1997 KENTUCKY APPLE IPM REPORT

TITLE: Application of Pest Predictive Technology and pest monitoring for Widely Scattered Apple Orchards"

PROJECT LEADERS: Ric Bessin, Extension Entomologist
Jerry Brown, Extension Horticulturist
John Hartman, Extension Plant Pathologist
Terry Jones, Extension Horticulturist
John Strang, Extension Horticulturist

TECHNICIAN: Christopher Smigell

OBJECTIVES: To demonstrate the effectiveness of Integrated Pest Management (IPM) technology for commercial apple growers in widely scattered locations and encourage its adoption.

To make Apple IPM Economically feasible for smaller orchards through the use of weather data collected remotely.

INTRODUCTION:
The 1997 Apple IPM Program was funded mainly by USDA/ES/IPM funds allocated to Kentucky and in part by funds Kentucky CES Program Enhancement Grant. The purpose was to demonstrate to Kentucky apple growers the application of Integrated Pest Management practices in the management of their orchards. IPM relies on orchard management practices such as pest and tree monitoring and locally collected weather data to predict the activities of certain insects and diseases.

Using IPM, the grower applies pest management procedures as needed based on orchard monitoring and predictive models rather than according to a calendar schedule. In addition to saving money, reduced sprays result in decreased potential applicator exposure to pesticides, pest resistance development, pesticide residues on food, harm to bees, water contamination, soil compaction, and drift to other crops. Where IPM calls for more sprays, increased crop quality should occur.

EXECUTIVE SUMMARY:
The 1997 Apple IPM Program, funded in part by USDA/ES/IPM, involved Kentucky apple growers in the application of Integrated Pest Management practices in the management of their orchards.

There were four major components in the program in 1997 1) Growers are trained to scout their own orchards. 2) Chris Smigell used Frank Browning's Orchard to use fruit bagging pest predictive technology to demonstrate and determine the effectiveness of using hours of leaf wetness thresholds for

control of sooty blotch and fly speck. 3) A comparison of Sky Bit weather data versus on site orchard weather information for use in disease forecasting. 4) A economic feasibility of monitoring the ground water in Kentucky Apple Orchards for pesticides. The first two components served to better educate growers about the identification, presence, progress of various diseases and pests, and alternatives for their control, so they could make more educated management decisions. The third component, which would allow growers to use commercial weather data information and save them the cost of ground based equipment had disappointing results in the orchards where the comparison was made. While the weather data was collected in 1996 in five participating commercial orchards, the final analysis was completed this past spring. A separate report is attached for the fourth component of the apple IPM program.

Four IPM orchard meetings for growers provided an opportunity for the specialists to address current apple IPM issues and for the growers to discuss concerns in an informal setting. Each of these meetings included a hands-on exercise in which the growers divided into small groups and scouted orchards. A computer FRUIT IPM JEOPARDY was development and used at our Apple IPM winter meeting in Elizabethtown. This approach was new for 1997, and was very productive, as well as entertaining at all who participated. At the three field meetings, growers practiced orchard monitoring while having UK specialists available for questions. Kentucky Apple IPM Manuals were distributed to growers for use in scouting and implementing IPM in their orchards. Attendance at the apple IPM field days was good. It may be noted that the composition of those attending has changed dramatically of the 6 years of the program, as many of the initial participants has graduated and our meetings are now mainly composed of growers new to IPM. This had been a concern in the past that we were reaching the same growers at these meetings, but in the last two years we have been pulling in a much larger group of orchardists.

Overall, IPM use generated notable savings among the orchards participating. We estimate that growers continue to save an estimated $121 per acre using IPM.

BASIC (Entry-Level) COMPONENTS OF KY APPLE IPM

- Regular monitoring of the orchard.
- Orchard floor management to reduce pest and disease problems that includes weed management, soil testing for nutrient analysis, and water management.
- Sanitation of fruit mummies scabbed apple leaves.
- Use of weather based forecasting for disease management decisions for apple scab and fire blight.
- IPM record management that includes orchard and pest history, scouting and pesticide use records.
- Foliar analysis for nutrient management.
- An integrated mite management program.
- Use of pheromone trapping and degree day monitoring for codling moth management.
- Calibrate and maintain spray equipment.

- Pruning trees to increase air movement, aid in reducing disease, allow for thorough spray coverage and for sanitation to control fire blight, cankers, and fruit rots.

Our latest grower survey of grower practices indicated that 58% of the Kentucky Apple Acreage (of a total of 1800 acres) was using all of the entry-level components of IPM. That represented 38% of the growers. Apple IPM adoption remains greater with the larger orchards than with smaller ones. Getting the smaller growers to adopt the basic practices of Apple IPM remains a challenge facing our program. This may be due to the fixed costs associated with adopting IPM. However, getting more growers to use pheromone traps to monitor for insect pests and foliar analysis to manage tree fertility would increase the acres under IPM to more than 80%.