

# The Blueberry Bulletin

*A Weekly Update to Growers*

April 9, 2024

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- ❖ Visit the Blueberry Bulletin webpage at [njaes.rutgers.edu/blueberry-bulletin](https://njaes.rutgers.edu/blueberry-bulletin)
- ❖ The 2024 Commercial Blueberry Pest Control Recommendations for New Jersey is available on <https://njaes.rutgers.edu/pubs/>

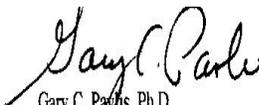
## BLUEBERRY CULTURE

*Dr. Gary C. Pavlis, Ph.D., Atlantic County Agriculture Agent*

**Fertilization:** Fertilizer recommendations which are based on soil analysis are nearly worthless. Leaf and soil samples which had been taken from the same plant never agreed, and the leaf analysis shows what is actually getting into the plant. So, what do we do about this? I believe the only important thing that we learn from soil analysis is pH. Yes, pH is critical. Many growers have heard me say that the three most important things you must know to grow blueberries is pH, pH, and pH. This is especially true for growers who have plantings that are not on soils that are naturally 4.5 to 4.8. The pH of the soil must be known because leaf analysis results assume that the pH is within the correct range. If it is not within that range, I would not rely on the leaf analysis recommendations.

So, what should growers do about fertilizing their blueberries? First, every blueberry grower should have their blueberry soils tested for pH. If soil pH is not within the 4.5-4.8 range, this should be adjusted immediately. If the pH is higher, sulfur is added. If the pH is lower, lime is added. The

amount of sulfur or lime depends on your pH and I would have the pH tested in the spring and fall until the proper range is attained. Second, this year's N-P-K application should be made at bloom. But realize that the amount, 600 lbs/Acre of 10-10-10 on a mature planting is largely a guess until we take leaf samples in July. After that we can make recommendations based upon the leaf analysis. Note: this can only happen if the soil pH is correct or we must continue to guess on the recommendations. Lastly, these changes are needed because even though the samples we took last year were from growers who are some of the best blueberry growers in the world, 70% of the plants were deficient in Nitrogen, and 97% were deficient in one of the micro-nutrients. Nutrient deficiencies cause decreased yield, lower fruit quality, increased disease problems and plant mortality. We need to make these changes as soon as possible.

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

## PEST MANAGEMENT

**Dr. Cesar Rodriguez-Saona, Extension Specialist in Blueberry Entomology, Rutgers University**  
**Dr. Janine Spies, IPM Agent – Fruit**  
**Ms. Carrie Mansue, Senior Program Coordinator**

During the week of April 1<sup>st</sup> – 6<sup>th</sup>, 38 fields were observed through Burlington and Atlantic Counties. Blueberry buds in Atlantic County are mostly at the T3 stage coming into T4 in some areas, whereas buds observed in Burlington County are still in T3. Only cranberry weevil was observed, mostly in bushes on the edge rows near wooded areas where adults are overwintering and moving into the fields. Cranberry weevil adults averaged 0.42 per bush with a high of 8.8. During scouting, some bud chewing by caterpillars was observed, but is considered minimal. A summary of survey results is below.

| Week Ending | Cranberry Weevil Adults/Bush |         |
|-------------|------------------------------|---------|
|             | Average                      | Maximum |
| 4/6         | 0.42                         | 8.8     |

**Best Management Practices for Honey Bee Hives and Reporting Requirements for Bee Yards**  
**Dr. Beth Ferguson, Postdoctoral Researcher, Rutgers University**  
**Dr. Cesar Rodriguez-Saona, Extension Specialist in Blueberry Entomology, Rutgers University**

With the start of bloom just around the corner your honey bee hives should be arriving shortly after. The best time to get colonies is between 5-20% of flowers in bloom. Honey bees can take a couple of days to learn where the flowers are at your farm and begin foraging. Good weather conditions for foraging looks like a cloudless day, around 70-75°F with little to no wind. Under these conditions you should see about one bee entering/exiting the colony per second. If you see less, that doesn't mean the colony is not healthy and you should first determine if weather is affecting the bees. If you observe any one or more of the following, that is the likely cause of reduced foraging.



Figure 1. (Photo Credit: FlowHive)  
Bee 'bearding' at the front of a hive.

A) Is the temperature less than 50°F or the hive internal temperature greater than 95°F? At lower temperatures bees cannot generate enough heat to warm their muscles to fly. At higher temperatures more bees are needed to stand at the front of the hive (Fig. 1; bearding) and use their wings to pull hot air out of the hive and keep it cool.

B) Is it overcast or raining? Honey bees use the sun to navigate, and when there are heavy clouds it can be difficult for foragers to find the way to the fields and back to the correct hive. This effect is larger if the temperatures are also near the 50°F threshold.

C) Is it windy? Honey bees are not strong enough to fly in winds over 12-15 miles per hour and will choose to stay in the hive.

While you have honey bees (or commercial bumble bees) on your farm there are Best Management Practices that can be observed. Remember with this list the goal is to do as many as you can, as often as you can.

1. Avoid overspray of hives. Turning off nozzles that are over hives prevents a direct application of pesticide onto the hive. Also consider turning off the spray when moving along the row ends to avoid spraying any puddles or non-target plants.

2. Timing sprays. The less applications you make during bloom, the lower the exposure rate of the honey bees while they are in the field. Spraying later in the day will avoid the foraging times for honey bees that start when there is enough light and increase in intensity around early afternoon before activity declines.

3. Communicate with your Beekeeper. Make available your general plan for pesticide application for the season so the beekeeper is aware of what to expect in your field. Determine if they plan to come by to check the hives and, if so, how regularly. Make sure anyone who comes to check the hives is aware of the protocols you want them to follow (signing in, who to notify to make sure they won't be present while an application is being made, etc.).

Finally, please use the QR code to access the New Jersey Department of Environmental Protection Beekeeper Notification webpage that contains links to the detailed requirements (NJAC 7:30-9.11) as well as an excel file with this year's list of registered bee yards. *A summary of the requirements is that if a bee yard is within 3 miles of your application site you must notify the beekeeper at least 24hrs in advance of the application of any pesticide labelled as toxic to bee during flowering or between April 15-May 15.* The regulations further discuss the exceptions to this requirement, what is considered a reasonable attempt to contact the beekeeper, and what information you must provide.



## DISEASES

*Dr. Peter Oudemans, Professor and Extension Specialist, Plant Pathology*

| Timing           | Phomopsis                                | Mummy berry   | Anthracnose                                  |
|------------------|--|---|--|
| Week of April 8  | If necessary begin/continue applications | If necessary begin/continue applications  | N/A  |
| Material         | ----                                     | ----  | ----   |
| Week of April 15 | Nothing required                         | Scout for leaf blight. If present or if your field has a history of Mummy berry   | Begin applications on all varieties          |
| Material         | ----                                     | If Mummyberry is a concern materials such as Proline, Quadris Top or Quash are effective against both Anthracnose and Mummy. Otherwise the Ziram followed by Abound is recommended for anthracnose management |  |
| Week of April 20 | N/A                                      | Nothing required  | Continue applications on a 7-10 day interval |
| Material         | ----                                     | ----  | See below                                    |

Blueberry bloom is just around the corner and the weather forecasts show at least 5-rainy days in the next 2 weeks. Furthermore, the forecast is calling for mostly cloudy days in between the rain. Of course, now is the time to worry about **Anthracnose** and **Botrytis**. My prediction for Botrytis is dependent on how pollination goes. With slow pollination the corollas will age and become susceptible to botrytis infections. Cool, cloudy conditions, frost nights with lots of moisture in the air will set us up for botrytis. The typical anthracnose program will suppress botrytis, however, reliance on FRAC 3 fungicides can leave a vulnerability. **Mummy berry** strikes will start appearing this week and you should include this on your scouting list. The spores from these strikes are carried by pollinators and control at this stage targets the blossoms.

For **Anthracnose** management, the key is to maintain a relatively tight schedule during bloom (see below). The bloom period is the most critical timing for anthracnose management. Protectant fungicides such as Ziram are effective and it is my experience that Ziram provides a longer residual period and a 14-day interval is reasonable. Abound, and Pristine are very effective for controlling anthracnose beginning at the onset of bloom. Fungicides such as Pristine or Switch are effective for protecting against Botrytis and Anthracnose. Materials such as Proline, Quash or Quadris Top (Cevya is also likely in the list) are effective against leaf drop which will require your attention in a few weeks.

| Fungicides, target disease and usage summaries. This is meant as a guide please refer to the label for detailed recommendations |                                |           |        |     |     |      |  |
|---|--------------------------------|-----------|--------|-----|-----|------|--|
| CHEMICAL  | Target                         | Rate      |        | PHI | REI | FRAC | Comments                               |
| Abound many formulatons   | Anthraco nose                  | 6.0-15.5  | fl.oz. | 0   | 4   | 11   | 2 apps only, air ok                    |
| Captan many formulations  | Anthraco nose                  | See label |        | 0   | 48  | M4   | Check label                            |
| Elevate 68WDG   | Botrytis                       | 1.5       | lb     | 0   | 12  | 17   | 4 apps, air ok                         |
| Cevya   | Mummy, Anthracnose             | 3-5       | fl.oz. | 0   | 12  | 3    | 15 fl.oz. total. Air ok                |
| Quash 75WSP   | Mummy, Anthracnose             | 2.5       | oz     | 7   | 12  | 3    | 3 apps, air ok. Good for leaf drop     |
| Quadris Top   | Mummy, Anthracnose             | 12-14     | fl.oz. | 7   | 12  | 3/11 | 4 apps, air ok. Good for leaf drop     |
| Pristine  | Anthraco nose, Botrytis Mummy  | 18.5-23   | oz     | 0   | 12  | 7/11 | 4 apps, air ok                         |
| Proline 480SC   | Anthraco nose                  | 5.7       | fl.oz. | 7   | 12  | 3    | 2 apps, Ground only Good for leaf drop |
| Switch 62.5WG   | Anthraco nose, Botrytis, Mummy | 11-14     | oz     | 0   | 12  | 9/12 | 4 apps, air ok (2 apps)                |
| Ziram 76DF or xcel  | Anthraco nose, Botrytis        | 3-4       | lb     | 30  | 48  | M3   | 2 apps, Ground only                    |
| Omega 500F  | Anthraco nose, Botrytis        | 20        | fl.oz. | 30  | 12  | 29   | 6 apps, Ground only                    |

### **Focus on fungicides and other Pesticides – How are they used during blueberry bloom?**

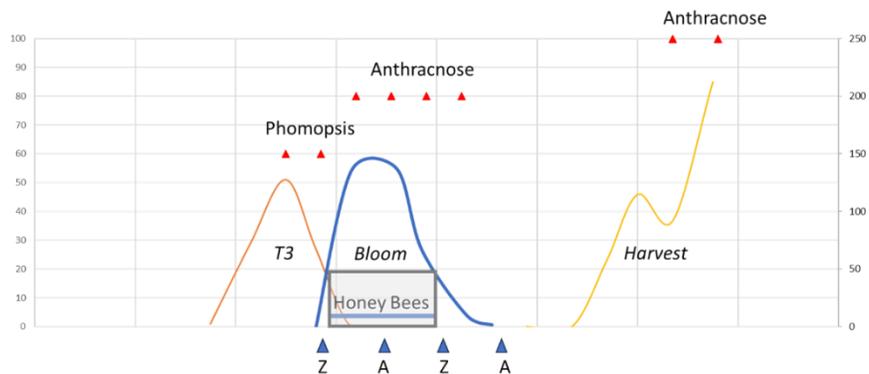
Bloom time is one of the most vulnerable growth stages for fruit and nut crops under commercial production. For example, peaches and nectarines are susceptible to brown rot, powdery mildew and scab. Almonds are susceptible to anthracnose, brown rot, green fruit rot and leaf blight. Plums, prunes, cherries, apricots, apples and pears are also all susceptible to diseases that are active during bloom. Of course, with blueberries we target anthracnose at this growth stage. It is essential to be mindful of the pollinators by using tactics that minimize exposure.

#### Recommended management practices that can help protect bees.

1. Apply fungicides before bees arrive.
2. Apply only fungicides known to be least toxic to bees.
3. Avoid use of adjuvants
4. Avoid prophylactic fungicide applications during bloom.
5. Applications during bloom should be applied after bees stop flying.
  - a. Apply fungicides when temperatures are below 55F
6. Chemicals should not be combined in a tank or "cocktail " mix.
7. Growers should delay late bloom applications or allow earlier release of colonies.
8. Colonies should be placed on farms so as to not be directly sprayed.
9. Find alternative or organic methods
10. Coordinate fungicide use between grower and beekeeper

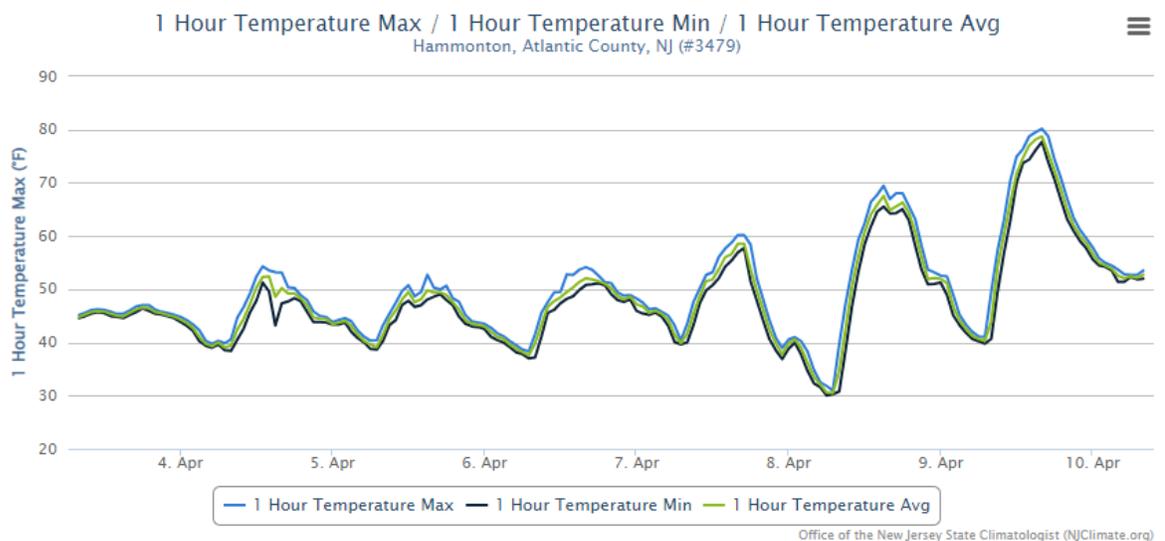
## One possible tactic

One possible approach to controlling anthracnose and avoiding exposure to honey bees is based on timing and coordination with the bee keeper. Application of the first fungicide treatment could be made just prior to introduction of pollinators and then follow with an accepted fungicide 7-days later. The third fungicide application could be made as the pollinators are being removed. This will involve introducing hives to the field after bloom has begun and removing them prior to the end of bloom. Fungicide choices will dictate the maximum interval between sprays. For example, if using Captan or Omega a 7-day interval is recommended.



## Weather and growth

As blueberries transition from T3 to bloom the sensitivity to low temperatures increase. Using the chart from last week you can see that the buds can handle temperatures around 25F and so the frost on April 8 was above that in Hammonton. Temperatures below 25F may have caused some damage.



# More organic blueberries expected from New Jersey for 2024

As the import blueberry season finishes up and the domestic season ramps up, greater supply is expected soon. "Mexico is covering most of the country. They took a short break during the Easter window which started to spike the price a little bit because the domestic supply was limited," says Joshua Minton of Frank Donio, Inc.

Peru is also winding down its production with some imports coming in still each week from larger shippers. However, it's not many containers compared to the country's peak supply.

Domestically, with some of the weather this week, Georgia delayed its crop by three to four days. "Georgia has had a lot of rain so they're hoping for a lot of dry days in the coming weeks," says Minton. "By next week we should be well underway with Georgia so the ship is starting to turn towards a good domestic production season." Florida has also started to come on now with some business outside of direct retail.

On the other side of the country, reports also indicate that California's crop is sizing up well too.



## **Demand staying strong**

Meanwhile, demand for blueberries continues to be good and has been so since the start of the pandemic. "There's always demand for really good blueberries," Minton says. "It's always a favorite, especially for local berries."

Looking ahead, New Jersey historically starts its harvest around June 15th. "Last season we saw an early arrival around June 7-8 but we're still projecting around that June 15th window," says Minton. "There are plenty of buds on the bush. So long as we have some warm days, we'll be going by then."

He also adds that Frank Donio will have more organic supply this year compared to last. "We have roughly two times the volume on organics for the New Jersey season. We're looking at the market as the future and I think a lot of people are in the blueberry space," says Minton, adding that the supply will meet a continually expanding demand from retail for organic blueberries. "There are some retailers who want to do organic ads compared to conventional ads from now on which is interesting," he says, adding that while there's still a market for conventionally grown berries, more and more organic production is coming on. "That demand is there and if the price from a retail perspective is a little bit more than conventional, it would be worth it health benefit-wise."

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