

objectives similar to this investigation has been recommended and is currently in the design stage. Information from the business survey will be correlated with producer/spouse results, for use in the design of a non-degree certification program to enhance off-farm employability of agricultural producers and their spouses.

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Linking Liberal Arts and Agriculture Through Landscape Design

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As agriculturalists, most of us are working toward more visibility for our profession, and as teachers, we are constantly looking for ways to stimulate our students. Interdisciplinary teaching on theme projects is a very exciting approach to achieving both of these goals.

Landscape design students at Clemson University recently had the opportunity to link agriculture and liberal arts when the W.K. Kellogg Foundation sponsored what is called the "Agricultural Literacy Program." Thirteen colleges and universities across America have participated in this program. As one of these, Clemson University was funded \$100,000.00 to be spent in three phases over a period of 3 years, beginning in 1984 and ending in 1987.

The purpose of the agricultural literacy program is to enhance the awareness of faculty, students, and the public about agricultural, food related and human nutrition issues. The program is designed to support curriculum development and improve interdisciplinary exchanges between Liberal Arts and Agricultural Sciences through competitive mini-grant projects awarded to faculty in related academic areas. Potential topics for modules or new courses that were identified by Kellogg officials include plant health, land use and soil erosion, urban sprawl and land use policies, diet and nutrition, water resource depletion as well as preservation of prime farm land.

Two projects linking liberal arts and agriculture through landscape design were completed by history and horticulture students working together at Clemson University. These two projects, entitled "Agricultural Footpath to Pendleton" and "The Clemson Centennial Footpath" both displayed a "Visibility for Vegetation" and an "Agricultural Awareness" theme.

First Kellogg Project

The first Kellogg project with a visibility for vegetation emphasis was entitled "Footpath to Pendleton." Pendleton is a small town located 4 miles from

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Clemson, SC. It has several points of historic significance, including the Farmer's Hall, which was built around 1814 and which became the meeting hall of the Pendleton Farmer's Society in 1826. The Farmer's Society still owns the Hall and still meets there on a regular basis, making it the oldest Farmer's Society Hall in continuous use in the nation.

Within the four mile distance between Clemson campus and the Farmer's Hall in Pendleton are vegetable and flower gardens, pastures for grazing livestock, agronomic and horticultural research plots, a forest arboretum, soil erosion control experiments, and forest management activities. Dr. Jere Brittain suggested that a network of British-style footpaths connecting these features to the main campus could provide convenient exercise and recreational opportunities while raising the visibility of the vegetation and enhancing awareness of food and agricultural issues among students, faculty, community residents and visitors. In a preliminary Kellogg proposal, Dr. Brittain points out that

Ancient footpaths in England typically meander through pastures, woods, and meadows, connecting country villages by a vigorous walk of an hour or two. Development of such rural intervillage footpaths is usually precluded by the difficulty and expense of obtaining rights-of-way through private lands. A Clemson to Pendleton Footpath System could be developed almost entirely on university property. Fort Hill, near the center of Clemson Campus, and Farmer's Hall at Pendleton are important historical sites in S.C. agriculture. Linkage of these sites by rural footpaths would offer an elegant combination of the oldest traditions and newest field technology in agriculture.

Working from Dr. Brittain's concept, Dr. Theda Perdue and Dr. William Steirer from History and Professor Mary Haque in Horticulture wrote a formal Kellogg proposal which was funded. As with other Kellogg grants, the interdisciplinary aspects of exposing liberal arts students to agriculture and agriculture students to liberal arts were paramount. Two classes, History 313 (The History of South Carolina) and Horticulture 308 (Landscape Design)

were introduced to each other and to the project via an exploratory walk and a picnic.

The participants were intrigued by their first trailblazing walk through ravines, over barbed wire fences and through cow pastures, while fighting various insects on one hot fall South Carolina afternoon. Vegetation became visible in ways that many of the History students in particular had never experienced. The tart leaf of *Oxydendrum arboreum*, for example, made the mouths of thirsty hikers water as they chewed this plant in an effort to stimulate salivary glands and reduce thirst.

Vegetation as part of the food chain was brought to everyone's attention where we passed by a pasture containing experimental cows with plexiglass windows implanted in their sides. The trailblazing walk crossed open pastures, upland hardwoods and moist lowland plant communities. Students witnessed firsthand the many stages of succession as they walked through grassy pastures, broomsedge fields, blackberry thickets, pine woods and mature forests.

After experiencing the field aspects of the footpath project, students divided up into teams to begin research and analysis to support the project. History students researched four major sites of historical significance including Fort Rutledge, a Fort constructed in 1775 overlooking the Seneca River and designed to protect the northwestern frontier of South Carolina from Cherokee Indian attack; St. Paul's Episcopal Church and graveyard, the oldest Episcopal Church in upstate South Carolina with a graveyard that seems to exemplify old cemeteries in their simplicity, beauty and evoked memories; Old Stone Church, a Presbyterian Church that is the oldest church in a ten county radius that is both still standing and still in use; and Fort Hill Mansion, the former home of John C. Calhoun and Thomas Green Clemson which stands today in the middle of a large modern university. They were motivated not only by the desire to learn all there was to know about the historical sites but to generate interest in others about the sites.

Horticulture students completed a series of analyses including vegetation, visual, soil, slope and circulation analyses along with a land use and land ownership study. Each landscape design student then laid out a conceptual footpath. These were presented, discussed, critiqued, and consolidated into one proposal. The consolidated footpath was designed as a loop system incorporating a short four-mile loop and a longer eight mile loop. Spur trails led to points of historical or agricultural significance that were close to but not part of the trail. Those training for the Boston Marathon and other ambitious souls are provided a total of 28 miles of trail to walk, run or jog along.

The students designed invitations to their final presentations. Over 50 invitations were sent to people in one of three categories. Experts whom students had contacted to unearth data in their research and analysis phase were invited. Land owners whose property must

be crossed and representatives who controlled university owned blocks of land that the path would cross were invited. Members of the Kellogg Committee, a local jogging club, and other interested people were also invited to help critique and evaluate the feasibility of the project.

The students had outlined the major problems for discussion as part of their presentation. For one, the support of Milliken Corporation, a private textile corporation owning land along the route, had been anticipated since Milliken had a history of initiating and supporting community-related activities. However, students were extremely disappointed during the research phase to discover that Milliken no longer encouraged public use of its land. Though Milliken Corporation has never been sued for recreational accidents on its property, it has been affected by the alarming and evergrowing liability lawsuit crisis. Like other owners of parks, playgrounds, and ponds around the country, the fear of a possible lawsuit has led them to reverse their public policy. Only recently, students were informed, Milliken had filled in a fishing pond built for its employees and the public on the land in question.

Similar concerns had been voiced by private landowners whom students had contacted; these concerns combined with the high projected cost of implementing the project led the class and audience to decide that a footpath all the way to Pendleton was not feasible under existing conditions. A miniature version following the same concept but restricted to university property was recommended, and a proposal was submitted to design a "Clemson Centennial Footpath" to coincide with Clemson's upcoming centennial celebration.

The Clemson Centennial Footpath

The Clemson Centennial Footpath was similar in concept to the Pendleton Footpath in that the goal of the project was to link points of agricultural and historical interest via a footpath and to bring attention to the agricultural history of the area by so doing. The primary difference was that the new path was to remain within the bounds of Clemson University's acreage adjoining the main campus. The project was also planned to incorporate a centennial theme to coincide with the university's upcoming centennial year in 1988-1989. If implementation of the path could be completed before the centennial year, the project could act as a permanent landmark celebrating the first hundred years of Clemson University's history.

Students chose the theme "Preserving Her Past, Appreciating her Present, and Walking into Her Future" as the theme for this project, and they chose twenty major points of agricultural and historical interest on Clemson University property to tie together via the footpath. History 400, United States Environmental History, and Horticulture 409, Senior Seminar, were the two classes involved in this phase of the footpath project.

The students chose Tillman Hall, formerly the Agricultural Building and presently the home of the University Visitor's Center, as the starting point. Here people intending to walk the footpath could view a videotape to spark their interest about the footpath and could pick up a pamphlet which includes a map of the footpath and descriptions of the various historical points of interest.

Photographs, the script for the video tape and the pamphlet were prepared by the students involved with the project. The university communications center produced the video tape, and the publications and graphics department published 10,000 copies of the pamphlet for distribution to interested walkers and joggers.

The Centennial Footpath is composed of a short inner loop which takes about 20 minutes to walk, an intermediate loop which takes about 25 minutes to walk, and a long outer loop which takes about 2½ hours to walk. The long loop passes through a pecan grove, which is the only living reminder of the University's first horticultural fruit and nut experiment station, and through "Trustee Park" with its extensive azalea and rhododendron beds. It passes through the University Botanical Garden, which was part of the original John C. Calhoun Plantation. The Garden houses variety trial gardens, a pioneer complex, an arboretum, and many other attractions, including a camellia collection planted on old terraces which serve as a reminder of the years when cotton was king in South Carolina. Old dairy barns, a peach orchard on land formerly farmed by the Cherokee Indians, and ponds used for the study of catfish in an aquaculture production program are just a few of the 20 points that can be studied along the footpath.

Both to enhance the aesthetics and to increase the visibility of vegetation and aspects of agriculture along the footpath, students in horticulture initiated a "Tribute Through Trees" program. Members of the community were encouraged through news articles to donate a tree to honor or memorialize someone special, and horticulture students working with the campus landscape architect and physical plant staff selected, placed and planted the trees at strategic locations along the footpath. The students' goals were twofold. They wanted to create an environment that is rich with diversity, so many of the trees that were planted represent species that were not found previously on the university's campus. They also wanted Clemson University to stand out as an exemplary regional center for environmental education. Over 100 trees along the footpath were labeled with the common and scientific names to promote environmental awareness while enhancing the aesthetics of the informal campus setting.

While researching the agricultural history and completing a vegetation analysis of Clemson University, horticulture and history students were amazed to discover two very historic trees that have

been given almost no attention during the past 25 years. Still alive, though on the decline, was an arborvitae (*Platycladus orientalis*) that was given to John C. Calhoun by Henry Clay, and a hemlock (*Tsuga canadensis*) that was thought to have been given to Calhoun by Daniel Webster, the third partner of a famous triumvirate. Since Calhoun, Clay and Webster were three of the greatest orators, statesman, and senators that America has ever produced, the students felt that the trees, linked to such outstanding historical figures, were deserving of special efforts for preservation. Through news articles and letters to appropriate personnel, the students and faculty engaged in this project have assured that the trees are provided with special care and labeling. As healthy, vigorous patriarchs, they could live well into the next century as landscape symbols providing a rich historical perspective into Clemson University's past.

The students also identified the site of what was called the "Trustee Oak" where the first board of trustees of Clemson University held their first meeting in 1889. Students recommended the procurement and planting of a "Second Century Oak" on the site where the long dead "Trustee Oak" once stood, and university officials responded by having a large Southern Red Oak (*Quercus falcata*) planted on this site. A university committee has been appointed to follow up on other student recommendations such as revitalizing all historically significant vegetation on campus, labeling an additional 500 trees, and designating a "Centennial Tree" to symbolize the part that vegetation has played during the first 100 years of Clemson's history.

Committee members are also planning a "Landscape Event," recommended by students and faculty, to coincide with the upcoming Centennial celebration. The event would incorporate a diverse combination of educational and recreational activities including a "Volksmarch" (a European walk encouraging participants of all ages), competitive races (both walking and running), and guided walks, including a nature walk as well as an architectural and historical tour. By promoting an awareness and appreciation of agriculture, architecture, landscape architecture, history, and recreation, the event should stimulate and educate people in a participatory manner.

Downs (1) has argued for "expanding student's intellectual horizons by giving them some systematic exposure to a second discipline, or better yet, to a structured interdisciplinary study." The agricultural literacy program, by integrating curricula and emphasizing broad exposure rather than academic specialization, has contributed to the education of well-rounded people. The footpath project combines agriculture, architecture, landscape design, and history in a recreational outdoor setting that promotes independent study and stimulates intellectual curiosity. Multidimensional values including scholarly learning, sociability, artistic expression, civic participation, athletic ability and spirited exploration are expressed,

contributing to a wide range and variety of interests which Shearon (2) says promotes excellence in education and a scholarly ethos in the institution. By participating in the development of this ethos, students in agriculture and liberal arts have established an avenue along which others may pursue agriculture and

history with vigor and vitality.

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Horticulture Businessmen and Teachers' Opinions Relative to Peripheral Supporting Courses

Mike Iacomini and Fred W. Reneau

The field of ornamental horticulture is a broad collection of professions, including positions in nursery management, landscape horticulture, floriculture and turfgrass management. The value of plant production and allied industrial goods and services has increased. The estimated value of wholesale nursery stocks in the 1970's was near \$400 million (Davidson, 1981). The assessed value of all greenhouse produced plants increased to nearly one billion dollars in 1977 (Nelson, 1978). A few years later, the retail market value of all nursery products was valued at 3.4 billion dollars (Lederer, 1981).

At the same time, the task of producing an educated person for the employment market was enormous if one considered the changes affecting society in the last decades. Society changed through the granting of civil rights, the debate concerning equal rights for women and other minorities, and the expansion and preservation of personal freedom. Technology and scientific advances, moreover, in knowledge grew exponentially in the last twenty years. All these changes plus progress in information management and dissemination, space age building materials, gains in fuel efficiency and other technological advances began to transform ornamental horticulture into a progressive field of study.

Also at the same time, agricultural departments hampered by a reduction in budgets, staff size and decreasing enrollments meant the ornamental horticulture education field was hard pressed to furnish a complete and up-to-date education for students (Goecher, 1982; Martin, 1984). Furthermore, the average high school student was ill prepared to provide more than manual labor, without the ability to solve problems quickly and accurately. Thus the college system was left with the task of providing the industry with trained graduates during a time when it was trying to meet multiple needs combined with cutbacks.

As all these changes occurred in technology and society, the business arrangement in ornamental horticulture also changed (Drake, 1982). The changes in business demanded graduates who possess the ability

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to work with people, manage with proven business expertise, and incorporate proven technology. Accordingly, educators needed to keep up with trends in society, technology and business in order to train professionals for the industry. There was much agreement among educators and industry professionals regarding core course composition in ornamental horticulture. However, there was no such unity of mind regarding the supporting peripheral courses. Goecher (1982) stated that "with strong pressure to incorporate more science, more communication, more technical courses, and more experience activities with the curricula, we must aggressively seek possible efficiencies in structuring curricula and packaging college courses" (p. 21).

Resulting Research Questions

- 1) What is the relationship between ratings of the attained level of education and the rating of selected supporting curriculum?
- 2) What is the relationship between the ratings of need for horticulture teachers and businessmen in regard to peripheral supporting courses?
- 3) What is the relationship between the ratings of teachers at two-year and four-year schools regarding supporting curriculum?

Population and Sample

The population of this study included ornamental horticulture teachers at the community college and university levels in Illinois and a sample of practicing businessmen in Illinois. The teachers taught at least one ornamental horticulture class per school year. The names of businessmen for the study were obtained from the combined lists of active members of the Illinois State Nurserymen's Association, Illinois Landscape Contractors's Association, Illinois State Florist Association, Illinois Arborist Association, and Illinois Turfgrass Foundation, Inc. A random sample was selected from these groups. A total of 200 out of 1348 businessmen were surveyed.

A population of 75 teachers was obtained by securing the faculty lists from colleges and universities in Illinois that offered courses in ornamental horticulture.