Organic Educational Opportunities at the University of Minnesota: The Role of a Student-run Organic Farm

Albert H. Markhart, III

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Summary. **Although the number of students in conventional production agriculture is declining, there is increased interest and opportunity in growing organic fruits and vegetables. Land grant universities need to invest in resources to develop curricula and hands-on opportunities to attract students from varied backgrounds who may currently be enrolled in a number of non-agricultural majors. At the University of Minnesota the student organic farm Cornercopia has successfully attracted students from 12 different majors to plan, plant, harvest, and market organic produce. The enthusiasm, interest, experiential learning, and public relations were well worth the land, faculty, and staff time.**

Large farms and high yields have created a society that takes its food supply for granted. Too much of our population is disconnected from the sites, the sounds, and the emotions of producing food. Agriculture is literally considered a "dirty" word, bringing forth images of large, muddy, manure-filled feedlots and acre upon acre of row crops that require high levels of pesticides and long hours of hard, dirty, dangerous work. One consequence for land grant universities is declining enrollments in food production majors. At the University of Minnesota, interest in food production was so low that areas of emphasis in food production in the horticulture major were dropped, and courses in fruit and vegetable production now are offered only in alternate years. At many universities, the lack of students has contributed to mergers of horticulture and agronomy departments.

At the same time, our population is getting older and is more concerned with health and healthful foods (Squires et al., 2001). Purchases of organic food have grown 20% per year for the past decade (Dimitri and Greene, 2002). In Minnesota, organic acreage increased 62% between 1997 and 2001 (Moynihan, 2003). Land grant universities must embrace these changes as opportunities, and adjust curricula and facilities to meet these demands of a new agriculture. However, shrinking budgets and an emphasis on high technology and molecular biology present obstacles to the development of new courses, curricula, and learning opportunities for the new cohort of production-oriented students. A student-run organic farm providing opportunities for experiential learning can uncover a population of students interested in growing organic food. This paper describes "a work in progress" as the Department of Horticultural Science and the College of Agriculture, Food and Environmental Sciences of the University of Minnesota attempts to chart a course into the new age of agriculture.

A brief history. A W.K. Kellogg Foundation (Battle Creek, Mich.) -supported review of the curriculum in the College of Agriculture at the University of Minnesota in the 1980s resulted in the reorganization of traditional agricultural majors into cross-departmental majors. A major with "horticulture" in its title was no more. Instead our students majored in animal and plant systems, agriculture industries and marketing, or science in agriculture. During this time the number of horticulture majors declined significantly.

The next great transition at the University of Minnesota was the shift from quarters to semesters with strong encouragement to again revise curricula. We used this opportunity to recreate a major with horticulture in the title. Since the "green" industry was strong and attracted most of our students, the answer was environmental horticulture with emphasis tracks in floriculture, nursery, turf, landscape design, and individual specialization

Department of Horticultural Science, University of Minnesota, St. Paul, MN 55108.

Table 1. Areas of emphasis in the environmental horticulture major at the University of Minnesota.

Emphasis	Description
Landscape design	Joint program with the College of Architecture and Landscape Architecture. The program focuses on sustainable residential and commercial design, design theory and representation, architectural history, and design practice related to larger scale landscape structure and function.
Landscape implementation and management	Prepares students to create, manage, and maintain gardens. Coursework focuses on sustainable landscape design and turfgrass science. You will gain hands-on experience building hardscapes and installing designs in our display and trial garden on campus.
Floriculture/nursery production and retail management	Concentrates on production, sales, and maintenance of bedding, woody landscape and potted plants. This program area prepares students to be specialists in floriculture and nursery production, garden center management, plant breeding or conservatory management.
Turfgrass science	Prepares students for a career as golf course superintendents, sod producers, lawn service providers, sports turf or industrial grounds managers, or park maintenance supervisors.
Individualized program of study	Allows students to develop a cohesive study program with their advisor, focusing on an area not covered by other environmental horticulture emphases, such as food production or public garden management course, or less formally through an internship with a sustainable agriculture producer or organization.

(IS). Over the past years we evolved to the current five areas of emphasis (Table 1). Students interested in food production choose the IS emphasis and design a course program around their crop or cropping system of choice.

Growing interest in integrated pest management (IPM), sustainable, and organic agriculture has driven a variety of attempts to revise curricula, and course contents and titles to translate interest into paid tuition. Agronomy and plant genetics minors, but no majors, in "sustainable agriculture" at both the graduate and undergraduate levels were offered. In the Department of Horticultural Science, production courses were modified and renamed to include the word "sustainability." Organic practices were integrated into the traditional production classes. In 1999 we offered the first course with a focus on organics, Growing Plants Organically: What It Means to Be Green. This course explores the science and ethics of organic cultivation. Students learn what is meant by "green" from a legal, scientific, and ethical perspective. Through an examination of popular books and primary literature, students ask and try to answer the question, "Where is the science?" Offered yearly, the course draws between 13 and 23 students from a wide variety of majors.

Student organic farm: Cornercopia

Associated with the minors in sustainable agriculture is a student-run seminar series called What's Up in Sustainable Agriculture (WUSA). In 2004, this group of students wanted to grow vegetables and were granted individual plots of land on the edge of the research fields on the St. Paul campus. The enthusiasm and success of this experience led to an official request for 1 acre (0.4 ha) of land that would be available for a student-run organic farm. This request was granted in Fall 2004 and led to the development of an ad-hoc "class" for which students registered as an independent study course. The class was coordinated by a graduate student from the Department of Agricultural Education who also provided leadership of the undergraduate minor in sustainable agriculture. A faculty member from the Department of Horticultural Science and one from the Department of Agronomy and Plant Genetics provided guidance and content expertise. The class met during the spring semester to create the mission, philosophy, goals, and farm plan for the coming growing season. Nineteen students, from 13 majors, enrolled in the two-credit class and created the "master plan" for the farm. A major part of this effort was articulating the mission of the farm: "The student farm utilizes and teaches sustainable organic farming practices to students, faculty, and community members. It will serve as a gathering place for interdisciplinary learning communities and a resource for extension in sustainable organic agriculture."

The plan was put into action during Summer 2005. Grant money from the Minnesota Institute for Sustainable Agriculture and the Green Lands, Blue Water Initiative funded 13 part-time student interns and one full-time student farm manager. Each student had his or her own research project and contributed to the production, harvesting, and marketing of the produce produced on the farm. A little over one-third of the acre was used for intensive vegetable production; one-third was left in rye (*Secale cereale*) cover; and the last third, also in rye, will be used for perennial plant guilds.

The student organic farm is an excellent example of experiential learning, not only for the student interns but also for others. In addition to the research, production, and marketing experience of the student interns, the farm hosted hands-on field trips for summer youth programs in the area. Of special note is a summer program for troubled youth that used the farm for part of their programming. They found the activities so successful they have applied for a grant for next year that will allow each individual in the program to have their own garden plot with the goal "to teach entrepreneurial life skills, vital involvement in a skill that connects youth to something larger than themselves." The farm also hosted tours from several groups and was a featured stop for the National Conference on Community Gardens that was held in Minneapolis in Aug. 2005.

An important aspect of the farm experience was learning the opportunities and challenges of postharvest storage and marketing. Students quickly learned how different it was to harvest lettuce (*Lactuca sativa*) greens and few tomatoes (*Lycopersicon esculentum*) of tonight's salad, compared to harvesting boxes of 10 to 12 different vegetables and cut flowers that needed to be stored, transported, and displayed for sale at a campus farmer's market. In addition to the farmer's market, the

students also offered online ordering and weekly delivery to offices on campus. Both marketing strategies proved successful with a total gross income of about $9000. This income will be used to buy seed and pay expenses for next year and, most importantly, pay the salary for the student interns in Summer 2006. The hope is that the farm can grow to a point of financial sustainability.

Locally grown organic food is no longer a fad, but a growing trend that has the potential to keep urban and suburban residents in touch with agriculture. Market forces have and will continue to drive the growth in organic production. However, a new generation of farmers passionate and knowledgeable about organic growing and marketing is needed to meet the growing demand. Educating and inspiring youth to be creative players in the organic endeavor should be a mission of the land grant universities. Providing hands-on, guided experience in growing and marketing should be a commitment of colleges of agriculture. It is too early to tell if the 1-acre student organic farm is the prelude to expanded organic acreage, curriculum development, and new research projects. The farm, however, provided a group of students and faculty an opportunity to learn and grow. Perhaps all administrators should be required to spend 1 year working on the farm, and experience our farm's motto, "learning to grow, growing to learn" (Minnesota Institute of Sustainable Agriculture, 2006).

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