

PLANT & PEST ADVISORY

FRUIT EDITION \$1.50

OCTOBER 7, 2003



INSIDE

Improve Your Soil Through Leaf Mulching This Fall	1
Final Northern NJ Apple Maturity Update	3
Strawberry Update	4
Perennial Fruits Insurance Deadline	4
Blueberry Fest a Success	5
Fall Frost on Wine Grapes	6
Vineyard Compost Workshop ...	7

Improve Your Soil Through Leaf Mulching This Fall

Daniel Kluchinski, Chair, RCE Department of Agricultural and Resource Management Agents and Joseph Heckman, Ph.D., Specialist in Soil Fertility

Leaf mulching is the application and incorporation of collected municipal shade tree leaves on agricultural land. Research conducted by Rutgers University shows that leaf mulching can improve soil quality. In our study, leaves were applied to research plots each fall for three years. The applications rates were no leaves, 3 inch depth = 10 dry tons/acre or 6 inch depth = 20 dry tons/acre. Soil measurements were taken one year after the end of a three year period of annual leaf applications.

Leaves have relatively low concentrations of most plant nutrients (1% N, 0.1% P and 0.4% K) and an average carbon to nitrogen (C:N) ratio of 50 to 1. A valuable attribute of leaves is that they can be applied at high rates that rapidly build soil organic matter without causing a rapid release and buildup for available N and P. Soil organic matter levels increased from 2.4% in our unamended soil to 2.9% in plots that received 3 inches/year and to 3.1% where leaves were applied at 6 inches/year. Calculations indicate that about 17% of the organic carbon that was added to the soil remained in the soil one year after the end of the three-year period of annual applications. – a sign that organic matter levels were building.

The application of plant or animal residues with a C:N ratio of greater than 30:1 does not rapidly release mineral N in the soil. The addition of these high C:N ratio leaves did cause some initial 'tie-up' (immobilization) of N as they decomposed in the soil, reducing the amount of available N for the crop. However, in our study, crops grown (field corn, soybean) on soils amended with leaves the previous fall generally exhibited only mild to no symptoms of N deficiency. Plant tissue analysis performed on the corn and soybean during the reproductive growth stage revealed that applying N fertilizer to counteract the soil N immobilization was not necessary. One year after the end of the three-year period of annual applications, soil organic nitrogen levels rose from 0.10% in unamended soil to 0.14% for the 3 inches/year rate and to 0.20% for the 6 inches/year rate. The increased soil organic matter content provides slow release N for long term soil fertility.

SEE LEAF MULCH ON PAGE 2

LEAF MULCH FROM PAGE 1

An application of leaves at 6 inches would add an estimated 45 lbs. P/acre, 171 lbs. K/acre, 108 lbs. Mg/acre and 738 lbs Ca/acre. Annual applications of leaves over the three year study period did not significantly increase the soil test (Mehlich-3) levels of P or Mg. The K soil test level and especially the Ca level were significantly increased with applications of leaves. Base saturation percentages of soil cation exchange capacity (CEC) changed with the application of leaves; the Mg percentage decreased from 23% saturation on un-amended soils to 20% on amended soil and the Ca percentage increased from 54% to 60% respectively. For micronutrients, applications of leaves did not change the soil test levels of copper (Cu), manganese (Mn), or zinc (Zn) but it increased boron (B) from 0.4 ppm on un-amended soil to 0.6 ppm on amended soil.

The application of leaves tended to cause a slight increase in soil pH. We observed a soil pH of 6.2 on unamended soil and a pH of 6.4 on amended soil (both leaf application rates). Although leaves do not appear to significantly influence the agricultural limestone requirement, the selection of the type of limestone for future maintenance of a balance between Ca and Mg in the soil may be a consideration for crops that are more susceptible to Mg deficiency.

Therefore leaves can provide a desirable source of organic material for soil improvement, add organic matter and some nutrients. However, careful planning and specific crop management must be followed. If you are interested in starting an on-farm leaf mulching operation, these ten steps should be followed to ensure success:

✓ **Get the facts:** Contact your county solid waste or recycling office to determine what permitting or approval process is required, as the process varies from county to county. In most cases approvals are simple, but it may also require some reporting and information sharing, so plan accordingly.

✓ **Follow the rules:** Leaf mulching is state regulated. Leaves can be accepted and spread on farm fields at a depth of 6 inches annually, cannot be stockpiled at the farm for more than seven days, and must be incorporated into the soil by spring.

✓ **Push the pencil:** Determine the fields to which leaves are to be applied and determine the total acreage. The six-inch application rate is equivalent to approximately 800 cubic yards of leaves per acre. Calculate the total amount of leaves you would need. Initially, consider accepting small quantities of leaves or operating on a limited acreage.

✓ **Plan, plan, and plan:** Have an all-weather road for truck traffic and a site for unloading. Remember that leaf deliveries will quickly “add up,” especially if wet or freezing weather delays spreading.

✓ **Find a leaf source:** Ask county solid waste/recycling officials about municipalities who are looking

for farmers to accept leaves, or contact potential leaf sources directly.

✓ **Form an agreement:** Ask any supplier if an agreement or contract stating the specific terms of the agreement can be made. Consider the following factors:

- length of agreement
- time period when leaves will be delivered
- amount of leaves to be delivered
- tipping fee (dollars per cubic yard or ton of leaves) to be received
- location(s) leaves are to be unloaded
- delivery schedule
- acceptable quality standards/conditions upon which loads can be rejected
- responsibility for removal of non-biodegradables and other trash
- responsibility for damage to fields from delivery trucks
- methods for dispute arbitration

✓ **Educate:** Make it clear to the leaf supplier why farm fields should not be driven on, or how bottles or trash can break equipment or injure animals. Explain that the leaves must be collected, handled and delivered properly to insure quality.

✓ **Experiment:** Test different spreading and incorporation equipment. Consider a manure spreader and chisel plow which have been shown to work well. Try different application rates. Research has determined that leaf mulching can increase soil moisture retention, increase surface residue, and may extend lower soil temperatures in early spring. This may affect planting or crop establishment. Leaf application may temporarily tie up soil nitrogen. Experiment with different crops, seeding rates, or combinations of nitrogen supplying materials such as manure. Consider legumes or low nitrogen use crops immediately after incorporating leaves, or transplants versus direct seeding.

✓ **Plan for problems:** Have written contingency plans should problems arise. For example, if odors become a problem with stockpiled leaves, will you apply limestone to neutralize odors? Move the material off site? Spread it immediately? What will happen if your spreading equipment breaks down and you cannot spread the material in a timely manner? Will you spread it by a different method? Be able to stop deliveries until the equipment is repaired? Plan ahead and have a response ready for any problems that may occur.

✓ **Keep good records:** Record leaf deliveries, application rates, spreading and incorporation methods, cropping practices, crop vigor and yields. These records will help you to determine the effects of the practice. In addition, they can be used to illustrate your successful use of the practice should problems arise, such as local opposition to or inspection of your operation.

These guidelines should help you prepare to start on-farm leaf mulching. Obviously, the success of such an operation depends on a good plan and proper execution, but the benefits to your soil can outweigh the investment in time spent planning. □

Final Northern NJ Apple Maturity Update

Win Cowgill, Agricultural Agent

This is my last maturity update for the season as the Plant & Pest Advisory Fruit edition moves to a monthly schedule. Cool weather continues to slow apple maturity. While sugars have been slow to develop, cultivars that are otherwise mature need to come off. Night temperatures this past week have been in the thirties several nights with two hard frosts in Hunterdon County. Fruit maturity barely moved on many cultivars this past week as a function of the cool temperatures. Excellent red color is found on all cultivars now. Warmer day temperatures predicted for the rest of this week should hasten maturity and enhance sugar development.

Macoun harvest continues in Warren County as maturity factors are now optimum.

Several new strains of early ripening Fuji are being evaluated at the Rutgers Snyder Farm; they were picked two weeks ago. Yakata Fuji, which is not a true Fuji, was harvested on 9/30/03. Regular strains of Fuji are 7-10 days away, but at the Snyder Farm they have good early sugar development and excellent color.

The following maturity observations were conducted in our lab at the Rutgers Snyder Research and Extension Farm on Monday 10/6-7. Note the harvest date for each cultivar, as fruit was sampled and different dates, and kept in cold storage until it was evaluated.

Also note- we had trouble with the instrumentation and some Brix/sugar values are not included as a result, this is noted with a dash in the Brix column.

Various Cultivars

Location County/Town	Cultivar Strain	Retain®	Date	Pressure	Brix	Starch
Morris-Myersville	Macoun	Yes	10/03	15	13	5
Warren-Hope	Macoun	No	10/06	14	-	5
Warren-Blairstown	Jonagold	No	10/06	13	-	8
Warren-Blairstown	Goldblush	No	10/06	12	-	5
Warren-Blairstown	IdaRed	No	10/03	12	-	3.5
Warren-Blairstown	Stayman	No	10/06	14	-	3.5
Hunterdon-Rutgers Snyder	Delblush	No	10/03	19	11.4	2.6
Hunterdon-Rutgers Snyder	Liberty	Yes	10/03	15.9	12.2	2.7
Hunterdon-Rutgers Snyder	Fuji-cv.Sun	Yes	10/06	14.3	12.0	3
Hunterdon-Pittstown	Fuji	No	10/05	19	-	6
Hunterdon-Rutgers Snyder	Braeburn	No	10/03	20	11.4	2.4

Empire

Empire maturity has advanced. Standard empire has been harvested in central Jersey. This cultivar appears to be on track for a normal harvest date. Empire should be harvested at close to six on the SI chart for best eating quality, sugars are not quite there yet but red color development is excellent.

Location County/Town	Cultivar Strain	Retain®	Date	Pressure	Brix	Starch
Warren-Hackettstown	Empire	Yes	10/06	15	11.3	4
Warren-Hackettstown	Empire	No	10/06	13.5	12	5.7
Warren-Blairstown	Empire	No	10/06	15	10	6

Red Delicious

Most red delicious strains have excellent color but sugars continue to be slow to develop. Red Delicious cultivars have been extremely slow to develop sugars from Hunterdon County north, but are becoming loose and need to be harvested if Retain or NAA was not applied for stop drop.

Location County/Town	Cultivar Strain	Retain®	Date	Pressure	Brix	Starch
Warren-Hackettstown	RD-RedChief	Yes	10/06	14	10	2.3
Warren-Hackettstown*	RD-Starking*	No	10/06	15	10.5	3.8
Warren-Blairstown	RD-cvSchlect	No	10/06	15	8.4	2
Hunterdon- Pittstown	RD-RedChief	No	10/05	15	-	2
Hunt. Rutgers Snyder	RD SuperChief	No	10/05	16	11	2.5
Morris-HardingTwp	RD-RedChief	Yes	10/05	14.5	-	3.2

*Note-the block of Starking Red Del. from Hackettstown had Ethephon applied on 09/03

SEE MATURITY UPDATE ON PAGE 4

Golden Delicious

Golden Delicious continues to have green background color but maturity has advanced significantly. Most growers are harvesting their goldens now in central Jersey.

Location County/Town	Cultivar Strain	Retain®	Date	Pressure	Brix	Starch
Warren-Blairstown	GD-Improved (C&O)	No	10/03	11.6	-	7.6
Morris- HardingTwp-	GD-Smoothie	Yes	10/3	12	-	6

Mutsu-Crispen

Location County/Town	Cultivar Strain	Retain®	Date	Pressure	Brix	Starch
Warren-Blairstown	Mutsu	No	10/06	13.4	-	3.6
Warren-Hope	Mutsu	No	10/06	15	-	1.6
Hunterdon- Rutgers-	Mutsu	No	10/03	16.4	12	2.2
Morris- HardingTwp-	Mutsu	Yes	10/03	16.4	-	2

Cameo

Location County/Town	Cultivar Strain	Retain®	Date	Pressure	Brix	Starch
Warren-Hope	Cameo	No	10/6	14.2	-	6
Hunterdon- Rutgers Snyder	Cameo	No	9/29	20	12	2.3
Morris- HardingTwp-	Cameo	Yes	10/3	13	-	3

Suncrisp®

Location County/Town	Cultivar Strain	Retain®	Date	Pressure	Brix	Starch
Warren-Hackettstown	Suncrisp	No	10/6	14	12.2	3.8
Hunterdon- Rutgers Snyder	Suncrisp	Yes	10/5	21	14.5	2
Morris- HardingTwp-	Suncrisp	Yes	10/3	14	-	3.4

Stayman

Location County/Town	Cultivar Strain	Retain®	Date	Pressure	Brix	Starch
Warren-Hackettstown	Stayman cv.201	Yes	10/6	12	-	1.5
Warren- Blairstown	Stayman	No	10/6	14	-	2
Morris- HardingTwp-	Stayman	Yes	10/3	16.6	-	2

Retain®: It is to late too apply Retain this season.

Strawberry Update

Peter Probasco, Salem County Agricultural Agent

A new variety trial is going in this month in Pedricktown. Last year's trial showed that Chandler is still the best variety for New Jersey, but the new USDA variety "ovation" looks good for a late season variety. Plants are hard to find of ovation, but hopefully more will be available next year.

Diseases have been a problem on plugs this year as **Phytophthora cactorum** has already showed up on plugs. Ridomil is our best chemical control, but growers need to improve their plug mix drainage with 50% vermiculite or perlite before sticking the tips. Growing the plugs outside without a shade cover or plastic cover can be risky when you have the amount of rainfall we had this summer.

Another disease we are seeing this year is **anthracnose** in some of the renovated fields. These need to be destroyed before this disease spreads to your new field. Anthracnose has been reported in Virginia and North Carolina on their plugs so we are concerned that it may appear in New Jersey. Quadris is a good choice for anthracnose control. The last disease to manage is **leaf spot**. Leaf spot disease came down with the tips this year and can be controlled by spraying recommended fungicides in the field on a 3-week schedule. ☐

Perennial Fruits Insurance Deadline

Warren Hawkins-USDA Risk Management Agency

Make Crop Insurance part of your business plan!

The final date to obtain crop insurance on apples, blueberries, cranberries, and peaches in New Jersey is **November 20, 2003**. Current policyholders likewise have until November 20 to make any changes to their existing contracts. Apple producers can select from various quality options and price elections up to \$7.10 per bushel. Peach growers may similarly insure their crop based on their average yield and a price election of \$16.00 per bushel. Highbush blueberries are insurable at \$.56 per pound while cranberries are insurable at \$28 per barrel. Crop

SEE INSURANCE ON PAGE 6

Blueberry Fest a Success

*Bill Sciarappa, Ph.D., Monmouth County
Agricultural Agent*

If you were one of the 100 plus participants of the Twilight Farm Tour for Organic Methods in Blueberry and Bramble production, you know what a wonderful experience this evening session was at Emery's Berry Patch in New Egypt, NJ. If you missed it, here's what happened. The program was sponsored by Rutgers Cooperative Extension and The Northeast Organic Farming Association of New Jersey and the Natural Resources Conservation Service. Our farm hosts John and Susan Marchese set up and organized a wonderful barbecue, with blueberry beverages and desserts under a large tent. NOFA director Karen Anderson expressed the essence of organic philosophy, with her emphasis on building long-term sustainable systems that provide high quality produce and conserve our environmental resources. Erich Bremer then explained the changes in the organic certification process under the new USDA rules and regulations. He also detailed some new OMRI approved organic pesticides available to commercial, organic and conventional growers.

The blueberry plant is an excellent organic crop candidate. It is one of the few native American fruits that has relatively good natural resistance to diseases and insects as well as an inherent vigor because it has been domesticated for less than 100 years. Perhaps 2/3's of what conventional growers do horticulturally is directly applicable to organic production. Some examples include selection for resistant varieties, pruning for canopy ventilation to reduce disease incidence, adding organic amendments in building soil such as peat and humus, mulching for weed control and water conservation, raised mounds, roguing of infected plants and the use of natural plant protection products.

Dr. Gary Pavlis condensed his 30 years of blueberry crop production into a half hour talk on the importance of building quality soil and how pH affects the ability of the plant to extract these valuable nutrients from the soil. At pH 4.5, more ammonium ion is present which the blueberry roots can best utilize in obtaining a source of nitrogen. Organic based fertilizers include rock phosphate, greensand, bone meal, fish meal and composted manures that restore depleted soils.

Dean Polk, state coordinator of the Rutgers Fruit IPM Program, gave examples of the pest monitoring program with pheromone and attractant trapping systems. Dean also utilizes direct pest assessment for decision making which is mapped out in the field with GIS technology. By knowing what pests are out there and where they are, a grower can make better decisions as to any threat to their crop before problems are too large.

Dr. Sridhar Polavarapu spoke on the importance of pruning to reduce scale infestation and sanitation to reduce shelter for other insect pests. Sridhar reported success of a new pheromone mating disruption program for oriental beetle – the larvae feed on plant roots in the soil. By releasing small amounts of pheromone at the right time, the mate-searching behavior of the male beetle is disrupted. The females remain unmated and the next generation never develops into an economic threat. The Blueberry Research Working Group has also had excellent success in organically managing another key pest, the blueberry fruit fly. Various combinations of OMRI approved insecticides were commercially applied when attractant traps showed the development of a high population. The use of new formulations of pyrethrum, neem and spinosad are quite promising in this area.

Pathologist Peter Oudemans provided excellent information on the life cycle of key diseases in blueberry: botrytis, anthracnose, alternaria and mummyberry. Peter again stressed the importance of sanitation to minimize pathogen attack, the use of certified disease-free nursery stock and the roguing of virally diseased plants. He is currently investigating any suppressive effects of organic fungicides like Bordeaux mixture, sulfur, hydrogen dioxide, compost teas and Serenade. This last material is a living fungus. This beneficial organism is applied to the plant where it parasitizes other fungi that attack plant leaves, flowers and fruit.

Dr. Nick Vorsa, director of the Phil Marucci Cranberry and Blueberry Research Center, spoke in the field on the importance of starting with key varieties that are relatively resistant to insect and disease attack among the dozens available. Nick also detailed the pollination process and the importance of bees, both domestic and wild, in enhancing berry size and crop load. With the cool and wet conditions of this spring, some hives pollinated much less and produced only one-half as much honey.

Grower John Marchese gave an excellent overview of his farm's history and his future direction in organic agriculture. He demonstrated his trickle irrigation system that avoids leaf wetness and diseases found when overhead irrigation is used. He had his farm manager Wayne demonstrate mechanical weed control with a Weed Badger – a rotating and movable rotary cultivator that attaches on the PTO of the tractor and can weed between bushes. It was quite effective. John also explained his planting of fine fescue varieties in his walkways to provide suppressive cover and not compete with his crop for water and nutrients.

The event's organizer, Bill Sciarappa, explained his mulching experiment for suppressing weeds, building soil and conserving moisture. Bill compared local sources of mulch as composted municipal leaves, hardwood mulch, pine mulch, coffee grinds, cocoa grinds and high-grade compost in combination with

SEE ORGANIC BLUEBERRY ON PAGE 6

ORGANIC BLUEBERRY FROM PAGE 5

landscape fabric. The long-term experiment is measuring changes in soil pH, soil microbiology, surface and root zone temperatures, plant growth and crop yield. Bill also explained the commercial use of a compost tea machine that uses specific compost sources for beneficial bacteria and fungi production in an aerobic environment.

Mark Citoli of The Berry Farm in Colts Neck provided the audience with a wealth of his information from 20 years experience in growing raspberries in Monmouth County. Mark's down-to-earth discussion of varietal differences, cultural techniques and farming approaches helped many newcomers avoid mistakes in their farm plans.

Returning as the sun set, to the beautiful storefront of Emery's, Susan Marchese had tasty blueberry pie waiting along with her sales display of numerous organic items. This was a perfect example of what our marketing consultant Maureen Scaramella, from the Food Innovation and Research Center, spoke on in adding value to your products and effectively reaching your clientele.

To view a Power Point slide presentation on organic blueberry production work in progress, go to:
<http://www.visitmonmouth.com/07050coopext/forms.asp>. □

CONTINUED FROM PAGE 4

insurance provides effective protection against losses due to natural perils and adverse weather such as hail, hurricanes, and drought. Growers are encouraged to contact a local crop insurance agent as soon as possible for more detailed information and premium quotes.

For a list of crop insurance agents in your area, contact the local USDA Farm Service Agency office or log on to the following Risk Management Agency web site: <http://www3.rma.usda.gov/tools/agents/>

Note: Growers should visit our NJ Garden State Crop Insurance Education Web site at:
<http://salem.rutgers.edu/cropinsurance/agents.html> for a list of agents, our most recent newsletter and new programs.

Submitted by Win Cowgill, Agricultural Agent. □

Fall Frost on Wine Grapes

Mark Chien, Wine Grape Agent, Penn State University Cooperative Extension

With the threat of an early fall frost upon us, it is wise for growers to be prepared for the early defoliation of vines. I hope the following information gathered from various texts and conversations with Drs. Robert Pool and Tim Martinson, both at Cornell University, and Mr. Kevin Ker of KCMS Crop Management Services in Ontario, might help you understand the effects of fall frost, both short and long term, as well as strategies to deal with the fruit.

Utilize the same frost protection measures that you have available for spring frosts. At this time of year, we are probably looking more at radiation type frost events -clear, cold nights, so anything that can be done to warm the air around the vineyard using heating devices, wind fans, helicopters or other air mixing measures would help to ward off frost temperatures at the vine level. Keeping your cover crop mowed low or soil surface smooth and clean will also help. Helicopters are definitely an option.

Frost injury occurs when plant cells freeze with ice forming either inside or outside the cells. As the cells freeze they expand and rupture cell walls. Leaves are the first victims of frost and damage may occur when temperatures dip below 31 degrees F for 30 minutes or more. The extent of damage to leaves can vary and therefore the reduction in photosynthesis. In some cases, leaves will just be singed if temperatures hover around the freezing point. After a frost, evaluate leaf damage/loss and decide whether or not it's worth letting the fruit hang longer. I don't have a definite threshold for you. In Oregon, we have left fruit on with less than a third of the pre-frost canopy and still experienced ripening benefits. We have all seen brix accumulation slow dramatically as the weather has cooled and days have shortened. At this time, I would guess that sugars might be increasing one-tenth every 3-5 days. Flavors, however, develop optimally from 68-72 degrees F. We are near that range so enzymatic processes are still moving.

If vines are defoliated, try to harvest the fruit as soon as possible. In some cases, the grapes will continue to hang nicely on the vine, even without leaves, and, in fact, in my experience they will continue to develop flavors, if not accumulate small amounts of sugar. But there are other issues that may take precedence over wine quality at this point. Of primary concern is vine health and cold hardiness. Any amount of time between harvest and leaf drop is beneficial to carbohydrate production and storage and the slow, steady acclimation of the vine to winter conditions. With rapid leaf drop, this ability is compromised and it is important to remove the fruit, the major assimilate sink at this time of year, in order to have resources diverted to building starch reserves. This is most important for the late vinifera reds. We know from 2000 and 2001 that even in mild winters, if the acclimation process is hampered by a cold spike, that considerable damage can occur.

In all but the most dramatic frost situations, berries will not freeze on the vine since the presence of sugar lowers the freezing point of the cells. Kevin says berries will be damaged if temperatures are below 28 degrees F for more than four hours. Damage appears as browning of the epidermal layer, reminiscent of freezer burn (makes sense). Damage to the cluster rachis and berry pedicel are the real hazards to the fruit. If

SEE FROST ON PAGE 7

FROST FROM PAGE 6

the phloem in these green tissues are injured, the berries will abscise, and you may not have any fruit to harvest. Certainly it will be more difficult to machine harvest the grapes. If the long term survivability of the vineyard is preferred, then all the fruit should be removed after the frost, whether or not it has a winery home. Residual fruit will sap the vine's resources and leave it exposed to winter injury.

The widely accepted belief that leaves are crucial to building cold hardiness is somewhat contradicted by the enormous success of ice wine production in Ontario. Ice wine producers leave crops hanging well after vines are defoliated and must wait until temperatures drop below 17.5 degree F before they can legally harvest. Kevin believes that a slow draw down of water levels in the vine during acclimation may be the key to successful acclimation. Even in 2001, when an early frost dropped leaves, growers harvested ice wine from Vidal Blanc, Riesling, Gewurztraminer, Cabernet Franc, Merlot and other varieties with seemingly no ill effect on the vines.

If we get a severe frost in the next few days that drops leaves, make plans to harvest. Contact your wineries and let them know the condition of your vines. If the frost is widespread, they will have fruit coming in from all directions. Everyone needs to work together on harvest and delivery logistics. Get grape pickers lined up. But first assess the urgency of need to harvest. Evaluate each variety and section of vineyard to determine what needs to come off first - you probably already know which fields are going to get hit. Take a close look at berry condition, especially inspect the rachis and the pedicel and try to determine how much tissue damage has occurred. Pulling berries off and measuring resistance can give you an idea of how much damage has occurred. Also, the skins of berries on a damaged rachis will begin to soften, not in the same way as dessication, but more squishy. Check weather conditions and look for more frost or rain events that will push you to harvest sooner. Again, Kevin says that, if only leaves are damaged, grapes can hang on the vine for up to another week, so you have time to get the fruit off the vines.

To understand more about frost and frost prevention, here are two web sites that might be helpful to you:
<http://biomet.ucdavis.edu/frostprotection/FP005.html>
<http://www.ces.ncsu.edu/depts/hort/hil/hil-705.html>
Reference resources for this article:

Oregon Viticulture. Edited by Dr. Ed Hellman
Viticulture: Practices. Vol 2. Coombes and Dry
General Viticulture. Winkler, Cook, Kliewer, Lider
Mid Atlantic Grape Growers Guide. Wolf and Poling

Submitted by Jerome L. Frecon, Agricultural Agent. □

Editor's Note: the Fruit edition will be issued monthly for the remainder of the season.

Vineyard Compost Workshop

October 14, 2004, 9 a.m. to 4 p.m.
Fruit Research and Extension Center
Biglerville, PA (Adams County)

Dr. Jim Travis, plant pathologist at Penn State, and his graduate group and other research faculty will present information related to their work with compost use in commercial vineyards as well as new materials to control diseases in vineyards in an all day workshop at the Fruit Research and Extension Center just north of Gettysburg, PA. Topics for the day include:

- Alternative fungicides (e.g. Phostrol, Nutrol, pHortress, Elemax, Armicarb, Stylet Oil, Serenade, & many others)
- Greenhouse and field trials were conducted this season to determine if milk (that's right...cow's milk) is effective in controlling powdery mildew.
- Compost tea making and application is very complex since the desired aim is to maximize the extraction and increase application of living beneficial biological organisms in the vineyard. Come and learn how to make and apply quality compost tea.
- Grape vine decline and replant problems will be discussed along with their causes and recommendations for prevention. A field research plot will be used to discuss the problems and control options.
- Compost Research Results and Grower Experience from 3 seasons at Slate Quarry (Northampton Co.) and Manatawny (Berks Co.) vineyards, and Lake Erie Grape Research and Extension Center.
- Effectiveness of compost in suppressing *Cylindrocarpum*, a grape root disease organism.
- PA Vine Decline Survey, 3-yr study, learn the extent of vine decline in PA, what is causing the problems and recommendations to reduce vine decline in your vineyard.
- Demonstration of compost application including a discussion of spreader calibration, application width and depth.
- Discussion and visitation of field research plot on replant problems and recommendations focusing on Tomato Ringspot Virus (TmRSV) and Dagger Nematode. Recent findings from the PA Vine Decline Survey indicates that TmRSV and dagger nematodes are widespread in PA vineyards on French hybrid and Vinifera grapes.
- Meet and greet Steven Menke, the new state extension enologist at Penn State Cooperative Extension.

Cost of the workshop is \$35 including lunch and handouts. Send registration to or call for more information: Karen Weaver, P.O. Box, 290 University Drive, Biglerville, PA 17307. Phone: 717.677.6116.

Submitted by Jerome Frecon, Agricultural Agent. □

FIRST CLASS
POSTAGE PAID
PERMIT #576
MILLTOWN, NJ 08850

PLANT & PEST ADVISORY FRUIT EDITION - CONTRIBUTORS

Rutgers Cooperative Extension Specialists

Robert Belding, Ph.D., Pomology
George Hamilton, Ph.D., Pest Management
Norman Lalancette, Ph.D., Plant Pathology
Sridhar Polavarapu, Ph.D., Entomology
Peter W. Shearer, Ph.D., Entomology

NJAES/Cook College

Joseph Goffreda, Ph.D., Breeding
Rutgers Cooperative Extension Agricultural Agents
and Program Associates

Atlantic County, Gary C. Pavlis, Ph.D. (609-625-0056)
Gloucester County, Jerome L. Frecon (856-307-6450)
Hunterdon County, Winfred P. Cowgill, Jr. (908-788-1338)
Morris County, Peter J. Nitzsche (973-285-8300)
Warren County, William H. Tietjen (908-475-6505)
Fruit IPM, Dean Polk (609-758-7311)

Meredith Compton, Program Associate (908-788-1338)

Gene Rizio, Program Associate (856-566-2900)

David Schmitt, Program Associate (856-307-6450)

NJAES Sustainable Agriculture Coordinator

Olga Wickerhauser

Newsletter Production

Jack Rabin, Associate Director for Farm Services, NJAES
Cindy Rovins, Crop Management Communications Editor

For back issues, visit our web site at:
www.rce.rutgers.edu/pubs/plantandpestadvisory.

Rutgers Cooperative Extension - NJAES
U.S. DEPARTMENT OF AGRICULTURE
Rutgers - The State University of New Jersey
Plant & Pest Advisory
18 College Farm Road
Cook College
New Brunswick, N.J. 08901-8551

Rutgers Cooperative Extension (RCE) provides information and educational services to all people without regard to sex, race, color, national origin, disability, or age. RCE is an Equal Opportunity Employer.

Pesticide User Responsibility: Use pesticides safely and follow instructions on labels. The pesticide user is responsible for proper use, storage and disposal, residues on crops, and damage caused by drift. For specific labels, special local-needs label 24(c) registration, or section 18 exemption, contact RCE in your County.

Use of Trade Names: No discrimination or endorsement is intended in the use of trade names in this publication. In some instances a compound may be sold under different trade names and may vary as to label clearances.

Reproduction of Articles: RCE invites reproduction of individual articles, source cited with complete article name, author name, followed by Rutgers Cooperative Extension, Plant & Pest Advisory Newsletter.