Oh, the rain was coming fast and furious in May. The Poplarville area had about 11.5 inches of rain during May — nearly twice the monthly average. Of course this had some detrimental effects on harvest — split berries, soft fruit, mummy berry, Exobasidium, etc. On the other hand, there was a bounty of fruit on the plants to be harvested, if only one could get into the field to do so. It seems like every year there we are at the mercy of one weather event or another—frosts, freezes, rain, hail, wind — you name it, we’ve probably had it. Although it can be discouraging, we are not the only blueberry growing region to deal with adverse weather conditions. California had drought and Michigan had an extremely cold winter, just to list a couple. There are challenges ahead for the Mississippi blueberry industry, but with a positive attitude and some ingenuity we will come through the tough times. In this issue some new ideas are brought to the fore.

Rain, Rain, Go Away, Come Again Another Day...

Mechanical Harvest Survey

Washington State University researchers are seeking your input to this survey on investigating the financial feasibility of mechanical harvesters for fresh market blueberries. This study is part of a USDA funded project [http://news.uga.edu/releases/article/blueberry-research-gentler-methods-of-harvesting-tiny-fruit-0415/](http://news.uga.edu/releases/article/blueberry-research-gentler-methods-of-harvesting-tiny-fruit-0415/).

This project seeks to develop an affordable, semi-mechanical harvester for fresh market blueberries. Your input is extremely needed to report back to engineers on the picking efficiencies and likely cost the machine must have in order for it to be financially viable.

You can access the survey here: [https://wsu.co1.qualtrics.com/SE/?SID=SV_bQk5yFDKIOpkmRT](https://wsu.co1.qualtrics.com/SE/?SID=SV_bQk5yFDKIOpkmRT)

Mississippi State University is part of this project. Please participate!
The prodigious and regular rainfall we have experienced this Spring may be good for some things, but it is not good for ripening blueberries. As you can see in the photo below, excess rainfall can cause blueberry fruit to split rendering it unsaleable and inedible.

So, how does this happen? First off, water splitting happens in other fruits too. More study has been done on cherries than most other fruits. Reasons that cherries split are related to cultivar, fruit maturity, temperature of the water that hits the fruit, temperature of the fruit itself, duration of wetness, sugar content, fruit firmness, turgor pressure within the fruit, relative humidity, soil moisture, permeability of the skin and elasticity of the skin. In blueberries, studies have shown that absorbed water through the skin is one reason, but also via root system uptake (although less so than direct contact). The incidence of rain-caused splitting is very cultivar dependent and that cultivars with firmer fruit may be more susceptible to splitting. What, within the fruit itself, could lead to this? Some studies have suggested that in some cultivars the amount of air-filled spaces between cells could allow more water to enter but not split. Another stated that cells that weakly adhere to each other may split more readily. A recent study showed that there is a moderately high heritability for fruit splitting, suggesting that this trait can be improved to some degree through plant breeding.

-continued Page 3-
A past survey of MS and LA growers found that fruit splitting could reduce marketable yield by as-much as 20% in some cultivars. This means that cultivar choice is very important to avoid this type of damage. Results from different studies mostly agree on results of what cultivars split more than others. Below I have put them into three different categories: ~10% split or less (Low); ~10-19% (Moderate); ~20+% (High).

Low: Alapaha, Austin, Premier, Magnolia, Jubilee

Moderate: Gulf Coast, Chaucer, Columbus, Powderblue, Ochlockonee, Vernon

High: Brightwell (there was discrepancy on this cultivar, but 2 of 3 studies showed it to be high), Climax, Tifblue, Pearl River

One study found that excluding rainfall from the plants (covering them) was not a sure way of eliminating split, although it did reduce it. Also, fruit on plants that are overhead irrigated appear less likely to split than those on drip irrigation. New products are now on the market that may help reduce fruit split damage. They have not been tested in Mississippi, but have been tested in Florida and Georgia with encouraging results.

For further information you may refer to the papers below:


-See Page 10 for more information on Fruit Split-
A recent visit I had to a blueberry field revealed significant damage from glyphosate application. The grower had good intentions and had used glyphosate without problem for years, he had run out of one container and switched to another new one. Several rows had no problems (application with the first container), but the next rows had significant death. Why? The amount of active ingredient was different, but the applicator mixed the same amount for application. The plants may never recover and may need to be removed. The photo below tells the story. If in any doubt about applying herbicides properly, contact a local county Extension office for help.
How Long Do Insecticide Sprays Last When It Rains?
Eric T. Stafne, MSU-ES Fruit Specialist

An excellent article by John Wise from Michigan State University came out recently entitled, “Rainfast characteristics of insecticides on fruit”. Every blueberry grower should see this because it gives great detail on what happens to certain insecticides after a rain event. There are some critical factors that determine how well an insecticide is going to last on the plant after rainfall.

- Plant-penetrative attributes of the chemical: surface, penetrative, translaminar, and systemic
- Toxicity to target pest
- Amount of precipitation

Most insecticides need between 2 to 6 hours in order to dry and penetrate into the plant cuticle. Neonicotinoids require 24 hours. However, spray adjuvants can help with rainfastness.

In general:
If rain is less than 1.0 inch most insecticide applications will have up to 50% wash-off. This may or may not require a reapplication depending on chemical used.

Above 1.0 inches of rain most insecticides will require a reapplication because more than 70% will have been washed off.

Time and spray location (leaf, fruit) also play a factor, so it may depend on how long after the application the rain fell. If the rain fell 1 day later then some application may be still fine (depending on amount of rain). But after 7 days the residual is nearly gone and another application will be needed.

Please click the linked title and read the article in full. It gives more detail than I have explained here and it also has chemical names in chart form that can be printed out and kept in your records for reference.

This article only contains information on insecticides, so other pesticides like fungicides and herbicides are not listed. The links below have more information on those, but they may not include all herbicides or fungicides:

Herbicides: [http://www.ianrpubs.unl.edu/epublic/live/ec130/build/ec130%20herbicide%20use%20appendices.pdf](http://www.ianrpubs.unl.edu/epublic/live/ec130/build/ec130%20herbicide%20use%20appendices.pdf)

A workshop on Good Agricultural and Good Handling Practices will be held in Biloxi on July 30 from 8am to 5pm. The cost is $10 and lunch is included. For registration details see next page.
The purpose of this workshop is to provide information on the different aspects of Good Handling and Good Ag Practices (GHPs). The training will focus on the following topics:

- **GMPs**
- **HACCP**
- **Sanitation**
- **Temperature Control**

(**Note:** This section should be completed by the participant.)

**Introduction**

Insert introductory text here, including any necessary background information or objectives for the workshop.
I was in charge of getting vendors for the 2015 Poplarville Blueberry Jubilee. This year we had about 20 vendors selling blueberry products and other related things. Some sold out before noon. There were plenty of fresh blueberries to be had this year. Below are a couple photos of the event in front of the courthouse in downtown Poplarville, MS. Crowds were a little late getting started, but around 10 am things really started to pick up.
Mississippi Blueberries Go To India (and UAE)

Did you ever think you would hear “Mississippi” and “India” in the same sentence? What could these places possibly have in common? Well, it turns out, the love of blueberries. In June, about 9,000 pounds of Mississippi blueberries grown by members of the Miss-Lou Co-op were exported to India and the United Arab Emirates (UAE). The berries were first transported to Gulfport where they were inspected and treated for shipment by Gateway America. They were then transported to Houston and flown to India. The blueberries will be distributed in India and UAE by Anusaya Fresh to various cities. More loads are expected to be exported this year and in coming years. Miss-Lou growers harvest about 2 million pounds of blueberries per year and this year about 25% of those will be exported.

(The above was based on a press release from the Miss-Lou Blueberry Growers Co op Association).

For more information on this contact Don van de Werken (504-782-0779 or donvdwl1@gmail.com).

This story was picked up by the Associated Press (AP) newswire, so it was carried by many newspapers and news websites worldwide. Some of them can be found at the links below:

- Mississippi blueberries going global (Clarion-Ledger)
- Mississippi berries land in Mumbai (www.fruitnet.com)
- Arándanos de Mississippi llegaron a India y Emiratos Árabes Unidos (www.portalfruticola.com)
- VS: Eerste export blauwe bessen naar India en VAE (www.agf.nl)
- U.S.: Mississippi blueberries hit India and UAE (Chilean Blueberry Committee)
Can Fruit Split Be Reduced?
Eric Stafne, MSU-ES

On Page 2 I wrote about fruit splitting caused by rain. A new product called “BluGuard” from Cultiva has been used in Oregon, Georgia, and British Columbia to see if it can reduce the amount of berries that split due to rainfall. This is based on SureSeal technology that is phospholipid based, hydrophobic, permeable, and has an elastic coating that mimics and supplements the cuticle. The product must be applied by an airblast sprayer to reach maximum efficacy.

A preliminary study was conducted in Georgia by the Michigan Blueberry Growers (MBG) led by John Ed Smith. Results were promising. Applications were made at a rate of 1 quarts in 50 gallons of water per acre when berries started to color. The applications were sprayed twice in June. The study looked at ‘Tifblue’ and ‘Brightwell’ and found that the application of BluGuard reduced splitting in Brighwell by almost 50% and in Tifblue by about 33%. As a result of the study, some modifications in the spray regimen were made. New suggested application rate is 2 quarts in 50 gallons of water per acre and it should be applied started at coloring with repeated applications every 7-10 days until harvest.

I spoke with Jim Lappin at Cultiva and he was nice enough to send me some information on the product as well as about the studies that were done. Unfortunately, there was not statistical analysis of the data, so even though it appears the product works, it may work differently in different years and on different cultivars. I indicated that we would be interested in testing the product here in Mississippi, but he said they were already testing in other areas now, so perhaps in the future. I also asked him if the product had any other non-target benefits, such as suppression of fungal diseases or insects. He did not know (or was not sharing).

Mr. Lappin sent me some contact information on the supplier for the Southeastern U.S. too, so if you are interested it is below:

Dave Miller contact: cell: 321-239-0450

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If you are interested in seeing the Specimen Sheet (label) for BluGuard let me know, I have a PDF copy of it and will be happy to send it your way.