

# The Vegetable and Small Fruit Gazette

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Horticulture Department  
The Pennsylvania State University

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**Tip for the Month:** "If you find yourself in a hole, the first thing to do is stop digging."

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## **Comments from the Editor**

Bill Lamont, Department of Horticulture

As I gaze out on the beautiful and peaceful Pennsylvania countryside, as it begins to dress for fall, it is hard to imagine the horrific events that unfolded this past month in New York City, Washington, D.C. and in Somerset County. It was an attack on the peace and security of our nation and its citizens and a wake up call on the amount of damage that can be inflicted by a group of misguided and evil people. In light of these events we must review and take measures to upgrade the security of our strategic assets such as, air and ground transportation system, power generating facilities, water system, telecommunications system, and most importantly our agricultural system. The food supply is taken for granted by a majority of Americans and I hope that it does not

take a catastrophic event to make people realize how important it is, not only to their well being but also to our national security. 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

November	John Esslinger
December	Andy Muza

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### **Plasticulture and High Tunnel Short Courses Being Offered in New Jersey**

Bill Lamont, Department of Horticulture

Two short courses are being presented by the American Society for Plasticulture in cooperation with Rutgers Cooperative Extension of Gloucester County on October 24-25, 2001 on Plasticulture and High Tunnels at the Gloucester County Extension Office, Clayton, New Jersey. The topics for each day are presented below.

#### **Plasticulture Short Course- Day 1**

8-9 AM Registration/ Coffee and Donuts

9:00AM Welcome Dr. Bill Lamont, Penn State University

9:10 Plasticulture Vegetable Production Systems - What are the Components? - Dr. Bill Lamont Jr., Penn State University

9:55 Design Considerations for Drip Irrigation Systems-Dr. Dave Ross, University of Maryland

10:45 Break

11:00 Water Management and Fertigation- David Lankford, Davon Crest Farms

11:30 Mulch Color Options Using Plasticulture- Dr. Mike Orzolek, Penn State University

12:00 Questions for the morning speakers

12:15 PM Lunch

1:15 Strawberry Plasticulture Dr. Charlie O'Dell, Virginia Tech University

2:00 Weed Management in Plasticulture- Dr. Brad Majek, Rutgers University

2:30 Break

2:45 Soil Fumigation- Victor Lilley, Reddick Fumigants

3:30 Row Covers and High Tunnels- Dr. Otho Wells, University of New Hampshire

4:00 Questions for the afternoon speakers

## **High Tunnel Short Course- Day 2**

8-9AM Registration/Coffee and Donuts

9:00 Welcome- Dr. Bill Lamont Jr., Penn State University

9:10 High Tunnel Components and Construction Options- Dr. Bill Lamont Jr., Penn State University

10:00 General Operation of High Tunnels- Dr. Ortho Wells, University of New Hampshire

10:30 Break

10:45 Soil Fertility and Nutrient Management- Erik Burkhart, Penn State University

11:15 Integrated Pest Management- Erik Burkhart, Penn State University

12:00 Questions for Morning Speakers

12:15 Lunch

1:15 Vegetables- Dr. Mike Orzolek, Penn State University

2:00 Small Fruit- Kathy Demchak, Penn State University

2:45 Break

3:00 Cut Flowers- Dr. E. Jay Holcomb, Penn State University

3:45 Marketing and Economics- Dr. Otho Wells, University of New Hampshire

4:15 Questions for the afternoon speakers

**On-site Coordinator:** Michelle Infante-Casella, County Extension Agent, Rutgers University Phone: (856) 307-6450 ext. 1.

**Registration Fee:** \$60 for a single day or \$100 for both days includes lunch and breaks and Proceedings for each day. For more info and registration contact Pat Heuser (717) 238-9762 or ASP Website: [www.plasticulture.org](http://www.plasticulture.org)

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## **2001 Weed Control Results in Sweet Corn and Pumpkin**

Mike Orzolek, Department of Horticulture

In 2001, I ran 2 weed control trials, one in sweet corn and the other in pumpkins. The sweet corn weed trial was designed to evaluate new herbicides without the use of atrazine. There were 12 treatments including Dual Magnum II, Prowl, Permit (halosulfuron), Aim (carfentrazone), Tough (pyridate) and Callisto (mesotrione). Callisto is manufactured (Syngenta) from a natural plant extract which has herbicidal properties and can be applied either as a ppi or post application. I also looked at 2 varieties of sweet corn, "Temptation" and "Delectable". The sweet corn was planted on June 4, 2001 and harvested "Temptation" on August 17 and "Delectable" on August 27, 2001. The most predominant weeds in the field were common lambsquarters, redroot pigweed, Canada thistle and quackgrass. Of the preemergence treatments, Callisto provided excellent weed control with only minor injury symptoms on the sweet corn plants (4 to 6 leaf stage). Prowl did not control the pigweed or lambsquarter as effectively as Callisto, but had minimal crop injury. On the June 25 rating, it was observed that Callisto applied ppi did not control Canada thistle and Prowl did not control henbit. On the June 29 rating, it was observed that there were several hot spots of galisoga developing in the field and that injury on sweet corn plants consisted of stunting with purple coloration on older leaves. On the July 9 rating, it was noted that the treatments with the lowest vigor rating and weed control were Prowl; while the best treatment was the Dual Magnum II pre followed by Callisto post. Weeds in the check plots were: common lambsquarters, redroot pigweed, galinsoga, purslane, green foxtail, Canada thistle and eastern black nightshade. Results of this weed trial suggests that vegetable growers could control weeds in sweet corn fields without the use of Atrazine.

For the pumpkin weed trial, I compared the standard treatment, Command + Dual Magnum with 2 different rates of Sandea (halosulfuron). I evaluated 2 pumpkin varieties ( Tom Fox and Abbott & Cobb 100) both as transplants and seeds. Injury was quite noticeable from halosulfuron on both transplants and seeded pumpkins including shorter internodes, somewhat more brittle stems, interveinal chlorotic/mosaic leaves

with some downward cupping. Injury symptoms fair to moderate were only observed on the halosulfuron treatments with no injury observed on the check or standard treatment (Dual Magnum and Command. Weeds observed in the field were; common lambsquarters, redroot pigweed, some Canada thistle, and Eastern black nightshade. Sandea does not control eastern black nightshade and only fair job on eastern blacknightshade. My recommendation for weed control in pumpkin would still be the use of the combination of Dual Magnum II and Command.

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## **Managing Production Risk with Crop Insurance: New Policies, Higher Coverage Levels, Cheaper Insurance Premiums, and Free CAT Coverage**

Jayson Harper, Department of Agricultural Economics and Rural Sociology

Although the current growing season is rapidly winding down, now is the time to start thinking about production risk management strategies for next year. Several things have happened in the past year to make crop insurance an even better risk management tool for Pennsylvania farmers: 1) Crop Revenue Coverage (CRC), an insurance product first introduced in 2000, became available to more Pennsylvania corn and soybean growers this year. Unlike multi-peril crop insurance (MPCI) that covers only yield losses, CRC provides protection against both yield and price risk. The farmer selects a level of revenue to protect based on price and yield expectations. Losses are paid if revenues fall below the guarantee at the higher of an early-season price or the harvest price. Indexed Income Protection (IP) is a similar product that protects producers against reductions in gross income when either a crop's price or yield declines from early-season expectations. Another new program, Adjusted Gross Revenue (AGR), is available in Berks, Carbon, Lackawanna, Lehigh, Monroe, and Northampton Counties. This program insures the revenue of the entire farm rather than an individual crop. It does this by guaranteeing a percentage of average gross farm revenue, including a small amount of livestock revenue. The plan uses information from a producer's Schedule F tax forms to calculate the policy revenue guarantee. Expansion of the AGR program statewide is possible if more farmers express an interest in the program. It would be a useful risk management option for farmers who have diversified crop mixes or who produce crops that are not currently covered by crop insurance policies.

2) Farmers using crop insurance have traditionally been able to choose a yield guarantee level of 50, 55, 60, 65, 70, or 75% of their farm's actual production history yield. In a sense, this determines the "deductible" before an insurance claim would be paid. Selecting a lower yield guarantee lowers the premium. Many farmers, however, felt that they would like to have higher levels of coverage available. In response, the 80 and 85% coverage levels were introduced for corn and soybeans in many counties this year.

3) Under the Federal 2000 Agricultural Risk Protection Act crop insurance premiums for farmers were reduced by 27-41% depending on the level of coverage selected. In addition, the Commonwealth of Pennsylvania is paying the \$50/crop application fee and

reducing producer paid premiums by an additional 11-22% in 2002. This means that crop insurance premiums will be 40-58% lower in 2002 than they were in 1999.

4) Catastrophic crop insurance (CAT) was introduced years ago to replace ad hoc disaster assistance programs enacted by Congress and provide a producer safety net based on a farmer's actual production history and insurance principles. The per acre insurance premium for CAT is paid totally by the Federal government. For a flat administrative fee of \$100/crop/county, the producer gets a crop insurance yield guarantee of 50% of their farm's actual production history yield, with any losses reimbursed at 55% of the established indemnity price. Compared to higher levels of coverage, CAT provides only minimal protection against yield losses. For some diversified farmers this level of coverage is sufficient to protect them against severe cash flow shortfalls. To encourage all farmers to have at least this level of protection, the Commonwealth of Pennsylvania is paying the \$100 administrative fee in 2002.

If you'd like to learn more about crop insurance, the 2nd Annual Pennsylvania Crop Insurance Conference is being held at the Farm Show Complex in Harrisburg on October 24. The conference is intended for crop insurance agents, government agency personnel, ag bankers, and extension agents. The conference will provide up-to-date information on available crop insurance products in Pennsylvania and will also focus on ways to better educate farmers on the value of crop insurance. More information on the conference can be found on-line at <http://farmmanagement.aers.psu.edu/Upcoming%20Events/CI-invitation.htm>.

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### **In-Service Training-Vegetable and Small Fruit Roundtable**

Bill Lamont, Department of Horticulture

In trying to better coordinate the in-service training efforts in the department we are going to schedule an in-service training Vegetable and Small Fruit Roundtable on November 15 with dinner and refreshments at Dr. Lamont's house that evening and then an in-service training Ornamentals Roundtable (tentative) on November 16. Participants for both the in-services are invited to Dr. Lamont's cookout. We will be developing agendas for both roundtables in the future. For more information or items to be included on the agenda contact Dr. Bill Lamont for the Vegetable and Small Fruit Roundtable and either Jim Sellmer or Rick Bates for the Ornamentals Roundtable

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### **Bug vs. Bug- Managing Two-Spotted Spider Mite with the Predatory Mite *Neoseiulus californicus***

Cathy Thomas, Integrated Pest Management Program Pennsylvania Department of Agriculture

Two-spotted spider mite (*Tetranychus urticae*), the most common spider mite species found in PA greenhouse vegetable and herb production, can increase rapidly especially

during hot, dry periods. Most of the difficulty in controlling this pest is initial detection. Since there is no winged stage, sticky traps are ineffective, hence, plant inspection is the only method to assess if mites are present. Damage is caused by larvae, nymphs and adults piercing the plant cells and sucking out the contents. They are usually found on the undersides of the leaves, and sometimes with silken webbing at high populations. The damaged cells appear as yellowish white spots (chlorophyll is destroyed) on the upper surface of the leaf. As populations increase, the whole leaf will eventually turn yellow. Crop losses may occur when about 30% of the leaf surface is damaged.

There are a limited number of pesticides available for treatment of this pest in greenhouse vegetable and herb production; therefore an integrated approach using biological controls in conjunction with compatible biorational materials is needed. Some materials that can be used with biocontrols to treat hot spots or reduce populations before introducing biocontrols include:

Ultra-fine oils, neem oil, insecticidal soap, and the entomopathogenic (insect killing) fungi *Beauveria bassiana*. Biological control options include predatory mites, and predatory midges.

The most commonly used predatory mite is *Phytoseiulus persimilis*. This is used in many vegetable and ornamental crops for quick knockdown of spider mites. The predatory midge, *Feltiella acarisuga* is also effective in reducing high populations of spider mites. Both of these natural enemies require prey to persist and relative humidity above 60% for reproduction.

If the environmental situation has high temperatures and variation in humidity (below 60%), an alternative biocontrol option would be the predatory mite, *Neoseiulus (Amblyseius) californicus*. In crops where it is hard to detect spider mite populations, this mite can be introduced on preventative basis since it can survive in the absence of prey.

#### Life Cycle of *Neoseiulus californicus*

The five different stages of this mite are the egg, larva, protonymph, deutonymph and adult.

The adult predatory mite lives about 20 days and can lay up to 3 eggs a day. It is able to consume 5 adult spider mites daily in addition to feeding on eggs and larvae. The life cycle can be completed within 4 days with high temperatures.

#### Application

- Start early to control spider mite populations since spider mites reproduce quickly at high temperatures and low humidity.
- If used on a curative basis, introduce *N. californicus* with *Phytoseiulus persimilis* to clean up hot spots.
- Concentrate predator introductions at spider mite hot spots as soon as possible after delivery.

- Monitor for predator activity by checking spider mite colonies for larval development and for shriveled pest mites that have been fed upon. Monitoring should be done once a week, consistently to determine if future introductions of predatory mites are needed.
- Can be used on outdoor crops.
- *N. californicus* also attacks the broad mite (*Polyphagotarsonemus latus*) and the cyclamen mite (*Tarsonemus pallidus*).

### Products

*N. californicus* is shipped to the grower as mobile stages.

Some product names from major suppliers include:

- Spical - [www.koppert.nl](http://www.koppert.nl), 734-641-3763
- Californicus system, [www.biobest.be](http://www.biobest.be), 303-661-9546
- *Neoseiulus californicus* [www.syngentabioline.com](http://www.syngentabioline.com), 805-986-8265

This predator can be obtained through most biological control distributors.

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

Cathy Thomas

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

Kathy Demchak, Department of Horticulture

Q. Since strawberries aren't on the regular Sinbar label, where does the information for Sinbar use and rates come from? (Karl Hellerick, Hellerick's Farm, Dublin, PA).

A. Karl's right - you won't find strawberries on the package label for Sinbar. That's because this use is covered on a supplemental label (numbered H-41719, if that helps). There are a number of ways that you can get this label. If you have Web access, you can go directly to

<http://www.dupont.com/ag/us/prodinfo/prodsearch/information/H41719.pdf> to download the label. You can also get there by going to <http://www.dupont.com/ag/us/> and clicking on 'Label/MSDS Search'. Then choose Sinbar from the Products list and check 'Section 3 Federal Supplemental Labels', and then hit Search. You also should be able to get this label from your chemical dealer, but if he/she doesn't have one, either they or you can call 1-888-6DUPONT (1-888-638-7668) to get a copy via fax or mail.

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.

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## **Strawberry Pesticide Usage Survey Results for PA**

Kathy Demchak, Department of Horticulture

PA strawberries were included as part of the National Agricultural Statistics Service Agricultural Chemical Usage 2000 Vegetable Survey. The results for PA and other states can be downloaded from the Web site (be prepared - the report is 300 pages long...) at <http://usda.mannlib.cornell.edu/reports/nassr/other/pcu-bb/agcv0701.pdf>. Responses from PA growers showed that 81% of PA's strawberry acreage was treated with herbicide(s), 77% was treated with insecticide(s), the same percentage was treated with a fungicide, and 14% were treated with other chemicals (miticides, fumigants, etc.). Napropamide (Devrinol), 2,4-D (Formula 40), and terbacil (Sinbar) were the most widely used herbicides, with 60%, 51%, and 45%, respectively, of the state's strawberry acreage being treated. Sethoxydim (Poast) was applied to 29% of the acreage, and oxyfluorfen (Goal) was used on 16%. Chlorpyrifos (Lorsban), endosulfan (Thiodan or Phaser), and bifenthrin (Brigade) were each applied to about 1/3 of the acreage, azinphos-methyl (Guthion) was applied to about 1/4 of the acreage, and carbaryl (Sevin) was applied to only 8% of the acreage. Captan was the most commonly used fungicide, applied to 71% of the acreage, while benomyl (Benlate) was applied to 43%. Fenhexamid (Elevate), iprodione (Rovral), and thiophanate-methyl (Topsin-M) were applied less frequently, to 22, 19, and 12% of the acreage, respectively. These and additional results of this survey will be presented at this winter's Mid-Atlantic Fruit and Vegetable Conference.

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## **Potato Musings**

Bill Lamont, Department of Horticulture

It is that time of year when potatoes begin to be placed in storage, so now is a good time to review storage management and to highlight some potato storage rots that can cause problems in your potato crop. We baked some Eva's for a dinner recently and they were excellent. We do have some excellent round white potato varieties to offer the consuming public. Don't forget to try selling a red, white and blue polybag of Dark Red Norland's, Eva's and Michigan Purple's. They are all excellent table stock potatoes and make an attractive package and display for the roadside markets. You can make your own flag.

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## **Potato Storage Management**

Bill Lamomt, Department of Horticulture

(The article was taken from Bill Bohl, Extension Educator's newsletter, the Spudvine, and was written by Nora Olsen and Gale Kleinkopf from the University of Idaho).

Placing problem potatoes into storage can't make them better, but properly managed storages can help maintain quality and minimize deterioration of good quality potatoes. Managing storages includes making sure your storage has proper ventilation and temperatures and no condensation problems. Other concerns are sprouting, pressure bruise potential, sugar development, and disease problems.

Unless there is a need to dry out wet or rotting potatoes, always humidify ventilating air. To help avoid condensation, make sure the ventilating air is slightly cooler than tubers at the bottom of the pile. Free water on potatoes will initiate or accelerate and water rot problems in tubers.

Since uniform air distribution with the storage is needed for maintaining tuber quality, eliminate as much dirt and debris as possible as the potatoes are being placed in storage. Remember, however, that excess ventilating air can lead to tuber dehydration and increased shrinkage. This can result in lost tonnage and decreased tuber quality. To minimize tuber weight loss and reduce the chances of having pressure bruise in your potatoes, maintenance of proper ventilation, temperature and humidity are important. Humidity levels should be above 90 percent and preferably at 95 percent or more. To determine if your storage will properly keep potatoes, check out this brief list of overall basics of storage management.

### **Facility Preparation**

Repair all insulation materials to minimize the potential for condensation.

Clean plenum and duct ports thoroughly.

Replace worn humidity equipment and high-pressure nozzles.

Check for corrosion on all surfaces that may limit the life of the storage facility.

Service the air system and check all fans for proper balance.

Check the air delivery system by adjusting all ports or ducts for optimum and consistent airflow.

Repair or replace worn components on air louvers, both fresh air and exhaust.

Calibrate all computerized sensors that are used for control functions.

Service the relative humidity supply systems-check for mineral deposits and eliminate clogged flow paths.

Operate your storage for conditioning before the potato crop is delivered.

Know the quality of the incoming potatoes and the potential problems that might arise in storage. Protecting the quality of the stored tubers is the goal of all storage management.

### **During Potato Delivery**

Tape all duck seams to improved system performance-open seams will reduce air delivery consistency.

Harvesting and handling operations should deliver a minimum of 75 percent bruise-free

potatoes for both short and long term storage.

Check pulp temperatures of potatoes going into storage-ideal temperature range is a minimum of 48oF to a maximum of 60o F. Suspend harvest operations, whenever possible, until pulp temperatures in the field are in this temperature range.

Limit potato pile height to 16 to 18 feet to minimize pressure bruise. Remember that pressure bruise can be variety dependent.

Operate fan and humidity systems as soon as the first ducts are covered. This early operation helps to remove pulp temperature differences between fields, truckloads and time of day.

Clod and debris removal from the incoming loads is important to achieve optimum air circulation performance in the pile from the ventilation system.

Fill each storage facility with potatoes destined for similar end uses.

Close storages as soon as filled to rapidly achieve temperature equilibration of the pile.

Maintain pulp temperatures at 50 to 55o F for 2 to 3 weeks for proper wound healing.

Relative humidity of 95% is always recommended for wound-healing period and for continued short or long term storage.

Reduce pile temperatures slowly, approximately 2 to 3o F per week, to a holding temperature of 45 to 48oF for processing, 42 to 45oF for fresh pack, 50 to 52oF for chipping stock.

Continue to monitor the storage daily for operational continuity and for any potato problem that might occur. Air circulation times should be set to maintain the pile temperature less than 2oF difference from bottom to top. Continuous fan operation at reduced airflow or speed is capable of maintaining the desired temperature control of the pile while reducing energy costs of fan operation.

Sprout control should be done by certified applicators. The type of inhibitor or time of application may vary with different varieties.

## **During Unloading**

Maintain storage air supply during storage unloading to minimize quality losses.

Remember that good storage management during the unloading operation includes adjustment of duct airflow to maintain consistent supply to all parts of the remaining pile.

## **Potato Storage Rots**

Sara Mahoney and Dr. Barbara Christ, Department of Plant Pathology

The high rainfall we've had after this dry growing season is perfect for the development of storage rot problems. Soft rot, pink rot, and pythium leak are three of the most common diseases that plague potato storages.

### **Soft Rot**

Soft rot is a bacterial disease caused by *Erwinia carotovora var. carotovora* and *Erwinia chrysanthemi*. On tubers, it begins on the surface and moves inward appearing as wet, cream to tan colored rotted tissue. Sometimes dark brown or black margins will define the border between healthy and infected tissues. Under wet conditions lenticels on the tubers will become swollen creating an easy entry point for the disease. These areas appear slightly raised and darker in color than the potato skin. At high temperatures infection will develop and the flesh will look a yellow to cream color and water soaked.

At lower temperatures the lenticels will dry out and appear as a shallow spot with a chalky white deposit.

### **Soft rot management**

The soft rot bacteria are found everywhere and in every soil. There are no resistant potato varieties but fungicides and especially seed piece treatments will reduce fungal invasions of seed and therefore prevent opportunities for soft rot to attack.

- Plant high quality seed.
- Avoid excessive soil moisture.
- Prevent mechanical injury at harvest.
- Use clean water to rinse tubers.
- Dry tubers thoroughly using continuous ventilation with air at about 85% relative humidity.
- Prevent condensation in storage

The key period for infection is during post harvest curing and storage. Dry and cool tubers quickly to slow development of disease.

Soft rot infection favors:

- Immature tubers
- Wounds
- Invasion by other pathogens
- Warm tuber and storage temperatures
- Free water
- Low oxygen conditions

**Pink rot** Caused by the fungus *Phytophthora erythroseptica*. It is found in the soil and can remain there for long periods of time. It is associated with wet conditions and infections can occur in the field through lenticels or stolons and through wounds at harvest. Tubers infected only with pink rot are not slimy but have a cooked potato texture. Typically there is evidence of the rot by discoloration on the surface of the tuber. The tuber tissue will turn pink after exposure to air for 20 to 30 minutes and then eventually turns black. Soft rot bacteria can easily infect these tubers and cause them to rot more quickly and produce a foul smell.

### **Pink rot management**

- Avoid excess late season watering especially if temperatures are above 75%.
- Look for disease in low lying wet areas and avoid harvesting infected tubers.
- Allow for proper skin set.
- Avoid mechanical injury during harvest
- If the disease is detected in storage provide adequate air circulation through the pile and keep temperatures at 45-50°F during early curing.

### **Pythium Leak**

Fungi in the genus *Pythium* such as *P. debaryanum* and *P. ultimum* cause leak. *Pythium*

invades tuber wounds during harvest. The rot starts from an infection site on the tuber surface and generally rots out the entire central portion of the tuber leaving the area from the vascular ring out intact. This is often referred to as "shell rot". The rotted tissues are extremely watery, brown to black in color and may have cavities within them. Soft rot bacteria can easily invade the tubers.

### **Pythium Leak Management**

- Avoid harvesting potatoes under extreme warm conditions.
- Prevent mechanical injury during harvest.
- If tubers are already infected cure at 45-50°F for a minimum of three weeks.

Soft rot spreads easily in storage, especially under moist conditions. Soft rot bacteria can easily invade tubers infected with pink rot or pythium leak. By preventing injury at harvest and keeping storages clean and free of excess moisture the severity of these rots can be greatly reduced.

**References:** Gudmestad, Neil C., Managing pink rot: How to minimize losses. Spudman. September 1998.

Johnson, Steven B., Black leg and bacterial soft rot. Spudman. May 1999.

Nolte, Phillip, Kiran K. Shetty, Robert W. Stack. Managing potato water rots. Valley Potato Grower. August 1995.

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### **Upcoming Meetings**

Bill Lamont, Department of Horticulture

#### **Local**

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

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 5 or 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

**Regional**

October 24-25, 2001: Plasticulture and High Tunnel Short Course, Gloucester County Office Building, Clayton, NJ Contact: Pat Heuser (717) 238-9762 or Michelle Infante-Casella (856) 307-6450 ext. 1 or visit the ASP Website: [www.plasticulture.org](http://www.plasticulture.org)

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**

October 22-23, 2001: North Carolina Greenhouse Vegetable Growers' Association Meeting, Raleigh, NC. Contact: Mary Peet Phone: (919) 515-5362 Fax: (919) 515-2505 E-mail [mary\\_peet@ncsu.edu](mailto:mary_peet@ncsu.edu)

February 23-26, 2002: 30th American Society for Plasticulture Congress, San Diego, CA. Contact: Pat Heuser Phone: (717) 238-9762 Fax: (717) 238-9985 or website <http://plasticulture.org>