PENNSYLVANIA
VEGETABLE GROWERS
NEWS

PVGA

Volume 48/Issue 6

for the vegetable, potato, and berry grower

Cover photos provided by Donald Wilson for Risser Marvel Farm Market

PVGA

Pennsylvania Vegetable Growers Association

An association of vegetable, potato and berry growers.

President's Message | *Peter Flynn | President*

As the 2025 growing season—or perhaps we should now say summer growing season—comes to a close, it's clear that vegetable production in Pennsylvania never really stops anymore. With high tunnels extending harvests well into the colder months, "off-season" farming has become a thing of the past!

While fields may be slowing down, PVGA's busiest time of year is just beginning. First up is the Pennsylvania Farm Show in Harrisburg, where our famous PVGA Food Booth will once again serve up delicious batter dipped veggies, blomin' onions, funnel cakes, and smoothie drinks that raise funds to support vital vegetable research and the work of our association. It's always a highlight of the year and a great way to showcase the best of what Pennsylvania farmers grow.

Next comes the Mid-Atlantic Fruit and Vegetable Growers Convention, the premier agricultural education event on the East Coast. This year's convention will be especially meaningful, as PVGA celebrates its 100th anniversary—a full century of advocating for Pennsylvania's vegetable growers! We'll be marking this milestone with special events, displays, and a commemorative newsletter highlighting our proud history and the people who made it possible.

Over the decades, PVGA has raised hundreds of thousands of dollars for vegetable research, championed growers' interests in Harrisburg and Washington, and provided countless educational opportunities to help members stay at the forefront of the industry.

If you'd like to get more involved in supporting Pennsylvania's vegetable growers—through volunteering, serving on a committee, or joining in our centennial celebration—please reach out to us at 717-973-5915 or pvga@pvga.org.

Here's to another productive season and to the next 100 years of growing together!

Pete Flynn

PVGA President

Inside this Issue

Pennsylvania Vegetable Growers News is the official publication of the Pennsylvania Vegetable Growers Association
908 N 2nd St, Harrisburg, PA 17102 | 717-973-5915 | pvga@pvga.org | www.pvga.org

Our Mission

PVGA serves Pennsylvania's vegetable, potato, and berry growers through education, research, advocacy, and promotion.

Our Vision

PVGA is the driving force in ensuring the future viability of the vegetable, potato, and berry industries in Pennsylvania.

Inquiries about membership, this publication or advertising rates should be directed to PVGA at the above address.

Twin Springs Twilight Meeting Recap

Leah Fronk, Kathy Demchak, and Tom Childs | Penn State

On the evening of October 9, 2025 about 40 people gathered in Adams County at Twin Springs Fruit Farm, Ortanna, PA. The twilight meeting drew growers and Extension staff from central PA and northern MD to learn about innovative techniques and production strategies implemented at Twin Springs. Sponsored by PVGA, the evening began with a tour of the spring mix greenhouse, where the in-bed rototiller, used to prepare growing beds for a new crop after harvest, was demonstrated. Attendees saw several generations of greenhouse plantings growing at the same time and heard about the farm's approaches to pest management.

The group then visited the strawberry field, where Tom Childs, one of the managers at Twin Springs, discussed his use of dormant bare root plants in the plasticulture system. He provided a complete overview of the strawberry production season, sharing both the challenges and successes of the system. Local strawberry plug plant propagators in attendance were able to speak about the hurdles encountered when growing strawberry plug plants from runner tips. Handouts were provided for attendees that outlined the specific steps the farm takes to manage their annual crop of strawberries.

Next, participants moved to the raspberry field, where Jessie King, co-owner of Twin Springs, covered variety selection, management of spotted wing drosophila, and rust control strategies. The group was able to examine the farm's compact Italian tractor with its mounted sprayer, designed with a low profile to navigate efficiently under blueberry netting and among other fruit crops.

The tour concluded in the blueberry field, where Kathy Demchak and Jessie King discussed variety performance, pruning practices, and the unique challenges of blueberry production in Pennsylvania's soils.

As the sun set on the cool fall evening, participants enjoyed ice cream from *The Cow* mobile ice cream truck—a satisfying end to an informative and well-attended program.

Dr. Mike Orzolek | Prof Emeritus Horticulture PSU

HORTICULTURAL Observations

Falls Leaving and Winter Will Be Arriving

With fall making way for winter in 8 weeks, now is the time to think of your soil health and ways to improve it. Certainly planting a cover crop is a good start. Cover crops attribute to increases in soil organic matter, reduced weed populations, reduce/eliminate soil erosion and maintain/increases in the soil microbe population. With a large selection of cover crop species, a cover crop can either be planted and turned under prior to maturity in the spring or allowed to mature to harvest the crop (mainly small grains) in late spring/early summer. In addition, mowing weeds at this time of year will reduce the number of weed seed that can germinate in your fields next Spring.

Fall is also the time to save seeds of open pollinated vegetable varieties. Choose fruit that look like the description of the variety you want to save. The seed should be removed from the fruit/vegetable rinsed with clean water and placed in a container containing hydrogen peroxide solution for 24 hours. Solution temperature should be around 50*F. After the seeds are removed from the peroxide solution, place them in a warm location to dry for 72 hours and than store them in a refrigerator or cooler. The rule of thumb to keep stored seeds viable is that the air temperature plus humidity should never exceed 100.

Growers Classified

PVGA offers a classified service to vegetable, potato, and berry growers. Classified ads for used equipment or surplus supplies will be published at no cost in a Growers Classified section.

The ads will be published on the PVGA website, in the email update, and in the printed newsletter

Ads will be restricted to equipment or supplies specific to vegetable, potato, and berry production, not general farm equipment. Other such free classified sections are available in publications like Lancaster Farming, but this is designed to focus specifically on items of interest to our growers. Businesses that commercially sell equipment or supplies will not be able to advertise for free.

There are several ways to place a classified ad

- Email to pvga@pvga.org
- Mail to PVGA | 908 N 2nd St, Harrisburg, PA 17102
- Fax to 717-236-2046

Penn State Extension to Host FSMA Training Courses

The Food Safety Modernization Act(FSMA) is the most comprehensive change to produce farming in the past 70 years. Farms growing more $30,000 in gross Produce sales are covered under this Act. The FSMA law covers growers who grow ***any*** fruit or vegetable crop normally consumed raw. 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 for the course is typically in the $150 range. This year we have funding from PDA to reduce the cost to $50 per PA 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: Postharvest Water)
- Postharvest Handling and Sanitation
- How to Develop a Farm Food Safety Plan

Dates and Locations for Penn State in person trainings: Others may be added

- January 22, 2026 Franklin County Extension Office, Chambersburg
- February 24, 2026 Mercer County Extension Office, Mercer
- February 25, 2026 Lancaster County Extension Office, Lancaster
- March 26, 2026 Keystone Family Farms, Madisonburg

Two Day FSMA training webinar

- November 12 and 13, 2025 10 AM - 3 PM each day
- April 7 and 8, 2026 10 AM - 3 PM each day

To register for these trainings, please visit http://extension.psu.edu/fsma-grower-training or call **1-877-345-0691**. The standard registration fee is $150 per person; a discounted price of $50 per person is available for Pennsylvania commercial growers through support from the Pennsylvania Department of Agriculture. Checks, credit cards, and debit cards are accepted. Please direct any questions about the program to Jeff Stoltzfus at (717) 283-2597.

Applying Adoption Models to Farmer's Decision-Making

Suzanna Windon, Ph.D. | Assistant Professor, Youth and Adult Leadership | Pennsylvania State University
Aastha Adhikari | Graduate Student | Pennsylvania State University

This article discussed widely used two adoption models to shed light on the motivations and barriers influencing farmers' decisions to adopt new technologies or practices.

Photo by Tom Fisk via iStock by Getty Images

Have you ever wondered why some farmers quickly embrace new farming methods while others prefer trying-and-true practices? When considering the adoption of new agricultural technologies, such as a novel seed variety or employing new soil practices, farmers must weigh a complex set of factors that influence their decision-making process. This decision is not driven solely by the perceived benefits of the innovation but is shaped by various behavioral, social, and economic considerations. Adoption models provide a framework for understanding the multifaceted nature of this decision-making.

When your neighbor farmer starts planting that new seed variety, the question is, what makes them take that leap while you might want to wait and see?

For most farmers, it's not a simple yes or no decision. You might be thinking:

- "Can I afford to take this risk?"
- "Has anyone I know tried this?"
- "Will it work with my current equipment?"
- "What if it doesn't perform as promised?"
- "Will it be better than my current practice?"

As research shows that all listed above concerns are valid for farmers. Below, we will discuss why.

The Role of Adoption Models

Adoption models are a collection of behavioral theories that collectively explain the underlying motivations and barriers that shape a farmer's decision to embrace or reject new agricultural technologies. These models recognize that the adoption process is influenced by an interplay of factors, including:

1. **Perceived Attributes of Innovation:** Farmers evaluate characteristics such as relative advantage, compatibility, complexity, trialability, and observability when assessing the desirability of a new technology (Rogers, 2003).
2. **Socioeconomic Characteristics:** Farm size, income, education level, and access to information and resources can impact a farmer's capacity and willingness to adopt (Feder et al., 1985).
3. **Social Influences:** Peer recommendations, market trends, and the adoption decisions of one's social network can influence an individual farmer's choices (Bandiera & Rasul, 2006; Ryan and Gross, 1943).
4. **Perceived Risks and Uncertainties:** Concerns over financial costs, compatibility with existing practices, and the potential for failed investments can create barriers to adoption (Montes de Oca Munguia et al., 2021).
5. **Institutional and Policy Factors:** Government incentives, extension services, and regulatory

(https://extension.psu.edu/media/wysiwyg//extensions/catalog_product/dc8d402ade5f4f45b71105acbaae3f19/m/a/mark-stebnicki-jpg.jpg)
Photo by Mark Stebniki via iStock by Getty Images

continued on next page

environments can either facilitate or hinder the adoption of new technologies (Feder & Umali, 1993).

Definitions of Adoption and Innovation

Adoption is embracing, implementing, or modifying a new technology or innovation (Kee, 2017; Rogers, 2003). Diffusion refers to how this innovation spreads through a community over time, with the adoption rate indicating its speed of acceptance. Individuals fall into adopter categories, from early innovators to later adopters like the majority and laggards. The adoption process involves awareness, interest, evaluation, trial, and adoption stages, marking deeper commitment levels (Rogers, 2003).

Innovation introduces new ideas or methods to create practical solutions, addressing specific challenges (Singh & Aggarwal, 2001). In agriculture, technology transfer brings research into practical use for farmers, enhancing practices (Suwanan et al., 2021; Wahab et al., 2011). Knowledge transfer supports this process by sharing expertise across groups to promote performance and further innovation (Estey et al., 2010; Hassan et al., 2017). Adoption relies on behavioral intentions shaped by social influences, perceived control, and attitude toward the technology, affecting the decision to adopt (Fishbein & Ajzen, 1975; Ajzen, 1991).

Did You Know? How Farmers Like You Have Helped Shape Innovation

In 1941, two researchers, Bryce Ryan and Neal Gross, explored how new ideas spread through farming communities, focusing on why Iowa farmers quickly adopted hybrid corn. They noticed that farmers took to this innovation due to three main factors: **social support, clear benefits, and reliable information**. Their work revealed that having a strong network, understanding the value of an innovation, and trusting the information about it are crucial for farmers deciding whether to try something new. Ryan and Gross's findings, published in 1943, laid the groundwork for future research on how communities adopt innovations. This research directly inspired Everett Rogers' well-known "Diffusion of Innovation" theory, which helps explain why some farmers adopt new methods early while others prefer to wait. By connecting with others, assessing the advantages, and accessing trusted information, you play a key role in shaping how innovations spread and succeed in agriculture.

Diffusion of Innovation Theory

In 1962, Everett M. Rogers published Diffusion of Innovations, a seminal work in which he compiled and expanded existing research about the spread of new ideas and technologies. In this book, Rogers introduced what is now known as the Diffusion of Innovation Theory, a framework that explains how and why new ideas and technologies are adopted. This theory has become one of the most widely applied models in adoption research, with over 163,900 citations, especially in studies on the adoption of innovation in agriculture. Rogers identified five key stages in the innovation-decision process:

1. **Knowledge:** The individual becomes aware of the innovation, initially understanding its characteristics and functionality.
2. **Persuasion:** The individual forms an attitude toward innovation, whether positive or negative. Five factors shape this perception:
    - **Relative Advantage:** The degree to which the innovation is perceived as an improvement over the current option.
    - **Compatibility:** The extent to which the innovation aligns with the individual's needs, values, and experiences.
    - **Complexity:** How simple or complex the innovation is to understand and use.
    - **Trialability:** The possibility of experimenting with the innovation on a limited basis before full adoption.
    - **Observability:** The visibility of the innovation's benefits to others.
3. **Decision:** The individual takes steps that lead to either adopting or rejecting the innovation.
4. **Implementation:** The innovation is actively put into practice.
5. **Confirmation:** The individual evaluates the results and reinforces their decision, confirming their commitment to the innovation.

Additionally, Rogers categorized adopters into five types based on their willingness to adopt:

1. **Innovators (2.5%):** Risk-takers who are the first to adopt new ideas.
2. **Early Adopters (13.5%):** Opinion leaders who influence others and embrace innovations early.
3. **Early Majority (34%):** Thoughtful individuals who adopt just before the average person.
4. **Late Majority (34%):** Skeptical individuals who adopt after most others.
5. **Laggards (16%):** Conservative, often resistant to change, and adopting last.

In essence, Rogers' Diffusion of Innovation model suggests that farmers are more likely to adopt new technology if they perceive a clear advantage, find it compatible with their needs, see it as easy to use, have an opportunity to try it on a small scale, and observe its benefits in practice.

continued on next page

(https://extension.psu.edu/media/wysiwyg//extensions/catalog_product/3c1f0c1f3539439688a45c44afcfba26/q/u/quang-nguyen-vinh-jpg.jpg)
Photo by Quan Nguyen Vinh via iStock by Getty Images

The Theory of Planned Behavior

The Theory of Planned Behavior (TPB), introduced by Icek Ajzen in 1985, builds on Fishbein's Theory of Reasoned Action (TRA) by adding a key element: Perceived Behavioral Control, which reflects an individual's confidence in their ability to perform a behavior despite potential obstacles. Ajzen first presented this theory in his paper From Intentions to Actions: A Theory of Planned Behavior.

The TPB posits that three interrelated factors shape behavioral intentions and subsequent actions:

1. **Attitude:** The individual's positive or negative evaluation of performing the behavior.
2. **Subjective Norms:** The perceived social pressure to engage in or avoid behavior.
3. **Perceived Behavioral Control:** The individual's belief in their capability to perform the behavior, considering potential challenges.

The TPB is widely used in agriculture to understand and predict farmers' behaviors, particularly in adopting sustainable technologies and environmental practices. Researchers apply TPB principles to categorize farmers based on their attitudes, perceived social influences, and control beliefs, examining how these elements impact adopting new practices. According to the TPB, a farmer is more likely to adopt a technology if they believe it is beneficial (attitude), feel encouraged by others (subjective norms), and have confidence in their ability to implement it effectively (perceived behavioral control).

In conclusion, these two theories indicate that farmers are more likely to adopt new technologies when they perceive clear benefits, find the technology compatible with their values and routines, feel supported by their community, and have confidence in their ability to use it effectively. Successful adoption depends on seeing practical advantages, receiving social support, ease of use, and alignment with specific farming needs—drawing insights from Rogers' Diffusion of Innovation and the Theory of Planned Behavior.

References

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179–211. doi.org/10.1016/0749-5978(91)90020-T

Bandiera, O., & Rasul, I. (2006). Social networks and technolog y adoption in Northern Mozambique. *The Economic Journal*, 116(514), 869–902. doi.org/10.1111/j.1468-0297.2006.01115.x

Estey, E., Kmetic, A., & Reading, J. L. (2010). Thinking about aboriginal KT: learning from the network environments for aboriginal health research in British Columbia (near BC). *Canadian Journal of Public Health*, 101(1), 83-86. doi.org/10.1007/bf03405569

Feder, G., Just, R. E., & Zilberman, D. (1985). Adoption of agricultural innovations in developing countries: A survey. *Economic Development and Cultural Change*, 33(2), 255–298. doi.org/10.1086/451467

Feder, G., & Umali, D. L. (1993). The adoption of agricultural innovations: A review. *Technological Forecasting and Social Change*, 43(3–4), 215–239. doi.org/10.1016/0040-1625(93)90053-A

Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention, and behavior: An introduction to theory and research. Addison-Wesley.

Goodhue, D. L., & Thompson, R. L. (1995). Task-Technolog y Fit and Individual Performance. *MIS Quarterly*, 19(2), 213–236. doi.org/10.2307/249689

Hassan, N. A. H. M., Noor, M. N. M., & Hussin, N. (2017). Knowledge transfer practice in organization. *International Journal of Academic Research in Business and Social Science*s, 7(8). doi.org/10.6007/ijarbss/v7-i8/3291

James, J., & Bewell, D. (2021, September 14). What is the diffusion of innovations theory? - enablers of Change. Enablers of Change - Enablers of Change.

Kee, K. F. (2017). Adoption and diffusion. In C. Scott & L. Lewis (Eds.), *International encyclopedia of organizational communication*. Hoboken, NJ: Wiley-Blackwell.

continued on next page

Montes de Oca Munguia, O., Pannell, D. J., & Llewellyn, R. (2021). Understanding the adoption of innovations in agriculture: A review of selected conceptual models. *Agronomy*, 11(1), 139. doi.org/10.3390/agronomy11010139

Rogers, E. M. (2003). Diffusion of innovations (5th ed.). Free Press.

Ryan, B., & Gross, N. C. (1943). The Diffusion of Hybrid Seed Corn in Two Iowa Communities. *Rural Sociology*, 8(1), 15.

Singh, S., & Aggarwal, Y. (2021). In search of a consensus definition of innovation: A qualitative synthesis of 208 definitions using grounded theory approach. *Innovation: The European Journal of Social Science Research*, 35(2), 177–195. doi.org/10.1080/13511610.2021.1925526

Spies, R., Grobbelaar, S., & Botha, A. (2020). A scoping review of the application of the task-technology fit theory. *Lecture Notes in Computer Science*, 397–408. doi.org/10.1007/978-3-030-44999-5_33

Suwanan, A. F., Rori, A. M., & Kurniawan, D. T. (2021). The critical review of agriculture technological transfer in the era of decentralization. E3S Web of Conferences, 306, 03021. doi.org/10.1051/e3sconf/202130603021

Valente TW, Rogers EM. The origins and development of the diffusion of innovations paradigm as an example of scientific growth. Sci Commun. 1995 Mar;16(3):242-73. doi.org/10.1177/1075547095016003002

Vendramin, N., Nardelli, G., & Ipsen, C. (2021). Task-Technolog y Fit Theory. *A Handbook of Theories on Designing Alignment between People and the Office Environment*, 39–53. doi.org/10.1201/9781003128830-4

Wahab, S. A., Rose, R. C., Idayu, S., Osman, W., Global, F., & Holdings, V. (2011). Defining the concepts of technolog y and technology transfer: a literature analysis. International Business Research, 5(1). doi.org/10.5539/ibr.v5n1p61

Reprinted with permission from Penn State Extension https://extension.psu.edu/applying-adoption-models-to-farmers-decision-making

CALLING ALL VEGGIE PRODUCERS

PA PREFERRED®

PA Preferred is a free program that provides farmers and agribusinesses with a brand identity that helps increase sales by creating opportunities for Pennsylvanians to easily identify and purchase locally grown and processed products.

MEMBER BENEFITS

- Personalized presence for your business on the PA Preferred website: **papreferred.com**
- Use of the PA Preferred logo on qualified products and marketing materials
- Inclusion in multi-year, statewide marketing campaign
- Statewide network of Pennsylvania farmers, producers, and agribusinesses.

PA Preferred

PA Preferred Organic™

SIGN UP TODAY!

Go to papreferred.com or reach out to us at:
RA-AGPAPreferred@pa.gov or by phone at 717-787-6041

2026 Mid-Atlantic Fruit & Vegetable Convention January 26-29, 2026 Session Schedule

Category* and Core** credits are pending approval

Monday, January 26, 2026 – Preconvention Workshops and Bus Tour

Irrigation A to Z: Modern Irrigation for Horticultural Crops – *Wild Rose*

$80 – lunch included | Registration required

9:00 am	***Introduction to the Workshop – The Critical Importance of Irrigation Management for Specialty Crop Yield and Quality*** – Francesco Di Gioia, Pennsylvania State University
9:45 am	**Managing Irrigation in Different Soils - *Demonstration Part I* –** *Andrew Bierer, USDA-ARS Appalachian Fruit Research Laboratory*
10:15 am	***Basics of Irrigation System Design*** – Anthony Tasselli, The Toro Company
11:00 am	Break
11:15 am	**Sensor-Based I*rrigation Management*** – Andrew Bierer – USDA-ARS Appalachian Fruit Research Laboratory
12:00 pm	Lunch
1:00 pm	***Grower Panel with Q&A Session*** – Nathan Crawford, Matthew Kaelin, and James Reiff
2:00 pm	***Developing Low-cost Automated Irrigation Systems*** – Long He, Pennsylvania State University)
2:45 pm	**Managing Irrigation in Different Soils - *Demonstration Part II*** – Andrew Bierer, USDA-ARS Appalachian Fruit Research Laboratory
3:45 pm	**Final Q&A session**
4:30 pm	**Adjourn**

PA Pesticide Credit – *Magnolia D*

$85 - lunch and manual included

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 26 will cover the basics and prepare you for the pesticide applicator's exam which will take place the next morning, January 27, from 8:30 am – 11:30 am

Honeycrisp Intensive – from Soil to Storage – *Cocoa Suites 3, 4, and 5*

$20 – lunch not included

8:45 am	**Registration and Coffee**
9:00 am	**Welcome and Introduction**
9:10 am	***Emerging Honeycrisp and Red Strain Varieties*** – Nettie & JP Baugher
9:20 am	***Grower & Industry Panel: Challenges and Opportunities***
9:55 am	***Soil Genesis and Preplant Preparation for Honeycrisp in the Mid-Atlantic*** – Dr. Shan Kumar, Penn State
10:20 am	***Honeycrisp Rootstock Trials in WA and PA (NC-140 Project)*** – Dr. Sara Serra, Penn State
10:40 am	***Annual Fertilization and Potassium Management for Honeycrisp*** – Dr. Shan Kumar, Penn State
11:10 am	***Crop Load Management of Honeycrisp: Pruning, Blossom and Fruitlet Thinning, and Rescue Treatments*** – Dr. Shan Kumar, Penn State
11:25 am	***Crop Load Management of Honeycrisp in Washington State*** – Dr. Sara Serra, Penn State
11:45 am	***Controlled Pollination Using Drape Netting in Honeycrisp*** – Dr. Sara Serra, Penn State
12:05 pm	***Return Bloom Management in Honeycrisp*** – Dr. Sherif Sherif, Virginia Tech
12:20 pm	**Lunch Break** – on your own
1:20 pm	***Fruit Growth, Calcium Deficiency, and Bitter Pit in Honeycrisp*** – Chayce Griffith, Michigan State University
1:40 pm	***Rootstock Selection: Virginia Experience*** – Dr. Sherif Sherif, Virginia Tech

continued on next page

 ... continued from page 11

2:00 pm ***Calcium Sprays and Bitter Pit Prediction Methods*** – Dr. Shan Kumar, Penn State

2:20 pm ***Disease Management in Honeycrisp*** – Dr. Kari Peter, Penn State

2:55 pm ***Harvest Management Using Preharvest PGRs*** – Dr. Randy Beaudry, Michigan State University

3:35 pm **Storage Decisions and Long-Term Protocols for Honeycrisp** – Dr. Randy Beaudry, Michigan State University

4:05 pm **Closing Remarks**

Transitioning the Farm: Understanding Your Options – *Empire C*

$25 – lunch not included

1:00 pm ***Envisioning the Future of Your Farm*** - Paula Ledney, Extension Program Specialist, Department of Agricultural Economics, Sociology and Education

1:30 pm ***Transition of Management*** - Andrew Holden, Business Management Educator, Lake Erie Regional Grape Program

2:15 pm ***Transition of Ownership*** - Samantha Gehrett, Extension Educator, Animal Systems

3:00 pm ***Communication is Key*** – Amber Otis, Extension Educator, Food Family and Health

3:40 pm ***Fair Versus Equal*** - Jodi Gauker, Business Development Extension Educator4:00 - Questions and Wrap Up

4:00 pm **Questions and Wrap Up**

Bus Tour – Frederick County MD Farm Operations

$95 – lunch included

The bus will depart from the Hershey Lodge Chocolate Lobby entrance at 7:45 am and will return at approximately 5:30 pm

Baugher's Orchard and Farms – Westminster, MD. Established in 1904 as a farm and orchard, the Baugher family has been in business for over one hundred years. Over the years, the farm has added a number of enterprises, including a market, a bakery, and a restaurant. With a pick-your-own operation and petting zoo, the orchard is a destination for people visiting Westminster. Additionally, they sell their products online. ***https://www.baughers.com/***

Potomac Sprout Company – Thurmont, MD – Potomac Sprout Company sits on 44 acres of farmland. Every lot of sprouts is lab is tested for food safety, and the company produces sprouts such as alfalfa, daikon, and broccoli. Utilizing hydroponic sprouting equipment, the Potomac Sprout Company is also looking into developing their own patented process which will ensure an absolutely safe product. https://www.potomacsprout.com/

Lunch – Thurmont Event Complex, The "Gateway to the Mountains" – Thurmont, Maryland is where you'll find Frederick County's newest event complex. The facility is capable of accommodating over 850 people with a 10,000 square foot ballroom/banquet hall. The Thurmont Event Complex sports three rooms with close to 16,000 square feet of space, a perfect spot for everyone to eat lunch together. https://thurmonteventcomplex.com/

Gateway Candyland – Thurmont, MD – Gateway Candyland has been a regular pit-stop for local residents and tourists traveling along Route 15 for almost 40 years. Gateway Candyland continues to be a place where friends and family gather to enjoy the sweeter things in life. The Farmhouse Exchange and Gateway Liquors, a general store that sells a variety of goods with something for everyone, adjoins the operation! https://www.gatewaycandy.com/

Catoctin Mountain Orchard –Thurmont, MD – Catoctin Mountain Orchard was started in 1948 when Harry Black, who was working for the owner Ira Kelbaugh, helped start and build an open-air retail market just north of Thurmont, Maryland along Rt. 15. As of 2025, the Black family has added the fifth generation to the farm. Additionally, they grow berries, vegetables, and flowers, along with the tree fruits, and have added a bakery on site. https://www.catoctinmountainorchard.com/

Tuesday Morning – January 27, 2026

Irrigation – *Magnolia ABC*

9:00 am ***Irrigation Automation Part 1*** – Will Brownback, Spiral path Farm

10:00 am **Pumps, Filters, Automation: Irrigation Systems Explained** – Anthony Tasselli, Toro

11:00 am **Adjourn to visit exhibits**

Drones – *Cocoa Terrace & 1*

9:00 am ***Introduction to Agricultural Spray Drones*** – Nathan Graham, Hoober, Inc.

10:00 am ***Advanced Agricultural Spraying Drone Operation*** – Nathan Graham, Hoober, Inc.

11:00 am **Adjourn to Visit Exhibits**

Sweet Corn – *Crystal A*

9:00 am ****WPS What You Need to Know*** – Joni Davis, Penn State Extension

continued on next page

 ... continued from page 12

10:00 am ***Grower's Panel: Insights and Experiences from Sweet Corn Growers –*** Peter Flynn, Pete's Produce Farm; HG Haskell, Jim Markey, J-Mar Farms; Neil Palmer Palmer's Farm; Nathan Reiff, Reiff's Farm Market

11:00 am **Adjourn to Visit Exhibits**

High Tunnel – *Empire AB*

9:00 am ***High Tunnel Ventilation Management: Why and How*** – Matthew Kleinhenz, Ohio State University

9:30 am ***High Tunnel Sweet Pepper Production Strategies and Variety Selection*** - Petrus Langenhoven, Purdue University

10:00 am ***Optimizing Microbial Biopesticides in Controlled Environment Agriculture*** – Samantha Willden, Cornell University

10:30 am ***High Tunnel Disease Management Programs –*** Steve Bogash

11:00 am **Adjourn to Visit Exhibits**

General Vegetable Packing House – *Wild Rose*

9:00 am ***Retail Packaging for Farmers Markets*** – Benjamin King, Ben's Produce

10:00 am ***Organizing Your Packing House*** – Dave King, Harvest Valley Farms

11:00 am **Adjourn to Visit Exhibits**

General Marketing – *Empire CD*

9:00 am ***Grow Your Sales, Not Your Headaches: Cloud POS Solutions for Farm Markets –*** Keith Zimmerman, Plum Creek Farm Market

10:30 am ***Using AI to Make Marketing Easier –*** Jim Ladlee, Penn State

11:00 am **Adjourn to Visit Exhibits**

Tree Fruit – *Nigerian*

9:00 am **Invocation** - Brad Hollabaugh, Hollabaugh Bros., Inc.

9:05 am **President's Address** - Corey McCleaf, Cherry Hill Orchards

9:15 am ***George Goodling Memorial Lecture – How Environmental Conditions During the Growing Season Impact Postharvest Storage of Apple and Other Fruits*** – Dr. Randy Beaudry, Michigan State University

10:00 am ****Harvest Management Grower Panel (Harvista, ReTain, Stop Drop***) - Grower Panel: Mark Boyer and Marshall Saunders (Moderator: Dr. Shan Kumar, Penn State University)

10:45 am **Adjourn to Visit Exhibits**

Tuesday Afternoon, January 27, 2026

Precision Agriculture – *Magnolia ABC*

1:30 pm ***Smart Weed Control: Performance, Accessibility, and Adoption of AI-Guided Technologies –*** Lynn Sosnoskie, Cornell University

2:00 pm ***Practical Approaches for Small Farm Irrigation and Water Management*** – Andrew Bierer, Appalachian Fruit Research Center, USDA-ARS-AFRS

3:00 pm **Industry Show and Tell**

3:15 pm ***Can I Use AI for Crop Recommendations? Strengths and Limitations of AI Platforms –*** Leah Fronk and Jim Ladlee, Penn State Extension

4:00 pm **Adjourn**

Soil Health – *Cocoa Terrace & 1*

1:30 pm ***Anaerobic Soil Disinfection Methods to Reduce Soil Related Diseases on Tomatoes*** – Joe Ono-Raphel, Penn State

2:00 pm ***The Garden of Eden Approach to Soil Health and Crop Nutrition*** – Dr. John Murphy, AgXplore and Grant Troop, Troop Farm/Troop Consulting Services

3:00 pm **Industry Show and Tell**

3:15 pm ***Soil Biology: The Hidden Helpers in Crop Nutrient Uptake*** – Lisa Blazure, Stroud Water Research Center

4:00 pm **Adjourn**

Sweet Corn – *Crystal A*

1:30 pm ***Update on Multistate Corn Earworm Management Project –*** Kelly Hamby, University of Maryland

2:00 pm ***Integrated Weed Management for Sweet Corn*** – Bryan Brown, Cornell IPM

3:00 pm **Industry Show and Tell**

3:15 pm ***Seed Supplier Panel*** – Jeff Hess, Rupp Seeds; Jeremy Schultz, Seedway; and Jennifer Hammer & Jay Ruwet, Harris Seeds

4:00 pm **Adjourn**

High Tunnel – *Empire AB*

1:30 pm ***Grafting Tomatoes for Managing Root-knot Nematodes in High Tunnels (virtual)*** – Wenjing Guan, Purdue University

continued on next page

 ... continued from page 13

2:00 pm ***High Tunnel Soil Solarization: Principles and Best Practices (virtual)*** – Rachel Rudolph, University of Kentucky

2:30 pm *****Monitoring and Managing Arthropod Pests in High Tunnel Tomato*** – Heather Grab, Penn State University

3:00 pm **Industry Show and Tell**

3:15 pm ***Improving Soil Health with Anaerobic Soil Disinfestation*** – Francesco Di Gioia, Penn State University

4:00 pm **Adjourn**

Retail Marketing – *Wild Rose*

1:30 pm ***4th Generation Perspective: Navigating Family Transition in Farming*** – Denise Bosworth, Rohrbacks Farm

3:00 pm **Industry Show & Tell**

3:15 pm ***Retail Farm Market Benchmark Results*** – Brian Moyer, Penn State Extension

4:00 pm **Adjourn**

Tree Fruit – *Nigerian*

1:30 pm *******IPM Scouting*** – Dr. Laura Nixon, University of Maryland

2:00 pm *****Fruitful Foes: The Battle Against Apple Rots*** – Dr. Kari Peter, Penn State University

2:30 pm *****Plum Curculio in Apples*** – Dr. Tracy Leskey, USDA

3:00 pm **Show and Tell**

3:15 pm *****Management of OFM and Codling Moth - Grower Panel*** (Moderator: Dr. Laura Nixon, University of Maryland)

4:00 pm *****Insecticide Nets as a Tool to Manage Insects*** – Dr. Greg Krawczyk, Penn State University

4:30 pm **SHAP Business Meeting**

Wednesday Morning, January 28, 2026

Organic – *Magnolia D*

9:00 am ***Practices for Robust and Healthy Crop Production*** – Melvin Fisher, Keystone Bio-Ag

10:00 am **Industry Show and Tell**

10:15 am ***Integrating Animals with Organic Potato Production*** – Nolan Masser, John Masser, and Nathan Masser, Red Hill Farms

11:00 am ***Transitioning to Organic*** – Kristen Markley, PA Department of Agriculture and Dylan Ihnat

12:00 pm **Adjourn to Lunch**

Greenhouse – Ornamentals – *Cocoa Terrace & 1*

9:00 am ***Diagnosing Abiotic Disorders in Spring Greenhouse Crops*** – Neil Mattson, Cornell University

9:30 am ***Winter Lighting for Quicker and Higher Quality Greenhouse Crops –*** Neil Mattson, Cornell University

10:00 am **Industry Show and Tell**

10:15 am *******Resistance Management and Mode of Action; Using IRAC and FRAC Codes*** – Steve Bogash

11:00 am ***Penn State Flower Trials Report*** (pre-recorded) – Krystal Snyder, Penn State Coop. Ext

12:00 pm **Adjourn to Lunch**

Tomatoes – *Magnolia ABC*

9:00 am ***What's the Best Way to Address Spotted Wilt Virus*** – Maria Cramer, PhD, Rutgers Cooperative Extension

10:00 am **Industry Show and Tell**

10:15 am ***Don't Let Diseases Ruin Your Beautiful Tomatoes*** – Mary Hausbeck, Michigan State University

11:00 am ***Penn State Tomato Breeding Research Update*** – Jonathan Bonfiglio, Penn State

12:00 pm **Adjourn to Lunch**

General Vegetable – *Trinidad*

9:00 am ***Growing and Marketing Hard Neck Garlic*** – Jim Reinhart, Natures Garlic Farm

10:00 am **Industry Show and Tell**

10:15 am ***FSMA's New Ag Water Risk Assessment*** – Jeff Stoltzfus, Penn State Extension

11:00 am *******Best Practices and Calibration for Backpack Sprayer Applications –*** Leah Fronk, Penn State Extension

12:00 pm **Adjourn to Lunch**

General Marketing – *Empire AB*

9:00 am ***Food Trends*** – Claudia Schmidt, Penn State University

10:00 am **Industry Show and Tell**

10:15 am ***Get Help Paying for Marketing: Grants and Support from Center for Plant Excellence –*** Miranda Harple, Penn State Extension

11:00 am ***Using AI to Make Marketing Easier*** – Jim Ladlee, Penn State Extension

continued on next page

 ... continued from page 14

12:00 pm **Adjourn to Lunch**

Small Fruit (joint) – *Crystal A*

9:00 am ****Pesticides Effects on Pollinators** – Kelly Bennett, Penn State University

9:30 am ***Aronia Production** – Andrew G. Ristvey, University of Maryland Extension

10:00 am **Industry Show and Tell**

10:15 am ***Grower Panel - Lesser Grown Berries –*** Craig Boyer, Boyer Holdings

11:00 am ***Techniques for Growing and Overwintering a Japanese Fig Tree Espalier in the Northeast –*** Craig Boyer, Boyer Holdings

11:30 am ***Challenges and Wins in Matted Row Strawberries –*** Leah Fronk, Penn State Extension and Tim Elkner, Penn State Extension

12:00 pm **Adjourn to Lunch**

Labor/Farm Management (joint) - *Empire CD*

9:00 am ***Adverse Wage, Compliance, Applications –*** Sarah Gligora, PA Department of Agriculture; Kaitlyn Bell Perhac and Derrick Donnell, PA Department of Labor & Industry

10:00 am **Industry Show and Tell**

10:15 am ***Preparing for a visit from ICE and Other Immigration Enforcement Actions***– Andrew Mahon and Caleb P Setlock, Barleyv

11:00 am ***Strategies for Recruiting Talent –*** Cher Harpster, Penn State Extension

Spanish – *Wild Rose*

9:00 am ***Actividad de Apertura*** (***Welcome and Icebreaker***) – Maria Gorgo-Simcox and Maria Alejandra Gil Polo, Penn State University

9:25 am ***Recursos Educativos en Español de la Unidad deHorticultura (Horticulture Unit Spanish Educational Resources)*** – Maria Gorgo-Simcox, Margarita Lopez-Uribe and Elsa Sánchez, Penn State Extension

9:45 am ***Injerto de Verduras (Grafting Vegetables)*** – Don Seifrit and Elsa Sánchez, Penn State Extension

11:00 am ***Recreo (Break)***

11:15 am ***Producción de cúrcuma y jengibre (Turmeric and Ginger Production)*****– Dr. Rafie Reza, Crossroad Farm

12:15 pm **Almuerzo (Lunch break) | Visita a la feria comercial (Visit Trade Show)**

Tree Fruit – *Nigerian*

9:00 am ***1-MCP Options for Fruits and Vegetables** – Dr. Randy Beaudry, Michigan State University

9:30 pm ***Advancing Apple Crop Load Management: Thinning Updates and Insights on Metamitron** – Dr. Shan Kumar, Penn State University

10:00 am **Show and Tell**

10:15 am ***From Pollination to Consumer Preference: A Journey in Tree Fruit Production*** – Dr. Sara Serra, Penn State University

10:45 am ***Eat More Apples/US Apple Update*** – Brenda Briggs, Rice Fruit Company and Chris Gerlach, US Apple

11:30 am ***Weed Control Updates: Herbicide Programs in Apple Orchards** – Ivana Moisinho and Dr. Caio Brunharo, Penn State University

12:30 pm **Adjourn to Lunch**

Wednesday Afternoon, January 28, 2026

Organic – *Magnolia D*

1:30 pm ***Running a Successful Farmers Market Enterprise: Lessons and Tips from the Field to the Market Stand*** – George Brittenburg, Taproot Farm

2:30 pm ***Pollinators, Predators, and Profit: The Triple Win of Herb Production*** – Emma Jagoz, Moon Valley Farm

3:00 pm **Industry Show and Tell**

3:15 pm ***Organic Disease and Insect Strategies*** – Jennifer Glenister, New Morning Farm

4:00 pm **Adjourn**

4:30 pm PVGA Annual Meeting

Greenhouse – Ornamentals – *Cocoa Terrace & 1*

1:30 pm ***Beneficial Insects and Biopesticides: A Natural Approach to Pest Control– Elwood Roberts, Griffin Greenhouse Supplies***

2:30 pm ***Managing and Maintaining Your Fertilizer Injector*** – Neil Mattson, Cornell University

3:00 pm **Industry Show and Tell**

3:15 pm ***Terrible Two: Best Control Options for Mites and Mealybugs*** – Elwood Roberts, Griffin Greenhouse Supplies

4:00 pm **Adjourn**

continued on next page

4:30 pm PVGA Annual Meeting

Tomatoes – *Magnolia ABC*

1:30 pm ***Growing Tips for Tomatoes*** – Grower Panel TBD

2:30 pm ****Avoiding Pesticide Drift***

3:00 pm **Industry Show and Tell**

3:15 pm ***Building a Tomato Nutrition Program from the Bottom-Up*** – Steve Bogash

4:00 pm **Adjourn**

4:30 pm PVGA Annual Meeting

Agritourism Marketing (joint) – *Empire AB*

1:30 pm ***Humble Beginnings*** – Brent & Jen Barnhart, Chris & Deb Smith, Bruce Hellerick, Hellerick's Adventure Farm

2:30 pm ***Weddings*** – Jim Stauffer,

3:00 pm **Industry Show and Tell**

3:15 pm ***Redefining the U-Pick Experience*** – Rich Woodbridge, McCollum Orchards & Gardens and Claudia Schmidt, Penn State

4:00 pm **Adjourn**

Small Fruit – *Crystal A*

1:30 pm ***What's Bugging My Berries? Strawberry Pest Review*** – David Handley, University of Maine Cooperative Extension

2:00 pm ***Early Observations from the PA Strawberry Variety Trial –*** Leah Fronk, Penn State Extension

2:30 pm ***Jewel or Joker? Strawberry Variety Review*** – David Handley, University of Maine Cooperative Extension

3:00 pm **Industry Show and Tell**

3:15 pm ***Grower Panel – Strawberries*** – Kevin Donnelly, Chestnut Hill Farm and Market LLC; Rebekah Alstede Modery, Alstede Farms; Greg Forry, Risser Marvel Farm Market; Russ Shagle, Shagel Farms LLC; and Craig Boyer, Boyer Holdings

4:00 pm ***How Temperature Affects Blueberries: From Blossoms to Nutrients*** – Yeongchan Shin, West Virginia University; Nicole Waterland, Cal Poly

4:30 pm **Adjourn**

Labor/Farm Management – *Empire CD*

1:30 pm ***H2A for small growers*** – Eleanor Rice, RL Orchard and David Miller, Miller Plant Farm

2:30 pm ***Employee Handbook*** – Paul Goeringer, University of Maryland

3:00 pm **Industry Show and Tell**

3:15 pm ***H-2A Taxes*** - Bob Wunderle, La Posada Tax Clinic

4:00 pm **Adjourn**

Spanish – *Wild Rose*

1:30 pm ****Identificación del EPP adecuado en las etiquetas para su aplicación (Identifying the proper PPE in the labels for your application)*** Beth Sastre, Virginia Cooperative Extension and Maria Gorgo-Simcox, Penn State Extension

2:15 pm ***Beca S2P de apicultura (Beekeeping S2P grant)*** – Alfredo Reyes, Margarita Lopez-Uribe, Robyn Underwood, Maria Gorgo-Simcox and Elsa Sánchez, Penn State Extension

3:00 pm ***Hongos beneficiosos en huertos (Beneficial fungi in orchards)*** – Megan Muehlbauer, Rutgers Cooperative Extension and Maria Gorgo-Simcox, Penn State Extension

3:45 pm ***Evaluación, foto de grupo y despedida (Evaluation, group picture and adjourn)*** Maria Gorgo-Simcox

Tree Fruit – *Nigerian*

1:30 pm ****Stay and Shine: Using PGRs to Reduce Pre-Harvest Drop Without Compromising Quality in Apples*** – Dr. Sherif Sherif, Virginia Tech

2:00 pm *****Irrigation/Soil and Leaf Analysis*** – Dr. Andrew Bierer, USDA and Dr. Jim Schupp, Penn State University (Emeritus)

2:30 pm **Show and Tell**

2:45 pm ***Irrigation Technology Grower Panel*** – Dr. Andrew Bierer, USDA and Dr. Long He, Penn State University

3:30 pm ****Emerging Technologies for Tree Fruit Orchard Management*** – Dr. Long He, Penn State University

4:00 pm ***Advanced Technologies - Grower Panel*** (Moderator: Dr. Long He, Penn State University)

4:45 pm **Adjourn**

continued on next page

 ... continued from page 16

Stone Fruit - *Trinidad*

1:30 pm ***Peach Varieties for Mid-Atlantic – New and Standard*** – Dr. Hemantkumar Gohil, Rutgers University

2:00 pm ***Peach Industry Update*** – Kay Rentzel, National Peach Council

2:30 pm **Show and Tell**

2:45 pm ***Ernie Christ Lecture – A Career in Peach Research*** – Win Cowgill, New Jersey State Horticultural Society

3:30 pm **Blossom Thinning Using Accede™ in Peach*** – Michael Evans and Dr. Shan Kumar, Penn State University

4:00 pm **Thinning Peaches with Accede: Varietal Responses*** – Dr. Jim Schupp, Penn State University (emeritus)

4:45 pm **Adjourn**

Thursday Morning, January 29, 2026

Potatoes – *Cocoa Terrace & 1*

9:00 am ***Potatoes USA Board Activities and Retail Trends –*** Nick Bartelme, Potatoes USA

9:30 am ***NPC Legislative Update*** – Mike Wenkel, National Potato Council

10:00 am **Industry Show and Tell**

10:15 am ***Sprout Suppression by 1,4-Sight: How it Works and Why it's Important –*** Emily Dobry, PhD Candidate, Penn State

11:00 am ***Results from 3 Years of Applying Humic Acid In-Furrow: Is it Worth it on PA Soils? –*** Jonathan Price, Masser Family of Companies

11:30 am ***2024 Potato Variety Trials in Pennsylvania*** – Xinshun Qu, Penn State

12:00 pm **Adjourn to Lunch**

Cut Flowers – *Empire CD*

9:00 am ***Latest and Greatest New Cut Flowers and, Postharvest Secrets of Dahlias, Peonies and Zinnias*** – John Dole, North Carolina State University

10:00 am **Industry Show and Tell**

10:15 am ***Cover crop your small-scale cut flower farm*** – Jingling Yin, Cornell University

11:00 am ***Selling Specialty Cut Flowers to Florists and What Cultivars to Grow –*** Dave Delbo, Dave's Flowers

12:00 pm **Adjourn to Lunch**

Vine Crops – *Magnolia ABC*

9:00 am ***Getting the Most from Your Vine Crops: From Seeding to Harvest*** – Art/Dave King, Harvest Valley Farms; and Brent Cleaver, Miller Plant Farm

10:00 am **Industry Show and Tell**

10:15 am **Tackling the Challenges of a Wet Year*** – Mary Hausbeck, Michigan State University

11:00 am **Two Crops and a Full Season of High Tunnel Cucumbers** – Steve Bogash

12:00 pm **Adjourn to Lunch**

Winter Growing – *Wild Rose*

9:00 am ***The Importance of Winter Auctions and What Buyers are Looking For*** – Dave Longenecker, Oxford Produce Auctioneer

10:00 am **Industry Show and Tell**

10:15 am ***Do's and Don'ts of Growing for the Winter Auction*** – grower panel TBD

12:00 pm **Adjourn to Lunch**

Technology - Marketing – *Empire AB*

9:00 am ***Grow Your Farm with Drones*** – Dr. Dwayne Joseph, University of Maryland Extension

9:30 am ***Geofencing to Drive Local Visits*** – Sarah Cornelisse, Penn State Extension

10:00 am **Industry Show and Tell**

10:15 am ***Creating a Podcast for Your Farm*** – Emily Zobel, University of Maryland Extension-Ag and Food Systems

11:00 am **Incorporating Technology into Your Marketing Plan** – Nathan Glen, University of Maryland Extension

12:00 pm **Adjourn to Lunch**

Small Fruit – *Crystal A*

9:00 am **What's New in Spotted-Wing Drosophila Research?*** – Dr Beth Ferguson, Rutgers University

9:30 am **Integrated Pest Management in Blueberries, Back to the Basics*** – Carrie Mansue, Rutgers University

10:00 am **Industry Show and Tell**

10:15 am **Blueberries -Open Discussion**

11:00 am ***Soil Health and Blueberry Production*** – Gary Pavlis, Rutgers University

continued on next page

 ... continued from page 17

11:30 am *__From Field to Current: Harnessing Electricity for Sustainable Weed Control in Blueberry__ – Aleah Butler-Jones, Cornel University; Thierry Beasancon, Rutgers University; Lynn Sosnoskie, Cornell University

12:00 pm **Adjourn to Lunch**

Tree Fruit – Nigerian

9:00 am __Pome Fruit Breeding Program__ – Dr. Chris Gottschalk, USDA

9:30 am __NC-140 Trial Update__ – Dr. Shan Kumar, Penn State University

10:00 am **Show and Tell**

10:15 am *__Option for Reduction of Overwintering Erwinia amylovora Populations in Fire Blight Cankers__ – Dr. Sdrjan Acimovic, Virginia Tech

11:00 am *__Nutrient and PCR Trials for Improving Coloring in Honeycrisp__ – Dr. Shan Kumar, Penn State University

11:30 am *__Arrange - A New PGR On Apples with Many Uses and Possibilities__ – Win Cowgill, New Jersey State Horticultural Society

12:00 pm **Adjourn to Lunch**

Thursday Afternoon, January 29, 2026

Potatoes – *Cocoa Terrace and 1*

1:30 pm *__Potato Insect Panel Discussion__ – Tom Kuhar, Virginia Tech; Kemper Sutton, Virginia Tech; Sudeep Mathew

2:30 pm ** __Fungicide Resistance and Late Blight__ – Leah Fronk, Penn State Extension

3:15 pm __Improving Potato Skin Set__ – Jonathan Price, Masser Family of Companies

4:00 pm **PA Cooperative Potato Growers; Plans for the Future** – Nathan Tallman, PA Co-Operative Potato Growers

4:30 pm **PA Co-operative Growers Annual Meeting**

Cole Crops – *Empire CD*

1:30 pm __Growing Cole Crops - No Till & Plastic__ – Emanuel Esh, Benjamin King,

2:30 pm __Cole Crops: Seeding to Harvest__ – Art King, Harvest Valley Farms

3:15 pm **Adjourn**

Greenhouse Vegetable – *Magnolia ABC*

1:30 pm __Investigating Plasma-Activated Water for Sustainable Microgreen Production__ – Sanchita Saha, Penn State University

2:00 pm __Optimizing Iron Biofortification in Pea and Radish Microgreens__ – Rishi Ravichandran, Penn State University

2:30 pm __Lighting Solutions and Strategies for Leafy Greens in Controlled Environment Agriculture__ – Aline Novaski Seffrin, Penn State University

3:15 pm __Keep Herbs off the Menu for Blights and Rots__ – Mary Hausbeck, Michigan State University

4:00 pm **Adjourn**

Pumpkins – *Wild Rose*

1:30 pm ****Pesticide PPE: Safety Essentials**

2:00 pm *__Don't Let Mildew Make You Miserable__ – *Mary Hausbeck,* Michigan State University

2:30 pm __Bigger is Always Better__ – Dave Stelts, Dave & Carol's Valley of Giants

2:30 pm __Health Services for Workers –__ Grant Meckley, Keystone Health

3:15 pm **Grower Panel** – Fred Ranck, Rank Family Farm; Norm Schultz; and Dave Steltz, Dave & Carol's Valley of Giants

4:00 pm **Adjourn**

Social Media - Marketing (joint) – *Empire AB*

1:30 pm __Social Media to Market What is Happening on the Farm –__ Emma Jagoz, Moon Valley Farm

2:00 pm __Why No One Sees Your Posts: Navigating the New Social Media Landscape –__ Miranda Harple, Penn State Extension,

2:30 pm __Smart Customer Engagement__ – Elizabeth Robinson and Cory Moore, The Garden International

3:15 pm **Open Discussion on Social Media**

4:00 pm **Adjourn**

Small Fruit (joint) – *Crystal A*

1:30 pm *__Emerging Challenges in Blueberry Pest Management: The Case of Prionus Beetles in NC__ – Lorena Lopez, North Carolina State University

2:00 pm *__Caneberry Insect and Mite Pests__ – Kelly Hamby, University of Maryland

2:30 pm *__Season Extension in Organic High Tunnel Raspberry Production__ – Rebekah Alstede Modery, Alstede Farms, LLC

continued on next page

 ... continued from page 18

3:15 pm ***Grower Panel – Caneberries*** – Rebekah Alstede Modery and Colin Manning, Alstede Farms

4:00 pm ****Pesticide Effects on Pollinators*** – Kelly Bennet, Penn State University

4:30 pm Adjourn

Labor/Farm Management (joint) – *Empire CD*

1:30 pm ***Minors Working on the Farm: What Ag Employers Need to Know About Child Labor Laws*** – Audry Thompson, Penn State Extension

2:30 pm ***Health Services for Workers*** – Grant Meckley, Keystone Health

3:15 pm ***Data Driven Decision Making*** – Mark Boyer, Ridgetop Orchards, LLC ; Greg Culp, Bear Mountain Orchards, Inc.; Terra Slaybaugh, Mt. Ridge Farms, Inc.

4:00 pm **Adjourn**

Tree Fruit – *Nigerian*

1:30 pm ****Codling Moth Control Programs in Apple*** – Dr.Dave Biddinger, Penn State University

2:00 pm ****Apple Bitter Rot and Glomerella Leaf Spot Management – Building a Spray Program to Reap the Benefits of Biorational and***

Synthetic Fungicides – Dr. Srjdan Acimovac, Virginia Tech

2:30 pm ***Lightning Talks*** – Dr. Lisa Tang, USDA; Dr. Tami Collum, USDA; Kristen Pierce, Penn State University; Olivia Degreenia, Penn State University

3:00 pm ***Lightning Talks*** Tyler Seutter, Penn State University; Devansh Gupta, Penn State University; Lawrence Arthur, Penn State University; Kittiphum Pawikhum, Penn State University; and Devansh Gupta, Penn State University

3:30 pm *****Communicating Pesticide Risk*** – Speaker TBD, Pesticide Education

4:00 pm **Adjourn**

2026 Mid-Atlantic Fruit & Vegetable Convention Registration Form

Use this form to register for the convention if you are primarily attending the **Vegetable Sessions**. Tree fruit growers should register with one of the fruit grower groups. Registration is required for each person, including spouses. Registration fee includes participation in any session, as well as the exhibit area. Cancellaiotns must be recived in wriing to pava@pvga.org or by calling 717-973-5815 no later than January 16 in order to recive a refund.

Basic Information for first person from a family, farm, or business (required)

First Name _____ Last Name _____ Farm Name _____

Address _____ City _____ State _____ Zip _____

PA County _____ Phone _____ Cell _____ Email _____

Emergency Contact Name _____ Emergency Contact Phone _____

Member Registration per person (the fee is the same whether you are attending for 1, 2, or 3 days)

❒ **Advance registration fee for the first person from a family, farm, or business** **$80**

❒ **Walk-in registration fee for the first person from a family, farm, or business** _____ at **$95**

❒ **Advance registration fee for additional persons from a family, farm or business** _____ at **$65**

First Name _____ Last Name _____

First Name _____ Last Name _____

First Name _____ Last Name _____

❒ **Walk-in registration fee for additional persons from a family, farm, or business** _____ at **$95**

First Name _____ Last Name _____

First Name _____ Last Name _____

First Name _____ Last Name _____

❒ **Children Registration (for children 18 and under only) receive a complimentary registration**

First Name _____ Last Name _____

First Name _____ Last Name _____

First Name _____ Last Name _____

Use a separate sheet of paper if more than three people

Non - Member Registration per person

❒ **One Day** **$130**

❒ **Two Days or Three Days** **$170**

❒ **January 26 Workshops/Tour – Pre-registration is required for these events** – indicate attendees below

- ❒ Irrigation A to Z: Modern Irrigation for Horticultural Crops (w/lunch) $80
- ❒ PA Pesticide Applicators License Training (w/lunch) $85
- ❒ Transitioning the Farm: Understanding Your Options w/o lunch) $25
- ❒ Honeycrisp Intensive – from Soil to Storage (w/lunch) $20
- ❒ Farm Market Bus Tour w/lunch $95

First Name _____ Last Name _____ Workshop _____

First Name _____ Last Name _____ Workshop _____

First Name _____ Last Name _____ Workshop _____

❒ **Annual Growers Dinner – Jan 27** _____ at **$35 each**

❒ **Proceedings** (PVGA Registration includes a free copy) **$22 each**

❒ **Country Folks Grower** – check here to receive a free monthly subscription to this publication

$ _____ **Total Due**

PVGA
PA Vegetable Growers Association

Mail completed form with check to PVGA | 908 2nd St | Harrisburg, PA 17102
Foms must be received in the office by January 16 for advance registration.
Register and pay onine at https://pvga.memberclicks.net/2026-mafvc-reg-form

Yields of Edible Ginger in a Pennsylvania High Tunnel

B.A. Kratky, University of Hawaii, M.D. Orzolek and W.J. Lamont, PSU, Horticulture

Edible ginger (*Zingiber officinale* Roscoe) experiments were conducted in a high tunnel at the Rock Springs Horticultural Farm near State College, Pennsylvania. Ginger rhizome (2 ounce) 'seed pieces' were sent from Hawaii.

Sub-irrigated trial.

Ginger seed pieces were planted in black plastic pots (3 gallons) containing peat-perlite growing medium on May 14, 2007 and top watered on a greenhouse bench until July 2 when the pots were placed in a 4 ft x 10 ft tank such that there were 2 rows with a 1 ft spacing between pot centers within rows. The pots rested on 1-inch high soft nursery trays which were supported by a polyethylene-lined tank floor. A constant 2-inch level of water was maintained with a float valve such that the pots were watered by sub-irrigation. The nutrient solution was checked weekly with an electrical conductivity meter and replenished with equal amounts of 2 stock nutrient solutions to maintain an electrical conductivity level of 1.5 to 2.0 mS. One nutrient stock solution consisted of 1.0 lb soluble greenhouse grade calcium nitrate per gallon of water, and the other stock solution consisted of a mixture of 0.6 lbs magnesium sulfate and 1.0 lb Chem-Gro 8-15-36 Lettuce Formula (Hydro-Gardens, Colorado) per gallon of water. The Chem-Gro formulation also contained micro-nutrients. There were 8 fertilizer stock solution applications such that a total of 0.28 lb of nitrogen plus the accompanying nutrients were applied. Growing tanks were covered with reflective aluminized plastic mulch which maintained a cool surface such that leaves did not burn when they contacted the mulch.

Peat-perlite bed trial.

In a second experiment, 14 ginger seed pieces were planted on June 14 in a drip-irrigated, 4 ft. x 10 ft. peat-perlite bed which was 10 inches deep. The growing medium was trenched to a 4 inch depth and seed pieces were planted 1 to 2 inches deep. As the season progressed, the growing medium was hilled twice to promote vertical, rather than horizontal growth of the rhizomes. There were 10 fertilizer applications of a 20-10-20 fertilizer such that 0.26 lbs of nitrogen plus the accompanying nutrients were applied.

Harvesting.

The harvest date decision was made by Mother Nature. On the early morning of October 29, 2007, the ambient temperature reached 22oF causing the unheated high tunnel temperature to reach 30oF. Visible frost damage was observed on the ginger leaves, but no damage was evident to the root portions. Ginger was harvested on October 29-30, 2007 by removing the foliage at a 2 inch height above the surface of the growing medium and emptying the pots in a large plastic tray. Since this ginger was harvested early, it was somewhat immature and the epidermis was still fragile requiring careful handling when harvesting and washing. The rhizomes were then moved into a greenhouse to air dry by placing a single layer of rhizomes on screened racks which were covered with a polypropylene row cover. In Hawaii, ginger optimally requires a 10 month growing season to produce mature ginger rhizomes. Ginger would normally be harvested

Photo by Le Phat Dat via ShutterStock

Table 1. Shoot number, tallest shoot height, shoot fresh weight and rhizome fresh weight immediately after harvesting and after air drying for 4 days from edible ginger grown in sub-irrigated 3-gallon pots of peat-perlite growing medium[z].

Parameter	Average[y]	Range
Shoots		
Number	19	4-28
Tallest height (in)	30	27-35
Fresh weight (lb)	1.40	0.40-2.20
Rhizomes		
Harvest weight (lb)	3.09	0.70-4.80
Air dry for 4 days (lb)	2.33	0.51-3.58

[z] Planted – May 14; Transplanted – July 2; Harvested – October 29, 2007
[y] From 20 plants.

continued on next page

Table 2. Shoot number, tallest shoot length, shoot fresh weight and rhizome fresh weight immediately after harvesting and after air drying for 3 days from edible ginger grown in a 10-inch deep bed of peat-perlite growing medium[z].

Parameter	Average[y]	Range
Shoots		
Number	11	5-18
Tallest height (in)	19	15-23
Fresh weight (lb)	0.56	0.20-0.90
Rhizomes		
Harvest weight (lb)	1.24	0.60-1.90
Air dry for 3 days (lb)	0.90	0.47-1.42

[z] Planted June 14 and harvested on October 30, 2007.
[y] From 14 plants.

in December through February after the leaves turn yellow and dry down and the stems fall over.

Harvest data from ginger grown in sub-irrigated 3-gallon pots of growing medium are shown in Table 1.

There was an average of 19 shoots from each pot which originated from a 2-ounce seed piece. The fresh harvest weight included a 2 inch height of shoots above the surface of the growing medium, because trimming the shoots stimulates a natural abscission zone be-tween the rhizome and pseudostem. Cutting the shoot at the rhizome junction might have increased the entry of disease organisms into the rhizome. An abscission zone was developing after 4 days of air-drying. Ginger which had air dried for 4 days averaged 2.33 lbs per pot. Both the interior flesh and the epidermis were lighter colored than the mother seed piece, but there was fiber development in the interior flesh. There was pungency with a distinctive ginger flavor and the rhizomes were marketable as fresh ginger. It was not clear if the ginger maturity stage and shelf life will allow good quality seed pieces for next year's crop.

Harvest data from ginger grown in a 25 cm deep bed of peat-perlite are shown in Table 2.

This experiment was planted one month later than the previous experiment. The shorter growing season resulted in less shoots, shorter shoots and a lower harvest weight than ginger in the previous experiment. However, it is not possible to determine if crop performance was affected by the 2 different growing methods. This ginger had a low fiber texture and might be classified as baby ginger which may also be used for pickling. Both the interior flesh and the epidermis were lighter colored than the mother seed piece, but there was a distinctive ginger flavor. The epidermis was more fragile than rhizomes from the previous experiment. It would not be recommended to save this ginger for next year's seed.

These experiments demonstrate that ginger can produce a salable crop in a temperate located high tunnel, but the yields were much lower than those normally harvested in Hawaii. It is being suggested that ginger should be planted in growing medium in a heated green-house at about April 1 and the sprouting plants be transferred to the tanks or beds in an unheated high tunnel about May 15 to May 30. This would add another 44 days of growing season to the conditions of the first experiment. Increasing the growing season should greatly increase the yield potential of ginger in Pennsylvania. Certainly, baby ginger is a candidate as a specialty crop for high tunnels. Although, it may not be possible to obtain equivalent mature ginger yields as from a tropical region, there remains potential for ginger to be a profitable niche market crop, especially if the growing season can be extended by several months in high tunnels.

Cybersecurity Basics for Protecting Your Business Online

How many people use the computer through which you access your business's financial accounts? Have you shared your Facebook password with an employee so that they can post to the business's Page? Have you ever clicked on a link in an email even though you weren't sure of the sender? You may think nothing serious could happen – you trust your family and employees, you think your business is small and unimportant compared to businesses such as Amazon, PepsiCo, or financial institutions.

However, the food and agriculture industry at all sizes is increasingly reliant on computerized systems and continues to adopt smart technologies. Coupled with the vital function of the industry, food and agriculture businesses are prime targets for cybercriminals. Recent examples of cybersecurity breaches include an attack on JBS USA in 2021 and on Dole Food Company in early 2023 (Lyngaas, 2023). While these are large agribusinesses, a 2014 survey of Illinois farmers found that just over half of respondents had experienced a computer security breach and almost half of those breaches had occurred within the previous year (Geil et al., 2018).

Successful attacks have the power to disrupt production operations and negatively impact the supply chain. Consider the ramifications of a network breach on records required for the timely sale and transport of your products, for instance. Cyber-attacks can result in significant financial losses as well. Costs can accrue from needing to hire specialists to diagnose and fix the immediate problem, the purchase of new software or software updates, the replacement of damaged hardware, to the payment of a ransom to regain control of your system or access to your data. Finally, there are intangible outcomes as well, such as the loss of peace of mind and reputational damage.

Types of Threats

The key threats to be aware of are ransomware, malware, and phishing.

Ransomware is malicious software that allows a hacker to take control of your website or aspects of your system that are online while also locking you out. The hacker will usually contact you or leave a message somewhere for you to see demanding money in exchange for returning control back to you. The hacker may deface your website or leverage its features in ways your customers will notice to motivate quick payment while also demonstrating they have the control they claim.

Malware is malicious software that you may or may not notice. Either the hacker uses it to quietly capture data coming and going from your network or website or they use it to run their own software from your website in the background. In some cases, malware is simply used to deface your website for no specific reason.

Both ransomware and malware typically use security flaws in your website, software applications, or hosting to get in.

Keeping your software up to date is critical to reducing avenues for the malicious software to be installed. However, sometimes these types of programs can be found within infected copies of software that would normally be trusted. Therefore, it's also important to be very careful to only install software direct from trusted sources.

Phishing occurs when an attacker tricks someone into providing personal or private information such as contact details, important numbers like a social security number or credit card information. Hackers will employ methods making their attempts to get information appear official or trustworthy. Phishing will use logos, text, email addresses and domain names that are copied or very similar to the real business or organization.

Assess Vulnerabilities

Understanding the types of threats your business is faced with is just one step to protecting yourself. It is equally important to assess your systems and business operations to identify potential vulnerabilities. By doing so, you can develop a defensive strategy and response plan.

Start with your employees. Are they aware of the types of cybersecurity threats that exist and areas of the business that could be exposure points, such as email communications or cloud-based software applications? If not, consider developing a training program that

continued on next page

includes routine refreshers. Employees who understand the severity of a cyberattack on the business will be more likely to follow best practices, such as those outlined in the next section.

Assess how computers are being used and by whom. Are networked computers used for managing operations or financial accounts also being used to browse the internet? Are family members using business computers for non-business purposes such as accessing social media or playing online games? Computers used for sensitive information and systems should not be used in a manner that opens the door for a potential attacker.

Is the business's wi-fi network secure? If you allow family or employees to connect additional devices (personal cell phones, tablets, etc.) to the network, this provides another pathway for a cybercriminal to gain access. This same situation exists if you leave your network unsecured.

Passwords are another point of vulnerability. Password strength, or complexity, is critical because it may determine how quickly your password can be guessed. Hackers will use information gathered from phishing or other stolen data to make educated guesses. They may also employ special programs that are designed to test word and character combinations until the correct password is discovered. Passwords should be lengthy and contain a variety of letters, case, numbers and symbols while avoiding names and words to maximize the time password guessing software may take to find your password. Weak passwords may be guessed in just hours or days while strong passwords could take months or years and require lots of resources.

Steps to Protect Yourself

The best protection is to create a cyber defense strategy. What can you do to protect your business?

1. Never respond to requests for social security numbers, bank account numbers, or other identifiable information via email.
2. Create strong passwords and store them in a secure manner. Don't leave a list of passwords laying on your desk or in a file on the desktop of your computer. Consider using a password manager.
3. Install critical software updates in a timely manner. Updates take time, often require restarting computers, and become available at inopportune times which is why it is easy to put off installation, but the 5-10 minutes required to install updates will be nothing compared to the time and money lost from a security breach.
4. Train employees to identify vulnerabilities such as email phishing, and to employ best practices such as using strong passwords.
5. Regularly back-up data. Having data backed up means that you have something to go back to should an attacker gain control or destroy data that they are able to access.

Taking the steps to protect your business on an ongoing basis will be well worth the time and effort. Not only will your risk be minimized, but you'll be also prepared to respond and recover quickly should an attack occur.

Where trade names appear, no discrimination is intended, and no endorsement by Penn State Extension is implied.

References

Geil, A., Sagers, G., Spaulding, A. D., and Wolf, J. R. (2018). Cyber Security on the Farm: an Assessment of Cyber Security Practices in the United States Agriculture Industry. *Int. Food Agribusiness Manage*. Rev. 21 (1030-2018-1811), 317–334. doi:10.22434/ifamr2017.0045

Lyngaas, Sean. February 22, 2023. Cyberattack on food giant Dole temporarily shuts down North America production, company memo says. https://www.cnn.com/2023/02/22/business/dole-cyberattack/index.html

Hot Banana Peppers

Art King | Harvest Valley Farms

Hot banana peppers are one of our best selling peppers. Different people do different things with them, but most people stuff them. My father-in-law had a fantastic recipe for pickling them. At this time of year most of them are starting to turn red. The red ones are not any hotter and are certainly not sweet. Hot banana peppers are a complicated vegetable. Here is the scoop on hot banana peppers:

Hot banana peppers are a curious vegetable. Most are considered a Hungarian Hot Wax pepper, just to distinguish between them and other hot peppers. Part of the Capsicum genus, which includes various chili peppers. They originated in Mexico (there's a surprise) but are grown all over the world.

Hot banana peppers contain capsaicin, the chemical that makes them hot. To make a pepper less hot, remove the white part inside that divides the seed cavity.

Hot peppers are rated by their Scovil units. The variety we grow is Super Hungarian Hot. The seed catalogue lists it as having a Scovil unit of 1,000 to 3,000. Most hot peppers have that "range" instead of s specific number because there are many environmental factors that effect the heat of a pepper. To understand what environmental factors make hot peppers hotter, consider the following factors:

- **Temperature:** Higher temperatures during growth can increase capsaicin levels, enhancing heat.
- **Soil Quality:** Nutrient-rich soil can lead to more vigorous plants and potentially hotter peppers.
- **Watering Practices:** Stressing plants with less water can boost capsaicin production, increasing heat.
- **Sunlight Exposure:** More sunlight can intensify the flavor and heat of the peppers.
- **Plant Variety:** Different species and cultivars have inherent heat levels influenced by genetics.

Photo by Art King | Harvest Valley Farms

Stuffed Hot Banana Peppers

Ingredients

- ⅓ cup HVF sausage
- 4 oz. cream cheese, softened
- ¾ tablespoon garlic powder
- 4 oz. grated Romano cheese
- 1 teaspoon dried oregano
- 1 teaspoon dried basil
- ⅓ cup Italian-style dry bread crumbs
- 2 tablespoon olive oil
- 6 hot banana peppers, cut in half lengthwise and remove the seeds

Instructions

1. Place sausage in a skillet and cook over medium high heat until evenly brown. Drain, crumble and set aside.
2. Preheat oven to 350 degrees F (175 degrees C).
3. In a medium bowl, mix together the sausage, cream cheese, garlic powder, Romano cheese, oregano, basil, bread crumbs and olive oil.
4. Stuff the peppers with the sausage mixture. Place on a baking sheet, and bake in the preheated oven 20 to 25 minutes, until the stuffing is lightly brown and bubbly.

SEEDWAY
VEGETABLE

PLANT. PICK. PROFIT.

BETTER GENETICS. BETTER PRODUCTIVITY. BETTER PROFITABILITY.

AUTUMN PEARL

95 Day Pumpkin

Pie pumpkins are a favorite everywhere! Autumn Pearl makes its introduction into the pie pumpkin-class with an all around eye catching appearance: sturdy handle, distinct ribbing and dark orange color. One to try for 140-150 count bins. Recommended spacing is 15 to 18 square feet per plant.
3-6 lbs. IR: Sf

BRENNAN

78 Day Green Fresh Market Cabbage

Brennan is widely adapted with excellent quality for boxing. It has a short core and a dense interior. A strong root system keeps Brennan looking fancy and uniform when crowded or stressed by too much water, compared to Bronco with improved Black Rot resistance. 3.5-5 lbs. HR: Foc / IB: Xc

CRACKERJACK

80-82 Day Triploid Seedless Watermelon

Consistent yields over wide range of growing conditions. Very uniform fruit shape, firm flesh and deep red interior. Time and time again customers rate this our best tasting watermelon.
13-17 lbs. IR: Co:1, Fon:1

XANADU

75 Day Bicolor Sh2 Sweet Corn

Fantastic eating quality. A crisp bite into high sugars! This also has excellent seed quality and vigor from the sh2i gene. Large ears on a plant with a good disease package.
HR: Ps (Rp1GFJ) / IR: Et

(800) 952-7333

www.seedway.com

Using Social Media in Crisis Management

Sarah Cornelisse | Senior Extension Program Specialist { Department of Agricultural Economics, Sociology, and Education | Penn State University

What would you consider as a crisis for your business? Mislabeled product? A product recall? An employee injury? Death of an employee or customer? A claim regarding health or nutrition lacking scientific backing? Crises can take many forms. Dictinary.com defines a crisis as "a stage in a sequence of events at which the trend of all future events, especially for better or for worse, is determined." It's important to note that the definition does not identify the type of events, simply that events are occurring and that there is a point which defines the course of future events. And while it may be clear that some events are a crisis, others may not so clearly fit the category.

Types of crises in the agriculture and food industries can include contamination, recalls, and negative publicity. Crises may occur with more frequency than you might expect. For example, there were more than 2,400 seafood recalls registered by the United States Food and Drug Administration (USFDA) across 20 years (October 2002 through March 2022) (Blickem et al., 2023). This averages to 120 per year – for seafood alone. When you consider the other types of crises that may have occurred within the seafood industry during those 20 years and add the number of crises in all other ag and food industries, the magnitude is staggering.

By now, most of us are familiar with social media. Platforms such as Facebook, X (formerly Twitter), Reddit, TikTok, and YouTube are all examples.

Social media is a communication channel, but with the notable differentiating feature of 2-way communication when compared with traditional media such as newspaper, radio, or television. Due to the nature of communication on social media as well as the much shorter lifecycle of news and information, users have different expectations regarding openness and transparency for those with whom they interact, whether individuals or businesses.

Social media has progressed into a regularly used source for news by its users. In 2022, 50% of U.S. adults report sometimes or often getting their news from social media (Liedke and Matsa, 2022). This highlights the potential importance and value of social media for crisis management.

When it comes to crisis management, social media has altered the context and tactics used when responding to and managing a crisis, but the core principles remain the same. These include:

- Identify a team – Know who needs to, or should be, be involved. While some team members may be apparent (e.g. spokesperson, business owner/CEO, etc.), other team members may be less apparent and include individuals with responsibilities in areas such as product distribution or finance.
- Have a plan – don't wait until a crisis occurs to figure out how to address one. Assign roles to team members and make sure each understands their responsibilities.
- Practice your response – Simulating a range of crisis types can provide teams valuable experience better preparing them for responding to a true crisis. Crisis drills provide a non-stressful environment for preparation and identifying aspects of the plan that need strengthening.

When considering the role of social media in crisis management, there are benefits including:

- **Real-time communication and information dissemination.** Social media allows businesses the ability to communicate with the public and stakeholders in real-time; no need to wait for the next publication of a newspaper or news telecast.
- **Monitoring and tracking emerging issues.** The crisis management team can use social media to monitor online conversations and media coverage of the situation. This can aid in identifying important aspects that need to be addressed and help provide a sense of public and stakeholder sentiment.
- **Engaging with stakeholders and the public.** The two-way mode of communication allows businesses to directly engage with stakeholders on the social media platform(s), answering questions, addressing concerns, or providing specific information.

continued on next page

- **Convey transparency and build trust.** Appropriate use of social media and engagement through the platform can convey to stakeholders and the public that a business is being transparent in their efforts to share information and address the crisis, thus building and/or reinforcing trust between the public and the business. An analysis of existing research on crisis communication determined that "using social media significantly lessened consumers' perceived crisis responsibility" (Xu, 2020). That is, consumers' views of the business's responsibility for the crisis went down when businesses used social media.

A publication from Deloitte (Overlander, 2023) outlines five principles for thinking about social media in a crisis:

1. **Social media isn't always the right way to communicate in a crisis.** Crisis communications should be tailored to the specific incident and sometimes that may rule social media out as an appropriate tool.
2. **Great social media engagement in 'peace time' can be your downfall in a crisis.** Social media is often left to marketers, but in the midst of a crisis, the marketing individual or team may not be the appropriate lead for social media communications. Crisis planning should include a discussion about when social media responsibilities should be moved to someone in a different role. Consider also whether a process for approving social media crisis communications should be implemented.
3. **Inform, don't engage.** During and following a crisis, businesses will want to share relevant information with their audience and social media is a highly effective avenue. However, experienced social media users are also aware that the platforms don't often lend themselves to nuanced debate. Details can easily be overlooked or left out. In a crisis therefore,

continued on next page

continued from page 28

it is important to discern when a conversation should be taken offline.

4. **Listen hard, ignore much.** What does this mean? As outlined previously, social media is an excellent tool for monitoring online conversations allowing businesses to assess sentiment and determine if there are issues that need to be addressed. However, there is also a lot of 'noise' on social media requiring the individual or team monitoring these conversations to be able to effectively sift through what is important and what is not.
5. **Protect your CEO: get them on social media.** This may seem counterintuitive given the principle about not engaging. In a crisis however, particularly serious crises, media will attempt to frame the situation and the business may fall victim to inaccurate reporting. Personal social media use during this time by the business leader(s) may be a way to counteract any inaccuracies while also displaying the human side to the business.

A vital point when considering the use of social media in crisis management is that someone on the team must be comfortable and experienced with the social media platform(s) used. A crisis is not the time to try to learn a new platform as differences exist between platforms when it comes to user demographics, style of use, and expectations.

The role of social media in crisis management continues to evolve as platforms and the public's use of social media evolve. Businesses should regularly assess their planned use of social media as part of their crisis response plan. That said, food industry businesses should embrace social media as a vital tool for mitigating and managing crises.

References

Blickem, ER., Bell, JW., Oliveira, ACM., Baumgartel, DM., and J. DeBeer. An analysis of seafood recalls in the United States, 2002 through 2022. Journal of Food Protection, 86(6): https://doi.org/10.1016/j.jfp.2023.100090.

Overlander, B. 2018. Managing the 'unmanageable' Social Media in a Crisis. Deloitte.

Liedke J., and EK Matsa. 2022. Social Media and News Fact Sheet. Pew Research Center. https://www.pewresearch.org/journalism/fact-sheet/social-media-and-news-fact-sheet/.

Xu, J. 2020. Does the medium matter? A meta-analysis on using social media vs. traditional media in crisis communication. Public Relations Review. 46(4): https://doi.org/10.1016/j.pubrev.2020.101947.

The Farmer Stress Management Toolbox Part 2

Suzanna Windon, Ph.D. | Assistant Professor, Youth and Adult Leadership | Pennsylvania State University
Carolyn Henzi Plaza | MS Agricultural and Extension Education | Pennsylvania State University
Daniel Robotham | Ph.D. Student, Educational Theory and Policy | Pennsylvania State University
Abbie E Spackman | Former Extension Associate Pennsylvania State University

This is the second article of the Stress Management Toolbox, a series of three articles related to understanding and managing stress. This article will provide you with useful information to identify the symptoms of stress.

Source: https://pixabay.com/illustrations/stress-relaxation-relax-voltage-391654/

Identifying the Symptoms of Psychological Stress

This article is the second article in The Stress Management Toolbox, a series of publications related to stress management on the farm. This series of three articles will help you understand stress and its impacts on your health, work environment, and daily life. It will provide strategies and tools that help you manage stress and reduce its impact on your daily life. The first article in the Stress Management Toolbox can be found using the link below. The first article in the series defined the concept of stress and its different dimensions. This article will provide you with useful information to identify the symptoms of stress. The third article will describe strategies to cope with stress.

How Can the Farming Operation be Stressful?

Farmers face pressure to balance their daily farm operations and personal life, especially in their busy seasons. According to The National Institute for Occupational Safety and Health, those who are working in agriculture often deal with stress-related conditions such as heart and artery disease, hypertension, ulcers, and nervous disorders. Many out-of-control factors, for example, unpredictable weather, market prices, governmental regulations, and more recently, natural disasters, animal or plant diseases, and pandemics, negatively affect farmers' quality of life (Deary et al., 1997; Truchot & Andela, 2018; Rudolphi et al., 2020, Windon et al., 2014, 2016). Additionally, other factors in which farmers have some control (e.g., relationship with personnel, agricultural commodities, innovation adoption) can also add stress to farmers' lives. Previous research identified the following factors that can increase farmers' stress levels: heavy workload, lack of time, doubt about the future, social and geographical isolation, and conflicts with partners and family (Truchot & Andela, 2018; Windon et al., 2014, 2016; Henzi & Windon, 2021).

The amount of control that a person has to cope with environmental factors or psychological issues can determine the type of stress the person can experience. Stress can be classified as short-term stress, long-term stress, good stress (eustress), and bad stress (distress). Prolonged exposure to a stressor can lead to chronic stress since it is physiologically cumulative (Guidi et al., 2021). Long-term stress can have a damaging effect on our bodies and mind. Research showed that chronic stress is associated with the development or progression

Source: https://extension.psu.edu/media/wysiwyg//extensions/catalog_product/ef4f39e61bee46e8b8868eb47024d9d6/b/r/broken-tractor_1.jpg

continued on next page

of mental disorders, such as anxiety and depression (Tafet & Bernardini, 2003), as well as a compromised immune system and a greater risk of developing cancer (Dai et al., 2020). Evidence supports that acute stress is associated with an increased risk of cardiovascular disease and heart attack (Gianaros, 2018)

Negative stress is a defensive and adaptative reaction that prepares the "fight or flight" response in our bodies and minds.

Cannon (1932) introduces the "fight or flight" response as an activation of an organism when exposed to any situation or thought that implies a challenge or a risk. Internally, when we are exposed to stressors, our body increases the level of the stress hormone called cortisol (Chemin et al., 2013). Cortisol is nature's built-in alarm system. It works with certain parts of your brain to control your mood, motivation, and fear. Also, cortisol plays a vital role in many key processes, such as controlling the body's carbohydrates, fats, and proteins usage, managing the inflammatory process, regulating blood pressure, keeping blood sugar ready to convert into energy, and controlling your sleep/wake cycle (Vijayan et al., 2010). However, keeping the body constantly ready to face adversity can have a very degenerative effect.

What are the Symptoms of Stress? How Can We Recognize Them?

Recognizing the early symptoms of stress is helpful because it allows us to be more alert to find ways to cope with stress. According to the Australian National Centre for Farmer Health and the Mayo Clinic, there are four signs of stress: physical, emotional, cognitive, and behavioral changes or symptoms, depending on the situation and individual characteristics. The examples of four stress symptoms are presented below:

Physical Symptoms

- Physical discomfort
- Aches and pain (i.e., back pain, chest pain, or headaches)
- Weight gain or loss
- Gastrointestinal issues (i.e., constipation, diarrhea, or nausea)
- Rapid beating heart; short breathing
- Change in blood pressure
- Grinding/clenched teeth
- Lethargic; body fatigue
- Nervousness; anxiety
- Drop-in sexual interest

Emotional Symptoms

- Increased angry blow-ups
- Frustration
- Moodiness
- Difficulty controlling emotions (i.e., feeling overwhelmed, emotional outbursts)
- Impatient
- Low self-esteem, depressed mood
- Feeling worthless, hopeless; suicidal thoughts
- Inability to relax, restless
- Loneliness, avoidance
- Panic attack

Cognitive Symptoms

- Mental confusion or frequent forget
- Trouble concentrating
- Lack of focus on your ideas, racing thoughts
- Constant worrying
- Poor judgment
- Pessimistic attitude
- Forgetfulness

Behavioral Symptoms

- Apathy (i.e., lack of feeling, emotion, interest, or concern about something)
- Feeling constantly tired
- Overeating diet or neglecting diet
- Increased smoking/ drinking
- Sleep disruptions (i.e., insomnia, early waking, over-sleeping)
- Difficulty relaxing; restlessness
- Withdrawn from others
- Trouble adapting to changing circumstances
- Procrastination
- Short-tempered
- Sarcastic arguments
- Impulsive buying
- Gambling

continued on next page

Learning to recognize your stress factors is the first step in developing your coping skills. Each person can have a different ability to handle stress based on the individual's support system, skills, and experience.

Some can see a particular event as a stressor, while others may view the situation as a challenge that creates a new opportunity. The question is how to focus your energy and thoughts on finding the best solution in response to a stressor. Our third article will focus on how to deal with stress by providing coping strategies that can help farmers increase their confidence in managing their stress.

We appreciate Dr. Derek Spangler's profound insights and feedback that helped shape the series of articles on stress management on the farm. Dr. Derek Spangler is an Assistant Professor of Biobehavioral Health at Penn State who conducts research related to real-world stress and its impacts on health.

AgrAbility for Pennsylvanians Project is supported under USDA/NIFA Special Projects 2021-41590-34811 in collaboration with Penn State Extension. Penn State College of Agricultural Sciences research and extension programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and USDA.

Photo Credit: Abbie Spackman AgrAbility PA Project

References

Cannon, W. B. (1932). *The wisdom of the body.* New York, NY Norton.

Chemin, M., De Laat, J., & Haushofer, J. (2013). Negative rainfall shocks increase levels of the stress hormone cortisol among poor farmers in Kenya. *Available at SSRN*, 2294171.

Dai, S., Mo, Y., Wang, Y., Xiang, B., Liao, Q., Zhou, M., ... & Zeng, Z. (2020). Chronic stress promotes Cancer development. *Frontiers in Oncology*, 10, 1492.

Deary, I. J., Willock, J., & Mcgregor, M. (1997). Stress in farming. Stress Medicine, 13(2), 131–136. doi.org/10.1002/(SICI)1099-1700(199704)13:2<131::AID-SMI727>3.0.CO;2-T

Gianaros, P. J., & Jennings, J. R. (2018). Host in the machine: A neurobiological perspective on psychological stress and cardiovascular disease. *American Psychologist*, 73(8), 1031.

Guidi, J., Lucente, M., Sonino, N., & Fava, G. A. (2021). Allostatic load and its impact on health: a systematic review. *Psychotherapy and Psychosomatics*, 90(1), 11-27.

Henzi, C. M., & Windon, S. R. (2021, September 29-October 2). Assessing Farmers' Stress and Career Commitment During Pandemic: A Pilot Study [Poster presentation] *American Association for Agricultural Education North Central Conference*, Columbus, Ohio, United States.

National Centre for Farmer Health. (2019, May 13). Managing Stress on the Farm.

Rudolphi, J. M., Berg, R. L., & Parsaik, A. (2020). Depression, Anxiety, and Stress Among Young Farmers and Ranchers: A Pilot Study. *Community Mental Health Journal*, 56(1), 126–134. doi.org/10.1007/s10597-019-00480-y

Tafet, G. E., & Bernardini, R. (2003). Psychoneuroendocrinological links between chronic stress and depression. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 27(6), 893-903.

Truchot, D., & Andela, M. (2018). Burnout and hopelessness among farmers: The Farmers Stressors Inventory. *Social Psychiatry and Psychiatric Epidemiology*, 53(8), 859–867. doi.org/10.1007/s00127-018-1528-8

Vijayan, M. M., Aluru, N., & Leatherland, J. F. (2010). Stress response and the role of cortisol. *Fish Diseases and Disorders*, 2, 182-201.

Windon, S. R., Jepsen, S. D., & Scheer, S. D. (2014). Identifying the Factors Affecting Ohio Farmers' Quality of Life. *Journal of the NACAA*, 7(2).

Windon, S. R., Jepsen, S. D., & Scheer, S. D. (2016) Examining Quality of Life Farmers with Disabilities: Ohio AgrAbility Study. *Journal of Agricultural Safety and Health*, 22(1), pp 3-13.

Yazd, S. D., Wheeler, S. A., & Zuo, A. (2019, December 1). Key risk factors affecting farmers' mental health: A systematic review. *International Journal of Environmental Research and Public Health*, 16. doi.org/10.3390/ijerph16234849

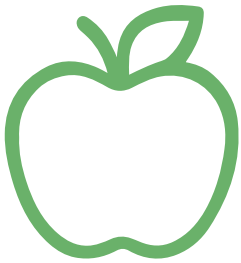
Reprinted with permission from Penn State Extension https://extension.psu.edu/the-farmer-stress-management-toolbox-part 2

Featuring recipes that include vegetables

recipe corner

Misty's Apple Crisp

Art King | Harvest Valley Farms



INGREDIENTS

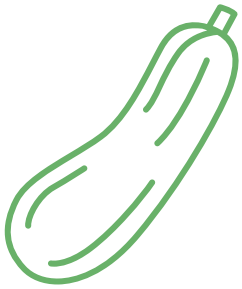
- 3 cups thinly sliced fuji apples
- 1 tablespoon lemon juice
- ⅓ cup brown sugar
- ½ cup flour
- ½ teaspoon cinnamon
- ½ teaspoon nutmeg
- ¼ cup butter
- Ice cream (optional)

INSTRUCTIONS

1. Heat oven to 375 degrees.
2. Grease a 9 x 9 baking dish.
3. Arrange apples in the dish, sprinkle with lemon juice.
4. Mix sugar with next 4 ingredients until crumbly; spread over apple slices.
5. Bake 25 to 30 minutes or until tender.
6. Serve hot with ice cream if you prefer.

Chocolate Zucchini Cake

Tina Forry | Forry's Roadside Market



INGREDIENTS

- ½ cup margarine
- ½ cup sour milk
- 1 ¾ cup. sugar
- 2 ½ cup flour
- 2 eggs
- 1 tsp. salt
- 1 tbs vanilla
- 1 tsp baking soda
- 2 cup shredded zucchini
- ¼ cup cocoa powder
- ½ cup oil

INSTRUCTIONS

1. Grease and flour 13x9 pan.
2. Preheat oven to 325.
3. Mix all ingredients and spread into prepared pan.
4. Cover with 3/4 cup chocolate chips and 3/4 cup chopped walnuts.
5. Bake for 1 hour.

Good to eat as a snack cake or omit the nuts and top with your favorite frosting.

continued on next page

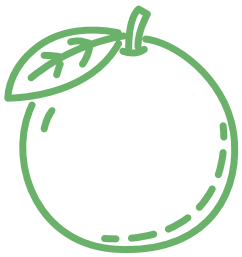
Angel Food Cake with Orange Glaze

Placed 3rd in Perry County Angel Food Cake Contest

Submitted by Tammy K Linn

CAKE INGREDIENTS

- 1 ½ cups confectioners' sugar
- 1 cup flour
- 12 egg whites
- 1 ½ tsp cream of tartar
- 1 cup sugar
- 1 ½ tsp vanilla
- ½ tsp almond extract
- ¼ tsp salt



INSTRUCTIONS

1. Preheat oven to 375°
2. Mix powdered sugar and flour, set aside.
3. Beat the egg whites and cream of tartar in large bowl on medium until foamy. Add the sugar tablespoons at a time on high speed, adding vanilla, almond extract and salt with the last addition of sugar. Continue beating until stiff meringue forms.
4. Sprinkle the sugar/flour mixture, ¼ cup at a time over meringue, folding in until the sugar/flour mixture disappears. Pour the batter into ungreased pan. Cut gently through batter.
5. Bake 40-50 minutes or until top springs back when touched lightly. Turn upside down on bottle and let hang for 2 hours or until cake is cool. Loosen sides of cake with knife, remove from pan.

GLAZE INGREDIENTS

- 2 tbls orange juice
- 1 tbls egg white
- 1 ½ cups confectioners' sugar

INSTRUCTIONS

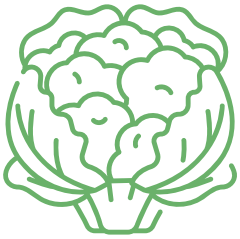
1. Whisk all ingredients together
2. Slowly drizzle over cooled cake

Whole Baked Cauliflower

Art King | Harvest Valley Farms

INGREDIENTS

- 1 large head cauliflower
- ½ cup seasoned breadcrumbs
- 2 tablespoons grated Parmesan cheese
- ¼ cup margarine, melted
- ⅛ tsp garlic powder
- ⅛ tsp salt
- 1 pinch red pepper flakes
- 1 pinch dried oregano



INSTRUCTIONS

1. Clean cauliflower, and trim off leaves and any brown spots.
2. Place the whole head of cauliflower into a steamer basket, place the basket in a large pot, and add one inch of water.
3. Cover and bring to a boil over medium heat.
4. Cook for about 20 minutes or until tender. Preheat the oven to 375 degrees F (190 degrees C).
5. In a medium bowl, mix together the breadcrumbs, Parmesan cheese, and melted margarine.
6. Season with garlic powder, salt, red pepper flakes, and oregano, and mix well.
7. Place the head of cauliflower into a baking dish and coat with the breadcrumb mixture.
8. Bake for about 10 to 15 minutes in the preheated oven, or until golden brown

continued on next page

Recipe Corner ... continued from page 34

Carrot Cake

Peter Flynn | PVGA President

DRY INGREDIENTS

- 2 cups all-purpose flour
- 2 teaspoons baking soda
- 2 teaspoons cinnamon
- ½ teaspoon salt
- ¼ teaspoon nutmeg (optional)

WET INGREDIENTS

- 1 cup vegetable oil (or melted coconut oil)
- 1 cup granulated sugar
- 1 cup brown sugar (light or dark)
- 3 large eggs
- 2 teaspoons vanilla extract

ADD-INS

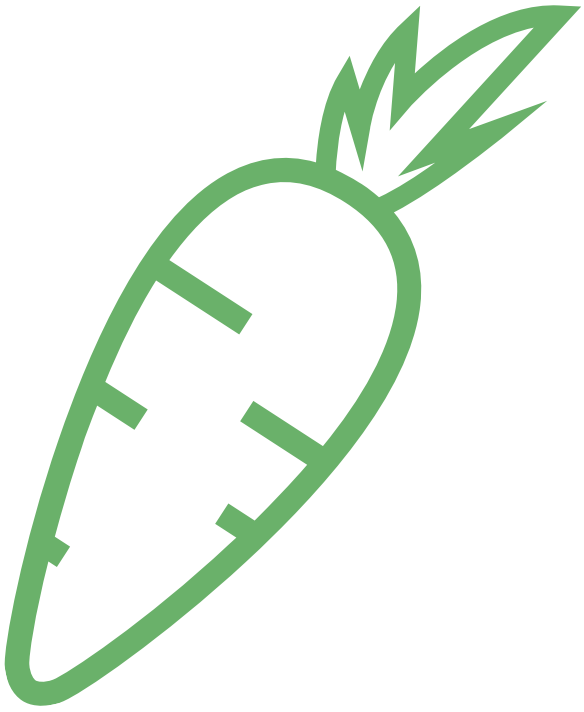
- 2 cups finely grated fresh carrots (about 3–4 medium carrots)
- 1 cup crushed pineapple, well drained
- ¾ cup sweetened shredded coconut
- ½ cup chopped nuts (optional – pecans or walnuts work well)
- ⅔ cup raisons (optional)

FROSTING INGREDIENTS

- 2 8 oz. packages cream cheese
- 1 stick 8 tablespoons unsalted butter
- 1 tsp vanilla extract
- 2 ½ cups confectioners' sugar
- Bring to room temperature and mix well.

INSTRUCTIONS

1. Preheat oven to 350°F (175°C).
   Grease and flour a 9×13-inch pan (or two 9-inch round cake pans if you want a layer cake).
2. Mix dry ingredients:
   In a medium bowl, whisk together flour, baking soda, cinnamon, salt, and nutmeg.
3. Mix wet ingredients:
   In a large bowl, whisk together oil, sugars, eggs, and vanilla until smooth.
4. Combine:
   Stir the dry ingredients into the wet until just combined—don't overmix.
5. Add the good stuff:
   Fold in grated carrots, crushed pineapple, coconut, and nuts 7 raisons (if using).
6. Bake:
   Spread evenly in the prepared pan.
   Bake 40–45 minutes (9×13 pan) or 30–35 minutes (round pans), until a toothpick inserted in the center comes out clean.
7. Cool:
   Let cool completely before frosting.
8. If making a layer cake put bottom cake upside down, then frost the top and put second one right side up on top and frost.



Pennsylvania Vegetable Growers Association

908 N 2nd Street
Harrisburg, PA 17102

Change Service Requested

PVGA