Title of project: Development and introduction of handheld mobile application technology supporting biological control in greenhouse pest management

Project leaders: Elizabeth Lamb, Brian Eshenaur

Cooperators: Margaret Skinner, Kathy Murray, Leanne Pundt, Tina Smith

Abstract:

Background and Justification:
Biological control as a method of insect pest management has been used successfully in the greenhouse vegetable industry in Europe and Canada for many years. In the last 5 years, the interest in biological control has increased throughout the greenhouse floriculture industry in the United States. In recent New York State surveys of growers attending greenhouse IPM programs, 20-30% indicated that they would like to initiate biological control programs in their greenhouses. While this percentage may seem low, for a new technology in the range of early adopters, it is relatively high.

Because biological control involves the integration of 3 biological systems – pest, host plant, and biological control agent – and the environment in which they interact, it is a complex management system.   Successful use of biological control, therefore, requires significant information resources. In addition, biological control must be integrated into the existing systems of cultural and physical pest management, and in some cases, chemical control as well. Thus the need for real-time information is critical, especially for growers new to biocontrol.

As biocontrol is a relatively new management system for greenhouse ornamentals, innovations become available almost continuously. The dilemma is how to get this information to growers as quickly as possible. While hands-on courses or presentations, fact sheets, and webpages for providing biological control training have been used with success throughout the Northeast, an information management system that is easily updated and available when and where growers need it is increasingly necessary. The Wall Street Journal reported that smartphone users are rapidly increasing the number of applications they download (http://blogs.wsj.com/digits/2010/09/09/nielsen-mobile-app-usage-is-increasing/). The Pew Internet and American Life Project (based on internet use tracking and phone interviews of adults in the US) calculated that 82% of adults have cell phones and 29% have downloaded an app to their cell phone (http://pewinternet.org/Reports/2010/The-Rise-of-Apps-Culture/Overview.aspx). And as more and more growers get smartphones in their next trade in, applications relating to agriculture are becoming more prevalent.

Objectives:

The goals of the project are to:
1) create a mobile application (app) for handheld devices using the three major mobile phone platforms (iPhone, Blackberry, Android) that provides real-time on-demand information and management tools for biological control of the primary floriculture greenhouse pests, with input from growers,
2) demonstrate its use to greenhouse growers in the Northeast as an information management system and means of providing technical assistance on biological control for greenhouse pest management, and

3) extend the application information to a wider audience of greenhouse growers in the Northeast and nation-wide

Procedures:
Working with GORGES, a software developer in Ithaca, we created a mobile application that works on both Apple and Android platforms for providing biocontrol information and for collecting and storing scouting data and applications for greenhouse ornamental production. It will also work for greenhouse vegetable production as many of the insect pests are the same. This required planning a layout for the information that will work spatially on smartphones and pads based on the information to be provided and finding a program that can handle the activities of the app. One of the advantages of the program selected is that IPM staff can add and change information without having to go through GORGES staff.

Another addition was the ability to connect with an on-line beta test product so that the cooperators in other states can make comments. They have all been entered in the beta-test program but we have not yet received any comments.

Results and Discussion:
The app is now available on-line. As soon as we have a number of purchasers, we will see if it is possible to survey them on their use of the app.

Implications:
Our intent is that having information readily available in a smart device format will encourage growers to use biocontrol as a part of their pest management plan. Also, using the scouting function will encourage record keeping and allow growers to see the effect of their pest management procedures.