Weekly Berry Call –July 7, 2010, 2010

Participants: Laura McDermott (greater Capital District), Colleen Cavagna (Allegany/Cattaraugus Counties), Jeff Miller (Mohawk Valley/Oneida County), Dale Ila Riggs (Stephentown/Northern Hudson Valley).

GROWING CONDITIONS *(courtesy NY NASS)*
Week ending July 6th, 2010: Temperatures averaged below normal by as much as 5 degrees in several locations. The high for the week was 96 degrees while the low dipped to 42 degrees. Growing Degree accumulations since April 1st were above normal across the state. Precipitation totals ranged from none on Long Island to 1.87 inches at Boonville. The Madison County strawberry season was complete. Strawberry season also came to a close in Albany County, but raspberries were coming out. Broome County strawberry operations ended, and pick-your-own blueberry operations began. A larger than normal crop of blueberries was expected.

REPORTS FROM THE FIELD
Allegany/Cattaraugus: VERY hot and dry – no known problems

Greater Capital District: *Strawberries* – harvest is finished except in most northerly locations – still with this heat they should also be done soon. Renovation has begun on many farms. *Blueberries* – Harvest has been ongoing for about a week. Smattering of calls re: fertility concerns. *Raspberries* - picking for over a week on many farms.

Mohawk Valley/Oneida: again very warm, strawberries finished.

Stephentown/Upper Hudson: *Strawberries* – finished as of this past weekend. Just beginning blueberries – floricane raspberries started this past week, but HT primocane berries have been producing for about 1.5 weeks.

DISCUSSION: Questions about how much leaf spot was seen statewide. Some growers didn't see a lot of Botrytis, but are currently seeing a great deal of leaf spot. This should be controlled during renovation, but the bigger question might be, are we all looking at the same leaf spot? There may be some misunderstanding about foliar diseases in general, so here is a very basic summary:

Fungal leaf spot diseases include:
Leaf Scorch caused by (*Diplocarpon earliana)* which can infect all parts of the strawberry including the calyx, stems, and leaves. Scorch can severely weaken plants, resulting in reduced numbers and vigor of crowns which leaves the planting vulnerable to environmental stresses such as heat cold or drought. For a great fact sheet about this disease, see http://www.nysaes.cornell.edu/pp/extension/tfabp/strawleafscorch.pdf, which is where the photos below are from. On left, see early, pin-prick lesions and on right see results of leaf scorch infection.

Leaf Spot (*Mycosphaerella fragariae)* is a very common problem, but now there are more and more resistant cultivars being planted. This disease is also called black seed as the fruit lesions resemble black seeds in the fruit. Again, for more information, check out: http://www.nysaes.cornell.edu/pp/extension/tfabp/strawleafspot.pdf.


Anthracnose leaf spot (*Colletotrichum fragariae and/or C. gloeosporioides*), is also a disease that we may not be paying enough attention to, as one of the fungi that causes leaf spot, C. fragariae, also causes Anthracnose crown rot. Fungi in this group love hot weather, so this is something to keep your eye open for. http://www.nysaes.cornell.edu/pp/extension/tfabp/santsmf.shtml.

Bacterial diseases:

Angular Leaf Spot (*Xanthomonas fragariae)* - When infections of *X. fragariae* become systemic, the berry cap (calyx) may also be infected. The modified leaves of the berry cap darkens and becomes dry. The bacteria overwinter in old infected leaves and crowns. Primary infection of new growth in the spring occurs by rain or irrigation water splash. The bacteria enter plants through wounds or by actively swimming into natural plant openings (such as stomata, the plant's breathing pores) aided by dew, rain or irrigation water. Development of the disease is favored by moderate to low daytime temperatures (around 68ºF), low nighttime temperatures (near or below freezing), and high relative humidity. Long periods of leaf wetness due to heavy dew, irrigation, or prolonged rains also favor disease. Young, vigorous leaf tissues are more susceptible to the disease than older leaves. This disease may not be receiving the amount of attention necessary. For more information: http://ipmnews.msu.edu/fruit/Fruit/tabid/123/articleType/ArticleView/articleId/418/categoryId/91/Cool-wet-weather-conducive-to-angular-leaf-spot-of-strawberries.aspx


Black cap (calyx) of strawberry due to bacterial infection. Photo credit: A Schilder, MSU

Renovation: As soon as picking ceases, growers should begin renovating. This may be difficult if they are still waiting for inspectors for crop insurance to make their final visit, so encourage growers to call and inform inspectors that they are waiting and need to get renovation underway. Timely renovation allows berries to recover fully so winter injury should not be a problem. In this weather, removing foliage will also help berries withstand the intense foliar disease pressure ultimately improving vigor. If the plant vigor is poor or if renovation is started too late, growers should consider not mowing leaves.

1) Apply 2,4-D to kill perennial broadleaf weeds
2) After 4-5 days, mow leaves to help control disease, to aid in the penetration of miticides (if necessary), and to allow the application of herbicides that would burn the leaves. Leaf removal is not essential, and can be detrimental if the root system is unhealthy or if the planting is under water stress.
3) After mowing, the plant row is narrowed to a 10 – 15 inch width with a disk harrow or rototiller. Since new roots are formed above older roots on the crown, plants benefit from an inch of soil over top of the crowns when rows are narrowed. Removing the side guards of a tiller is one way to mechanically throw soil over the rows. However, more than one inch of a soil covering can be detrimental.
4) Fertilize the planting with 70 lbs of Nitrogen /acre.
5) Apply herbicide (Sinbar at 2-4 oz./acre before new leaves appear)
6) Irrigate to stimulate growth of crowns and runners and to water in fertilizer and herbicide.
7) Cultivate to maintain row width and control weeds during the summer and early fall.

Other topics:

T**he importance of irrigation** - We understand how important irrigation is for high value crops, but it is a challenge to convince growers in our moist, relatively cool climate, that irrigation is a worthwhile investment. In the Highbush Blueberry Production Guide , NRAES_55, there is a chapter on Water Management and a section on 'Deciding to Irrigate' which provided the following information:

The need for irrigation depends on several factors:

- frequency and duration of drought (especially during critical growth stages)
- plants tolerance to drought
- soil water holding characteristics

In the Northeast region, the average number of days between significant rainfall is 5. In 1 of every 2 years a 10-15 day period without rainfall is likely to occur. If that drought period occurred during blossom and fruit set, significant yield reduction would occur. Periods of 20-30 days without significant rainfall may happen 3 times in 20 years and this could result in complete crop failure.

Fig. 1 Typical water holding capacity for various soils

Texture	**Water-Holding Capacity (inches of water per inch of soil)**
Sand	0.05
Fine sand	0.08
Sandy loam	0.11
Loam	0.16
Silt loam	0.18
Clay loam	0.19
Silty clay	0.20
Clay	0.22

Blueberries have shallow root systems that are unable to access water stored deep in the soil, so soils that have a high water holding capacity are advantageous in times of drought. Water holding capacity of soils is indicated in Figure 1.

To illustrate how you can use crop rooting depth and the water holding capacity of soils to determine an appropriate irrigation schedule, consider this example:

Assume blueberries are planted on a sandy loam soil. Average blueberry rooting depth is 1.5 feet so the total water holding capacity of the rooting volume is 18" of soil. Multiply 18" by 0.11" of available water/ inch of soil depth to determine that there is 2" of total water holding capacity. To assure that the plant can actually access the water and to prevent drought

stress, the total water available in the rooting volume should never drop below 50% of the total water holding capacity. Using this limit the total water available should not fall below 1". A vigorously growing blueberry plant can evapotranspire more than .25"/day during an average summer day, and significantly more on hot days. If 1" of water is available in the soil, and .25 inches are lost per day then it will take 4 days to deplete the stored soil water. If the average time between rains is 5 days for our region, then even on an average year, irrigation should be used regularly.

For blueberries, raspberries and strawberries, seasonal water demand is 20-25". During average summer weather, the average potential evapotranspiration for NY growers is listed in Fig. 2. Seasonal rainfall for upstate NY is extremely variable, but we can expect, on average, 15" of rainfall during a growing season. This means that growers will need an additional 5-10" of water to meet seasonal demand. Growers should store, or have reliable access to , 3-12 acre inches of water for each acre that is irrigated during the season. An acre inch is equal to 27,154 gallons of water. The rule of thumb for overhead irrigation systems is to equate one acre inch to 40,000 gallons of water which compensates for inefficient systems. A 5" seasonal demand would require 200,000 gallons of water per acre if overhead irrigation is used.

Fig. 2 Monthly avg. potential evapotranspiration

Location	Avg. peak use rate ("/day)
Albany	0.20
Binghamton	0.17
Buffalo	0.22
New York	0.23
Rochester	0.21
Syracuse	0.21

Consider the fact that peak usage will be greater in the summer due to hot weather and crop demand as the fruit sizes. This increased demand will cause the avg. peak use rates to increase by 25%. Thus the demand in Rochester (see Fig. 2) in July and August will increase to 0.26. Using an efficient trickle system to irrigate one acre you will need apply 7060 gallons (27,154 gallons /acre-inch x 0.26 acre-inch). To apply that much water in 24 hours you will need a system that can supply 5 gallons per minute. The time that you apply water during the day (early morning is best) and the efficiency of the system are important factors to consider when trying to maximize your water usage.

Drupelets of raspberries damaged from heat and UV light. Symptoms may be worse at higher elevations, but the recent weather will also bring lots of complaints about this type of damage. *Photo courtesy of Amy Ivy*

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NY NASS Weather Data for Week Ending Sunday, July 6th, 2010

Station	Temperature (°F)				Growing Degree Days Base 50° 1/			Precipitation (Inches) 1/			
	High	Low	Avg	Dep. from Norm	Week	Season	Dep. from Norm	Week	Dep. from Norm	Season	Dep. from Norm
Hudson Valley											
Albany	87	48	68	-3	129	1132	+262	0.48	-0.30	7.83	-2.63
Glens Falls	86	47	66	-3	114	931	+193	0.90	+0.22	7.27	-2.87
Poughkeepsie	91	47	70	-1	145	1224	+302	0.03	-0.87	5.41	-6.73
Mohawk Valley											
Boonville	79	43	61	-4	78	722	+167	1.87	+0.90	13.08	-1.10
Champlain Valley											
Plattsburgh	91	52	67	-2	123	872	+115	0.54	-0.15	8.10	-1.04
St. Lawrence Valley											
Canton	81	48	64	-3	102	897	+243	1.46	+0.69	10.90	+1.35
Massena	86	49	66	-2	114	933	+231	1.64	+0.92	8.90	+0.17
Great Lakes											
Buffalo	81	50	66	-5	111	1077	+259	0.80	+0.06	13.04	+3.07
Wales	81	43	62	-5	87	862	+220	0.89	-0.01	11.51	-0.51
Niagara Falls	83	48	67	-4	119	1117	+284	1.35	+0.66	10.14	+0.26
Rochester	86	48	66	-3	114	1117	+308	0.82	+0.16	9.99	+1.30
Watertown	79	46	65	-3	105	921	+274	0.96	+0.47	9.05	-0.89
Central Lakes											
Dansville	86	45	64	-5	100	1106	+302	0.53	-0.28	9.80	-0.18
Geneva	86	51	67	-3	117	1075	+293	0.73	-0.05	11.02	+1.00
Honeoye	86	45	65	-5	109	1060	+249	1.60	+0.85	11.84	+1.94
Ithaca	87	42	65	-3	105	982	+278	0.79	-0.05	8.31	-2.16
Penn Yan	86	47	66	-3	117	1130	+348	1.02	+0.24	8.92	-1.10
Syracuse	85	51	67	-2	124	1155	+337	0.78	-0.13	10.29	-0.63
Warsaw	82	44	63	-3	90	855	+263	0.48	-0.41	14.24	+2.61
Western Plateau											
Angelica	85	43	63	-2	96	943	+365	0.80	-0.21	11.33	+0.38
Elmira	88	42	65	-4	104	1052	+300	0.68	-0.16	9.50	-0.63
Franklinville	84	40	61	-4	78	800	+281	1.17	+0.25	11.27	-0.31
Jamestown	85	42	62	-4	87	922	+322	0.82	-0.18	11.30	-1.57
Eastern Plateau											
Binghamton	84	46	66	-3	111	1070	+344	0.52	-0.32	9.91	-0.66
Cobleskill	86	49	66	-1	111	909	+239	0.12	-0.78	8.88	-2.74
Morrisville	85	46	64	-3	97	904	+275	1.44	+0.55	13.51	+2.14
Norwich	87	43	63	-4	93	876	+208	0.85	-0.03	11.34	-0.34
Oneonta	86	46	65	-1	104	929	+317	0.60	-0.34	10.59	-1.92
Coastal											
Bridgehamton	88	54	72	+4	159	1140	+367	0.00	-0.74	6.19	-5.60
New York	96	64	79	+6	207	1673	+487	0.02	-0.86	7.12	-4.58

1/ Season accumulations are for April 1st to date. Weekly accumulations are through 7:00 AM Sunday Morning. The information contained in this weekly release is obtained in cooperation with Cornell Cooperative Extension, USDA Farm Service Agency, the National Weather Service, Agricultural Weather Information Service and other knowledgeable persons associated with New York agriculture. Their cooperation is greatly appreciated. **Visit our website at www.nass.usda.gov/ny and click on "subscribe to NY reports" for instructions on subscribing electronically. You may also visit our website to access all our reports which are available for free online.**