

The teaching strategies implemented at the CAAs evolved from the French educational system. Within this system, basic training was presented using the lecture-teaching method and the ILO booklets as a reference. Often the subject matter was based only on the notes instructors had taken when they were students.

Teacher Training

The level of training for the CAA teachers varies considerably. The Moniteurs d'Agricole have the lowest level of training whereas the Ingenieurs des Travaux Agricole (Agricultural Engineers) have the highest level. While many of the CAA teachers are young, undertrained and unexperienced, much progress has been made since 1981 through an annual two-week inservice seminar and workshop sponsored by USAID/SECID/DETA-FP. The SECID team of experts has influenced the adoption of regular lesson planning by the teachers. Whereas teachers used to read from their notes or simply copied them on the blackboard, they now write a lesson plan based on behavioral objectives. Whereas teachers previously discussed plows in the abstract, they now display a real plow as part of the lesson.

Further Student Training

After completing two years of intensive study at the CAAs, students must complete a one-year internship at one of three Specialized Centers (Centres des Specialization, CS). The CSs are located at Baguinda, Dioro, and Kita.

Students who successfully complete the three year program receive a "Certificat d'Aptitude Professionale Agricole." They are then usually employed by one of several government owned companies. The regionally based companies are concerned primarily with only one or two commodities and are responsible for all phases of production for their commodity (i.e. seeds, financing, fertilizer, harvesting, marketing).

The Moniteurs d'Agricole supervise and serve as liaison between the company and the farmer. They arrange for the technical agricultural training of village farmer. Through demonstrations and other extension techniques they provide farmers with a particular commodity production "package" sponsored by their company. At harvest time, the Moniteurs d'Agricole also arrange for the marketing of the crops.

Benefits

The benefits of agricultural education and training are slow in becoming tangible. However, the CAA students, instructors, and curricula are the catalysts for improving the dissemination of information and the transmission of modern agricultural technology to Malian farmers. The CAA instructors and CS coordinators are committed to fulfilling their responsible roles for training Moniteurs d'Agricole. The curriculum and teaching methodology are being designed both to prepare students for the varying realities of Malian agriculture and to meet the individual farmers' needs.

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Teaching Horticulture With a Human Perspective

Madeline Zadik

Introduction

The pleasure and satisfaction that people derive from plants and the growing of them, presents a difficult perspective for the teaching of horticulture. *Social Perspectives in Horticulture* is being designed and suggested as an introductory course that stresses the human aspects of horticulture. Starting with an exploration of human responses to vegetation and nature, it traces the development of gardens and the roles that plants and gardens have played in people's lives through history and in various cultures. Landscape design and aesthetics are becoming important elements in the transformation of natural areas into built environments. The effective use of plants in our homes, shopping malls, office buildings, residential communities, highways, and urban areas has the potential to enhance the quality of human life. We need to develop an awareness of how people interact with plants and how plants affect us. The aim of stressing this human perspective is to promote a better understanding of the role that horticulture might play in today's rapidly changing world.

There is a danger today, as we greatly expand all the boundaries of knowledge, that people become so involved in their work that their view may become constricted and they may lose sight of the larger world around them. This danger also exists in horticulture where we may become so focused on the plants that we forget why we are growing them. It is important to keep in perspective our concern about plants and how research ties in with this. Obviously, research and production are vital elements of horticulture, but they must exist within the broader context of the scope of horticulture, that is, that we are studying and growing plants because people like (or need) them.

Environmental issues, urbanization, and world hunger problems concern us all and must be addressed in the classroom. Today horticulture can no longer

remain a separate discipline if it is to be relevant. Universities must produce students who are able to think in a context of the world as a whole and take an interdisciplinary approach [3].

Changing Horticultural Education

Agricultural and horticultural education have experienced many changes over the past decades. In the 1960's, many of the horticultural programs that had begun as vocational programs started to place more emphasis on principles rather than production practices. A broader education was stressed and "core" curricula were instituted. Many schools merged introductory courses into a basic "plant science" class.

The 1970's saw great increases in enrollments, with larger numbers of women, minorities, and urban students in agriculture, often with little previous experience in agriculture [1]. Non-traditional education programs were developed to serve the existing student body and to reach out to other potential students. Courses offered to non-majors were tremendously popular. Classes overflowed and many students switched their majors to horticulture [8]. The green plant industry was in the midst of a period of rapid growth. Since the end of the 1970's and into the 1980's college enrollments have been declining and enrollments in the plant sciences are decreasing at an even higher rate, from 15,661 undergraduates (16% of total enrollment) in 1978 to 7,662 (10%) in 1985. [7].

Statistics show an attrition rate of 50% in agriculture for which more introductory courses have been suggested as a remedy [2]. Those without previous experience in horticulture must be provided with a basic understanding of horticulture, or agricultural schools will not be able to retain them as students. If too many core requirements prevent students from taking horticulture courses during their first two years, students may change their majors out of horticulture [6]. Introductory courses are essential to developing and maintaining a positive image of horticulture. A study done by Lohr and Cotter [4] revealed that a single introductory horticulture course was effective in reaching a variety of students, improving their attitudes towards plants, and increasing their knowledge of horticultural concepts.

Today many non-majors still enroll in horticulture classes. Some departments have developed "service" courses for these students. These classes are frequently perceived as being offered at the expense of more important classes, yet there is a demand for them, and horticulture departments have a responsibility to cultivate a consciousness of horticulture among the general population. During this period of declining enrollments, faculty may be more available to teach these courses. Classes offered to non-majors have the potential to draw students into the department, as well as provide a service to the general university population, and reflect well upon the department.

Survey of 95 Institutions

To assess the need for a course in *Social Perspectives in Horticulture*, in January 1984 a questionnaire was sent to horticulture and plant science department chairpersons at 95 colleges and universities in the United States and Canada. They were given an outline of the course and asked whether they were teaching such a course, whether they saw a need for it, and whether they would be interested in teaching it. The course was at that time being suggested for horticulture or plant science majors and was originally called *Humanistic Horticulture*. Sixty-five people (68%) responded and some interesting results appeared from this survey.

Only five institutions indicated teaching or planning such a course or anything similar. However, many did feel they already incorporated some of the suggested topics in their other course offerings. Thirty-four of the respondents (52%) said they would be or might be interested in offering such a course to their students. Ten of the respondents (15%) mentioned offering classes specifically for non-majors. (As this was not a specific question on the questionnaire, the actual number probably is higher.) Twenty-two respondents (34%) recommended that the proposed course not be limited to horticulture majors, but rather should be extended to the general university, continuing education programs, and the Cooperative Extension Service. Reasons for this included the recruitment of students into horticulture, as well as developing a general sense of horticulture, which would be valuable to the horticulture industry.

Thirty-seven respondents indicated that they saw a need for a course concerned with the human dimensions of horticulture, and an additional nine saw the possibility for such a need (a total of 46 or 71% of the respondents). Others emphasized that the human perspective should be a part of all introductory courses. However, concerns were voiced about availability of faculty, the existence of appropriate people to teach it, budget constraints, curricula too tight to allow for it at the expense of other courses, promotion and tenure policies favoring research, non-applicability to production curricula, and the lack of adequate scientific basis and appropriate texts.

Conclusion

These responses suggest a receptiveness to a course in *Social Perspectives in Horticulture*, despite problems of fitting it into traditional curricula and finding faculty to teach it. The survey revealed a great deal of faculty interest in developing new approaches to horticulture, and Merritt [5] reported that many faculty and administrators see a need for more innovation and change in agriculture curricula. A viable option at this point in time appears to be to incorporate some of the suggested topics into existing courses, both for majors and non-majors. Many

instructors are attempting to cover the social implications of horticulture in their classes, yet much of what is being proposed here is not taught, and consistency is lacking. The suggested course content is not a radical departure from traditional horticulture, rather it is the backbone of it. The object is for students to emerge with a clear concept of why and how horticulture is important to people, and to be able to apply those concepts effectively to practical situations. All students have much to gain from learning about this basic component of our lives.

On the practical level, the implication for reaching greater numbers of students and bringing them into horticulture is especially important with declining enrollments. Increasing leisure time, greater population densities, high levels of stress, and visual pollution are current issues that need to be addressed. The human approach to horticulture is a good vehicle for working on solutions to some of today's problems. It will also ensure that horticulturists, and non-horticulturists as well, remain in touch with what is going on around them.

Course Topics

This course is being designed as part of a master's thesis project. For each topic I am introducing the basic concepts and providing instructional objectives along with a list of references and instructional resources. I hope this will be used either in its entirety or in sections as part of other courses.

Course Outline

1. Human response to vegetation and nature
2. Active plant/people interactions — why do people grow plants?
 - a. Characteristics of plants and gardening that cause human response
 - b. Effects on people and communities
 - Physical
 - Psychological
 - Aesthetic
 - Spiritual
 - Economic
3. Historical role of gardens, plants, and flowers in people's lives, including a cross-cultural perspective
4. Plants and gardens in landscape design today
 - a. Urban settings
 - b. Malls
 - c. Buildings
 - d. Highways
 - e. Residential communities
 - f. Public parks and gardens
5. Horticultural Therapy
6. Extending the horticultural opportunities
 - a. Urban, community, and corporate gardening
 - b. Gardening for children
 - c. Recreational horticulture: home gardening, garden clubs, plant societies, and other

- horticultural organizations
- d. Accessibility: barrier free design of gardens and adaptive tools, equipment, and techniques

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BOOK REVIEWS

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D. Strauch, A.H. Havelar, P. L'Hermite, Ed. *Inactivation of Microorganisms in Sewage Sludge by Stabilization Processes*. Elsevier Applied Science Publishers 1985. 255 pp. Clothbound, \$37.50.

This book was written as the proceedings of a round table seminar organized by the commission of the European Communities held in Germany, October 1984. The book is divided into two sections, a discussion of the papers presented and an overview of the visits paid to two treatment facilities.

The papers presented deal with a wide variation of processes used to stabilize sewage sludge. These processes include mesophilic