

# The Vegetable and Small Fruit Gazette

Vol. 8, No. 11- November 2004

Horticulture Department  
The Pennsylvania State University

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**Tip for the Month**--“If you think you are too small to make a difference, try sleeping in a closed room with a mosquito”- African proverb

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## **Comments from the Editor**

Bill Lamont, Department of Horticulture

November is a full month!! We start with elections (make sure that you vote), then the Western PA Vegetable Growers Seminar on November 16th at the Days Inn, Butler, PA followed by Thanksgiving Day (plenty of good food and the opportunity to give thanks for all blessing that we have) and finally the first day of deer season. At the farm, crops are winding down and the fields are being cleaned up and cover crops being sown in them. In the high tunnels we still have crops even as the temperatures begin to make their gradual decline. I want to thank John Esslinger for his excellent article “Crop Scouting Tested” and look forward to Andy Muza finishing off 2004 with his article for the December issue. I want to thank colleagues from other departments who contributed articles to this issue and I want to encourage others to join us in upcoming issues. If you have an event that you would like to advertise, please send it to me. As always, the Vegetable and Small Fruit Gazette Team encourages your feedback so that we can better serve your needs and address your concerns.

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## Schedule for Agent Articles

Bill Lamont, Department of Horticulture

December	Andy Muza
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## Crop Scouting Testing

John Esslinger, Extension Educator, Lackawanna County

A vegetable crop scouting project was tested from June 9 to August 22, 2004 in the Northeastern Pennsylvania. The project offered 9 vegetable growers the services of a crop scout on a weekly basis. The scout focused on insect and disease pests. Weekly written scouting reports were provided to each grower. The growers' acreage ranged from a low of 12 acres to a high of 450 acres. The project was funded by the Pennsylvania Integrated Pest Management (IPM) Program and a grant provided by one of the participating growers.

Vegetable farmers grow high value crops. Economic losses occur from both pests and excessive pest control used to prevent competition and damage. Farmers want to rely more on integrated pest management but often do not have the time to do proper field scouting and need help identifying pests and beneficials.

Vegetable growers expressed the need for a crop scout that would help them make informed decisions on a weekly basis. Scouting is the part of an IPM program that provides information and confidence to make better pest management decisions. Growers question if reduced pesticide use, and/or improved crop yield and quality will justify the expense of hiring an IPM scout.

Janet Creegan, a graduate student at East Stroudsburg University, was hired as the scout. Janet did not have a farm background, but had work experience in environmental monitoring. The growers agreed that Janet did an excellent job. Janet's job was to scout fields and report pest activity. She did not make pest control recommendations.

### What Did The Growers Think?

The following results are based on an evaluation the growers completed at the conclusion of the project. All of the growers believed the scouting helped them manage pests. Over half of the growers indicated they learned something new about the pests or the management of pests. Comments included "I never knew the life cycle of the cucumber beetle before" and "saved us time and gave us an accurate depiction of what was happening on our farm."

When asked if pesticide use increased or decrease, two thirds of the growers indicated pesticide use increased. The above average rainfall significantly impacted the need for pest control. Growers that historically sprayed only when they saw a problem, sprayed more often. Growers that historically sprayed on a weekly basis used less pesticide. A grower with 300 acres of tomatoes said "I was able to spray less than blitecast recommended because of the scouting kept me informed of what was happening in my fields".

All of the growers indicated the scouting project gave them more confidence that pests were under control. Eighty-nine percent indicated they saw improved crop quality as a result of participating in the project. Two thirds saw an increase in marketable yield. Eighty-nine percent saw an increase in profitability. The increase was attributed to the improved quality and marketable yield.

The final and possibly most telling question was “Are you willing to pay to have the scouting project continue in 2005.” Growers were given an estimate of what it would cost to have their acreage scouted. Eighty-nine percent of the growers are willing to pay for crop scouting next season. One grower stated, “this is valuable knowledge, and knowledge is worth paying for”.

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## 2004 Sweet Spanish Onion Variety Trial

Mike Orzolek, Department of Horticulture

**Plot size:** Four rows/bed 7.5' long x 6" apart – 60 plants/rep.

**Transplanting Date:** April 29, 2004

**Production system:** raised bed with IRT green plastic mulch and 2 rows of drip tape – high flow 0.45-gal/min./100 ft at 12-orifice spacing.

**Herbicide Application:** One post-emergence applications of Goal at 3.0 oz./A.

**Fungicide:** Two applications of Bravo at 2.5 pt./A.

**Insecticide:** One application of Warrior at 3.0 oz./A.

**Fertility:** Broadcast and incorporated 60 lbs./A-N, 60 lbs./A-P, and 120 lbs./A-K and two applications of calcium nitrate injected in the drip system for a total of 14 lbs./A N.

**Harvest Date:** August 18, 2003

**Drying:** Bulbs from individual plots were placed in potato 100 lb. Burlap bags and placed on the Horticulture Farm greenhouse benches for 7 days.

**Date Graded:** September 8, 2004

**Design:** Randomized Complete Block with 3 replications

Varieties	Seed Source	Bulb Color
1. Eagle*	American Takii	yellow
2. EM 398*	Emerald	yellow
3. EM 680*	Emerald	yellow

4. EM 984*	Emerald	yellow
5. Candy*	Seedway	yellow
6. BGS 178	Bejo	pink
7. Exhibition	Bejo	yellow
8. Expression*	Bejo	yellow
9. Hildago*	Bejo	yellow
10. Milaga*	Bejo	yellow
11. Recorra*	Bejo	yellow
12. Sharon*	Bejo	yellow
13. Red Beauty*	Bejo	red
14. Robin	Bejo	red

\* indicates Hybrid variety

### Results:

Growing conditions in 2004 were less than ideal even for sweet Spanish onions grown on raised beds with plastic mulch and two rows of drip tape, but better than the 2003 growing season. It was fortunate to find a period of time in mid-April when the soil was dry enough to make beds and lay plastic mulch plus the drip tape. We were also fortunate in 2004 to be able to broadcast the 10-10-20 prior to making the raised beds with plastic mulch. Fourteen pounds of nitrogen was injected into the drip irrigation tape over a 7-8 week period after transplanting. Use of greenhouse grown plug plants helped to accelerate the transplanting of the onion varieties in 2004 compared to 2003. Transplanting the tray or greenhouse grown transplants was much quicker, efficient and uniform compared to the field grown transplants. While weed control was good to excellent the first 4 weeks after transplanting, continued rain resulted in significant weed populations (both grass and broadleaf weeds) in and between the onion rows. The single application of Goal and Poast significantly reduced weeds and increased harvesting efficiency.

The highest marketable onion bulb yield was obtained from Expression, EM 398, Hidalgo and Milaga compared to Candy (current sweet Spanish onion standard Table 1). The marketable yield of Eagle was slightly lower than Candy, but has a larger average bulb size and higher soluble solids level than Candy (Tables 1 and 2). Expression produced 80.5% of bulbs that were 3.0 in diameter or larger that was similar to Candy. Both Robin and Red Beauty had a higher percentage of double centers compared to BGS 178 and overall appearance of the red onion varieties was best exemplified by the variety BGS 178.

**Table 1. The marketable yield of fourteen onion varieties evaluated at the Horticulture Research Farm, Rock Springs, PA – 2004.**

Variety	Percent <sup>x</sup> Harvest	total <sup>y</sup>	Avg bulb <sup>2</sup>	% non-MKT
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		<b>MKT Yield T/A</b>	<b>wt. lbs.</b>	
EM 398	79.0	16.9	0.97	6.3
EM 680	82.0	11.2	0.77	4.1
EM 984	77.0	9.5	0.92	25.9
Sharon	81.0	11.4	0.81	5.5
Exhibition	81.0	9.8	0.97	46.5
Milaga	83.0	16.4	0.93	8.7
Candy	81.0	15.7	0.90	9.7
Eagle	77.0	15.1	0.98	10.8
Expression	74.0	18.2	1.13	6.8
Recorra	82.0	15.8	0.92	4.1
Hildago	80.0	16.7	1.03	15.3
Red Beauty	76.0	13.3	0.84	4.4
Robin	73.0	10.0	0.82	18.9
BGS 178	69.0	14.8	1.12	12.1

X – Percent of onion bulbs that were harvested from the established transplants.

Y – The total marketable yield is based on an onion population of 50,000 plants/A including jumbo and colossal bulb sizes.

Z – Average weight of bulbs in pounds based on jumbo bulb size and larger.

**Table 2.** The size distribution and soluble solids of fourteen onion varieties evaluated at the Horticulture Research Farm, Rock Springs, PA – 2004.

<b>Variety</b>	<b>Percent bulbs 3.0</b>	<b>% soluble<sup>z</sup></b>
	<b>inch In diameter or larger</b>	
EM 398	78.2	8.0

EM 680	36.1	9.6
EM 984	34.6	7.1
Sharon	26.2	11.4
Exhibition	45.2	6.7
Milaga	75.8	8.3
Candy	79.4	7.2
Eagle	64.1	9.5
Expression	80.5	6.4
Recorra	63.9	10.4
Hildago	73.6	6.2
Red Beauty	59.0	
Robin	40.2	
BGS 178	66.2	

Z – Soluble solids of onions was obtained by cutting a wedge from 5 onion bulbs; with wedges placed in a commercial juicer and pooled onion juice collected in a beaker. The soluble solids were measured with a digital refractometer on October 7, 2004.

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## Bug vs. Bug- Managing Plant Diseases with Biofungicides

Cathy Thomas, Integrated Pest Management Program  
PA Department of Agriculture

Diseases in greenhouse vegetables and floriculture crops can be managed effectively with biological fungicides (biofungicides). A biofungicide is composed of beneficial microorganisms, such as specialized fungi and bacteria that attack and control plant pathogens and the diseases they cause (USDA). These specialized fungi and bacteria are microorganisms that normally inhabit most soils. Biofungicides can be a viable alternative to chemical fungicides and can be used as part of an integrated disease management program to reduce the risk of pathogens developing resistance to traditional chemical based fungicides.

An example of a widely used commercial biofungicide in the greenhouse industry is *Trichoderma harzianum* (TH) strain T-22 (Plantshield?). TH protects plant roots from pathogens such as *Pythium*, *Rhizoctonia*, *Fusarium*, *Sclerotinia*, and *Thielaviopsis*. TH will also suppress foliar diseases such as *Botrytis* and powdery mildew.

To optimize the effectiveness of TH or any other biofungicide, apply before the onset of disease development (preventative treatment) since they will not “cure” pre-existing pathogens. Early application

of the biofungicide protects the roots against bad fungi, allowing for better development of root hairs. Always use biofungicides in conjunction with standard disease cultural controls including sanitation, and weekly scouting.

### How do biofungicides suppress diseases?

There are four mechanisms by which a biofungicide controls other microorganisms.

**Direct Competition** – Before root infection can occur, pathogens must gain access to the zone closely associated with the root called the rhizosphere. A biofungicide “shields” the root by growing a defensive barrier around the roots, thus preventing the harmful fungi from attacking the root.

**Antibiosis** – the biofungicide produces a chemical compound such as an antibiotic or other toxin that kills the target organism.

**Predation or Parasitism of the target organism** – the biofungicide attacks and feeds on the pathogen. For this mechanism to be effective, the biofungicide must be present in the rhizosphere at the same time or before the pathogen appears.

**Induced Resistance to the host plant** - the biofungicide triggers the plant to turn on its own defense mechanisms.

### Biological fungicide products

Biofungicides like chemical fungicides must be registered by the EPA. Growers must read and follow the label to determine if the intended use has been approved. Always read the label. Here are a few examples of biofungicides used in the greenhouse industry.

#### AQ10™

- Biocontrol organism – *Ampelomyces quisqualis* isolate Q-10
- Target Pathogen – powdery mildew
- Crops – apples, cucurbits, grapes, ornamentals, and tomatoes
- Manufacturer – Ecogen, Inc. [www.agrobiologicals.com](http://www.agrobiologicals.com)

#### Companion™

- Biocontrol organism - *Bacillus subtilis* GB03 bacteria
- Target Pathogens - *Pythium*, *Rhizoctonia*, *Phytophthora*, and *Fusarium*
- Crops – bedding plants, foliage plants, woody ornamentals
- Manufacturer – Growth Products, [www.growthproducts.com](http://www.growthproducts.com)

#### Mycostop™

- Biocontrol organism – *Streptomyces griseoviridis* strain K61
- Target Pathogens – *Fusarium* spp., *Alternaria brassicola*, *Phomopsis* spp., *Botrytis* spp., *Pythium* spp. and *Phytophthora* spp.
- Crops – field, ornamental and vegetable crops
- Manufacturer – Kemira Agro Oy, Distributor – AgBio Development Inc. [www.agbio-inc.com](http://www.agbio-inc.com).

#### Plantshield™

- Biocontrol organism - *Trichoderma harzianum* strain T-22
- Target Pathogens – *Pythium* spp, *Rhizoctonia solani*, *Fusarium* spp, *Sclerotinia*, and *Thielaviopsis*

- Crops – trees, shrubs, transplants, ornamentals, cabbage, tomato, cucumber
- Manufacturer – Bioworks, Inc. [www.bioworksbiocontrol.com](http://www.bioworksbiocontrol.com)

#### Soilgard™

- Biocontrol organism – *Gliocladium virens* GL -21
- Target Pathogens – *Rhizoctonia solani*, and *Pythium* spp.
- Crops – ornamental and food crops grown in greenhouses, nurseries, homes and interiorscapes.
- Manufacturer – Certis, Inc. [www.certisusa.com](http://www.certisusa.com)

A list of commercially available biological fungicide products can be found at this web site, [www.oardc.ohio-state.edu/apsbcc/productlist.htm](http://www.oardc.ohio-state.edu/apsbcc/productlist.htm).

#### Advantages of using biofungicides

- Reduces the use of chemical fungicides
- In most cases are safer to use and have a lower re-entry interval.
- Many products can be used by organic growers (Listed by the Organic Materials Review Institute, OMRI, <http://www.omri.org>)
- In most cases, they are less phytotoxic
- Many products can be used in rotation with chemicals (fungicides, insecticides, fertilizers, rooting compounds).

#### Disadvantages of using biofungicides

- Biofungicides do not eradicate the disease or “rescue” the host plant from infection.
- Biofungicides may have shorter shelf life than chemical controls.

Look for more of these biological fungicides to be developed and registered for the greenhouse industry. In recent news, investigators at Penn State were awarded grant monies from the PA Dept of Agriculture research funds to study plant elicitors. These naturally occurring compounds activate the plant’s own defenses against a broad spectrum of insect, mite, and plant pathogen pests. Most of the research will be focused in greenhouse tomato production.

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

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## **The Organic Way- Preventative Disease Management for Highbush Blueberries**

Elsa Sanchez, Assistant Professor of Horticultural Systems Management and  
Kathy Demchak, Senior Extension Associate, Small Fruits

The first step in preventative management of blueberry diseases is to become familiarized with the diseases that blueberry plants are susceptible to as well as the environmental factors that favor disease development. Management strategies can then be developed specifically for individual farms or fields within a farm. Selecting disease free sites and planting stock are first steps in preventative disease management. The primary symptoms of several diseases caused by fungi are described below along with preventative strategies for disease management.

\_ **Phomopsis Twig Blight and Canker** (causal agent is *Phomopsis vaccinii*)

**Disease Symptoms:** Symptoms first appear on 1-year-old twigs with flower buds at bud break. Infected twigs may die back or suddenly wilt. Infected stems may have reddish-brown lesions that are about 1 to 4 inches long. Brownish cankers 4 to 8 inches long may be observed initially during in the summer on 1-, 2- or 3-year-old canes and can result in the death of the entire canes. Reddish-brown, brittle, dead leaves will persist on dead canes. Development of this disease is favored by wet weather, especially in the early part of the growing season. Infective spores are spread by splashing rain.

**Preventative Management Strategies:** Plant resistant and/or tolerant cultivars. 'Bluetta' is a cultivar with resistance and 'Coville', 'Earliblue', 'Elliott', 'Nelson' and 'Rancocas' have tolerance. Remove infected canes to promote drying of the plant canopy. This also serves to remove possible sources of inoculum and therefore slow spread of the disease. Use irrigation and fertilization management that promote early hardening off (don't irrigate or fertilize too late in season) of the blueberry plants.

\_ **Botryosphaeria Stem Canker** (causal agent is *Botryosphaeria cortices*)

**Disease Symptoms:** Early symptoms of this disease include yellowing or reddening then dying of the leaves of one or more canes of 1- to 2-year-old plants. This will be followed by the death of infected branches with reddish-brown, brittle, necrotic leaves persisting. It is common to observe infected canes along side of seemingly healthy canes. Cutting a stem, with healthy and infected tissue, length-wise will reveal brown discoloration of the infected tissue while the healthy portion of the stem will have white or cream colored tissue. Plants can become infected anytime throughout the growing season. Development of this disease is favored by wet weather, especially in late spring. Infective spores are spread by wind.

**Preventative Management Strategies:** Remove infected plants to eliminate possible sources of inoculum and therefore further spread of the disease. Use good sanitation (clean tools and equipment) to avoid spreading the disease.

\_ **Fusicoccum Canker** (causal agent is *Fusicoccum putrefaciens*)

**Disease Symptoms:** In the fall, initial symptoms of this disease are tiny water-soaked lesions, on the lower third of 1- or 2-year-old canes, which turn red by December. The following spring and summer the lesions develop into cankers resembling a target. Each canker is generally centered on a leaf scar. During the summer, generally when fruit are present, leaves on stems with cankers will wilt, die and persist on the stem. Canes can be re-infected throughout the growing season. Disease development is favored by wet conditions.

**Preventative Management Strategies:** Plant cultivars with tolerance or resistance to this disease. For example, 'Rancocas' has resistance and 'Berkeley', 'Burlington' and 'Rubel' have tolerance. Prune out infected stems to promote good air circulation within the plant canopy and also to remove inoculum for further spread of the disease. Other methods that promote good air circulation within the planting include proper pruning and good weed management.

\_ **Phytophthora Root Rot** (causal agent is *Phytophthora cinnamomi*)

**Disease Symptoms:** Leaves of plants diseased with Phytophthora will yellow, turn red-brown, die and persist on the plant. Infected plants will stop producing new growth. Plants can die rapidly when conditions favoring disease development exist. This disease is caused by a soil borne, which requires free water for the spread of infective spores.

**Preventative Management Strategies:** Select a site with good drainage and avoid planting in low spots in the field to prevent soil water logging and the spread of this disease. Use good moisture management (for example, do not irrigate while it is raining) also to avoid spread of the disease.

\_ **Botrytis Blight** (causal agent is *Botrytis cinerea*)

**Disease Symptoms:** Botrytis blight can affect flowers, leaves, twigs and fruit. Generally the flowers are infected first. Infected flowers turn brownish in color and can be covered with gray mycelium that can have black spores. Leaves may become infected next, developing brown necrotic lesions. Ripening fruit can also be diseased with Botrytis Blight and can be identified by gray mycelium and spores growing on the fruit. Cool temperatures and high relative humidity favor disease development.

**Preventative Management Strategies:** Avoid using excess fertilizer in the spring because it stimulates excess growth of susceptible young tissues. Promote good air circulation within the planting to encourage low relative humidity within the plant canopy. For example, use good pruning techniques, weed management and plant spacing.

\_ **Mummy Berry** (causal agent is *Monilinia vaccinii-corymbosi*)

**Disease Symptoms:** In the early spring, leaves and young shoots infected with the fungus causing Mummy Berry droop, turn brown and die. Diseased fruit will shrivel or mummify turning from blue to tan in color. The fruit may also emit an odor similar to fermented dark tea. The berries that are mummified will fall off of the plant. The following spring the fungus causing Mummy Berry will produce cup-like spore-bearing structures called apothecia from the mummified berries on the ground.

**Preventative Management Strategies:** Plant cultivars having resistance or tolerance. 'Bluejay', 'Burlington', 'Darrow', 'Duke', 'Elliott', 'Lateblue', 'Northblue' and 'Northsky' have resistance to Mummy Berry and 'Bluecrop', 'Bluetta', 'Collins', 'Coville', 'Rancocas' and 'Spartan' have tolerance. Remove old berries from the plant and fallen leaves and berries from the planting because they can be infected and spread infective spores. Another option is to cover old berries on the ground with 2 inches of soil or mulch before flowering to prevent infective spores from being spread.

\_ **Alternaria Leaf Spot and Fruit Rot** (causal agent is *Alternaria tenuissima*)

**Disease Symptoms:** Leaves will develop circular to irregular light brown to tan spots with a reddish border. Infection by the fungus that causes Alternaria Fruit Rot begins at the blossom end of the fruit. As the fruit ripen, black spores can be seen and the fruit will become watery or leaky. Disease development is favored by cool, wet weather in the spring.

**Preventative Management Strategies:** Promote good air circulation within the planting to encourage drying within the plant canopy. For example, use good pruning techniques, weed management and plant spacing. Cool berries immediately after harvesting to preserves fruit quality. Use good sanitation (clean

tools and equipment) to avoid spreading the disease. Adjust harvesting schedules to avoid over ripe fruit on the plants that favors disease development.

\_ **Anthracnose** (causal agent is *Colletotrichum gloeosporioides*)

**Disease Symptoms:** Signs and symptoms of Anthracnose are found primarily on the flowers and fruit. Infected flowers turn brownish to blackish in color. As the fruit ripen, sunken spots at the blossom end may develop. White to light pink mycelia may also be present. Disease development is favored by high moisture in the plant canopy.

**Preventative Management Strategies:** Plant cultivars with resistance, including 'Elliott' and 'Little Giant'. Promote good air circulation within the planting to encourage drying within the plant canopy. For example, use good pruning techniques, weed management and plant spacing.

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## That's a Berry Good Question!!!

Kathy Demchak, Small Fruits Specialist, Department of Horticulture

**Q. Q.** My blueberry plants are blooming already this fall. So, I have two questions. 1) Why? and 2) Will this hurt my yields next year? (Anon.)

Several folks have mentioned that they've seen this happening.

**A1)** Normally, we think of blueberries as requiring a certain number of chilling hours before they break dormancy, so normally we expect them to break bud and bloom in the spring. However, if they plants receive the right set of environmental cues before they start to go into dormancy (and that's the key - once they start to go into dormancy, this shouldn't be able to happen), they are capable of blooming in the fall. In fact, when we've grown blueberry plants in the greenhouse, they've bloomed and fruited at almost any time. The combinations of cues that can make this happen isn't defined, but moisture levels are likely to play a role.

**A2)** Usually a low percentage (5% or less) of the flower buds that are out there break, and if that's the case, pruning can be adjusted next spring to "make up the difference", so it's not likely that yields will be affected to any appreciable extent.

Growers may want to take a look at their fields this fall just to see if this is happening, and if so, make a mental note in case some adjustments might need to be made next spring during pruning.

Got a question? Chances are that someone else has the same question, but isn't asking! Send your question to Kathy Demchak, at 102 Tyson Bldg., University Park, PA 16802, or via email to [kdemchak@psu.edu](mailto:kdemchak@psu.edu). You will be credited with the question, or can remain anonymous, as you wish.

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## Potato Musings

Bill Lamont, Department of Horticulture

## **Tentative Potato Session at Mid-Atlantic Fruit and Vegetable Conference**

Bill Lamont, Department of Horticulture

Wednesday, February 2, 2005 AM and PM

### **Session E**

#### **Potatoes**

Wednesday, February 2, 2005, AM

Topics and Speakers

Presiding: Bob Leiby, Lehigh County Cooperative Extension

9:00 AM **The Changing Marketplace** - The Changing Consumer- R. Mac Johnson, US Potato Board, 7555 East Hampden Ave., Suite 412, Denver, CO 80231

9:30 **Monitoring Resistance in Colorado Potato Beetle Populations**- Dr. Galen Dively, Department of Entomology, 4112A Plant Science, University of Maryland, College Park, MD. 20742-4454

10:00-10:15 Industry Show and Tell

#### **10:15 Early Generation Breeding And Selection Strategies For Resistance To**

**Biotic And Abiotic Stresses In Potatoes** – Dr. Christian Thill, Department of Horticultural Science, 305 Alderman Hall, 1970 Folwell Ave., University of Minnesota, St. Paul, MN 55108.

11:00 **Potato Insect Management-An Update**- Dr. Joanne Whalen, Extension Specialist II, Entomology & Applied Ecology, University of Delaware, Newark, DE 19716

11:30 **Update on Fungicides Available for Control of Potato Diseases**- Dr. Thomas Zitter, Extension Plant Pathologist, Department of Plant Pathology, 334 Plant Science, Cornell University, Ithaca, NY 14853.

12:00-1:30 PM Lunch and Visit with Exhibitors

### **Session B**

#### **Potatoes**

Wednesday, February 2, 2005, PM

Topics and Speakers

Presiding: George Perry, Schuylkill County Cooperative Extension

1:30 PM **Update on Keystone Potato Products** – Keith Masser,, Sterman Masser, Inc., Rt 25, Box 210, Sacramento, PA 17968

2:00 **University of Florida Trials Using Pic Plus Fumigant on Potatoes and the Development of Low Carb Potatoes**-Chad Hutchinson, Horticultural Sciences Department, POBox 110690, University of Florida, Gainesville, FL, 32611-0690

2:30 **Fumigation Equipment and Strategies for Irish Potato**- Steve Godbehere, Vice-President Business Development, Hendrix and Dail, Inc., 905 4th St., NW Cairo, GA 39828-1910.

3:00-3:15 Industry Show and Tell

3:15 **Breeding Specialty Potatoes**- Dr. Christian Thill, Department of Horticultural Science, 305 Alderman Hall, 1970 Folwell Ave., University of Minnesota, St. Paul, MN 55108.

4:00 **Martin's Potato Chips**- Ken Potter, Retired Chief Operating Officer, Martin's Potato Chips Inc, Phone: , Fax: , E-mail:

4:30 Adjourn

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## **Upcoming Meetings**

Bill Lamont, Department of Horticulture

### **Local**

November 16, 2004. 2004 Western Pennsylvania Vegetable and Berry Growers Seminar, Days Inn, Butler, Pa. Contact: Eric Oesterling, (724)-837-1402.

December 14, 2004. Farm Family Day, Lebanon Expo, Lebanon, PA. Contact: Ginger Pryor, (717)-270-4391.

January 8-15, 2005: Pennsylvania Farm Show, Harrisburg, PA. Contact: Dr. Pete Ferretti, (814) 863-2313.

January 17, 2005: New Holland Vegetable Growers Day, New Holland, PA. Contact: Tim Elkner (717) 394-6851.

January 20, 2005: Susquehanna Regional Vegetable Meeting, Mifflinburg, PA. Contact: Jeff Mizer (570) 837-4252.

February 10, 2005: Northeast Vegetable Growers Meeting, Thompson's Dairy Bar, Clarks Summit, PA. Contact: John Esslinger (717) 963-4761

February 21, 2005: Tri-County Vegetable, Small Fruit and Greenhouse Meeting, Shippensburg, PA. Contact: Steve Bogash (717) 263-9226

February 22, 2005: Schuylkill County Regional Vegetable Growers Meeting, Extension Office, Pottsville, PA. Contact: George Perry (570) 622-4225

March 3, 2005: Lehigh/Schuylkill County Potato Growers Meeting, Schnecksville Grange in Neffs PA. Contact: Bob Leiby (610) 391-9840

### **Regional**

January 11-13, 2005. Vegetable Growers Association Annual Meeting and Trade Show. Borgata Hotel in Atlantic City, NJ. Contact: Mel Henninger (732) 932 9711 Ext120

January 15-17, 2003. Ohio Fruit and Vegetable Growers Congress/Ohio Roadside Marketing Conference/Ohio Christmas tree Winter Meeting. Toledo Sea Gate Centre, Toledo, OH. Contact: Tom Sach (614) 249-2424.

February 1-3, 2005. Mid-Atlantic Fruit and Vegetable Conference, Hershey, PA. Contact: Bill Troxell (717)-694-3596 or e-mail: wt.pvga@tricountyi.net

February 14-17, 2005. Empire State Fruit and Vegetable Expo, Omni Center, Syracuse, N.Y.

### **National**

December 7-9, 2004. Great Lakes Fruit, Vegetable and Farm Market Expo, DeVos Place,, Grand Rapids, MI. Contact: www.glexpo.com.

January 9-10, 2005. Wisconsin Fresh Fruit and Vegetable Conference. Holiday Inn Conference Center, Stevens Point, Wis. Contact: (920) 478-3852.

### **International**

August 28-31, 2004. 17th International Lettuce and Lettuce and Leafy Vegetable Conference, Quebec, Canada. Contact: Dr. Sylvie Jenni (450)-346-4494 ext. 213 or [jennis@agr.gc.c](mailto:jennis@agr.gc.c)