the evening meals at Hershey. Why not plan to join a larger group of friends and fellow growers at the Annual Fruit and Vegetable Growers Banquet on January 30. There will be door prize drawings for the ladies and brief presentations by the participating grower organizations.

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CONVENTION

Don't Miss the 2024 Mid-Atlantic Fruit and Vegetable Convention continued from page 13

PVGA will present its twenty-fifth Annual Award at the Banquet. Tickets for the banquet and reception are \$35.

Spanish Session

In an effort to provide additional education to Hispanic orchard employees, Penn State Cooperative Extension is again organizing a special session in Spanish to be held on Wednesday, January 31 at the Convention. Various relevant fruit and vegetable production topics will be presented. All are welcome, so please encourage your Hispanic friends and workers to attend the day's seminars and trade show.

Spanish session attendees must pay the regular registration fee. Employees of PVGA members are eligible for the \$65 pre-registration rate.

Ice Cream Social

After you have enjoyed dinner on your own on Wednesday, January 31, come to the Great Lobby outside the trade show hall for the twenty-fourth annual PVGA Ice Cream Social from 7:00 to 8:00 p.m. The social will be open to all Convention attendees, so come early to enjoy a visit with old friends and to meet new friends. We will again be designating different tables for round-table discussions on the following topics: High Tunnels, Labor, Wildlife Controls, Farm Transition, and other topics. While you can still come just to enjoy the ice cream, we hope the designated tables will foster some valuable networking between growers. The ice cream will only be served until 8:00 p.m. but you can continue to visit for as long as you like.

The Hershey Lodge

The Hershey Lodge offers an indoor pool and water park, exercise and game room, and restaurants while the Hershey area has an outlet center, Chocolate World and other attractions that will appeal to whole family. So why not plan a mid-winter vacation at the Lodge. In case of a winter storm, you can still attend all the Convention events without setting foot outside - the Convention will go on regardless of the weather. A special Convention room rate makes the Lodge more affordable. Rooms are \$169 per night (plus taxes) for up to four persons. To make a reservation, call 1-800-HERSHEY or 717-533-3311 and tell them you are with the Mid-Atlantic Fruit and Vegetable Convention. Staying at the Hershey Lodge rather than some other motel ultimately enables us to keep the registration prices down. Plan now to spend the week in Hershey.

Pre-Register

There is no better opportunity for you to meet with vegetable, potato and small fruit experts from across the nation, dozens of vendors and fellow growers in one place. Plan now to be there! Remember that pre-registration helps us make better plans and can save you from waiting in a long registration line. You also save \$15 to \$30 by pre-registering by January 19. There is a pre-registration form in the November issue of the newsletter and on the Convention website at www.mafvc.org where you can also register online. Each member's membership renewal form, mailed by first-class mail to each member, is also a Convention registration form. You can also register online at <https://www.pvga.org/registration-form/>. If you have questions, call PVGA at 717-973-5915. Walk-in registration at the Convention is also available. Checks must be used for all pre-registrations by mail. Cash, checks or credit cards are accepted at the Convention.

Convention Program

The following sessions been scheduled for the educational program at the 2024 Mid-Atlantic Fruit and Vegetable Convention. The complete program was published in the November newsletter and is available at www.mafvc.org or by calling PVGA at 717-973-5915.

Tuesday Morning, January 30	Tuesday Afternoon, January 30
11 High Tunnels (winter)	21 High Tunnels
12 Herbs	22 General Vegetables
13 Nut Trees	23 Cut Flower
14 Urban Agriculture	24 Urban Agriculture
15 Irrigation Automation/Technology	25 Wholesale Marketing
16 Strawberries	26 Strawberries
17 Farm Market Management	27 Success in Retail Marketing
18 Tree Fruit	28 Tree Fruit
19 Keynote	
Wednesday Morning, January 31	Wednesday Afternoon, January 31
31 Tomatoes	41 Sweet Corn
32 General Vegetable	42 Organic Vegetables
33 Organic Vegetables	43 Greenhouse Ornamentals
34 Greenhouse Ornamentals	44 Stone Fruit
35 Marketing 101	45 Agritourism
36 Strawberries	46 Small Fruit
37 Labor/Farm Management	47 Labor/Farm Management
38 Tree Fruit	48 Tree Fruit
39 Spanish	49 Spanish
Wednesday Evening, January 31	
71 Retail Farm Market Roundtable	72 - Why We Farm - Faith and Family Roundtable
Thursday Morning, February 1	Thursday Afternoon, February 1
51 Wildlife Damage Control	61 Pumpkin
52 Soil Health/Cover Crops	62 General Vegetables
53 Post-Harvest	63 Hydroponic Vegetables
54 Potatoes	64 Potatoes
55 Innovative Marketing of High Value Niche Crops	65 Social Media/Digital Marketing
56 Small Fruit	66 Small Fruit
57 Stone Fruit	67 Labor/Farm Management
58 Tree Fruit	68 Tree Fruit

MARKETING

Produce Auction Pricing Data and Successful Sales Strategies

Brian Moyer, Jeffrey Stoltzfus and Jay Eury



Strategies to achieve higher per-unit prices at Southeast PA produce auctions.

Pennsylvania currently has sixteen produce auctions, mostly grower-owned, located across the commonwealth. These auctions serve as wholesale outlets for approximately 5,000 growers and generate more than \$50 million dollars in revenue for their vendors annually.

Two auctions in Southeast Pennsylvania, the Leola Produce Auction, and the Kutztown Produce Auction, generously partici-

pated in Penn State Extension research and ongoing education efforts starting in 2020. The primary focus, and audience, for this research, is Vendors - the farmers who grow for wholesale at the auction - and potential Buyers, those sourcing for secondary outlets that include restaurants, schools, hospitals, home-delivery services, meal kits, and value-added producers.

Using data collected from the auction reports of the Leola and Kutztown sites, we are able to map the participating vendor's sales activity and prices achieved for a variety of produce types, over the course of the 2021 and 2022 seasons. From that data collection and analysis, we are able to observe a variety of strategies as different produce Vendors navigate the growing season and market dynamics.

Here we share three examples from our study that demonstrate successful strategies to increase the per-unit price achieved for several produce types.

Grower J and Tomatoes

Our first example is Grower J. Grower J's identifying information will be kept anonymous, and for simplicity, they will be referred to with the pseudonym "Jean" from here forward. Jean participated as a produce auction vendor at either the Leola or Kutztown auction house in 2021 and 2022. We found a significant price per unit increase for their Tomatoes sold between 2021 and 2022.

In the chart below, the weeks of the growing season are numbered and arrayed across the X-axis. The price per unit in dollars is outlined on the Y axis. The specific, final sale prices for the units of tomatoes that Jean brought to auction in 2021 and 2022 are detailed at the bottom of the chart in dollars. We see the per unit price for all the Tomatoes that Jean sold in 2021 outlined in Blue. The orange lines show the average per unit prices for Tomatoes sold by Jean in 2022.

continued on page 16

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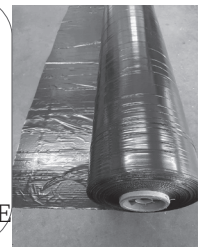
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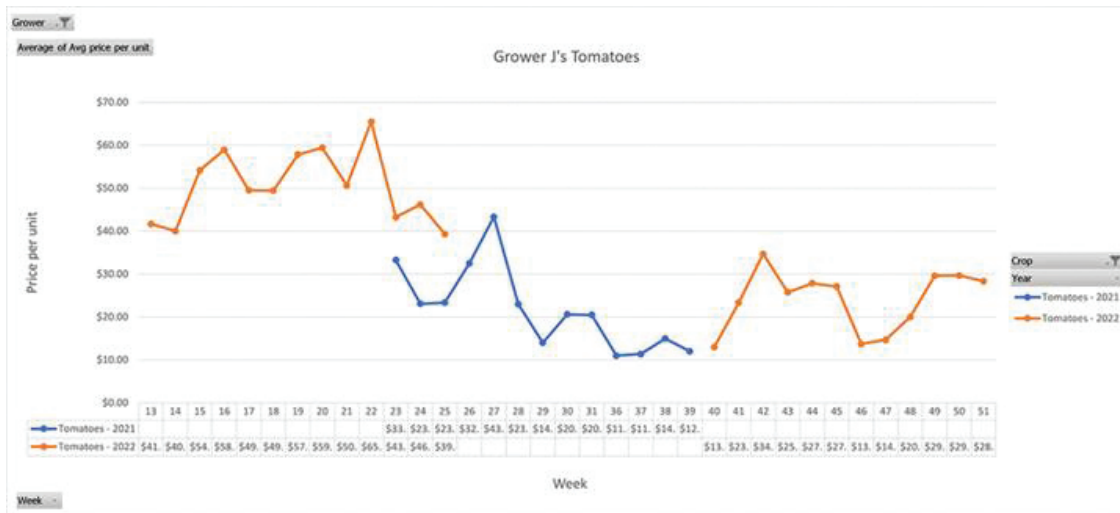
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MARKETING

Produce Auction Pricing Data and Successful Sales Strategies



While Jean's tomato harvest and sale windows differ across the years of our study (the blue and orange lines only overlap briefly in weeks 23 through 25 of both years), we see that 2022 sales prices, on average, significantly outperform those of 2021. Where they do overlap, 2022 prices for Jean's tomatoes are 61.6% higher than prices of the corresponding weeks in 2021. Over the full length of the auction seasons, averaged by the number of weeks of sale, we see that Jean received a per unit price of \$21.76 per unit of tomatoes in 2021. Jean received a per unit price of \$37.74 per unit of tomatoes in 2022, a seasonal increase of 73.4 percent.

"... We see that Jean received a per unit price of \$21.76 per unit of tomatoes in 2021. Jean received a per unit price of \$37.74 per unit of tomatoes in 2022, a seasonal increase of 73.4 percent."

The key to this significant increase in average price per unit appears to be a combination of season extension and auction participation timing. In 2021, Jean harvested their tomatoes and took them to auction in weeks 23 through 39. That's the beginning of June through the end of September, corresponding roughly with the height of outdoor tomato production in Southeast PA. Based upon vendor interviews and observations of the growing season in 2021, we can surmise that there was significant competition among tomato growers at the auction houses during this time. That supply was likely a significant cause for tomato prices per unit in the range of \$10 to \$30. Jean achieved a peak sale price of \$43 per unit in week 27.

In 2022 however, Jean took a different approach. They extended their planting and harvest calendar both earlier and later in the season, with a period of no tomato sales at all during the peak of tomato season in July and August. This meant there was much less competition (and less satisfied demand) for tomatoes in the months of March through June, and October through December, of 2022. We'll call March through June 'Early Season' and October through December 'Late Season.' Price per unit for tomatoes sold in the weeks of the Early Season (March-June) of 2022 significantly outperforms every average price per unit Jean received during the more traditional, Peak Season weeks of 2021. Only very briefly does the 2021 per unit price for tomatoes compare to Early Season 2022 prices. This happens at the peak of prices in week 27 of 2021, and the relative trough of prices in Week 13 and Week 25 of 2022. For only the fewest of weeks does that peak price received for 2021 tomatoes compare to the lowest price received for 2022 Early Season tomatoes.

Clearly, it is better to be early to auction. The season extension efforts, especially at the beginning of the calendar year returned significantly higher per unit prices. If we isolate and compare Peak Season 2021 versus Early Season 2022 prices, we see that on average, price per unit for the Peak Season tomatoes Jean received in 2021 was \$21.77. The price per unit of Early Season tomatoes that Jean sold in 2022 was \$51.18 - a difference of 135%. This

is the most significant price increase we found in our participating vendor's sales data in this study.

"Clearly, it is better to be early to auction. The season extension efforts, especially at the beginning of the calendar year returned significantly higher per unit prices."

The price advantage for Late Season tomatoes versus Peak Season tomatoes exists slightly. On average, again, the price per unit for Peak Season 2021 tomatoes was \$21.77. The average per unit price for Late Season tomatoes in 2022 was \$23.97, a difference of 2%. The best price advantage weeks of the

Late Season coincide with the weeks heading into the Thanksgiving and end of December holidays.

Grower P and Tomatoes


Next up is Grower P and their tomatoes. We'll refer to Grower P pseudonymously as "Pat" going forward. When we look at Pat's vendor sales data from one of the other participating auction houses, we see higher prices, on average, for their tomatoes sold in 2022 versus 2021. While it's difficult to estimate from the image below, the average price per unit of tomatoes that Pat sold in 2022

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MARKETING

Produce Auction Pricing Data and Successful Sales Strategies

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was 64% higher than the average price per unit they received in 2021.

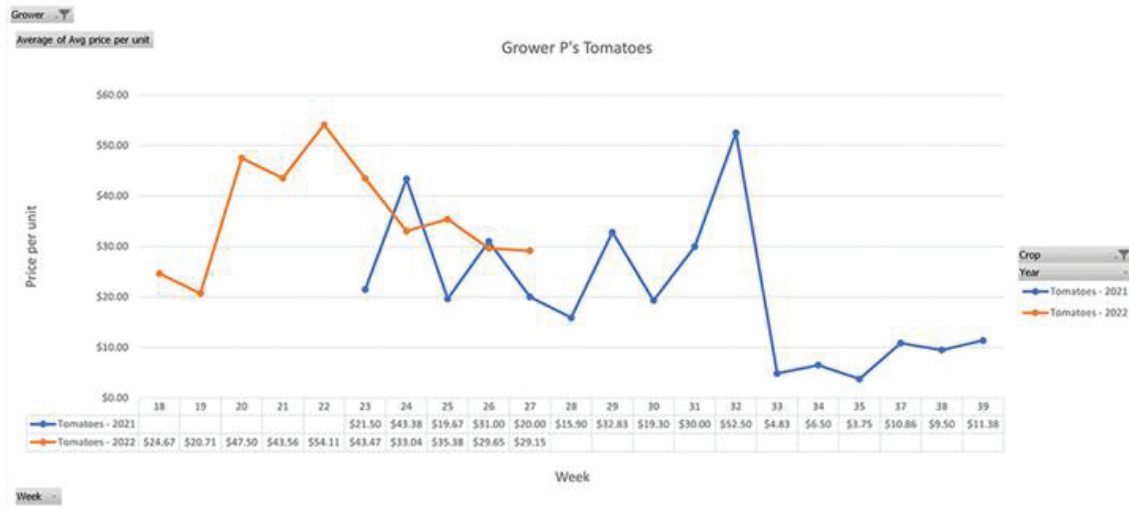
Again, the blue line corresponds to the per unit price for tomatoes that Pat took to auction in 2021. The orange line shows average per-unit price for tomatoes sold by Pat in 2022. The average prices, per unit, per week, are detailed at the bottom of the chart.

Pat followed a somewhat similar strategy to Grower J ("Jean")

in 2022 compared to 2021. In the second year of our data collection, Pat focused solely on Early Season tomato production and sold at auction in the months of May and June (Weeks 18-27). In 2021 they had followed the full length of the traditional Southeast Pennsylvania tomato harvest and sale calendar - late June through September (Weeks 23-39). Unlike Jean, Pat chose to not sell any successive crops of tomatoes at auction in the second half of

2022. While Pat may have missed out of some of the later peak price days at the auction around the ends of November and December, he also skipped the weeks of annually low-price days in August and September.

The overlapping weeks of price data (Weeks 23-27) between the two years shows a higher average price per unit of \$34.14 in 2022 versus an average of \$27.11 per unit of tomatoes in 2021. The prices that Pat received in 2022 were 25.9% higher than those he received in 2021 in the corresponding weeks of the calendar



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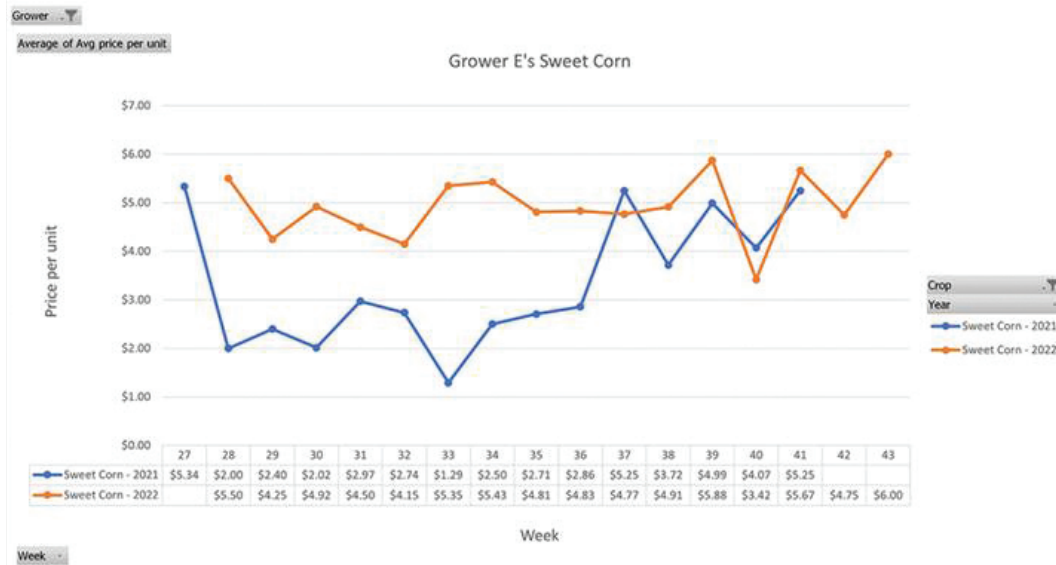
years. This suggests other dynamics including supply and/or demand at work, such that Pat earned higher prices for his tomatoes in 2022 compared to 2021 without the Early Season price advantage anyway. That 2021-22 price increase of 25.9% may account for some of the overall price per unit improvements that Pat saw in 2022. Pat's overall increase though, in average price per unit of tomatoes, from 2021 to 2022, was 64%.

price increase given the parameters of the data we surveyed in this initial study.

We are unable to statistically conclude the cause of the significant price increase for Emery's sweet corn in 2022. Because we only analyzed the individual sales numbers of a select group of growers at each auction, we can't observe the overall auction supply and demand dynamics, or factors outside the auction that could affect prices.

Conclusion

Analysis of individual vendor's pricing data is insightful. We are able to observe a variety of auction supply strategies and corresponding prices returned per unit that informs successive seasons and other produce vendors. Future research would benefit from more produce vendor participants; the accumulation of more year-over-year auction sales data; other relevant qualitative information from vendors including surveys, interviews, and focus groups; as well as external data sources to use for comparison, correlation, or potential causation. These external data sources could include regional or national data on consumption habits, pricing data from other produce sales channels or wholesale outlets, or national economic statistics for example.



Grower E and Sweet Corn

Finally, Grower E will be referred to as "Emery." We found consistent price increases for the Sweet Corn that Emery sold at one of the Southeastern PA produce auctions studied between 2021 and 2022.

In the chart below, we see the per unit price for the units of Sweet Corn that Emery sold in 2021 outlined in Blue. The orange line shows average per unit prices for Sweet Corn sold by Emery in 2022. The specific, average prices per week are detailed at the bottom of the chart.

The prices at which Emery sold their sweet corn, for the first nine weeks of sales in 2022, are double that of the prices they received in 2021. On average, from Week 28 through Week 36 of 2022, the price per unit of sweet corn is 2.04 times that of the price per unit of sweet corn they brought to auction in 2021. Over the course of the full season, prices for Emery's sweet corn averaged \$4.95 per unit in 2022, versus \$3.34 in 2021 - a seasonal increase of 48.2 percent.

What accounts for this significant improvement in corresponding week, or year-over-year, price data? We can see that Emery's harvest and auction schedule is roughly the same across the two years. From surveys conducted over the course of our study, Emery shared that they grew roughly the same acreage of sweet corn, that the weather over this time frame was roughly the same, and that they made no significant changes to their production or sales methods between 2021 and 2022. It's difficult to account for this

Each season brings new opportunities to gather feedback on areas for improvement, especially those that return higher premiums for the products grown by PA farmers. As one of our research investigators observed, "the greatest success is never achieved in one season. It is grown steadily through experience, observation, and adjustment."

Mr. Moyer and Mr. Stoltzfus are with Penn State Extension in Lehigh and Lancaster Counties respectively. Mr. Eury was formerly with Penn State Extension. From Penn State Extension, <https://extension.psu.edu/produce-auction-pricing-data-and-successful-sales-strategies>, July 14, 2023.

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Cold Injury in Vegetable Crops and Why It Happens

Genevieve Higgins

After our first frost last week, growers saw any remaining beans, sweet corn, nightshades, and cucurbits go down, while most root crops and brassicas are still standing tall. Crops vary in their tolerance of cold temperatures (Table 1). This article will discuss some of the effects that cold temperatures have on plants and some of the ways that cold tolerant plants adapt to withstand low temperatures.

Table 1. Frost tolerance of common vegetable crops

No frost tolerance	\$500	
Will survive 31-33°F	Light frost tolerance	
Will survive 28-32°F	Frost hardy	
Will survive 24-28°F	\$200	
Beans	Beets	Brassicas (24-28°F)
Sweet corn	Carrot	Parsnips (For best quality, harvest after several moderate freezes, 24-28°F. Can be overwintered and harvested in the spring.)
Potatoes	Cauliflower	
Pepper	Lettuce	
Eggplant	Alliums	
Cucurbits	Parsley	
Sweet potatoes	Peas	
Tomatoes*	Radish	
Muskmelons*	Rhubarb	
Pumpkins*	Spinach	
Swiss chard		

*Will not tolerate frost but will ripen further after harvest

Source: *Fall Frost Tolerance of Common Vegetables*, South Dakota State University Extension

When temperatures start to drop, one of the first changes in a plant is that cell membranes become more rigid and fragile, and become damaged easily. Plant cell membranes contain saturated and unsaturated fatty acids in varying amounts depending on the plant species. Unsaturated fatty acids remain liquid at low temperatures—think of canola oil in the fridge. Saturated fatty acids are solid at low temperatures—like butter in the fridge. Cold-tolerant plants have more unsaturated fatty acids in their cell membranes, which results in their cell membranes remaining fluid and flexible as temperatures drop. Cold-sensitive plants have more saturated fatty acids in their cell membranes, so when temperatures drop, their rigid, fragile cell membranes are more likely to crack, leading to cell death.

Many plants also turn red or purple as fall progresses. This is due to the accumulation of red-colored pigments like anthocyanins. These pigments act as antioxidants within the plants. As temperatures drop, processes like photosynthesis and respiration slow down, leading to the formation of molecules that can cause cell damage. Antioxidants, like the red-colored anthocyanins, help counteract those damaging molecules, but a plant can only pro-

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VEGETABLE PRODUCTION

Optimal Conditions for Storage Crops

Crop	Storage	Notes	Ethylene Sensitivity*
Beet, Radish, Turnip & Rutabaga	Store at 32°F and 95% RH with greens removed. Radishes can be stored for 2-4 months, turnips and rutabaga for 4-5 months, and beets for 4-6 months.	Low humidity causes shriveling and weight loss, and shortens storage life.	LOW
Cabbage	Store cabbage at 32°F and 98-100% RH. Can last 4-6 months in optimum conditions.	Cabbage and other brassicas freeze at 30°F, and storability starts to decrease at >34°F. Presence of light in storage can decrease leaf yellowing during storage.	HIGH (promotes leaf yellowing, wilting, and abscission)
Carrot	Store carrots at 32°F and 98-100% RH. Can be stored 5-9 months. Potential storage time increases with higher RH.	May be stored washed or unwashed. Washing immediately after harvest may reduce disease incidence in storage but can cause skins to dry out. Storing with ethylene producers (like apples), and wounding and bruising during washing, can cause bitterness in skin.	HIGH (causes bitterness in skin)
Garlic	Store at 32°F and 65-70% RH. Seed garlic should be stored at 50°F. Can be stored 6-7 months at 32°F.	High temperatures (>65°F) cause dehydration, intermediate temperatures (40-65°F) promote sprouting, and high RH promotes root growth and molding.	LOW
Onion	Store at 32°F and 65-70% RH. Avoid condensation by cooling gradually and maintaining steady temperature. Storage potential depends on variety.	As onions mature, their dry matter content and pungency increase. Onions produced from seeds store longer than those from sets. High temperature increases sprouting, high RH stimulates root growth, and the combination increases likelihood of rotting.	LOW
Parsnip	Store at 32°F and 90-95% RH with greens removed. Can be stored 2-6 months in optimum conditions.	Starches in parsnip roots convert to sugars at cold temperatures. Early fall-dug parsnips can be induced to sweeten with a short (2-3 weeks) cold storage treatment.	HIGH (causes bitterness)
Potato	Lower temperature gradually to 40-45°F for table-stock or seed. Store at 50°F for chip stock varieties. Maintain RH at 90%. Can be stored 5-8 months.	Curing and storage environments must be dark to prevent greening. At colder temperatures, starches convert to sugar, but this is reversible if temperatures are raised again.	LOW
Sweet Potato	Store at 55-60°F at 90% RH. Well-cured roots can store for up to a year in optimal conditions.	Starches in roots convert to sugars for the first 30 days postharvest; wait until 3 weeks after harvest for best flavor. Avoid chilling injury by keeping roots above 50°F. Chilling injury promotes root decay and decreases storage potential.	MODERATE (causes discoloration)
Winter Squash	Store at 55-60°F and 50-75% RH. Storage potential varies with variety, from 2-6 months.	Avoid chilling injury in field or storage, which occurs when temperatures are below 50°F. Injury increases as temperature decreases and/or length of chilling time increases. Decay accelerates after chilling. High temperatures decrease flesh quality, and high RH promotes decay.	MODERATE (causes discoloration)

*Crops that produce significant amounts of ethylene during storage include: apple, pear, peach, plum, cantaloupe, tomato, plus several tropical fruits.

From the Univ. of Massachusetts and Univ. of New Hampshire Northeast SARE Project "Expanding winter harvest and sales for New England vegetable crops", 2010-2013 <https://projects.sare.org/project-reports/Ine10-297/>. As updated 2018 by G. Higgins and printed in the Vegetable Notes, Univ. of Mass. Extension, Vol. 35, No. 24, Nov. 9, 2023.

VEGETABLE PRODUCTION

Cold Injury in Vegetable Crops and Why It Happens

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duce so many of these pigments so quickly and eventually, as temperatures drop, cells become damaged.

When temperatures drop below 32°F, freezing injury can occur in plants as a result of ice forming within plant tissues. Ice can either form between cells or within cells. If ice forms between plant cells, it actually draws water out of the cell, resulting in cell dehydration. Plants have varying abilities to withstand this dehydration—cold-tolerant plants can withstand more dehydration than cold-sensitive plants. Ice formation between cells is the reason why you should **never handle a frosty crop that you are hoping to harvest or otherwise work with**. Handling a leaf with ice crystals between the cells will result in those crystals puncturing the cell walls, like an icicle stabbing a water balloon. But, if the leaf is allowed to defrost without being moved, the cells will remain undamaged.



Wait to work in frosty crops until they have defrosted on their own, to avoid damaging the cells. Photo: Univ. of Nebraska Extension.

When water within a plant cell freezes into ice, it expands and the cell membrane bursts—the same way a glass jar filled to the rim with water will crack when it freezes.

Cold-tolerant plants have adapted ways to prevent ice from forming within their cells. Triggered by short daylight hours and a gradual temperature drop, four different processes happen in cold-hardy plants:

1. **Cells gradually become more dehydrated.** Water will move out of cells so that it will freeze between instead of within the cells. Cold-hardy plants have a greater capacity to tolerate this dehydration than cold-sensitive plants.
2. **Sugar accumulates within the cells.** Sugars dissolved in water will lower the freezing point of the water, so that the cell can withstand colder temperatures without freezing. Sugar also becomes embedded in the cell membranes to help stabilize them and keep them fluid at low temperatures. This process is why crops like spinach, brassicas, and many root vegetables taste much sweeter if they're harvested in the late fall compared to mid-summer.
3. **Antifreeze proteins accumulate within the plant.** These are proteins that bind to the surface of ice crystals to slow down ice crystal expansion.
4. **Cell membranes become more unsaturated.** Plant cells swap out some of the saturated fatty acids (think butter – solid and rigid in the fridge) in their cell membranes for unsaturated fatty acids (think canola oil – liquid and flexible in the fridge).

These four processes help to explain why some crops melt and some stand tall after a frost.

Ms. Higgins is with the Univ. of Massachusetts Extension Vegetable Program. From *Vegetable Notes*, Univ. of Mass. Extension, Vol. 35, No. 24, Nov. 9, 2023.

Basil Downy Mildew Resistance

Genevieve Higgins and Kelly Allen

Most basil growers are familiar with basil downy mildew and the resistant varieties that were released from multiple breeding programs in 2018. Basil downy mildew (BDM) is a disease that produces fuzzy gray sporulation on the undersides of basil leaves, rendering the plants unmarketable. It first appeared in the US in 2007 and is now the most damaging basil disease in the country. Generally, the pathogen is not active in the Northeast until July. However, we have observed it earlier in the growing season in indoor production systems and garden centers, moving with potted plants. Active basil downy mildew can be reported, and alerts can be set for specific regions here: <https://basil.agpestmonitor.org/>. This time-line allows us to recommend growing susceptible varieties earlier in the growing season, starting preventative spray programs once pathogen activity is observed in the region, and introducing resistant varieties as soon as possible for optimal pathogen control.

Plant breeders have been working since BDM arrived to develop basil varieties that are resistant to this disease. In 2018, the Rutgers basil breeding program released the cultivars 'Devotion', 'Passion', 'Obsession', and 'Thunderstruck', and Genesis Seeds Ltd. released the Prospera® F1 series. More recently, 'Amaze! Basil®' and 'Pesto Besto' have been released by Proven Winners. These varieties were developed at the University of Florida's Institute of Food and Agricultural Sciences (IFAS) and have performed similarly to the Prospera series in UMass trials.

'Evi' and 'Giuletta' have also been developed by breeder Olaf

Kunzemann at Enza Zaden. These two varieties stood up well in a UMass Extension Vegetable Program field trial in 2023 (Figure 1). In this trial, 'Giuletta' had no BDM 2.5 weeks after BDM was first observed on susceptible varieties in the trial, and 'Evi' had only very low levels of BDM. Not much is known about the source of BDM resistance in these two varieties, just that it is from a combination of BDM breeding lines and wild basil species. These two varieties haven't been evaluated in the rigorous way that the Rutgers and Prospera varieties have been, but they are interesting new prospects.

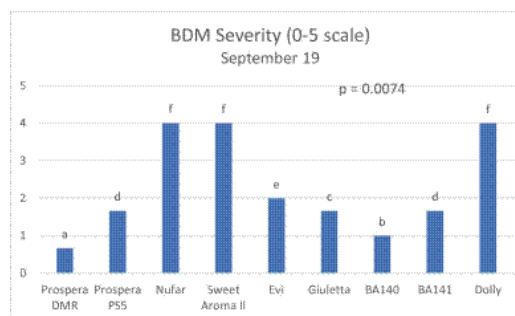


Figure 1. UMass basil downy mildew variety trial results, 2023. BDM severity on September 19, 2.5 months after planting and 1 month after BDM was first observed in the trial.

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VEGETABLE PRODUCTION

Basil Downy Mildew Resistance

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There are also several older resistant varieties, including ‘Eleonora’, ‘Emma’, and ‘Everleaf’, which have largely been discounted as no longer having significant resistance to BDM, however, ‘Eleonora’ has shown intermediate resistance to some strains of BDM in UMass trials – keep reading for more details!

The newer BDM-resistant varieties will continue to produce for several weeks in the presence of BDM, but we have observed breakthroughs against resistance in all varieties in multiple locations since 2018. We’ll explain why we’re seeing those breakthroughs, some background of the development of the resistant varieties, and best practices for managing basil downy mildew.



Leaf yellowing between the veins, caused by basil downy mildew infection. Photo: Univ. of Florida



Basil downy mildew sporulation on the underside of a leaf. Photo: A. Madeiras

Basil downy mildew is caused by the oomycete pathogen *Peronospora belbahrii*. Oomycetes, a group that includes *Phytophthora*, *Pythium*s, and the downy mildews, are challenging to control. The downy mildews are particularly stubborn due to their persistent survival on living plant material and polycyclic disease cycle, meaning many infection events can occur and recur in a single growing season. BDM survives on living plants where basil production occurs for extended periods, e.g. in Florida or, less often, in climate-controlled greenhouses. It has been reported to be infrequently seedborne, although the importance of the seedborne spores is not well understood. BDM causes interveinal chlorosis (yellowing between the veins of the leaves), which corresponds to fuzzy gray sporulation on the undersides of leaves after high humidity periods, and infected leaves will eventually turn brown, desiccate and fall off.

Like most downy mildews, there is a lot of variation within the BDM pathogen, and growers will see different varieties become infected in different years, depending on what strain (often called a “race”) of the pathogen is present. This is similar to cucurbit

downy mildew, where different races infect different cucurbit crops, and spinach downy mildew, where different races infect different spinach varieties. Researchers are actively working right now to establish a “differential panel” in order to formally distinguish between races. A differential panel is a set group of basil varieties that can be inoculated in the lab with a single isolate of a pathogen. The pattern of which varieties develop disease or not tells us what race the isolate is.

Currently, the only well-established race for BDM is race 1, which is defined as anything that infects ‘Prospera®’, regardless of how the isolate behaves on other varieties. In other words, the original Prospera® series is susceptible to BDM race 1. UMass research has shown that the Rutgers variety ‘Passion’ and ‘Eleonora’ have intermediate resistance to multiple race 1 isolates. This is exciting because as an older variety, ‘Eleonora’ has been largely discounted as not having significant resistance anymore. In these trials, ‘Eleonora’ has shown split resistance to race 1, which means that when inoculated with a race 1 isolate, some ‘Eleonora’ plants will develop disease and some will not. This implies that the mechanism of resistance in ‘Eleonora’ is different than the other resistant varieties and that Eleonora’s resistance is somewhat unstable.

BDM races develop over time based on what resistant varieties BDM isolates are exposed to. A spore that lands on ‘Prospera®’ and happens to have mutated to overcome the ‘Prospera®’ resistance will not necessarily also have overcome the resistance in ‘Passion’, ‘Thunderstruck’, ‘Obsession’, ‘Devotion’, or ‘Eleonora’. This means that there’s potential for many combinations of infection patterns and races.



‘Mrihani’ basil, the BDM-resistant parent of the Rutgers resistant varieties. Photo: K. S. Allen

The four Rutgers varieties originated from the same parent cross—their parents, going back many generations, are a *Fusarium* wilt-resistant sweet basil and ‘Mrihani’, a BDM-resistant, frilly-leaved licorice basil relative native to Zanzibar. Many plant generations later, the Rutgers breeders selected four distinct basil varieties, all with resistance to BDM that originated from the ‘Mrihani’ parent. Because of the way that genes are combined and passed down to offspring, these four varieties have distinct resistance genetics; i.e. the resistance genes in *Obsession* are not identical to those in *Passion*. All of the

Rutgers varieties have multi-gene resistance to BDM. Multi-gene resistance is generally harder for pathogens to fully overcome than single-gene resistance. In UMass trials, Rutgers varieties (particularly ‘Passion’) have been shown to potentially have partial resistance to multiple BDM races.

Genesis Seeds’ Prospera® series originated from an interspecific hybrid cross between a sweet basil variety and a BDM-resistant wild American basil (a different species from sweet basil). Once the resistance was established by this cross, the breed-

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Basil Downy Mildew Resistance

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ers selected for growth habits and other desired characteristics, resulting in 5 Prospera® varieties – Cut Genovese (CG1), Italian Large-Leaf (ILL2), Potted Large-Leaf (PL4), Potted Small-Leaf (PS5), and Red. In comparison to the multi-gene resistance present in the Rutgers varieties, the resistance in the Prospera series is controlled by a single dominant resistance gene, but is susceptible to BDM race 1. However, Genesis recently announced the release of a new line called ‘Prospera Active’ with a second source of BDM resistance, giving it resistance to race 1 isolates.

Best practices for managing basil downy mildew:

- Grow multiple resistant varieties for mid- and late-season basil. The best defense may be to grow ‘Prospera’ and ‘Pas-sion’, and introduce ‘Prospera Active’ later in the season.
- Grow your favorite, maybe more unique but BDM-susceptible varieties early in the season (before mid-July).
- Increase protection with fungicides (conventional growers). The materials in the table below have been shown to effectively control BDM. Apply on 7-day intervals. Resistance to mefenoxam (e.g. Ridomil) has been recorded. No OMRI-listed materials have been shown to be effective.

Active ingredient	Example material name	Resistance Group	Max # applications before rotating	PHI	Greenhouse/high tunnel use allowed?
Azoxystrobin	Quadris	11	2		No
Fenamidone	Reason	11	1	2d	No
Mandipropriin	Revus	40	2	1d	No
Oxathiapropriin	Orondis Gold 200	49	2	0d	Yes
Oxathiapropriin + mandipropriin	Orondis Opti	49 + 40	2	1d	No
Phosphorous acids	Many	33	0d		Yes
Cyazofamid	Ranman	21	3	0d	Yes

More Resources

Read more about Basil Downy Mildew here

Ms. Higgins is with the Univ. of Massachusetts Vegetable Program, and Ms. Allen is a Plant Pathologist working on USDA-NIFA-funded Basil Consortium Project (2022-51181-38448). From the Vegetable Notes, Univ. of Mass. Extension, Vol. 35, No. 25, December 14, 2023.

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