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FUNDING OPPORTUNITIES

- **Georgia Blueberry Commission**

The Georgia Blueberry Commission has just released the call for proposals for research for the CY14 funding period (January 1, 2014 through December 31, 2014). Since limited funds are available, the following priorities have been established: Water Quality, New/Emerging Diseases, New/Emerging Insects, Weed Control, Varieties, Pre/Post Harvest Ripe Rots, and Mechanical Harvesting. However, all projects will be considered on their individual merit and potential success.

Proposals should be limited to three (3) pages and include: Title and investigators names, need for research in Georgia, potential benefit and explanation for evaluating cost and benefit, objectives, procedures and locations of research, and a budget including requests of funds for personnel services and operating costs. Ten (10) copies of the proposal must be received by the Commission Office by February 15, 2014. **To meet the Commission's deadline of February 15, proposals must be sent to Debra Rucker in the CAES Business Office for review by 12:00 noon on Friday, February 7.** Please include a signed proposal cover sheet (<http://ovpr.uga.edu/docs/forms/osp/pdf/Proposal-Cover-Sheet.pdf>), and also enter the proposal into UGA's eResearch Portal for Grants and Awards (<http://ovpr.uga.edu/osp/proposal/submit-proposal>), which will generate the necessary internal transmittal process.

If you have any questions regarding research proposals, please contact Joe Cornelius, Chairman, at 912-285-1602 or Nathan Wilson at the Commission office at (404) 656-3678.

- **USDA AFRI Foundational Program**

For FY 2014, it is anticipated that approximately \$82 million will be made available to support new awards within the AFRI Foundational Program Area. This RFA focuses on building a foundation of knowledge in fundamental and applied food and agricultural sciences critical for solving current and future societal challenges. The eight Program Area Priorities are very broadly written, making this an excellent opportunity for many of our research programs. This includes two new Program Priorities available for the first time this year, "Critical Agricultural Research and Extension (CARE)" (more mission-oriented, addressing critical needs), and "Exploratory" (1-year, \$100,000 funding for proof of concept of innovative ideas). **The Exploratory program is unique in that LOIs are accepted anytime up to Sept. 30, 2014, pending prior consultation with the Program Area contact.**

For more information, visit

http://www.nifa.usda.gov/funding/rfas/pdfs/14_afri_foundation_mod.pdf.

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- **USDA AFRI Food Security RFA**

For FY 2014, it is anticipated that approximately \$6 million will be made available to support new awards within the Food Security Challenge Area of AFRI. In FY 2014, only proposals that focus on reducing crop and livestock losses in U.S. agricultural systems will be considered for funding. Proposed projects should develop and extend sustainable, integrated management strategies that reduce pre and post-harvest losses caused by diseases, insects, and weeds in crop and animal production systems, while maintaining or improving product quality and production efficiency. Proposals should aim to develop approaches for managing losses throughout the whole food system (production, harvesting, storage, processing, distribution, and consumption), and should address the social, economic, and behavioral aspects of food security. Project types supported by AFRI within this Challenge Area will propose multi-function Integrated Research, Education, and/or Extension Projects, Food and Agricultural Science Enhancement (FASE) Grants, and conferences and/or workshops. **Letters of intent are due by March 14, 2014. The final submission deadline is June 12, 2014.**

For more information, visit

http://www.nifa.usda.gov/funding/rfas/pdfs/14_afri_food_security_1_17.pdf.

- **USDA AFRI Food Safety RFA**

NIFA requests applications for the Food Safety Challenge Area Program for fiscal year (FY) 2014. In the Food Safety Challenge Area, specific program areas are designed to achieve the long-term outcome of reducing foodborne illnesses and deaths through a safe food supply. It is anticipated that approximately \$11 million will be made available to support new awards within the Food Safety Challenge Area. Project types supported by AFRI within this Challenge Area will propose multi-function Integrated Research, Education, and/or Extension Projects, Conference and Food and Agricultural Science Enhancement (FASE) Grants. This RFA identifies integrated program objectives, eligibility criteria, application instructions, and matching requirements for each project type. **Letters of intent are due by February 26, 2014. The final submission deadline is May 8, 2014.**

For more information, visit

http://www.nifa.usda.gov/funding/rfas/pdfs/14_afri_food_safety.pdf.

- **USDA NIFA Organic Transitions RFA**

NIFA requests applications for the Integrated Research, Education, and Extension Competitive Grants Program – Organic Transitions (ORG) for fiscal year (FY) 2014 to solve critical organic agriculture issues, priorities, or problems through the integration of research, education, and extension activities in program areas. In pursuant to H.R. 3547, the Consolidated Appropriations Act, 2014, the amount available to support this program in FY 2014 is approximately \$4 million. **The final submission deadline is April 4, 2014.**

For more information, visit

http://www.nifa.usda.gov/funding/rfas/pdfs/14_org_tr.pdf

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UPDATES FROM EPA

Exirel™ and Verimark™ Receive Federal Registration:

The EPA approved federal registration for Exirel™ (for foliar applications) and Verimark™ (for soil applications). Active ingredient in both of these products is Cyazypyr® or cyantraniliprole which is an anthranilic diamide and belongs to IRAC mode of action group 28. Anthranilic diamides operate in a novel mode of action by interrupting normal muscle contractions. State registration for Exirel™ and Verimark™ in Georgia is anticipated to happen soon, hopefully giving growers another option for pest control in the upcoming spring and summer seasons.

AWARDS AND HONORS

Dr. Dan Horton Wins Lifetime Achievement Award:

In recognition of his numerous accomplishments in Fruit IPM, Dr. Dan Horton is the winner of the 2014 Southern Region IPM Center Friends of IPM-Lifetime Achievement Award. This honor is bestowed upon an individual who exceeds expectations in the field of IPM. Dr. Horton was selected based on his excellent career and the positive impact he has made on research and extension programs. He will receive his award at the Entomological Society of America's Southeastern Branch meeting, which takes place from March 2 through March 5 in Greenville, SC.

UPCOMING EVENTS

Feb 4 - IPM for External Parasites of Cattle

Dr. Nancy Hinkle will speak on "IPM for External Parasites of Cattle," in Wrightsville, Georgia. This training is part of the spring 2014 Master Cattlemen's Program being held in Southeast Georgia, hosted by Johnson County. The meeting runs 6:30 to 8:30 p.m. on Tuesday evenings. For more information, contact Washington County ANR Agent Brent Allen at 478-552-2011.

Feb 5 - Georgia Agribusiness Council's State Legislative Breakfast

The Georgia Blueberry Grower's Association has invited Dr. Ash Sial to attend this breakfast in Atlanta, GA. After the breakfast, Dr. Ash Sial plans to meet with the Georgia Department of Agriculture leadership to discuss potential funding opportunities for IPM research.

Feb 13 - Vineyard Update

UGA Cooperative Extension is hosting its annual Vineyard Update in Blairsville, GA at the Georgia Mountain Research and Education Center. Featured speakers include UGA's Dr. Phil Brannen, Dr. Dan Horton, and Dr. Ash Sial. In addition, pesticide credit is offered for both commercial and private license holders. To register for this event or for more information, please contact the Lumpkin County Extension Office at 706-864-2275 or email uge1187@uga.edu.

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Feb 19 - Delusory Parasitosis

Dr. Nancy Hinkle will kick off the New Urban Pest Management Webinar Series with her presentation on Delusory Parasitosis. This webinar series allows pest management professionals to obtain re-certification and re-registration credit on-line, in the comfort of their home or office. To sign up for this webinar, please contact Dr. Dan Suiter at dsuiter@uga.edu or 770-233-6114.

Feb 20 - Blueberry Sprayer Calibration Field Day

Calibrate your sprayer and listen to talks by UGA Extension experts in Alma, GA. Speakers include Dr. Phil Brannen, Dr. Glen Rains, and Dr. Ashfaq Sial.

Feb 20 - Fly Control on Georgia Cattle

Dr. Nancy Hinkle will speak at the Stephens Co. Cattlemen's Association meeting and cover options available to beef producers for controlling flies on their herds. The meeting starts at 7 p.m. in the Stephens County Farm Bureau Office. For more information, please contact Forrest J. Connelly, Stephens County Extension Coordinator, at 706-779-5501.

Mar 2-5 - 2014 Southeastern Branch Annual Meeting, Entomological Society of America

This year's Southeastern Branch ESA meeting will be held in Greenville, SC. Join fellow entomologists for this multi-day event which features oral and poster presentations, the Linnaean Games, and fun socials. Visit <http://www.entsoc.org/Southeastern/2014SEB-annual-meeting> for more information.

Spotted Wing Drosophila Workshop Series: *TO TRAIN THE TRAINERS*

Spotted Wing Drosophila (SWD), *Drosophila suzukii* (Diptera: Drosophilidae) is an invasive pest of small and stone fruits, and some pome fruits. It is native to Asia and was first detected in the continental United States in California during 2008. Since then, it has spread throughout the primary fruit producing regions in the US. In Georgia, SWD populations were first detected in 2010 and since then have emerged as a major threat to fruit production in the state causing up to 100% crop loss in some situations. In order to deal with this challenge, UGA Blueberry Entomologist (Dr. Ash Sial) has partnered with the UGA Cooperative Extension leadership to organize this series of workshops to train the trainers. These workshops will be delivered in conjunction with 2014 Spring ANR Updates in each of the four UGA Cooperative Extension Districts. These workshops will offer UGA Extension Agents hands-on training to identify SWD and develop monitoring traps, and lots of resources to educate growers about how to develop and implement appropriate management strategies in a timely manner. Another goal of this workshop series is to have County Agents working together with UGA's Fruit Entomology Program to develop a Spotted Wing Drosophila spatio-temporal distribution map across all counties in the state of Georgia. Here is the schedule:

Feb 11 - Southeast District – Spotted Wing Drosophila (SWD) Identification, Monitoring, and Management Workshop (Dr. Ash Sial)

Feb 12 - Northwest District – Spotted Wing Drosophila (SWD) Identification, Monitoring, and Management Workshop (Dr. Ash Sial)

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Mar 4 - Southwest District – Spotted Wing Drosophila (SWD) Identification, Monitoring, and Management Workshop (Dr. Ash Sial)

Apr 17 - Northeast District – Spotted Wing Drosophila (SWD) Identification, Monitoring, and Management Workshop (Dr. Ash Sial)

New Urban Pest Management Webinar Series

Come experience the future of training for Georgia's pest management industry! The University of Georgia's College of Agricultural and Environmental Sciences, powered by the Digital Innovation Group, has developed a training program that will allow pest management professionals to obtain re-certification and re-registration credit on-line, in the comfort of their home or office. All your computer will need is the ability to access the internet; no special software is needed on your part. Logging on, watching a live online presentation (called a webinar), and then going back to work is just a few mouse clicks away. No more long drives and time off work to acquire credits!

Mark your calendar for the 2014 webinar series (all webinars 8:00 to 9:00 am).

1. February 19. Dr. Nancy Hinkle, University of Georgia on *Delusory Parasitosis*
2. April 16. Dr. Susan Jones, The Ohio State University on *Bed Bug Monitoring*
3. June 18. Mr. Elmer Gray, University of Georgia on *Mosquito Biology*
4. August 20. Dr. Brian Forschler, University of Georgia on *Termite Biology*
5. October 15. Dr. Karen Vail, University of Tennessee on *Ant Pests of the Southeast*
6. December 10. Dr. Ron Harrison, Orkin Technical Services on *Bed Bug Control*

How the Program Will Work. Several weeks prior to the event, Dr. Dan Suiter will announce the webinar by email. In the email will be instructions on how to register. If you'd like to be put on his mailing list, simply send an email to Dr. Suiter at dsuiter@uga.edu, and note that you'd like to be notified when registration for each webinar opens. Or, if you'd simply like to learn more about the series feel free to call Dan at 770-233-6114 to chat.

Hope to see you on-line February 19!

Dan Suiter, Ph.D.

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FROM THE FIELD

Alternate-Row-Middle (ARM) Spraying for Rabbiteye Blueberry Green-tip and Bloom Sprays

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Last year, I visited a blueberry site with significant mummy berry pressure in one of our southern Georgia counties. Based on the producer spray records, the materials applied and application timings were on target; there initially appeared to be no good reason for the level of mummy berry observed – assuming all was accurate. At some point, the conversation turned to alternate-row-middle (ARM) application (spraying every other row with an airblast sprayer) and its use at this location. This raised quite a few questions, as we did not have information to support the use of ARM in rabbiteye blueberries.

Recently, a replicated test was conducted to determine the efficiency of ARM applications in a mature rabbiteye blueberry site in Alma, GA. We utilized both water-sensitive and dye-sensitive cards for determining the degree of coverage observed at different points in the canopy. No leaves were present, and though the plants had not been pruned well, the plant architecture was relatively open (absolutely no leaves). We applied the dye-water combination at a rate of 62 GPA (a higher total spray volume than most producers would use at this time of year; many would use half this rate for early-season applications) at a ground speed of 3 miles per hour. Even without computer analysis, it was apparent that the insides of unsprayed rows did not receive sufficient coverage. We were actually pretty surprised by the results, but under the parameters we utilized, we simply did not achieve good coverage; exposed tissue could easily have been infected. Though producers may increase pressure, slow ground speed, or increase total spray volume, this initial trial calls into question the use of ARM in rabbiteye blueberries. It has also been reported that some producers are using ARM for control of SWD, and that really needs to be carefully scrutinized. ARM with full foliage is likely pretty dicey, even if one does substantially increase the total spray volume.

In addition to accurate sprayer calibrations, producers should utilize water-sensitive cards to determine spray coverage. Based on the replicated trial we conducted, one should be careful about the use of ARM. However, producers may be able to change parameters to make this work at their locations, especially if they have pruned well. They need to conduct their own trials if they plan to use the ARM approach for early-season applications. There is a report by VanEe et al. (2000) that indicates ARM can work at budbreak (but not full bloom) on northern highbush plants, so there might be limited utility. However, we could not recommend ARM as a general research-based method at this point. Even limited air movement (wind) can cause erratic coverage with ARM, so still conditions would be very important with ARM.

Bottom line – producers should conduct their own testing with water-sensitive cards under their conditions. Such tests should be conducted throughout the season as the canopy closes and conditions change. These cards are really useful, as they can help one modify sprayer setups, etc. for better coverage; without use of water-sensitive cards, it is very difficult for one to visually assess spray patterns with airblast or other sprayers in the various canopy layers.

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Scale Insects in Blueberries: Identification and Management

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Over the past couple of months blueberry growers from different counties in the Southeastern Georgia have reported infestations of scale insects in blueberries. We received some specimens for identification in November 2013 all of which were unfortunately dead and extremely dehydrated and damaged to the extent that they were unidentifiable. We received another set of intact specimens in January 2014 which were identified as cottony cushion scales, *Icerya purchase* Maskell (Hemiptera: Monophlebidae) (Fig. 1).

Scales are a large group of insects (superfamily Coccoidea) in order hemiptera that are minute to small in size and sexually dimorphic – males and females are distinctly different in appearance (Daly et al. 1998). They have unusual lifecycle; females have incomplete metamorphosis (egg-immatures-adult), whereas males have complete metamorphosis (egg-immatures-pupal state-adult). Not all scales have both male and female sexes – some are hermaphrodites. They usually have waxy or scale like covering depending the family. Several families of scale insects including soft scales (Coccidae), mealybugs (Pseudococcidae), armored scales (Diaspididae), and giant scales (Monophlebidae) have been cited as pests of blueberries (Marucci 1966, Milholland and Meyer 1984, Antonelli et al. 1992).

Soft scales secrete a waxy covering that is part of their body. Of the soft scales, Indian wax scale, *Ceroplastes ceriferus* (Fabricious) (Fig. 2), Terrapin scale, *Mesolecanium nigrofasciatum* (Pergande) (Fig. 3) and European fruit lecanium, *Parthenolecanium corni* (Bouché) (Fig. 4) can cause economic damage to blueberries. Recently, Azalea bark scale, *Eriococcus azaleae* Comstock (Eriococcidae) (Fig. 5) was also reported to feed on blueberries (Walton et al. 2006). The armored scales do not secrete honeydew; they concentrate and incorporate anal secretions into the scale cover (Foldi 1989). Among the armored scales, Lesser Snow scale, *Pinnaspis strachani* (Cooley) (Fig. 6) and Putnam scale, *Aspidiotus ancyllus* (Putnam) (Fig. 7) can cause the most damage to blueberries.

Mealybugs are morphologically different from the other scales insects because they possess functional legs throughout their lifecycle. The infested plants look snowy because of the white waxy body filaments. The blueberry mealybug, *Dysmicoccus vaccinii* Miller & Polavarapu has been reported to infest blueberries. Based on circumstantial evidence, blueberry mealybug has been implicated as a vector of the Ringspot virus, the causal agent of the Red Ringspot disease in blueberries (ScaleNet).

The cottony cushion scale can be distinguished easily from other scale insects. The mature females (actually hemaphrodites) have bright orange-red, yellow, or brown bodies (Ebeling 1959). The body is partially or entirely covered with yellowish or white wax. The most conspicuous feature is the large fluted egg sac, which will frequently be two to 2.5 times longer than the body. The egg sac contains about 1000 red eggs (Gossard 1901). Cottony cushion scale has a wide host range and was reported to feed on blueberries in Bacon County (GA) earlier this year.

Scale insects insert their piercing-sucking mouthparts into the plant tissues and siphon the plant sap. As they feed, soft scales and mealybugs excrete large amounts of a sweet, sticky liquid referred to as “honeydew” which provides an excellent medium for the growth of black fungus called sooty mold.

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Accumulation of honeydew and sooty mold on foliage interferes with photosynthesis which can reduce plant vigor and slow plant growth. If the feeding occurs on the fruit, grade loss can occur due to the presence of unsightly honeydew and sooty mold. Sooty mold usually weathers away following the control of scale infestation (Buss and Turner 2004).

Honeydew also attracts ants and when ants are observed, plants should be closely examined for scale infestation. If active scale populations are suspected in a blueberry orchard, double-sided sticky tape should be put around canes in close proximity to the eggs sacs. Tape should be changed at least every other week and looked under the microscope to determine when eggs begin to hatch which is extremely important because crawlers (the first instar nymphs) are the only mobile stage and are readily controlled by oil or most insecticides.

The best strategy to management scale insects is to prune the old wood annually. Dormant pruning of old, weak canes and scale infested wood removes a large pool of eggs and prevents the scales from increasing their population density. The most scale populations have historically remained below economic threshold as a result of natural biological control. However, the increased pesticide use against spotted wing drosophila over the past couple of years might have disrupted the natural biological control in blueberry orchards leading to higher populations of scales and other secondary pests.

If scale insect pressure is high, winter pruning should be followed by dormant oil applications before the bloom. If the temperatures are high enough for insect development to occur, insect growth regulators can be applied in combination with oil earlier in the season. Achieving 100% control of scales using pesticides is a major challenge because adult females and eggs are protected from virtually any pesticide. The crawlers (first instars nymphs) are the only mobile and susceptible stage, and therefore timing of chemical applications to target the crawler activity periods is critical.

In order to control heavy scale infestations, high spray volumes (100-200 gallons per acre) should be used to ensure thorough coverage of all parts of blueberry bushes. It is not advisable to apply oil sprays at or below 32°F, but rather at temperatures above 50°F under calm conditions. Also, oil should not be applied after fruit set because it will remove the bloom and the resultant spotted berries will be unmarketable for fresh markets.

For further details regarding scale control in blueberries, please refer to Georgia Blueberry Insecticides/Miticides at <http://www.ent.uga.edu/labels/BlueberryInsecticide.pdf> and 2014 Southeast Regional Blueberry Integrated Management Guide at <http://www.smallfruits.org/SmallFruitsRegGuide/Guides/2014/BlueberrySprayGuide11252013.pdf>

Images:



Figure 1. Cottony cushion scale
(Photo: Sturgis McKeever, Georgia Southern University)



Figure 2. Indian Wax scale.
(Photo: Lyle Buss, University of Florida)



Figure 3. Terrapin scale
(Photo: Jerry Payne, USDA)



Figure 4. European fruit lecanium
(Photo: Jerry Payne, USDA)



Figure 5. Azalea bark scale
(Photo: Vaughn Walton, Oregon State University)



Figure 6. Putnam scale
(Photo: Jerry Payne, USDA)

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Figure 7. Male tests and female Lesser Snow scale (Photo: Lyle Buss, University of Florida)

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Dear Readers:

UGA Integrated Pest Management Newsletter is a monthly journal for Researchers, Extension agents, Extension specialists, and others interested in pest management. It provides most updated information on legislation, regulations, and other issues concerning pest management in Georgia.

Do not regard the information in this newsletter as pest management recommendations. Consult the Georgia Pest Management Handbook and other Extension publications, or appropriate specialists for additional information.

Your input in this newsletter is encouraged. If you wish to be added to the mailing list, just call us at 706-542-1320.

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