

The Vegetable and Small Fruit Gazette

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Horticulture Department
The Pennsylvania State University

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Tip for the Month: "The greatest discovery of my generation is that man can alter his life simply by altering his attitude of mind." William James

Comments from the Editor

Bill Lamont, Department of Horticulture

The 4th of July is almost here. Time to prepare that red, white and blue potato salad for the family gathering while proudly display your red, white and blue potato flag. Take time to relax and enjoy the local firework displays. In the little town in which I grew up in, the fireworks display was put on by the local fireman, who you knew by name. In State College the firework display is a real professional undertaking and is choreographed to music. It attracts people from all over and I think is as good as the one that is put on at the National Mall in Washington, D.C. We are moving into high gear at the Horticulture Research Farm and have several field days and workshops planned for this coming

summer, so check the calendar of upcoming meetings and special articles on these activities in the gazette. In this issue we have initiated another section called "**Problems from the Field**" and I want to thank Tim Elkner for authoring the first article for this new section. This section is intended to give agents and chance to highlight some problems or observations they have made in the field and want to share with a wider audience. I look forward to receiving short articles for this section. I want to thank Steve Bogash for his excellent article "**Raised-Bed Strawberry Production: Preplant Preparation**" and look forward to Mary Conklin's article in the August issue. I am adding meetings, field days and twilight meetings to the Upcoming Meetings List. 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.

Schedule for Agent Articles

Bill Lamont, Department of Horticulture

August	Mary Conklin
September	Eric Oesterling
October	Cheryl Bjornson
November	John Esslinger
December	Andy Muza

Raised-Bed Strawberry Production: Preplant Preparation

Steve Bogash, Multi-County, Commercial Horticulture Agent

Ideally, you've made the decision to use a particular piece of land for strawberry production a year or more in advance of planting. That year will allow you to plan to avoid the potential of harmful herbicide residue and do substantial cover cropping to build the soil and reduce damaging nematode populations. At this point, you are planning when to do the final plow down of a small grain and build your beds for a mid-to-late-August planting. You've also just sent off a soil sample for nutrient analysis for that plow down preplant fertilizer application and confirmed your order for strawberry plugs. That's the ideal way. Now what does a grower do that is seeking to get started because of the strong demand and wholesale price for berries this spring?

Site Selection: Avoid following other strawberries, raspberries, tree fruits, tomatoes, peppers, and eggplants or fields where high rates of Atrazine and sulfonylurea

herbicides have been applied in the previous growing season. Previous crops can leave behind substantial amounts of disease inoculum while herbicide residues can substantially weaken the plants and slow their establishment or worse.

A site with good air drainage can make the spring frost battle much easier and reduce the need for some all night waterings. Good air drainage will also reduce the likelihood of Botrytis (Gray mold) and other diseases as the plants will dry more quickly after rains and heavy dews.

Soil Testing: Strawberries produce best with a soil pH of 6.0 - 6.5. Be sure to nutrient test with enough time to apply any fertilizers and limestone prior to final field preparation.

With the significant investment in an acre of raised-bed strawberries, it only makes sense to nematode test. This service is available through any Penn State University Cooperative Extension office with the samples getting sent off to the Fruit Laboratory at Biglerville. Nematode assays are most accurate in the spring and fall as nematode populations in the root zone (top 12") vary cyclically with the seasons. John Halbrendt, Penn State Pathologist, makes the following recommendations for good nematode assays:

- Avoid waterlogged soils. The best sampling is done when the ground is just below field capacity
- The ground should not be too dry. If the soil is difficult to penetrate or plants are wilting, sampling results will of little use.
- Scrape the top 1/2-1" of the soil away and get a probe 8-10" deep. Be sure to pull a representative sample of the site. If the site varies significantly in soil types, then take multiple samples.
- Take good care of the collected sample. Best results come from samples that are kept cool and delivered quickly to the lab.

Fumigation: If you are in a place in your field rotation that is less than ideal for a strawberry planting or the nematode assay results indicate sufficient numbers of problem nematodes to treat, then fumigation may be your only resort. See Table 3 on page 9 of the 2002-2004 Commercial Berry Production and Pest Management Guide for fumigation recommendations for PA.

Be sure to work the ground well so the fumigant can penetrate. Fumigation works best when the soil is between 60 & 80 F and at 50-75% of field capacity. Read the label carefully for all safety recommendations, application requirements and time to plant after treatment. For example: Telone C-35 can control a number of soil-borne diseases, plant parasitic nematodes, wireworms, and symphlans. There are also a number of fertility interactions noted on the label that are worth reading about. Also, Telone reacts with aluminum, magnesium and their alloys and may seriously corrode equipment that is exposed. You must wait at least 7 days after treatment to plant, more if the soil gets very wet or waterlogged.

One excellent website for raised-bed strawberry information is the Virginia Tech site: www.ext.vt.edu/resources. Follow the menu from fruit and vegetables to the commercial strawberry pages.

Problems from the Field

Tim Elkner, Extension Agent, Lancaster County

There are two problems I have seen or heard about this season. The first is damage to Argent sweet corn by the herbicide Dual. Several growers in York County have had this problem. I talked with John Yocum, senior research associate and manager of the Penn State Southeast Research and Extension Center in Landisville, about this problem. He reported that there have been problems with Dual damage in the past with certain varieties of field corn but it is not a common occurrence. In order to have damage, a specific combination of temperature, soil moisture and stage of crop development needs to occur. In the season following observation of damage to several varieties of field corn on the farm, John tried to induce damage by regular watering of emerging plots but was not successful. The missing factor was proper temperature. This springs cold spell in May apparently happened at just the right stage of development of Argent in some fields. I have not heard of any other sweet corn varieties affected by Dual this season. So if you have a poor stand of Argent planted early this season and you used Dual as a pre-emergent herbicide, this could be the cause.

The second problem I have seen in three fields is poor fruit set in black raspberries. I have concluded that this was also caused by the late cold weather. While temperatures did not damage the flowers by going below freezing, they were low enough to affect fertilization of the ovaries and thus berry development. There are a limited number of days for successful fertilization of a flower. After a grain of pollen lands on the flower's stigma, a pollen tube grows out of the pollen grain and down into the style and to the ovary where actual fertilization occurs. Growth of the pollen tube is temperature dependent and cold weather slows or stops its growth. However, cold temperatures do not increase the number of days where the fertilization process can occur. This season's cold weather hit just as black raspberries were blooming and slowed pollen tube growth to the point where there was one or more flowers per cluster that were poorly fertilized or not fertilized at all. This is visible now as smaller fruit with few drupes or dead flowers still in the cluster. This problem also occurred last season on black raspberries and we had a similar cold spell during flowering then as well.

High Tunnel Workshop to be Held on July 19th

Bill Lamont, Department of Horticulture

The second workshop of the 2002 season is scheduled for Friday, July 19th from 9:30-4:30. This will be co-sponsored by PASA (Pennsylvania Association for Sustainable Agriculture). The registration fee for this workshop is \$10.00 and will be used to provide

lunch and beverage as well as printed materials. Advanced payment is expected in order to reduce the number of "no-shows." Walk-in registration will be limited to 10 and total registration will not exceed 75. Please send a check made out to 'Penn State University' to the attention of Lisa White, 112 Tyson Building, University Park, PA 16802.

The tentative program for the summer workshop is as follows:

Introduction to high tunnels, maintenance tips, and design considerations
Michael Orzolek, Bill Lamont, and Bruce Dye

Update on high tunnel environmental research along with considerations for maximizing crop productivity
Eric Burkhart

Summer vegetable crop and culinary herb report: scheduling and performance
Eric Burkhart, Michael Orzolek, and Bill Lamont

Bramble culture and research
Kathy Demchak

Cut flower culture and research
Lisa White

High tunnel integrated pest management: biological control options
Lisa White and Eric Burkhart

Irrigation options for high tunnels: drip and overhead irrigation design and assembly
Eric Burkhart, Michael Orzolek, Bill Lamont, and an industry representatives

Research reports, demonstrations, and grower experiences will ensure that each workshop is full of useful and practical information. Interested persons are encouraged to register early. Questions should be directed by phone or email to Lisa White, High Tunnel Facility Manager at 1-814-865-5587 (ldw112@psu.edu).

Other workshops/field days will be conducted during the year and are listed below. Put them on your calendar now and plan on attending. **There will be a county agent in-service training program on the high tunnels on September 6, 2002.**

County Agent Inservice Training

Fri. Sept. 6th

Autumn Workshop

Sat., October 26

Winter Workshop

Fri., December 13

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Bill Lamont, Department of Horticulture

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Tour of Vegetable Research in Centre County

Thomas M. Butzler, Extension Agent, Horticulture/Integrated Pest Management, Clinton County

Penn State Cooperative Extension is welcoming all vegetable growers to an educational field day on August 9th, 2002. Anyone involved with vegetable production is encouraged to attend. The first stop will occur at the farm of Brooks Way. Brooks Way was recently awarded the 2002 Master Farmer for his use of integrated pest management, involvement in state horticulture associations, interest in trying new technologies, and employment of new market strategies (you need to ask him about his pumpkin tossing catapult). Always questioning current farming practices, Brooks wrote a SARE Farmer/Grower Grant on fertility of sweet corn. An equipment malfunction meant that one year he did not use starter fertilizer on his corn. He saw no drop in quality, and this project will evaluate whether starter fertilizer is needed, whether it can be replaced by a foliar feed, and whether using side-dress or incorporating pre-planting nutrients might also replace starter or foliar feeding.

Not only will the tour look at his current research but will allow participants to view his other activities. The Way Fruit Farm has over one hundred acres of fruit trees, twelve acres of strawberries, twenty-five acres of sweet corn, and several acres of pumpkins. Some product is sold wholesale but much is moved through local farmers market and from the family roadside market. Lunch will be served at Brooks operation before we move onto the next stop.

The afternoon stop will occur at the Horticulture Research Farms at Rock Springs. Dr. Mike Orzolek will talk about his current research activities which include; evaluation of different mulch colors for crop response and retention of polyethylene properties and color during the growing season, evaluation of zucchini squash genetic populations for disease resistance (powdery mildew and the multiple viruses) as well as marketable yield and fruit quality, evaluation of different formulations of photodegradable plastic mulches for crop response and retention of polyethylene properties and degradation rate during the growing season, and evaluation of no-till pumpkin production with four different cover crops; hairy vetch, Austrian winter pea, annual rye and bare ground.

Afterwards, the tour will head over to the part of the farm where thirty plus high tunnels adorn the landscape. Dr. Bill Lamont will talk about current efforts such as high tunnel environmental research, performance of fall and spring sown cover crop in high tunnels and management of cover crop, and high tunnel insect and disease pests. Dr. Lamont will also show participants other high tunnel research such as the various vegetable variety trials, raised permanent wood beds versus flat ground, and strawberry and raspberry production.

The tour will start at 10:00 AM and will end at 3:30 PM. Because lunch will be served to participants, pre-registration is required. Please call Clinton County Extension Office at 570-726-0022 to let us know if you re planning on attending. Pre-registration deadline is August 6th. Brooks operation is located in Stormstown, Pa on Rt 550, approximately 10.5 miles west of Penn State University. Maps will be mailed or faxed upon request.

Heads Up on High Tunnel In-service Training and Agent Roundtable

Bill Lamont, Department of Horticulture

In an effort to minimize travel and maximize efficiency of time spent by county extension staff at the Penn State campus, the ornamental and vegetable teams in the Department of Horticulture have again decided to schedule their in-service training programs back to back. The Ornamental In-service will be on September 5 and the High Tunnel In-service will be held on September 6. On the evening of September 5 an informal dinner will again be offered to participants of both in-services to promote team building and esprit-de-corp.

In November the Ornamentals team will be having an In-service on November 13 and the Vegetable and Small Fruits Team will be holding their annual Agent Roundtable the next day on November 14th. There will again be a dinner on November 13th for participants of both groups to foster interaction and the concept of being part of a team. For information on the ornamental programs contact Dr. Jim Sellmer, 814-863-2250 e-mail: jcs32@psu.edu and for information on the High Tunnel In-service or the Vegetable and Small Fruit Roundtable contact Dr. Bill Lamont, 814-865-7118 or e-mail: wlamont@psu.edu.

Bug vs. Bug - Garden Symphylans in High Tunnel Production

Cathy Thomas, Integrated Pest Management Program
Pennsylvania Department of Agriculture

Symphylans (*Scutigera immaculata*) are not insects but are more closely related to centipedes and millipedes, sometimes called the "garden centipede". The garden symphylan is serious pest of many vegetable and field crops and has been found to infest crops throughout PA, with most problems occurring in the eastern half of the state. Recent evidence suggests that the garden symphylan (*Scutigera immaculata*) can be a very problematic pest in high tunnel production that utilizes high amounts of organic matter.

The first indication of a symphylan infestation is relatively small area of stunted, unhealthy plants. They can feed on plant roots and root hairs preventing the development of a healthy root system. They are also decomposers that feed on decaying matter. High rates of raw to partially decomposed organic matter additions is the main stimulant to these pests

Life cycle

Mature symphylans are translucent to milky white, slightly less than $\frac{1}{8}$ of an inch in length, with 12 pairs of legs and a pair of long-beaded antennae. The entire life cycle is spent in the soil. The eggs are laid in clusters of 10 - 12 inches below the soil surface. The first instar nymphs emerge from the egg with 6 pairs of legs and 6 antennal segments. The second instar looks more similar to the adult. Each of the six subsequent molts results in the addition of a pair of legs.

Symphys move very fast in soil. Too fragile to burrow their own tunnels, they appear to crawl through the soil in the trails of other soil dwellers.

Monitoring

There is no well established economic threshold for garden symphylans. Oregon extension recommends that a definite problem exists if five symphylans per shovelful of soil are found from 30 samples.

Control measures for symphylans in greenhouses/high tunnels will be discussed in the next issue.

Consult this website for pictures and further information:

[Http://www.foodnotlawns.com/symphs.html](http://www.foodnotlawns.com/symphs.html)

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

Cathy Thomas
Integrated Pest Management Program
Bureau of Plant Industry/ Rm. 100
2301 N. Cameron Street
Harrisburg PA 17110
(717) 705-5857
c-cthomas@state.pa.us or cet3@psu.edu

2002 Vegetable and Vegetable Fruit Field Day Set for August 19

Bill Troxell, Executive Secretary, PVGA

The 2002 Pennsylvania Vegetable, Small Fruit and Tree Fruit Field Day is scheduled for August 19, 2002. It will be held at Penn State's Russell E. Larson Agricultural Research Center at Rock Springs located 11 miles west of State College on PA Route 45. The event is being sponsored jointly by Penn State University's College of Agricultural Sciences, the Pennsylvania Vegetable

Growers Association and the State Horticultural Association of Pennsylvania. Growers will have the opportunity to see first-hand the research projects being conducted by Penn State researchers at the Research Center. The itinerary is as follows:

8:00 a.m. Registration at the Horticulture Farm - Coffee and donuts will available.

Exhibitors - The following exhibitors have signed up to date:

- Binkley & Hurst Brothers Inc.
- Imants.
- Haygrove Tunnels
- Ag Chem Equipment
- Penns Creek Welding

9:00 a.m. Tour of Vegetable and Small Fruit Horticulture and Entomology Research Plots.

Researchers and support staff will be in the field to answer questions and comment about their current research.

12:30 p.m. Lunch: A hearty sandwich accompanied chips, beverage will be provided.

1:30 p.m. Demonstrations - Various equipment demonstrations are planned.

Tour of Tree Fruit Research Plots - Researchers and support staff will be in the field to answer questions and comment about their current research.

Exhibitors ^ See list above.

Vegetable Variety Trials ^ Visitors may walk through these plots on-their-own.

3:30 p.m. Tour of Vegetable Plant Pathology Research Plots

^ Dr. MacNab will be in the field to answer questions and comment about his current research. Current projects underway at the Plant Pathology Farm include

4:30 p.m. Adjourn

To pre-register, use the form in the back of this newsletter or call PVGA at 717-694-3596 or email PVGA at wt.pvga@tricity.net. Registration is \$13 per person to cover the costs of lunch, morning and afternoon refreshments, and other costs for persons registering before August 12, 2002. Late registrants will be charged an extra \$5. Children under 16 will be charged \$10 registration. Pre-registration is important to obtain good estimates of the food needed. The Field Day will be headquartered at the Horticulture Farm of the Russell Larson Agricultural Research Center, located at Rock Springs on PA Route 45 about 11 miles west of State College between Pine Grove Mills and Spruce Creek. The Horticulture Farm is just east of the Ag Progress Days site.

Following is a brief description of just some of the research projects that will be observed at the Field Day:

Horticulture ^ Vegetables

High Tunnel Research Facility ^ Various projects are being conducted in the 24 research high tunnels.

Developing tomatoes with resistance to early blight and late blight, improved fruit quality (e.g. lycopene), and adaptation to PA conditions is the goal a major research effort at Penn State. Research is being conducted to develop fresh market (cherries and large size) as well as processing tomatoes. Genes for various desirable horticultural characteristics are being transferred to the cultivated tomato from the related wild species of tomato native to South and Central America. Non-degradable Plastic Mulch Colors ^ Evaluation of different mulch colors for crop response (CEAthena% cantaloupe planted May 28, 2002) and retention of polyethylene properties and color during the growing season.

Zucchini Squash Variety Trial ^ In conjunction with Syngenta Seed Co., we have been evaluating zucchini squash genetic populations for disease resistance (powdery mildew and the multiple viruses) as well as marketable yield and fruit quality. The plants are generally harvested for 6 weeks.

Paper Mulch Evaluation Trial ^ Evaluating several formulation of paper mulch from a large paper manufacturer. Of the three formulations sent, only one of them was able to be placed in the field with a standard raised bed/mulch layer (Rain-Flo Model 2500) without tearing. Test crop is "Minerva% cantaloupe.

Heirloom Tomato Variety Trial ^ Planted May 8, 2002. Two thirds of the 16 varieties planted were covered with ZipHouses immediately after transplanting the tomatoes on silver plastic mulch on raised beds.

After 3 nights of temperatures below 30°F, uncovered tomatoes froze and those in the ZipHouses sustained moderate to severe damage, depending on variety.

Sweet Spanish Onion Variety Trial ^ 12 varieties were transplanted on April 15, 2002 on silver plastic mulch on raised beds and two lines of drip irrigation per bed. Plant population ^ 4 rows across the 30% bed at 6 X 6% spacing.

Bell Pepper Variety Trial ^ 11 bell pepper varieties were transplanted May 28, 2002 on on silver plastic mulch on raised beds. Varieties are being evaluated for marketable yield and fruit quality as well as pest resistance.

Degradable Mulch Trial ^ Evaluation of different formulations of photodegradable plastic mulches for crop response ("Paladin% pepper and "RW 8036% watermelon transplanted May 29, 2002) and retention of polyethylene properties and degradation rate during the growing season. No-Till Pumpkin Production ^ Evaluation of 4 different cover crops; hairy vetch, Austrian winter pea, annual rye and no cover as main plots. Two different varieties ^ Touch of Autumn (2-3 lbs./fruit) and Gold Standard (17 lbs./fruit) with two different establishment methods- direct seeding and transplanting the same date (mid to late June). Potato Dessication Trial ^ Evaluation of a new potato dessicant for time to dessicant (kill) potato vegetation prior to harvest and affect on potato marketable yield and quality. Planted 'Keuka Gold' potatoes for this trial.

Horticulture - Small Fruit

An experiment on the strawberry plasticulture production system is in its second harvest year. Six cultivars planted on three dates are being compared.

A matted-row strawberry cultivar trial was established this spring.

Twenty-one cultivars and 7 advanced selections from strawberry breeding programs in the eastern U.S. and Canada are being compared. Irrigation scheduling in blueberries will be studied in plot is currently being established.

High tunnel projects will also be briefly discussed, which involve fall-bearing raspberry cultivars, thornless blackberries, strawberry cultivars in a gutter system, and hardy kiwi. Entomology: The Rock Springs farm serves as a sweet corn pest-monitoring site. Pheromone traps follow two races of the European corn borer, the corn earworm, and the fall armyworm. Data are organized into maps displaying sweet corn pest pressure across the northeastern US (from Virginia to Maine) accessible at <http://pestwatch.cas.psu.edu>. Trichogramma ostrinae is being tested for biocontrol of European corn borer in both sweet corn and peppers. Trials are coordinated through Cornell with similar tests in New York, Lancaster Co., and Virginia. Arthropod biodiversity is being compared between transgenic and isoline sweet corn, potatoes, and winter squash. You may be surprised at how many species are in these fields. Plant Pathology: Disease resistance in processing tomatoes: Six cultivars of processing tomatoes are being evaluated to determine degree of resistance to defoliation diseases and to fruit rots. What fungicides work best on tomatoes? Several standard and new fungicides are being evaluated on fresh market tomatoes. The new generation of fungicides appear to provide outstanding control of at least two defoliation diseases. Early results should be visible. Early blight and late blight forecasting service for Pennsylvania growers: Ten weather stations are operated within Pennsylvania to provide hourly environmental data needed to run the programs that forecast early blight and late blight. One of these stations is located at the Plant Pathology farm. Visitors will see this station, hear how access of environmental data has been automated, and hear how the 1-800-PENN-IPM disease forecasts are determined and disseminated. Research to expand the disease forecasting service: Current field experiments will be described, and preliminary results will be provided.

That's a Berry Good Question!

Kathy Demchak, Department of Horticulture

No question this month, look for a question next month.

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.

Anthracoze on Strawberries

Kathy Demchak, Department of Horticulture

Anthracoze was found in a number of PA strawberry fields this year, whether in plasticulture or matted row production. Some matted row growers had noted that their daughter plants had died before establishment, and I'm suspecting that anthracnose lesions on the runners may have

been the reason for that. Conditions this year have been nearly ideal for anthracnose. The following article is from the NY Berry News. My thanks to Dr. Bill Turechek of Cornell University for making this information available.

Strawberry Anthracnose

Bill Turechek, Dept. of Plant Pathology, Cornell University, Geneva NY

Anthracnose is a serious disease of strawberry that can affect foliage, runners, crowns and, most importantly, the fruit. In the Northeast, the disease is caused by the fungal pathogen *Colletotrichum acutatum* and it is most likely introduced into plantings on infected plants. Anthracnose is considered to be a warm-weather disease with an optimum temperature for disease development near 80 F. Therefore, the disease is generally not a problem in the Northeast unless warmer temperatures and rainfall prevail during fruit set and harvest. The spores of the pathogen require free water on the plant surface to germinate and infect, and splashing water to be dispersed. For these reasons, anthracnose is most commonly observed in day-neutral plantings grown on plastic. Once the disease is established in the field, the fungus overwinters on infected plant debris and mummified fruit. Anthracnose may become a problem in subsequent years if the weather is warm and wet.

Symptoms. The pathogen attacks the fruit, runners, petioles, and (supposedly) the crown of the plant; we have not been able to establish crown infections from greenhouse inoculation with New York isolates. On the petioles and runners, dark elongated lesions develop which often girdle the stem. When petioles or runners become girdled, individual leaves or entire daughter plants may wilt and die. On fruit, symptoms first appear as whitish, water soaked lesions up to 3 mm in diameter. As lesions develop, they turn a light tan to dark brown and eventually become sunken and black with in 2 to 3 days. This is known as black spot. After several days, lesions may be covered with salmon-colored spore masses. Infected fruit eventually dry down to form hard, black, shriveled mummies. Fruit can be infected at any stage of development. Both ripe and unripe fruit can be affected. When crown tissue becomes infected, the entire plant may wilt and die. The internal tissue of infected crowns will be firm and reddish brown (seen by slicing through the crowns). Crown tissue may be uniformly discolored or streaked with brown, and lesions also may produce salmon-colored masses of spores.

Disease management. Anthracnose fruit rot is very difficult to control when environmental conditions are favorable for infection during harvest. Therefore, control measures must begin early in the season. However, it is very difficult to detect the fungus in planting material because it causes latent (invisible) infections and petiole lesions can be quite inconspicuous. Fungicides are only partially effective once the epidemic has become noticeable in the field. Benomyl and captan are labeled for use on strawberries and have shown efficacy against anthracnose. In commercial operations, pesticides should be applied before an expected rain event and in nursery operations when varieties begin to fruit. The following rates are recommended for disease control: Benomyl @ 1 lb/A + Captan 50WP @ 4-6 lb/A (or Captan 80WP @ 3.75 lb/A).

Do not apply in combination with, immediately before, or closely following oil sprays. This includes many oil-based adjuvants that are mixed with common herbicides. Apply all materials in 200 gal water/acre to ensure adequate coverage. (Note: In PA, Quadris is labeled for anthracnose control. See the label for rates, use patterns, and precautions, especially concerning use near apple trees. Switch, labeled for gray mold control in PA, also has activity against anthracnose. - KD) The best way to avoid the disease is to begin with clean nursery stock. Inspect plants for the disease before planting. Particularly, inspect the petioles for lesions characteristic of those shown in Figure 9D. If you suspect the disease may in your field once the plants are established, it is highly recommended that you minimize the amount of splashing/water movement since the pathogen is splashed dispersed. Cultural methods that reduce splashing, such as drip irrigation rather than overhead, and mulching with straw, are highly recommended. In fields with anthracnose, additional straw mulch can help reduce the spread of the disease.

Section 18 Approved for Use of Spartan 4F on Strawberries in PA

Kathy Demchak, Department of Horticulture

A Section 18 emergency exemption was approved for the use of Spartan 4F from FMC (sulfentrazone) on strawberries in PA. This exemption is for the control of common groundsel, a problem in a number of growers' fields. The intent was for these growers to have a material that would be a replacement for the Goal Section 18 use that PA had a couple of years ago. The timing for use is similar to what it was for Goal, with one important addition. Because groundsel seeds can germinate all season long, half of the total yearly amount can also be applied at renovation, with the remainder applied at dormancy in the fall. This material is similar to Goal in that, while it inhibits establishment of new weeds, it will also burn foliage that it contacts. Here are the details on the use directions and restrictions.

Four to eight fluid ounces of Spartan 4F can be used per acre per application. A maximum of 12 fluid ounces may be applied per acre per season. This can be applied as either a single application of no more than 8 fluid ounces of Spartan 4F per acre, or as two split applications made at renovation and dormancy applying no more than a total of 12 fluid ounces per acre. The material should be applied in 20 to 40 gallons of water per acre. Applications can be made to the entire field as a broadcast spray or as a treatment to only those areas where targeted weeds are present or expected. For the material to be effective as a preemergent herbicide, rainfall or irrigation is required for activation. If 0.5 to 1 inch of rainfall or irrigation is not received within 7 to 10 days after application, a shallow cultivation should be used to lightly incorporate the herbicide. The material should not be used if the soil is saturated or if heavy rainfall is predicted to occur within the next 24 hours. The dates when sulfentrazone can be applied are: 1) at renovation, after harvest and immediately after mowing, June 20 through July 20, 2002, and 2) when the plants are dormant in the fall, from October 15 through December 15, 2002. A 105-day preharvest interval must be observed. Because this material can leach to groundwater

under certain conditions, this material cannot be applied on soils classified as sand which have less than 1 percent organic matter.

Potato Musings

Bill Lamont, Department of Horticulture

Late Blight Alert

Alan MacNab, Department of Plant Pathology and Andy Muza, County Agent, Erie County

Late blight was confirmed by Dr. Barb Christ in a commercial potato field in Northern Crawford County in Pennsylvania. No hard evidence of source has been found. To stop the spread of inoculum, the entire planting was destroyed. This June 26 confirmation of LATE BLIGHT in Pennsylvania, as well as the June 7 confirmation of LATE BLIGHT in Michigan increases our concern regarding this potentially serious disease. Growers should immediately check their potato and/or tomato fields for the presence of Late Blight. Late blight is a devastating disease, which should not be taken lightly. Intense scouting of fields should be conducted at least weekly for the rest of the season. Fungicide protection should be maintained using at least a 5 day spray schedule. Good spray coverage is essential to ensure adequate fungicide protection. If there are no new reports of LATE BLIGHT, it may be possible to relax this program, but for now, since it is so early in the season, a conservative approach is warranted. Also, as noted in the past, future occurrence of LATE BLIGHT will depend on: 1. presence of late blight inoculum, 2. occurrence of moderate conditions that favor further development (cool wet conditions will promote LATE BLIGHT), and 3. Extent of fungicide protection. In past years we learned that many fungicides do an excellent job as long as they are applied before inoculum reaches the plants. Finally, if you hear of any additional reports of LATE BLIGHT present in or near PA, please phone a report to Alan MacNab, at 814-692-7990. We will continue to monitor conditions in PA, and will update this message weekly, or more frequently when necessary. This is a cooperative project involving PDA, Penn State Extension, and PA growers.

Call the 1-800-Penn-IPM (1-800-736-6476) number for the most up-to-date information concerning the late blight situation.

Upcoming Meetings

Bill Lamont, Department of Horticulture

Local

July 15, 2002. 6:00-8:00 PM Lebanon County Produce Auction Twilight Meeting Contact: Ginger Pryor, 717-270-4391

September 6, 2002. High Tunnel In-Service Training for County Extension Agents, High Tunnel Research and Education Facility, Rock Springs, Pa. Contact: Bill Lamont 814-865-7118 or E-mail: wlamont@psu.edu

Regional

August 19, 2002. Vegetable, Small Fruit and Tree Fruit Field Day, Horticulture Farm, Rock Springs, Pa. Contact: Mike Orzolek 814-863-2251 or e-mail mdo1@psu.edu

August 20-22, 2002. Ag Progress Days, Rock Springs, PA. Contact: Bob Oberheim 814-865-2081 or e-mail bah4@psu.edu

February 4-6, 2003. Mid-Atlantic Fruit and Vegetable Conference, Hershey, PA. Contact: Bill Troxell 717-694-3596 or e-mail: wt.pvga@tricountyi.net

National

August 11-17, 2002. International Horticultural Congress; Metropolitan Toronto Convention Centre, Toronto: Call (416) 504-4500 or visit www.ihc2002.org

August 11-17, 2002. Potato Association of America Annual Meeting; Metropolitan Toronto Convention Centre, Toronto: Contact Leslie Copp at (519) 824-4120 or lcopp@uoguelph.ca

August 11-17, 2002. American Society for Horticultural Science; Metropolitan Toronto Convention Centre, Toronto: www.ihc2002.org or contact ASHS at (703) 836-4606.