Progress Through Sharing: iPiPE Newsletter – August 2018

Managing powdery and downy mildews in an expanding Pennsylvania hops industry

In Pennsylvania, there are approximately 108 breweries that contribute $1.9 billion dollars the state's economy, earning fourth-place among U.S. states in terms of economic impact of the industry. As the impacts of "Buy Local" campaigns reach into the beverage market, more hopyards are being developed throughout Pennsylvania, creating an opportunity for diseases like powdery and downy mildews.

The hops plant, *Humulus lupulus,* produces flowers with a bitter, zesty, or citric taste that are primarily used for adding flavoring and stability in beer, but also have a wide variety of purposes in other beverages and herbal medicine. Humidity levels typical to the mid-Atlantic and Northeast regions promote the development of powdery and downy mildews, which are capable of inflicting 100% crop loss if left unmanaged. These diseases are a concern in new hops acreage being planted from Virginia through Vermont.

Dr. Beth Gugino, associate professor of plant pathology at Penn State University, coordinates iPiPE's hops crop-pest program that support producers in Pennsylvania with scouting, monitoring and alerts. Gugino's efforts seek to increase knowledge and awareness of potential production constraints, and better understand production practices being utilized across the industry. The Penn State Extension Hops Team's goals include developing practical best-management practices to provide growers with a more consistent and reliable crop to meet brewer demand and customer expectations.

[captions: hop vines growing in a hop yard, infected hops cones]

What happens to observations you contribute to iPiPE?

As tools built for gathering and sharing large sets of data grow in popularity, concerns for data privacy and accuracy can follow suit. iPiPE confronts the first challenge, data privacy, with the mantra, "your data, your choice." Users can freely edit, delete, download and use their own data. Participants are not allowed to edit, delete, or download data or maps displaying data from other users without explicit permission.

Pest observation data are typically shared among iPiPE users at county centroid level, i.e., other users can see which county the observation was contributed from, but not the farm or field. However, iPiPE offers users the ability to form groups to share data at farm or field level; to coordinate scouting within a group of farmers, for example. The platform allows a group to designate a supervisor who can then download and make corrections to observations.

iPiPE includes predictive models that uses various variables and parameters to create pest-risk forecasts that all participants can view. Contributed observations more than three years old can be used by scientists for research by request to the University of Georgia's Center for Invasive Species and Ecosystem Health. Users can also choose to allow other IT platforms connected to iPiPE to access data at either county or field level.

iPiPE stratifies observations on the basis of their apparent reliability. Observations can be confirmed by diagnostic labs, extension professionals, diagnostic tests in the field or not at all. Users can choose to view maps composed of observations at any combination of these reliability levels, for example; users can filter maps to display only confirmed data.

Users with concerns or questions about submitting observations to the iPiPE platform are welcome to contact the iPiPE administrator. An easy to interpret diagram of what happens to observations you share with iPiPE is found at http://www.ipipe.org/about

Tracking New York Vegetable Disease Outbreaks with iPiPE

Valued at nearly $400 million in production from 118,000 acres, New York's vegetable industry relies on growers and crop consultants to effectively identify, track and communicate disease outbreaks in pepper and tomato. Several major diseases play havoc on vegetable crops through reduced plant vigor and crop quality. These pests include bacterial spot in peppers, bacterial speck and bacterial canker in tomatoes, bacterial wilt in squash, pumpkins and cucumbers, and Phytophthora blight, caused by the water mold *Phytophthora capsici*.

Participants in iPiPE's New York vegetable Crop Pest Program are working to increase iPiPE use in the region, arming growers with important distribution and management information for important pests of New York's vegetable crop. Outcomes are expected to include reduced inputs and reduced disease incidence and severity, and increased crop yield and quality of cucurbits, peppers, tomatoes, eggplants, snap beans and lima beans.

Coordinated by Darcy Telenko, vegetable specialist at Cornell Cooperative Extension, the project applies iPiPE functionality to identify and track disease movement and pressure in the region, help growers improve timing of monitoring techniques and controls, and provide up-to-date pest management guidance and risk assessments during the growing season.

The iPiPE Project Mixer – Save the Date!

During February 5 and 6, 2019, iPiPE crop-pest programs coordinators, student interns, project directors, advisory board members and evaluation, research, IT services, outreach and education team members will meet at the iPiPE Project Mixer (iPMx) to reinforce and promote the iPiPE vision of progress through face-to-face interaction in Raleigh. This fifth annual mixer will provide new and continuing participants an opportunity to learn more about iPiPE and its benefit through data sharing and pest forecasting. The iPiPE team will be sharing results from market research being conducted currently, and unveil a new strategic plan for iPiPE.