

GROWERTALKS

Features

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Got a Pest? There's an App for That.

Mary Woodsen

Food. Water. Shelter from the storm. Greenhouses provide ideal growing conditions and not just for plants. Insect pests likewise appreciate warmth and ready access to food and water. If you're a grower, you know just how quickly pest populations can rocket out of bounds—and how they can become resistant to the chemicals you rely on to control them.

Using biocontrols that plague pests would seem a no-brainer. But these beneficial insects, mites, nematodes and diseases are living organisms with needs of their own, says Elizabeth Lamb, ornamentals coordinator for the New York State Integrated Pest Management Program (NYS IPM).

"Using biocontrol involves a learning curve," says Elizabeth. "It can take a couple of years to establish a routine and iron out the wrinkles."

Given how much information growers need to succeed with biocontrol—and with no single inclusive source for that info—Elizabeth and her colleague Brian Eshenaur, NYS IPM's ornamentals educator, decided to create a workbook that would walk growers through the process.

"But then we saw that growers need an easy way to carry this information with them in the greenhouse," Elizabeth said. "Smartphones are the obvious choice."



Greenhouse Scout is available
online at the Apple and Android
stores.

Of course, building a smartphone app involves a learning curve, too. It takes time to iron out the wrinkles. "It's sort of like having a baby," she says. "It's a big-time commitment and you've got the inevitable growing pains."

So Elizabeth and Brian contracted with GORGES, Inc., an Ithaca, New York-based firm with expertise in creating software, websites and mobile apps to create Greenhouse Scout, an app that helps growers detect and control pests. They decided on an integrated, three-prong approach.

First, a current and comprehensive database of:

- The major greenhouse pests, with pictures and descriptions to help with ID

- The beneficial insects that control them
- Application methods for each
- The toxicity and persistence of pesticides to the beneficials

Second, a dedicated website—think of it as “command central”—accessed from a laptop or desktop computer, with:

- Tools to create a scouting plan by location or crop
- A QR (Quick Response) code generator to send the app to the correct scouting report page
- Detailed, real-time graphical scouting report summaries whenever you need them

Third, a mobile component—a smartphone app synched seamlessly with the database and website and a colorful, icon-driven interface that:

- Walks you through ID and biology for both pests and beneficials wherever you are
- Lets you input insect data and view beneficial or pesticide applications on the scouting report pages you created online
- Syncs scouting or application reports for each QR-coded location directly with command central whenever you have a Wi-Fi link
- Keeps scouts apprised of how pest numbers have changed over time with graphical data displays

To take full advantage of the app, Elizabeth suggests you build the scouting system you want at the get-go. Include locations, the pests you expect and the beneficials you'll use, knowing that the program is flexible enough to allow changes as you go.

“For crops that stay in one place, you might plug in locations such as ‘Greenhouse 1, Bay 1’ and the like,” Elizabeth says. “For crops that move around from one bench or greenhouse to another, you could simply call the location ‘Peppers’ or ‘Pansies.’”

Meanwhile, the website easily creates QR codes for those bays or benches. Print and laminate them to place near sticky cards, trap plants or even a vent where you always get bugs crawling in. Then use your mobile device camera to pull up the scouting form when you're ready to scout.

Maybe painful experience tells you the damage Western flower thrips can do, given their cosmopolitan tastes and cosmopolitan distributions. Say you're filling one greenhouse with pansies; a second will soon be packed with peppers and cucumbers.

So bring up the app and tap the “pests” icon at the upper left. Tap on “thrips” and you see “Western flower thrips” and “chili thrips.” If you choose WFT, you can learn that thrips do best at temps ranging from 59 to 86F, that yellow or blue sticky traps attract them, and that if you tap some blossoms over a sheet of white paper, you can count them for your scout report.

On the same page, you see seven options for biocontrol. Pull them up and you'll see that nematodes might handle the cooler conditions where your pansies are. Then check the pesticide interactions and note that those soil-dwelling nematodes are adapted to the spray regime you might need if you get an aphid hot spot.

Back to the web to set up your locations. While you're there, click on WFT and other pests you expect for your

scouting pages. Once you have plants in the greenhouse and have started scouting in earnest, point your cell phone at any QR code and it pulls up all the accumulated information for that place. You can even add info when you don't have an Internet connection; it'll sync next time you do.

Meanwhile, at command central, each new post becomes part of the real-time data stream and is easy to access on the app as well. Records like scouting reports, which biocontrols you applied and when, or if you needed to spray that aphid hot spot—everything ends up here. As you enter data, the site builds graphs, visible on each staffer's phone or tablet. These show you which pest populations are on the rise, when you apply a biocontrol and when pest populations begin to fall.

Which is, of course, exactly what you want to see. **GT**

Mary Woodsen works for the New York State IPM Program.