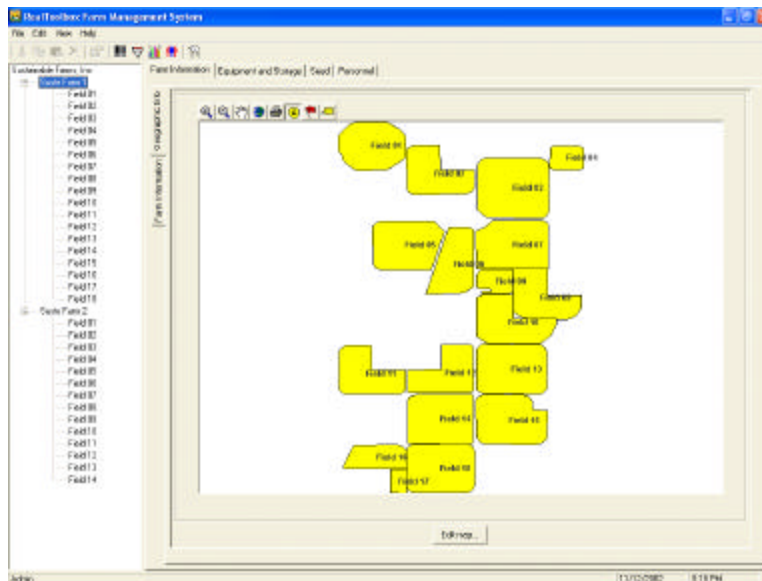# FARM MANAGEMENT "REALTOOLBOX" DATABASES
## FOR VEGETABLE CROP DECISIONS

Deana Sexson and Jeff Dlott

One key to increasing adoption of biologically based Integrated Pest Management (bioIPM) systems is to correctly utilize existing information. Managing complex information can be difficult and growers currently use a variety of systems to manage the data on their own farms. Usually, data are maintained on file for year-to-year comparisons, but are not statistically analyzed against other factors. To aid growers in data management systems, the development of an easy to use, on-farm, computerized management system, which could be used to organize and manage such detailed information, is essential. In the fall of 2001, the Wisconsin Potato and Vegetable Growers (WPVGA) began work toward developing an industry-wide database system to aid growers in their data management and decision-making processes while also aiding the industry with analyzing trends and determining research priorities based on that data. Through this effort, the RealToolbox Farm Information Management System Database for Wisconsin potato and vegetable growers was developed.



The RealToolbox Farm Management System (developed by RealToolbox, Watsonville, CA) which was originally modeled on a system used by members of the Lodi-Woodbridge Winegrape Commission, is currently developed using Microsoft Visual Basic and ADO (ActiveX Data Objects) technology in conjunction with industry-standard ESRI geographic mapping and analysis tools and a flexible relational database design. The system incorporates the collection, management and analysis of information such as IPM practices, pesticide applications, scouting data, fertility applications, growth and development modules, tillage, irrigation, planting, harvest and storage, as well as farm management activities such as geo-referenced scouting and pesticide visual maps. The system also incorporates familiar WISDOM features including automated collection of weather data for P-day and severity value calculations as well as soil moisture monitoring and irrigation scheduling.

The program has entry screens for grower, farm and field level processes. The system can currently be used with potatoes, snap beans, sweet corn, field corn, soybeans, peas, carrots, onions and alfalfa. Reporting capabilities built into the system include

reports for pesticide applications, scouting, irrigation, fertility, cropping histories, planting, harvest, weather data and others. Various pesticide reports can be used for the state of Wisconsin record keeping requirements. Reports for pesticide application, toxicity and pest scouting are also now available as a visual geographic map.
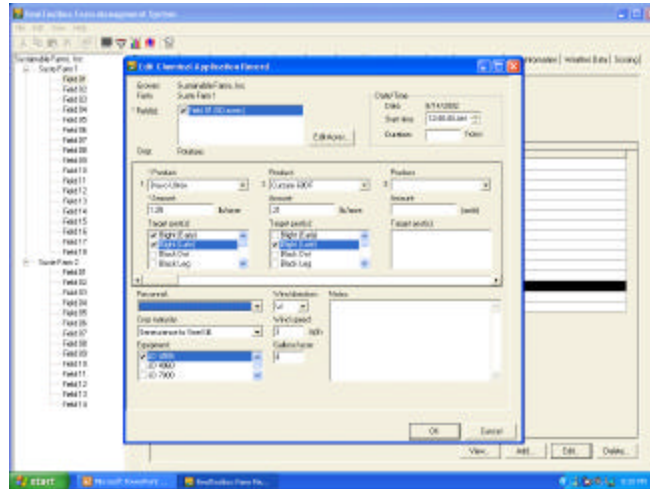


To ease the burden of manual data entry of pest scouting data, portable handheld barcode scanning capability has been developed. The portable data collection capability utilizes a handheld computer (PDA) such as the Handspring Visor, Compaq iPAQ, and rugged Symbol PDAs with built-in barcode scanners, which can be used by pest managers to gather pest counts in multiple fields without the need for pen and paper record keeping. Once scouting data have been collected on the PDA, it simply plugs into the main desktop computer and transfers its data into the system with a few simple clicks of the mouse. Plans to expand the portable data collection capability into other areas of field activity are being considered the future.
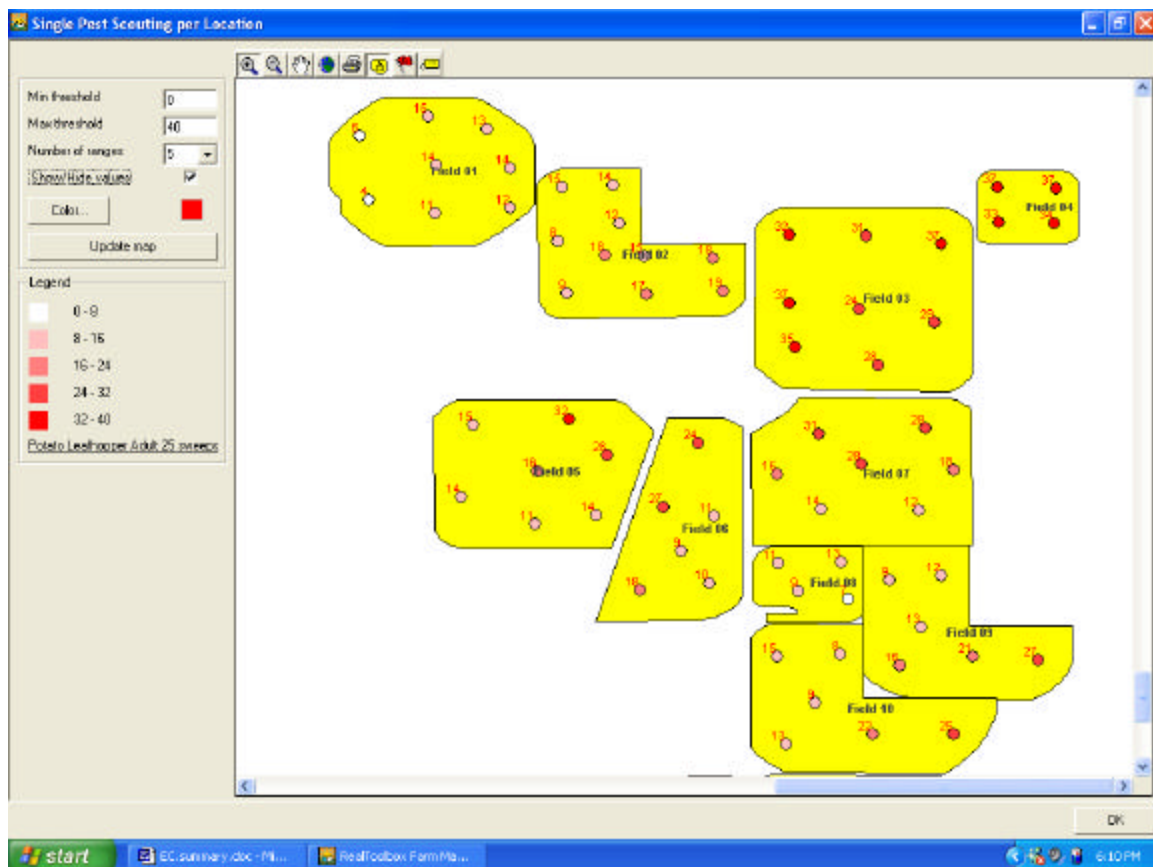
For industry use, data from multiple growers can be combined for research and educational purposes.  This combined data can be helpful to growers for comparison of their own operations with industry averages (while maintaining confidentiality on a farm or field basis).   As data continues to accumulate year-after-year, the combined information can be analyzed to determine trends within the industry. Trends in areas such as IPM adoption, pesticide usage, management tactics, and pest numbers would potentially become evident. The combined information could be useful to industries in researching a multi-disciplinary approach to  vegetable production systems, and could allow researchers to utilize current on-farm practices and information to tackle emerging issues encountered by growers such as storage concerns.

The database system from RealToolbox can be customized for other cropping systems, and can be developed to include information and management protocols, which may be pertinent to growers and researchers in each individual cropping situation. Overall, customizing the system to include specific information makes the tool a useful on-farm management tool for growers as well as a industry level research and educational tool.  If you are interested in the program or would like a demonstration, contact the Jeff Dlott, RealToolbox (831-768-0994) or Deana Sexson, UW-Madison NPM Program (608-265-9798).