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Prepared by the University of Massachusetts Fruit Team

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Crop Conditions and Pest Summary

Massachusetts just received notice that our Section 18 application for the use of Admire 2F to control Japanese Beetle and related species in both strawberries and blueberries has been approved. See Enclosures. **Strawberry** harvest is winding down in some locations. Hot weather really pushed what started as a late season so that it is ending 'right on time'. Renovation is the key activity now. See more on this below. Check fields for evidence of black vine weevil or strawberry root weevil feeding (notching on margins of the leaves) and take steps to control this insect before mowing for renovation. **Highbush Blueberries** are ripening and harvest should begin soon. Lowbush should be following soon behind. Blueberry maggot fly is active now. Also check for canker diseases (Phomopsis and Fusicoccum). **Summer raspberries** are also ripening with harvest started this week on early varieties. Fruitset looks to be excellent on varieties that didn't suffer winter injury. Check for sap beetle, two-spotted spider mite, Japanese beetle and potato leaf hopper. Cane diseases will also be evident now. **Grapes** are in mid to post-bloom and canopy management activities are in full swing. Past issues of Berry Notes have discusses these practices. Continue scouting for grape berry moth and mites. Japanese beetles should be active soon. Powdery and Downey mildew are beginning to show up. Maintain a good post bloom disease management program to avoid late season problems.

ENVIRONMENTAL DATA

This information is intended to be used as a guide for monitoring the developmental stages and planning management strategies of pests in your location. Growing degree day (GDD) and precipitation data was collected for the one-week period, June 20 through June 26, 2002. Soil temperature and phenological indicators were observed on June 26, 2002.

Region/Location	Growing Degree Days		Soil Temp (4" depth)	Accum. Precip
	1 Week Gain	Total		
Cape Cod: Barnstable	120	660	70° F	0.00"
Eastern: Hanson	124	731	79° F	0.30"
Waltham	126	896	64° F	0.10"
Central: Boylston	130	637	60° F	0.04"
Western: Amherst	146	772	66° F	0.37"
Great Barrington	105	720	64° F	0.36"

*(**Source**: UMass Extension Landscape Message #17, June 28, 2002)*

STATE WEATHER SUMMARY For the Week Ending Sunday, June 30, 2002

Prepared by AWIS, Inc. (available at http://www.nass.usda.gov/weather/cpcurr/new-eng-crop-weather)

STATE	AIR TEMPERATURES				PRECIPITATION	
	LO	HI	AVG	DFN	LO	HI
ME	39	93	67	+3	0.35	2.00
NH	34	93	68	+4	0.52	2.46

VT	41	90	68	+4	0.48	4.01
MA	42	94	73	+6	0.00	1.96
RI	49	92	74	+6	0.17	0.48
CT	50	94	74	+6	0.11	0.94

*(**Source**: New England Ag. Statistics Service, Weekly Crop Weather Report, Volume 23, No. 10, July 1, 2002;)*

Strawberries

Strawberry Renovation

Bruce Bordelon, Purdue University

Matted row strawberry plantings must be renovated after harvest to establish new crowns for next year's crop. For best results, renovation should be started immediately after the harvest is completed to promote early runner formation. The earlier a runner gets set, the higher its yield potential. Renovation should be completed by mid-July in normal years. Harvest is winding down in southern areas so growers should begin renovation as soon as the last marketable berries are harvested. The following steps describe renovation of commercial strawberry fields.

1. **Weed control**: Annual broadleaf weeds can be controlled with 2,4-D amine formulations. Check the label, as only a few products are labeled for use on strawberries. (e.g. Formula 40 [2,4-D alkanolamine salts plus 2,4-D Triisopropanolamine salt (4 lbs/gal)] or Amine 4 [Dimethylamine salt of 2,4-D (3.74 lb/gal)] at 2 to 3 pts/acre in 25-50 gallons of water applied immediately after final harvest. Be extremely careful to avoid drift when applying 2,4-D. Even though the amine formulation is not highly volatile, it can volatilize under hot, humid conditions and can cause damage to desirable plants a considerable distance from the site of application. Some damage to strawberries is also possible. Read and understand the label completely before applying 2,4-D amine. If grasses are a problem, sethoxydim (Poast) will control annual and some perennial grasses. However, do not tank mix Poast and 2,4-D. See the Ohio Commercial Small Fruit Spray Guide [Ed. Note: for New England Growers, see the *2000-2002 New England Small Fruit Pest management Guide*] and the product label for rates and especially for precautions.

2. **Mow the old leaves off** just above the crowns 3-5 days after herbicide application. Do not mow so low as to damage the crowns.

3. **Fertilize the planting**. A soil test will help determine phosphorus and potassium needs, but foliar analysis is a more reliable measure of plant nutrition. (For foliar analysis, sample the first fully expanded leaves following renovation.) Nitrogen should be applied at 25-60 lbs/acre, depending on vigor. It is more efficient to split nitrogen applications into two or three applications at regular intervals, rather than apply it all at once. A good plan is to apply about half at renovation and half again in late August.

4. **Subsoil**: Where picker traffic has been heavy on wet soils, compaction may be severe. Subsoiling between rows will help break up compacted layers and provide better infiltration of water. Subsoiling may be done later in the sequence if soils are too wet now.

5. **Narrow rows**: Reduce the width of rows to a manageable width based on your row spacing, the aisle width desired, and the earliness of renovation. A desirable final row width to attain at the end of the season is 12-18 inches. Wider rows lead to low productivity and increased disease pressure. This means that rows can be narrowed to as little as 6 inches during renovation. Use a roto-tiller or cultivator to achieve the reduction. Since more berries are produced at row edges than in the middle, narrow rows are superior to wide rows. Narrow rows will give better sunlight penetration, disease control, and fruit quality.

6. **Cultivate**: Work in straw between rows and throw a small amount of soil over the row by cultivation. Strawberry crowns continue development at the top, and new roots are initiated above old roots on the crown, so 1/2 to 1 inch of soil on the crowns will facilitate rooting. This also helps provide a good rooting medium for the new runner plants.

7. **Weed control**: Pre-emergence weed control should begin immediately. Dacthal, Sinbar, or Devrinol are suggested materials. See the Ohio Commercial Small Fruit Spray Guide [Ed. Note: for New England Growers, see the *2000-2002 New England Small Fruit Pest management Guide*] and check the product labels carefully. Devrinol must be incorporated by irrigation, rainfall, or cultivation to be effective. Rate and timing of Sinbar application is critical. If regrowth has started at all, significant damage may result. Some varieties are more sensitive to Sinbar than others. If unsure, make a test application to a small area before treating the entire planting. Use 2 to 6 oz/acre/application and no more than 8 oz/acre/year total. Sinbar should not be used on soils with low organic matter, or on sensitive varieties like Guardian, Darrow, Tribute, Tristar and possibly Honeoye. If Sinbar gets onto strawberry leaves, irrigate to wash it off.

8. **Irrigate**: Water is needed for both activation of herbicides and for plant growth. Don,t let the plants go into stress. The planting should receive 1 to 1-1/2 inches of water per week from either rain or irrigation.

9. **Cultivate to sweep runners into the row** until plant stand is sufficient. Thereafter, or in any case after September, any runner plant not yet rooted is not likely to produce fruit next year and is essentially a weed and should be removed. Coulter wheels and/or cultivators will help remove these excess plants in the aisles.

10. **Adequate moisture and fertility during August and September** will increase fruit bud formation and improve fruit yield for the coming year. Continue irrigation through this time period and fertilize if necessary. An additional 20-30 pounds of N per acre is suggested, depending on the vigor. (***Source**: Facts for Fancy Fruit 2002-08, June 19, 2002*)

Renovation of Plasticulture Strawberries

Jerome L. Frecon, Rutgers Cooperative Extension

Strawberries grown on plasticulture can be renovated in July. For varieties (Sweet Charlie) and plantings with moderate vigor, mow tops with a rotary mower, leaving several leaves on the plant. For very vigorous varieties (Chandler) and plantings, cutting away a portion of the crown with an asparagus knife leaving 3 crowns or a combination of mowing followed by crown thinning, may be the most effective renovation technique. After renovation, maintain adequate soil moisture and good insect and disease control. In early September, apply 60 pounds of N, P2O5, and K2O via drip irrigation and manage the renovated planting using the same cultural practices as for a new planting. Renovation has improved berry size, however, size is usually smaller than in the first harvest season. Marketable yields of renovated strawberries have been equal to yields in the first harvest season. Renovation is especially useful if the planting will be harvested as a Pick-Your-Own. (***Source**: Rutger's Plant and Pest Advisory; Fruit Edition, June 11, 2002*)

Growing Your Own (Organic) Strawberry Plugs

Ron Khosla, Huguenot St. Farm, New Paltz, NY farm@flyingbeet.com (845)256-0686

Last year, although we bought 2000 plugs in from Jersey Asparagus Farm, we made another 2500 of our own certified organic Chandler strawberry plugs from runners. The folks at Jersey Asparagus farm were incredibly helpful and generous with advice and warnings about fungal infection (damping off) since we were trying to do it organically, and I think their strict warnings are what saved us. We had a 100% success rate in growing the runners into plantable plugs.

We'll be growing a few thousand extra this year if anyone is interested in purchasing them, but we'd encourage anyone with a timer on their irrigation system to try it yourself! Organically grown transplants are required by the new National Organic Program rules and 'Certified Naturally Grown' rules (a program created as an alternative to the USDA's National Organic Program, intended primarily for small family farms that focus on local distribution systems, see: www.naturallygrown.org).

We started by clipping runners with shears and kept them in the cooler until we could plant them. We used trays with 50 square cells filled with our own sterile potting mix made of peat, vermiculite, lime, and rock phosphate. We added no other nutrients, and we lightly fertilized with organic N only after the plugs were well established. We only put in 25 runners per tray, so they had double the space and double the air flow.

We started out misting them every 15 minutes for 5 minutes at a time, but only until early afternoon, and we adjusted the schedule on cloudy days.

You'll need to see how your misters work and adjust the schedule accordingly. Basically we just kept everything damp. We also drenched everything with Plant Shield (which contains the beneficial fungus Trichoderma) when we started, then twice more several days apart. We left the greenhouse vent fan on all the time to keep air moving through the greenhouse, and we also set up household fans so they were blowing on the flats. The runners sent out roots surprisingly quickly, and the plugs grew fast. After establishment we adjusted the water back as quickly as we could to allow more "drying out" times on the surface of the soil.

We're starting the cuttings this year around July 21 to 25, to plant out on August 15 to 20 in the field. In our first year with this system we never had any signs of fungus developing so we haven't had to come up with a solution to save things if it had. (***Source**: VT Veg and Berry News, July 1, 2002*)

Brambles

Bramble Update

Pam Fisher, OMAFRA

This is the time is the time when raspberry crops start to decline: just as harvest begins! Canes die back, leaves turn yellow and dry up. Although the symptoms are similar, there are many causes of this problem. Here are just a few:

Crown borer: Larvae are feeding and tunneling in crown. Dig up plants and look for reddish brown power (frass) and larvae.

Cane blight: An invisible lesion under the bark. The fungus invades at a wound. Severely infected canes died over winter. Partially infected canes die back now. Infected canes are weak and brittle or bend easily. Tissue under the bark is brown instead of green (scrape with knife). Confirm this disease by sending samples to the pest diagnostic clinic (www.uoguelph.ca/pdc/).

Crown gall: Dig up plants and look for hard brown galls on roots.

Phytophthora root rot: Plants will have few new primocanes, or primocanes will wilt as well. Scrape bark in the crown area and look for reddish brown (instead of white) discolouration. (***Source**: Berry Bulletin Agriphone, June 27, 2002*)

Blueberries

Disease and Culture

Gary Pavlis, Rutgers University.

Phomopsis has been seen in some areas. All varieties show symptoms but Weymouth, Bluecrop, Blueray and Berkeley seem to be the most affected. Unfortunately dieback of twigs and canes may become more severe as warm weather occurs and as strain of producing a crop further weakens the wood. Most of the weak canes, which have leaf growth which is late and reduced, should recover but will not produce well. Twig blight symptoms usually consist of a tip dieback of about 2 to 6 inches on currentyear wood. Small black pycnidia may also be produced upon the blighted twigs. As with other canker disease, the most conspicuous symptom is the "flagging," or wilting and death of individual stems during the summer. Under severe disease conditions, several individual canes may be affected on a single bush. When Phomopsis canker is responsible for this symptom, the actual infection site is much less noticeable than when fusicoccum canker is involved, and appears primarily as an elongated flattened area, usually near the base of the cane. Small black dots that are the spore-containing bodies (pycnidia) of the Phomopsis fungus can sometimes be seen within this flattened area. Pruning the weakest canes to the ground may not seem practical from the standpoint of labor and costs but it is the best practice for the longterm production of the bush. Winter injury, compounded by Phomopsis, often may cause poor production for two successive years if some radical pruning is not done early during the first growing season of the injury. Fungicide sprays are a help early but do little good at this time.

Fusicoccum canker is a serious disease of highbush blueberries in the more northern, colder regions of Michigan and New York. In Michigan, fusicoccum canker is the most important cane disease of blueberries in the northern half of the state, whereas another canker disease (Phomopsis canker) is much more important south of this region. The most conspicuous symptom is the "flagging" or wilting and death of individual stems during the summer, although such flagging may have several causes. The most diagnostic symptom of fusicoccum canker is the formation of dark red or brownish-purple infected area (lesions), 1 to 6 inches long, near the base of young canes. These lesions usually center around a bud, and may alternate in color to give a bull's-eye pattern. They may also contain a mass of tiny black dots (pycnidia), which are the sporecontaining structures of the fusicoccum fungus. Prune out and destroy cankered stems to reduce the source of infective spores. Prune bushes and control weeds to improve air circulation and reduce drying time after a rain. some broadspectrum fungicides may provide additional control if used on a regular basis. Because fusicoccum canker activity appears to be greatest during the prebloom and bloom period, it may be desirable to concentrate a fungicide program during this time if the disease has been a problem and it is undesirable or impractical to maintain protection season long. Some fungicides active against mummy berry are not active against fusicoccum canker and vice versa. (***Source**: The Blueberry Bulletin June 27, 2002 - Vol. 18, No. 11*)

Japanese Beetle in Michigan Blueberries

Nikhil Mallampalli and Rufus Isaacs, Michigan State University

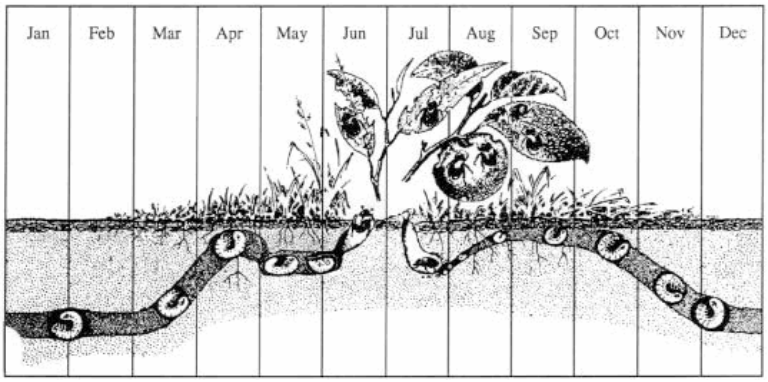
The Japanese beetle, Popillia japonica, is a scarab beetle species accidentally brought to the U.S. in shipments of plants from Japan in 1916. It was first reported in Riverton, New Jersey. Since then, it has slowly spread westward, first arriving in Michigan in the 1950's.

Life cycle and biology

The larvae (or grubs) inhabit the soil, feeding on the roots of grasses. They are C-shaped and about one inch long with a tan head. Larvae of this species can be distinguished from those of other soil-dwelling scarabs by the pattern of hairs on the hind end. The Japanese beetle has one generation per year in Michigan with the larvae overwintering in the soil. In the spring, they move closer to the surface, resuming their growth and feeding until late June when they pupate. A larva and a pupa are depicted in the accompanying photograph. Adults begin emerging about two weeks later, usually in early July, and rapidly aggregate on favorite host plants to feed and mate. This process is aided by the production of a chemical (an aggregation pheromone) that aids in finding other individuals of their species. Females lay up to 80 eggs, two to four inches under the soil surface near their food plants in batches of one to six eggs.

Pest status in blueberry

In the past five years, the populations have increased many hundred-fold in the main blueberry regions of the state with a large peak in adult abundance in mid-July. Adult beetles feed on a wide range of plants, including ornamentals and fruit crops. In blueberries, they remove leaf tissue and chew on the sides of fruit, which can increase the development of soft rots. This crop is particularly at risk of contamination because over 60 percent of the Michigan crop is mechanically harvested and harvesters cannot sort berries from beetles. If not removed, beetles may end up in fruit for sale if not detected by mechanical or human sorters.



Biological control

Some biological control agents, such as pathogens, nematodes, flies and beetles, attack the larvae in the soil. There are currently efforts underway to study and introduce effective natural enemies as a long-term strategy for control of Japanese beetle in Michigan.

Effect of row-middle management

To better understand the density and distribution of this species in blueberries, soil samples were taken from 15 blueberry farms throughout the main growing regions of the state during spring 2001. At each site, samples were taken at the grassy perimeter and in the row middles. Fields were chosen that were either rotovated or were maintained with a permanent ground cover, usually composed of grass. The number of grubs found was much higher outside the fields than inside.

Highest abundance was in the permanent sod outside the field (five grubs per square foot), while the lowest was inside the field in rotovated middles (0.25 grubs per square foot). These results suggest that maintaining clean row middles reduces Japanese beetle populations in blueberry fields. However, grassy areas just outside plantings will still support high grub densities, requiring control of beetles moving into the planting. This study will continue in the coming years to develop recommendations for using row-middle management and repellent cover crops to minimize the abundance of beetle larvae within blueberry fields.

Chemical control

Because adult beetles emerge from the soil during blueberry harvest time, control prior to harvest is essential to minimize contamination of blueberries. However, pre-harvest intervals and re-entry restrictions limit the utility of many insecticides during this period. To maximize the effectiveness of insecticides for Japanese beetle control, coverage should be excellent, and the full-labeled rate should be used. The pH of spray water can have a significant impact on insecticide efficacy, especially for Imidan (optimum pH 6), which is one of the main tools used for Japanese beetle control. Consult MSU Extension publication E-154 for recommendations on insecticide options labeled for

blueberry. (***Source**: Michigan State University's Fruit Crop Advisory Team Alert Vol. 16, No. 14, July 10, 2001*)

Grapes

Interpretation of grape plant tissue sample results

Tony K. Wolf, Virginia Tech

Commercial grape growers are advised to use plant tissue analysis in conjunction with visual assessments and periodic soil analyses to determine the nutrient status of vines. For routine assessments, I recommend that bloom-time sampling of leaf petioles be done every two to three years. Detailed recommendations were presented in Viticulture Notes and in the Mid-Atlantic Winegrape Growers Guide.

For those of you who use the Penn State University analytical lab, I normally receive a copy of the results, and I have provided you with my recommendations based on the diagnostic results. If you use another lab (e.g., A&L, Brookside, etc.) I would like to reinforce my offer to provide you with recommendations based on those results. Due to time constraints, I can only commit to responding to commercial Virginia producers.

If you'd like my advice on your plant analysis results, please send a copy of the results to my attention, along with a brief description of any pertinent visual observations and a brief description of any fertilizers applied in this, the 2002 growing season (Tony Wolf, 595 Laurel Grove Rd., Winchester VA 22602). My advice is free and I won't be offended if you choose not to follow it. But as I suggested to a grower earlier today - obtain your fertilizer recommendations from one source, and obtain your fertilizer from another. The principle can save you a lot of money.

Sufficiency standards: A group of extension specialists, including myself, met in Lancaster PA in mid-June to discuss plant analysis aspects of vine nutrition. We discussed the time of sampling and what values to use for describing sufficiency ranges of the essential nutrients routinely tested in grape plant analysis samples. The meeting was convened due to the variation that we see among states' and commercial labs' recommendations. It's confusing to us, as well as to you. The other goal of the meeting was to lay some groundwork for revising the "Nutrition" chapter of the Mid-Atlantic Winegrape Growers Guide (MAWGG). As an aside, we are in the process of completely revising the MAWGG, and hope to complete the project in 2003. As a result of the Lancaster meeting, some of the sufficiency ranges were altered slightly, in part to encompass responses observed across a greater range of grape varieties and geographical areas. For bloom-time sample leaf petioles, we proposed the following standard ranges for sufficiency:

N: 1.2 - 2.2%
P: 0.10 - ? % (the upper limit is not defined at this point)
K: 2.0 - 2.5%
Ca: 0.75 - ? % (the upper limit is not defined at this point)
Mg: 0.35 - 0.75%
Fe: 30 - 100 ppm
Mn: 25 - ? % (the upper limit is not defined at this point)
Cu: 5 - 15 ppm
Zn: 25 - 100 ppm
B: 25 - 50 ppm (note that the upper limit of boron is reduced from the 100 currently cited in the Mid-Atlantic Winegrape Growers Guide).

Again, these are proposed ranges, and most, except the boron, do not differ greatly from previously used values for bloom-time-sampled vines. The final recommendations will bear a number of qualifications to the sufficiency ranges, and will also provide more guidance in terms of fertilizer recommendations to correct sub-optimal values.

For now, let me repeat my offer to provide you with an interpretation of your plant diagnostic sample if I've not already done so. (***Source**: VCE-GRAPENEWS, July 1, 2002*)

Nematodes in Grape Vineyards

Jerome L. Frecon, Rutgers Cooperative Extension

Certain broad-leaved weeds and other fruit trees can be alternate hosts for nematodes that carry viruses infecting grape vines, or even feed on roots. It is important to test most sites for nematodes, particularly those previously planted in fruit (including grapes), forest trees, and in pasture or land that has been heavily infested with weeds. The Rutgers Cooperative Extension Plant Diagnostic Laboratory can run an assay to determine levels. There are treatment recommendations for the various nematode thresholds.

Each situation has specific criteria that must be analyzed. Information sheets are available from your local county agricultural extension office on how to take samples and get them to the laboratory. The web site for the nematode detection service is: http://www.rce.rutgers.edu./plantdiagnosticlab/default.asp, although the new submission forms are not yet listed and must be obtained from an agricultural extension office.

Samples should be taken at random across the site to be planted, or in the root zone near the vines in established

vineyards. The depth of sampling should be focused on the area of the soil where most of the roots will be growing. The time for sampling should be when the soil is continuously moist to get the maximum reading on nematode levels. Poor representation of sampling occurs when the soil is dry or the field and vineyard are sampled incorrectly. Good sampling times are early spring or in the fall unless the soil is dry. Once samples are taken they should be kept moist and cool until they are delivered for assay at the laboratory.

Nematodes are small worm-like parasites. There are many different species. *Xiphnema americanum* (dagger) is one of the most important because it transmits tomato and tobacco ringspot viruses, both damaging diseases to grapevines. Any level of dagger nematode will trigger a recommendation for treatment. Both viruses can be introduced by purchasing infected stock. However, even when virus-clean plants are purchased, the disease can be picked up by nematodes feeding on the previously mentioned alternate hosts.

On some wine grape varieties many symptoms can be observed. On interspecific varieties like Vidal Blanc and Chelois, symptoms may include sparsely filled fruit clusters and smaller berries than normal. On other varieties there may be shoot stunting and poor fruit set. Leaf yellowing, leaf distortion and light leaf margin may also be observed. Light circular spots are on the foliage of some hosts (thus the name ringspot). Some of the most popular *V. vinefera* varieties grown for wine do not exhibit any symptoms. Vines can die in three to four years but with mild winters may persist in the plants for many. In states like New York, Cornell is testing a program has been set up to serologically identify the virus in established vineyards. *Mesocriconema xenplax* (ring) can reduce yields in young vineyards.

Pratylenchus vulnus (lesion) nematode can be a problem in New Jersey soils planted with grapes. *Meloidogyne hapla* (root knot) causes knots on the roots and depending on severity, can trigger loss of vigor, yield, and kill the plant. Information is conflicting on how bad a problem this is on grapes in the Eastern U.S., but it is more common in California and Oregon. Root knot is found on peach roots so vineyards planted on old peach sites should be sampled. Stubby, lance, spiral, cyst, sheath, stunt, pin, and sting nematodes are all found in New Jersey soils.

Nematode control will be more of a problem if vineyards are not sampled and treated prior to planting. As we lose registrations on some of our best chemicals for control, post plant treatment may be obsolete. Prior to planting it is important to sample and then if levels effective treatments. Start with clean and if possible, virus indexed nursery stock. Use nematode resistant rootstocks if available. See table one for listings of rootstocks with resistance.

Soils can be fumigated prior to planting. Fumigation treatments are both costly and to some, environmentally questionable. Cover crops with non-host grasses, cereal grains, and nematode suppressing dwarf Essex rape seed can be planted and cropped prior to planting. Weed control is very important in established vineyards to manage host weeds for viruses that are carried by nematodes.

On page 8 of the *2002 Small Fruit Production Guide* good information is available on specific controls. This control not only includes chemical fumigation which can cost from $1,000 to $2,000 per acre, but also preplant cropping and cover crop establishment and weed control. If you don have a copy, they are available for $15.00 from agricultural agents Jerry Frecon and Gary Pavlis of RCE offices in Atlantic and Gloucester County.

Table 1. Characteristics and per performance of major rootstocks reported from various viticultural regions.

Rootstock	Vitis species parentage	R—K	DG
Gloire	Riparia	3	v
St. George	Rupestris	1	
3309 C	Riparia x Rupestris	2	4
3306C		3	1
5 BB	Berlandieri x Riparia	3	2
5 C		4	4
SO4		4	4
20 A		2	2
99 R	Rupestris x Berlandieri	4	v
110 R		3	2
140 Ru		2	v
44-53 M	Riparia x Rupestris x cordifolia	2	3
Gravesac	Riparia x Berlandieri x Rupestris	2	v

R-K = Rootknot nematode; DG = Dagger nematode; 1= sensitive (or susceptible); 5 = resistant (or tolerant; v = Data not available
References: Howell (1987), Galet (1979), Kasamatis and Lider (1980), Pongracz (1983), Wolpert et al. (1992)
1 Adapted from Table 1 on rootstocks on page 3 Commercial Grape Varieties for Virginia VCE Publications 463-0190
(***Source**: Rutger's Plant and Pest Advisory; Fruit Edition, June 4, 2002*)

Ribes

Summer Pruning Gooseberries

Ed Mashburn, Northumberland Berry Works

Many people do not think of pruning during the summer or growing season; however summer pruning is very important to the growing and shaping the plant. This is the constant fine tuning of the process of shaping and controlling the plant. Gooseberries that are growing well will put on a lot of new growth as the fruit sets and enlarges. Here in Pennsylvania this is during May and June, plants will double in total volume. This will make harvesting very difficult, will endanger the plant to pests and disease, and will require a lot of curative pruning in the winter or dormant period. Summer pruning is a "do it now" operation that is a maintenance process that should not ignored or put off too long. It is better to make several short cuts rather than take out long pieces of excess plant. This also allows the plant to expend the growing energy to the portions that will remain and make a stronger plant.

For traditional bush plants

If the plant has been adequately pruned during the past this is strictly a maintenance process. The goals are to keep all canes or shoots straight and avoid crossing and growing toward the center of the plant. This is the time to keep the small side shoots removed to prevent the plant from becoming too dense. I start this pruning during the early bud break season. As leaf buds enlarge and open you will be able to determine that some of the terminal (end) buds are not expanding well or at all. Some of these may have been damaged by disease or by the winter. I find that if these are removed by shortening the cane or branch to a good plump bud the last remaining bud will become a "terminal" bud. The second step of this process is done after the blossoms opens and as the fruit is set. I examine the lowest canes: some may have very few or no fruit blooms, and I remove these at that time unless the plant is young and in the first year of fruiting. Other canes will have large numbers of blooms and/or small fruit formed along the underside of the branch. I shorten these canes so that the terminal end (with few or no blooms) is removed. All canes or shoots should be shortened to encourage the plant to grow more upright and develop a strong erect habit. Fruit will become heavy and weigh the branches down as it enlarges; do not allow the fruiting canes to bend down to the ground. The tips will often root and the plant becomes very difficult to manage. Plants that have long arching canes should be pruned so that the canes do not grow downward much below the highest point of the arch. Canes pruned in this manner will droop more as the weight of fruit increases. They may have to be further shortened or some of the green fruit removed when the size has become larger. This fruit can be used in jam and pies; it requires more sugar. This pruning method makes harvest easier: hold the tip of the cane with the left hand and strip the berries with the right. It is important to remove the side branchlets from the canes as they form, otherwise it is very difficult to reach into the plant and harvest berries from these side shoots. This also reduces the bearing area of the plant and thins the fruit to allow the berries to be larger.

Plants on a leg

Summer pruning of these plants is much the same as for the bush type. Remove the excess sprouts that come out of the scaffold branches. Remove all branchlets that are on top of or on the bottom of the branches. Take out all sprouts that grow toward the center of the plant. Remove any sprouts from the "leg" and all suckers that may arise from the root system. This is especially true if the plant has been grafted because the suckers will not be the same as the plant. All the branches need to be tipped (the ends removed) to keep the branches strong, upright and to facilitate harvesting. I usually do this in late May or early June as by then the fruit has developed some size and the branches tend to droop under the weight of the berries. This also opens up the plant somewhat and allows more air circulation at a critical time. Sometimes it is necessary to further shorten the branches on late ripening cultivars. Remember to always shorten to an upward or topside bud.

Plants on a trellis

Gooseberries grown on a trellis are handled in much the same way as those on a "leg". The main principles apply: keep the "leg" or lower part clear, shorten or tip the canes to help stiffen and strengthen the scaffold or framework of the plant, and do not let the plant become too dense. The lateral branches (those growing in the same direction of the wire) should be tied so that the tip is headed upwards. Do not tie these in a horizontal manner or they will not set as much fruit and there will be a lot of "watersprouts". Remove all the sprouts on the top and bottom of the lateral branches and some of the ones from the sides. This will allow more air and light to the plant and keep it from getting too dense. I allow the side branchlets to grow out into the row for approximately 12 to 15 inches. These should be tipped or shortened as they become heavy with fruit to keep the growing attitude upward. Do not allow too many to remain or the plant will become too dense. Plants growing on a trellis are easier to maintain than the traditional bush. I try to keep all the fruiting portion of the plant between two feet and five feet above the ground.

Plants grown as cordons

Cordons should be attached to a stake or a stake and wire. I keep the lower eight inches free of growth, as a "leg" and then prune the remaining branches in a very long taper or candle shape. The plant should not be more than 20 inches across at

the base and should be much less than that near the top. This concept requires a lot of attention as the plants are growing very rapidly in the spring. I tend to fall behind and have to take out larger amounts than planned. A week of rain in May when it is warm will produce long sprouts that droop and suddenly the plant is much too dense and the canes are too long; this slows the growth of the terminal shoot or cane. Keep the central terminal cane tied to the stake or cane. It will break when growing very fast if it is rainsoaked and the wind is blowing. It is necessary to tip or shorten the terminal (upright) tip also; cut it back and then allow only one of the new terminal sprouts to grow. This will produce a stronger plant.

It is almost impossible to prune too much or too often. It is much easier to do it in stages, cut some this week , and then look at it and cut some more. Don't get caught without a pruner! (***Source**: The Ribes Reporter, Vol 7, I 1, August '95*)

General

Maine Compost School

The Maine Compost School has completed five years of training with more than 350 graduated. With about 15% of the graduates from countries other than the United States, the Maine Compost School has had a tremendous impact on the composting industry, both nationally and internationally. Its graduates have improved the quality of marketable compost, started new facilities, and increased returns from the sale of compost.

The School begins its sixth year with a change in the location of the program, a revamped curriculum, and a new look on its Web site. The Compost School program is now being offered at Highmoor Farm in Monmouth, having moved from the Witter Center this past spring. This move has provided the opportunity to revamp the curriculum in response to past participants' suggestions. Check out the new curriculum, dates for this year's programs, and the new web site at www.composting.org. (***Source**: Maine's Agricultural Connection Vol. 2, No. 2 Spring 2002*)

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