

The Vegetable and Small Fruit Gazette

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Horticulture Department
The Pennsylvania State University

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Tip for the Month: "God does not send us despair in order to kill us; he sends it in order to awaken us to new life." ...from Hermann Hesse's Reflections

Comments from the Editor

Bill Lamont, Department of Horticulture

I can't believe that we are into August already. Where did the time go!! There are several vegetable and potato field days/twilight meetings coming up so check the upcoming meeting section. In addition, there will be a potato tour at Ag Progress Days and also tours will be conducted each day to the High Tunnel Research and Education Facility located at the Horticulture Farm.

I want to thank Eric Oesterling for his excellent article "Spray Coverage in Vine Crops" and look forward to Ron Hostetler's article for the September issue. 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

September	Ron Hostetler
October	Mary Concklin
November	John Esslinger
December	Andy Muza

In-Service Training Scheduling for September 20th and 21st, 2001

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 program for the High Tunnels on September 20 with dinner and refreshments at Dr. Lamont's house that evening and then an in-service training program for Ornamentals on September 21. Participants for both the High Tunnel and Ornamentals in-services are invited to Dr. Lamont's cookout. We will need a head count of who will be attending the beginning of September so we can print the appropriate number of informational packets and also so we can figure the amount of food that we will need to prepare for the cookout the evening in between the in-services. For more information contact Dr. Bill Lamont for the High Tunnel In-service and either Jim Sellmer or Rick Bates for the Ornamentals In-service.

Spray Coverage in Vine Crops

Eric Oesterling, Extension Agent, Westmoreland County

The following information is adapted from a talk given by John C. Howell at the Mid Atlantic Fruit and Vegetable Convention in Hershey last winter. Dr. Howell is Extension Vegetable Specialist with the University of Massachusetts.

The dense foliage of pumpkin and winter squash vines make it difficult to achieve thorough spray coverage on the undersides of the leaves. Complete coverage of all plant parts is essential with contact fungicides such as Bravo and mancozeb. Protecting only the tops of the leaves allows plenty of room for disease development on the undersides. Contact fungicides are still the backbone of disease control programs in vine crops. They are particularly important in resistance management programs

designed to minimize or at least slow down development of strains of fungus diseases which are resistant to the newer systemic fungicides such as Quadris, Flint and Nova.

Growers often use air blast sprayers that rely on a high velocity and high volume air stream to carry the pesticides and water carrier to the target. The real advantage of air blast sprayers is their flexibility – they can be used with many different crops. High-pressure hydraulic sprayers which use the water carrier and high pressure to can also be used for fungicide applications on vine crops. Low pressure, low volume "weed sprayers" cannot do an effective job of penetrating the canopy. They are designed to lay an even film of herbicide on the soil or on weed leaf surfaces – they are not designed for effective canopy penetration .

Several suggestions to improve spray coverage depending on sprayer type:

1. Use a slow ground speed (two mph) to allow enough time for spray droplets to penetrate foliage. This applies to both air and hydraulic sprayers.
2. Use a high water volume (eighty gallons per acre or more) to improve coverage with both air and hydraulic sprayers. Rate of fungicide per acre remains the same – you just use more water to carry it to the target.
3. With hydraulic sprayers use high pressure (at least 100 psi) to force spray into the canopy.
4. With hydraulic sprayers use solid cone nozzles – they get better penetration than hollow cone nozzles.
5. Rotate the horizontal boom of hydraulic sprayers so that spray pattern is angled forward about 15 degrees. The spray pattern then stirs the leaves and gets better penetration.
6. With air blast sprayers do not overestimate the width of effective coverage. You can see the mist blowing far beyond effective coverage width. Those tiny droplets at the far end of the blast are so light they don't stick to leaves.

Finally, you can get an idea of how effective your coverage is by using water sensitive cards. Clip them to upper and lower leaf surfaces in several places in the crop canopy. Use colorful plastic spring loaded clothespins to make them easy to find again. Then go out and spray the crop with clear water. The cards turn color wherever water touches them - so you can get a pretty good idea what kind of coverage you are getting. You may need to make adjustments in sprayer set up and techniques to improve coverage. I believe these cards are available from the nozzle manufacturers. Your ag equipment dealer should be able to get them.

Selecting Crops for High Tunnel Production

Mike Orzolek, Department of Horticulture

Completing construction of a high tunnel enables a grower to produce a wide variety of horticultural crops depending on seasonal availability, marketing options, and consumer demand. While tomatoes have been a primary crop that many new high tunnel growers

have initially produced, there maybe greater opportunities with other crops. For growers who have field as well as high tunnel production, growing similar varieties say of tomatoes may overlap during the harvest season. Unless there is a big difference in maturity, some growers do not see the advantage of growing tomatoes in a high tunnel vs field production. However, growing an heirloom tomato variety in the high tunnel such as Prudence Purple or Brandywine would guarantee a higher quality fruit with less pest problems compared to field production.

Since the high tunnel is viewed as season extension technology, growers should consider production of horticultural crops in the high tunnels that could be harvested 3 to 4 weeks earlier in the spring or fall. Not only do many vegetable crops fit in this category, but small fruit, cut flowers as well as herbs would make ideal candidates for extending the production season of these crops in the high tunnel environment. Summer squash – zucchini or straightneck types – are a good example of a horticultural crop that could be planted early in the spring – April with harvest in mid-May through June or planted later in the summer with harvest in mid September through early November; a period of time when supply of fresh summer squash is minimal in the country. The only production problem that has been observed in our High Tunnel Research and Education Facility at Rock Springs is the potential inoculum buildup of powdery mildew, especially in cucurbit crops. If untreated, summer squash plants soon become chlorotic and eventually die. We are currently evaluating summer squash breeding material in our high tunnels which have moderate resistance to powdery mildew.

Vegetables that have done extremely well in high tunnels are: sweet Spanish onions, garlic, okra, eggplant, specialty potatoes, peppers, zucchini, cucumbers, swiss chard, spinach, lettuce, kale and tomato. Depending on location in Pennsylvania and crop selection in winter and early spring, one could grow vegetables in high tunnels 12 months of the year.

Both small fruits and cut flowers can be successfully grown in high tunnels. Strawberries, red raspberries and blackberries have produced early, high quality fruit with longer shelf-life and higher yields. The one drawback of strawberry production in high tunnels is the potential and actual (2001) infestation of two-spotted spider mites. If spider mite populations are controlled, strawberry quality and yield is generally not affected. Both red raspberries and blackberries continue to grow well in the high tunnels in 2001 and both crops have excellent production of high quality fruit.

After several years of cut flower production in high tunnels, it has been observed that production has been more consistent than field production with flower color - brilliant with excellent quality. The array of horticultural crops that can be grown in High Tunnels boggles the mind. As a general observation, all horticultural crop production at the High Tunnel Research and Education Facility has been high quality, higher yielding and generally longer shelf life compared to field crop production over the last 3 years.

Bug vs. Bug--

Using *Phytoseiulus persimilis* to Control Two-Spotted Spider Mite

Cathy Thomas, Integrated Pest Management Program

Bureau of Plant Industry, Pennsylvania Department of Agriculture

Two-spotted spider mite (*Tetranychus urticae*) 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. 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.

Biological Control

The spider mite was the first greenhouse pest to be controlled by a commercial application of predatory mites. *Phytoseiulus persimilis*- a predatory mite and mainstay in spider mite control, can be used on many crops including tomato, pepper, cucumber, squash, beans, flowers and interiorscapes. It can also be an effective predator in field crops such as strawberries and other small fruits.

Life Cycle

The adult mite is pear shaped and shiny orange, while the nymphal stage is pale salmon. Predatory mites have longer legs than the pest mites. A *Phytoseiulus* adult deposits her eggs (oval shaped compared to round spider mite eggs) near spider mite colonies. The larval stage is followed by the protonymph, deutonymph and adult stage. Development time from egg to adult is 5 days at 86°F. Usually, *Phytoseiulus* will develop faster than the spider mite if the temperature is below 86°F and humidity above 60%. At low humidity, the egg of the predatory mite will die. The activity of *Phytoseiulus* can be extended by creating high humidity by spraying water through a fine nozzle and high pressure.

The adult mite will feed on all stages of spider mites, while the nymphs will feed only on eggs, larvae or protonymphs. Upon finding their prey, *P. persimilis* will kill the mite and consume the body contents. If spider mite populations are high and webbing is evident, reduce populations with compatible soft pesticides before introducing predatory mites. Consult your supplier for information on compatible compounds.

Application

- Start early to control spider mite populations since spider mites reproduce faster than predatory mites at high temperatures and low humidity.
- Scout crop and flag active spider mite colonies. Return to these flagged areas to monitor the effectiveness of the introduction. A 10x hand lens is required when inspecting for spider mites life stages.

- Shake the tube to mix the predatory mites equally in the carrier before application.
- Concentrate predator introductions at spider mite hot spots (flagged areas) as soon as possible after delivery. Introduce predators weekly for at three weeks or until desired control is achieved.
- Consult biocontrol supplier for rate information
- Monitor for effectiveness by inspecting plants for dead spider mites that appear as tiny black dots on plants. Inspect spider mite colonies for the oval predator mite eggs and the adult predator mite.
- Spider mite colonies should clean-up within 2 – 3 weeks. If control is not achieved, increase the rate of predatory mites.

Products

Phytoseiulus persimilis is supplied in tubes of 1000 – 2000 adults mixed with vermiculite or wood chips.

Product names from major suppliers of Phytoseiulus persimilis:

- Biobest – Phytoseiulus system, www.biobest.be or www.bugsandbees.com , 303-661-9546
- Kopperts – Spidex, www.koppert.nl , 734-641-3763
- Syngenta – Phytoline – Syngentabioline.com, 805-986-8265

This predator can be obtained through most biological control distributors.

Benefits

- Active year round – no diapause
- Feeds on spider mite eggs, larvae, nymphs and adults
- Reproduction if faster than spider mite at 86
- Can be used on a variety of vegetable crops and ornamental plants

In the next issue of Bug vs. Bug, I will discuss using the predatory midge *Feltiella acarisuga* and another predatory mite - *Amblyseius californicus* to control spider mites.

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

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August Disease Reminders for Commercial Producers in PA

Alan MacNab, Department of Plant Pathology

DISEASE IDENTIFICATION

Identification information is available in the colored publication, "Identifying Vegetable Diseases" which is available from most Pennsylvania Extension offices, as well as from Penn State University.

ASPARAGUS

Rust: Continue applying fungicide sprays to young plantings. In addition to mancozeb, Nova is now labelled for rust control on asparagus.

BEANS

Mosaic Viruses: Use resistance to BV-1. Provide good weed control; weeds are a source of bean viruses. Do not plant near clovers; they are a source of bean viruses. Do not make successive plantings in adjacent strips or fields; the few diseased plants that appear in early plantings act as an important virus source for later adjacent plantings. White Mold and Gray Mold: Apply protective fungicide sprays when warranted. Wet conditions immediately before and during bloom promote white mold and gray mold. Ronilan is very effective, although only labelled for snap beans; Benlate and Topsin M also are good when timed well, and can be used on snap and other beans.

BEANS, LIMAS

Downy Mildew: During wet weather, when conditions favor disease, use fungicides. Conditions that favor late blight of tomatoes and potatoes also favor downy mildew of lima beans.

BEETS

Leaf Spots: Use fungicides where disease usually occurs.

CABBAGE:

Fusarium Yellows: This disease is favored by hot weather. When possible, avoid susceptible varieties.

Clubroot: Where present, it is too late to apply controls for this year. Determine the source if possible. Then plan rotation, pH adjustment, or Terraclor use for next season. Wet soil conditions favor development.

Downy Mildew and Leaf Spots: These diseases become most important late in the season. Where anticipated and warranted, fungicides provide some control. For downy mildew, Ridomil Gold/Bravo 81W (1.5 to 2 lb/A) is effective and can be applied at 14-day intervals until 7 days before harvest. Weekly applications of Bravo and maneb also provide control. For downy mildew only, Aliette can be used (3 to 5 lb/A) at 14 day intervals until 3 days before harvest.

CARROTS and CELERY

Leaf Spots: Continue regular fungicide sprays; they are most important for the remainder of the season. Wet weather will promote their appearance and development. Quadris now is labelled and could be very helpful.

CUCURBITS

Bacterial Wilt: Where present, it is too late to attain control this year. Plan cucumber beetle (bacteria carrier) control for next year.

Powdery Mildew, Leaf Spots, and Blights: Use regular fungicide sprays unless varieties are resistant to the diseases of concern. Leaf diseases are of major importance on muskmelons (cantaloups) during late season. Quadris 2.1F (11 to 15.4 fl.oz./A) and NOVA 40W (2.5 to 5 oz/A) are excellent for powdery mildew, a disease which appears yearly starting about mid- to late-season. Use the high rates if powdery mildew is present. (Nova received a new federal label in 2000 for use on cucurbits, asparagus, snap beans, and tomatoes.) On cucurbits, to reduce the chance of resistance development in the fungus, alternate Quadris and Nova, and use the high labelled rates if powdery mildew is present. When NOVA is used, Bravo can be added to help control diseases in addition to powdery mildew. Ridomil/Bravo 81W is especially good for downy mildew, a disease that appears less frequently than powdery mildew in Pennsylvania. For a less expensive and less effective program, fixed copper and Bravo fungicides are labelled, but are not systemic, so coverage of both top and bottom leaf surfaces is especially important.

Scab: For susceptible varieties, use fungicides when conditions are cool and wet. For cucumbers, use resistant varieties for next year. Beware of this disease if you plan late plantings of susceptible cucumbers.

Mosaic Viruses: Use resistant varieties. When resistant varieties are not available, plant in large fields, control perennial weeds, and control aphids.

Fusarium Wilt: It is too late to apply controls for this year. For future years, try rotation, resistance when available, and if necessary, soil fumigation. Symptoms appear first on plants in wettest areas of fields, and the disease is more prevalent in cool soil than in warm soil. The variety Athena may have the most resistance.

EGGPLANT

Verticillium Wilt: Follow rotations that avoid susceptible crops for as many years as possible. Where present yearly, consider fumigation where crop value warrants the expense.

ONIONS

Leaf Spots: Apply fungicides on a regular schedule, especially for those planned for storage. Defoliation diseases are active in August. Note that Ridomil Gold/Bravo, Ridomil Gold MZ, and Aliette are labeled for onions, and are materials of choice if one has difficulty controlling downy mildew. Other materials listed in the Commercial

Vegetable Production Guide are good for other leaf diseases that affect onions.

PEPPER

Mosaics and Virus Spots: It is too late to affect control for this year. For future years, use TMV resistance, plant in large fields, control aphid vectors, and eliminate perennial weeds near fields.

Bacterial Spot: Where present, determine source. Did it come on plants? If present, start basic copper sprays early and tank mix with maneb. Plan to rotate to fields not recently planted to tomatoes or peppers. This can be a serious problem. Inoculum can be seed-borne. If disease is detected in a field, do not work in the field when plants are wet. The bacteria that cause this disease are spread less when plants are dry than when plants are wet.

Phytophthora blight: This disease is promoted by wet soil (poor drainage and/or heavy rainfall). The most severe losses are reported on cherry and cheese types. Follow a 3-year rotation between susceptible crops such as pepper, cucurbits, eggplant, and tomato. Ridomil Gold 2E (1 pt/A) or Ultra Flourish 2E (1 qt/A) soil applications (banded over the row at planting, and directed onto the soil at the base of plants at 30 days and 60 days after planting) are helpful. In addition, provide the best drainage possible; in some areas, for susceptible peppers, it is necessary to grow them on high ridges. In place of a "60 days after planting" application (above), Ridomil Gold/Copper can be applied as sprays at 10 to 14-day intervals to prevent the stem and fruit rot stage of this disease. If the "60 days after planting" application is made, fixed copper alone can be applied as a spray at 7- to 10-day intervals to control the stem and fruit rot stage of this disease.

PUMPKIN and SQUASH

Powdery Mildew: Use regular fungicide sprays. Start applications no later than when powdery mildew is detected on 1 leaf in 50 leaves; usually, powdery mildew symptoms appear first on the underside of leaves. Quadris 2.1F (11 to 15.4 fl.oz./A) and NOVA 40W (2.5 to 5 oz/A) are excellent for powdery mildew, a disease which appears yearly starting about mid- to late-season. Use the high rates if powdery mildew is present. On cucurbits, to reduce the chance of resistance development in the fungus, alternate Quadris and Nova, and use the high labelled rates if powdery mildew is present. When NOVA is used, Bravo can be added to help control diseases in addition to powdery mildew, and also slow development of resistance. For a less expensive and less effective program, fixed copper and Bravo fungicides are labelled, but are not systemic, so coverage of both top and bottom leaf surfaces is especially important. Ridomil/Bravo 81W is especially good for downy mildew, a disease that appears less frequently than powdery mildew in Pennsylvania.

Phytophthora blight: This disease is promoted by wet soil (poor drainage and/or heavy rainfall). Follow a 3-year rotation between susceptible crops such as pepper, cucurbits, eggplant, and tomato. Ridomil Gold 2E (1 to 2 pints/treated A) applied at planting as labelled for Pythium and cottony leek control may be helpful. Foliar applications of Ridomil Gold/Bravo 81WP at 3 lb/A may be adequate; it is labelled for application at 14-

day intervals.

SWEET CORN

Leaf Spots and Rust: Some varieties have some resistance. Fungicides are effective for leaf spots but less effective for rust. Tilt and mancozeb are labelled for rust; Tilt is somewhat systemic and sometimes is the material of choice when rust is especially difficult to control at the end of the season.

TOMATOES

Bacterial Speck and Spot: If spots are a yearly problem, and symptoms appear on leaves, continue sprays with basic copper plus maneb/mancozeb. Next year, rotate to new fields, use pathogen-free seed, and spray seedlings regularly with streptomycin before transplanting. If symptoms are not present on leaves now, the fixed copper applications may not be needed for the rest of the season. Where present, try to avoid working and spraying in plantings when they are wet.

Bacterial Canker: Bacterial canker is appearing in some fields. I suspect that inoculum source is either infected seed, or infested soil. The causal bacteria can persist in soil for at least 3 years! Control is very difficult at this time. Do not work in affected plantings when plants are wet. Application of fixed copper tank mixed with either maneb or mancozeb, as for bacterial spot and bacterial speck, may help slow spread in fields. Fruit infection occurs at the blossom stage.

Fruit Rots and Leaf Spots: Where possible, rotate and provide adequate fertility. Continue a good fungicide program. In addition to the standard fungicides, Bravo and mancozeb, which provide good control, Quadris is an excellent new fungicide for early blight and Septoria leaf spot control.

Late Blight: As of July 27, 2001, I have no reports of late blight in field plantings of potatoes or tomatoes. Since late blight did appear (and was destroyed) in a greenhouse in southwestern PA early in June, I suspect that inoculum had been present from a potato cull pile, possibly near the Pennsylvania-West Virginia-Ohio borders. Weather conditions before mid-July were favorable for development of late blight, but have been too hot and dry recently. However, when wet and moderate conditions occur, make sure plantings are protected with fungicide. Up-to-date information is available on the toll free "Hotline": 1-800-PENN-IPM = 1-800-736-6476.

Expanded Label for Quadris

Alan MacNab, Department of Plant Pathology

Quadris, a relatively new strobilurin fungicide that is highly effective for control of early blight and Septoria leaf spot on tomatoes, now has an expanded label for use on many vegetable crops, some of them which had few if any fungicides labelled in the past. For some vegetable diseases, Quadris will provide control that has not been possible previously. One example is for leaf spot control on rhubarb; I expect that rhubarb plants

will be stronger in the spring if leaf spot is controlled this summer and fall. I suggest that vegetable growers check the current label. You may be surprised to find that Quadris is labelled on many vegetable crops. Examples of a few "minor crop" diseases that can be controlled with Quadris are listed below:

Bulb vegetables (onions, garlic, leeks, shallots): Alternaria purple blotch and Peronospora downy mildew among others.

Carrots: Cercospora early blight and Alternaria late blight .

Celery: Cercospora early blight and Septoria late blight.

Corn, sweet: Gray leaf spot and northern corn leaf blight.

Cucurbits (most): Anthracnose, Rhizoctonia belly rot, Didymella gummy stem blight, Alternaria leaf spot, powdery mildew, etc.

Leafy vegetables (many in addition to lettuce including celery, rhubarb, spinach, etc): Celery Cercospora leaf spot, spinach white rust, rhubarb leaf spots, etc.

Tomato: Anthracnose ripe fruit rot, Alternaria early blight, Septoria leaf spot, etc.

Root and tuber vegetables (including beets, parsnips, turnip, etc.): Cercospora and other leaf spots, white and orange rusts, powdery mildew, etc.)

That's a Berry Good Question!!!

Kathy Demchak, Department of Horticulture

Q. In the May 2001 issue of American Fruit Grower, Charlie O'Dell of Virginia Tech mentioned of having success planting blueberries in early November. Can we plant blueberries in the fall in PA? This would free up time in the spring. If it will work here, where can I get plants? (Stephen Klabnik, Butler Co., PA)

A. According to the NRAES Blueberry Production Guide, "fall planting can be done in warmer climates", and apparently Charlie's planting site qualified as that. According to Dr. Marvin Pritts from Cornell, fall planting of blueberries usually works well in New York, but also said he'd seen places where entire plantings were heaved out of the ground. So, where does this leave PA?? In PA, agents reported varying degrees of success. Blueberries have shallow root systems compared to many other plants, so they are especially susceptible to heaving when the soil freezes. Some parts of the state, such as the Southeast counties should do fine with it, whereas in colder areas, growers could risk it, but should be aware that they may be replanting their planting the following spring. Mulching in the fall after planting will help. Most of the major nurseries specializing in blueberries report that they ship plants in the fall; however, they generally don't dig their plants until after a hard freeze. This means that the plants may be arriving here on the late side for planting, which probably should be done from mid October to early November depending on your location in the state.

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.

Genetically-Modified Strawberries?

Kathy Demchak, Department of Horticulture

Quite frequently, growers ask whether there will be genetically-modified strawberry plants on the market in the near future. I must make it clear that their opinions vary markedly as to whether they wish to see them there or not... Usually they are interested in the status of Roundup Ready strawberries, though recently I was asked whether the great flavor from one cultivar could be transferred into another cultivar. Here's where the technology currently stands.

Roundup Ready strawberries already exist and have for at least a couple of years, though they are not on the market yet. If they do become commercially available anytime soon, it will be with cultivars that are the leaders in U.S. and world-wide acreage such as 'Camarosa' (i.e., not the Eastern cultivars we typically grow in Pennsylvania). The simple reason for this is profitability. This is an expensive technology, so a very large investment is required to produce a genetically-modified cultivar. Therefore, cultivars where a large return is expected will get the first attention.

Genetic modification is also much more likely to take place with traits that are governed by one or a few genes. Roundup "Readiness" is an example of this. Other desirable characteristics that could be transferred include some types of disease resistance. The flavor of a particular cultivar, on the other hand, is a complex set of components including various sugars, acids and aromas. Therefore, it would be extremely difficult, if not impossible, to introduce the flavor of one cultivar into another, whether through genetic modification or through standard breeding practices.

Reminder-Water those Strawberries

Kathy Demchak, Department of Horticulture

Thanks to Ernie Mast for sparking this reminder! Most areas of the state have been really dry. Even though most growers are busy with harvesting other crops now, it's important to remember that the growth and flower buds that strawberries make in August and September determines much of the yield potential for next year. So, if your strawberries are getting stressed from lack of rain, make the effort to irrigate them now for better yields next year.

Potato Musings

Bill Lamont, Department of Horticulture

Potato Tour at Ag Progress Days

Bill Lamont, Department of Horticulture

The potato tour will be on Thursday, August 16, 2001 leaving the corn crib at 1 PM. Visits will be made to potato plantings at the Horticulture Farm, Entomology and Plant Pathology.

Keep on Top of Things

Bill Lamont, Department of Horticulture

It is important to keep up with Dr. MacNab's Late Blight forecasts and scout fields for potential insect and disease problems. It is important that potatoes receive an inch of water per week and for those that rely on "Mother Nature" that can be difficult at times. It is also important to check sprayers to ensure that the proper amount of materials are being delivered to the targeted organism. It is also important to begin inspecting ones equipment and make sure that worn parts are replaced and that harvesting equipment is ready to go when the potatoes are the right size for one particular market. Growing potatoes like any other vegetable crop is like running a 1 mile race. Each quarter mile can be thought of as a stage in the development of the crop and one has to strive for the best time or best crop growth in each stage. If you slow up or cut corners then your time or crop will not be what it should be or could be. If you stop at any point then you will not finish the race or your crop will suffer dramatically. So keep on top of things and have a strong finish.

Upcoming Meetings

Bill Lamont, Department of Horticulture

Local

August 14-16, 2001. Ag Progress Days, Rock Springs, PA. Contact Bob Oberheim (814) 692-5262.

August 20, 2001: Cambria County Regional Potato Field Day. Contact Ron Hostetler, (814) 472-7986.

August 23, 2001: Lehigh County Potato Twilight Meeting at 6:30 PM at Tim Geiger's Farm in Neffs, PA. Contact Bob Leiby, (610) -391-9840.

September 4, 2001: Potter County Potato Twilight Meeting. Contact Sam Crossley (814) 274-8540 or Tom Butzler (570) 726-0022.

September 4, 2001: Vegetable Twilight Meeting in Westmoreland County. Contact: Eric Oesterling (724) 837-1402

Regional

August 3, 2001: Pennsylvania Vegetable Growers Association In-State Tour. Contact: Bill Troxell (717) 694-3596

January 29-31, 2002: Mid-Atlantic Fruit and Vegetable Growers Convention, Hershey,

PA. Contact Bill Troxell (717) 694-3596.

July 20, 2002: Pennsylvania Association for Sustainable Agriculture (PASA) Fruit Day, Horticulture Research Farm, Penn State University, Rock Springs PA. Contact Kate Francis (814) 349-9856.

National

July 8-10, 2001: Potato Marketing Association of North America Summer Meeting, Loyalist Country Inn, Summerside, Prince Edward, Canada. Contact: 800-361-2668,

July 11-14, 2001: National Potato Council Summer Meeting, Loyalist the Best Western Lakeway Inn, Bellingham, WA. Contact: Amy Sherman (303) 773-9295.

July 22-25, 2001: American Society for Horticultural Science 98th Annual Conference and Exhibition, Sacramento, CA. For more info cal 703-836-4606.

August 19-21, 2001: North America Strawberry Growers Association Summer Tour, Nova Scotia, Canada. For more info call 517-548-4990.