Small Fruit News

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Mississippi Blueberry Workshops in 2023

Eric T. Stafne, Extension and Research Professor,
Mississippi State University

The Mississippi State University Extension Service will be hosting 2 workshops for blueberry growers in 2023 — an in-person workshop in Hattiesburg., Mississippi and a virtual workshop. *The dates and times for the in-person workshop will be January 24 from 1-4pm.* **The Virtual workshop will be January 26 from 2-4pm.** Information on committed virtual workshop speakers and their topics is below.

2023 Virtual Blueberry Workshop Speakers

Amanda Davis, *Senior Faculty Research Assistant II—Berry Crops, North Willamette Research & Extension Center, Oregon State University*

Title: Splitting in blueberries: what do we know and what can we do?

Description: Blueberry splitting can be a major production problem for growers. We will review some of the causes, what we know and don’t know about splitting, and outcomes of a research study conducted in Oregon that aimed to reduce splitting and improve fruit quality using a commercial biofilm product.

Dr. Sushan Ru, *Assistant Professor of Small Fruit Breeding and Genetics, Department of Horticulture, Auburn University*

Title: Blueberry breeding in Alabama – update on breeding, blueberry stem blight, and yield prediction

Description: I will present the status of the blueberry breeding program at Auburn University. Specifically, I will talk about breeding targets, germplasm collection, and ongoing research projects. Preliminary results on blueberry stem blight screening and high-throughput yield prediction will also be presented.

Dr. Joshua VanderWeide, *Assistant Professor, Department of Horticulture, Michigan State University*

Title: Effects of Plant Growth Regulators on Blueberry Ripening Rate and Fruit Quality

Description: Fresh blueberry pricing is determined by market demand at a particular harvest date. In Michigan, a significantly earlier harvest would increase the market price of late-season fruit before imported berries arrive. Two popular varieties were subjected to treatments using plant growth regulators (PGRs) involved in the endogenous ripening process with the goal of advancing maturity compared to an untreated control treatment. Aggregate berry samples collected during ripening were evaluated for individual weight, diameter, firmness, total soluble solids, pH, and titratable acidity. Additionally, individual berries were also collected at harvest maturity to evaluate the uniformity of individual berry weight, firmness, and total soluble solids. The impact of these PGRs on blueberry ripening rate and fruit quality will be discussed. Future evaluations will include the quantification of anthocyanins and aroma volatiles in both cultivars.

Dr. Zilfina Rubio Ames, *Assistant Professor & Small Fruit Extension Specialist, University of Georgia, Tifton Campus*

Title: Is Sap Analysis a New Tool to Determine Plant Nutrient Status?

Description: Recently producers had added sap analysis to their routine soil and leaf samples. Sap analysis are generally performed at overseas laboratories, which provide growers with minimal guidance on how to interpret the results or relate them to soil or leaf sample analysis. Educating growers on how to interpret sap analysis to adjust fertilization management practices can help growers to better manage fertilization, reduce production cost, and increase fertilizer use efficiency.

2023 Mississippi Blueberry Education Workshop (in-person)

Dr. Guihong Bi — *Mississippi State University*

Topic: Containerized production in high tunnels

Dr. Blair Sampson — *USDA-ARS Poplarville*

Topic: The latest on SWD and pollination

Dr. Michael Goblirsch — *USDA-ARS Poplarville*

Topic: Using Artificial Intelligence (AI) to develop a monitoring tool of honey bee visitation of southern highbush and rabbiteye blueberry in real-time

Dr. Stephen Stringer — *USDA-ARS Poplarville*

Topic: 'USDA-Spiers' rabbiteye blueberry

Dr. Eric Stafne — *Mississippi State University*

Topic: Drought tolerance in blueberry

Davis Edwards — *Mississippi Department of Agriculture and Commerce*

Topic: What You Need to Know About Inspec tions

If you are interested in attending either of these workshops, please contact Eric Stafne at eric.stafne@msstate.edu. Registration details will be released closer to the event time.

Arkansas Grown Conference

Jan 25th-28th in Little Rock at the Embassy Suites.

Registration and Vendor Registration (https://arkansasgrown.org/arkansas-grown-conference-expo/)

This meeting will replace and expand on the Horticulture Industries Show (HIS) meeting held every other year in Arkansas. **The focus of this meeting is commercial producers**. The Arkansas Blackberry Growers Association, Arkansas Grape Growers Association, Strawberry and Blueberry Associations are all participating in this conference, and some are holding their winter meetings in conjunction with this event.

A large trade show, farm tour and several other social events are planned in conjunction with the meeting.

Pre-Registration closes January 11th, 2023

Questions? Contact Beth Moore, beth.moore@agricluture.arkansas.gov

Getting to the root of the problem: Entomopathogenic nematodes as a management tool for grape root borer

Brett Blaauw, University of Georgia and David Shapiro-Ilan, USDA

Figure 1. Grape root borer adult male on grape leaf.

A demanding management program is required to effectively control the intense insect and disease pests of bunch grapes in the Southeast. One such pest is the grape root borer (GRB), *Vitacea polistiformis* (Harris) (Lepidoptera: Sesiidae) (Figure 1). This clearwing moth attacks the roots of both wild and cultivated grapes, and as such, is a significant pest in Southeastern grape production. The life cycle of GRB is completed within 2 years, where larvae spend approximately 23 months feeding on root tissue, subsequently damaging vines by girdling the roots, thus cutting off nutrients and water to the remainder of the plant. It is estimated that a single larva feeding on the root system can reduce a vine's yield by up to 50% (Dutcher and All, 1979). Thus, several larvae within a root system can cause substantial injury to vines through the reduction of fruit quality and eventual vine death.

Damage caused by the grape root borer has resulted in considerable losses to the commercial grape industry. Although it often goes unnoticed until it is too late, damage due to GRB is still a key issue throughout the Southeast. Chlorpyrifos was one of the only insecticides labeled for use against grape root borer, applied as a soil drench around the base of vines as a toxic barrier to the movement of larvae to the roots. Unfortunately, chlorpyrifos is highly toxic, and as such, as of March 2022 the use of chlorpyrifos in fruit production is banned by the EPA (EPA.gov). A more environmentally friendly method for managing GRB is the use of sex pheromone-based mating disruption, which can significantly reduce vine infestation and injury due to GRB (Pfeiffer et al., 2010). While effective, the entirety of a vineyard needs to be under “disruption”, which can make mating-disruption a costly method in terms of time and money. Additionally, mating disruption works best on vineyards with flat terrain and with production area greater than 5 acres. However, many vineyards in the Southeast do not meet the ideal conditions for mating disruption and therefore, additional alternative control methods for the GRB are needed.

A well-researched area for alternative methods of management for GRB is natural enemies, specifically entomopathogenic nematodes (EPN) (for example: All et al. 1981; Jhalendra and Bergh, 2017). The nematode, *Heterorhabditis bacteriophora*, has been demonstrated to effectively reduced grape root borer infestations in the field and was found to be as effective as the insecticide, chlorpyrifos (Williams et al., 2002). Despite the success of *H. bacteriophora* in research field trials, adoption of this control tactic on a commercial scale is still virtually nonexistent, possibly due to a lack of grower education. Thus, we worked directly with bunch grape producers and extension agents in North GA to implement and evaluate novel and established EPNs for GRB management. We evaluated the EPN, *Steinernema feltiae,* which was isolated from GRB (All et al. 1981), is commercially available, and has been successfully used under harsh conditions in the Southeast for other insect pests, such as plum curculio (*Conotrachelus nenuphar*) in peaches (Shapiro-Ilan et al., 2011).

In order to accomplish our objectives, we established research sites at two bunch grape vineyards in Dahlonega, GA and two in Cleveland, GA. We worked directly with the cooperating farm managers at the vineyards and two local extension agents to implement and evaluate EPN use for GRB management. As such, we tested four treatments: two EPN treatments (*H. bacteriophera* and *S. feltiae,* reared at the USDA-ARS by Shapiro-Ilan), chlorpyrifos (Lorsban 4E, Dow Agrosciences), and an untreated control. The two nematode species were applied on 28 May 2021, at a rate of approximately 450 thousand nematode infectious juveniles (IJs) per vine for each respective EPN treatment and then watered with 1 liter of water per vine (Figure 2). The chlorpyrifos treatment was applied on 25 June 2021 at a rate of 23.6 ml of Lorsban 4E mixed with 1.89 l of water per vine. All treatments were applied to a circle area with a radius of approximately 0.5 m around the base of each vine. Nothing was applied to the base of the vines in the untreated control treatment plot. Adult male GRB activity was monitored throughout the study using pheromone-baited bucket traps (Great Lakes IPM; Figure 3). Disease and general insect pest management of the of the vines were left under the growers' discretion.

Figure 2. Example nematodes being applied to the base of a vine with a backpack sprayer.

The four management treatments were evaluated by counting the number of exuviae (pupal cases) present on the soil surface within the 0.5 m radius under each of the vines in each plot on a weekly basis from 21 June to 8 September 2021 (Figure 3). The number of exuviae per date were recorded and compared amongst the treatments.

Figure 3. An example of a bucket trap used to monitor grape root borer adult males (Left) and exuviae (pupal cases) at the base of a GA grape vine (Right).

During the 2021 season, monitoring the adult GRB activity and the remnant exuviae, we determined that the moths begin flying early July and keep emerging until early September (Figure 4). Assessing the number of observed exuviae per plot, there were considerable differences among the treatments. Only the *H. bacteriophera* treated vines had significantly fewer exuviae than the control vines, whereas the chlorpyrifos and *S. feltiae* treated vines had marginally fewer exuviae than the control vines (Figure 5). These results demonstrate that EPNs, particularly *H. bacteriophera*, may reduce GRB infestation, potentially better than chlorpyrifos. Unfortunately, we were unable to recover any EPNs from the soil when evaluating nematode persistence, so neither of the EPN species appear to last more than a couple of months in the soil. As such, it is likely that the nematodes will need to be applied on an annual basis. Since conventional insecticides and mating disruption are both only preventative management strategies for GRB, nematodes have the potential to be both preventative and curative, which makes this tactic even more encouraging. Additional years of research are warranted, especially since GRB has a two-year life cycle, so additional affects may be uncovered in subsequent years.

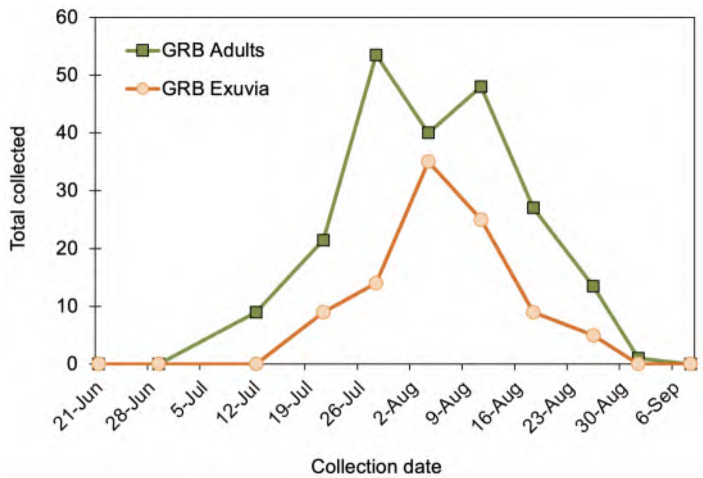

Figure 4. Activity of adult grape root borers collected in traps (green line) and exuviae (orange line) during the 2021 field season.

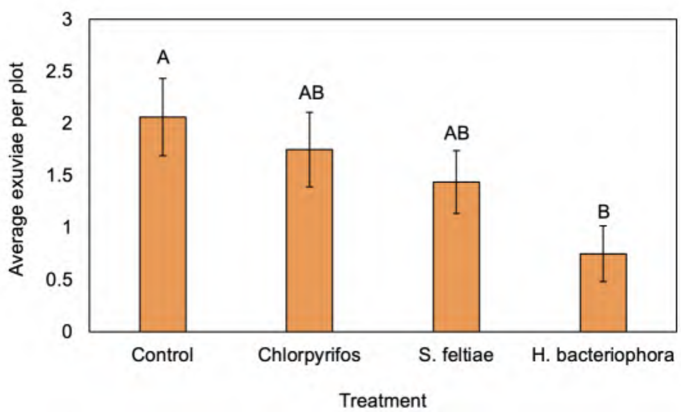

Figure 5. The season average number of exuviae observed near the base the grape vines treatment per plot. Bars with the same letter do not significantly differ (P = 0.05, Student's t).

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Early Performance of Newly Released Blueberry Cultivars with Improved Fruit Quality Characteristics

Elina Coneva[1], Ebrahiem Babiker[2], Eric Stafne[3], Sushan Ru[1], Melba Salazar-Gutierrez[1], Camila Rodrigues[1], and Edgar Vinson[1],
[1]Auburn University, [2]USDA-ARS, [3]MSU

'Titan' and 'Krewer' (Fig. 1 A,B) are two new blueberry cultivar releases from the University of Georgia breeding program are reported to produce large berries. Their fruit size is reported to be twice as large as the berry size of most rabbiteye blueberry cultivars. 'Pink Lemonade' (recommended as a backyard cultivar, Fig. 1C) possesses unique pink fruit color and ripens late. 'Pink Lemonade' has a very attractive and unusual appearance and draws consumers' curiosity and attention in the marketplace. 'Alapaha' is known for its very early ripening, surpassing 'Climax', while its blooming season is about 7 to 10 days after that of 'Climax', which reduces the risk of late spring frost and freeze damage to the crop. 'Vernon' is another early-season cultivar that has not been evaluated for production in Alabama conditions. 'Ochlockonee' is reported to mature about a week after 'Tifblue' and can extend the harvest season. These blueberry cultivars with improved quality traits have not been previously tested for their performance in Alabama conditions where the interest of blueberry production is currently increasing. Thus, an experimental plot was established to evaluate cultivar vegetative growth, production potential and fruit quality characteristics in order to develop cultivar recommendations to specialty crop producers in the Southeast. Traditionally grown cultivars such as the early season 'Climax', 'Premier', and the late ripening 'Powderblue' and 'Tifblue' were included as controls.

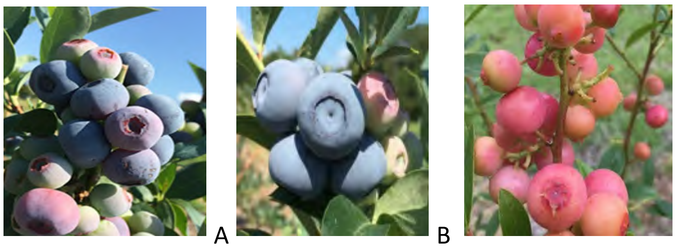
A B C

Figure 1. Newly released rabbiteye blueberry cultivars 'Titan', 'Krewer', and 'Pink Lemonade' with improved characteristics grown at the CREC, Alabama, 2021.

RESULTS:

The above mentioned newly released and established blueberry cultivars were planted as a randomized complete block design experiment with 4 single plant replications at the Chilton Research and Extension Center (CREC), Clanton in Central Alabama. Each cultivar had a single plant on each of the four rows in the experiment. Data to determine each cultivar bud break and flowering phenology were collected periodically starting in January 2022 until mid-March. A late spring freeze event occurred on March 12-13 when temperatures fall to 24 degrees F. Row covers (Figure 2) were used to protect the experimental bushes every time critically low temperatures were expected starting as early as January 2022 until last freeze in mid-March. The early row cover application was due to the fact that low chill cultivars such as 'Krewer' and 'Pink Lemonade' had fulfilled their chill requirements at the end of December and had some open flowers in early January (Figure3).

Figure 2. Row covers used to protect the blueberry cultivar experiment at the CREC, AL during January-March 2022.

Application of row covers increased the temperature under the cover by as much as 8 ^{0}F and successfully protected the plants through mid-March when the strong winds of over 35 miles/hr. blew away the row covers from two of the experimental rows (half of the experiment) and exposed the plants to the freezing temperatures. At this time the blueberry cultivars had between 20% ('Tifblue'), and 100% ('Krewer') open flowers due to the warming trend in the beginning of March. Since blueberry plants can tolerate temperatures of 23-24 °F during the early pink bud stage, but are susceptible to cold injury at 28 °F at the full bloom stage, all cultivars sustained cold injury and the most advanced blueberries had a complete crop lost, especially on the two rows where the wind damage caused the row covers to be removed from the plants (Figures 3, 4, and 5).


A B

Figure 3. 'Krewer' (A) and 'Climax' (B) rabbiteye bushes flowering stage on January 11, 2022, CREC, AL.

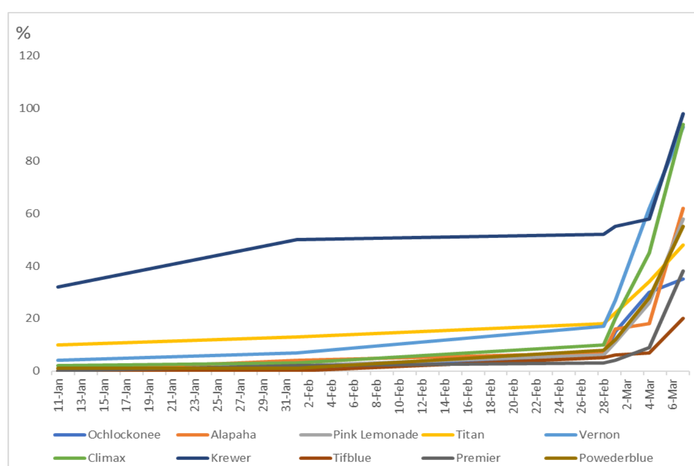

Figure 4. Phenogram of flowering (percent open flow ers) of selected rabbiteye blueberry cultivars grown at the CREC, AL, 2022.


A


B

Figure 5. Cold damage to uncovered (A) and row cov ered (B) 'Krewer' rabbiteye blueberry plants after the freeze event on the evening of March 12, 2022.

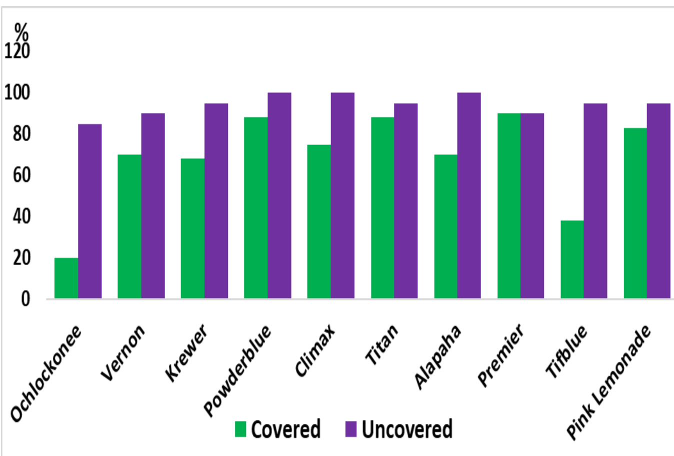

Figure 6. Percent cold damaged flowers for selected blueberry cultivars based on row cover protection after the March 12 freeze event, 2022.

Visual rating of the degree of cold injury was conducted for each blueberry plant shortly after the freeze event on March 12. The results (Figure 6) suggest the two covered rows had between 20 and 90% damaged flowers, while the damage on uncovered/unprotected rows representing the other half of the experimental plants varied between 85 and 100%.

Table 1. Yield and fruit quality attributes at each harvest period of selected rabbiteye blueberry cultivars grown in Central Alabama CREC, 2022.

	Yield, g/plant			Berry wt, g			^{0}Brix		
Cultivar	7-Jun	14-Jun	23-Jun	7-Jun	14-Jun	23-Jun	7-Jun	14-Jun	23-Jun
Alapaha	92.0	123.0	12.0	2.2	1.6	1.2	14.9	15.5	14.4
Climax	33.5	68.0	32.0	2.3	2.1	1.8	16.1	16.1	18.7
Krewer	133.0	156.0	37.0	4.0	3.3	2.3	14.8	15.1	16.4
Vernon	427.3	143.3	129.0	3.0	1.9	2.4	14.9	14.4	15.5
Titan	110.3	116.0	_	4.5	3.5	_	12.1	16.6	_
Tifblue	_	194.0	226.0	_	1.4	1.7	_	13.5	16.1
Ochlockonee	_	139.0	188.0	_	2.3	2.3	_	13.2	15.9
Powderblue	_	83.0	95.5	_	1.4	1.8	_	14.3	15.5
Premier	_	56.0	_	_	1.6	_	_	15.5	_

Season of ripening and the number of harvests were recorded on bushes with some fruit produced. First blueberry harvest occurred on June 7, followed by harvesting on June 14 and 23rd, 2022. Individual harvest yield was measured for each bush (Table 1). To determine fruit quality characteristics, a 10-berry sample was collected at each harvest event when berry size and SSC were measured. Due to the spring freeze crop loss, no sufficient berry samples were available to measure berry pH, total phenolic, total sugar, glucose, fructose, and total acids.

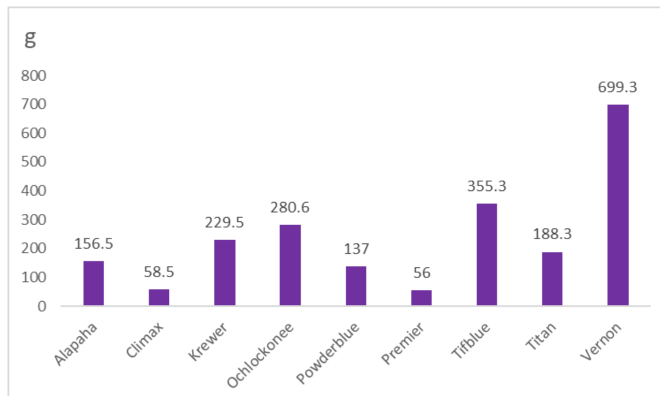

Figure 7. Total yield/plant (g) of selected blueberry cultivars grown at the CREC, AL, 2022.

Our results for total yield/plant (Figure 7) suggest 'Vernon' produced the highest yield of 699.3 g/plant (mainly the protected bushed produced fruit), while no crop was harvested from any of the 'Pink Lemonade' plants.

Table 2. Fruit quality attributes of selected rabbiteye blueberry cultivars grown in Central Alabama CREC, 2022.

	Mean berry weight, g	^{0}Brix
Alapaha	2.0	15.5
Climax	2.1	16.5
Krewer	3.5	15.2
Ochlockonee	2.3	15.0
Powderblue	1.7	15.3
Premier	1.6	15.5
Tifblue	1.6	15.3
Titan	4.0	14.4
Vernon	2.5	15.0

Due to the significant freeze, crop loss fruit quality attributes were determined on a small berry sample (10 fruit) and should be considered with caution. The results on seasonal mean berry weight and total soluble solids expressed as degree Brix are presented in Table 2. 'Titan' berries were the largest (4.0g) among all cultivars tested and were followed by 'Krewer' fruit with an average size of 3.5g. 'Climax' berries were the sweetest during 2022 season, but all blueberry cultivars produced crop with relatively sweeter fruit, likely an effect of the low crop load.

Strawberry bud weevil: Changing thresholds?

Douglas G. Pfeiffer[1] and Jayesh Samtani[2]

Dept. Entomology, Virginia Tech, Blacksburg VA

Hampton Roads Agricultural Research and Extension Center, Virginia Tech, Virginia Beach, VA

Fig. 1. Strawberry bud weevil adult. Fig. 2. Strawberry bud weevil larva (photos by Hannah Burrack, NC State Extension)

The strawberry bud weevil, *Anthonomus signatus* Say (also known simply as clipper), has long been considered one of the most important direct pests of strawberries in the United States. This pest has been reported to cause yield losses from 50 to 100% in some areas (Schaefers, 1981).The adult weevil is a snout beetle about 1/10 inch (3 mm) long, chestnut brown in color (Fig. 1), and possessing two black spots on its back (elytra). Larvae are tiny creamy white-colored grubs found inside unopened flower buds (Fig 2). A related species, *A. rubi*, causes similar injury to strawberries in Europe and western Asia (Aasen & Trandem, 2006).

The strawberry bud weevil is widespread and occurs throughout virtually all the strawberry-growing regions of this country (Anderson & Walker, 1937). Strawberry bud weevil has one generation per year. The phenology and development of the strawberry bud weevil were monitored in strawberry fields in the northern part of its range, in southern Quebec. There was 1:1 (male/female) sex ratio in spring and summer. About 63 days were required for development from egg to adult. Spring adult emergence occurs within a very short time period as temperature highs near 60 °F (Mailloux & Bostanian,1993).

Overwintering adults emerge early in the season from ground litter commonly in wooded areas and migrate to strawberry fields in April (timing will vary with the region). Ovipositing females puncture unopened buds with their long snout and deposit a single egg into the bud. Damage results when females sever the strawberry bud from the pedicel following egg laying, causing it to hang by part of the stem, or fall to the ground, thus, preventing fruit formation (Fig. 3). Often, the damaged blossoms upon opening have shot holes on the petals (Fig. 4). Larvae develop in the severed buds and reach maturity in 3-4 weeks. Adults emerge in June, feed on flower pollen, then enter an estivation in mid-summer and remain inactive the rest of the season.

Fig. 3. Weevil lays a single egg in the bud and clips the bud (photo by J. Samtani). Fig. 4. Damage on the flower (small shot holes), a key presence of the clipper weevil (photo by J. Samtani).

Field scouting/monitoring and action thresholds:
One method of field scouting involves sampling weevils on plants, during the early blossom/bud stage. Schaefers (1981) suggests an economic injury level of 1 female beetle per 40 row feet. Cooley & Schloemann (1990) developed a sampling program based on bud damage and advise treatment if an average of 0.6 clipped buds per row foot are found. Bostanian et al. (1999) reported sweep net sampling to be effective for determining clipper presence and population. A low action threshold has been used for strawberry bud weevil; Pritts et al. (1999) recommended a threshold of two clipped buds/meter of row. This was because pest managers and growers have assumed that one clipped flower bud results in the loss of one average-sized fruit.

Recent research has shown that percent clipped buds do not entirely correspond with percent crop loss. Some strawberry varieties compensate for some fruit loss by the surviving fruit growing to a larger size (English-Loeb et al., 1999). Similar observations in North Carolina (Burrack

2014) indicate that at some injury levels sprays may not be needed, but further research is needed.

Control:

Chemical control:

In the 2022 Southern Region Strawberry pest management recommendations (https://smallfruits.org/ipm-production-guides/), three insecticides are recommended for strawberry bud weevil: Brigade (bifenthrin), Danitol (fenpropathrin), and Sevin (carbaryl). It should be noted that all three materials, especially the pyrethroids, are toxic to predatory mites and other natural enemies. Caution should be used, with vigilance for population build-up of two-spotted spider mite.

Cultural Control:

Pistillate varieties of strawberries are relatively immune from attack since only varieties with staminate flowers seem to provide adequate food for developing larvae (Davidson & Lyon 1987). Early-fruiting varieties such as 'Sweet Charlie', 'Rocco' and 'Ruby June', would be phenologically be more susceptible to attack than later-fruiting varieties. For matted-row production, Schaefers (1981) recommends topping of plants and removal of foliage and mulch immediately following harvest, then applying a follow-up chemical spray to kill overwintering adults. Other cultural practices include avoiding field site selection near wooded areas to prevent high numbers of overwintering adults from entering the field in the spring. Mulches and full canopy beds encourage adults to overwinter and remain in the field. Plowing old beds immediately following harvest causes adult mortality. Cropping fields for less than three years is also a beneficial practice.

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2023 Mid-Atlantic Strawberry Programs to be held in Virginia Beach, VA

February 27 and 28, 2023

Roy D. Flanagan III, Agriculture and Natural Resources Extension Agent- Virginia Beach

Starting in the late 1990's Virginia Cooperative Extension Agent, Cal Schiemann realized that SE Virginia growers were not traveling to large strawberry-centric meetings. He also found that working strawberries as a topic in already existing local meetings was not impactful. So, in 1999 the first Virginia Beach Strawberry School was held. Over the years the meeting grew to a 2-day program, including a field walk program on the first day and Strawberry School on the second day. These events were held annually in Virginia Beach and became a largely attended meeting, growing well beyond the boundaries of Virginia. We renamed the program in approximately 2018 to Mid-Atlantic Strawberry Programs to better represent the scope of attendees, which regularly come from as far north as Pennsylvania and as far west as Ohio. The program now consists of three programs over the course of two days to pack as much relevant information as possible into our short time here with the growers.

All programs are offered at no cost to the growers, rsvp is requested.

Programs for 2023 are:

Strawberry Field Walk (*Feb. 27, 2023, 12:30 p.m to 5:00p.m.)*: An opportunity to join some of our region's strawberry experts and growers from all over in the fields. The program and discussion will come from the situations seen in the fields and the questions from growers. We will visit two Virginia Beach Strawberry Farms. Exact locations and details TBD.

Evening Program *(Feb. 27, 2023, 5:30 to 8:30p.m.)*:

Location: Creeds Ruritan Community Complex, 1057 Princess Anne Rd., Virginia Beach, VA 23457

Food, Fellowship, and Information sharing session.

Dinner will be provided. At this time no structured program is planned.

I am a firm believer that growers enjoy and learn by conversing with other growers, the agents, specialists, and industry folks. So, without a formal program, the plan is to firm up relationships, meet new folks, share information, and add more tools to all our toolboxes.

Strawberry School and Trade Show *(Feb. 28, 2023, 8:00a.m. to 4:00 p.m.)*:

Location: VB Advanced Technology Center, 1800 College Crescent, on the VB Tidewater Community College Campus.

The Regional strawberry experts will provide us with information on disease ID and treatment options, variety selection, overall strawberry production considerations, a forecast for the 2023 crop, and more. We will have ample time for attendees to visit with our awesome program sponsors about their products and services to make all operations grow and flourish. The doors will open at 8 a.m. with the program beginning at 8:45 a.m. and ending at 3:30-4:00 p.m. A complimentary lunch is included for attendees of the program.

There will be an update from the Virginia Strawberry Association (soon to be Mid-Atlantic Strawberry Association) during their annual business meeting which will be held either at lunch time, or during the evening Meet and Greet Program-TBD. As previously mentioned, there is no cost to attend these programs, but we do ask for an rsvp. More details will be shared as the time draws closer. To make sure you get the details later or for any questions, please email myself or Tammy Mas, tmas@vbgov.com

The southward spread of spotted lanternfly

Douglas G. Pfeiffer, Dept. Entomology, Virginia Tech, Blacksburg VA

Fig. 1. Adult spotted lanternfly

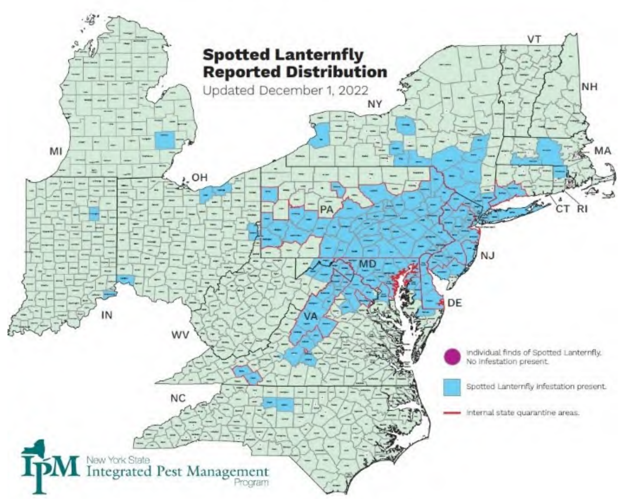

Fig. 2. Map of the current distribution of spotted lanternfly.

Spotted lanternfly, *Lycorma delicatula* (White) (Fig. 1), is an invasive pest that is being watched closely in many states – not only the states with current infestations, but also areas where the insect is likely to show up next, or those with the most vulnerable crops. The most vulnerable crop is grape, so this will be of interest to many readers here. Spotted lanternfly (SLF) was first found in southeastern Pennsylvania in 2014. It has been spreading ever since, and it turned up in northern Virginia in 2018. In Virginia, it now infests the entire Shenandoah Valley and parts of the Piedmont. In 2022 it was detected in two North Carolina counties (Fig. 2).

Spotted lanternfly overwinters in the egg stage, and eggs hatch in late April or early May (in Virginia). First adults appear in mid-July and begin laying eggs at the end of September. Eggs may occur in high numbers once populations are established locally. Eggs are laid indiscriminately on trees and various other natural or artificial objects. Egg masses may be conspicuous on vineyard trellis posts (Fig. 3). Masses may also be deposited on the inner (concave) surface of roll-formed steel posts when used as trellis posts. This will provide some degree of protection for egg masses in the vineyard.

Fig. 3. Spotted lanternfly egg masses on vineyard trellis end post.

Nymphs will feed on grapevines, as well as a wide range of other hosts. In the late season, the host range constricts, and tree-of-heaven and grape are the favored two host plants. During the adult stage, there is a problem with continued immigration into vineyards, complicating control efforts. Growers should become familiar with the appearance and biology of this invasive insect, and be prepared to apply insecticides targeted against SLF. However, there is no need to spray for the initial presence of a few insects. Provisional thresholds developed at Penn State University are 15-20 nymphs per vine in the spring and early summer, and 5-10 adults per vine in late summer and fall. Be sure to notify your local extension agent when SLF is found in our area.

Fig. 4. Spotted lanternfly on inner (concave) surface of roll-formed steel trellis post.

Next issue of the Small Fruit News: April 2023

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