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iPiPE

INTEGRATED PEST INFORMATION PLATFORM FOR EXTENSION AND EDUCATION

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Progress Through Sharing:

October 2018 - iPiPE News

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iPiPE Portal Page

iPiPE Interns Benefit from a Variety of Field Experiences

David Jones, an intern for the New Jersey blueberries, cranberries and grapes Crop-Pest program at Rutgers University used a drone to take aerial images of a cranberry farm that he was examining for fungal blight. He was able to locate several fairy rings within a bog on the property using a drone-mounted camera capable of sensing chlorophyll, water flow and other surface properties.

Fairy rings are a disease of cultivated cranberry that cause poor crop growth, reduce yields 50 – 60%, increase fruit rot and create space for invading weeds. David approached this work with a problem-solving

attitude, working through initial issues like “cloud cover selectively blocking some light spectrums,” ultimately realizing that “the time of day for taking images was crucial.” The combination of the top-down perspective and ability to view surface properties provided great results.

David’s work illustrates how drone imagery can become an important component of disease management plans, allowing early detection and spot treatment of fairy-rings and reducing the amount of fungicide needed compared to later detection. David sees many potential applications for drone imaging in agriculture, commenting “we’ve only scratched the surface of possibilities this technology can provide. It’s exciting work and I’m proud to be a part of it.”

Lyndsey Anne, an intern with the apple Crop-Pest program at the University of Massachusetts, worked with the fruit team on several orchard-based projects involving pest control, pruning, spore counting and networking. After a week of moving 220 trees to a test area and infecting them with apple scab, she reflected, “when employing pest management practices that are strikingly interesting or may ignite impressive conversation, don’t forget to pull the weeds or thin the fruit! Remember the basics.”

These conversations took place on a shared blog where interns posted questions and responses. One question, “Do you think pests will become more or less damaging in the future?” led many interns to express trepidation regarding climate change and food security issues. Intern Jacob Armitage said, “As the global mean temperature increases, many areas will see changes in climate that will affect both temperature and precipitation amounts… [changing] the geographic range of many pest species as well as affecting the overall diversity of species in many areas.” Several interns also noted that data sharing, such as the pest observations and model output provided by iPiPE, is of utmost importance.

David Jones conducting a field experiment
Photo source: David Jones

Apple scabs, a disease caused by the fungus Venturia inaequalis
Photo source: The Tree Center

IPM Elements: Communicating Best Practices to Reduce Risks and Costs

One tool available to growers participating in iPiPE are Integrated Pest Management (IPM) Elements. IPM

Elements are succinct checklists of recommended IPM practices for a crop and region, including recommendations for soil management, plant nutrition, water quality, pest prevention, avoidance, monitoring and suppression. They are developed by IPM Institute staff in collaboration with Crop-Pest program coordinators and take advantage of existing IPM resources where available.

Creating a user account allows growers to save their practices, track and communicate changes year to year, and evaluate and quantify their IPM adoption. Growers can click through the IPM Elements online, selecting the practices they have in place and learning about other recommended practices they could implement. Elements link to additional resources for many of the practices.

Online IPM Elements also give coordinators a resource to communicate about IPM practices and adoption to producers, crop consultants and other stakeholders. IPM Elements can be used as concise teaching tools that can convey the essence of IPM in a particular crop and region.

IPM Elements can also be used to credibly communicate IPM accomplishments to buyers, NRCS incentive programs or other stakeholders. Buyers and commodity groups can use them to evaluate industry progress and target areas of improvement.

More than 19 sets of Elements are currently online. Visit http://elements.ipipe.org/ to see which IPM Elements are available for crops in your region!

Virginia-Carolina Peanut iPiPE: Data Sharing to Improve Disease Risk Models

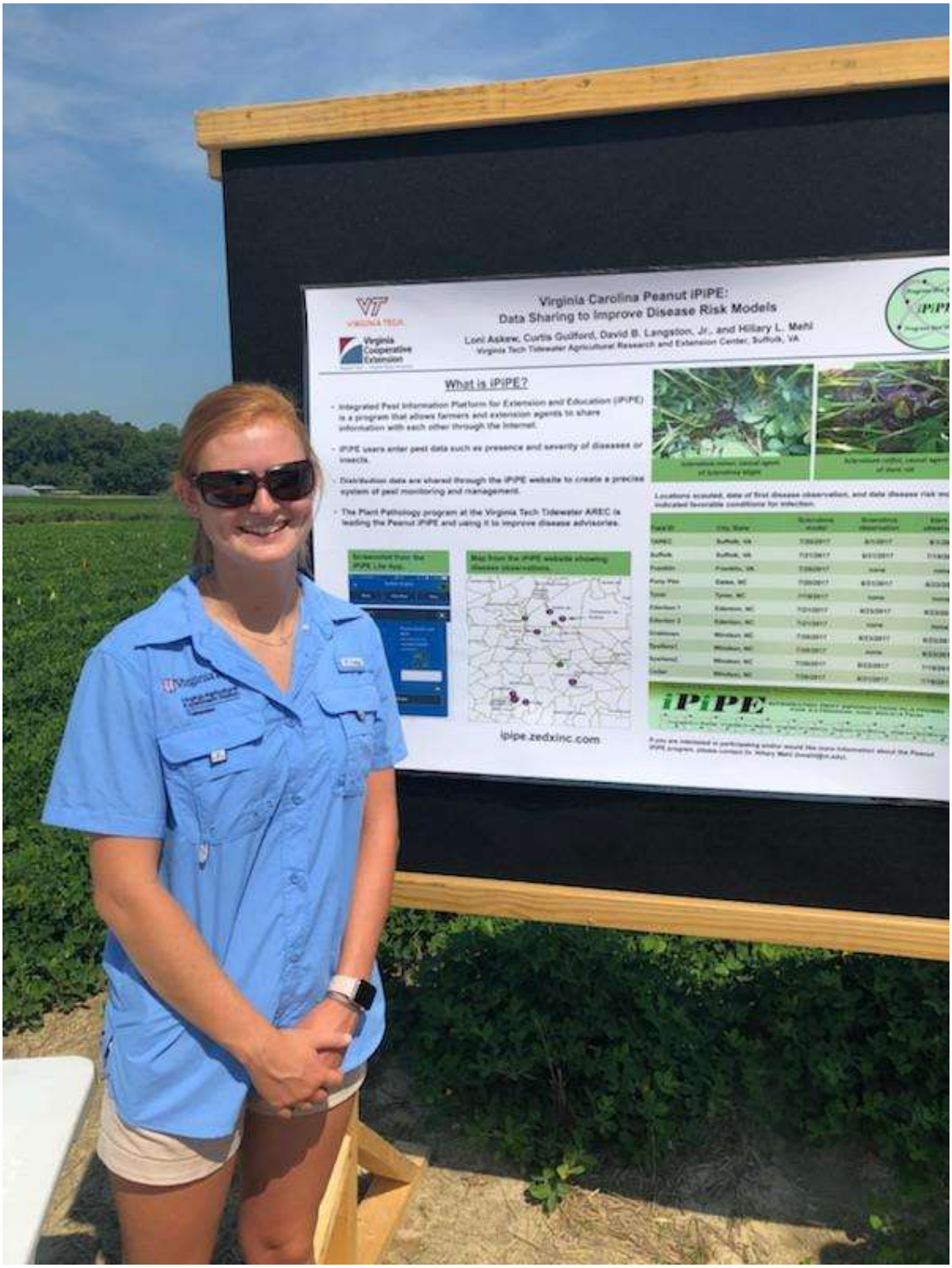
Peanuts are an important crop throughout the southeastern United States including Virginia and North Carolina. In this region, more than 100,000 acres are planted with an annual value of over $85 million. Peanuts are relatively high value on a per acre basis, but inputs for controlling diseases can make production cost prohibitive for some growers.

Weather-based disease advisory programs have reduced the number of fungicide sprays required for control of peanut diseases, reducing input costs. The Virginia-Carolina Peanut Crop-Pest Program was established in 2017 to evaluate current disease advisory models against field-level disease observation data. In 2017, 11 fields in Virginia and North Carolina were scouted weekly for disease and results were uploaded using the iPiPE mobile app. Disease advisory models were run using weather data and compared to disease observations. Leaf spot models predicted disease risk from late May to mid-August, but little leaf spot was observed prior to September. The model predicted Sclerotinia blight risk at all locations around July 20, and the first disease observation was August 1.

These results suggest that the current models may overestimate disease risk in some cases, perhaps related to variability in varietal susceptibility or field history. Incorporating these factors in decision-making may allow growers to increase action thresholds. Ultimately, data will be used to update the leaf spot and

Sclerotinia advisory models and to develop a new stem rot risk model for the region.

Intern Loni Askew reflected on her summer with iPiPE, “based on my experience, people can most effectively collaborate using iPiPE to mitigate blight and disease outbreaks by looking at the maps which allow growers and Extension agents to see where a disease has been found. The grower can easily view which diseases were in a field. By knowing this information, they can make better decisions for the next year.”


Virginia Carolina Peanut iPiPE:
Data Sharing to Improve Disease Risk Models
Loni Askew, Curtis Guilford, David B. Langston, Jr., and Hillary L. Mehl
Virginia Tech Tidewater Agricultural Research and Extension Center, Suffolk, VA
Virginia Cooperative Extension
What is iPiPE?
Integrated Pest Information Platform for Extension and Education (iPiPE) is a program that allows farmers and extension agents to share information with each other through the Internet.
iPiPE users enter pest data such as presence and severity of diseases or insects.
Distribution data are shared through the iPiPE website to create a precise system of pest monitoring and management.
The Plant Pathology program at the Virginia Tech Tidewater AREC is leading the Peanut iPiPE and using it to improve disease advisories.
Map from the iPiPE website showing disease observations.
ipipe.zedxinc.com
iPiPE

Loni Askew presenting during a peanut field day
Photo source: Loni Askew

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Participate in iPiPE

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