

The Vegetable and Small Fruit Gazette

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Horticulture Department
The Pennsylvania State University

In this Issue:

Comments from the Editor
Schedule for Agent Articles
In-Service Training-Vegetable and Small Fruit Roundtable
Who is the Smartest Farmer of All?
Quarterbacking After the Season with Small Fruits
Proceedings from the Plasticulture and High Tunnel Short Courses
Survival in the 21st Century- Use of Plasticulture
Bug vs. Bug- Identification of Whitefly Species in Greenhouse Vegetable Production
That's a Berry Good Question!!!
Strawberry Pesticide Usage Survey Results for PA
Potato Musings
Potato Program at the Mid-Atlantic Fruit and Vegetable Meeting in January
Upcoming Meetings

Tip for the Month: "A man's reach should exceed his grasp or what's a heaven for?"

Comments from the Editor

Bill Lamont, Department of Horticulture

November is the month when we gather around the dinner table with family and take time to say "thank you" for all our blessings. You will probably eat more turkey, mash potatoes and dressing or filling, depending where you grew up, and cranberry sauce or jelly than you promised yourself you would before sitting down to dinner. Join the crowd!! After "Thanksgiving" can deer season be far away, my favorite time of the year. It is the chance to harvest some tasty venison to enjoy all winter and to go along with those excellent potatoes that you will get as an extra benefit of attending the Vegetable and Small Fruit Roundtable. I want to thank both John Esslinger and Mary Concklin for their excellent articles "**Who is the Smartest Farmer of All?**" and "**Quarterbacking After the Season With Small Fruits**" which should give us all something to think about. I really appreciate the agents being active in supplying articles for this

publication. My hat is off to each of you and I am sure there will be a mad rush to sign up for slots for 2002 at the Veg and Small Fruit Roundtable.

Andy Muza will finish out the year 2001 in fine fashion with his article and then we move on to 2002. Make sure to check the upcoming meeting schedule to see if your winter meeting has been scheduled. If not let me know when you are planning to hold your meeting, so I can add it to the growing list. As always, the Vegetable and Small Fruit Gazette Team encourages your feedback so that we can better serve your needs and address your concerns.

Schedule for Agent Articles

Bill Lamont, Department of Horticulture

December	Andy Muza
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In-Service Training-Vegetable and Small Fruit Roundtable

Bill Lamont, Department of Horticulture

The Vegetable and Small Fruit Roundtable has been scheduled for **Thursday, November 15, 9:00 a.m.-3:00 p.m.** in Rm. 116 Tyson building. This time/date follows the Green Industry Roundtable scheduled on Wednesday, November 14th and hopefully will reduce extra time away from home.

In keeping with tradition, lunch will be served on Thursday November 15th most likely Pete's now famous stew and bread. Dinner will be provided Wednesday evening at the home of Rick Bates our distinguished Ornamental Horticulturist. Please respond directly to Rick (rmb30@psu.edu) by **Monday Nov. 12** if you plan on joining us for dinner on Wednesday evening. If you have missed these gatherings, you have missed a lot of fun. I understand Jim Sellmer, Rick Bates and Rob Berghage will be supplying the filet and lobster while the veg and small fruit gang will be supplying the spirits. Please submit any relevant agenda items to me in advance of the November 15th meeting. The present agenda includes:

1. Activity update from around the state.
2. What do we want to do next year?
3. Make sure county meeting dates are all firmed up.
4. Make sure we are manned at the High Tunnel display at the farm show
5. Update on publications, factsheets, etc. needs.
6. Updates from specialist on various topics .
7. Open discussion....please submit items

8. Meeting adjourned and agents pick up their winter supply of potatoes (spuds) at the Potato Cellar behind Tyson.

Look forward to seeing you on the 15th of November and at dinner on the evening of November 14th at Rick Bates home.

Who is the Smartest Farmer of All?

John Esslinger, Lackawana County Extension Agent

While attending a recent farmers' meeting it became apparent that Pennsylvania agriculture has a problem I was previously unaware of: partisanship. The problem is not partisanship between political parties but between farmers that call themselves organic or conventional.

Partisanship is defined by Webster's dictionary as when a person exhibits blind, prejudiced, and unreasoning allegiance. The speaker at the meeting spent most of his allotted time explaining that the reason some farmers don't farm the way he does is due to a lack of intelligence. I was shocked by this ridiculous accusation but even more shocked by the audience's willingness to accept it.

When terrorist attacked our country on September 11, they hoped to cause division among Americans of differing races, religions, and beliefs. To our credit, they did just the opposite. In time of need we have pulled together to help and support all effected by the tragedies.

Pennsylvania agriculture needs to learn that lesson. The constant pressures of sustaining a profitable agricultural business can be overwhelming. We do not need to make farming more difficult by degrading one another because we farm differently or have a different philosophy of farming. Each has something valuable to contribute to the agricultural community as a whole and to the consumers we serve. A house divided against it self will fall. Do you want to be the smartest farmer of all?

- Take advantage of every opportunity to learn.
- Learn from your mistakes better yet learn from your neighbor's mistakes.
- If your neighbor does a better job of controlling disease or managing soil, find out what he/she is doing and apply it to your farm.
- Attend educational programs. Talk to the farmers that are growing crops you grow.
- Use proven practices like soil fertility testing, soil management, informed variety selection, IPM, and crop scouting.
- Manage your farm with an Integrated Crop Management perspective.
- Treat co-workers the way you want to be treated.
- Let your market determine what you grow.
- Show pride in the work you do.
- Finally, respect and support those farmers that are doing it differently.

It's the smart thing to do!

Quarterbacking After the Season with Small Fruits

Mary Concklin, Montgomery County Cooperative Extension

This is the time of year when we look back over the growing season and evaluate the productivity of our berries. Hopefully you made notes throughout the season of berry size, crop load, foliage size and color, and overall plant appearance and productivity. Was the fruit size below the norm, the foliage off-color or small? If you have eliminated problem possibilities such as water and pests, the nutrient levels should be addressed. Soil samples have been routinely used to determine fertilizer needs, and although soil analysis indicates only pH, potassium, phosphorus, magnesium and calcium levels, it is a valuable tool. If you haven't taken a sample in 3 or more years, take a sample before the ground becomes frozen. A foliar tissue analysis will indicate what is in the plant and includes nitrogen in addition to the macro and micronutrients. It is too late to take a foliar sample for nutrient analysis now, plan to take a foliar sample next summer between mid July and early August. When used together (soil analysis, foliar analysis and visual observations), a more complete picture of the nutrient status and needs of the plants are available, resulting in a more accurate fertilizer recommendation.

Proceedings from the Plasticulture and High Tunnel Short Courses

Bill Lamont, Department of Horticulture

Although the two short courses on Plasticulture and High Tunnels that were to be presented in New Jersey were cancelled, the American Society for Plasticulture will be offering proceedings of the courses for sale in the next month or so. You can contact: Pat Heuser, Executive Secretary of the American Society of Plasticulture (717) 238-9762 for more details or visit the ASP website: <http://plasticulture.org>

Survival in the 21st Century- Use of Plasticulture

Mike Orzolek, Department of Horticulture

Change is inevitable as illustrated by events of September 11th in New York City and Washington, D.C. This is certainly true in horticultural crop production; old myth production drives marketing, reality marketing drives production. In the 21st century, there are many, many producers of vegetables, fruits, small fruits and cut flowers; especially from a global perspective. But how many people are marketers??? How many producers evaluate consumer preferences and demand related to product, packaging and size? The change that will become more important in the next 10 years in Pennsylvania is that marketing does indeed drive production. Specialty items, added-value products and branded items will become the norm under which many growers will

have to market in order to be successful and sustainable. Reliable, consistent production of specialty, added-value or branded items in Pennsylvania can be achieved with the use of plasticulture (raised-beds, plastic mulch, drip irrigation, row covers, and high tunnels). The Penn State Center for Plasticulture is developing this technology for Pennsylvania growers. Field research work with colored mulch and row covers continues on vegetables (tomato, pepper, muskmelon, watermelon, eggplant and summer squash), small fruits and cut flowers. While the use of drip irrigation, plastic mulch and raised beds will almost guarantee production of specialty or value-added crops, the challenge for many growers is marketing; how can I maximize profits from this crop? What are the markets out there for me to sell (market) my crop?

There are limitations to using plasticulture as a production system; not readily adaptable for processing crops, can increase labor requirement, requires special equipment (small to modest investment) and one has to address the disposal issue (recycling vs incineration). However, plasticulture production enables growers to market their crops to restaurants, assisted living facilities, roadside market, auction, preprocessors, and local retail stores. What types of specialty crops or added-value products would these market outlets look for? Okra, B-size specialty potatoes (red, blue, yellow skin and/or flesh), sweet Spanish onions, red, white and brown onions in a 3-lb. consumer package, multi-colored bell peppers in 2 to 3 lb. consumer package, heirloom vegetables (tomato Prudence Purple), herbs (basil, dill, oregano, cilantro, rosemary) specialty melons (honeydews, casaba, galia), strawberries, raspberries, blackberries, cut flowers, and the list goes on. In addition to the raised beds with drip irrigation and colored mulch, use of High Tunnels in many parts of Pennsylvania enables many individuals to produce crops on a 12 month basis. In almost all instances, individuals can cover the cost of a High Tunnel from sales of the crops grown in the first 12 months of production in addition to having some cash flow for the business. Marketing success depends on: persistence, creativity, risk taking, taking advantage of opportunities and ability to change when necessary.

Opportunities to learn more about marketing and plasticulture are available at the 2002 Mid-Atlantic Fruit and Vegetable Conference, January 29-31 at Hershey, PA and the 30TH National Agricultural Plastics Congress, February 23-26 at Doubletree Hotel San Diego - Mission Valley, San Diego, CA. Information regarding the 30th National Ag Plastics Congress can be obtained from the ASP website: www.pasticulture.org or contact Pat Heuser, American Society for Plasticulture, 1924 N. Second Street, Harrisburg, PA 17102. Phone: 717-238-9762. FAX: 717-238-9985.

E-mail: pheuser@calabreseheuser.org There will be exhibitors at both meetings in 2002 and interested individuals can still obtain exhibitor information for the 30th National Ag Plastics Congress from Pat Heuser. Information regarding the 2002 Mid-Atlantic Fruit and Vegetable Conference can be obtained from William Troxell, Executive Secretary of Pennsylvania Vegetable Growers Association at (717) 694-3596 or e-mail Bill at wt.pvga@tricounty.net

Bug vs. Bug- Identification of Whitefly Species in Greenhouse Vegetable Production

Cathy Thomas, Integrated Pest Management Program
Pennsylvania Department of Agriculture

There are several species of whiteflies that attack greenhouse crops, especially greenhouse vegetables. The most common whitefly found to infest greenhouse vegetables is Greenhouse Whitefly (*Trialeurodes vaporariorum*). In a fall crop, the outdoor species, Bandedwinged whitefly (*Trialeurodes abutilonia*), is observed on yellow sticky cards and occasionally feeds on plants. Another more serious whitefly species is Silverleaf whitefly (*Bemisia argentifolii*), a common pest on Poinsettias is difficult to control due to its higher reproductive rate and resistance to insecticides.

Whiteflies have sucking mouthparts and cause direct plant damage by feeding on plant sap. Both the adult and nymphal stages feed on plant sap and secrete the excess in the form of a sticky, sweet substance called honeydew. Honeydew serves as a substrate for sooty mold development that can occur on foliage and fruit. Sooty mold can reduce plant yields by interfering with photosynthesis and residue on fruit creates extra handling time. Indirect damage is caused by transmission of several viral diseases.

Identification

Whiteflies in general have six life stages, namely the adult, egg, three nymphal instars and the fourth instar or pupa, all occurring on the underside of the leaves. During the pupal stage you may see the red eyes of the developing adult. After the adults emerge from the pupal case, a t-shaped opening can be observed. Development time varies with species, host plant and environmental conditions. Identification of these species is critical since they respond differently to control strategies, both chemical and biological. Experienced growers may be able to identify species in the adult stage, however, a more reliable method is to examine the pupal stage. Identification requires a 10-20x magnification.

Greenhouse whitefly

Greenhouse whitefly is the most common species to infest greenhouse vegetables. Widespread resistance to many different classes of insecticides has created the need for a biocontrol approach. The adults have wings that are held flat (horizontal) over their body. The pupal stage is white, with straight elevated sides and a fringe of wax filaments around the edge.

Bandedwinged whitefly

Bandedwinged whitefly is a species found outside in high populations in the fall on weeds and ornamental plants. As their host plants decline, they begin to seek plants and commonly make their way into the greenhouse through vents and doors. This species may feed on plants and lay eggs at a low rate, however they usually do not

complete their life cycle. High levels on sticky cards may alarm growers resulting in needless pesticide applications. The adult looks much like a greenhouse whitefly adult with the horizontal wing span, however they can be distinguished by the two gray bands that form a zigzag pattern across each forewing. The pupal stage is similar as well except for a black band down the center of the pupal case.

Silverleaf Whitefly

Silverleaf whitefly is a common pest of poinsettias, foliage and ornamental plants. If ornamentals are grown in vegetable production houses (not a recommended practice), this pest will also colonize on vegetable plants. The silverleaf adult is smaller than greenhouse whitefly and holds its wings close to the body. The pupal stage is a bright yellow with a few waxy filaments. The pupa does not have a high profile like greenhouse whitefly.

If you cannot identify the species attacking your crop, contact the cooperative extension service, the PA Department of Agriculture or explore web sites that provide pictures of the different whitefly species.

Identification websites:

<http://www.ifas.ufl.edu/~ent2/wfly/index.html>

USDA's Whitefly Knowledgebase

<http://www.imok.ufl.edu/entlab/projects/whitefly.htm>

Information on silverleaf whitefly from the University of Florida

Biological Control

Whitefly development can be controlled with several different natural enemies. It is important to identify the species attacking your crop before ordering a biocontrol.

Encarsia formosa

Encarsia is a parasitic wasp, commercially available that feeds on nymphal stages and parasitizes nymphs. Parasitism results in a new generation of parasites. *Encarsia* is effective in controlling greenhouse whitefly and bandedwinged whitefly, however control of silverleaf whitefly is not as effective. *Encarsia* is the mainstay for controlling greenhouse whitefly. Greenhouse whitefly and bandedwinged pupae appear black when parasitized compared to Silverleaf whitefly which will turn brown. A new wasp will emerge from the pupa through a round hole chewed in the pupal skin.

Eretmocerus eremicus

Eretmocerus is also a parasitic wasp, commercially available that feeds on nymphal stages and parasitizes nymphs. *Eretmocerus* attacks greenhouse whitefly, and

silverleaf whitefly. It is resistant to many insecticides and the adult is more active than *Encarsia* at higher temperatures.

This parasite is a good choice in the spring when greenhouse temperatures exceed 80 °F. When parasitized, greenhouse whitefly pupae turn yellow and silverleaf whitefly turn yellow-brown. A new wasp will emerge from the pupa through a round hole chewed in the pupal skin.

Delphastus pusillus

This whitefly destroyer is a very tiny ladybird beetle that attacks all stages of whiteflies, but prefers eggs and nymphs. Adults can consume 160 eggs or 12 large nymphs per day. These predators can control all species of whiteflies and can be used with parasitic wasps. *Delphastus* beetles require high levels of whitefly life stages to reproduce.

Prevention

The best defense against whiteflies is sanitation. Start the crop cycle with a clean greenhouse, eliminate weeds within and outside the greenhouse, and grow disease and insect free transplants.

If someone else is growing your transplants, inspect plants for insect development and treat appropriately. Use yellow sticky cards to monitor for adult whiteflies in the propagation and production houses. Inspect plants each week of the crop cycle for whitefly development and for proper timing of natural enemy introductions.

Please phone or email me if there are specific issues you would like me address in this column.

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That's a Berry Good Question

Kathy Demchak, Department of Horticulture

Q. How can we tell the difference between leafhopper damage and calcium deficiency in strawberries? (Leroy Fisher, Newburg, PA)

A. You will see similar crinkling with both, which is probably what prompted this question. With leafhopper damage, you'll usually see quite a bit of yellowing in addition to the crinkling. With calcium deficiency, the leaves will remain mostly dark green

(though there made be a little yellowing just at the edge) , and there will almost always be some brown dead tissue at the tip. The tips often looked 'squared off'. I've usually seen calcium deficiency when we have a dry Spring, (which seems to be happening lately), though it can happen during a dry spell at other times, especially when leaves are trying to grow rapidly. There is almost always enough calcium in the soil; however, water is needed for calcium uptake, and if the plants aren't taking up enough water, they don't get enough calcium.

If you are seeing damage this late in the year, it's probably leafhopper injury. When you flip over leaves to check for leafhoppers, you may need to flip over twenty leaves before you find even one leafhopper. It doesn't take many leafhoppers to make the damage show up. There are difference in cultivars as far as how much leafhopper damage they show. Usually the slowest growing cultivars show it most, though leafhoppers also just like some cultivars better than others.

Got a question? Send it to Kathy Demchak, at 102 Tyson Bldg., University Park, PA 16802. You will be credited with the question, or can remain anonymous, as you wish.

Potato Musings

Bill Lamont, Department of Horticulture

Potatoes are in the storages and another storage season is underway. We can hope for the best but doing everything possible to ensure that the best possible crop went into storage and then having the proper storage conditions will go a long way to making sure that you have nice potatoes to sell later on.

Potato Program at the Mid-Atlantic Fruit and Vegetable Meeting in January

Bill Lamont, Department of Horticulture

I have included the program for the potato sessions so we can start to advertise the sessions and hopefully have a good crowd in attendance. Share the information with others and make sure that all potatoes growers get the word.

Tuesday, January 29, 2002, PM

Session E

Potatoes

Topics and Speakers

Presiding: Bob Leiby, Lehigh County Cooperative Extension

1:30 PM	Reinventing the Potato-Not The Same Old Spud- Tim Conner, President and CEO,
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	National Potato Promotion Board
2:15	Marketing Pennsylvania Potatoes-Opportunities and Problems- The Broker's View Roger Springer- PA Potato Grower Cooperative Ron Hoover-EK Bear John Hurst-Hurst Potato Sales Ray Hendricks-A.C.E.
3:00 - 3:15	Industry Show and Tell
3:15	USDA Potato Breeding Program- An Update - Dr. Kathleen Haynes, USDA/ARS.
4:00	Developing Products for Specialty Potatoes in Pennsylvania- Dr. Luke Laborde, Department of Food Science, The Pennsylvania State University
4:30	Adjourn

Wednesday, January 30, 2002, AM

Session E

Potatoes

Topics and Speakers

Presiding: Ron Hostetler. Cambria County Cooperative Extension

9:00 AM	Varieties for the Chipping and Tablestock Industry- Dr. Don Halseth, Department of Horticulture, Cornell University, Ithaca, NY
9:30	Producing Potatoes Using Plasticulture-Dr. Bill Lamont, Department of Horticulture, The Pennsylvania State University
10:00 - 10:15	Industry Show and Tell
10:15	Fertilizing for High Quality Potatoes-Dr. Gregory Porter, Department of Applied Ecology and Environmental Science, University of Maine, Orono, ME
11:00	Potato Harvesting to Reduce Bruising- Dr. Don Halseth, Department of Horticulture, Cornell University, Ithaca, NY
11:30	Handling Potato Seed for Optimum Performance-Dr. Steven B. Johnson, Crops

	Specialist, University of Maine Cooperative Extension, Presque Isle, Maine
12:00 - 1:30 PM	Lunch and Visit with Exhibitors

Session B

Potatoes

Wednesday, January 30, 2002, PM

Topics and Speakers

Presiding: Tom Butzler, Clinton County Cooperative Extension

1:30 PM	Managing the European Corn Borer in Potatoes- Dr. Brian A. Nault, Department of Entomology, NYSAES, Cornell University, Geneva, NY
2:00	Update on Management Strategies for Late Blight and other Potato Diseases- Dr. Barbara Christ, Professor, Department of Plant Pathology, Penn State University,
2:30	Management Issues in Storing Potatoes-Dr. Roger Brook, Extension Engineer, Michigan State University, East Lansing, MI
3:00 - 3:15	Industry Show and Tell
3:15	Proper Ventilation of Potato Storages- Todd Forbush, Engineer, Techmark Inc., Lansing, MI
4:00	Managing Potato Storages Under Disease Pressure Situations - Dr. Steven B. Johnson, Crops Specialist, University of Maine Cooperative Extension, Presque Isle, Maine 04769
4:30	Adjourn

Upcoming Meetings

Bill Lamont, Department of Horticulture

Local

December 5, 2001: Western PA Vegetable Growers Meetings, Butler, PA. Contact: Eric Oesterling (724) 837-1402.

January 17, 2002: Morrison's Cove Produce Auction Meeting, Martinsburg, PA. Contact: Tom Ford (814) 940-5989

February 6, 2002: Northeast Vegetable Growers Meeting, Thompson's Dairy Bar, Clarks Summit, PA. Contact: John Esslinger (717) 963-4761

February 7, 2002: Tri-County Vegetable and Small Fruit Meeting, Penn Township Community Bldg., Shippensburg, PA. Contact: Steve Bogash (717) 263-9226

February 20, 2002: Cambria and Somerset Regional Vegetable and Potato Meeting, Ebensburg, PA. Contact: Ron Hostetler (814) 472-7986

February 28, 2002: Lehigh/Schuylkill County Potato Growers Meeting, Schnecksville Grange in Neffs PA.. Contact: Bob Leiby (610) 391-9840

March 5, 2002: Schuylkill County Regional Vegetable Growers Meeting, Extension Office, Pottsville, PA. Contact: George Perry (570) 622-4225

March 6, 2002: Southeastern Vegetable Growers Meeting, Heritage Restaurant, Franconia, PA. Contact: Mary Conklin (610) 489-4315

March 7, 2002: Kutztown Vegetable Auction Growers Meeting, Fleetwood Grange Hall, Kutztown, PA. Contact: John Berry, Lehigh County Extension Office (610) 391-9840 or Laura McNutt, Berks County Extension Office (610) 378-1327

March 12, 2002: North Central Vegetable Meeting, Pleasant Gap, PA. Contact: Tom Butzler, (570) 726-0022

March 13, 2002: North Central Vegetable Producers Conference, Coudersport, PA. Contact: Greg Burns (814) 776-5331

March 14, 2002: Erie County Potato and Vegetable Growers Meeting. (**Tentative**) Contact: Andy Muza (814) 825-0900

Regional

January 15-17.2002: Vegetable Growers Association Annual Meeting and Trade Show, Atlantic City, NJ. Contact: Phil Traino (856) 985-4382.

January 29-31, 2002: Mid-Atlantic Fruit and Vegetable Growers Convention, Hershey, PA. Contact: Bill Troxell (717) 694-3596.

National

February 23-26, 2002: 30th American Society for Plastics Congress, San Diego, CA. Contact: Pat Heuser Phone: (717) 238-9762 Fax: (717) 238-9985 or website