Applying Computer Technology to Horticulture Education and Research

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The latter half of the twentieth century has come to be known as either the “Information Age” or the “Computer Age”, depending on whether one desires to emphasize the data itself or the means of collecting, storing, and processing it. Our current preoccupation with information can be most immediately traced to the success of intelligence gathering and application in World War II, when the incredible power of knowledge was most effectively recognized on a global scale. Since then there has been an increasing appreciation of the power of computer technology and a greater desire to apply it to solve more and different problems.

Although most of the members of my generation (and I have to be careful here not to date myself) have been dragged kicking and screaming into this new age, many have also embraced this world of personal computers, the information superhighway, and the concept of the global village. It is incumbent on us, the educators—academic and extension—and the researchers, to use this new technology to the fullest to enhance our ability to transfer information or to collect and manipulate it. In the beginning, computers were primarily used for research purposes. They could store huge volumes of data and could perform simple and complex statistical analyses much faster than a human being with a slide rule. As a result, most of the earlier research software included statistical packages, graphics and drawing programs, and spreadsheet tools.

Specific problems in research that could be addressed by computer analysis had to be custom written for the specific purpose. Although there is more flexibility in writing computer programs now than in the past, the need to custom design software for specific research problems is still with us. Such a problem presents an opportunity for interaction between a researcher providing much of the biological information related to the problem and a computer expert who can design a program to apply that information to solve the problem. A classic example of such a team effort is demonstrated by the MARYBLYT program; its illustration is intended to stimulate other horticulture researchers to consider computer applications in their area of interest and to facilitate the development of such programs as they are deemed critical to their work.

The use of computers and the worldwide web (WWW) for purely general educational purposes is a more recent application. With the advent of software to facilitate the design and production of graphics and drawings, more educators are taking advantage of their own custom-designed presentations to enhance classroom learning. The most recent application of computer technology to the classroom is the development of interactive, multimedia learning centers, where the professor designs the presentation of materials via computer and the student accesses the material and learns at his or her own pace. The student can repeat, review, and evaluate the material to master the subject. On-screen motion graphics can strengthen understanding of the subject in ways the classic chalk-

board and slide presentation could not. Another educational application of computers takes advantage of the accessibility and network capabilities of the Internet. Teaching materials can be incorporated into a web page readily accessed by the student. Hot links to other areas and subjects at remote locations are included in the text by the professor and provide access to information not easily obtained by other methods, particularly in the classical classroom situation.

At the ASHS 1996 annual conference in Lexington, Ky., a colloquium—"Issues and Applications of Computer Technology to Horticulture"—sponsored by the Computer Applications in Horticulture Working Group was presented. This colloquium was a result of the working group's desire to keep the ASHS membership informed of the latest in computer technology and applications and also the enthusiastic response of the membership to our previous efforts. The group identified several issues it felt were relevant to current problems in horticulture and suggested topics and speakers to address these issues. As a result, two speakers addressed educational issues regarding using the Internet as a teaching tool and using state-of-the-art computer technology and multimedia as a learning enhancement aid in a classroom situation. The remaining speaker discussed using a computer-based approach to solve an orchard management problem.

The following three papers summarize the presentations of these speakers on the diverse topics of educational and research applications of computer technology.