Reader's Forum

Exposure of Undergraduate Students to Historical Horticulture

Robert L. Geneve and
Mary L. Witt

"Primarily, horticulture is an art, but it is intimately connected with science at every point." This familiar quote describing horticulture is attributed to Liberty Hyde Bailey. In his "Standard Cyclopedia of Horticulture," Bailey required 19 pages to describe horticulture, prominently using references of historical significance ranging from 17th century herbalists to his 19th century contemporaries. He recognized the importance of the human contribution to horticulture.

In recent years, ASHS has taken a renewed interest in its history. An official position of Archivist/Historian was created in 1986, and a History of Horticulture Working Group was established in 1990. The Horticulture Hall of Fame was developed in 1989 to commemorate significant individuals in horticulture's history. However, it is not apparent that this renewed interest in horticulture's history has been transferred to current students in horticulture departments. To investigate horticulture students' appreciation for horticultural history, a survey was designed to evaluate the students' relative ability to recognize individuals associated with horticulture.

The survey consisted of 15 individuals identified with the history of horticulture, seven with high recognition potential, seven with low recognition potential, and one fictitious and not associated with horticulture. The individuals expected to have high recognition potential included Liberty Hyde Bailey, Luthur Burbank, Thomas Jefferson, Carl Linnaeus, Gregor Mendel, Theophrastus, and Ernest Wilson. The low-recognition group included John Bartram, Antoine Duchesne, Mark Catsby, John Frances (fictitious), John Gerard, Conrad Gesner, William Prince, and Charles Sargent. The survey was distributed to the faculty advisors of horticultural clubs in 56 U.S. and Canadian universities.

Ten departments responded to the survey, with a total of 133 students participating. The majority of the students (82.7%) were juniors or seniors. Six percent of the respondents were graduate students. Departments reported that no single course was offered in horticultural history, but several respondents indicated that historical aspects of horticulture were discussed in courses such as nursery management or plant materials.

The results of the survey indicated that students were able to recognize individuals from the high-recognition-potential group more frequently than the others. However, within the group, ≥50% of the students recognized only Gregor Mendel and Carl Linnaeus. Only 15.8% of the students recalled the contributions of Liberty Hyde Bailey, and fewer than one-fourth recognized him as the father of horticulture or associated him with his "Standard Cyclopedia of Horticulture." Evidently we have not impressed upon horticulture students the incredible debt owed Bailey for the written record of North American horticulture. Students recognized William Prince and Bailey equally. Prince is arguably the first North American nurseryman, and students probably were exposed to him during a course in nursery management. Ironically, the students' initial reference to Prince was probably from Bailey's "Standard Cyclopedia of Horticulture," which references notable people in North American horticulture. Also, the fact that so many students recalled Prince as the first North American nurseryman indicates that our students do have an interest in their horticultural heritage when they are exposed to it.

Horticulture is a complex subject area encompassing a wide range of useful plants and their specific cultural requirements. Is too much time being spent on details of particular crops, even in introductory horticultural classes, with little or no time devoted to appreciating the evolution of horticulture as a science and an art? In the 1990s, many horticulture departments are re-evaluating their programs with respect to developing life-long skills in critical thinking and communication.

Exercises designed for students to explore and share the history of horticulture provide an excellent forum for developing these skills, while at the same time cultivating in the student a broader appreciation for horticulture's contributions to human development and cultural diversity. A simple approach is to introduce a class project to elect a member to the ASHS Horticulture Hall of Fame. This approach has been used in our Growth and Development of Horticultural Crops course with good success. Four individuals are nominated for the Hall of Fame award, and each student must defend one of the nominees for that year's award. The assignment has yielded some creative written projects and personalizes the facts presented in lectures, with individuals involved in the original work.

A copy of the survey and a detailed tabulation of the results are available from us on request. ■

Department of Horticulture and Landscape Architecture, University of Kentucky, Lexington, KY 40516.

Postharvest and Marketing Skills for Small Rural Farmers in Developing Countries

Michael Brown

Far too often, postharvest handling and marketing disciplines for horticultural crops are dismissed as menial components with regard to international development and research. I am currently competing my MS in postharvest physiology and marketing at Cornell Univ. Prior to matriculating into the Cornell program, I worked for 5 years in the South Pacific nation of Papua New Guinea as a food crops consultant. My experience there and extensive travel in Southeast Asia and the Pacific has led me to believe there is a strong need for basic postharvest and marketing skills for small rural farmers. However, development projects and research are often targeted for large commercial agricultural systems, where returns on inputs are more easily assessed. Unfortunately, the majority of farms in developing countries are small, with rural horticulturists using intercropping techniques not fully understood by academia.

As indicated by Grierson (*HortTechnology* 1:133–137, 1991), far too often development projects, whether small or large, overlook the important components of postharvest and applicable marketing skills. Considering the international evolution of agriculture, it would be only natural for *HortTechnology* to address the issue of international postharvest and marketing development for horticultural crops. In fact, it would be advantageous to address international horticultural topics in every issue. The American agricultural academic system lacks knowlege of the history of agricultural development and the contributions of the so-called underdeveloped countries to the advancement of agricultural science. American agriculturists must expand their knowledge and look at the world as a dynamic system and not just focus on their own particular countries.

Yes, I agree with Grierson, and I would like to see *HortTechnology* incorporate international postharvest and marketing topics. I would be pleased to be involved with such an agenda if the editorial board finds it worthwhile to add such an issue. ■

Department of Fruit and Vegetable Science, Cornell University, Ithaca, NY 14850.

On Exam Questions, Learning, and Literacy

David Wees

I was very glad to see the articles on teaching methods in the premier issue of *HortTechnology*. This subject often receives too little attention. I was particularly interested in the article on library skills (Newman and Ellsbury, 1991). Indeed, all students (and all professionals) must learn how to effectively find information.

While the author's goals are to be commended, I disagree with their method of evaluating students. I object to the use of multiple-choice questions (and true-or-false questions, for that matter) on examinations for two main reasons. I believe that these types of questions do not allow a student to show what he or she does or does not know and that such questions promote illiteracy.

Multiple-choice and true-or-false questions do not adequately evaluate a student's knowledge or understanding. Rather, they test the student's ability to choose from a pre-set, often artificial, selection (something that rarely happens in "real life"). Worse, they may only encourage the student to guess what the teacher wants rather than trying to think out his or her own answers.

The second problem is that by asking a student to circle a choice rather than to write a thought-out answer promotes intellectual laziness and stifles the development of writing skills. Yet, it is at least partially the horticulture teacher's responsibility to ensure that his or her students can write effectively (Berghage and Lownds, 1991).

Related to this is the use of "trick questions," that teachers sometimes use to prevent multiple-choice or true-or-false exams from being too easy. For example:

> "Gregor Mendel was a 19th century monk who studied the genetics of beans. True or false?"

The answer is false—Mendel studied the genetics of peas. Yet, is it fair to give zero to the student who knew about the 19th century monk and the genetics but got the wrong crop? If the question was changed to "what did Gregor Mendel study?" the student could get at least part of the answer right and practice his or her writing skills at the same time. The student could also come up with an unexpected, but correct, answer (Rogers, 1990).

Now, I know already what many teachers will say: "It's much faster to correct a multiple-choice exam than other types of exams." I have two responses to this. First, it takes several hours to *prepare* a good multiple-choice exam (McKeachie, 1978). Second, it doesn't take that long to correct short-answer or definition exam questions. Other types of questions that are fairly quick to correct are those that require simple calculations; they are also a great way to improve math literacy among horticulture students (Hershey, 1990). Asking students to label diagrams is also a good approach.

A exam should not only be a test of a student's knowledge, but also a learning experience (Rogers, 1990). A teacher can learn much about his or her students and his or her teaching abilities by correcting and studying exam answers.

Since exams are a major part of the learning process, horticulture teachers should strive to make their exams as relevant, as challenging, and as interesting as is horticultural science itself

Department of Plant Science, McGill University, 21,111 Lakeshore, Ste-Anne-de-Bellevue, Quebec H9X 1C0, Canada.

Literature Cited

Berghage, R.D. and N.K. Lownds. 1991. Using writing in horticultural education. HortTechnology 1(1):124-126.

Hershey, D. 1990. Horticulture needs more word problems. HortScience 25(4):383.

McKeachie, W.J. 1978. Teaching tips: A guidebook for the beginning college teacher. 7th ed. D.C. Heath, Lexington, Mass.

Newman, S.E. 1991. Increasing library skills of horticulture students. HortTechnology 1(1):126-128.

Rogers, M.N. 1990. Teaching philosophy and techniques. HortScience 25(7):730-731.