Symposium Proceedings

Development of the AG*IDEA Alliance's Horticulture Graduate Certificates Program and Inter-institutional Course Share

Ellen T. Paparozzi^{1,9}, Kimberly A. Williams², Robert Geneve³, Harlene Hatterman-Valenti⁴, Cynthia Haynes⁵, Helen Kraus⁶, Cynthia McKenney⁷, and Joelle Pitts⁸

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As times change, so must education change—particularly its availability. Gone are classes taught solely in a traditional lecture style with the professor pontificating to a group of 18- to 22-year-old students. The advent of the Internet, smart phones, and electronic book readers, coupled with technology-hungry and savvy consumers, has led to a significant change in the ways courses are

delivered. Information—accurate and inaccurate—is available with a few key strokes. These advances in technology, coupled with an economic downturn and a reduction in university teaching resources, have made it clear that the teaching paradigm must shift. To attract students and still deliver a quality education in horticulture, expertise and resources must be shared across institutions. The Agriculture Interactive Distance Education Alliance (2011) (AG*IDEA) provides shared access to undergraduate and graduate level courses in horticulture and related disciplines for students enrolled through the member universities. The alliance also provides the opportunity for students to pursue three graduate certificates in horticulture. In this way, current students as well as industry members and others have the opportunity for lifelong learning in horticulture via distance.

Graduate level distance courses in horticulture have been shared and offered across institutions since the late 1990s (Great Plains Interactive Distance Alliance, 2011; Williams and Paparozzi, 2002). Only recently has demand significantly increased, resulting in the formation of inter-institutional

collaborations. During the last 2 years, representatives from several universities have been meeting monthly to develop horticulture graduate certificates through AG*IDEA.

AG*IDEA is the agricultural arm of the Great Plains Interactive Distance Education Alliance (GP*IDEA). GP*IDEA was formed by the human sciences colleges located in the Great Plains region of the United States. Later, an alliance for agriculture was initiated by Nebraska, Kansas, Missouri, and Iowa. This alliance joined GP*IDEA, expanded membership beyond the Great Plains region, and chose the moniker of AG*IDEA. Agriculture joined this group because of the belief in the common founding principles. These principles state that all institutions will behave as equals, respect institutional differences, and simplify student navigation to access courses and certificate/degree programs. Institutions pay a one-time fee of \$2000 to belong; these funds support the overall project coordinator. The current composition of AG*IDEA includes 18 universities with full membership from all regions of the United States. Over the monthly conference calls of our horticulture group, attendance has varied in composition, but a core group has arisen from that interaction. This core group includes: University of Nebraska-Lincoln, Kansas State University, Texas Tech University, North Carolina State University, Iowa State University, University of Kentucky, and North Dakota State University. The faculty chairperson of the group is drawn from these universities. This individual serves a 1-year rotating term.

Within this group, faculty members had different reasons for participating. For some, it was curiosity, for some coercion. For others, it was the promised monetary reward for teaching distance courses (75% of tuition revenue returns to the home institution) and others sought to supplement undergraduate and graduate courses and curricular offerings. Tuition is set by AG*IDEA and is currently \$440 per credit regardless of which institution the student chooses to enroll in and where the student resides. Today, horticulturists and horticulture programs cannot be all things to all people. So, common among all participants is the belief that the structure of current and future horticulture educational programs needs to change. Literature strongly

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¹Department of Agronomy and Horticulture, University of Nebraska-Lincoln, Lincoln, NE 68583-0724

²Department of Horticulture, Forestry, and Recreation Resources, Kansas State University, Manhattan, KS 66506-5506

³Department of Horticulture, University of Kentucky, Lexington, KY 40546

⁴Department of Plant Sciences, North Dakota State University, Fargo, ND 58108-6050

⁵Department of Horticulture, Iowa State University, Ames, IA 50011

⁶Department of Horticulture, North Carolina State University, Raleigh, NC 27695

⁷Department of Plant and Soil Science, Texas Tech University, Lubbock, TX 79409-2122

⁸Kansas State University Libraries, Manhattan, KS 66506

⁹Corresponding author. E-mail: etp1@unl.edu.

Table 1. The course requirements of the three horticulture graduate certificates that are projected to be available for enrollment in 2012.

Certificate	Course title	Credit hours (no.)	Institution^z
Advanced Horticulture	Select 12–15 credits		
	Environmental Nursery Production	3	NCSU
	Advanced Arboriculture	3	TTU
	Floral Crops Production or	2	KSU
	Advanced Greenhouse Management	4	TTU
	General Viticulture	3	NCSU
	Advanced Interiorscaping	3	TTU
	Business Management of Agricultural Enterprises	3	UNL
	Plant Nutrition	3	UNL, TTU, NCSU
	Plant Physiology,	3	UNL
	Plant Water Relations or		TTU
	Water Issues in Lawn and Landscapes		KSU
Floriculture and Nursery Production Management	12–15 credits		
	Core courses: Select one from each category for a minimum of 5 credits		
	Plant Nutrition,	3	UNL, NCSU, TTU
	Plant Physiology, or		UNL
	Plant Water Relations		TTU
	Floral Crops Production,	2	KSU
	Advanced Greenhouse Management, or	4	TTU
	Environmental Nursery Production	3	NCSU
	Electives: Select a minimum of 7 credits		
	Environmental Stress physiology	1	NCSU
	Management of Horticulture Insects,	3	UNL
	Entomology and Pest Management,		
	Insect Toxicology, or		
	Biological Control of Pests		
	Business Management of Agricultural Enterprises	3	UNL
	Seed Science	3	TTU
	Plant Pathology,	3	UNL
	Plant resistance to Abiotic and Biotic Stressors or Pesticide Resistance Management	2	UNL
	Advanced Interiorscaping	3	TTU
Ornamentals, Landscape, and Turf	12–15 credits		
	Core courses: Select one from each category for a minimum of 6 credits		
	Plant Nutrition,	3	UNL, NCSU, TTU
	Plant Physiology, or		UNL
	Plant Water Relations		TTU
	Advanced Arboriculture	3	TTU
	Electives: Select a minimum of 6 credits		
	Environmental Stress Physiology	1	NCSU
	Modified Root Zones or	1	UNL
	Soil Chemistry	3	TTU
	Management of Horticulture Insects, Entomology and Pest Management, Insect Toxicology, or	3	UNL
	Biological Control of Pests		
	Business Management of Agricultural Enterprises	3	UNL
	Turf Disease Management	1	UNL
	Weed Science or	4	TTU
	Turf and Landscape Weed Management	1	UNL
	Herbicides and Weed Management Systems	4	TTU

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Table 1. (Continued) The course requirements of the three horticulture graduate certificates that are projected to be available for enrollment in 2012.

Certificate	Course title	Credit hours (no.)	Institution ^z
	Plant Pathology,	3	UNL
	Plant resistance to Abiotic and Biotic Stressors, or		
	Pesticide Resistance Management	2	UNL

^zNCSU = North Carolina State University, Raleigh; TTU = Texas Tech University, Lubbock; KSU = Kansas State University, Manhattan; UNL = University of Nebraska-Lincoln.

Table 2. An example course rotation for the Floriculture and Nursery Production Management Certificate which ensures that students have access to courses when they need them and that all universities participate in the offerings.

Course title	Credit hours (no.)	Institution ^z	Semester offered
Plant Nutrition	3	NCSU	Fall, odd years
Plant Nutrition	3	TTU	Fall
Plant Nutrition and Nutrient Management	3	UNL	Spring, even years
Plant Physiology	3	TTU	Fall, odd years
Plant Physiology	3	UNL	Fall, even years
Floral Crops Production	2	KSU	Spring, odd years
Advanced Greenhouse Management	4	TTU	Spring
Business Management of AGRI. Enterprises	3	UNL	Fall
Advanced Nursery Management	3	TTU	Spring, odd years
Plant Water Relations	3	TTU	Spring, even years
Environmental Nursery Production	3	NCSU	Spring, odd years
Environmental Stress Physiology	1	NCSU	Spring, Fall, even years
Management of Horticultural Insects	3	UNL	Spring, even years
Entomology and Pest Management	3	UNL	Summer, odd years
Insect Toxicology	3	UNL	Fall, odd years
Biological Control of Pests	3	UNL	Spring, even years
Seed Science	3	TTU	Spring, even years
Pest Resistance Management	2	UNL	Spring, even years
Plant Pathology	3	UNL	Spring, even years
Plant Resistance to Abiotic/Biotic Stressors	3	UNL	Spring, even years
Advanced Interiorscaping	3	TTU	Spring, even years

^zNCSU = North Carolina State University, Raleigh; TTU = Texas Tech University, Lubbock; KSU = Kansas State University, Manhattan; UNL = University of Nebraska-Lincoln.

supports the opportunity for comparable and even enhanced student learning when well-designed and implemented coursework is delivered via distance technologies (Allen et al., 2002). "Knowledge" is already flowing freely among the public. So the choice became simple: be part of the change to contribute to collaborative distance-learning programs or continue to stand alone.

Unlike the human sciences programs where each university created a course or two and taught them exclusively, horticulture decided to rely on existing online courses across institutions to create three graduate certificates (Table 1) and share other courses that may be of interest. The group felt that horticulture, being an integrated science as well as an art, needed to also rely on the disciplines

of entomology, plant pathology, agronomy, and business to offer a meaningful graduate experience and meet the interests of a wide range of potential students. Where there was course duplication, a rotation among universities offering the courses was agreed upon (Table 2). The same flexibility was applied to the scope and the requirements (12 or 15 credits) within each certificate.

Constructing the curricula associated with the certificates is what faculty members enjoy most and do best. Unfortunately, then comes the sales job, in three installments: convincing local colleagues to participate and submit an appropriate learning outcomes-based syllabus, creating/submitting/getting the approval of a business plan by the Executive Committee of the AG*IDEA Board of Directors, and then finally, obtaining the administrative and graduate school approvals necessary to implement the program at each of the participating institutions. Frustration at each installment varied but was omnipresent. Delays for final approval at some institutions are running as long as 1 year. It is planned that these courses and certificates will be available in 2012.

While each participating faculty member handles the particulars of moving the certificate(s) through their system, how the group will implement the certificates is being handled by the alliance. The horticulture group is working from a faculty operating handbook and a detailed assessment plan. GP*IDEA conducts a student entrance and exit survey as part of the program assessment if faculty provide program-specific questions. As individual faculty evaluations cannot be shared across state lines, the use of Plan for Researching Improvement and Supporting Mission (PRISM) administered by Colorado State University will serve as the assessment environment that

can be accessed by all members of the alliance (Plan for Researching Improvement and Supporting Mission, 2011).

Results and discussion

Three certificates were created by the group. They are: Advanced Horticulture, Floriculture and Nursery Production Management and Ornamentals, and Landscape and Turf (Table 1). Participating institutions are selecting courses that best meet their horticulture program's needs and then taking one or all of the certificates through their university's approval process. The target audiences for these certificates include horticulture agents for extension programs across the country; golf course superintendents; city parks and recreation employees; landscape maintenance practitioners;

nursery, greenhouse, and garden center industry professionals; as well as horticultural enthusiasts such as Master Gardeners. Additionally, undergraduate and graduate horticulture courses are available in a course share across institutions, which will allow students to take one or more classes to enhance their career or augment their current undergraduate or graduate program. Additional distance courses and institutions interested in participating in the program are always welcome.

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