



Cotton/Soybean Insect Newsletter

Volume 16, Issue #11 Edisto Research & Education Center in Blackville, SC

9 July 2021

Pest Patrol Alerts

The information contained herein each issue is available via text alerts that direct users to online recordings. I will update the short message often for at least as long as the newsletter runs. After a new message is posted, a text message is sent to alert users that I have recorded a new update. Users can subscribe for text message alerts for my updates in two easy steps. Step one: register by texting **pestpat7** to 97063. Step two: reply to the confirmation text you receive by texting the letter “y” to complete your registration. Pest Patrol Alerts are sponsored by Syngenta.

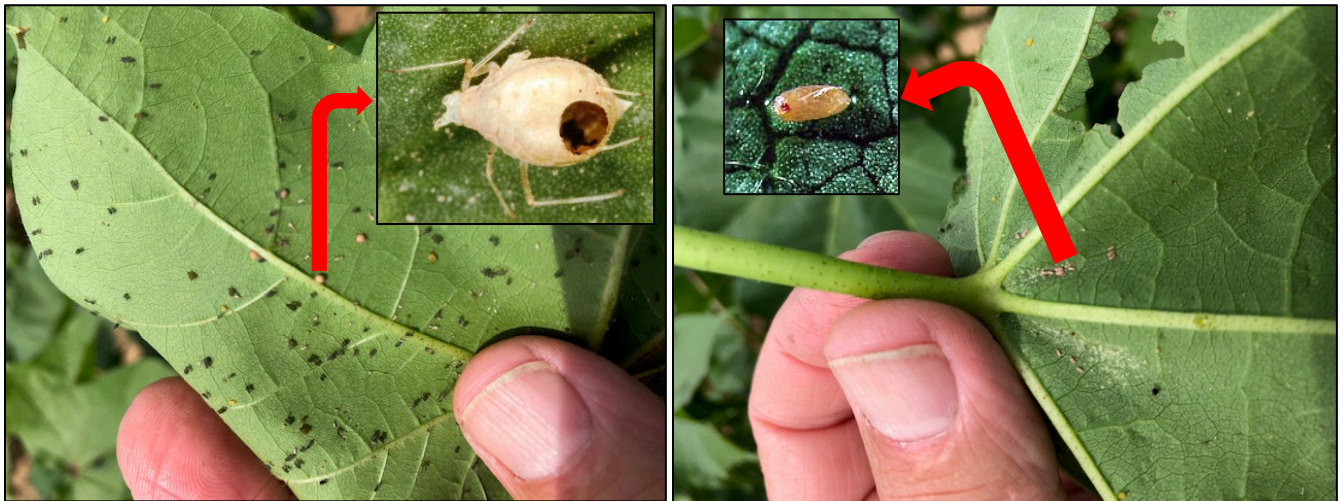
Updates on Twitter

When noteworthy events happen the in the field, I will be sending them out quickly via Twitter. If you want to follow those quick updates, follow me at [@bugdocisin](#) on Twitter.



News from Around the State

Charles Davis, county agent in Calhoun County, sent the photos below. One shows cotton aphids on the underside of a cotton leaf (left photo), with some aphid “mummies” as the enlarged, round bodies or cadavers. These aphids were parasitized by a tiny wasp, most likely *Lysiphlebus testaceipes*, that deposited its eggs into the aphids. The immature wasp feeds on and develops inside the aphid host before exiting through a chewed hole (inset) as an adult ready to mate and continue the war on aphids. I think that we see eggs from another beneficial arthropod, the bigeyed bug, clustered under another cotton leaf (right photo), but they are difficult to see. It is a dynamic world at this organism level, and we are lucky that we do not exist at that scale because it would be unbelievably scary outside.



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Tom Smith, a local crop consultant, provided this cotton report: "It appears we have no shortage of various brown stink bug species in cotton fields; I've got various April-planted cotton fields receiving 1st bug sprays from today to 1st of coming week (June 12). Also of note...aphid populations have continued to build, plus TPB is in the mix."



Scouting Workshops and Field Days

Plans are set for our 2021 in-field, in-person workshops devoted to scouting for insect issues in cotton and soybeans. Dates and locations for these scouting workshops are below. See attachments to preregister and for more details.

- 28 July in Lake City, SC. Announcement sent out soon for preregistration.
- 29 July in Cameron, SC, at the Cameron Community Club (5376 Cameron Road, Cameron, SC 29030). **Preregister - announcement attached**
- 30 July in Blackville, SC, at the Edisto REC (64 Research Road, Blackville, SC 29817). Announcement sent out soon for preregistration.

If you would like to attend, please preregister at the links on the attached announcements. **Attendance will be limited to the first 50 participants that preregister for each session/workshop.**



We will also have an in-person field day here at the Edisto REC on 2 September 2021, with at least row crops (cotton, soybeans, peanuts, corn, grain sorghum, etc.) covered. Stay tuned for details.

Cotton Situation

As of 4 July 2021, the USDA NASS South Carolina Statistical Office estimated that about 47% of the crop is squaring, compared with 32% last week, 36% at this time last year, and 46% for the 5-year average. About 7% of the crop is setting bolls, compared with 1% last week, 4% at this time last year, and 7% for the 5-year average. The conditions of the crop were 12% excellent, 61% good, 24% fair, 2% poor, and 1% very poor. These are observed/perceived state-wide averages.

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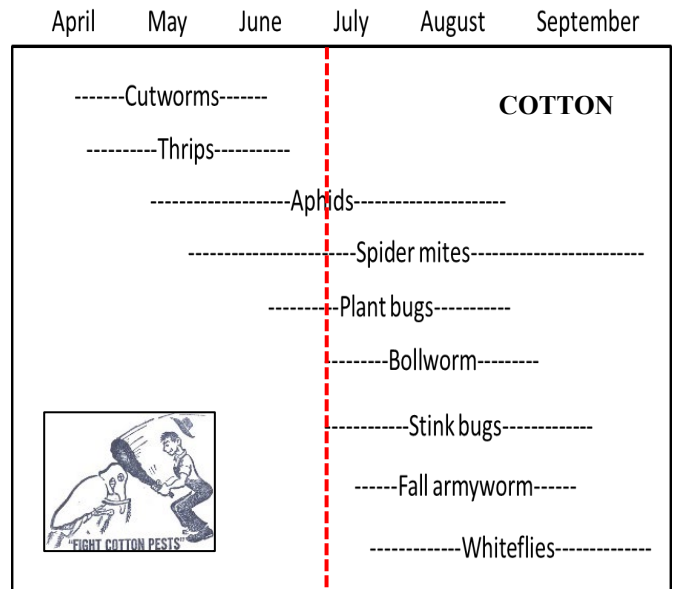
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Cotton Insects

As most of our crop is at first bloom or has been there for a week or so, we find ourselves on the timeline chart up against multiple groups of arthropod pests, including aphids, spider mites, plant bugs, bollworm, and stink bugs.

Aphids – If you have been in cotton fields, you have observed building populations of aphids. Continue to watch aphids for signs of the fungus that will eventually take them out. You will notice parasitism of aphids increasing also. Remember, aphids are a great food source for natural enemies that build up and help us later. If you are planting cotton with two Bt genes (Bollgard II, TwinLink, WideStrike), you might need this extra help from beneficials for biological control of bollworm escaping control from Bt proteins.



Spider mites – As long as it continues to rain every week, that should keep populations of spider mites in check. As you know, they can get out of control when the weather is hot and dry for a stretch.

Plant bugs – We are still in the important window (a couple of weeks before and after first bloom) to monitor for plant bugs AND square retention. Cotton fields near grain crops (corn, etc.) are likely more at risk for issues with tarnished plant bug, so scout areas near (within 100 meters or so) those crop interfaces initially. Keep plant bugs below 8 per 100 sweeps (or roughly 1 per 10 sweeps to keep the math simple) for pre-bloom sampling or 3 per 5-6 rowft using a black drop cloth post-bloom. If numbers exceed either of these thresholds AND square retention drops below 75%, you probably need to treat for plant bugs.

Bollworm – I noticed bollworm moths flying around in cotton yesterday as I walked through some rows. Pay attention as you walk through and “flush” moths. You will likely see bollworm (left in photo) and tobacco budworm (right in photo) moths. Don’t worry about tobacco budworms, as 100% are controlled by Bt cotton.



Stink bugs – We have been collecting brown and southern green stink bugs out of corn for weeks now for a caging experiment on cotton, and that has been fairly easy to do, particularly in the morning when stink bugs are out “sunning” on stalks and easy to see. Bugs are moving into cotton now and will continue that process as more cotton blooms and becomes attractive for reproduction. One of the things we have noticed is a high rate of parasitism of southern green stink bugs by the tachinid fly *Tricopoda pennipes*, the feather-legged fly (pictured).



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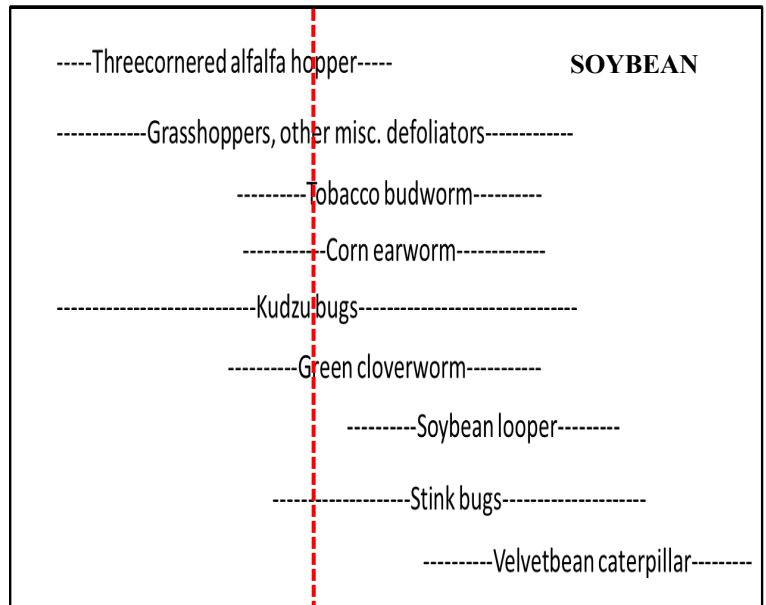
Eggs of the feather-legged fly are football-shaped and deposited singly or in small groups (pictured at right). This particular parasitoid preferentially seeks out the southern green stink bug, but other species of stink bugs can be targeted (often because they are in close proximity to southern green stink bugs and are "collateral damage"). The fly maggots hatch from the eggs, bore through the insect cuticle, eat non-essential structures, tissues, and each other (usually, only one survives and completes development) inside of the stink bug host, before emerging from the posterior end of the host after development. It then pupates, emerges as a new adult fly, and starts the process over again. Often, the stink bug host survives until the parasitoid exits. The insect world displays many gruesome outcomes, with this one mirroring sci-fi movies with aliens inhabiting humans. As long as insecticide use is delayed, these parasitoids and other species beneficial arthropods will continue to build and help out, but, after broad-spectrum insecticides are used the first time, many natural enemies are decimated, and fields become more susceptible to pests and injury. So, the first application of a broad-spectrum insecticide in blooming cotton is the most important spray for insects in the crop. Do not pull the trigger until you are sure you need to spray!



Soybean Situation

As of 4 July 2021, the USDA NASS South Carolina Statistical Office estimated that about 96% of the crop has been planted, compared with 94% the previous week, 92% at this time last year, and 95% for the 5-year average. About 92% of the crop has emerged, compared with 90% the previous week, 84% at this time last year, and 87% for the 5-year average. About 12% of the crop is blooming, compared with 6% the previous week, 6% at this time last year, and 7% for the 5-year average. The conditions of the crop were 11% excellent, 65% good, 23% fair, 1% poor, and 0% very poor. These are observed/perceived state-wide averages.

April May June July August September October



Soybean Insects

Populations of defoliating insect pests, such grasshoppers, green cloverworm, soybean looper, velvetbean caterpillar, and various leaf-eating beetles continue to build on vegetative soybeans, but I have yet to hear of any species being problematic at this point. As the crop starts to bloom, we will see more podworm (corn earworm/bollworm) and stink

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bugs invade soybeans. Continue to follow treatment thresholds for defoliation (30% defoliation prior to bloom and 15% once blooming starts), and keep good notes on growth stage, especially post bloom. The tables shown below from the 2021 South Carolina Soybean Production Guide, published/edited by Dr. Michael Plumblee and found at: <https://www.clemson.edu/extension/agronomy/soybeans.html>), provide descriptions of growth stages. These can be useful for knowing when the crop is susceptible to certain insects. For example, podworm will use floral cues at R1 and R2 for oviposition, and stink bugs are interested in developing seeds in pods (R4-R6). Knowing how to recognize R7 will help with terminating insecticide use in the crop. Knowing these stages helps with other pesticide timings (e.g. fungicides) also.

Table 1. Vegetative (V) soybean growth stages.

Stage	Description
VE	Plant emergence (depends on temperature and moisture).
VC	Unifoliolate leaves unrolled in addition to cotyledons. One node.
V1	One unrolled trifoliolate leaf. Two nodes
V2	Two unrolled trifoliolate leaves. Three nodes.
Vn	(n) number of trifoliolate unrolled; (n) + 1 number of nodes.

Table 2. Reproductive (R) soybean growth stages.

Stage	Description
R1	Beginning bloom. At least one flower is present on the main stem.
R2	Full bloom. Flowers are found on any of the top two nodes.
R3	Beginning pod. Pods are 3/16-inch long on one of the top four nodes.
R4	Full pod. Pods are 3/4-inch long on one of the top four nodes.
R5	Beginning seed. Seeds are 1/8-inch long on one of the top four nodes.
R6	Full seed. Pods are completely filled by seeds on one of the top four nodes.
R7	Beginning maturity. One mature pod found on the plant.
R8	Full maturity. 95% pods have reached mature pod color.

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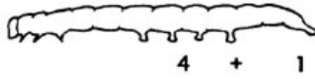


As moth activity increases, deposited eggs will yield caterpillar pests on soybeans. It is good skill to be able to identify adult moths flying around in fields. Use this chart to study moth and caterpillar identification.

FIELD KEY TO COMMON SOYBEAN CATERpillARS



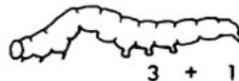
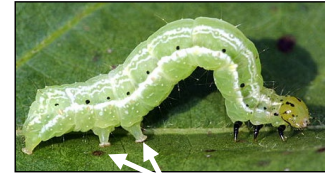
CORN EARWORM
4 + 1 pair prolegs
Curls up in hand
Black "warts" on body



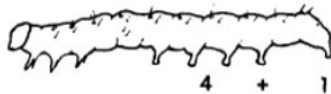
VELVETBEAN CATERPILLAR
4 + 1 pair prolegs
Very active when handled



SOYBEAN LOOPER
2 + 1 pair prolegs
Fatter at tail end
Looping movement



GREEN CLOVERWORM
3 + 1 pair prolegs
Not fatter at tail end
Looping movement



TOBACCO BUDWORM
4 + 1 pair prolegs
Curls up in hand
Black "warts" on body



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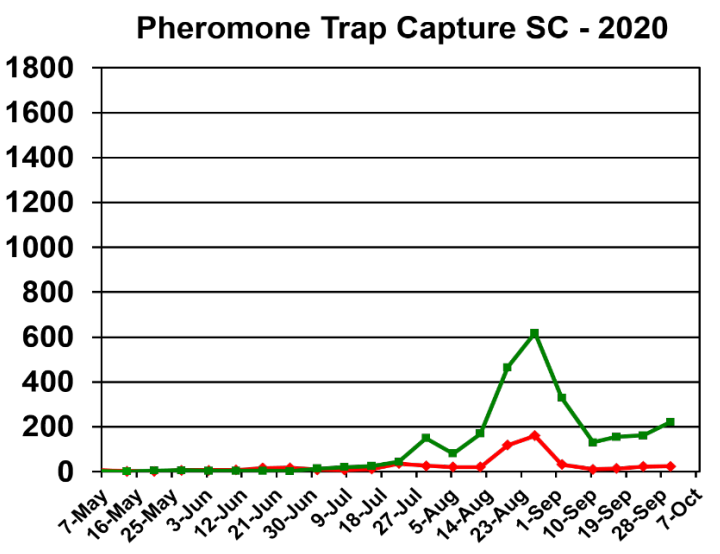
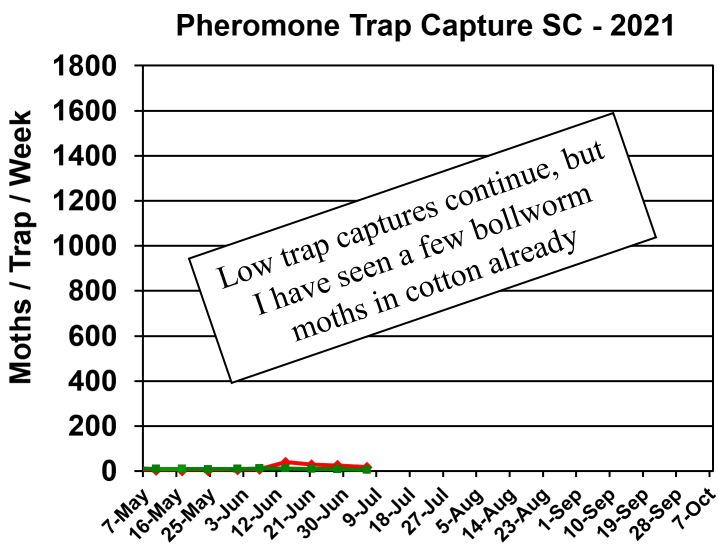


Bollworm & Tobacco Budworm

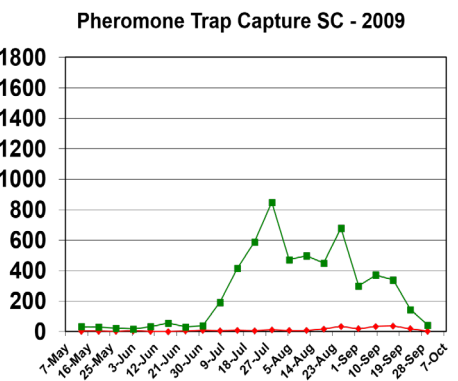
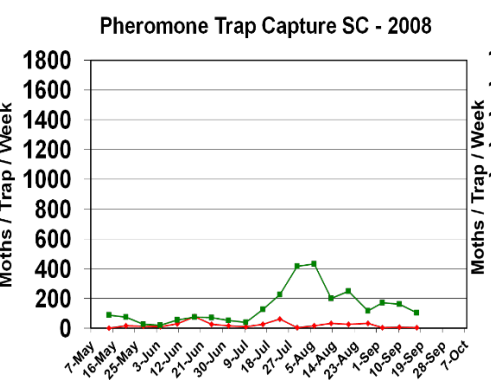
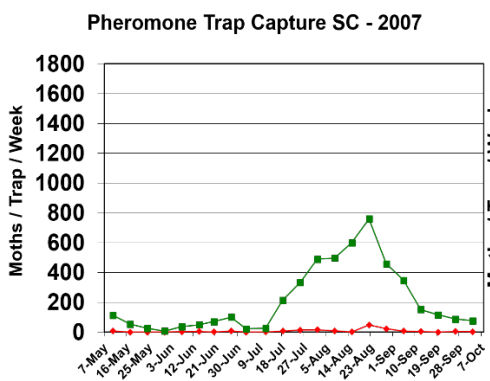


Captures of bollworm (BW) and tobacco budworm (TBW) moths in pheromone traps at EREC this season are shown below, as are the captures from 2007-2020 for reference. Tobacco budworm continues to be important for our soybean acres and for any acres of non-Bt cotton. I provide these

data as a measure of moth presence and activity in our local area near my research plots. The numbers are not necessarily representative of the species throughout the state.



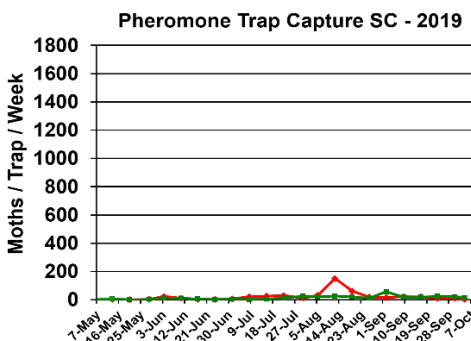
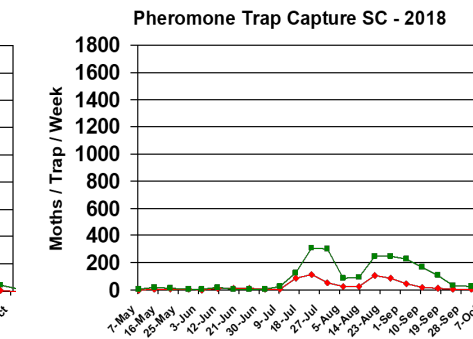
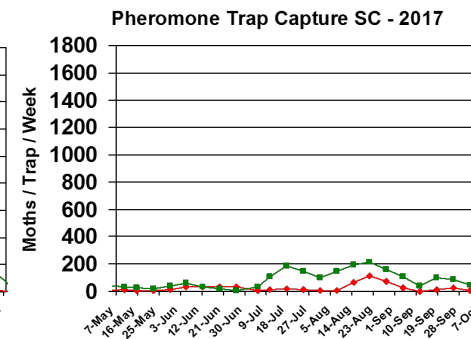
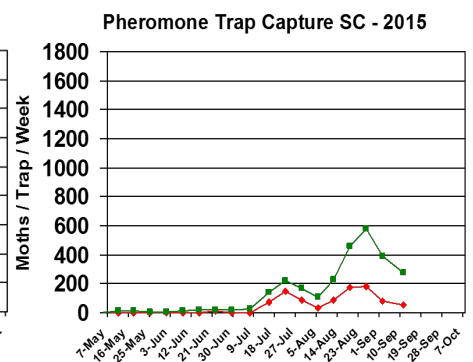
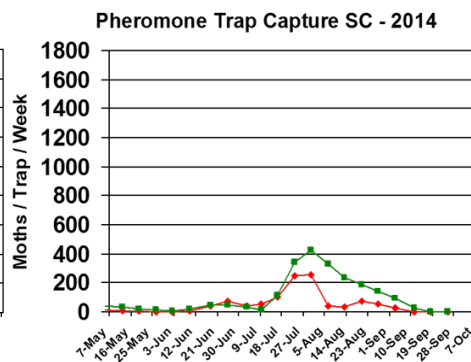
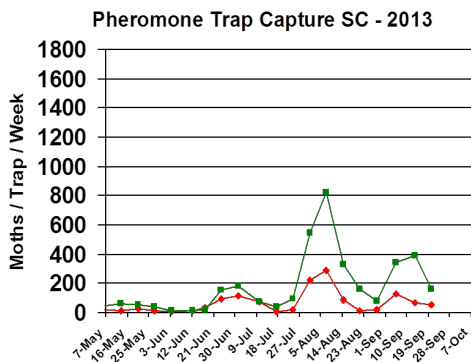
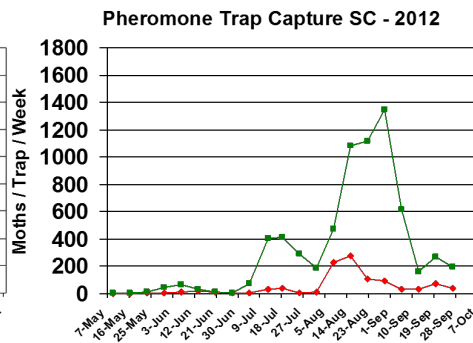
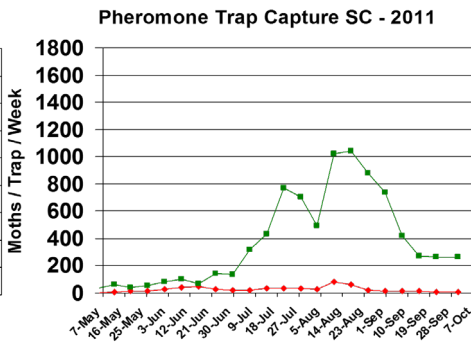
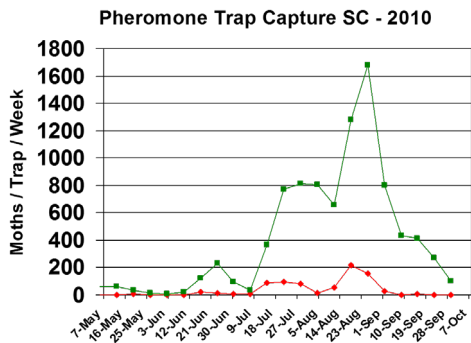
Trap data from 2007-2019 are shown below for reference to other years of trapping data from EREC:



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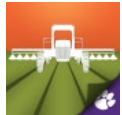


Pest Management Handbook – 2021

Insect control recommendations are available online in the 2021 South Carolina Pest Management Handbook at:

<https://www.clemson.edu/extension/agronomy/pest%20management%20handbook.html>

Free Mobile Apps: “Calibrate My Sprayer” and “Mix My Sprayer”



Download our free mobile apps called “Calibrate My Sprayer” and “Mix My Sprayer” that help check for proper calibration of spraying equipment and help you with mixing user-defined pesticides, respectively, in custom units (available in both iOS and Android formats):

<http://www.clemson.edu/extension/mobile-apps/>

Need More Information?

For more Clemson University Extension information: <http://www.clemson.edu/extension/>

For historical cotton/soybean insect newsletters:

<http://www.clemson.edu/extension/agronomy/cotton1/newsletters.html>

Sincerely,

Jeremy K. Greene, Ph.D.
Professor of Entomology



Visit our website at:
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