Hello, friends!

With the speed at which Clemson’s Regulatory and Public Service programs are moving today – and the number of changes that have taken place since the Regulatory Services division last published a newsletter – we felt it was a good idea to create this publication to help keep you informed. Please share it as you see fit so we can spread the word about what we do to help the citizens of South Carolina.

Together, the Department of Plant Industry (DPI) and the Department of Pesticide Regulation (DPR) regulate and license tens of thousands of individuals and businesses in the Palmetto State. We’ll bring you reports from time to time so you can get to know some of the people behind the scenes and keep abreast of the developments in these areas. And know that you can always find us online at www.clemson.edu/regulatory.

I hope you find the information useful and informative and I would like to hear your comments or ideas for future stories.

Steve Cole, Interim Director, Regulatory Services

Who’s Who: Recent changes in regulatory personnel

**Gavin Berry, Supervisor of Plant Pest Inspectors:** Gavin (864-554-5112, berry4@clemson.edu) assumed his new role as the supervisor for the DPI Plant Pest Inspectors in March 2013. Gavin has been an inspector for DPI since 2006.

**Brad Cavin, DPI Apiary Inspections:** With the retirement of Fred Singleton as state apiarist, Brad (864-680-8223, scavin@clemson.edu) has taken over the duties of inspecting bee hives shipped out of state, training, and conducting surveys for bee pests and diseases.
Charles McRae, Supervisor of Fertilizer and Seed Certification Inspectors: Chosen for the new role in August, Charles (843-319-6856, cmcrae@clemson.edu) has been an inspector for DPI since 1992.

Ryan Merck and Steve Compton successfully completed Organic Livestock Inspector training administered by the Independent Organic Inspectors Association. The week-long training in New Mexico in August culminated with the certification exam.

Brad Stancil resigned his position in DPI as Assistant Department Head and Program Manager for the Fertilizer and Seed Certification Programs effective Sept. 1 to join the Clemson Experiment Station. His new position will involve working with the SC Crop Improvement Association and the statewide crop variety testing program.

Recent appointments: Department of Plant Industry
- **Catherine McGuinn**, Investigator IV: Nursery Inspector for the Charleston region.
- **Sarah Morrison**, program assistant: supporting the Invasive Species Program, Organic Certification, Plant Problem Clinic, Nursery Programs, public outreach and social media.
- **Bradley Shaver**, graduate student: coordinates and runs the turfgrass lab and samples.

Recent appointments: Department of Pesticide Regulation
- **Melonie Molloseau**, Accounting Fiscal Analyst III: Grants Manager for DPR and also coordinates all regulatory case files and hearings.
- **Josh Weaver**, Investigator IV: responsible for investigating alleged pesticide misuse issues in the Charleston region.

Online data collection system speeds inspection reports

The paper chase is in the past now. Since March, inspectors for the Department of Plant Industry have been able to file reports on nursery inspections directly – and immediately – from the nursery.

The online Kelly Solutions system allows inspectors to document the site visit, sign the report electronically and file it with the DPI office in Pendleton directly via their iPad and Jetpack mobile wifi. It also allows supplemental photos and PDFs to be uploaded with the inspection data.

On the back end, reports from all inspections are aggregated into a database that allows easy analysis.

The system is currently being adapted for Department of Pesticide Regulation inspections. Gavin Berry and Negar Edwards led the process of converting the reporting system to the new online product.
Old cotton fields drew David Howle back home

_Not a boll weevil in sight as Howle retires from career of service to S.C. agriculture_

For nearly half his career, David Howle faced the unenviable challenge of persuading people of the need to pay for protection from something they hadn't seen in years.

Among the many duties of Clemson's assistant director of regulatory and public service programs has been collecting the per-acre fees that South Carolina farmers pay to maintain the Boll Weevil Eradication Program.

“We haven’t seen a boll weevil here for 13 years,” Howle said. “We found one in 2000, but it was the first we’d seen in a couple of years, and not one since.”

That fact is a testament to the success of a program that Howle championed and saw launched in the 1980s and has helped manage since the 1990s.

Working state by state with funds paid by cotton farmers, the eradication program methodically eliminated the boll weevil from the Cotton States over which it held sway for generations.

“Before the eradication program you could count on paying for 20-something sprays a year on your cotton crop to control insects,” Howle said. “You’d have a week to 10-day schedule of airplanes, with each spray costing you $10 to $12 an acre. Now you have one or two sprays a year on a typical cotton field, mostly for stink bugs or plant bugs.”

The program gradually pushed the boll weevil back to Mexico, where it is now contained by a buffer zone and barrage of pesticide applications triggered by an early warning system of weevil traps.

Those traps are maintained wherever cotton is grown – an essential precaution because boll weevils are highly mobile bugs that can easily hitch a ride to another field or across the country by squirreling away in farm equipment.

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The costs of monitoring and buffer zones are borne by cotton growers, who pay a per-acre fee – $1.25 in 2013 – to sustain it.

“It’s been a real success story. I’d hate to write that check for $1.25 an acre, but it sure beats $12 an acre for each of 20 sprays, not to mention the environmental benefits of the vast reduction in pesticide applications.” Howle said. “It’s a small price to pay to keep the boll weevil south of the border.

“We’re a thousand miles from the nearest boll weevil. But that weevil we found in 2000 was right off I-20,” he said. “We’re certain he was a hitchhiker. He hopped on a piece of equipment making its way east. That’s how a re-infestation can start.”

Howle and cotton go back a long way. As a teenager growing up in Hartsville, he earned money for his Clemson tuition by working as an assistant plant breeder for Coker’s Pedigreed Seed Co. in his hometown.

His college agronomy study – a bachelor’s and master’s degree at Clemson and a doctorate at the University of Arkansas – focused on small grains and soybeans. But he never lost his affinity for cotton.

Fresh out of his Ph.D. program, Howle joined Oklahoma State University as an Extension small grain specialist. “They presented me with 9 million acres of wheat,” he laughs. “I was on the road all the time.”

Carolina roads eventually called him home. He returned to Coker – with a side trip to Mississippi when the company was sold – and settled back home for good in 1990 when he joined Clemson as head of fertilizer and seed certification. The past 23 years have led him through a variety of leadership jobs in Clemson’s regulatory unit, including a stint as its interim director.

“David is the kind of guy you can count on,” said the current interim director, Steve Cole. “He’s always been the go-to guy, low-key and dependable, but also a kind of confident leader who people want to follow. We’ll miss him. More than that, South Carolina agriculture will miss him.”

So, too, will the Boll Weevil Eradication Program. But Howle leaves it in a healthy position to continue protecting the state’s expanding cotton industry.

“I can’t think of any better collaboration of research, extension, growers, industry and regulatory – all working together to get something done,” he said.

“It’s not a government program. It’s a grower program,” Howle said. “They created it. They voted for it. They run it. The government authorizes it. We help collect the funds. But they run it. We just facilitate it. I believe that’s a large part of its success.”
DPI takes legal action against York County nursery

After multiple attempts to bring the nursery into compliance, the Department of Plant Industry took action against a York County company that had not paid its nursery fees in seven years.

When a notice of violation failed to rectify the problem, an administrative hearing resulted in a judgment of $1,525 against the nursery.

When the fine was not paid, the DPI inspector, DPR constables and York County Sheriff’s Department deputies served a Stop Sale and Use Notice against the subject nursery. The manager immediately paid the fine in order to continue doing business.

DPR Inspectors complete law enforcement certification

Department of Pesticide Regulation field staff Ryan Okey, Ernest Schoonover and Daniel Trueman successfully completed the South Carolina Criminal Justice Academy’s Group 3, Class 1 Special Basic Training and became certified law enforcement officers.

The course provided training in the rules and protocol for obtaining evidence and for legal searches during investigations, which is important in that DPR is charged with enforcing the statutes of the South Carolina Pesticide Control Act.

The official certification facilitates the process of the DPR inspectors obtaining warrants and working with law enforcement agencies.

Landplaster regulations submitted to General Assembly

Regulations necessary for implementation of the changes in the S.C. Lime and Landplaster Act have been drafted for the approval of the General Assembly in 2014.

The regulations prescribe laboratory tolerances and penalties for deficient materials.

Through its Fertilizer Inspection Program, DPI routinely inspects businesses involved in the production, distribution and sale of fertilizer and lime materials to ensure that label guarantees are met.

Inspections include weighing of bagged goods to ensure correct labeling. Products sold in bulk must also meet labeling requirements. Lime samples are analyzed to verify their acid neutralizing capacity, including particle size and uniformity.

Pesticide container recycling helps protect environment

Properly applied pesticides keep farms productive, landscapes undamaged and potentially dangerous insects and plant diseases under control.

But when the pesticide is used, what do you do with the used container that held it?

DPR coordinates a program that allows farmers and others to recycle those containers to keep pesticide residue from finding its way into South Carolina’s environment.

According to program coordinator Leslie Godfrey, 221,332 pesticide containers were recycled through the program in 2013.

Since it was begun in 1993 the program has recycled nearly 3 million pounds of used pesticide containers.

Find more information online at dpr.clemson.edu.
A world away, experts still seek Clemson regulatory advice

Clemson’s regulatory programs long have operated under the banner of “Regulation Through Education.”

That philosophy has stood the test of time – long enough to have drawn the attention of agriculture officials worldwide.

Senior officials from both China and Cambodia recently sought the advice and experience of Clemson public service professionals, from the regulation of pesticide use to the operation of laboratories to detect and identify plant pests.

The July visit from three senior Cambodian agriculture officials came as an extension of a long-standing agreement between the two countries through the U.S. Agency for International Development.

Clemson has sent a number of agriculture officials to Cambodia in the past two years to help that country build its infrastructure and manage a diverse, widespread community of small farms.

“The Cambodians are just beginning to build some of the infrastructure they need to modernize agricultural production. They need people to help train them,” said Meg Williamson, a diagnostician with Clemson’s Plant Problem Clinic who has traveled Cambodia as part of the U.S. AID program to deliver technical expertise in

Joe Krausz (left) explains Clemson’s pesticide regulation policies to the Chinese agriculture delegation.

Meg Williamson (left) describes the operation of Clemson’s Plant Problem Clinic to Cambodia’s Heng Chhun Hy and his team.
the diagnosis of plant diseases.

“IT’s a challenge to adapt. They don’t have the resources that you expect in more developed countries, but the same principles apply,” she said. “The need for more efficient and safer food production is the same.”

“What we learn from what you do here, we can adapt to how we work with our farmers,” Heng Chhun Hy, deputy director of Cambodia’s Department of Plant Protection, said in touring Williamson’s lab. “In Cambodia we don’t yet have the equipment to match the function of this lab. But if we learn how this system works, we can use it in the future to improve our country, to build our country.”

Cambodia’s problem is exacerbated by lack of infrastructure, said Guido Schnabel, a Clemson plant pathology professor who also has made the trek to Cambodia.

“They are trying to extend this knowledge to a million farmers in remote areas,” he said. “Sometimes they will have a problem with a farmer who needs to kill an insect, but uses a herbicide. The challenge is to get information to the farmers who have a need to know it.”

“The Cambodians aren’t starting from scratch, but they have a long way to go,” said Steve Cole, Clemson’s interim director of Regulatory Services. “America established a land-grant university system in the 19th century, then the research component in experiment stations. Then we realized we needed an Extension Service to get that information to growers. It’s not a fast process.”

For a delegation of the Chinese Ministry of Agriculture, the subject was the regulation of pesticides and their application. In South Carolina, that duty falls to Joe Krausz, who directs the Department of Pesticide Regulation.

“We are specifically interested in the laws, regulations and processes used in the application of pesticides,” said He Caiwen, deputy director general of the Department of Crop Production. “It is useful to exchange ideas on best practices in the application and oversight of pesticides and we appreciate this opportunity to share information.”

Krausz led the five-person Chinese team – part of an exchange program between the Ministry of Agriculture of the People’s Republic of China and the U.S. Department of Agriculture – through the workings of a system that registers about 14,000 pesticide products in the Palmetto State and licenses the dealers and more than 12,000 applicators who work with the chemicals.
Early Warning

*DPI sets traps for a nearly invisible pest: The Walnut Twig Beetle*

At less than 2 millimeters long, the walnut twig beetle might seem a meager opponent to a black walnut tree. Yet the petite pest can topple a 130-foot hardwood.

Native to the American West, the tiny bug originally fed on Arizona walnut, but developed a taste for black walnut as it spread east.

And that’s why Olivia Souther spent her summer setting and regularly checking traps amid the branches of black walnut trees across South Carolina.

“Walnut twig beetles have never been detected here, but recently have been found in North Carolina, so we believe they are on their way,” said Souther, a senior biological sciences major who worked as an intern this summer for the Department of Plant Industry, a regulatory arm of Clemson that helps protect the state from plant pests and diseases.

“This was the first year we trapped for walnut twig beetle,” she said. “We identified other insects of the same genus in these traps, but I’m surprised we didn’t find it.”

Detecting an invasive pest is the first step in controlling it. Once it appears, it is both an environmental and an economic issue.

The black walnut trees the beetle attacks produce a nut that is prized in certain ice creams and confections. The quality of its wood also makes it valuable for furniture and other products.

Although the beetle is potentially devastating, it isn’t easy to locate.

“They are very tiny,” said Sarah Morrison, who coordinated the walnut twig beetle trapping program. “They burrow into the bark in the small twigs of the tree. Unless you are climbing into the top of the
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Olivia Souther uses antifreeze to set a Walnut Twig Beetle trap in Anderson County.

tree and cutting limbs, it’s hard to find them. That’s why we try to trap them.”

The walnut twig beetle carries with it a secret weapon: a fungus, *Geosmithia morbida*, which causes a fatal disease in the tree.

“You wouldn’t think something this small would hurt a big tree, but they’re a vector for disease,” Morrison said. “As they bore through the bark they carry the disease with them. The cankers disrupt the movement of nutrients in the tree. It actually chokes off the tree.”

Aptly named “thousand cankers disease,” it is usually first noticed in the tree’s crown, where the beetles tend to burrow. Leaves will start to die in a tell-tale sign that the uppermost twigs and limbs of the black walnut tree aren’t getting the nutrition they need.

Although the cankers lie just beneath it, the surface of the bark itself may show little sign of damage. Sometimes the adult beetles may leave exit holes the size of pin pricks in the bark as they emerge.

Souther checked 29 traps in a dozen counties across the state, from Pickens to Dorchester, every week for six weeks. The traps included a scent to lure the bugs and then capture them in a liquid solution. Souther extracted the captured insects and sent likely suspects back to the lab for identification.

“We found close relatives, but not our pest of concern,” said Sherry Aultman, Clemson’s Cooperative Agricultural Pest Survey coordinator.

“The traps are an essential part of the process, but we need the help of South Carolinians as well,” Aultman said. “If you have walnut that is exhibiting crown die-back, let us know. Send pictures if you can, and everyone can help by not moving firewood that might transport invasive insects or disease. If you’re camping, get your wood locally.”

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**Join the Resistance!**

The Department of Plant Industry depends on the vigilance of homeowners and farmers. If you suspect you have an invasive pest, please contact the DPI or your local Clemson Extension Service office.

Department of Plant Industry  
511 Westinghouse Rd. Pendleton SC 29670  
864-646-2140  
[www.clemson.edu/invasives](http://www.clemson.edu/invasives)
Invasive weed finds its way to South Carolina

*Benghal dayflower is a damaging pest of row crops*

Don’t let the pretty flower fool you: Benghal dayflower has a nasty tendency to infest important crops.

Officials with the Department of Plant Industry this fall confirmed the discovery of Benghal dayflower for the first time in South Carolina.

“We've been looking for it for years,” said Christel Harden, assistant department head who leads the agency’s effort to curb the spread of regulated plant pests. “We expected to find it in a soybean field and found it someone’s yard instead.”

The initial find in Beaufort, first reported by botanist and nurseryman Daniel Payne, led DPI to conduct a house-to-house survey for the weed in November, concentrating on waterfront neighborhoods where the weed first appeared.

News reports on the weed’s discovery prompted homeowners to report two other possible infestations, one in St. Matthews and the other near Rowesville in Orangeburg County. DPI has since confirmed the existence of the pest in both cases.

“We’re asking for the public’s help in locating Benghal dayflower plants,” Harden said. “It is not always easy to identify Benghal dayflower because there are native dayflower species that look similar.”

Benghal dayflower – which bears the alias “tropical spiderwort” and an official name of *Commelina benghalensis* – is regulated by both the state and federal governments as a noxious weed.

It grows a dense stand that can smother other plants and is a particularly damaging pest of row crops like soybeans, peanuts and corn.

That’s a special concern in South Carolina, where row crops are a significant part of the economy. Soybeans, grown on 370,000 acres in the state, generated $182 million at harvest last year. Peanuts earned another $138 million.

“Benghal dayflower is a significant problem in Round-up Ready crops, because it is tolerant to many herbicides, including glyphosate,” Harden said. “In Georgia, it has caused a lot of problems on soybeans and cotton. That’s where the weed is typically found and that’s where we’ve been looking.

Harden said the department is still investigating how the weed found its way to the Palmetto State – possibly among container plants or airborne seed.

Further field searches may have to wait until spring when the plants begin to grow again, she said.

This is the first time the weed has been found in the state outside of a plant nursery. Regulators found Benghal dayflower in a container with a liriope at a South Carolina nursery in 2005, where it was destroyed.

Native to tropical Asia and Africa, Benghal dayflower was discovered Florida in 1928 and earned its place on the Federal Noxious Weed List in 1983. It has spread across the South from Georgia to Louisiana.
Junior Invasive Inspectors will help detect plant pests

Middle school-age students will soon lend a hand in the early detection of invasive species in South Carolina.

The Clemson University Junior Invasive Inspectors program is recruiting families, school groups, camps and other organizations to register for the Junior Invasive Inspectors Program.

Adult leaders will use a curriculum written for teaching children ages 9-13 about invasive species awareness, understanding latitude and longitude, recognizing targeted forest pests and symptoms of decline in trees.

Funded by a federal grant, the program also will supply each group of Junior Inspectors with survey backpacks filled with all of the supplies needed to conduct field surveys.

Survey data will be reported online using the Southeast Early Detection Network Web site or a smartphone app. Reports of suspicious signs and symptoms will be investigated by DPI inspectors.

Each participant will get to keep their survey water bottle, and Junior Inspectors that report more than 20 findings will be awarded tiered prizes including badges, t-shirts and their very own survey backpack.

More information on the program is available online at www.clemson.edu/invasives

Integrated Pest Management protects schools and children

The Department of Pesticide Regulation has developed a program that helps to protect South Carolina school children from pesticide exposure in the school.

School employees often must use pesticides to control insects in school buildings and on school grounds. Integrated Pest Management (IPM) is a strategy that uses less pesticide to obtain the desired goal of a safe, healthy school environment.

Led by DPR’s Leslie Godfrey and funded in part by the U.S. Environmental Protection Agency, the school IPM program helps to achieve this goal. For more IPM information, visit: www.clemson.edu/public/regulatory/pesticide_regulation/special_programs_information
Mark your calendar:

December 17: Annual Cotton Growers Meeting. S.C. Boll Weevil Eradication Foundation, 10 a.m. at Clemson's Pee Dee Research and Education Center in Florence.

December 31: Pesticide license renewal. All S.C. pesticide licenses fall due for renewal at the end of this year. If not renewed by March 31, licenses are revoked. More information: dpr.clemson.edu


February 5-7: S.C. Horticulture Industry Trade Show, Myrtle Beach. More information: scnla.com

On the horizon:

- June 30: Fertilizer product registration renewal deadline
- August 31: Pesticide product registration renewal deadline
- September 30: Nursery license renewal deadline

Horticultural Inspectors convene in S.C. for plant pest meeting

When plant pests wage war on our homesteads, members of the Horticultural Inspection Society are our front-line sentries.

This fall the counterattack was planned in Greenville, where Clemson hosted the annual meeting of the society's Southeastern chapter.

“Our states face many of the same problems from diseases, insects and weeds,” said Brad Cavin, an inspector for Clemson's Department of Plant Industry and president of the chapter. “This is a chance to share expertise, knowledge, experience and training among plant pest inspectors.”

“The direct cost of invasive species has been calculated at $138 billion, but I don't know that you can put a price on our food and fiber supply,” DPR invasive species coordinator Steve Compton told the group.

From Oklahoma to the East Coast, inspectors shared many of the same problems with fire ants, Sudden Oak Death, the emerald ash borer and other pests. They also agreed on a common solution: increased vigilance.

“Our greatest tool for combatting invasive species is public awareness,” Compton said. “The public needs to know to report an invasive species the same way they would a wildfire, a crime or an automobile accident.”