

PENNSYLVANIA
VEGETABLE GROWERS

NEWS

for the commercial vegetable, potato and berry grower

PVGA

Volume 48/Issue 3



Cover photos provided by Art King | Harvest Valley Farms



Pennsylvania Vegetable Growers Association

An association of vegetable,
potato and berry growers.

President
Peter Flynn '27
West Chester

First Vice President
Tina Forry '25
Palmyra

Second Vice President
Morgan Bond '27
Ringtown

Secretary-Treasurer
Rita Resick '26
Somerset

Directors
John Bonin '27
Warminster

Christopher Harner '26
State College

Barron Hetherington '28
Ringtown

Matt Kaelin '28
Evans City

Alan Kemmerer '28
Berwick

Arthur King '27
Valencia

Amy Metrick '27
Butler

Laverne Nolt '26
Martinsburg

James Reiff '26
Leola

John Shenk '26
Lititz

Jeffrey Stoltzfus '26
Atglen

Jonathan Strite '28
Harrisburg

Mark Troyer '27
Waterford

Adam Voll '28
Wexford

Executive Director
Tammy K. Linn
Harrisburg

President's Message | *Peter Flynn | President*

It's hard to believe another growing season is already underway. As always, the weather is throwing us its usual curveballs, but as of mid-May, things are looking promising. Mother's Day weekend brought excellent weather and strong sales for many retailers—a welcome boost to start the season.

Once again, PVGA proudly supported the Hunger Garden at the Pennsylvania State Capitol by donating plants and seeds. Our Executive Director, Tammy Linn, spent the day volunteering alongside several others to get the garden planted. The event included remarks from Senator Elder Vogel and Representative Emily Kinkead, co-chairs of the Hunger Caucus, as well as other garden supporters. Their words served as a powerful reminder that food insecurity continues to affect one in eight Pennsylvanians.

Fortunately, the Pennsylvania Agricultural Surplus System (PASS) is well-funded this year. This important program helps connect surplus crops from our farms to local food banks—supporting both growers and families in need.

Although the 2026 Mid-Atlantic Fruit and Vegetable Growers Convention is still six months away, we're already deep into planning. One thing we hear often from members is a desire to hear more from fellow growers—more panels, more firsthand experiences, more real-world insights. It sounds simple, but getting growers to speak can be tough! Many are hesitant to talk in front of a crowd, even with the offer of free convention registration.

I like to joke that if speaking in front of a room is intimidating, try practicing in front of a cornfield—you'll have plenty of ears listening!

Despite the challenges, we're putting together a great lineup of sessions. We're working hard to stay ahead of the curve with the latest research, technologies, and innovations in agriculture. And yes, we've managed to convince a few reluctant growers to share their stories on panels.

Wishing you all a safe, productive, and prosperous growing season.

Pete Flynn
PVGA President

Inside this Issue

President's Message	2	Retail Farm Market Benchmark	
Vogel, Kinkead Kick Off the 15th Capitol		Project 2025	10
Hunger Garden Season.....	3	Strawberry Season 2025:	
Chasing Potassium: How I learned		What an Assortment!.....	13
to keep my Tomatoes fed for		Heat Units for Scheduling Plantings	
Optimal Packout.....	6	of Vegetable Crops.....	15
Biodegradable Plastic Mulch Update.....	8	PASS Letter of Support	16
Horticultural Observations:		Recipe Corner	18
2025 The Year of Uncertainty	9		

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.

Vogel, Kinkead Kick Off the 15th Capitol Hunger Garden Season

Posted on May 7, 2025

HARRISBURG – Sen. Elder Vogel, Jr. (R-47) and Rep. Emily Kinkead (D-20), co-chairs of the Hunger Caucus, gathered at the Capitol Hunger Garden to highlight how the Harrisburg community benefits from the produce grown in the Hunger Garden.

In addition to Vogel and Kinkead, remarks were also offered by Peter Flynn, President of the Pennsylvania Vegetable Growers Association; Mieshia Jackson, Director of Operations for Downtown Daily Bread; Rep. Dan Moul, minority chair of the House Agriculture and Rural Affairs Committee; and Joe Arthur, CEO of the Central Pennsylvania Food Bank.



Hunger Caucus Co-Chairs Sen. Elder Vogel, Jr. (R-47) and Rep. Emily Kinkead (D-20) gathered with Reps. Dan Moul (R-91) and Eddie Day Pashinski (D-121) (not pictured), Sens. Jay Costa (D-43), Pat Stefano (R-32) and James Malone (D-36), and representatives from the Pennsylvania Vegetable Growers Association, Central PA Food Bank, Downtown Daily Bread, and the Penn State Cooperative Extension Master Gardeners for the 15th opening season of the Capitol Hunger Garden.

Photo by Julie Neal, Senate Republican Communications Department



“Food insecurity affects all walks of life here in Pennsylvania,” said Sen. Elder Vogel, Jr. (R-47). “While potential remedies to this complex issue take time to craft both on the state and federal levels, this garden continues to offer some immediate relief to those struggling with hunger in the Harrisburg area. As a farmer, I understand what it means to share the bounty and the Hunger Garden time and time again has proven to be a shining example of how healthy food options can be shared amongst the community.”

“With food insecurity continuing to get worse since the pandemic and not better, the message of the Hunger Garden could not be more important,” said Rep. Emily Kinkead (D-20). “The Hunger Garden stands as a physical embodiment of the mission of the Legislative Hunger Caucus – to combat hunger across the state, improve access to nutrition programs, and educate Pennsylvania legislators on food insecurity issues. While uncertainty for funding at the federal level looms, it is now that we in Pennsylvania must step into the gap to end hunger in our Commonwealth.”

continued on page 4

Vogel, Kinkead Kick Off the 15th Capitol Hunger Garden Season ... continued from page 3

Last year's Hunger Garden bounty yielded a total of over 727 pounds of produce which consisted of many different vegetables and herbs including tomatoes, eggplant, cucumbers, carrots, bush beans, Swiss chard, dill, rosemary, thyme, pole beans, onions, and various assortments of peppers.

Vogel added, "I want to thank the Department of General Services, Penn State Master Gardeners, PA Vegetable Growers Association, and our volunteers who help make this garden a reality each season."

Plants for this year's garden were supplied by the Pennsylvania Vegetable Growers Association and volunteers from the Penn State Cooperative Extension Master Gardeners will assist with maintaining the garden throughout the summer until the season ends in early October.

Established in 2008, the legislative Hunger Caucus seeks to raise awareness for hunger. The most visible of this caucus's initiatives is the Capitol Hunger Garden, which is a joint effort of the Pennsylvania General Assembly.



CALLING ALL VEGGIE PRODUCERS



SIGN UP TODAY!

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

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.

THE BEST START FOR YOUR BEST SEASON YET

**PREMIUM ORGANIC FERTILIZERS
FOR THRIVING PLANTS.**



- Fertilizer Blends
- Custom Fertilizer
- Soil Amendments
- Super N 4-2-4
- Gold Special Starter 2-4-2
- Super Plant Food 3-2-3

**NATURAL AND ORGANIC FEED SUPPLEMENTS, FERTILIZERS,
LIVESTOCK NUTRITION, & AGRONOMY CONSULTING**

Contact Us to Request a Catalog!

**The Fertrell Company • PO Box 265, Bainbridge, Pennsylvania 17502
800-347-1566 • www.fertrell.com**

Chasing Potassium: How I learned to keep my Tomatoes fed for Optimal Packout

Steve Bogash | Steve Bogash Consulting

Every season is different and sometimes, even what we believe are minor changes in how we grow a crop produce major ripples in production. The information in this article is based on many years of experience working in high tunnels, greenhouses, and field-grown tomatoes.

Growing great tomatoes that are full-flavored and have low losses in the packing house requires keeping leaf tissue potassium levels above 3%. Tomato and pepper plants need balanced potassium, calcium, and magnesium for optimal flavor, minimal blossom end-rot, and prevention of yellow shoulders/gray wall. An acre of tomatoes can readily remove over 200 lb of potash. Although I've learned to look at every nutrient level, those that cause the most significant losses in packout are:

- 1) Nitrogen levels that are too high: tissue N levels should be at about 4% as fruit are developing. Higher levels can create soft fruit, more foliage, and fewer fruit.
- 2) Potassium too low: tissue K levels need to be above 3% for tomatoes and peppers to produce the highest quality fruit and to keep creating new blossoms.
- 3) Calcium and Magnesium levels all over the place: Ideally Ca should be at 2.5 - 3% and Mg at 0.8-1%. This prevents cracking and produces fruit that are tough enough to handle harvesting and packing.
- 4) Phosphorus at .7-1%. It's not unusual for P levels to drop precipitously as the first fruits are ripening and for the plants to essentially shut down any new growth.

Our highly variable spring growing conditions are often the primary challenge in creating a perfect tomato season. One cool, cloudy season that I recall was especially challenging for everyone and all crops, but tomatoes really seemed challenged by the lack of sunlight. We had 12 days of cloudy weather back-to-back in Mid-April. Although we fed the tomatoes a high K soluble fertilizer (9-15-30 and a 5-10-27 analysis products) from the first blossom, we simply could not keep up with the plants' demands. Every tissue test indicated higher demand for K. We kept adding more high K fertilizers to the injector and watched our levels fall again at the next test. Our first tissue test indicated

that we were at 3.1% K at first blossom, then went to 2.7% K two weeks later, then 2.4% K two weeks later, then 1.91% K two weeks later and we were picking far too much fruit with yellow shoulder and related symptoms. It was not until we started foliar feedings twice per week with a specific potassium fertilizer that was designed for foliar applications in addition to the injected fertilizers that we started seeing tissue K levels move back up to tolerable levels.

In retrospect, although I've always recommended bi-weekly tissue testing to growers due to the cost of the tests, I now recommend weekly sampling beginning at 4 weeks post transplanting instead of at first flower as plants begin to create blossoms about 2 weeks prior to them becoming visible. Continue weekly testing for 3-4 weeks or until the tissue levels stabilize, then move to biweekly testing until the last fruit are setting. If applying foliar nutrients, be sure to let your testing lab know so they will wash your sample thoroughly with distilled, deionized water to remove any residual nutrients on plant surfaces. Make any immediate foliar nutrient applications after collecting tissue samples.

Also, like most of the growers that I work with, I used to feed nutrients either once per week or at most twice, moving to a constant feed program has made a significant improvement in yield and quality. To prevent



continued on page 7



soluble salts from accumulating, feed for 5-6 days followed by 1-2 days of clear water or a drench with a biostimulant or fungicide. These 'clear water days' are great opportunities to up your soil microbial levels by including Stargus®, Actinovate® AG, RootShield® Plus or stimulating root health with a Regalia® treatment.

Blossom end-rot (BER) is often a major source of culls in early season tomatoes. This is largely due to low sunlight levels not providing enough evapotranspiration to move calcium into sinks like fruit. Haven® and glycine betaine-based products like LALSTIM OSMO® can significantly reduce BER while reducing sunscald and leave no white residue. Both products increase transpiration which can improve the uptake of calcium, magnesium, and potassium which can improve fruit quality.

Some growers have questioned me on the economics of a frequent testing schedule / high potassium program, but even conservative yields and sales prices indicate that tomatoes are worth the extra effort and expense. Follow my thoughts below:

- 1) Assume 1 acre of tomatoes with plants spaced 18" apart with 6' between rows. This creates a plant population of 4,840 plants per acre.
- 2) With minimal attention to details like tissue testing and nutrient application, you should readily harvest a very conservative 15 lb. of fruit per plant. This works out to 72,600 lb / acre or 2,904 boxes (25 lb.).

- 3) At even \$15.00 / box, your gross is \$43,560.
- 4) Tunnel math (Very conservative): 300 plants at 25 lb. / plant = 7,500 lb. @ \$2.00 / lb. = \$15,000 gross.
- 5) Even after the expense of boxes, plants, plastic mulch, harvest and the like, 8-10 tissue tests are inexpensive insurance for a good packout. Play with the yield numbers a little or adjust the return per box and focusing on better tomatoes makes good economic sense

Using the logic above and factoring in the higher prices that early harvests bring, constant tissue testing in tunnel production is simply a requirement. Preventing Yellow shoulders, cracking and Blossom end-rot is good business!



Biodegradable Plastic Mulch Update

Dr. M. D. Orzolek | Prof. Emeritus Vegetables
| The Pennsylvania State University

The use of plastic mulch for the production of vegetable crops in the United States has doubled in the last 10 years. Vegetable growers in the Mid-Atlantic and the Northeast regions of the U.S. grow almost all of their warm season vegetable crops on plastic mulch to enhance early growth and total yield as well as minimize/eliminate weed problems in the row. Use of plastic mulch with raised beds and drip irrigation (environmental modification) enables growers in these regions to extend their marketing seasons when commodity prices are higher or grow vegetables in their plasticulture system that otherwise would not produce a crop when

grown on bare ground/conventional production. If we examine plasticulture on the larger scale, the use of plastic film (mulch) in North America has increased approximately 5% per year since 2000. The increase in mulch film in part has been due to the dry to droughty weather in North America over the last 5 years. The plastic film reduces evapotranspiration rates and the total amount of water required to grow the crop. The introduction of new colors of mulch by most of the manufacturers in North America has also contributed to the increase in mulch film use in the last 5 years. Many growers are now trying various colors with their vegetable crops including: red, blue, metallized silver, green IRT and brown IRT compared to standard black or co-extruded white/black. Current use of plastic film for the production of horticultural crops in North America is estimated at 600,000 acres per year. Use of plastic mulch has consistently increased the marketable fruit yield at harvest with a concurrent reduction in cull fruit.

While energy costs have risen dramatically in the last 5 years, plastic film manufacturers have saved money on the production of mulch film by reducing the thickness of the film. Film thickness has gradually gone from 1.5 mil to 0.5 to 0.7 mil in the last 3 years. The one disadvantage of the thin plastic film is the retrieval potential for growers after the crop has been harvested in the field. Thin films 0.7 mil or less do not retrieve from the field very easily and thus difficult to recycle. A true biodegradable plastic mulch has been developed and is being sold commercially in Europe and also in North America. This new, innovative plastic film does truly biodegrade in the field and can be rototilled into the soil at the end of the season and at a savings of at

least \$100/A by not having to pick up and dispose of the plastic mulch and deliver it to a landfill. In addition, several other companies are in the process of developing their version of biodegradable plastic mulch. Field research has demonstrated that the biodegradable mulches will produce equal marketable crop yields compared to non-degradable plastic mulch. Two issues that growers may be apprehensive about are the initial cost of the biodegradable mulch compared to non-degradable mulch and the sometimes unpredictability of the degradation rate of biodegradable mulch.

Previous and current field evaluation of current and new biodegradable films has shown that marketable yields from various vegetable crops grown on raised beds with biodegradable plastic mulch are comparable to the same vegetables grown on non-degradable plastic mulch. The key difference between biodegradable and non-degradable plastic mulch is that you can rototill the biodegradable plastic mulch into the soil and plant a cover crop the next day. With the non-degradable plastic mulch, the film has to be physically removed from the field and then disposed of generally in the landfill. The cost of retrieval of non-degradable plastic mulch from the field coupled with the disposal costs is about equal to the initial cost of biodegradable film per acre. The one concern that some growers may have with the biodegradable film is that it has less elasticity and stretchability characteristics compared to non-degradable plastic mulch and therefore laying biodegradable mulch in the field with a raised bed applicator is generally slower with specific adjustments made to the bed layer to minimize ripping of the biodegradable mulch when laying it in the field.

Cultivators for Strawberries, Vegetables, and Plasticulture



Equipment from
Hillside Cultivator Co. LLC

Information:
Contact John Shenk:
717-669-3158

Lititz PA 17543

Email:
sales@hillsidecultivator.com

Or online at:
hillsidecultivator.com

Mike Orzolek

HORTICULTURAL Observations



2025 The Year of Uncertainty

The two most significant factors that will affect crop production in 2025 will be climate change and tariffs. Global warming is still currently increasing since there has been no global legislation to mitigate climate change/Global Warming. Based on the weather patterns of the last 5 years, excessive rain events, droughts, frost events and crop stressful high temperatures can be expected in 2025. Can we mitigate the stress of climate change on crop production? There are several techniques that can counter climate change effects on crop production. Plastic film mulch (black in spring and fall plus white in summer) coupled with drip irrigation certainly will reduce temperature and moisture stress. The other weather event that can be extremely damaging to crops is wind speeds in excess of 20 mph. When winds are high, evapotranspiration rates are much higher and damage to reproductive structures and plant lodging can occur. Planting barley or other tall grain strips between fields planted with vegetables will help reduce wind damage to the crop. The most effective tool we have to mitigate the effects of climate change are high tunnels. Both the single layer and double plastic cover on top of the tunnel will maintain an optimum environment for crop production. There are several production options in the high tunnel; directly in soil, raised beds with plastic mulch and drip irrigation and various hydroponic systems. Once planted, optimum temperature, moisture and elimination of wind stress enhances the growth, yield and quality of vegetable crops grown in the high tunnel. Also, the use of floating row covers can protect plants during frost events and if left on during crop growth reduce insect problems.

In regards to the tariffs imposed by this administration, the cost of farm inputs from fertilizer to plastic containers will

be more expensive in 2025. Many plastic ag products are produced in China and will be more costly with the 145% tariff coming into the US. The other concern with current tariffs is how will they effect crop prices and markets at harvest. Will the average consumers be willing to pay higher prices for your products?

Bringing You The Best in

Greenhouse & Produce Supplies

Visit Us Online:
MartinsProduceSupplies.com

**Greenhouses • Irrigation • Fertilizers
Seeds • Pots & Planters • Heaters & Fans**

717.532.5918 | 888.381.8641
627 Britton Rd. Shippensburg, PA 17257

Retail Farm Market Benchmark Project 2025

Brian F. Moyer | Education Program Associate | Business and Community Vitality



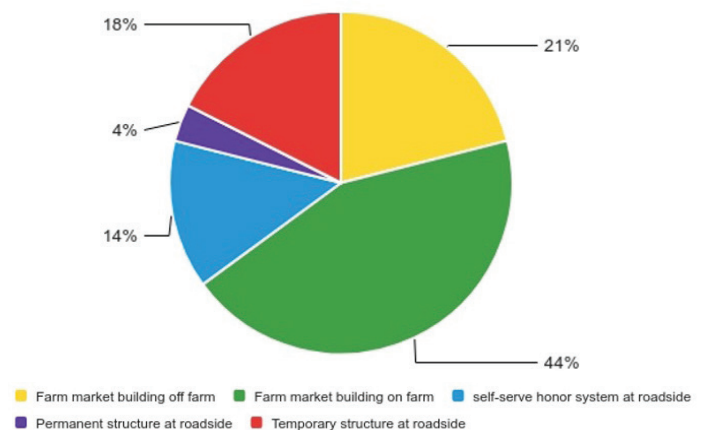
In the winter of 2025, Penn State Extension conducted a benchmark survey of retail farm markets in Pennsylvania. The goal was to determine how these markets are performing and their economic impact on the Commonwealth.

There are close to 700 Retail Farm Markets in Pennsylvania. Anything from a self-serve wagon at the end of a farm lane to a large several thousand square foot building with multiple employees.

These markets have an important economic impact on their communities and the Commonwealth. The result from this survey tells us that Retail Farm Markets generate a conservative figure of over \$200 million in economic activity in Pennsylvania annually. These markets are an essential supply chain of local food and often carry products from other local businesses and farms.

The survey was launched December 2024 and was closed at the end of March 2025. 167 markets responded to the survey.

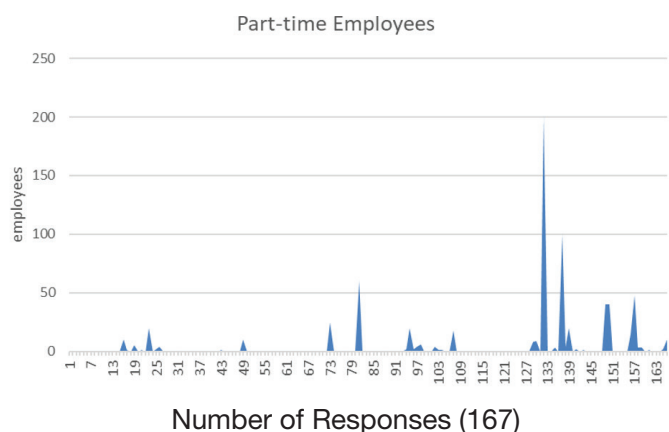
Q2 - What type of Retail Farm Market do you operate?



continued on page 11

Number of part-time employees this past year?

The average number of part-time employees working in retail farm markets = **10**



Sales per Square Foot

The sales per square foot for retail farm markets in Pennsylvania, calculated at approximately **\$174.45**, can be compared to industry standards to understand its performance.

Industry Standards for Sales per Square Foot

- **Small Grocery Retail:** The target figure for small grocery retail is around **\$500 per square foot**[1].
- **General Retail:** The average sales per square foot across the US retail market is approximately **\$325 per square foot**[2].
- **High-End Retail:** Examples include Apple at **\$5500 per square foot** and Tiffany & Co. at **\$3000 per square foot**[2].

Comparison

- The sales per square foot for Pennsylvania farm markets (**\$174.45**) is **below** the average for small grocery retail (**\$500 per square foot**) and general retail (**\$325 per square foot**).
- This indicates that farm markets may have lower sales efficiency compared to traditional retail spaces, which could be due to various factors such as seasonal variations, product types, and customer demographics.
- **Unique Factors:** Farm markets often serve as community hubs and offer fresh, local produce, which may not directly compete with traditional retail metrics but provide other valuable benefits to the community.

Gross Sales Percentage Change from the Previous Year

- On average, markets reported that gross sales were **10% higher** than the previous year.

Estimated Change in the Number of Customers at your Market from the Previous Year

- On average, markets reported a **14%** increase in the number of customers visiting their market.

Farm markets support local economies, provide fresh produce, and foster community engagement. While their economic impact may be smaller than major sectors like manufacturing, education, and health services, they are vital for sustainable agriculture and local business growth.

Resources

<https://solink.com/resources/industry-insights/average-retail-sales-per-square-foot/>

MRS AIR BLAST SPRAYER

5 X 5 Spray Head
Sprays 12-15 Ft.
on both sides

- › 23 HP Vanguard engine
- › Electric start
- › 60 gallon tank
- › Trailer hook up
- › Electric diaphragm pump

PRODUCED BY

Martin's
Repair Shop LLC

27 W Mohler Church Rd. Ste
1 Ephrata, PA 17522
717-733-3015

Strawberry Season 2025: What an Assortment!

Kathleen Demchak | Penn State University

As this is being written, the state of strawberry plantings across the state is highly variable in many ways: stage of growth, weather conditions, and problems being experienced. Some plasticulture plantings in the southeastern part of the state are being harvested, while later matted-row varieties in the northwest are barely into bloom. Though many PA growers are reporting that their strawberry plantings are looking better than they expected, others are not.

There are many factors to consider when figuring out what is happening in different plantings this year. One is that the cool wet spell experienced by many lately has been perfect for botrytis development. Wet soil conditions also cause further problems with Phytophthora crown or root rot development. Given the diseases present in some sources of strawberry plug plants last fall, those growing certain varieties in plasticulture have additional concerns especially where plants put on a disappointing amount of growth last fall. Lastly, we had our first “normal” winter in quite a few years, and folks had gotten used to not needing much, or any, winter protection in their fields.



With angular leaf spot, the bacteria may invade tissue contained by leaf veins resulting in the spots' angular appearance, but also invade the vascular system causing plant collapse as seen here with 'Malwina'.

If your plants aren't looking great, clues you can use to figure out what is happening (or happened) include: 1) what your plants looked like this spring compared to

what they looked like last fall, 2) which varieties you are growing, 3) which symptoms you are seeing (of course), and 4) what your overwintering practices were.

If your plants did not grow well last year, issues then could still be the cause of poor growth now. Last fall, strawberry plug plants were diagnosed with several diseases including *Neopestalotiopsis* mainly in 'Ruby June' and 'Chandler', anthracnose crown rot in 'Chandler', *Phytophthora* crown rot in 'Malwina' and 'Chandler', and angular leaf spot in 'Malwina'. With *Neopestalotiopsis* or anthracnose crown rot, plants grew poorly after planting and many of them (10 to 50%) died during the fall. With *Phytophthora* crown rot and angular leaf spot (a bacterial disease), plants wilted and collapsed here and there, but this wasn't obvious until a couple of months after planting.

Powdery mildew was common in 'Galletta' and 'Ruby June' and is likely to show up in these cultivars, 'Earliglow', and any day-neutrals this spring. Purpling around leaf edges and/or an inward curl to the leaves are diagnostic. Powdery mildew is one disease that usually lessens in severity with rain, but it can reappear if the weather turns warm and humid.



Purple spots and inward leaf curling are typical powdery mildew symptoms.

If your plants grew well last fall, didn't have much winter protection and didn't look so great this spring, winter

continued on page 14

injury to the crowns and leaf dessication from wind is likely especially if your farm had little snow cover. Winter injury in the crown will appear as a more consistent or diffused color in the crown in mild cases, and “corkiness” or complete crown death in severe cases. This can vary with cold tolerance of the variety. Dessication results in leaves that become brown and crispy nearly all the way around the edges; and it usually shows up over a large area of the planting especially in plasticulture. It happens even in well-watered plantings, since if the soil freezes for a portion of the winter, the roots can’t take up water to replace that lost to wind and evaporation.

Actual fungal or bacterial diseases affecting leaves cause brown or purple spots and round or V-shaped brown areas here and there.



Fungal diseases on leaves appear as rounds spots which may coalesce into larger blotches, or as V-shaped lesions.

Some (anthracnose, Neopestalotiopsis, phytophthora) can invade the crown tissue. Botrytis can affect leaves, cause what is called a crown rot (but actually does not invade the starchy crown tissue), blight blossoms, and infect fruit, so it can be a problem regardless of the growth stage you are at. Anthracnose, Neopestalotiopsis, and botrytis all can infect the fruit or caps, while angular leaf spot mainly causes brown or black caps. Powdery mildew only rarely shows up on the fruit.

Fungicide strategies you use to manage any diseases in your planting will vary with the production system and upcoming weather of course, but in general, using multi-site fungicides like captan where anthracnose is likely to be the main issue, and thiram - if still available in a package labeled for use on strawberries - where botrytis is the main concern has provided good results. If you no



Botrytis may entirely blight blossoms or caps with or without its characteristic grey fuzz (left), while angular leaf spot just turns the caps brown or black (right).

longer have a package of thiram labeled for strawberry use on your farm, captan may be substituted.

During periods of extended moisture, add a single-site fungicide for added protection, but be sure to carefully follow restrictions on the label regarding number of applications. In botrytis fungicide resistance screenings conducted by Dr. Mengjun Hu from the University of Maryland in Pennsylvania in 2022 and 2023, resistance varied widely from farm-to-farm. Even some older less expensive products still worked well on botrytis isolates from some farms, but not others. Single-site options include older products like Elevate IF they still work on your farm, or newer products in FRAC code 7 like Merivon, Kenja, Fontelis, and certain products in the Luna series, or PhD or OSO in FRAC code 28. As conditions warm and anthracnose also becomes a concern, Switch (FRAC codes 9 + 12) or Miravis Prime (FRAC codes 7 + 12) help with both botrytis and anthracnose, but should be saved for applications closer to harvest and tank-mixed with a multi-site fungicide. Aliette and phosphite products can help with phytophthora issues. Fungicides for powdery mildew are mainly products in FRAC codes 3 and 11. Typical fungicides do not work on angular leaf spot since it is caused by a bacteria; copper hydroxide products are recommended.

Use all the cultural controls that you can to help plantings dry out quickly and minimize rain splash such as using straw mulch up close to the plants, and keep plantings weeded. If rain is forecast, make sprays before the rain event so residues are in place to minimize sporulation during and after the rain. Doing so will minimize the number of spores produced, decreasing the number of chances for further resistance development to occur.

Photos: K. Demchak, Penn State

Heat Units for Scheduling Plantings of Vegetable Crops

Dr. M. D. Orzolek | Prof. Emeritus Vegetables | The Pennsylvania State University

The heat unit, or heat summation, system is a technique used in scheduling successive plantings of vegetable crops in order to provide a continuous supply of high quality vegetables during the annual growing and harvesting season. It has been used primarily with processing crops, especially peas and sweet corn, but can be used with scheduling many fresh market crops. Use of scheduling sequential plantings of various vegetables helps to eliminate oversupply and/or undersupply during the growing season.

For a given crop it is known that there is a minimum temperature at or below which little or no growth takes place (Table 1). This is called the threshold or base line temperature. As the temperature rises above the threshold, the growth rate of the crop increases. There is also an optimum temperature, at which the growth rate is most rapid, and a maximum temperature above which plant growth ceases and injury results. However, the optimum and maximum temperatures are not commonly used in heat unit calculations.

A heat unit, frequently called a growing degree day (GDD), is defined as one degree (F) above the threshold or baseline temperature for one single day. Daily mean temperatures are normally used for the calculations. The number of heat units or GDD for a given day is obtained from the following equation:

$$\text{Heat units} = \frac{\text{Maximum temperature} + \text{Minimum temperature} - \text{Base line}}{2}$$

Normally, a 30 heat unit interval or GDD is commonly used over the whole growing season to separate different or sequential planting dates. Example: if the high temperature for May 15 was 75°F and the low temperature was 45°F and the base line temperature from Table 1 for pumpkin is 50°F, then the heat units for May 15 would be $75 + 45 = 120$ divide by $2 = 60 - 50$ base temp = 10 heat units. If day temperatures stayed the same for 4 days, then a second planting of pumpkins could be made 4 days after the first seeding or transplanting of the initial planting date.

Table 1. The minimum and maximum temperatures for optimum growth of various vegetable crops.

Vegetable	Temperature (°F)	
	Minimum	Maximum
Chicory, chive, garlic, leek, onion, salsify, and shallot.	45	85
Beet, broccoli, Brussels sprout, cabbage, chard, collards, horseradish, kale, radish, kohlrabi, parsnip, rutabaga, spinach and turnip.	40	75
Artichoke, carrot, cauliflower, celery, Chinese cabbage, endive, fennel, pea, Lettuce, mustard, parsley, and potato.	45	75
Lima bean and snap bean.	50	80
Sweet corn, southern pea and New Zealand spinach.	50	95
Pumpkin and squash.	50	90
Sweet pepper and tomato.	65	80
Eggplant, hot pepper, okra, sweet potato and watermelon.	65	95

From "Knott's Handbook for Vegetable Growers". 5th edition by Don Maynard and George Hochmuth. 2007. Pp 107.

May 8, 2025

Members of the General Assembly,

We write to express our support for Governor Shapiro's proposal to fund the Pennsylvania Agricultural Surplus System (PASS) at \$9.5 million in the FY25-26 Commonwealth Budget. As organizations representing thousands of farmers, producers, and other agricultural interests across Pennsylvania, we know first-hand how our members work together with the charitable food network to provide food to Pennsylvanians experiencing food insecurity. At a time when food insecurity remains stubbornly high and farmers are struggling, a strong investment in PASS could not come at a better time.

PASS is an agriculture first program. Designed to create new markets for surplus produce, protein, and dairy from Pennsylvania's agriculture community, these products are purchased and distributed through the charitable food network to Pennsylvanians experiencing food insecurity. Since 2010, the program has grown allowing Feeding Pennsylvania to partner with over 250 farms, purchasing 36 million pounds of food, and distributing over \$29.6 million to Pennsylvania's agriculture community.

We hear regularly from our members about the challenges farmers face. Loss of markets, low prices, high input costs, and uncertainty from the federal government make it tough to be in the business of agriculture. And while some of these challenges are multi-faceted and cannot be solved overnight, programs like PASS help bring some certainty to an ever-changing market landscape. When our members have a surplus, they can use PASS. When they need to meet production minimums, they can use PASS as a backstop to move unsold inventory. And when there's excess in the fields, members can use PASS to receive fair compensation instead of plowing over.

The time to make an investment in PASS is now. It financially supports Pennsylvania's small and mid-size farmers while also keeping hungry Pennsylvanians fed with the help of food banks. We urge you to support funding the Pennsylvania Agricultural Surplus System (PASS) in-line with, or above, Governor Shapiro's proposal of \$9.5 million.

Sincerely,

PA Veteran Farming Network

Pennsylvania Vegetable Growers Association

Pennsylvania Farm Bureau

Pasa Sustainable Agriculture



Feeding PA Partner Food Banks

Central Pennsylvania Food Bank Harrisburg • Mercer County Food Bank Sharon • Greater Pittsburgh Community Food Bank Duquesne • H & J Weinberg Northeast Pennsylvania Regional Food Bank Wilkes Barre • Philabundance Philadelphia
Second Harvest Food Bank of Northwest Pennsylvania Erie • Westmoreland County Food Bank Delmont • Second Harvest Food Bank of the Lehigh Valley and Northeast Pennsylvania Allentown • Helping Harvest Fresh Food Bank Reading

continued on page 17

Pennsylvania Farmers Union



Pennsylvania State Grange



Pennsylvania Dairymen's Association



Pennsylvania Association of Milk Dealers



The Center for Dairy Excellence



CENTER FOR
Dairy EXCELLENCE

Pennsylvania State Association of County Fairs



Pennsylvania Cooperative Potato Growers



Feeding Pennsylvania 🌾 FeedingPA.org

Greenhouses & High Tunnels



- ✓ NRCS-approved structures
- ✓ Rugged design proven to withstand high winds and harsh weather
- ✓ Available in multiple widths & lengths

CONTACT MATT HAND
mhand@rimol.com
(908) 447-0267

TEW MANUFACTURING CORP.

Fruit & Vegetable Cleaning & Sizing Equipment & Parts

Quality Latex & Poly Sponge Rubber Drying Donuts

Tuff Foam® Protective Padding

Brushes • Bearings • Sizing Chains

Belting • Scrubber Rubber

New Stainless Steel Machines

**CALL TOLL FREE 800-380-5839
FOR CATALOG & PRICES**

TEW MFG. CORP.
P.O. BOX 87
PENFIELD, NY 14526

585-586-6120
FAX: 585-586-6083
www.tewmfg.com

Featuring recipes that include vegetables

Recipe corner

Delicious Strawberry Pie

Submitted by Pete Flynn from The Bounty of Chester County Heritage Edition Cookbook

INGREDIENTS

- $\frac{3}{4}$ cup sugar
- 1 (3-ounce) package strawberry gelatin
- 3 tbs cornstarch
- 1 cup boiling water
- 1-quart strawberries, rinsed, hulled
- 1 baked 9-inch pie shell
- Whipped cream or whipped topping

INSTRUCTIONS

1. Combine the sugar, gelatin, cornstarch, and boiling water in a saucepan.
2. Boil for 1 minute
3. Place the strawberries in the pie shell
4. Pour the gelatin mixture over the strawberries
5. Chill in the refrigerator until firm
6. Serve with whipped cream or whipped topping

Strawberry Pie

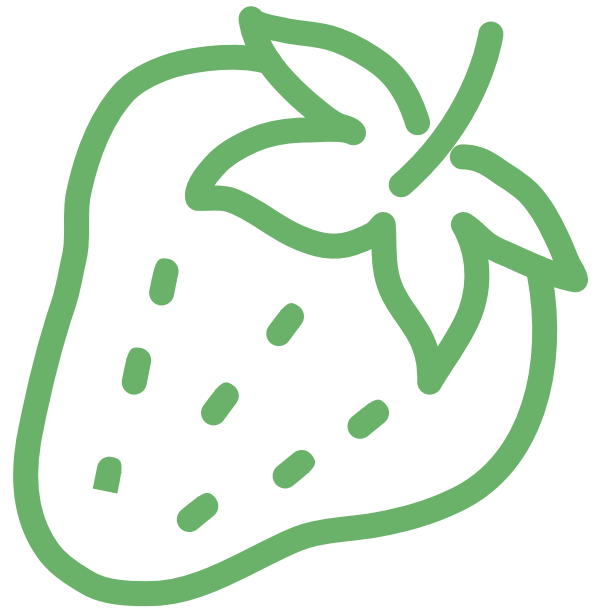
Submitted by Pete Flynn from a Chester County pie plate

INGREDIENTS

- 2 quarts Strawberries, washed and hulled
- 1 cup water
- $\frac{1}{3}$ cup water
- 3 tbs cornstarch
- 1 cup sugar
- 1 10-inch baked pie shell

INSTRUCTIONS

1. Combine 1 cup mashed strawberries with 1 cup water in a saucepan
2. Boil for 4 minutes
3. Add 1 cup sugar and cornstarch which has been dissolved in $\frac{1}{3}$ cup water.
4. Boil until the mixture turns clear, approximately 4 minutes, stirring constantly.
5. At this time, 4 drops of red food color may be added to mixture, if desired
6. Cool glaze
7. Add the remaining berries to the glaze and toss gently to coat.
8. Arrange mixture in the pie shell and refrigerate
9. Garnish pie with whipped cream when serving



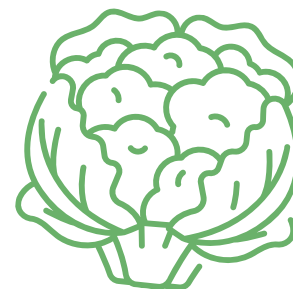
continued on page 19

Cauliflower Steaks with Roasted Red Pepper (Orange) Sauce

Submitted by Maureen McCooey, Planted Kitchens

INGREDIENTS

- Cauliflower cut into 1 inch steaks (use remaining pieces for another application)
- Fresh parsley leaves 2T packed Almonds ½ cup
- Olive oil ½ cup Honey 1T
- Smoked paprika 2t Salt 1t
- Pepper 1/2t
- Roasted red pepper 1 16 oz jar drained



INSTRUCTIONS

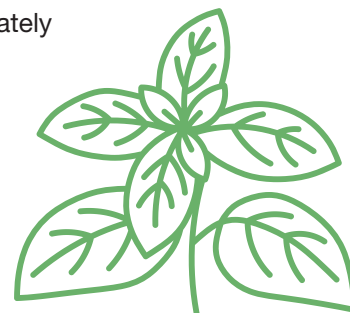
1. Preheat grill to medium-high
2. Prepare marinade. Combine 3T olive oil, 1T honey, 1T dijon, 1t paprika in a small bowl and brush combined mixture all over steaks. Set aside
3. Prepare sauce. Combine almonds and parsley in food processor and blend until almonds break down to the size of peppercorns. Add remaining ingredients and blend until homogenous. Taste and adjust for seasoning.
4. Grill or broil cauliflower steaks until tender and charred in spots, flipping once. Serve with sauce liberally slathered on top over a bed of baby spinach or steamed rice.

Penne Pasta with Green Sauce

Submitted by Maureen McCooey, Planted Kitchens

INGREDIENTS

- Fresh basil leaves, chopped, loosely packed ½ cup
- Fresh cilantro leaves, chopped, loosely packed ½ cup
- Fresh parsley leaves, chopped, loosely packed ½ cup
- Fresh mint leaves, chopped approximately 2T Chopped walnuts ½ cup
- Extra virgin olive oil ½ cup
- Honey 1T
- Salt 1t
- Pepper 1/2t
- Water ½ cup



INSTRUCTIONS

1. Place all ingredients except water in a blender or food processor and blend until the mixture is well combined and nuts are broken down and no longer distinguishable in the mixture.
2. With the motor running, slowly pour in the water and blend until incorporated.
3. Cook pasta according to the package instructions and smother warm pasta with the green sauce. Add whatever veggies you have available.
4. This is a finishing sauce and is best added at the end of cooking. The delicate herbs in this sauce will lose their fresh flavor if cooked. Sauce can be warmed in the microwave or warmed using ½ cup hot pasta water

Maureen McCooey, owner of Planted Kitchens has spent most of her career preparing and serving food to her customers. From years as a caterer and cook to running cafes and restaurants, food service is in her blood. She developed an interest in food on a deeper level, as a wellness tool, when she began studying nutrition. She decided that she no longer wanted to feed people, she wanted to nourish them. She began cooking for clients, taking into account dietary restrictions, their health concerns and the nutrient density of the foods she was preparing. Suddenly her career was on a whole new path! Now, when she serves them a meal, she is helping them be the healthiest version of themselves!

Her new cookbook is packed with delicious, plant-based sauces using fresh and simple ingredients that are easy to find and simple to prepare. Purchase a copy here: <https://plantedkitchens.com/>



Pennsylvania Vegetable Growers Association

908 N 2nd Street
Harrisburg, PA 17102

PRESORTED STD
U.S. POSTAGE
PAID
HARRISBURG PA
PERMIT NO. 411

Change Service Requested

PVGA



OUTSTANDING

SEED COMPANY, LLC®

B R E E D E R | P R O D U C E R

Outstanding Seed is dedicated to innovation and exceptionalism in breeding, production, and sales of stacking pumpkin, specialty pumpkin, jack-o'-lantern, and mini pumpkin hybrids.

Over seventy hybrids are available to meet many different needs. Call today to place an order or request our 2025 Catalog.

**NEW
FOR
2025**

Dragonfire F1

- Very striking fruit. Some are black with red marbling, and some are red with black marbling.
- Approximately two thirds are flat and great for stacking. Approximately one third are rounded.
- Unique rough and bumpy rind texture.
- Strong Powdery mildew resistance.
- Fruit average 18 lbs.

P.O. Box 1584 | Beaver Falls, PA 15010 | 800.385.9254 | www.outstandingseed.com