Soybean gall midge, Resseliella maxima Gagné (Figure 1), is a recently described insect pest of soybean (Gagné et al. 2019). This pest has now been confirmed from Nebraska, Iowa, South Dakota, Minnesota, and Missouri, but has not yet been detected in North Dakota. However, a similar insect, the white mold gall midge, Karshomyia caulicola Coquillett (Figure 2), was detected in soybean fields in North Dakota and Minnesota during 2019 (Koch et al. 2019, Koch et al. 2020 (in press)). The white mold gall midge is not an insect pest of soybean, but feeds on Sclerotinia spp. within infected stems. Sclerotinia-infected plants show mycelium in stems and on vegetative tissues (Figure 3) (Heffer Link and Johnson 2007). On 28 August 2019, prior to the detection of the white mold gall midge in North Dakota, soybean plants infested with gall midge larvae collected near Colfax (Richland Co.) were submitted to the NDSU Plant Diagnostic Laboratory. The larvae were sent to gall midge expert Dr. R. Gagné, Systematic Entomology Laboratory, USDA-ARS, Washington D.C., USA, who identified them as white mold gall midge larvae.

The small bright orange larvae of soybean gall midge feed under the epidermis at the base of the stem. Affected areas turn necrotic, plants show wilting symptoms and eventually die. In contrast, the white mold gall midge larvae can be found in and on Sclerotinia infected tissues such as pods and stems (Koch et al. 2019). Larvae of soybean gall midge are similar to white mold gall midge larvae, but can be separated using DNA techniques (J. McMechan, pers. comm.) or by comparing the sternal spatula and terminal abdominal segments (Koch et al. 2020 (in press)). The soybean gall midge is commonly found near field edges.
while white mold gall midge can be found anywhere Sclerotinia infected soybeans are present in field. Heavy infestations of soybean gall midge populations can cause yield loss in soybeans, especially on field edges (McMechan et al. 2018).

In 2019, a widespread survey was conducted for both insects in east central and southeastern North Dakota from mid-July through September. Soybean growth stages ranged from R2 (full bloom) to R8 (full maturity). A total of 78 soybean fields was surveyed for soybean gall midge in 11 North Dakota counties (Barnes, Cass, Grand Forks, Griggs, Lamoure, Nelson, Ransom, Richland, Sargent, Steele, and Traill). No soybean gall midge were detected from surveyed soybean fields. A total of 27 soybean fields were surveyed for white mold gall midge, and it was detected in eight fields in five counties (Barnes, Cass, Lamoure, Richland, and Sargent). All specimens were positively identified as white mold gall midge larvae by Dr. Gagné. Continued surveying for soybean gall midge is needed to determine if and when soybean gall midge becomes an economic pest of soybean grown in North Dakota. The authors thank the North Dakota Soybean Council for funding support.

References cited


Figure 2. White mold gall midge larvae in Sclerotinia infected soybean pods. Photo courtesy of V. Calles-Torrez, NDSU.

Figure 3. Soybean plant infected with Sclerotinia sp. Photo courtesy of V. Calles-Torrez, NDSU.
Chandler Day recently joined the Great Plains Diagnostic Network (GPDN) as the Assistant Director at Kansas State University. She is from Austin, Texas and received her B.S. in Ecological Restoration from Texas A&M University. During her last semester of her undergraduate career she discovered her love for plant pathology through a forest pathology course. This led to her immersion into diagnostics working with Dr. Dave Appel and Sheila McBride. During this time she surveyed for Sudden Oak Death (*Phytophthora ramorum*) in Texas nurseries and ran diagnostic tests for Pierce’s Disease (*Xylella fastidiosa*) and a variety of grapevine viral diseases. After finding her passion for plant pathology, she chose to pursue a M.S. degree in plant pathology from Kansas State University under Dr. Megan Kennelly. Her research focused on identifying species of Gray Mold (*Botrytis* spp.) in greenhouse crops and conducting a survey that assessed specialty crop grower’s extension needs. During her time as a graduate student she spent her free time in the K-State Plant Disease Diagnostic Lab, where she diagnosed samples, trained Kansas Master Gardeners, and taught undergraduate students. Working with growers inspired her to pursue a career in diagnostics, which led her to the GPDN position. Her passion is helping people help their plants and when she is not helping friends and family diagnose their plant problems she enjoys exploring the tallgrass prairie with her partner Michael.

The United Nations has declared 2020 as the International Year of Plant Health (IYPH). The year is a once in a lifetime opportunity to raise global awareness on how protecting plant health can help end hunger, reduce poverty, protect the environment, and boost economic development. Read more about IYPH at [www.fao.org/plant-health-2020/home/en/](http://www.fao.org/plant-health-2020/home/en/).

**Plants are the source of the air we breathe and most of the food we eat, yet we often don’t think about keeping them healthy.**

**INTERNATIONAL YEAR OF PLANT HEALTH 2020**

**PROTECTING PLANTS, PROTECTING LIFE**

Plants are the source of the air we breathe and most of the food we eat, yet we often don’t think about keeping them healthy. This can have devastating results. FAO estimates that up to 40% of food crops are lost due to plant pests and diseases annually. This leaves millions of people without enough food to eat and seriously damages agriculture — the primary source of income for rural poor communities.

Plant health is increasingly under threat. Climate change, and human activities, have altered ecosystems, reducing biodiversity and creating new niches where pests can thrive. At the same time, international travel and trade has tripled in volume in the last decade and can quickly spread pests and diseases around the world causing great damage to native plants and the environment.

Protecting plants from pests and diseases is far more cost effective than dealing with full-blown plant health emergencies. Plant pests and diseases are often impossible to eradicate once they have established themselves and managing them is time consuming and expensive. Prevention is critical to avoiding the devastating impact of pests and diseases on agriculture, livelihoods and food security and many of us have a role to play.

STAR-D and National Clean Plant Network team up for quality
Dawn Dailey O’Brien and Karen Snover-Clift, Plant Pathology and Plant Microbe-Biology, Cornell University

“Oh my goodness this lab has a lot of nonconformances!” exclaimed a recent visitor to a lab. What brought on that proclamation? Well, Jerry Rigged, the lab technician continually repeated “I’m the expert and I like doing it my way!”, even though he was obviously doing the procedure incorrectly! Another lab technician, Eliza Menelli, gave confidential client information to a news station over the phone and she declared she was “very excited to have a chance to be on the news” so it was fine that she talked about client results to someone other than the client. Al Ternaria, a part-time student worker who normally just washes dishes in the lab, was filling in for a sick staff member that day. He was performing ELISA tests even though he hadn’t been trained to do the test. He stated that he had watched the trained personnel do it “a 1000 times” and that was good enough. It sounds like a lab with some problems, right? Luckily, this wasn’t a real lab, but instead the fictional “Figment Plant Diagnostic Lab” which was the setting for a mock audit scenario to demonstrate the quality management system concepts. Of course, the mock audit wasn’t just fun and games (but we did try to have it be entertaining!) One participant said “The exercise really helped me to learn the procedure. Now I can view the process better and know what to look for in my own lab.”

The mock audit was part of a Quality Management Systems (QMS) workshop hosted by the NPDN STAR-D program on December 10–12, 2019 in Beltsville, MD for members of the National Clean Plant Network (NCPN). The workshop was well-received as noted by one participant who said “It helped to give me more ideas to implement in the lab. Everyone presenting did a great job of informing us!

The first two days of the course covered principles and...
components of QMS including implementation of a quality management system, document control, records, corrective and preventive actions, equipment, continual improvement, training, customer feedback, internal audits, documenting non-conformances, and management reviews.

The third day culminated in a hands-on mock audit held at the training lab at the USDA-APHIS-PPQ-S&T Beltsville laboratory with some of their lab members acting as the auditees. The mock audit gives the workshop participants a chance to fuse all the QMS ideas and concepts they learn about for the first two days.

Participants included the following: Maher Al Rwahnih (UC/Davis); Chris Clark (Louisiana State University Ag Center); Christie Almeyda (North Carolina State University); Ron French (USDA APHIS PGQP); Oscar Hurtado-Gonzales (USDA APHIS PGQP); Minsook Hwang (Foundation Plant Services, UC Davis); John Karlik (University of California Cooperative Extension); Amanda Lake (USDA-ARS Horticultural Crops Research, Corvallis Oregon); Martha Malapi-Wight (USDA APHIS PGQP); Bob Martin (USDA-ARS, Corvallis, Oregon); Brandon McKee (UCR CCPP); Tivonne Nguyen (Foundation Plant Services, UC/Davis); Fatima Osman (UC/Davis); Sylvia Petersen (Missouri State University, Center for Grapevine Biotechnology); MaryLou Polek (USDA ARS National Germplasm Repository); Esteban Rodriguez (USDA ARS NCGRCD); Ben Rosson (FDACS-DPI); Alexandra Syed (Citrus Clonal Protection Program, Riverside, California); Stephanie Szostek (CPCNW WSU-Prosser); and Win Talton (MPRU, NC State University).

The workshop development team and instructors for this course were Kathy Burch (USDA-APHIS-PPQ-S&T), Dawn Dailey O’Brien (Cornell University), Deric Picton (USDA-APHIS-PPQ-S&T) Pat Shiel (USDA-APHIS-PPQ-S&T), and Karen Snover-Clift (Cornell University). The USDA Beltsville staff members who were the actors in our mock audit included Ben Adducci (AKA Jerry Rigged) Yasmin Rivera (AKA Eliza Menelli), and Stefano Costanzo (AKA Al Ternaria.)

This QMS workshop was a part of a broader quality initiative project of the National Clean Plant Network. In addition to teaching about quality management, the workshop gave NCPN members the rare opportunity to meet and interact with other NCPN members from other commodities. As stated by one participant “Networking with NCPN members is always helpful and I appreciate the opportunity to spend a few days together.” Another said, “The Lego activity was very beneficial primarily to enforce concepts, but it was also useful in further establishing networking among NCPN colleagues.” Although this was the first time the NPDN STAR-D program hosted a workshop dedicated specifically to NCPN members, we have been collaborating with NCPN for several years. Several NCPN members attended various STAR-D workshops over the years and a representative from the NCPN serves on the STAR-D Accreditation Board. Collaboration with the National Clean Plant Network is beneficial to both organizations. It is a sister network with a complementary mission to NPDN. The NCPN Quality Initiative is in a phase of development of their Requirements & Standards and system templates using the existing STAR-D system. STAR-D is a viable QMS option for the larger plant diagnostic community to follow since the only alternative is ISO or AAVLD. There is no need to create a quality management program from scratch when joining forces can produce a better system for collaborating networks. STAR-D staff members are currently working to assist the NCPN leadership in developing the NCPN Requirements & Standards document as well as their Quality Manual template.

We look forward to continuing to work with the National Clean Plan Network and supporting their efforts to incorporate quality management into NCPN laboratories. Special thanks to everyone involved with this workshop including the instructors, the participants, and the Beltsville Laboratory staff.
San Diego Botanic Garden hosts Sentinel Plant Network workshop
Rachel McCarthy, Plant Pathology and Plant-Microbe Biology, Cornell University

The Sentinel Plant Network (SPN) kicked off its 2020 professional development season with a record-breaking event at the San Diego Botanic Garden on January 28 & 29. The southwest workshop served 72 professionals representing 34 public gardens from California, Arizona, Texas, New Mexico, and Utah. Representation from NPDN, the American Public Gardens Association, USDA-APHIS, California Department of Food and Agriculture, and San Diego County brought the total number to 82 participants.

The two-day workshop was an intensive learning experience packed with lectures and hands-on activities. While a program of this size had its challenges, feedback was great. “You all put on a great workshop; we loved being a part of it!” and “Thank you again for putting together such an incredible workshop. I really enjoyed learning from so many brilliant and accomplished women!”

The Sentinel Plant Network promotes the early detection of significant plant pests; therefore, we focus a substantial amount of time teaching participants how to recognize symptoms and work through deciphering signs. For help with this portion of the program, we relied on a talented team of plant pathologists and entomologists including Cheryl Blomquist (Plant Pest Diagnostics Center, California Department of Food and Agriculture); Pat Nolan (Department of Agriculture, Weights and Measures, County of San Diego); and Deborah De La Riva, Charles Hart, and Cain Gaona (USDA-APHIS-PPQ). Helene Wright (CA State Plant Health Director), Rachel McCarthy (National Plant Diagnostic Network), and Marisol Mata (American Public Gardens Association) completed the southwest presentation team.

“I look forward to utilizing the provided resources to educate fellow BioPark Staff and our local community.”

Photos clockwise from left: Helene Wright, CA SPHD, talks about PPQ initiatives in the beautiful, new conservatory; participants check out shothole borer damage in the garden; and Cheryl Blomquist, CDFA, talks with the group on the scouting walk.
should be on their radar. In addition to diagnostics and pests, participants learned about APHIS's objectives as related to plant protection; the formation of SPN; and expectations of members in the network. To help with their network responsibilities, everyone received scouting resources to improve their monitoring efforts at their own institutions, as well as instructions for how to access a suite of educational materials and resources so they can conduct their own First Detector programs. One participant expressed their enthusiasm for these training resources in the post-workshop survey, “On behalf of the Albuquerque BioPark: thank you, APGA, NPDN, & the SD Botanic Garden for putting on a fantastic SPN workshop! I look forward to utilizing the provided resources to educate fellow BioPark Staff and our local community.”

The Sentinel Plant Network will offer two more professional development workshops in 2020. Public garden professionals from gardens across the southeast will attend a program at the Donald E. Davis Arboretum in Auburn, AL on March 24 & 25. The third workshop is planned for the northeast and will take place this summer. If you are interested in participating in the northeast workshop, please contact Rachel McCarthy at rachel.mccarthy@cornell.edu.

New First Detector resources
Rachel McCarthy, Plant Pathology and Plant-Microbe Biology, Cornell University

Several new resources are available to support you in your early detection training and outreach efforts! All of these resources are available to print yourself, but if you are hosting your own training program, select printed materials may be sent to you by request.

Our first new resource aims to raise awareness about the importance of plants and plant health, and celebrate the International Year of Plant Health, #IYPH. Four designs are available to download and print. Print one or all four to help spread the word about the importance of plants and ways people can get involved in plant protection! Posters measure 11” x 17”.

We also have a new brochure as well as new target pest scouting cards, which can be printed individually or assembled into a book. We have funds to distribute the brochure and the printed scouting books. If you are an educator who conducts First Detector training workshops, contact Rachel McCarthy at rachel.mccarthy@cornell.edu for more information and training requirements. Anyone can request copies of the brochure!

These new resources can be accessed from the First Detector resources page. The IYPH posters and First Detector brochures are located under outreach materials, and the scouting cards can be accessed from our pest identification page.

Deborah De La Riva, USDA-APHIS-PPQ, assists a participant at the microscope during the hands-on laboratory.

Two of four International Year of Plant Health posters (left) and individual cards from the new First Detector target pest scouting guide (right).
**Upcoming events**

March 2–6, 2020
WPDN Regional Meeting
Tucson, AZ

August 8–12, 2020
Plant Health 2020 (APS annual meeting)
Denver, CO

August 9–13, 2020
National Plant Board annual meeting
Lancaster, PA

November 15–18, 2020
Entomology 2020
Orlando, FL

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**Job opportunity**

The Missouri Department of Agriculture's Plant Pest Control Program is seeking a Plant Diagnostic Lab Supervisor. The position is based in Jefferson City, Missouri. **This job posting closes March 11.**

https://mocareers.mo.gov/hiretrue/mo/agriculture/index.html

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**Connect**

First Detector outreach. Connect with us!

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**Photo of the month**

Polyphagous shot hole borer (*Euwallacea fornicatus*)
Rachel Osborn, Southeast Asian Ambrosia Beetle ID, USDA-APHIS-PPQ, Bugwood.org

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**First Detector YouTube**

has moved...subscribe to our new channel!