The Virtual Office

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SUMMARY. Many careers involve working at multiple locations with unpredictable daily schedules. Professionals may have several locations from which they conduct business. Electronic mail (e-mail) and other features of the Internet have facilitated the evolution of the virtual office, which gives the appearance of a single point of contact with mobile, busy people. E-mail is the most obvious use of the Internet. E-mail groups allow for effective discussions with people of similar interests and the exchange of hard-to-access expert information. Websites and e-mail groups allow rapid dissemination and discussion of multimedia information. The Vegetable Research and Information Center is an example of how to extend the virtual office concept to the departmental level, allowing spatially scattered researchers, extension workers, and their clientele to work together and exchange information.

ADDITIONAL INDEX WORDS. Internet, homepage, website, electronic mail groups, email, Vegetable Research and Information Center

The following articles began as the proceedings of a successful workshop at the 1994 ASHS annual meetings in Corvallis, Ore. Members of the Computer Applications in Horticulture Workgroup have since served as reviewers and provided additional articles to expand those proceedings. The Internet has been the central theme and a major facilitator for these papers, as the disparate locations of the contributors made communication via e-mail a necessity.

Many people use e-mail to solve some of the problems created by our fast-paced, mobile society. Professional life has evolved away from the classic model of reporting to an office 5 days a week at the same location from 8 AM to 5 PM. Standard phone conversations can become difficult when users are mobile. Pagers and cellular phones may provide opportunities to communicate from any location, but the respondent may not have the computer files or other references on hand to answer the caller properly. The most effective communication occurs when the questioner can pass on well-reasoned questions and the respondent has the time and resources to focus on an effective answer.

E-mail allows each user to decide when his unpredictable schedule will permit an effective response. Many Internet users have embraced the concept of a virtual office, which gives the appearance of a single point of contact between people with shifting schedules and locations. The traditional office is static in time and space, and communication between two parties is only possible when their schedules mesh.

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The Internet makes it easy to exchange messages without knowing the respondent's physical location and schedule. This is not a step backward to the pretelephone days of the telegraph and postal letters, rather an evolutionary recognition that many professionals have too many conflicting tasks to respond to additional demands at any moment of the day. Electronic communication has unique advantages that make it more powerful, convenient, and efficient than other forms of discourse.

My use of the Internet began 10 years ago when I was working at the Univ. of Illinois. The number of regular users was small initially, but several of my collaborators checked their e-mail daily. E-mail was especially useful for communicating with people whose time near a telephone was unpredictable or inconvenient. I found that I could get timely responses from people in other countries, which made international collaboration more practical. E-mail was also very useful for keeping in touch as I moved away from former colleagues. It can be difficult to connect over the phone with those colleagues who do not live in the Pacific time zone.

Internet use has greatly expanded in the last 5 years. It is now practical to expect that many of the clientele for university information use e-mail regularly. Many faculty at the Univ. of California have virtual office hours, where students ask questions through e-mail. In addition to convenience, this also allows more effective interchange with other class members, as problems and answers can be rapidly distributed to the entire class without taking time away from mandatory lecture topics. The virtual office concept also works well for an increasing number of my extension clientele. Neither my clientele nor myself are in our offices at the same time every day. But the respondent can answer questions as schedules allow and avoid endless hours of returning phone calls to someone's voice mail.

The Vegetable Research and Information Center (VRIC) has extended the virtual office concept to the departmental level. The Univ. of California created VRIC to provide a multidisciplinary source of information on vegetables. The center draws on the knowledge of University of California staff from three campuses, many academic departments, county offices, and field stations. Users are referred to related information sources maintained on the World Wide Web by those outside of the university. VRIC's Website (<http://vrichome.ucdavis.edu>) provides a single point of entry to obtain information on all aspects of vegetable production. Selecting the Vegetable Crop Information category on the Homepage (Fig. 1) leads users to a search

engine that can retrieve information on a specific crop or a general topic of vegetable production. For example, we frequently receive international phone calls on vegetable production practices in California. VRIC's Website allows downloading of fact sheets and longer publications that give statistics and detailed information on production, pest management, and postharvest practices. Multimedia information can also be accessed. The Virtual Tour of Vegetable Production provides an on-line slide show of California's vegetable production areas.

VRIC uses e-mail lists to communicate with those inside and outside the university. This is particularly useful when an agriculturally related issue catches the attention of the media. Timely information is provided to the news media and persons likely to be contacted by the news media by e-mailing peer-reviewed fact sheets on current issues. When provided with accurate, verified information, the media can work as a partner in carrying out Cooperative Extension's mission of informing the public. VRIC also has an e-mail list called Veghelp. Veghelp allows Univ. of California personnel to discuss specific clientele questions or more general topics. Veghelp inquiries often turn up information on unusual topics that are hidden in someone's files, such as varietal selection for a minor vegetable or control recommendations for a rare pest that has suddenly become a problem. Thus, Veghelp has helped us establish a virtual file cabinet for information that would be otherwise inaccessible.

I have experimented with several other e-mail groups, but have ceased using most of them. Like traditional face-to-face conversations, the value of the information depends on how well the user's needs are matched with knowledge and interests of the other participants. The discussion groups I use most match my extension and research duties. I have found the Veg-Prod discussion group (VanVranken and Cowgill, 1996) to be very useful in finding answers to unusual grower questions. Most Veg-Prod users are extension specialists and county agents that ask interesting questions and provide unique information.

I also use e-mail groups that are related to my areas of research expertise. One disappointment has been the infrequency of free-ranging discussions. This is a common problem with an obvious solution. The best group discussions are often lead by a knowledgeable person willing to ask questions that engage the group. Good discussions will follow if the participants keep building on previous responses and the conversation remains civil. Scientists are often uncomfortable with electronic discussion groups as a way of thinking

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VRIC

Welcome

What's New

University of California - Vegetable Research and Information Center

Welcome to the University of California Vegetable Research and Information Center's (VRIC) World Wide Web Home Page.

About the Vegetable Center

Annual report, annual conference, programs and policies, staff

Vegetable Crops Information

A database of information relating to vegetable crops

Issues, News, Events, Bulletin Board

Issues, news and events relating to vegetable crops

Virtual Tour of California Production

Slide tour of vegetable production areas in California

History, Food, Fun and Games

Historical pictures, recipes, science fair projects, humor

Other Useful Sites & Resources

A collection of helpful resources and useful web sites & information for students of vegetable crops science

Please sign in at our Visitor Log

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out loud. Reluctance to participate in discussions can be overcome if questions are directed at specific individuals who can knowledgeably answer aspects of the larger issue. For example, if the general topic is weed seed population dynamics, I may ask an expert in seed pathology what factors lead to seed mortality. Others will pick up on facets of the answer and add additional insight.

Electronic communication allows for sharing of information in many ways other than via direct contact with the information provider. The Minnesota Extension Service uses automated fax and voice-mail services to send out information more effectively and at lower costs than through traditional methods (Whiting 1996). Use of cd-roms to distribute visual information has grown tremendously, and many programs link visual and textual information with computational programs to form powerful databases and problem solving tools (Davis and Gilman, 1996; Kling et al. 1996). Computer simulation programs organize expert information from mathematical models into a predictive system. User-friendly versions of AGNPS (Pantone and Young 1996) and other simulators can be run from distant locations through the Internet. More programs are also being written as applets, or versions of computer software that can be safely transferred over the Internet. Users can download an applet and expand it into working size for later use.

I use the Internet to send and receive messages more than for information searches. A popular use of the Internet that I generally avoid is browsing for information (Rhodus and Hoskins, 1996). For many users, search agent software has opened up the Internet into a vast library for hard-to-find information (Waldrop, 1994; Auburn, 1996). But, at a university, we have direct access to traditional libraries and experts in many areas. Our problem is generally not a lack of information but an overload of data. Instead of searching for information, I use the Internet to provide others access to my expertise. VRIC (Fig. 1) and other Websites allow access to my knowledge by users who would not otherwise have contact with me. The virtual office concept helps make me a more effective communicator by providing wider and more effective dissemination of information and avoids disruption of the research and other activities necessary to create new knowledge.

What does electronic communication portend for the future of agri-industry and university activities? Telecommuting has become popular in many fields. Through com-

puter modems workers can conduct their duties from distant locations. In some businesses this has been advanced beyond 1 day a week into a normal work pattern. For example, in a field such as engineering, companies may contract workers thousands of miles away over the Internet. Work then proceeds with regular electronic updates and only occasional face-to-face meetings. Some businesses have done away with conventional office space and only arrange meetings with their consultants as needed.

Telecommuting is possible for some agriculturally related jobs, but is less useful in agricultural production. Agriculture tends to be site-specific. Crop production practices vary with region, as does the impact of the environment. Agricultural production involves many unpredictable factors that need constant reevaluation in light of local conditions. Managing these factors often requires intuition that can often only be gained on-site. There will remain a need for local experts to generate, adapt, and disseminate information. Electronic communication will greatly enhance the exchange of locally collected information but will not eliminate the need for local experts that generate and adapt knowledge for end users.

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Fig. 1. Introductory homepage to the Univ. of California's Vegetable Research and Information (VRIC) Website.