



The BLUEBERRY BULLETIN

A Weekly Update to Growers

Dr. Gary C. Pavlis, County Agricultural Agent

6260 Old Harding Highway, NJ 08330

Phone: 609/625-0056 Fax: 609/625-3646 Email: Hpavlis@njaes.rutgers.edu

September 28, 2009

Vol. XXV, No. 23

AT A GLANCE...

This is the last issue for the 2009 season. I wish you all a very safe and happy holiday season.

In the fall it is wise to:

- 1. Assess how well your herbicide program performed and plan adjustments.**
- 2. Take soil samples to determine if pH should be adjusted (fall is best)**
- 3. Apply lime sulfur when 2/3 of the leaves drop to control Phomopsis, cane canker etc.**

Culture:

*Dr. Gary C. Pavlis
County Agricultural Agent
Rutgers University*

Spring Planting Plans

Some growers may be considering a new blueberry planting next spring. It is imperative that some preparation occur beforehand so that disasters do not occur down the road. This year I visited a farm with 4 year old 'Duke' plants whose berries were not yet ripe. The berry load was very large but the berries were starting to dry up and there were very few leaves on the plants. As any reader of this newsletter knows, having no leaves is usually due to a root problem. When I dug a plant up I saw that the roots system went down 6-8 inches and then stopped. The plant could be literally peeled off the soil at a depth of 8 inches. Further investigation revealed that the soil changed color at 8 inches to a bright orange, contained clay and was impervious to blueberry roots. So

what we have here is a planting of 'Duke' that was 4 years old, with a root system that will never grow any deeper than 8 inches because of the clay hard pan. These plants were trying to ripen a crop with a tiny root system and as a result, could not uptake enough water and nutrients to push leaves and ripen a load of fruit. The grower options are not very appealing: 1. pull up all the plants and sub-soil to a depth of at least 2 feet and replant, 2. sub-soil a new row between the old ones and move all the plants, 3. remove the trickle system and apply 6 inches of mulch to the plant row and return the trickle system to the top of the mulch hoping that the root system will grow up into the mulch. All three require a lot of work. The alternative is a dead block of 'Duke'. This situation once again reminded me of the importance of site preparation before planting. Doing a soil boring before planting would have revealed the hard pan and the need for sub-soiling, something which is a lot easier to do before the plants are in the ground.

There are some critical things to take care of before planting. Checking pH and adjusting it to 4.5 to 4.8, doing a soil boring and checking for hard pans and the seasonal high water table, and eliminating perennial weeds are at the top of the list. In the end, a little work early can eliminate a lot of headaches later.

Pruning Blueberries: New Jersey has approximately eight thousand acres of blueberries under cultivation and this is the primary crop for which I have extension responsibilities. Pruning continues to be little

understood and poorly executed throughout the industry. In fact, it is rare to find two growers who prune the same. I would like to clear up a few misconceptions and try to outline a simple method of pruning blueberries. The first place to start would be to discuss the importance of pruning. Growers often feel that pruning is of little value because the effects of the practice are not immediately apparent or dramatic. It should be noted that a well known blueberry researcher, Phil Marucci stated many years ago that there were a few factors which have greatly influenced the lack of increase in blueberry yield on a per acre basis over the last 30 years and pruning was the most significant factor.

More recent research has revealed that young canes are more efficient fruit producers than old canes. In fact, canes, which are 3 to 10 years old, allocate greater than 50% of applied water and fertilizer to fruit production. By the time a cane reaches 20 years of age, only 25% are allocated to fruit. (Water and fertilizer costs the grower money and there is no profit in the production of blueberry leaves.) Additional research compared three pruning types on yield and fruit size. Plants were 1) regularly pruned in a moderate manner such that one out of every six canes per cut out, 2) heavily pruned by removing 40% of all canes out every five years and 3) not pruned at all. The result was that the regular moderate pruning had the highest yield on the least number of canes. Research has also shown that as pruning increases, new cane production increases.

These studies show us that young canes out produce old canes, the removal of one out of six canes produces the right number of new canes and the highest yield and fruit weight is produced with regular moderate pruning.

It is also important to understand how a blueberry plant grows. Each year, canes are initiated from the base of the plant. Each succeeding year, the cane produces laterals, laterals produce laterals and so on. Each year the lateral production on any individual cane decreases in diameter, or put in other words, the wood becomes progressively twiggy. It should be realized that as wood becomes smaller, fruit size decreases. This is why we detail prune to increase fruit size.

With this information under our belts we can address how to prune. There are really 5 basic steps to keep in mind when approaching a bush, which is to be pruned. 1.) Assess the plants overall vigor, is cane production adequate? 2.) Prune out all dead wood. 3.) Locate the oldest canes and prune out one of every six canes thus if the plant has twelve canes, remove two of the oldest. 4.) Prune out all low branches, which will never be picked and are a source for disease. 5.) Detail prune, i.e. remove as much twiggy wood as time allows.

Armed with these basics, we can now deal with the different plant situations that arise. First, pruning young plantings has primarily the objective of establishing the plant to obtain full production as soon as possible. Thus, the first two years the procedure is to remove flower buds. Some growers cut off as much as the top half of the plant.

This is really quite drastic. Rubbing off lower buds would be sufficient however in a big operation it is usually less labor intensive to cut the top 3-5 inches off each cane which will remove most flower buds. Any weak twiggy growth should also be removed.

In year three, a small crop is possible but not the expense of stunting the plant. Usually 1-2 pints/bush is the optimum and fruit should only be on strong wood.

The fourth and fifth year twiggy growth must again be removed as well as any lateral canes, which have developed. Fruit production can be increased but the amount is dependent on the number of new canes which were produced the preceding years, 3-5 canes/yr. is optimum.

The blueberry planting should be in full production by the sixth year though there are numerous variables, which will influence this timing. The most important of these being proper pH and nutrition, water management and the crop to cane production balance.

I have found it is also helpful to growers to discuss blueberry pruning strategies based on plant status. I do not believe there is a strategy for each variety though any one variety may fall into one of the following categories most of the time. For example, the variety Blueray often has a spreading or open habit in

which canes tend to bend down to the ground. Plants of this type must be thinned to the 1 of 6 rule however canes that are bent over also tend to produce an upright shoot. These canes should be pruned just above this upright shoot to produce a more erect plant. Other varieties that often fit into this category are Berkeley, Bluetta, Coville, Weymouth and Patriot.

Varieties such as Bluecrop, Collins, Darrow, Earliblue, Herbert, Jersey, Lateblue and Elliot often fall into the erect plant category. These plants become overly dense in the center which decrease's fruit bud initiation. The pruning strategy for this category is to remove older central canes before all others.

When plants are overly vigorous, the primary strategy is to remove entire canes rather than spend time on detail pruning. This is done at least until the proper fruit to cane production balance can be established through nutrition and fruit production management. Varieties that are prone to this situation are Earliblue, Collins, Blueray, Herbert and Collins though any variety can potentially be overly vigorous.

Weak plants are treated in the opposite manner. The primary procedure is to detail prune rather than whole cane elimination. Varieties that are classically put into this category are Weymouth and Bluetta. I should take a moment to address the method of pruning on a field that has been neglected for a long time and needs to be rejuvenated. This question often comes up when a grower has purchased one of these fields.

The most important step is to inspect the plants in their field for virus symptoms. Any plant showing these symptoms should be pulled out. The plant inspections must be done during the growing season because symptoms are most easily seen on the leaves. The next step is to completely prune everything down to the ground, a chain saw is the quickest and easiest method. This pruning is best done in

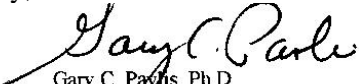
late winter. An application of a 10-10-10 fertilizer should be made in early April, usually at a rate of 400 lbs. per acre. No crop will be harvested that year however the following winter the canes should be thinned to approximately 12-16 canes per plant. A full crop can be harvested that year.

In summary, pruning correctly can 1) increase yield, by producing more young canes, 2) increase fruit size by producing more strong wood, 3) decrease disease by removing dead wood and, 4) increase cane initiation because as pruning increases, cane number increases. Pruning costs money, but it will cost a grower more if it isn't done and it isn't done correctly.

Final Thoughts for 2009

I have talked to many growers since harvest who have told me that they were not happy with the way this year panned out. Prices were not where they were for the last couple of years and of course, production costs were up. I have talked to a few people who are involved in the marketing of blueberries both in the US and worldwide and they believe that this year is not just a bump in the road but could be a trend for the future. Worldwide production of highbush blueberries is projected to double in the next 3-5 years and it is safe to assume that worldwide consumption is not going to follow the same trend in the same amount of time. I think the take home message that I would like to leave you with is that I would not dismiss this year as a fluke and it may be wise for every grower to look at their operation over the winter and decide how the efficiency of that operation can be improved. Rutgers Cooperative Extension can be of some help in this regard as we do have a Farm Financial Program available to growers. Call me if you would like to here more information.

Sincerely,


Gary C. Parks, Ph.D.
Atlantic County Agricultural Agent

Editor – Blueberry Bulletin
GP/slp

Blueberry Viruses-Protecting Our Industry

James J. Polashock¹ and Peter V. Oudemans²
1USDA-ARS, GIFVL and 2Rutgers University
P.E. Marucci Center for Blueberry and Cranberry Research
125A Lake Oswego Rd.
Chatsworth, NJ 08019

The Michigan blueberry community recently announced the detection of two blueberry viruses that were previously unreported in that state (see the Associated Press report in the Philadelphia Inquirer <http://www.philly.com/philly/business/57680397.html>). The first virus, Blueberry Scorch Virus (BIScV), is known to be prevalent in the blueberry growing regions of the Pacific Northwest and in several states on the East Coast including New Jersey. It was first described here as Sheep Pen Hill Disease in the early 1970s. BIScV causes a blossom blight that gives affected bushes a 'scorched' appearance. The disease can also cause a dieback of young twigs and affected bushes may exhibit a red 'line pattern' on mature leaves late in the season. The disease is known to be aphid transmitted and infected plants can remain asymptomatic for years after infection.

The second virus, Blueberry Shock Virus (BIShV), has only been reported from the Pacific Northwest. Blueberry Shock (sometimes called necrotic shock) causes a blighting of flowers and young leaves and may lead to defoliation in early summer. This virus is pollen transmitted and is vectored by bees during the flowering period. Pollen transmission occurs when virus-infected pollen fertilizes the flowers of a healthy bush. BIShV-infected plants often appear to recover in 2-5 years, but remain infected and can continue to transmit the disease through pollen. Infected pollen can survive in the bee hive for up to one week and there is potential for spread through distribution at the hive while in or near an infected area.

There are several ways growers can help prevent virus infection and spread in their fields. Prevention is the best method for virus control. If you can prevent introduction of virus infected material on to your farm you will save yourself significant trouble. Sanitation is the second best method. If virus infected material is discovered it should be completely removed. Root systems and crowns from infected plants regenerate infected plants. It is strongly recommended that you purchase cuttings and plants only from trusted and certified sources.

Plants purchased from questionable sources should be quarantined or monitored closely for at least four years to be sure they are free of disease.

Plants derived from tissue culture should not be considered guaranteed virus free. If the original source materials for the tissue cultured plants were infected, the resulting tissue cultured propagules can remain infected. Furthermore, 'tissue cultured' plants are usually potted and hardened off in greenhouses prior to shipping and can therefore be subject to infection prior to shipping.

If you are propagating from your own mother plants, be sure to have them routinely tested for important viruses.

Plants infected with either BIScV or BIShV, as with most plant virus infections, can not be cured. Plants suspected as having an infection should be tested immediately and removed if confirmed to be positive. If a virus with a known vector is detected in a field (such as the BIScV transmission by aphids), approved IPM methods must be used to control the vector(s) and limit spread in and around the affected fields.

There are a few services that will test for blueberry viruses. The NJ Department of Agriculture provides a nursery certification program that involves BIScV testing. Testing companies such as Agdia (<http://www.agdia.com/>) provide a standardized blueberry panel as well as an extended blueberry panel (<http://www.agdia.com/testing-services/Blueberry.cfm>) which offers testing for 8 typical and 17 rare viruses known to infect blueberry.

In Other News.....

Expiration Date of Employment Eligibility Verification Form I-9 Extended to Aug. 31, 2012
WASHINGTON—U.S. Citizenship and Immigration Services (USCIS) announced today that the Office of Management and Budget has extended its approval of Form I-9 (Employment Eligibility Verification) to Aug. 31, 2012. Consequently, USCIS has amended the form to reflect a new revision date of Aug. 7, 2009.

Employers may use the Form I-9 with the revision date of either Aug. 7, 2009 or Feb. 2, 2009. The revision dates are located on the bottom right-hand portion of the form.

For more information on USCIS and its programs, or to obtain Form I-9 and the Handbook for Employers, visit www.uscis.gov/i-9. Employers who do not have computer access can order the Form I-9 by calling our toll-free forms line at (800) 870-3676.

USCIS forms and information on immigration laws, regulations, and procedures can also be requested by calling the National Customer Service Center toll-free at (800) 375-5283.

APPOINTMENTS BY THE OBAMA ADMINISTRATION –

Paul Hlubik appointed State Director for Farm Service Agency – Hlubik has worked for the State Farm Service Agency since 1987, and has served as state executive director since 2001. He has also owned and operated Backacres Farms since 1981. Hlubik serves as a trustee for the New Jersey Agriculture Society, which oversees the New Jersey Farmers Against Hunger, Agriculture in the Classroom, and the New Jersey Agricultural Leadership Development Program. He was also a previous member of the New Jersey Soybean board, past president of the Burlington County Board of Agriculture, and as well past president of New Jersey Association of County Office FSA Employees.

Howard Henderson appointed State Director for Rural Development - Henderson has served as Vineland Area Director for the New Jersey Department of Agriculture since 1998. Previously he held several positions with the New Jersey Department of Agriculture State Office, and Farmers Home Administration since 1975. He has worked in the state and national offices of USDA, working in the Delaware/Maryland Rural Development office as a Farmer Program Specialist, as well as the New Jersey State offices.

2009 BLUEBERRY BULLETIN INDEX - Vol. XXV

In State – 81
Out of State – 77
Total BB mailing – 157

Issue	Date:	Article, Author and/or Source
1	03/31	2009 Rutgers Commercial Blueberry Pest Control Recommendations for NJ. Phomopsis Twig Blight by Peter Oudemans
2	4/06	Options for Managing Weeds in Highbush Blueberry by William Sciarappa and Gary Pavlis OSHA President Obama and OSHA by Frank White, ISHN January 2009
3	4/13	NJ Reaches Agreement with DE, NY on Farm Vehicle Usage
4	4/20	Blueberry Twilight Meeting, Variety Farms
5	4/27	Notes on Anthracnose Control, Blueberry Scorch Disease by Peter Oudemans
6	5/5	Key Points to Scouting Fields, Recommended Blueberry Disease Control by Peter Oudemans, Rutgers University
7	5/11	Blueberry Twilight Meeting, Atlantic Blueberry Company
8	5/18	Blueberry Scorch Symptoms, Peter Oudemans, Rutgers University
9	5/29	No Leaves, Gary Pavlis, Rutgers University
10	6/1	Sick Plants, Gary Pavlis, Rutgers University Insect Management for Organic Highbush Blueberries, Dr.Cesar Rodriguez-Saona and Dean Polk, Rutgers University Shipping Certified Organic Blueberries to Canada, by Dr.Cesar Rodriguez-Saona and Dean Polk, Rutgers University
11	6/8	The No Leaves Syndrome; Gary Pavlis, Rutgers University
12	6/15	Harvest 2009; Gary Pavlis, Rutgers University
13	6/22	Cane Death; Gary Pavlis, Rutgers University
14	6/29	Native Bee Benefits Pamphlet by Neal Williams, Bryn Mawr College and Rachael Winfree, Rutgers University Blueberry Anthracnose Management (during harvest); Peter Oudemans, Rutgers University
15	7/6	Federal Minimum Wage Increase Regional Auctions for Farm Lease and Service Agreements
16	7/15	Water Management; Gary Pavlis, Rutgers University Current Topics at Rutgers IR-4 Minor Use Pesticide Testing Program: Dr. Cesar Rodriguez- Saona, Rutgers University
17	7/20	Leaf Tissue Analysis: Gary Pavlis, Rutgers University U.S. Blueberry Purchase to Benefit N.J. Growers; The Press of Atlantic City
18	7/27	Fertility; Gary Pavlis, Rutgers University
19	8/3	EPA Announces 60-Day Comment Period on Guthion Phaseout for Blueberry: Dr. Rufus Isaacs, Dept. of Entomology, Michigan State University, Dr. Cesar Rodriguez-Saona, Extension Specialist in Blueberry Entomology, Rutgers University
20	8/10	News Release-Apply for 2010 Conservation Program; NJDA News Release-USDA's Farm Service Agency to Begin Accepting Applications for New Biomass Crop Assistance Program Later Life Farming Website Now Available; Rutgers NJAES website
21	8/17	Mulch Plastic and Drip Irrigation Tape Recycling Available; NJDA
22	8/24	Announcement: EPA Approves Registration of Avaunt in Blueberries Blueberry IPM Training at Perry Acres, Berks County, Pa Reminder of deadline: Nominate Projects for the 2009 Food Use Workshop Website for Helping Farmers Cope with Stress: University of Maine Coop Ext.
23	9/28	Blueberry Viruses-Protecting Our Industry by James J. Polashock1 and Peter V. Oudemans

DR. GARY C. PAVLIS
COUNTY AGRICULTURAL AGENT
RUTGERS COOPERATIVE EXTENSION
OF ATLANTIC COUNTY
6260 OLD HARDING HIGHWAY
MAYS LANDING, NJ 08330

September 28, 2009

Vol. XXV, No. 23

BLUEBERRY BULLETIN

If you have any comments about this newsletter, please make them in the space below and mail to:

Dr. Gary C. Pavlis, County Agricultural Agent
Rutgers Cooperative Extension of Atlantic County
6260 Old Harding Highway, Mays Landing, NJ 08330

I would like to see an article on the following subjects: _____

I would like to comment on the following articles: _____

Title: _____ Date: _____

Comment: _____

The Blueberry Bulletin
Weekly Newsletter
Published By
Rutgers Cooperative Extension of Atlantic County
6260 Old Harding Highway, Mays Landing, NJ 08330
Phone: 609/625-0056, Fax: 609/625-3646
E-mail: pavlis@njaes.rutgers.edu
<http://www.njaes.rutgers.edu/pubs/blueberrybulletin>
Dr. Gary C. Pavlis, County Agricultural Agent
Editor - The Blueberry Bulletin
Sharon Ponzetti, Secretary
E-mail: ponzetti@njaes.rutgers.edu