Current Issues in Organic Fruit Production

Thursday afternoon 1:00 pm
Where: Grand Gallery (main level) Room C
MI Recertification credits: 2 (1C, COMM CORE, PRIV CORE)
CCA Credits: SW(1.0) CM(1.0)
Moderator: Matt Grieshop, Entomology Dept., MSU

1:00 pm  Non-Herbicidal Floor Management in Michigan Viticultural Systems
    - Brad Baughman, Department of Entomology, Michigan State University

1:15 pm  New Insights Into Plum Curculio Behavior in the Soil
    - Pete Nelson, Entomology Dept., MSU

1:30 pm  Growing Organic Blueberries in the Southeast: Ideas from a Challenging Climate
    - Gerard Krewer, Professor Emeritus U of Georgia, and Harrietts Bluff Farm, Woodbine GA

2:30 pm  Current Options for Non-Antibiotic Fire Blight Management
    - George Sundin, Plant, Soil and Microbial Sciences Dept., MSU
    - Matt Grieshop, Entomology Dept., MSU

3:00 pm  Session Ends
Growing Organic Blueberries in the Southeast-Ideas from a Challenging Climate

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Introduction:  
After working as a county agent and fruit specialist with the University of Georgia for 29 years I have retired to the beautiful Georgia coast as a farmer and consult. While at the University I had the opportunity to conduct research on organic blueberry production for about 12 years. In 2010 I planted four acres of organic blueberries on the Ga. coast to put my findings and observations in practice. In addition, I consult on half a dozen organic farms and about 20 conventional farms in the Southeast and have been able to make observations from these sites.

Why Organic?  
An increasing segment of the population wants organically grown produce and are willing to pay a better price for it. The customer appreciation for growing organic produce is amazing. The second factor is water quality coming off my farm. I never see algae blooms in my ditches. The water looks the same as the water in the surrounding swamps, clear with a tannin stain and lots of aquatic life. It always gives me a good feeling to know the farm impact on the nearby estuary is minimal.

Fertilization:  
Rabbiteye blueberries growing in a soil with about 2% organic matter need about 60 pounds of N per year in Georgia and southern highbush blueberries growing in a soil with 3-4% organic matter need about 90 to 120 pounds of N per year in Georgia for vigorous growth.

Blueberry plants in Georgia need about 30-60 pounds of P205 and an equal amount of K20

Part of the nitrogen comes from soil via biological activity and decomposition of organic matter. Each 1% organic matter provides about 10-15 pounds of nitrogen per year in Georgia. I have a good organic content on my farm, about 5%, so this provides about 20-30 pounds of N per year. The rest of the nitrogen must be supplied by me. Legume cover crops are not an option with a soil pH of 4.2, but have potential on higher pH sites.

Most of the organic blueberry growers in Georgia and Florida are using Nature Safe 8-5-5 as their primary fertilizer. This material contains meat meal, feather meal, blood meal, bone meal and
mined potassium phosphate. The nitrogen in this material is released over a period of about two months. It takes about two weeks for the protein in the material to be converted to ammonium nitrogen that the blueberry plants can utilize. Apply about two weeks before the nitrogen is needed.

Pasteurized chicken litter is also in use, such as Perdue Microstart 60 (3-2-3). The nitrogen in this material is about 70% available the first three months, so consider this in your nitrogen calculations.

When I want rapid growth on young plants I fertilize every 6 to 8 weeks with the Nature Safe 8-5-5, since it takes about two week to “kick in” and lasts about two months. In the early years I applied Nature Safe 8-5-5 four times a year since I have long growing season.

As the plants have reached maturity I have been applying fertilizer just once a year to the rabbiteyes and two or three times per year to the highbush, since my soil is good.

I pull leaf samples twice a year and soil samples once a year and apply organic approved micronutrients as needed if I have a deficiency. In my case, I have applied manganese sulfate, borax and organic approved copper chelate through the drip system. These materials are either on the National List, OMRI or Washington State approved lists.

**Weed Control:**
Weed control is the major problem in organic blueberry production. Blueberries need about a four foot wide weed free band centered on the plant for best growth. Options for weed control are mulches (plastic or organic materials), mechanical cultivation and organic burn down herbicides.

Mulches are the first line of defense and I consider them be an absolute requirement for organic production under Georgia conditions. If your soil is very good, then plastic mulches work well. These can be either woven ground cover or solid plastic mulch. The inexpensive grade of woven ground cover, which I can buy from a local manufacturer, is about 4-5 cents per square foot. This is expected to last about five years under Georgia conditions. Higher quality materials are also available. White on black plastic (1.6 mil) has been popular in Georgia. Soil temperatures are similar to no mulch. Expected life is about 3 years if deer are kept out. In recent years a heavier weight white on black mulch (3 mils) has also been used. It should last five years if properly maintained. Keep animals out of the fields (deer, dogs, etc.) and don’t damage the shoulders with equipment.

If the soil is poor, then pine bark is recommended, since it provides both a mulching effect and extension of the root zone. Blueberry roots seek out and grow rapidly in pine bark. Wheat and rye mulches provide good weed control, but must be recharged every one or two years in Georgia and Florida. Wheat and rye also release natural preemergent herbicides. Some growers are using these materials. Wood chip mulches can also be used, but bear in mind additional nitrogen will be needed. This may be expensive since organic nitrogen is much higher priced than conventional nitrogen.

Mechanical cultivation works well in combination with plastic mulch. I am running a rolling cultivator along side the mulch four or five times a year. Of course there is still a 6 to 12 inch band that must be cut with a string trimmer. Other growers are using a Green Hoe. This can be run very close to the mulch with a skilled operator. In my case, I started with 1.6 mil white on black polyethylene mulch and after four years am gradually replacing it with two panels of three
foot woven landscape fabric. The landscape fabric is cut on one side so the panels overlap. These are pinned with sod staples. The total cover area under these plants is now 5.5 feet and I can run the bush hog over the edge of the plastic. Other growers are tucking the edges with a slit fence laying machine.

Some growers are using 20% acetic acid vinegar for weed control. It works well under Central Florida conditions where there are many bright sunny days. I have not had much success with it on my farm. Other organic burndown materials seem to come and go. Matran worked well, but is no longer registered. Axxe is now registered and has worked well in my recent trials. Cost is an issue.

I use propane flaming on a limited basis under wet conditions for some problem weeds. Some organic growers without mulch use the commercial Flame Dragon units. The flame must be kept away from the green canes or many of these will die later from the damage or from diseases such as stem blight which have entered the damaged canes.

Insect Control:
Control of insects in organic systems in the SE has been manageable to date.

Blueberry leaf beetles have required application of Entrust on occasion. Web worms have been a problem this year, but I have been able to just break up the nests with good results. Some growers have killed them with Pyganic. Blueberry gall midge is showing up on my Legacy and I am managing this now by post harvest hedging and oil applications.

In general spotted wing drosophila (SWD) pressure to date appears to be lighter in organic systems than in conventional. This is based on comparisons between organic and conventional farms where I work. This is good news, since the insecticide options are very limited. In S. Ga. SWD can now be collected all year around. On my farm we have not been able to easily sort by species the fruit flies collected, but have ended up just counting flies in the traps as an aid in deciding when to spray and what to spray.

We are making an effort to kill the wild blackberries in the surrounding woods. Growers who have been able to burn their surrounding woods have also seen much lower SWD counts on the edges of their fields. Recent data from Dr. Oscar Liburd in Florida has shown fields mulched with black ground cover have lower SWD levels than fields without mulch.

We have never found any SWD larvae in the packed blueberry fruit, but plenty in split berries and culls graded out. I also have a few rows of blackberries. In blackberries we have seen larvae in what appears to be sound fruit. When the blackberries get ripe it is easy to see the SWD flying between blackberry fruits under the canopy early in the morning. This is a good scouting technique.

For organic SWD control Entrust is an excellent material, but has a three day PHI on blueberries. This is problematic in my organic pick-your-own since I have to block off sections I spray with Entrust for three days. I also have to put up signs saying “Sprayed for fruit flies with organic approved material Entrust-closed for 72 hours”. I use Entrust at the beginning of the fruit ripening period and periodically through the season during peaks of SWD activity. Pyganic works fairly well, but has a very short residual. However the PHI is only 12 hours for Pyganic, so I can spray after I close and sell fruit the next morning if necessary. Based on conversations with the manufacturer’s chemist, I apply 8 ounces of Pyganic in 50 gallons of water. I also use 20 ounces of Oroboost per acre (Wash. State label). Oroboost is a citrus oil product that has some
SWD activity. Most of my applications are alternate row sprays, if the bushes are not too thick or tall, so in fact, I am only using 4 ounces of Pyganic per acre on many applications. This mix is applied every 5-7 days as needed between Entrust sprays. Usually I spray on Sunday night, since Monday is a slow day on the farm.

**Disease Control:**
I apply bloom applications of Serenade plus NuFilm P for botrytis and mummyberry. So far, I have not seen mummyberry in my field, but this is working well on other organic farms where mummyberry is present. To date, mummyberry only occurs on rabbiteyes in Georgia, but it can be very severe on rabbiteyes.

Leaf diseases are a major problem on southern highbush and rabbiteyes in the Georgia and Florida. I apply applications of fish emulsion (Organic Gem), Regalia, Serenade or Keyplex Organic two to four weeks apart postharvest. I also spray Champ copper once or twice a year for rust and other leaf diseases. Since we have an eight month frost-freeze season, leaves get old and susceptible to disease. Annual postharvest hedging at about four feet is used on the Southern highbush that finish ripening by early June. A new crop of leaves grows after hedging which have many fewer leaf spots in late summer and fall than the spring wood. The is important for flower bud formation, which mainly occurs in Sept., Oct. and Nov. in S. Ga.

Rabbiteyes are also hedged, but at about five feet on the shoulder and seven feet on the top, since they do not finish ripening until July or Aug. Only 6 to 12 inches of regrowth occurs after hedging.

**Summary:**
Organic production is challenging in the Southeast, but with good weed control plans, insect spray programs and disease control programs it can be commercially successful. Costs are higher than conventional production, but prices have been much better. If you have any questions, please give me a call at 229-392-1388.