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Cooperative Extension

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NEW HAMPSHIRE VEGETABLE, BERRY & TREE FRUIT NEWSLETTER

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As I write this on April 20, our low tunnels at Woodman Farm have kales, mustards, spinach and winter sprouting broccoli growing like crazy. They were planted in late September, and are now looking great. It looks like June under there, rather than the cool and cloudy April the rest of us have been experiencing. Stay tuned as we continue our research in these inexpensive season extension structures. They're not without their challenges, but it sure is exciting to have big green things growing this time of year.

Kale ready for harvest under low tunnel at UNH's Woodman Farm, 4/14.

New Hampshire Grower Listserv

Several times over the last year, growers have mentioned to me that they value listservs as a way to exchange information quickly with other growers. Some expressed that it would be a good idea to have a listserv for vegetable and berry growers in NH. I just established such a list to allow discussion about all issues and topics related to growing and marketing vegetable and fruit crops in New Hampshire. This is a good way to find out whether other growers have a certain piece of equipment, to let others' know about excess transplants for sale, to discuss planting dates, and countless other topics.

If you subscribe to the listserv, you will be able to send and receive messages sent to members of the listserv. Examples of listservs that you may already belong to include the High Tunnels listserv hosted by Kansas State University, or the listservs of NOFA-NH or the Vermont Vegetable and Berry Growers' Association.

To subscribe, send an email to: ListProc@lists.unh.edu. Leave the subject line blank, and in the message, write "subscribe nh.veg.berry firstname lastname". Note that you should replace firstname and lastname with your actual first and last names. See the example!

To: ListProc@lists.unh.edu
Subject:
Subscribe nh.veg.berry Sandy Black

Once you are a member, to post a message to the list, all you will need to do is email NH.veg.berry@lists.unh.edu. You can unsubscribe at any time. Once you subscribe, you'll receive an email telling you how do to this. If you have any trouble subscribing or unsubscribing, please email me, the list owner, at becky.sideman@unh.edu.

I thank all of the growers that suggested this, and I hope that this is helpful to you. The more growers that subscribe and use this method of communicating, the more valuable it should become!

Bloat Nematode: Garlic (And Onion) Pest

By Alan Eaton, Extension Specialist, Integrated Pest Management

Bloat nematode is an old but re-emerging pest of garlic and onions. I learned that it was a problem in the northeast in the 1930's, and has reappeared now that we are no longer producing garlic by seed. It is spread easily by vegetative reproduction. Dr. George Abawi (Cornell Uni-

versity) confirmed that it is widespread in New York. It has also been confirmed in Pennsylvania, Ontario, Vermont, and Massachusetts. I don't know how serious it is here in New Hampshire.

Symptoms & Signs:
Early yellowing or browning of leaves is common. Infested bulbs store poorly. They often show discoloration and missing wrapper leaves. The basal plate/root attachment area shows that some roots look fine, but some seem missing. The nematode makes garlic more susceptible to fusarium and other rot fungi, so pink staining of bulbs and cloves is common. Infested bulbs can be OK to consume, but shouldn't be used for seed.

Management:
Rotation can help. Rotate out of alliums (onion, garlic, leek, chives) or alternate hosts for 4 years. Alternate hosts are: hairy nightshade, celery, parsley, miners' lettuce (AKA Claytonia), salsify, tulip, gladiolus, possibly dahlias. Fumigation can work (Vapam or Telone II are labeled in NH) but it is expensive, and both are toxic to beneficial as well as harmful soilborne organisms and pose a risk of contaminating water bodies. Hot water treatment of bulbs is semi-effective. The same is true of surface treatments for the bulbs. At the 2011 Empire State Fruit & Vegetable Expo, Dr. George Abawi and Kundan Moktan report that:

"Considerable information is available in the literature on various hot water treatment protocols against the bloat nematode in garlic bulbs and plant materials of other crops. Depending on the soaking time, water temperature reported to reduce the population of this nematode have ranged from 38 – 49 C (100 - 120 F). However, water temperature above 50 C (122 F) appears to injure garlic tissues. Also, dipping garlic bulbs in hot water alone without other additives (sodium hypochlorite, avermectin, formaldehyde, various fungicides, or other chemicals) were not as effective. It appears that the most used protocol is dipping for 20 minutes at 49 C (120 F). Hot water treatment should be considered only when clean bulb are not available, as even the best hot water treatment does not completely eliminate the nematode and may also increase other disease problems".

The nematodes can get deep into internal crevices, where they are protected from these agents. Avoid dumping infested debris or bulbs in your fields.

In New York, research is underway on cover crops that may reduce populations of the nematodes --- mustard and sorghum-sudangrass. They are also considering testing flooding as a control measure. They suggest that the nematodes survive in wet soils poorly, but survive well on dry soil. Information from Ontario suggests the nematodes do well in wet soil!

Rotation and keeping an eye out for this potential problem are likely your best lines of defense.

Blueberry Mummyberry And Fertilization

Though I have written before on these topics, there seem to be more and more new blueberry plantings, and I thought it might bear repeating, with a little updating.

It is prime mummyberry control time in many blueberry plantings around the state. Primary infection can occur anytime between budbreak and when leaf shoots are on average 1" long. If shoots are infected, they produce spores that will then infect blooms (secondary infection). If primary infections are controlled well, secondary infections won't even happen. It's anyone's guess whether it will be a bad or good year, but there should be very little inoculum, since we have had very little disease in the past few years. If you had mummyberry last year, chances are good that you have inoculum in your planting.

I will first point out that the most effective mummyberry controls are not fungicides, but:

- **pruning well** to increase air flow within and between bushes.
- **mulching** thoroughly in the fall or very early spring to bury mummies.
- spreading **urea prills** in early spring when mummy berry cups are first seen at a rate of 200 lbs of 50% urea prills per acre (for conventional growers only)
- **raking** to disturb mummyberry cups when they are first seen in the spring

If growers plan to use fungicides, **Indar** (*fenbuconazole*) is the most effective fungicide and should be used first to prevent primary infections. This means coverage from budbreak until leaf shoots are 1" long. Some growers may want to maintain coverage through bloom if they expect that spores may continue to blow in from neighboring unmanaged areas, or if they don't successfully control primary infections.

We recommend no more than 2 applications of Indar in a row to slow down resistance development in the fungus, so what is the best rotation fungicide? Data published from Michigan State, Rutgers, and the summary in the New England Fruit Guide don't agree in all cases - which may be due to different ways the studies were done, year-to-year variation in weather conditions, etcetera. Here are some of what I'd consider to be the best options to follow **Indar**:

Pristine (boscalid + pyraclostrobin), **Switch** (cyprodinil + fludioxinil) - both have some activity on mummyberry and they are both very effective against anthracnose and

botrytis, so either would be a good choice for bloom time sprays to control these diseases.

Captevate (fenhexamid + captan) - depending on which study you look at, this has poor to good control on mummyberry, but is good on both anthracnose and botrytis. Assuming you had good control of primary mummyberry infections, this should be a fine choice for later (bloom time) sprays.

Serenade (*Bacillus subtilus* QST713)- a biopesticide, approved for organic use. If a grower's cultural controls are insufficient, this is a low-toxicity material that has shown decent efficacy in at least one trial.

Fertilization

For a new planting, pH is extremely important. Depending on the initial pH of your soil, it can take a year or more to lower the pH to 4.5-4.8, which is ideal for blueberries. The best way to lower pH is to broadcast elemental sulfur after taking a soil test to determine how much sulfur is needed. Broadcast sulfur over the entire planting, rather than just placing it in the planting row. A low pH in the grassy aisle between rows will help keep the grass in check and minimize the need for mowing.

For maintenance fertilization -

Timing - Recent research has changed our thinking about the optimum time to fertilize blueberries. We used to say budbreak, but now research has shown that bushes are most actively taking up fertilizer after they really start growing, so we recommend waiting until bloom. The other advantage of doing this is that the risk of early spring rains washing away nutrients before the bushes can take them up is reduced. Split applications are still recommended, which means taking the total amount recommended and applying half at bloom and half 3-4 weeks later (mid-late June). No fertilizers should go on after July 1; late applications can encourage fall growth and reduce winter hardiness.

Amounts –UNHCE soil and tissue tests now give nutrient amounts *per bush* as well as *per acre*. If you have an old soil test, the conversion from *per acre* rates to *per bush* rates is fairly straightforward. Remember that once you have the nutrient (N, P and K) amounts, you still need to calculate how much fertilizer, which depends on which fertilizers you are using. You can use the table below to simplify the math. Remember that the *per acre* rate that UNHCE soil and tissue tests give assumes that you are banding the fertilizer; that is, that you are applying it ONLY to the plant rows, and not to the grassy aisles.

For example: The tissue test says to apply 40 lbs per acre of actual nitrogen. You plan to use ammonium sulfate (21-0-0). Look in the 21% fertilizer column to see that you need to apply 2.8 oz of ammonium sulfate per bush. If you chose instead to use Pro-Holly (4-6-4), you would have to apply 14.7 oz (or 0.9 lbs) per bush.

This chart assumes that the recommendation in lbs per acre is the actual nutrient amount required, e.g. 100% N, P2O5 or K2O, and that it is the band application rate. This also assumes 40 square feet per bush, an area slightly larger than 6'x6'.

Converting recommendation (lbs nutrient per acre) into amount of fertilizer per bush

Recommendation lbs/acre	Percent nutrient in chosen fertilizer:				
	100% oz/bush	21% oz/bush	45% oz/bush	4%	
				oz/bush	lbs/bush
10	0.1	0.7	0.3	3.7	0.2
20	0.3	1.4	0.7	7.3	0.5
30	0.4	2.1	1.0	11.0	0.7
40	0.6	2.8	1.3	14.7	0.9
50	0.7	3.5	1.6	18.4	1.1
60	0.9	4.2	2.0	22.0	1.4
70	1.0	4.9	2.3	25.7	1.6
80	1.2	5.6	2.6	29.4	1.8
90	1.3	6.3	2.9	33.1	2.1
100	1.5	7.0	3.3	36.7	2.3

REMEMBER – It is important to spread fertilizers evenly to the soil over the entire area of the blueberry bush. Do not apply the entire amount that should be spread over 40 square feet to a tight ring around the bush. The fertilizers often used in blueberry plantings (urea, ammonium sulfate) tend to acidify the soil. Also, ANY nitrogen fertilizer, if applied in a high concentration, can burn sensitive roots of blueberry bushes.

Soil and Tissue Testing – Which should I do? Here again, we have learned a lot from recent research. At the New England Vegetable and Fruit Meeting in Dec 2007, Gary Pavlis (Rutgers University Blueberry Specialist) showed very convincing data from New Jersey suggesting that soil tests tell us very little about whether blueberry plants are getting the nutrients they need. However, because pH is important, regular soil testing to be sure that pH is in the correct range is critical. However, basing a fertilization program on soil test results really only makes sense prior to planting. After bushes are established, leaf tissue testing of samples taken when fruits are first starting to ripen is a much more accurate way to assess how much fertilizer is needed.

New Items On UNH Cooperative Extension's Website

We have revamped part of the UNH Cooperative Extension website, so it's now easier to navigate. Check it out – we hope that it's easier for you to find the information you're looking for.

The agriculture section of UNH Cooperative Extension can be found by visiting http://extension.unh.edu and clicking on the button marked **Agriculture**. Here on this page you can find information on soil testing, insect and disease identification, and current/upcoming events.

Once you're on the agriculture page, information about fruit and vegetable can be found by clicking on the button marked **Fruit and Vegetable Crops.** This page has a list of simple links, including **Conference & Workshop Proceedings.** We are just getting started and are still populating this, but you can find several powerpoint presentations from recent workshops that you might not have been able to attend. Or, perhaps you attended the workshop and would like a reminder of something that one of the presenters said. Either way, we hope this is useful to you.

At A Glance
UNH Cooperative Extension Vegetable & Fruit Resources

Soil Testing Call 862- 3200 or visit:
http://extension.unh.edu/Agric/AGPDTS/SoilTest.htm

Plant Diagnostic Lab Call 862-3841 or visit:
http://extension.unh.edu/Agric/AGPDTS/PlantH.htm

Arthropod Identification Call 862-3200 or visit:
http://extension.unh.edu/Agric/AGPDTS/ArthroID.htm

Fruit Pest Phone Update (seasonal): 603-862-3763

Subscriptions – This newsletter is free online at http://ceinfo.unh.edu/Agric/AGFVC.htm. Email becky.sideman@unh.edu if you would like to receive email notification when a new issue is available. You can subscribe using the form available at the website above if you would prefer to receive a paper copy via U.S. mail.

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Upcoming Meetings And Events

TUES Apr 26. **High Tunnel Berry Production Workshop.** Center of NH Radisson, Manchester NH. 9am-4pm. $30, includes lunch. Topics include how tunnels affect berry growth, grower experiences with high tunnel berries, determining whether tunnel berry production pays, and insect & disease management. For more information, email: suzanne.hebert@unh.edu or call 603-862-3200. **SF, PAT.**

WED May 18. **Joint Massachusetts/New Hampshire Tree Fruit Twilight Meeting.** Lavoie's Farm, Hollis NH. 5:30-7:30pm. Hosted by Adrien Lavoie & Family. For more information, contact George Hamilton at george.hamilton@unh.edu or 603-641-6060. **TF.**

WED June 8. **New Hampshire Tree Fruit Twilight Meeting.** Appleview Orchard, Pittsfield NH. 5:30-7:30pm. Hosted by Dennis Straight. For info, contact George Hamilton at george.hamilton@unh.edu or 603-641-6060. **TF.**

WED June 8. **UMass Grape Twilight Meeting.** UMass Cold Spring Orchard Research & Education Center, 291 Sabin St, Belchertown MA. 5:00-8:00pm. Features Justine Vanden Heuvel and Anna Katherine Mansfield, focusing on canopy management and review of winemaking considerations for hybrid grape varieites. Donation of $10 requested. Contact Sonia Schloemann at sgs@umext.umass.edu or 413-545-4347 for more information. **SF.**

THURS June 16. **High Tunnel Workshop and Vegetable & Berry Twilight Meeting**. Ledgewood Farm, Moultonborough NH. 3-7PM. Hosted by Ed Person of Ledgewood Farm. For more information, contact Russ Norton at 603-447-3834 or russell.norton@unh.edu or
V, SF, O.

TUES July 12. **Vegetable & Berry Twilight Meeting.** Moulton Farm, Meredith NH. For more information, contact Kelly McAdam at kelly.mcadam@unh.edu or 603-527-5475. **V.**

WED July 13. **New Hampshire Tree Fruit Twilight Meeting.** Poverty Lane Orchards & Farnum Hill Ciders, Lebanon NH. 5:30-7:30pm. Hosted by Stephen Wood & family. For more information, contact George Hamilton at 603-641-6060 or george.hamilton@unh.edu. **TF.**

WED July 20. **Vegetable & Berry Twilight Meeting.** Meadowstone Farm, Bethlehem NH. For more information, contact Heather Bryant at heather.bryant@unh.edu or 603-787-6944. **V, SF, O.**

Meeting topics: F = flower, G = grains, O = certified organic, SF = small fruit, TF = tree fruit, V = vegetable, AC = all crops. PAT = pesticide applicator recertification credits available, CCA = certified crop advisor credits available