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A New Hope

Every new year blossoms into spring with a new hope. A hope that there will be no frosts, no torrential rain, no drought, good markets, and so many more variables. But, we can only control what we can and leave the rest to the fates. So, be in control and read this issue of the Mississippi Vaccinium Journal which is chock full of info on the Blueberry Jubilee, the upcoming Blueberry Field Day at McNeill, some tidbits on Nitrogen fertilization of blueberry plants, a screed against the “Dirty Dozen”, mechanical harvesting explained, and a photo of the cold damage observed in Poplarville on some southern highbush cultivars. Here’s hoping the 2018 blueberry season is a negative-free time this year.

Blueberry Jubilee 2018

Eric T. Stafne, Fruit Extension Specialist, MSU-ES

The 2018 Blueberry Jubilee in Poplarville will be held on Saturday, June 9. As always it will be a fun-filled day with lots of activities and blueberry products for sale. If you are interested in attending the Jubilee, much more information is available on the official website:

<http://www.blueberryjubilee.org/>

I will be there Saturday morning assisting with the blueberry products area, making sure things are set up and running smoothly. Come by and say hello, visit the vendors, and buy some locally grown blueberries!

Blueberry Field Day — May 22, 2018

All:

USDA-ARS, Mississippi State University, and the Gulf South Blueberry Growers Association will act as hosts on May 22, 11am- 2pm for the Blueberry Field Day.

Location: McNeill- the official address is 7 Ben Gill Rd. Carriere, MS. But it is directly off HWY 11 and across from Jack's Fish House. The MSU sign is also there. A lite sandwich lunch will be available for \$10.00 with bottle water. Please RSVP by May 17 to make sure a lunch is available for you.

Send RSVP to donvdwl@gmail.com

Also, we are inviting a couple of folks from Mississippi State University, Extension and Research to do a meet and greet as well as the new State of Mississippi, Agriculture Commissioner, Hon. Andy Gibson.

Agenda:

Welcome -

Introductions of Guests-

New Plant Research Discussions-

Lunch-

Q&As-

Closing-

Yes it will be during blueberry season, but if we want to see the performance of the new blueberries varieties we have to see them during the season. If you have any question please contact Don at the information below.

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Basic Blueberry Nitrogen Fertilization

From: <http://articles.extension.org/pages/29213/blueberry-fertilization>

Fertilizer is usually applied to blueberries in the spring when growth begins and immediately after harvest. The exception to this is when the fertilizer is injected into the irrigation system, in which case, it is done on a weekly basis during the growing season (except during harvest).

Blueberry plants are very sensitive to readily soluble fertilizers and excessive amounts can cause plant injury or death. Higher than recommended rates can be damaging causing brown necrotic leaf margins or pale yellow chlorosis of leaves and low vigor, particularly where too little water is applied. Do not concentrate fertilizer in a small area around plants. Do not use nitrate forms of fertilizer.

Ammonium sulfate is the most often used nitrogen source. Ammonium nitrate and other nitrate containing fertilizers should be avoided because nitrate ions are very damaging to blueberries. Blueberries also respond well to fertilizers containing urea, diammonium phosphate and slow release type nitrogen fertilizers.

Urea nitrogen and organic forms, such as cottonseed meal, convert to ammonium, making them acceptable nitrogen fertilizer sources. Ammonium sulfate has an acidic reaction with the soil. Continual use of ammonium sulfate may reduce the soil pH below the desired range of 4.5 to 5.5. Urea nitrogen is less acid forming than ammonium sulfate.

If the soil pH is below 5, the urea form of nitrogen is preferred. If the pH is above 5, ammonium sulfate can be used. There are several urea – ammonium sulfate blends with diammonium phosphate on the market today.

Mature plants, six years old or six feet tall, should be at the peak fertilization rate. If fertilizer is being applied with a spreader, try to place most of the material in the row area to reduce weed growth and maximize utilization of fertilizer by the blueberry plant.

As a general recommendation, apply 30 lbs per acre of actual nitrogen in the spring as a complete fertilizer (214 pounds of 14-8-8 per acre or 300 lbs of 10-10-10 per acre) plus 30 lbs of actual nitrogen per acre after harvest as urea (66 pounds per acre) or ammonium sulfate (142 pounds per acre). If growth is excessive (more than 18 inches of new growth per year) reduce the amount of nitrogen to 30 pounds per year.

See the table on the following page for more information.

Basic Blueberry Nitrogen Fertilization, cont.

From: <http://articles.extension.org/pages/29220/blueberry-fertilization-table>

<u>Age of Plant</u>	<u>10-10-10 (Spring)</u>	<u>14-8-8 (Summer)</u>	<u>Am. Sulfate (Summer)</u>	<u>Urea (Summer)</u>
2nd Year or 2' Tall	2.0 oz.	1.7 oz.	1.2 oz.	0.56 oz, 2 or 3x
3rd Year or 3' Tall	3.0 oz.	2.6 oz.	1.8 oz.	0.85 oz., 2 or 3x
4th Year or 4' Tall	4.0 oz.	3.4 oz.	2.3 oz.	1.1 oz.
5th Year or 5' Tall	5.5 oz.	4.3 oz.	2.9 oz.	1.5 oz.
<u>6th Year and Older</u>	<u>7.0 oz.</u>	<u>7.0 oz.</u>	<u>3.9 oz.</u>	<u>2.0 oz.</u>

NOTE: On a per plant basis. Fertilizer is evenly placed in a circle 18 inches in diameter, centered on the plant.

The Dirty Dozen

Eric T. Stafne — MSU Fruit Specialist

Recently, the media has been reporting on the annual “Dirty Dozen”. No, this isn’t referencing the war movie with Lee Marvin or the brass band out of New Orleans. This is the list of fruit and vegetables with detectable pesticide residues. A couple years ago I received a phone call from a consumer who was interested in blueberries. His first question is, “Have you seen that story on the news about how blueberries have lots of pesticides?” I had to admit that I had not. He continued, saying, “The story said that domestic blueberries were bad due to organophosphate pesticides.” (You can read more on organophosphate pesticides here (http://npic.orst.edu/RMPP/rmpp_ch5.pdf). I was very surprised to hear this and went on to explain that not all blueberries are treated equally in terms of pesticide application and that the Rabbiteye blueberries grown in this area (southern MS) had minimal pesticide application — and some were even organically grown. The answer seemed to satisfy him, but it has gnawed at me ever since. What kind of story would try to deter people from eating fruits and vegetables? So, I looked up the source — EWG, the Environmental Working Group based out of Washington, D.C. (<http://www.ewg.org/foodnews/>).

On the face of it, I don’t have a problem with this organization. They claim to “use the power of public information to protect public health and the environment.” Good goals for an organization. However, my issue is with the “Dirty Dozen” list (<http://www.ewg.org/foodnews/summary/>). I don’t doubt that some of these fruits and vegetables may have pesticide residues that are detectable, but the way it is presented is, I believe, irresponsible. The part I find to be irresponsible is the lack of transparency in how the study was conducted. In every study that appears on peer-reviewed publications there is a Materials and Methods (or similarly named) section. In that section is a complete detail of how the study was conducted such that another person could possibly replicate it. The “Methodology” (<http://www.ewg.org/foodnews/methodology/>) reported by EWG is weak at best. There is certainly not enough detail to allow a consumer to understand all of the necessary elements of how the study was conducted. The EWG states that produce was tested after it had been “washed or peeled.” But no mention of which studies that contributed to the results was made or where to find that information.

The EWG further states that, “The EWG’s Shopper’s Guide™ is not built on a complex assessment of pesticide risks but instead reflects the overall pesticide loads of common fruits and vegetables. This approach best captures the uncertainties of the risks of pesticide exposure. Since researchers are constantly developing new insights into how pesticides act on living organisms, no one can say that concentrations of pesticides assumed today to be safe are, in fact, harmless.” But rather it seems they would rather you think them harmful. By sensationalizing the name “Dirty Dozen” that implies a negative connotation even though they admit to “uncertainties of the risks of pesticide exposure”.

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Dirty Dozen, cont.

That is not even the worst part of this though — the worst part is that each fruit or vegetables is labeled as a singular entity. Number 4 on the list is Apples. Does this mean domestically grown apples? Imported? Both? Locally grown? Are there variety differences? Different varieties have different tolerances to certain pests which could in turn influence the amount of pesticides applied. Grapes are number 5 on the list. Wine grapes? Table grapes? Raisin grapes? Juice grapes? Domestically grown? Imported? *Vitis vinifera*? *Vitis labrusca*? *Vitis rotundifolia*? Grapes grown in the eastern U.S. will have different pest pressures than those in the arid West. Blueberries are number 16. Are these highbush blueberries? Rabbit-eye? Lowbush? Those all can be grown, but are treated very differently when managed in the field. The issue is that the consumer does not have enough information to make an informed decision, but rather is lead down the path to sensationalism.

The EWG points consumers in the direction of purchasing the “Dirty Dozen” items as organic rather than conventionally grown. Organically grown fruits and vegetables may be grown without pesticides — but not always. In some cases pesticides that are applied — and applied often because the organic-approved pesticides may not have the same efficacy as conventional pesticides thus requiring more applications to keep pests at bay. I don’t have anything against organic — I buy some organic items. But again, we are not receiving all of the pertinent information from EWG.

In their defense there is a FAQ section on their website (<http://www.ewg.org/foodnews/faq/>) and one of the questions asks, “Should I stop eating strawberries or nectarines or other produce items on your Dirty Dozen™ list?” followed by this answer, “No, that has never been the Shopper’s Guide™ message. We would certainly recommend produce from our Dirty Dozen™ list in lieu of other, less-healthy foods or snacks, like fat-, sugar- or additive-laden processed products. But with the Shopper’s Guide™ you can have all the benefits of eating more produce while substantially reducing dietary exposure to pesticides.” At least they recognize the fact that eating fruits and vegetables — conventional, organic, or otherwise — is crucial for a healthy lifestyle.

Yet, without further transparency and detail on the studies conducted how can a consumer really make an informed decision? The caller I had a couple years ago sure couldn’t make a distinction based on the information reported by the media. And that is why we, as consumers, must critically examine these “news” stories for truth and value.

Mechanical Harvesting of Blueberries

Eric T. Stafne (MSU) and Jeff Williamson (Univ. of Florida)

In order to machine harvest a blueberry bush, several management considerations need to be made. Bed configuration is one of these. Raised beds bring catch plates closer to the base of the crown of the blueberry bush. Any suckers and low-hanging shoots should be removed from the lowest 14 inches of the plant and the crown must be kept narrow (Fig. 1) to minimize loss of fruit. Wide crowns result in excessive fruit loss when the berries hit the ground. Plant spacing is another important consideration. Between-row spacing should be a minimum of 9-10 feet. There also needs to be a minimum of 30 feet clearance at the end of the each row to allow equipment to turn around. Having period row break (e.g. every 400 ft) is suggested to help with managing harvest tasks such as unloading the harvester. In-row spacing of blueberry bushes should be a minimum of 3 feet, but exact spacing depends on the cultivar and site.



Fig. 1. Blueberry bushes with narrow crowns reduce ground losses when mechanically harvested.

Each blueberry cultivar has characteristics that make it suitable, or not suitable, for mechanical harvest. A suitable cultivar should have the proper plant architecture, which includes good root anchorage, upright growth habit, narrow crown, and a canopy that is not too dense. Suitable cultivars also have an even, condensed maturity period. Fruit should have a small, dry stem scar with no stem retention and a low detachment force when the fruit is mature. Loose berry clusters are easier to harvest than tight clusters and fruit should be firm.

—Continued Page 8—

Mechanical Harvesting, cont.

Many blueberries are still hand harvested because the quality of the fruit remains at its highest. There is little impact that machines cause if human hands collect the berries and the demand for blemish-free fruit in the fresh market is high. However, bushes must be harvested frequently (2-4 day intervals) and the labor supply is rapidly dwindling. Price points also decline as the season progresses making hand harvesting labor unprofitable. Therefore, mechanical harvest of blueberries is an expanding option for many blueberry growers for both fresh and process markets. Using machines to harvest for the fresh market is an area of great interest, but problems with packout losses due to too much immature fruit (Fig. 2), ground losses during harvest (Fig. 3), and fruit bruising are problems that currently restrict its use.

Fig. 2. Immature fruit often gets harvested with mature fruit with mechanical harvesting

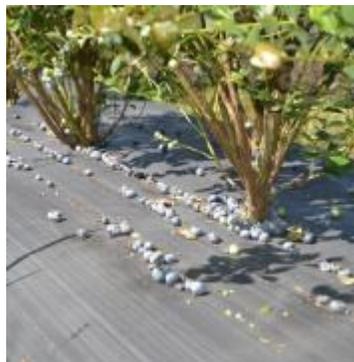


Fig. 3. Fruit lost to ground contact is common when blueberry bushes are mechanically harvested

Even though mechanical harvest is currently available, there are several challenges that limit this type of harvest, including:

- Fruit missed by harvester that falls to the ground
- Harvest of immature fruit
- Missed mature fruit
- Fruit drop between harvests
- Fruit bruising
- Plant injury

—Continued Page 9—

Mechanical Harvesting, cont.

The most common harvester machine type is the over-the-row harvester. The advantages of this type of harvester is that they can harvest a high capacity of fruit, reduce the need for labor, and minimizes the cost of harvest. They are expensive and may be cost prohibitive to medium and small-sized producers. Over-the-row harvesters also have other disadvantages. Because this type of harvester goes over the bush, berries fall quite a distance to the catch plates and can be bruised. Bruising significantly reduces shelf-life and may make berries unmarketable for the fresh market. Once berries are harvested they are dropped into lugs for transport, which can be another source of fruit bruising (Fig. 4). Unripe berries are also harvested at a greater rate than those that are hand harvested.



Fig. 4. Fruit bruising occurs when the fruit falls from a distance to a hard surface.

Other types of harvesters exist too, such as semi-mechanical harvest-assist platforms. These are less expensive than over-the-row harvesters and are used in concert with a shaking device. They are still in the evaluation stages but could soon bring another option to producers with medium or small operations.

Currently, the most common use of machine harvest in blueberries is for the process or frozen market. But, as technology improves, harvesting blueberries for the fresh market will become more commonplace.

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Cold Damage

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Some reports of cold damage are emerging. Below is a photo of 'Sapphire' southern highbush blueberry in Poplarville with the calyx end damaged. Similar injury was seen on 'Emerald' and 'Legacy', but lesser amounts on 'Star'. Most Rabbiteye blueberries in Poplarville were minimally impacted but some slight damage was observed.

