Title: IPM In-depth: Improving crop management in NY greenhouses and nurseries through hands-on workshops

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Abstract:
Building on the success of the annual, campus based IPM In-depth workshop, (a hands-on educational program for growers) we proposed, and received funding from the New York Farm Viability Institute for, adding a series of programs to be held at locations throughout NY over a two year period. We are working with five New York growers and the New York State Flower Industries to gather input regarding the content and the locations of these regional workshops and associated on-farm tours.

In 2009, 57 growers from retail greenhouses, wholesale greenhouses, nurseries, and garden centers, attended IPM In-depth programs of hands-on workshops in Ithaca, Binghamton and Rochester. The modules included aphid identification, fungus gnat control, botrytis/downy mildew and nematode identification and control, and measuring and understanding alkalinity in water. Each module included a series of hands-on activities so the participants received direct experience with the topic. Response to the program was overwhelmingly positive, with most participants planning on changes in pest and water management as a result of attending.

Background and justification:
Surveys of IPM adoption by, and needs assessment of, NYS greenhouse growers suggest that, even though most greenhouses use some integrated crop management practices, there is still great potential for improving the profitability of floriculture production through reducing input costs or improving crop quality (Lamb et al., 2007, Mattson, 2008)). The needs assessment survey indicated that pest identification (46%), insect and disease control (56-61%), and fertilizer management (48%) were major or very major challenges to growing high quality plants. Of the 394 respondents to the 2007 IPM survey, only half used new pots or disinfected old ones, a basic disease control procedure, and only a few more used sticky cards to monitor insect populations. And while the majority of respondents attend educational programs, they say they would like more information on a wide variety of crop management issues. For example, 80% of those completing the 2007 Greenhouse IPM Practices survey requested more training in disease and insect identification. Evaluations from other programs, such as the Biocontrol project, show an overwhelming preference (73%) for hands-on training.

With increasing travel costs and other economic and time constraints, it is more efficient and effective to take the programs to the growers than to only provide programs in a single centralized location.

Objectives

To provide New York greenhouse growers with customized experiential learning in their own region in addition to the annual campus based program. Growers will attend the hands-on workshops held throughout the state (an average of 20 participants for each of 12 workshops) with an additional 30 at the program in Ithaca. There will be a knowledge gain and high level of practice change due to hands-on, interactive nature of these programs.

Procedures:

1. Format for IPM In-depth

Campus based Program: The Floriculture Field Day is a full day event held in July in Ithaca. The audience is primarily greenhouse and nursery growers who are coming into Ithaca for the Field Day and arrive early for the hands-on IPM workshop. Therefore, we chose to create a half-day program with three modules. Three campus labs in the Plant Science Bldg. were chosen to provide the needed microscope access for the participants and for their proximity to each other. DEC pesticide credits were awarded for each module.

The regional programs are structured in a similar manner: three modules with introduction and wrap-up fit into a half-day program. Teaching materials including microscopes were brought to each training site. The regional workshops also included on-farm and grower-led walk-through of local greenhouses so growers can see the real-life implications of what they have learned. For our Rochester session we held our on-farm session at Chases's Greenhouses in Rush, NY and for our Binghamton area session it was at Schaefer's Gardens in Triangle, NY.

2. Choice and development of module topics

The modules were chosen based on information requested by growers through program evaluations and surveys. For each module, the presenter created a brief presentation to introduce the topic followed by a series of activities for individuals or teams. A series of handouts for each module were combined into a workbook for each participant.

Results and discussion:

Through the one campus-based and two regional programs held in 2009 year, 57 growers attended the IPM In-depth programs. Learning occurred in several discipline areas of greenhouse production and pest control. Participants reported high levels of knowledge gain based on evaluation information.

At the end the program the majority of growers indicated they greater understanding of alkalinity and its role in their fertilizer program and over 60% planned to adjust their fertilization/nutrition management program as a result of the program.

100% of the participants said they could identify the aphid species they learned about and over 90% were interested in learning more about using biological control for use against aphids.

After the training over 95% indicated they can now identify nematode symptoms on their greenhouse and nursery plants.

Comments from the evaluations included:

- "A great session!"
- "Loved using the microscopes."
- "The session was done very well. I learned a lot and enjoyed the presentations and interactivity."
- "Great program. I have learned a lot. Love the lab work."

Based on the pre and post test given to participants in the regional programs there was an overall increase in knowledge of the specific factors which are important in the management of pests using IPM practices. Growers also showed an increase in knowledge of the foundations of pest control (i.e. the plant disease triangle) and this will better equip them to manage pests in their own operations.

Project locations:

The campus based program was held in Ithaca, NY and the growers were all from New York State. The regional programs were held in Binghamton and Rochester NY.

Pictures: attached