

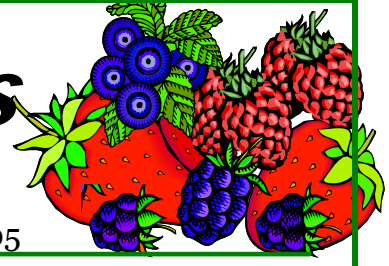


New York Berry News

CORNELL UNIVERSITY

Volume 04, Number 4

April 15, 2005



What's Inside

1. Currant Events
 - a. Upcoming Meetings
 - b. Plan Now for NASGA's 8th Annual Summer Tour
 - c. Blueberry Freeze Injury or Phomopsis?
 - d. Strawberry Latent Ringspot Virus found in NA
 - e. Indar receives Section 18 for Mummyberry Control in NY
 - f. NASGA Announces 10 Research Grants for 2005
 - g. What's in a Word? "Diversified" vs "Minor Crop"
2. Blueberry Disease Fast Facts- *Cathy Heidenreich*
3. Maintaining Drip Irrigation Systems- *Bill Lamont*
4. Spring Sprayer Spruce-up, Anyone?- *Andrew Landers*
5. Start the Season Right with Small Fruit Production Information from NYBN - *Cathy Heidenreich*
6. Small Fruit Production- A Homeowner's Guide- *Steven McKay*

Hope your spring hasn't been too taxing so far... Welcome to the April issue of the New York Berry News.

A reminder for those signed up for the spring CLEANSWEEP NY program in Cayuga, Cortland, Onondaga and Oswego counties, the date is fast approaching (April 25, 2005) See last month's [NYBN](#) article for more information.

Items of interest in this month's issue include approval of a Section 18 emergency exemption for use of Indar 75WSp for control of mummyberry in blueberry, a sneak preview of the program for NASGA's 8th annual summer tour, national news regarding the first report of Strawberry Latent Ringspot Virus in the US, a news brief on differentiating Blueberry Phomopsis and winter injury, and results of the 2005 NASGA competitive grants program.

Features include blueberry disease fast facts to help get the jump on early spring disease management, and article by Dr. Bill Lamont, of Penn State University, on maintaining your drip irrigation system, checklists for spring sprayer spruce-ups, courtesy of Dr. Andrew Landers, a handy index table with links to hot spring small fruit topics, courtesy of the NYBN, and finally, a New York Berry News, Vol. 4, No. 1

mini-series by Steven McKay on small fruit production for the homeowner.

UPCOMING MEETINGS

May 10, 2005. High Tunnel Meeting. Mark Phillips farm, Clarks Summit, Pennsylvania. **For more information contact:** John Esslinger, (570) 963-6842.

June 13-14, 2005. International Berry Health Benefits Symposium, in Corvallis, Oregon. **For more information,** call Cat McKenzie, 541-456-2264, e-mail: cat@oregon-berries.com or go to: <http://www.oregonstate.edu/dept/foodsci/berryhealth.htm>

August 11-14, 2005. Northeast Organic Farming Association 31st Annual Summer Conference. Hampshire College, Amherst, Mass. (978) 355-2853, nofa@nofamass.org, www.nofamass.org.

August 17-19, 2005. NASGA's 8th Annual Summer Tour, "Farming on the Urban Fringe" in Fishkill, New York. See article below for more details.

October 14-15, 2005. Passive Solar Greenhouse Workshop. 1522 Lefever Lane, Spring Grove, Pennsylvania. **Contact:** Steve and Carol Moore (717) 225-2489.

October 14-15, 2005. Highbush Blueberry Council (USHBC) Fall Meeting, Amway Grand Plaza Hotel, 187 Monroe NW, Grand Rapids, Michigan. **Contact:** 616-885-2000

December 6-8, 2005. Great Lakes Fruit, Vegetable, and Farm Market EXPO. DeVos Place Convention Center, Grand Rapids, Mich. www.glexpo.com.

December 1-7, 2005. International Society for Horticultural Science 9th International Rubus and Ribes Symposium, Pulcon, Chile. **For more information contact:** Pilar Banados, Facultad de Agronomia Ingenieria Forestal, Universidad Catolica de Chile, Casilla 306-22, Santiago, CHILE; fax: 56-2-55334130, E-mail: pbanados@puc.cl or online: <http://www.faiif.puc.cl/rubus-ribeschile.html>



*“Farming
On The Urban
Fringe”*
*Explore Agriculture
in the Lower Hudson Area
of New York*

PLAN NOW FOR NASGA’S EIGHTH ANNUAL SUMMER TOUR, AUGUST 17 - 19, 2005

The Village of Fishkill, New York is a great place to visit. With a charming and historic downtown that is filled with unique shops, friendly people and warm cafes, Fishkill has something to intrigue everyone. Our Summer Tour will begin at noon on Wednesday, August 17, at one of the Fishkill area’s family friendly hotels, when we board the bus for another wonderful NASGA adventure.

Learn From Some of the Area’s Finest Growers and Farm Marketers A Sampling of Tour Stops on Wednesday and Thursday

Barton Orchards in Poughquog, NY Hosted by: Peter and Donna Barton

This very successful operation is known as “Premier Pick Your Own Farm,” and is listed as one of the top five stops by “USA Today”. They grow strawberries, raspberries, blueberries, ribes and grapes, as well as apples, peaches, and vegetables. They also have a pumpkin operation with a corn maze, haunted barn, and nighttime activities. In addition to pick your own, they operate two farm markets and sell Christmas trees.

The Poughkeepsie Farm Project Hosted by: Asher and Wendy Burkhart Spiegel

This Community Supported Agriculture project, with 200 working shareholders, is based on organic practices. They use a computerized planting schedule on about 10 acres that are surrounded by an eight-foot woven wire deer fence. Their mission is to teach community members and college students about food and farming, and collaborate with area organizations to improve access to healthy locally grown food.

Wilklow Orchards, Highland, NY Hosted by: Fred and Sharon Wilklow

The family has been farming this land for six generations. They began going to Brooklyn greenmarket in 1984, and are now part of four greenmarkets year round, as well as three local farmers’ markets during the summer and a 6-week market at Rockefeller Center. They have 60 acres of tree fruit; several acres of berries including strawberries, raspberries, blackberries, red and black currants, and blueberries; and 30 acres of vegetables. They make and sell jam, cider, and baked goods.

Adams Fairacre Farms Hosted by: Ralph Adams

Growth and expansion is a continuing story at Adams Fairacre Farms, which has been a family business since its inception in 1919. Today Adams is bringing its third generation into the company. It employs 650 people operating in three locations. They have added fencing, landscaping, and power equipment to their original farm market.

Mark Adam’s Greenhouses Hosted by: Mark and Sue Adams

You’ll see the “history of greenhouses”, with everything from hoop to gutter connected, and trough, overhead, drip and auto watering systems. When we visit in August, they will have 100,000 mums and 70,000 poinsettias growing. They will demo some of their many machines, such as seeding, transplanting, basket filling, and others. The greenhouses supply Fairacre Farms, a separate business, as well as accounts in Connecticut, Vermont, New Jersey, Pennsylvania, and Maine.

Mark Adam's Greenhouses
Hosted by: Mark and Sue Adams

You'll see the "history of greenhouses", with everything from hoop to gutter connected, and trough, overhead, drip and auto watering systems. When we visit in August, they will have 100,000 mums and 70,000 poinsettias growing. They will demo some of their many machines, such as seeding, transplanting, basket filling, and others. The greenhouses supply Fairacre Farms, a separate business, as well as accounts in Connecticut, Vermont, New Jersey, Pennsylvania, and Maine.

Another Summer Tour Option

A Side Trip to New York City



We'll start with a private, behind-the-scenes tour of the Huntspoint Terminal Produce Cooperative Market. One of largest selections of fresh fruits and vegetables in the world is available from the 50+ market merchants. Afterward, spend the rest of the day exploring the world's most famous city on your own. One of our two drop-off and pick-up points will be a New York green market.

Saturday, August 20

Depart or Extend Your Stay in Bountiful New York State

For more information:

BLUEBERRY FREEZE INJURY OR PHOMOPSIS?

Annemiek Schilder, Assistant Professor, Department of Botany and Plant Pathology, Michigan State University

Editor's Note: The fungicide section of this article has been replaced with a link to New York guidelines.

Do you have tip dieback this spring in your blueberry plantings? In some cases, the damage may be due to freeze injury, while in other cases the Phomopsis fungus may be to blame. While the two symptoms are often difficult to tell apart, there are a few differences to help you diagnose the problem.

If the dieback were due to [Phomopsis](#), the infection would have taken place the previous year or the year before that if it weren't pruned out. The infected twig or cane tends to be dark reddish brown with a gray-bleached area at the tip or farther down the twig or cane. Often, the border between the dead and live portions of the cane is fairly distinct. The bleached area may range from one to several inches long and may contain tiny black pimples, which are the fruiting bodies of the fungus. The fungus is most likely to sporulate in the bleached area. More recent twig infections may appear dark brown to almost black. The lesions may be enlarging down the twig from the tip or up and down the twig from an infected lateral bud, which will die before or during bud break. Also, if you notice that the lesions keep expanding, it is most likely Phomopsis and not freeze injury. The fungus can infect twigs and canes anywhere on the bush. Young green canes lower in the canopy often display reddish brown lesions (cankers) that may be flattened.

Freeze injury tends to turn cane tips a light reddish brown, **without** a bleached area, and the border between dead and healthy tissue is more gradual. Freeze injury may especially affect young green canes that did not harden off well last fall. Also, the damage may be widespread throughout the field and more severe in low-lying areas that are prone to frost.

Pruning out and destroying infected canes and twigs, which act as inoculum sources, can reduce Phomopsis twig blight incidence. For fungicide options to controlling Phomopsis twig blight check the [2005 Pest Management Guidelines for Small Fruit](#).

(Reprinted from: Michigan State University, Fruit Crop Advisory Team Alert, Vol 18 No 4, May 6, 2003)

STRAWBERRY LATENT RINGSPOT VIRUS FOUND IN NORTH AMERICA

Agricultural Research Service, United States Department of Agriculture

Washington, D.C. (February 18, 2005) - Strawberry latent ringspot virus, a problem for the past 30 to 40 years in Europe, has just been discovered in North America by Agricultural Research Service (ARS) scientists and cooperators.

Scientists with ARS, Oregon State University, and Elmhirst Diagnostics and Research of British Columbia found the virus on 17 percent of the California strawberry samples and on four percent of British Columbia strawberries. The virus was also found in a variegated mint.



Above, leaves and stems of a strawberry plant infected by five viruses including strawberry latent ringspot. Below, a mint plant—sold widely as an ornamental—infected by the ringspot virus and two others.



The virus, which can dramatically decrease yields, is spread by nematodes, so the scientists were surprised to find the virus in California strawberries, as most are planted in pre-fumigated soil.

Plant pathologist Robert R. Martin of the ARS Horticultural Crops Research Unit in Corvallis, Ore., is leading the agency's efforts in studying and preventing the virus.

The group discovered the virus by doing a broad-spectrum test to look for viruses that may be involved in strawberry decline and variegation of mint. They compared nucleic acid and protein sequences of the virus from strawberry and mint to those in databases.

The scientists believe that the virus has been in this country for many years on an ornamental mint sold throughout the United States--popular because of its bright-yellow color--without anyone noticing. It turns out that the color partially comes from the ringspot virus.

Many of the chemicals that have been used to control this and other viruses transmitted by nematodes are being pulled from the market because of environmental concerns. Martin and ARS colleague Jack Pinkerton are studying alternative ways to control nematode-transmitted viruses, such as rotating a crop that is not a host for the virus so that the nematodes lose the virus and are no longer able to transmit it.

While the virus has only been found on mint and strawberries in the United States, it can infect many broadleaf crops.

ARS is the U.S. Department of Agriculture's chief scientific research agency.

INDAR RECEIVES SECTION 18 FOR MUMMYBERRY CONTROL IN NY

April 13, 2005: The Environmental Protection Agency has issued an emergency exemption (FIFRA Section 18) to New York State for the use of fenbuconazole (Indar) on blueberries to control mummy berry. The section 18 expires June 30, 2005. Indar 75WSP, EPA Reg. No. 62719-421 (formerly EPA Reg. No. 707-239) (containing 75% fenbuconazole) manufactured by Dow AgroSciences LLC may be used.

Indar 75 WSP may be applied by ground at a maximum rate of 2 ounces product (1.5 ounces active ingredient) per acre. Begin at early green tip stage of growth and make subsequent applications at 10 to 14 day intervals.

Restrictions

- **Chemigation: Do not** apply through any type of irrigation system.
- **Pre-harvest interval: Do not** apply Indar within 30 days of harvest.

- **Do not** make more than 5 applications or apply more than 10 oz. of product (0.47 lbs a.i.) per acre per year.
- **Do not** use any spray adjuvants with Indar 75WSP.
- **Do not** graze livestock in treated fields or offer treated material as a livestock food item.
- Applications are not permitted within 75 feet of streams, rivers, ponds, lakes, or reservoirs.

A copy of the use directions and label are available from the Pesticide Management Education Program website at <http://pmep.cce.cornell.edu/regulation/sec18/2005/index.html>.

NORTH AMERICAN STRAWBERRY GROWERS ANNOUNCE TEN RESEARCH GRANTS FOR 2005

Eight research projects have received \$32,400 in funding for 2005 by the North American Strawberry Growers Association (NASGA) and the North American Strawberry Growers Research Foundation, Inc. Of the grants awarded, \$27,400 came from NASGA and the Foundation, and an additional \$5,000 from the California Strawberry Commission. To date, over \$500,000 has been awarded to benefit industry-related research.

Projects funded for 2005 and the principal investigators include:

- Evaluation of Strobilurin Fungicides (Quadris and Cabrio) and Phosphorous Acid for Control of Leather Rot and Vascular Collapse of Strawberry, caused by *Phytophthora cactorum* – Dr. Michael A. Ellis, and Angel Rebollar-Alviter, Department of Plant Pathology, The Ohio State University/OARDC
- Molecular-Genetic Characterization of Flowering in Cultivated Strawberry (*Fragaria x ananassa*) – Dr. Kevin M. Folta, Amit Dhingra, and Philip J. Stewart, Plant Molecular and Cellular Biology Program, Department of Horticultural Sciences, University of Florida
- Specific Detection of *Phytophthora* Crown Rot and Anthracnose in Strawberry (co-funded by California Strawberry Commission) – Dr. Frank J. Louws, Department of Plant Pathology, North Carolina State University
- Integration of Neonicotinoid Insecticides into Strawberry IPM Programs for Root, Fruit, and Foliage Protection – Dr. Rufus Isaacs, Department of Entomology, Michigan State University
- Evaluating the Effect of Temperature on the Development of *Xanthomonas fragariae*, the causal agent of Bacterial Angular Leaf Spot – Dr. William W. Turechek and Dr. John Hartung, USDA-ARS Fruit Lab, Beltsville, MD
- A PCR-based Assay for Detection of *Colletotrichum acutatum* on Strawberry (co-funded by California Strawberry Commission) - Mark Gleason, Daren Mueller, Forrest Nutter, Dr. Gail Nonnecke, Department of Horticulture, Iowa State University
- Comparison of Phosphorous Acid Products for Control of Leather Rot and Other Strawberry Diseases - Dr. Annemiek Schilder, Department of Plant Pathology, Michigan State University
- The Effect of Four Weed Management Systems on Soil Quality in Strawberry Production - Dr. Gail R. Nonnecke, Department of Horticulture

Iowa State University

An important source of funding for the Foundation, which was established in 1992, is from nurseries that voluntarily donate a self-assessment from plant sales. This participation is an extremely valuable investment in the future of the strawberry industry in North America. Contributing nurseries over the past several years have included:

- G.W. Allen Nursery, Ltd., Gil and Jeff Allen, Centreville, Nova Scotia
- Indiana Plant & Berry Company, Sam Erwin, Huntingburg, Indiana
- C.O. Keddy Nursery, Inc., Charles Keddy, Kentville, Nova Scotia
- Krohne Plant Farms, Bill and Sheila Krohne, Hartford, Michigan
- Lassen Canyon Nursery, Liz Ponce and Robin Bailey, Redding, California
- Millen Farms, Ltd., Ann and Curtis Millen, Great Village, Nova Scotia
- NORCAL Nursery, Inc., Ron Sakuma, Red Bluff, California
- Nourse Farms, Inc., Tim and Mary Nourse, South Deerfield, Massachusetts
- Pepiniere R. LaBrecque, Roger LaBrecque, St. Charles, Quebec
- Pepiniere Luc Lareault, Luc Lareault, Lavaltrie, Quebec
- Pepiniere A. Masse, Inc., Alain Masse, St. Cesaire, Quebec
- Strawberry Tyme Farms, Inc., John and Gary Cooper, Simcoe, Ontario

Projects are solicited from researchers and Horticulture Departments in the United States and Canada who are targeting strawberry production, variety development, environmentally friendly disease and pest control, as well as other areas. NASGA seeks research proposals that improve the sustainability of strawberry production and promote marketing. Research grants are awarded after evaluation by the NASGA Research Committee, currently co-chaired by Dr. Gail Nonnecke, Iowa State University, and Dr. Marvin Pritts, Cornell University.

Other committee members include: Jeff Allen, G.W. Allen Nursery, Ltd., Kings County, Nova Scotia, Canada; Brent Black, USDA – ARS Fruit Lab, Beltsville, MD; Marvin Brown, Favorite Farms, Inc., Dover, FL; Chad Finn, USDA-ARS HortCrops Research Lab, Corvallis, OR; Pam Fisher, Ontario Ministry of Agriculture & Food, Horticultural Crop Advisor, Simcoe, Ontario, Canada; Dean Henry, The Berry Patch, Nevada, IA; Rudy Heeman, Heeman Strawberry Farm, Thorndale, Ontario, Canada; Rodney Johnson, Johnson’s Farm Produce, Hobart, IN; Dr. Kim Lewers, USDA – ARS Fruit Lab, Beltsville, MD; Dr. John Maas, Foundation President, Huntingdon, MD; and Nate Nourse, Nourse Farms, Inc., South Deerfield, MA.

Trustees on the Research Foundation Board include strawberry growers and nurserymen from the United States and Canada. The trustees work in cooperation with the NASGA Research Committee to decide the amount of funding for each successful research proposal. President of the Foundation Trustees is Dr. John Maas, Huntingdon, MD.

Other trustees include: Treasurer - Sarah R. Maas, Huntingtown, MD; Don Belluz, Belluz Farms, Thunder Bay, Ontario, Canada; Dell Christianson, Agro-K Corporation, Detroit Lakes, MN; John Cooper, Strawberry Tyme Farms, Simcoe, Ontario, Canada; Bill Jacobson, Pine Tree Apple Orchard, White Bear Lake, MN; Bill Krohne, Krohne Plant Farms, Hartford, MI; Nate Nourse, Nourse Farms, Inc, South Deerfield, MA; Don Secor, Secor Strawberries, Inc., Wappinger Falls, NY; Jeff Thompson, Thompson Strawberry Farm, Briston, WI; Frank Wiles, Our Green Acres, Owego, NY. NASGA is a multi-country organization of approximately 300 members, primarily small production growers that specialize in pick your own or farm market sales, along with the research community and suppliers that support them.

WHAT’S IN A WORD? “DIVERSIFIED” VS “MINOR CROP”

Kevin Iungerman, Cornell Cooperative Extension, Ballston Spa, NY

The Agricultural Research Service (ARS) repository stores genetic material of better known crops such as strawberries, blueberries, mint, and hops, but they are importantly also engaged in a cooperative examination of a host of “minor fruits”. In deed, as we look at the public’s appetite for novel tastes, broadened fruit choices, and also the consumer’s widened awareness of fruits being potent phytonutrient sources, it is minor crops that offer a challenging potential as regards market development and expansion. It would be very useful if we could come up with an affirmative alternative to this rather pejorative “minor” terminology. “Minor” may inform agricultural statisticians, but it misinforms everyone else and even suggests unimportance, which is a serious faux pas. The term explicitly deals with the extent of acres in minor crops comparative to our major league players, particular corn, wheat, and soybeans and forages for instance. Recent changes in the food pyramid, though, really underscore my sentiment for some creative alternative description. Maybe we could start using "Foundation Crops" and "Diversified crops" to better capture the changing scene? Ok, ...done!

More than 600 “diversified” crops are grown in the US. The span covers (I believe) bio-based raw material crops (fiber, fuel, chemicals, pharmaceuticals, etc), but also food, and significantly for us, many fruits too. Nationally, a “diversified” crop is one that is grown on 300,000 acres or less of America’s farming acres. The real muscle is seen in diversified crop value: \$40 billion annually, at least 40% of all US crop value. And in half of these United States, diversified crop value is more than half the value of all crops grown in those states. Fruit for thought, eh?

(Reprinted with permission from: Northeast Fruitlet, Vol 9 No2, March 2005)

BLUEBERRY DISEASE FAST FACTS

Cathy Heidenreich, Department of Plant Pathology, NYSAES Cornell University, Geneva

Most growers are aware of potential disease problems in their fruit plantings, based on prior disease history and current/projected weather conditions. However, a brief review is always beneficial. Links are provided if you want more details.

MUMMY BERRY	PHOMOPSIS TWIG BLIGHT
What: a 2-stage fungal disease, caused by <i>Monilinia vaccinii-corymbosi</i> .	What: a fungal disease, caused by <i>Phomopsis vaccinii</i> .
When: Stage 1 occurs from green tip to pink bud. Stage 2 infections occur during bloom.	When: Spore discharge begins at bud swell and continues at each rain event until late August.
Where: Stage 1 infects shoots and new leaves. The fungus overwinters in mummified berries on the soil surface. In spring, these mummy berries form brown cup-like apothecia that release ascospores under moist conditions. Watch for wilted, quickly browning foliage and shoots. During wet, humid weather, these infected tissues may be covered with a light gray powdery mold. Spores (conidia) from this stage cause the stage 2 flower and developing fruit infections. Watch for infected blossom clusters and berries that appear whitish to salmon, shrivel, harden, and drop prematurely to the ground.	Where: From the soil line to the tips of 1, 2 and 3-year-old stems. Brownish cankers on 1-yr old stems appear in early to mid-summer, and shoots wilt, especially during periods of warm temperatures (25-30 °C). Older grayish colored cankers may be covered with dark pycnidia (spore producing structures). Tips of new shoots may be blighted and turn dark brown.
How: Wet, windy weather, temperatures of 60 °F and wet foliage (4-12 hours) favor disease development.	How: As little as 0/15” rain will trigger a spore release.
What to do: <i>Prior history of disease, favorable conditions</i> Pre-bud break: Rake lightly under bushes to disturb mummies Apply 2” mulch to cover mummies. Bud break to early bloom: Fungicide application at bud break and 7-10 day intervals Early Bloom to late bloom: Fungicide applications mid-bloom and 10 days later. <i>No prior history, conditions not favorable</i> 1 fungicide application 1-2 weeks post bud break.	What to do: Prune to remove cankered and wilted stems. Burn or bury prunings to avoid further spread of disease. Fungicide applications at bud break and at 14-day intervals.
Fore more information: 2005 Pest Management Guidelines for Berry Crops , NYBN Vol 3 No 3 , NYBN Vol 3 No 4 .	Fore more information: 2005 Pest Management Guidelines for Berry Crops



SPRING SPRAYER SPRUCE-UP, ANYONE?

Operator Check Sheet – Boom sprayers

Owner:
Model:
Date:

Operator:
Serial No:
Hours/mileage:

Make:
Reg No:

Key: Checked/Completed Needs Attention Adjusted Not Applicable

Regularly

Mechanical

- Is the attachment to tractor secure?
- Is the chassis and structure free of cracks and rust?
- Are the wheels and tires in good condition?
- Are guards, inc. PTO shaft guard, secure and undamaged?

Hydraulic system

- Are they free from leaks under pressure?
- Are the hoses and connections worn or cracked?

Electrical system

- Is the wiring undamaged & are all connections properly insulated?
- Do all the lights work properly?

Pneumatic system

- Is the system free from leaks when working under operating pressures?

Sprayer tank

- Are the tank/chassis fasteners secure?
- Free from leaks?
- Does the lid fit securely and free from leaks?
- Is the contents gauge clearly legible?

Boom

- Is it properly latched when folded for transport?
- When unfolded, is it straight and level?
- Does the height adjustment and suspension work properly?
- Does the boom return to level when displaced to left and right?
- Are the break-backs functioning freely?
- Are the mountings and linkages secure and not worn?

'Spray lines'

- Are they free from leaks under pressure?
- No hoses and connectors worn or cracked?
- Are all valves and filters in good condition?

Regularly (cont.)

Controls and valves

- Are the master on/off switches working correctly?
- Are left & right section switches functioning?
- Can you read the pressure gauges easily?
- Are all labels appropriate and legible?

- Is the pressure adjustment/stable?

- Pressure gauge reading zero?

Chemical induction system

- Are the system and controls working properly?
- Is it free from leaks under pressure?
- Are all labels appropriate and readable?
- Is the rinse system and container wash system working properly?

Tank rinse system

- Is the system functioning properly?

Periodical

- Jug test all nozzle outputs
Date Completed
- Formally complete and file check sheet

Independent test due

Comments/Notes/specific items Requiring attention

Nozzles

- Are all fittings and turrets in good condition?
- Are all nozzles correctly orientated?
- Are all check valves working properly?
- Is the spray/distribution pattern visually correct?

Checklist courtesy of Dr. Andrew Landers, Cornell University, NYSAES, Geneva, NY 14456

Operator Checklist for an Airblast Sprayer

Owner:
Model:

Operator:
Serial No:

Make:
Date:

Key: **Checked/Completed** **Needs Attention** **Adjusted** **Not Applicable**

Regularly check

Regularly check (cont.)

Mechanical

- Is the attachment to tractor secure?
- Is the chassis and structure free of cracks and rust?
- Are the wheels and tires in good condition?
- Are guards, inc. PTO shaft guard, secure and undamaged?

Hydraulic system

- Are they free from leaks under pressure?
- Are the hoses and connections worn or cracked?

Electrical system

- Is the wiring undamaged & are all connections properly insulated?
- Do all the lights work properly?

Pneumatic system

- Is the system free from leaks when working under operating pressures?

Sprayer tank

- Are the tank/chassis fasteners secure?
- Free from leaks?
- Does the lid fit securely and free from leaks?
- Is the contents gauge clearly legible?

'Spray lines'

- I Are they free from leaks under pressure?
- No hoses and connectors worn or cracked?
- Are all valves and filters in good condition?

Nozzles

- Are all fittings and turrets in good condition?
- Are all nozzles correctly orientated?
- Are all check valves working properly?
- Is the spray/distribution pattern visually correct?

Controls and valves

- Are the master on/off switches working correctly?
- Are left & right section switches functioning?

- Can you read the pressure gauges easily?
- Are all labels appropriate and legible?
- Is the pressure adjustment/stable?
- Pressure gauge reading zero?

Chemical induction system

- Are the system and controls working properly?
- Is it free from leaks under pressure?
- Are all labels appropriate and readable?

- Is the rinse system and container wash system working properly?

Tank rinse system

- Is the system functioning properly?

Periodically check

- Jug test all nozzle outputs
Date Completed
- Formally complete and file check sheet
Independent test due

Comments/Notes/specific items requiring attention:

Checklist courtesy of Dr. Andrew Landers, Cornell University, NYSAES, Geneva, NY 14456

For more information visit his Pesticide Application Technology web site at:

<http://www.aben.cornell.edu/extension/pestapp/index.htm>

MAINTAINING DRIP IRRIGATION SYSTEMS

Dr. William Lamont, Associate Professor of Vegetable Crops, Department of Horticulture, Pennsylvania State University

Drip irrigation systems are becoming more widely used for horticultural crop production, especially vegetable crops. The system must function efficiently during the entire growing season. Failure at a critical point in the crop production cycle can cause loss of the entire crop. System failures are often due to inadequate maintenance of the system especially if fertigation is being utilized to supply nutrients to the plant's root zone. Maintenance of the drip irrigation system does take time and understanding; however, maintenance is critical for successful use of drip irrigation systems. This guide should help one understand how to maintain drip irrigation systems.

Water Quality

Water for drip irrigation can come from wells, ponds, rivers, lakes, municipal water systems, or plastic-lined pits. Water from these various sources will have large differences in quality. Well water and municipal water is generally clean and may require only a screen or disc filter to remove particles. However, no matter how clean the water looks, a water analysis/quality test prior to considering installation of a drip irrigation system should be completed to determine if precipitates or other contaminants are in the water. This water quality analysis should identify inorganic solids such as sand and silt; organic solids such as algae, bacteria, and slime; dissolved solids such as iron, sulfur and calcium; and pH of the water. Water testing can be done by a number of laboratories in the state. Your local Cooperative Extension Service (CES) County Extension Educator can supply a list of laboratories or suggest a local lab that can do water quality analysis. Check with the lab first to obtain a sample kit containing a sampling bottle that is clean and uncontaminated.

Table 1: Criteria for Plugging Potential of Drip Irrigation System Water Sources

		Plugging Hazard	
Factor	Slight	Moderate	Severe
		[in parts per million (ppm)* except pH]	
Physical			
Suspended Soils (filterable)	<50	50-100	>100
Chemical			
PH	<7.0	7.0-7.5	>7.5
Manganese	<0.1	0.1-1.5	>1.5
Iron	<0.1	0.1-1.5	>1.5
Hardness	<150	150-300	>300
Hydrogen sulfide	<0.5	0.5-2.0	>2.0

In addition to these factors, it is desirable to ask for any additional tests that might be necessary. If the water is also to be used as a household supply or might be used as a drinking water source, the analysis should also include the basic drinking water analysis which includes bacterial counts, nitrates, or other suggested tests. Also salts, Chlorides, Sodium, Calcium (for general irrigated water quality) should be analyzed.

Hydrogen sulfide can often be detected by a bad "rotten egg" smell. If a review of your water test indicates factors that may cause potential plugging (Table 1), then special care in drip system maintenance needs to be practiced. High levels of a factor might not render a well unsuitable for drip irrigation but will make appropriate water treatment a requirement before successful use in a drip irrigation system.

Any surface water such as streams, ponds, lakes, rivers, or pits will contain bacteria, algae, or other aquatic life. Sand media filters are absolute necessities. **Even though sand media filters will be more expensive than screen or grooved-disk filters, they are highly recommended for water sources that have high levels of suspended organic and inorganic materials.**

Maintenance of the System

Filters

Both screen and sand media filters in a drip irrigation system should be checked during or after each operating period and cleaned if necessary. A clogged screen or grooved-disk filter can be cleaned with a stiff bristle brush or by soaking in water. A sand media filter should be back flushed when pressure gauges located at the inlet and outlet sides indicate a five-psi difference. Check drip irrigation lines for excessive leaking, and look for large wet areas in the planting area indicating a leaking tube or defective emitter. It is also a good practice to flush submains and laterals periodically to remove sediments that could clog emitters. Systems can be designed with automatic back flushing devices and automatic end line flushing devices, but still require manual checks.

Chemical Control Measures

Unfortunately, filtration alone is not always adequate to solve all water quality problems. Chemicals are necessary to control algae, iron and sulfur bacteria, and disease organisms. Chemicals can cause some materials to settle out or precipitate out of the water while causing other materials to maintain solubility or stay dissolved in the water. Chlorine is a primary chemical used to kill microbial activity, to decompose organic materials and to oxidize soluble minerals causing them to precipitate out of solution. Acid treatments are used to lower the water pH to either maintain solubility or to dissolve manganese, iron, and calcium precipitates that clog emitters or orifices. Potassium permanganate also is used to oxidize iron under some conditions. It is recommended to place the filtration system after the chemical treatment to remove any particles formed. Chemigation protection and injection equipment requirements vary with toxicity class of the injected chemicals.

Chlorination

The common practice of chlorination is the addition of chlorine to purify drinking water supplies. Chlorine acts as a powerful oxidizing agent in water and vigorously attacks organic materials. Free available chlorine also reacts strongly with readily oxidizable substances such as iron, manganese, and hydrogen sulfide. To be effective, a residual of active chlorine in parts per million of available chlorine should be measurable near the end of the lateral lines of the irrigation system. The amount of chlorine added to the system will be the residual desired plus the amount needed by the water to oxidize the materials present. This amount can vary considerably over a season. Contact time between chlorine and the water should be maximized to get the most benefit.

Table 2: Common chlorine compounds used in micro-irrigation

Compound	Form	Percent Available
Calcium hypochlorite	dry	65-70
Sodium hypochlorite	liquid	5.26-15
Chlorine gas	gas	100

The gas and liquid forms of chlorine are more commonly used (Table 2). Common household bleach, 5.25% sodium hypochlorite, is used in many small operations. Chlorine gas is more dangerous (very poisonous and very corrosive). A commercial dealer should install the gas-metering device called a chlorinator and train the operators. Chlorine gas is heavier than air, so adequate ventilation is recommended.

The pH of the water greatly affects the effectiveness of chlorination. Acidic water causes greater availability of hypochlorous acid (HOCl), which has an efficiency for killing microorganisms that is 40 to 80 times greater than that of hypochlorite (OCl⁻). When chlorine is dissolved in water, HOCl and OCl⁻, which together are referred to as "free available chlorine", co-exist in an equilibrium relationship influenced by temperature and pH.

A general formula for calculating the amount of chlorine to inject in liquid form (sodium hypochlorite, NaOC) is:

$$\text{IR} = \frac{Q \times C \times 0.006}{S}$$

where: IR = Chlorine injection rate (gal/hour)

Q = Irrigation system flow rate (gal/min)

C = Desired chlorine concentration (ppm)

S = Strength of NaOC solution used (percent)

Example: A grower wishes to use household bleach (NaOC at 5.25% active chlorine) to achieve a 3 ppm chlorine level at the injection point. The flow rate of his irrigation system is 90 gpm. At what rate should he inject the NaOC?

$$\begin{aligned} \text{IR} &= 90 \text{ gpm} \times 3 \text{ ppm} \times 0.006 / 5.25 \\ &= 0.31 \text{ gallon per hour} \end{aligned}$$

At an irrigation flow rate of 90 gpm, the grower is pumping (90 x 60) 5400 gph. The goal is to inject 0.31 gallon of bleach into 5400 gallons of water each hour that injection occurs.

If the injector is set for a 300:1 ratio, it will inject 5400/300 or 18 gallons per hour. Then, 0.31 gallon of bleach should be to 18 gallons of water in the stock solution.

Note: be careful to use the same time units (hours) when calculating the injection rate.

Commercial Drip Maintenance Treatment Solutions

Several commercial solutions are available that contain a mixture of ingredients to deal with pH, iron, and hardness water problems. These commercial products come with instructions on dilution concentrations for daily maintenance or “shock” treatment to unclog plugged lines. For small producers getting started with drip irrigation, these commercial products should be considered as a water treatment.

(Reprinted with permission from: [The Vegetable and Small Fruit Gazette](#), Vol 9 No 4, April 2005)

START THE SEASON RIGHT WITH SMALL FRUIT PRODUCTION INFORMATION FROM NYBN

Cathy Heidenreich, Department of Plant Pathology, NYSAES Cornell University, Geneva

Everything you might need to know is now at your fingertips! Click on the key(s) below to find information on early season small fruit production, courtesy of the NYBN.

Topic	Strawberries	Brambles	Blueberries	Currants and Gooseberries
Frost Protection	NYBN Vol 4 No 3 NYBN Vol 3 No 4	NA	NA	NA
Winter Injury	NYBN Vol 3 No 3	NYBN Vol 2 No 6	NYBN Vol 2 No 5	NA
Early Season Diseases	NYBN Vol 2 No 5 NYBN Vol 1 No 1 (foliar diseases)	NYBN Vol 2 No 4 (cane diseases)	NYBN Vol 3 No 3 NYBN Vol 3 No 4 (mummyberry)	NYBN Vol 3 No 5 (foliar diseases)
Phytophthora root rot	NYBN Vol 3 No 4	NYBN Vol 3 No 4 NYBN Vol 3 No 1	Coming soon!	NA
Weed Management	NYBN Vol 3 No 3 NYBN Vol 3 No 4	NYBN Vol 3 No 4	NYBN Vol 3 No 11	Coming soon!
Pruning	NA	NYBN Vol 2 no 2 NYBN Vol 3 No 2	NYBN Vol 3 No 11 NYBN Vol 3 No 2 NYBN Vol 2 no 2	NYBN Vol 3 No 3
Spring Insect Management	NYBN Vol 3 No 4	NYBN Vol 3 No 4	NYBN Vol 3 No 4	NYBN Vol 3 No 4
Cultivar Selection	NYBN Vol 2 No 11 NYBN Vol 1 No 9	NYBN Vol 2 No 11 NYBN Vol 1 No 9	NYBN Vol 2 No 11 NYBN Vol 1 No 9	NYBN Vol 2 No 11 NYBN Vol 1 No 10
Planting establishment	NYBN Vol 2 No 3	Coming soon!	Coming soon!	NYBN Vol 3 No 1
Irrigation	NYBN Vol 1 No 1 NYBN Vol 1 No 7	NYBN Vol 1 No 7	NYBN Vol 2 No 7 NYBN Vol 1 No 7	NYBN Vol 1 No 7
Nutrient Management	NYBN Vol 3 No 5	NYBN Vol 1 No 1	NYBN Vol 1 No 1	Coming soon!

SMALL FRUIT PRODUCTION FOR THE HOME GARDEN

This is a mini-series of short articles on small fruit production for the home garden, suitable for distribution by nurseries, garden centers, extension educators, master gardeners and others working with home gardeners.

STRAWBERRIES IN THE HOME GARDEN

Steven McKay, Extension Educator, Columbia Country Cooperative Extension, Hudson, NY

Most people in the Northeastern US look forward to the early days of summer when local strawberries are available. In spite of the fact that fresh strawberries are now available year-round due to improved transportation and storage, consumers know that the texture and flavor of local berries is usually superior. The biggest challenge for both home and commercial growers is to control weeds. However, with a little care, the weeds can be managed.



The first step in growing strawberries is selecting and preparing a site. This ideally starts about a year before planting. A site with less chance for frost (not at the base of a hill, and not uphill behind a wall on an inclined site) and well drained of water, but with water available for irrigation would be ideal. A loamy soil with a neutral pH is good. Weed control should be started the year before planting by using herbicides, light surface cultivation, and possibly black plastic to cover the area. Deer control and irrigation should be planned.

Selection of the proper varieties of strawberries is equally important as site preparation. There are two classes of varieties that can be chosen, day-neutral, and summer-bearing. The advantage of day-neutral plants is that they will produce berries in the same year that they are planted, and they have three peaks of production during the summer. I have found 'Seascape' to be a good day-neutral variety for our area since it produces good quality, large fruit, doesn't runner excessively, and is vigorous enough that one doesn't have to thin blossoms when plants are young. Some people like to grow summer-bearing berries because they tend to be larger than day-neutrals. These berries only fruit once in the season and must be planted the year before they bear. Many varieties are available, and their descriptions can be found in the plant catalogs.



Dormant plants are easy to work with in the spring. They are normally planted in April. They should be planted at the same depth they were growing in the nursery and spaced about 12 inches apart in rows or a patch. Runners are removed as they appear. The plants will benefit from either plastic or organic mulch. I sometimes put down newspapers and cover them with wood chips or straw. The mulch helps with the water balance in the soil, and in controlling weeds. Using compost or chemical fertilizer are common ways to fertilize plants. Day-neutral plants can be fertilized frequently throughout the season, while summer-bearing plants are fertilized at planting or renovation, and again in September.

Day neutral plants are normally left in the ground 1-2 years, then dug up and replaced with a new planting. Summer-bearing plants are usually left in the ground 2-3 years. The summer-bearing plants should be renewed annually after bearing by mowing the leaves off the plants and thinning them out as needed. Some new compost is placed on top of the mowed plants since crowns of the plants grow up in height and will need some new soil to develop new roots. Commercially, plants are normally grown in an area for 3-5 years, and then rotated out of that area for 5-7 years. This is to avoid problems with the build-up of soil pathogens. If homeowners manage soil well and provide plenty of organic matter, rotation times might be shortened or eliminated.

When harvesting from the home garden, berries should be fully red. This will assure top flavor. They can be stored at 33 F for as long as a couple of weeks, or for a bit shorter time at normal refrigerator temperatures. The important point is to chill the berries as soon as they are harvested so that they will have maximum shelf life. Berries may also be frozen by spacing them out on a tray, freezing them, and then placing them in freezer bags.

For more information about growing strawberries in the home garden, contact local your Master Gardener or county Cooperative Extension office.

RED RASPBERRIES IN THE HOME GARDEN

Steven McKay, Extension Educator, Columbia County Cooperative Extension, Hudson, NY

Raspberries are very adaptable to home gardens in New York State. The flavor of these berries is treasured and the fruit has many culinary uses. By choosing a proper planting site, varieties, and following a couple of production hints, the plants are easy to grow.

Planting sites should be well-drained to avoid problems with soil-borne fungus. Also good air drainage prevents spring frost damage. Berries should have a source of water and be protected from deer. The pH of the soil should be neutral.



Variety selection is important for producing high quality fruit. Plants should be ordered from suppliers in late summer and fall to assure the best selection. Both summer and fall bearing varieties are available, but the fall bearing varieties will bear most consistently for home gardeners, and have no problems with winter cold or fluctuating spring temperature injury. A standard fall berry released by Cornell 35 years ago is

>Heritage=, the world=s predominant primocane fruiting cultivar. It was awarded a 2004 outstanding fruit cultivar award by the American Society of Horticultural Sciences (ASHS) at its annual convention in Austin, Texas, July 18. The Outstanding Cultivar Award recognizes fruit introductions that have had a significant impact on the fruit industry within the past 35 years. The awards are determined by the ASHS Fruit Breeding Work Group.

“Heritage is one of the most widely grown raspberry cultivars in the world,” said Courtney Weber, assistant professor of Horticultural Sciences and director of the small fruits breeding program at Cornell. “Heritage is the first red raspberry



bred to ripen in the fall with quality and firmness good enough for shipping and wholesale markets and sufficient yields to be commercially viable. Because of these characteristics, Heritage has extended the season for consumers and raspberry growers and paved the way for the year-round fresh raspberry market. Heritage is resistant or tolerant to most, if not all, major raspberry diseases and has been used as a parent in the breeding of at least five other commercial cultivars. Heritage is the standard variety by which raspberry breeders judge all fall-bearing varieties,” noted Weber.

In addition to ‘Heritage’, gardeners may wish to try other fall varieties such as ‘Autumn Britten’, ‘Autumn Bliss’, and ‘Caroline’. They have larger-sized fruits and bear earlier than Heritage.

Care of plants includes fertilization, watering, control of pests, and pruning. Compost or chemical fertilizers can be used. Chemical fertilizers should be applied in split applications in May and June. Water will be applied as needed, but remember that raspberries are shallow-rooted, and if there is no rain, they may need about an inch and one half of water every week. Since canes grow in the same season they produce, there are less pest problems. Leafhoppers and Japanese beetles are the main insect pests, while *Botrytis* rot of the fruit could be the most problematic fungus pest. Pruning is easy with fall berries because they are cut to the ground with a mower in March.

Harvest and storage is not complicated. The key point is that the berries must be placed in cold storage immediately after harvest, preferably at 32 or 33 F. They can be stored at these temperatures without freezing, and are good for three days to one week.

For more information about growing red raspberries in the home garden, contact local your Master Gardener or county Cooperative Extension office.

BLUEBERRIES IN THE HOME GARDEN

Steven McKay, Extension Educator, Columbia County Cooperative Extension, Hudson, NY

Blueberries have become very popular over the past few years due to their reported health benefits. Besides being healthy, the berries taste good, and the plants that have colorful branches fit nicely into a home landscape. Planting blueberries and waiting for a harvest takes a bit more patience than other berries since they take about eight to ten years to reach full production. They also tend to be a favorite food of birds, which means that the crop will have to be protected by netting. Finally, the plants are acid-loving, which means that they must find a place in the garden with other acid-loving plants, or have their own space with a modified acidic soil.



Blueberries thrive in well-drained, but constantly moist soil. Their roots need oxygen, so a swampy type of environment is not good. Regular irrigation through a drip system, and a good cover of mulch will provide an ideal environment for the plants as long as the soil is drained. Of all the berry plants, blueberries are the most tolerant of slight spring frosts. They tend to have a crop, even in the years that other berries are frozen out. Still, it is better to look for planting sites that are not susceptible to spring frosts. The planting site should have weed control as well as pH adjustment done the year before planting. pH should be adjusted to somewhere between 4.8 and 5.3. Ground or wettable sulfur, not prills should be used for adjusting pH since it will act faster. Ideally, the application of sulfur will be done the year before planting in the springtime so that the sulfur can react in the soil.



A number of varieties have been developed that are suitable for New York. We will generally choose highbush blueberries for our area, although some folks also grow half-high varieties. Suitable and favored highbush varieties in our area include 'Earliblue', 'Duke', 'Blueray', 'Bluecrop', 'Sierra', 'Toro', and 'Elliot'. Two different varieties should be grown to get the best sized fruit. Half high varieties that are suitable for the coldest parts of New York include those that have "north" associated with the name. 'Northcountry' and 'Northland' are examples.

Some tips for planting should be observed for blueberries in order to have success in growing them. First, I recommend buying bare-rooted plants of two year, or higher grade. If you must buy container grown plants, the soil should be shaken from the roots before planting. Also, any amendments added to the planting hole should be well blended with the native soil. Removal of the pot soil, and blending of amendments with native soil are critical to prevent drying out of the plant during the growing season (a very common problem). Plants should be planted at the same level they were growing in the nursery. Soil should then be watered in so that it can pack around the roots avoiding air pockets. After planting, a layer of mulch about four inches thick can be placed around the plant. Don't fertilize during the first year. About four ounces of ammonium sulfate can be applied to the plant the following year at bloom. Increase the application annually by one ounce until a total of 8 ounces is reached.

The best time to prune blueberry plants is in the early spring so you can assess and remove winter-injured wood. The largest, oldest whole canes should be removed rather than just the branches on them. The ideal mature plant will have about 16 canes, with two canes eight years old. A rhythm should be reached with mature plants so that the oldest two canes will be removed annually leaving the other canes of various ages. All but two of the healthiest and best-placed current year canes should also be removed.

Diseases and insect problems in New York are relatively few. Phomopsis canker can sometimes occur in stems damaged by cold injury. The pith of infected canes becomes discolored and the leaves suddenly wilt. Diseased canes need to be pruned away. Mummy berry can cause young shoots and leaves to wilt and die. Berries that develop from infected flowers turn tan-colored and shrivel. The best prevention is to remove a portion of the top of the mulch, and apply two inches of new mulch. Blueberry maggot can attack the berries and cause them to drop, but this is not normally a serious problem in the Northeast. Deer and birds are probably the most threatening pests, and fences and netting are the best protection.

Berries hang in the bush after they have turned blue, and will sweeten up. This unfortunately makes them quite attractive to birds, so some folks choose to harvest at an earlier, more tart stage. Blueberries keep in the refrigerator easily for more than a week.

For more information about growing blueberries in the home garden, contact local your Master Gardener or county Cooperative Extension office.

RIBES IN THE HOME GARDEN

Steven McKay, Extension Educator, Columbia Country Cooperative Extension, Hudson, NY

Ribes is the name given to the group of fruits including currants and gooseberries. It's the scientific (genus) name for the group, but has become a common name for the group over the past few years. Gooseberries are grape-like fruits that come in a wide variety of shapes, colors, and sizes. They are usually sweet-fleshed with a sour skin when ripe. They can be eaten fresh when ripe, or used for cooking when ripe or a bit under ripe. Red currants actually come in three main colors...red, pink, and white. They are sweet and sour flavored, good for cooking and used fresh in salads or topping ice cream and other desserts. Pink currants are the sweetest of the red currants and are excellent eaten fresh. Finally, black currants are mainly used for cooking. They have a strong flavor and are quite acid. Some new varieties are being developed for fresh dessert use.



Ribes plants are generally well suited to the northeast. They are very tolerant of cold winter temperatures and somewhat tolerant of spring frosts. You should look for a planting site that has good water and air drainage. Soil type can be loam to a bit heavier loam (such as silty loam). The ideal pH is neutral, and organic matter should be at least 3-5%. All ribes plants respond well to mulch, and if wood chips are used, this will help to improve soil texture and increase organic matter. Plants can be placed 18 inches to three feet apart, depending on which training system will be used (bush or cordon). They should be planted at the same depth they were in the nursery. Irrigation should be available for dry years.



Variety selection is important so that you can get good quality fruit, and plants resistant to disease. The choice of varieties is a bit limited in the US, but there are some good selections for home gardens. For gooseberries, 'Captivator' (red, medium-sized, late) and 'Invicta' (green, large, early) are popular disease-resistant varieties. Red currants include 'Rovada' (red, large, full strigs), 'Blanca' (white, full strigs), and 'Pink Champagne' (pink, sweetest, dessert variety). The best black currant varieties for home gardeners are 'Titania' (large berries, disease immune plants), and 'Ben Sarek' (very large berries, disease resistant). The berries of either variety are sweet if left on the vine to ripen, and can be eaten fresh.

There are three main fungus diseases associated with Ribes, white pine blister rust, mildew, and leaf spot. The first two diseases are easy to control by choosing immune and resistant varieties. There are no varieties immune to leaf spot, only some with a bit of resistance. All of the diseases can be controlled with copper sprays or home garden sprays containing fungicide. The only insect pest that has been of major importance is imported currant worm. This small, green larva can be present in sufficient numbers to completely defoliate a plant in a few days. The pest is very common, but can be controlled by picking off the insects, or providing a protective insect spray. Please check with your extension office for specific spray recommendations as needed.

Training of plants can be done as bushes or cordons. The important point is that fruiting wood must be renewed continually. On bushes, this is done by removing any fruiting canes over three years of age. Cordons are single trunks planted close together. All wood that has produced fruit is removed after the crop is harvested, making way for new wood for the next season. Please contact the extension office for details on pruning and training.

The final question has to do with harvest and storage of fruit. One advantage of ribes is that they have a good shelf life. The berries are not as perishable as raspberries or strawberries. If held in the refrigerator they can last for up to a month in good condition. Gooseberries can be picked slightly under ripe, and they will ripen off the bush. Red currants should be left on the bush until they sweeten up. They turn red (pink or white) before they are fully ripe, which can be deceiving. Finally, black currants should be harvested as the first berries begin to fall to the ground. All berries benefit by being chilled immediately after harvest, and held cold until ready to use. Ideal storage temperature is around 33 F, but refrigerator temperatures of 38 F will suffice for home use.

For more information about growing currants and gooseberries in the home garden, contact local your Master Gardener or county Cooperative Extension office.

Check out the NYSAES Tree Fruit and Berry Pathology web site at:
www.nysaes.cornell.edu/pp/extension/tfabp

Questions or Comments about the New York Berry News?

Send inquiries to:

Ms. Cathy Heidenreich
New York Berry News, Interim Editor
Department of Plant Pathology
New York State Agricultural Experiment Station
690 W. North Street
Geneva, NY 14456
OR *Email:* mcm4@cornell.edu