Greenhouse Integrated Pest Management (IPM) for the Amish and Mennonite Community of Lancaster County

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Introduction

Lancaster County is the number one agricultural county in Pennsylvania (PA SS, 2001) and has one of the largest concentrations of Amish and Mennonite farmers in the country. These communities have primarily been made up of dairy and tobacco farmers. In recent years, dairy and tobacco prices have been low. Many farmers turned to minor crops including greenhouse vegetables, herbs, and flowers to supplement their income.

Amish and Mennonite greenhouse operations involve the whole family and can include intensive use of pesticides. Barefooted children working in and near their parents in pesticide application areas is a concern to the Pennsylvania Department of Agriculture (PDA). By introducing these growers to Integrated Pest Management and biological control (IPM and biocontrols), PDA hoped to reduce this pesticide use.

Methods

Because Amish and Mennonite communities often travel by horse and buggy, their ability to attend educational meetings is limited. Also, traditional educational presentations using slides, videos, or PowerPoint are forbidden by many sects of the Amish religion. One-on-one instruction by an IPM specialist teaches greenhouse operators IPM and biocontrol systems specific to their own operation.

Because of weekly one-on-one training with IPM specialist Cathy Thomas (PDA) throughout the production cycles, twenty-three vegetable, herb and flower growers learned:
- pest scouting techniques
- pest and biocontrol life cycles
- proper release of biocontrols
- population assessment of both parasitized and non-parasitized pests
- determination of pest thresholds
- integration of soft pesticides compatible with bumble bee populations, encouraging bee pollination, which maximizes fruit production.

Objectives

By the end of the two year project growers were expected to:
- Learn proper scouting techniques for identification of major greenhouse pests and their life cycles.
- Reduce traditional pesticide use by at least 50%.
- Use IPM techniques and biocontrols.
- Introduce bumble bee population to improve pollination and fruit quality.

Results/Discussion

The successful IPM/biocontrol program replaced traditional pesticide use with biological pesticides and biological (natural enemy) controls. During year one, seven greenhouse tomato growers and three bedding plant growers were project cooperators. During year two, six new vegetable growers and seven new bedding plant growers participated in the project.

All participants reduced pesticide use by at least 50% and over half of the participants completely eliminated traditional pesticide use. Because of the elimination of the traditional pesticides, growers were able to incorporate biocontrols into greenhouse production. They used species such as Encarsia formosa for control of whitefly, Steinernema feltiae for control of fungus gnats, and Phytoseiulus persimilis for control of two-spotted mite. Growers were also able to introduce bumble bees for pollination.

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References


For more information on PA IPM visit http://paipm.cas.psu.edu