

# From the Field to the Classroom: The Experiences of County Agricultural Agents Delivering Undergraduate Instruction

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## Abstract

A team of county-based Extension faculty co-developed Direct Farm Marketing and Agritourism, a Rutgers University class for undergraduates enrolled in the Agriculture and Food Systems major. The class design emphasized the development of knowledge and skill sets applicable to real world issues using an interdisciplinary, experiential and student-centered learning model. Student assessments indicated that the course was well received as practical and pragmatic, with value placed on the experiential nature of class design (e.g., farm visits, farmer interactions and a capstone project centered on the development of a farm business plan). County-based faculty realized benefits from undergraduate instruction including professional fulfillment, departmental revenue enhancement and honing of materials and methods that can be used with traditional Extension clientele. However, the participation of county-based Extension personnel in undergraduate instruction also presents challenges. Most notable are the diversion of county agents' time from traditional client programming and uncertainty about how formal undergraduate teaching activities will be recognized or rewarded through university promotion and tenure review processes.

## Introduction

The 1914 Smith-Lever Act established a national Cooperative Extension system ("Extension") to support the agricultural sector and improve rural life. Extension

represents an enduring partnership between the federal government (USDA), state land grant universities and local governments. The mission and functions of Extension evolved over the past century in response to the needs of society, funding and university missions; however, educational outreach remains a core focus. Agricultural outreach traditionally occurs off campus, effectuated by county-based Extension faculty or staff responsible for disseminating research-based knowledge and programming directly to farm and agricultural service provider clientele. In contrast, formal undergraduate instruction within the land grant university setting has traditionally fallen under the purview of campus-based, disciplinarily-defined teaching faculty.

A strong contemporary argument regarding the value of bringing Extension's county-based agricultural agents' expertise to undergraduate instruction in the agricultural sciences can be made in terms of experience, networking and practical knowledge of real world issues. At the same time, formalized undergraduate teaching represents additional job responsibilities for county Extension professionals and invariably creates the need for tradeoffs in time allocation and reprioritization of job duties. It raises questions regarding allocation of financial resources. These realities may result in conflicts with the needs of traditional clientele and have implications for local funding allocations, yet some may argue that such tradeoffs are necessary in light of prevailing trends in the resourcing of Extension. Total funding for Extension

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programming has been declining since the 1980s, with increased reliance on state and county budget support (Wang, 2014a). Consequently, Extension professional staffing on a full-time equivalent (FTE) basis dropped across all ten USDA production regions. Between 1980 and 2010, the total number of Extension FTEs declined nationally by 22%. More specifically, the number of county agricultural agents fell by 30% (Wang, 2014b).

Examining the role of county-based Extension personnel in the classroom makes sense not only from an organizational standpoint, but also from an instruction perspective. Across the nation, there has been recent resurgence in undergraduate student interest in agricultural sciences and the broader food system as a field of study and in agriculture-related career paths (NSF, 2015). Job prospects in agriculture-related fields are also rising (Goeker et al., 2010), raising demand for well-trained students to fill these positions.

Naturally, equipping agricultural science students with the requisite knowledge, skill sets and experience to succeed in agricultural careers is of paramount importance in evolving and expanding agricultural sciences curricula. To paraphrase one New Jersey farmer and father of a college-age son hoping to return to the family farm: *"I can teach him to raise crops, I need you [the agricultural school] to teach him how to run a successful farm business."* Embodied in this imperative is the view that agricultural education must embrace a broader interdisciplinary approach that equips students with not only production know-how, but also the business and management acumen, leadership, communication and other skills needed for success. This is a tall order when considering the new demands our dynamic, globally-influenced food supply chain imposes on today's agriculturalists, shifting consumer food values and preferences, environmental concerns, potential climatic changes and myriad other factors. Further, unique pressures - opportunities and challenges alike - are borne by farmers operating in the expanding number of urban-influenced production areas such as New Jersey (see Berry (1978) for the early framing of these issues). Clark et al. (2013) observe that pursuing solutions to such complicated issues may be viewed as "imposing" or as opportunity to "affect change in how we educate the next generation of college students." The latter spirit is embodied in this paper.

There is lively discourse about the need to continually adapt and align the content and methods of undergraduate instruction in the agricultural sciences with the needs of students, employers and society (APLU, 2009). A 2009 National Research Council report asserts that many of the world's most pressing challenges - from human health, to energy security, to climate change - can be linked to the global agricultural system (NRC, 2009). The report argues, *"academic institutions with programs in agriculture are in a perfect position to foster the next generation of leaders and professionals needed to address these challenges."* The report specifically recommends increasing student opportunities to participate

in Extension activities common to land grant universities. Niewolny et al. (2012) advocate a civic engagement model of instruction that effectuates real world, experiential student learning through university-community partnerships affording reciprocal advantages to students and those with whom they interact (e.g., farmers, community food system advocates, agency staff).

This paper offers a pilot case study of a new undergraduate class in the Agriculture and Food Systems major at Rutgers University that challenges the classic delineation of responsibilities between county agricultural agents and traditional teaching faculty. Direct Farm Marketing and Agritourism is an applied course developed and offered in 2013 by a team of county-based and campus-based Extension faculty. We detail the pedagogical motivation underlying course development and structure and discuss student feedback. We conclude with instructor perspectives on the implications of county agricultural agents re-balancing their time between the field and classroom.

## Literature Review

The Kellogg Commission of the Future of State and Land Grant Universities (1999) recommended a series of changes to undergraduate education in an effort to make land grant institutions more engaged and better aligned with the changing needs of society. The report advanced numerous recommendations, including providing students with "hands-on" learning opportunities and a refocusing on university engagement, a central value embodied in the passage of the Morrill Act. The report notes that such engagement must extend beyond Extension's historic focus on outreach and recognize opportunities for students to experience and apply learned knowledge to real world issues and community needs. The earlier Boyer Commission (1996) similarly called for a change in pedagogy away from, in the words of Trexler and colleagues (2003), the delivery of "decontextualized knowledge to passive undergraduates" (p. 43). Rather, the report urged an inquiry-based system of learning offering reciprocal opportunities for learning to both student and professor, encouraging a shared "adventure of discovery" (Boyer Commission 1996, p.16).

Barr and Tagg (1995) reported movement away from a conventional instruction paradigm (professors teach and students listen) toward a learning paradigm wherein professors create a context within which students are able to construct knowledge for themselves and develop, discover and problem solve. In practice, a learning-centered format assumes different forms outside of traditional lecturing. These include experiential learning, internships, field trips and team projects, all with the goal of providing student-centric learning environments resulting in more prepared graduates. In some university settings, credit-conferring experiential learning is required for graduation. Agricultural education, by its nature, lends itself to experiential learning with a natural emphasis on applying learned skills to real-life situations (Cheek et al., 1990; Zilbert and Leske, 1989).

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Sharing of information between academia and non-academic communities can help demonstrate the important role that academic institutions have in society. The dissemination of new research-based knowledge to society with the implicit goal to improve the lives of recipients is the backbone of the Cooperative Extension system. In fact, the phrase, Putting Knowledge to Work, a heading from the Kellogg report, has been used as a tag line for many Extension initiatives.

The Cooperative Extension system has traditionally consisted of county-based faculty and staff and extension specialists who are typically housed at the university or satellite research stations. The role of a county agricultural agent, for example, has historically been to provide research-based information generated by the Land Grant University system at the local or county level. While this County Delivery System, as it is known, has been successful in providing technical information to traditional Extension clientele (e.g., farmers, land-owners and residential clientele), the model generally involves little interaction between the student population and county-based faculty or other community members. This disconnect often limits students' learning to theoretical applications with little exposure to "real world" applications and problem solving development that is a critical component of experiential learning.

In recent years, Extension personnel have been hired with appointments incorporating teaching and research functions, or tasked with additional responsibilities including undergraduate teaching. These changes are partially due to budgetary constraints (Acker, 2001; Loveridge, 2003; McDowell, 2001) and have resulted in a more blurred view of job functions and expectations. These blended appointments may pose certain challenges, including: difficulty balancing effort (Brittingham, 1999), the potential lack of focus on Extension program development (Loveridge, 2003), as well as a lack of understanding from faculty members without an Extension appointment when evaluating candidates for promotion and tenure. On the other hand, they also provide potential benefits, including the opportunity to test Extension programs in the classroom (Loveridge, 2003), the potential to bring practical experiences to the classroom by blending coursework with community engagement (Haines, 2002) and to incorporate real world problems often associated with Extension research into graduate education (Jones and Finley, 1997).

## Methods

### Pedagogical Approach to Course

The Agriculture and Food Systems (AFS) major, offered at Rutgers University's School of Environmental and Biological Sciences (SEBS), was launched in 2008 as a restructuring of a long-standing agricultural sciences curriculum. The curriculum is targeted to students interested in an "entrepreneurial and innovative" educational experience conducive to careers in production agriculture, agribusiness, Extension,

agricultural education and related organizations. Rather than adopting a prescriptive format, the curriculum is adaptive to the needs and interests of students, allowing a high degree of coursework flexibility or specialization. A student may, for example, tailor a course of study to emphasize controlled-environment agriculture or agricultural policy.

*Direct Farm Marketing and Agritourism* was designed as a 300-level course within the AFS major by a team of five Extension faculty. The team comprised four county agricultural agents with expertise in crop production, crop physiology, weed science and agricultural management and a Specialist in agricultural economics and policy. With the exception of the Extension Specialist, who held a twenty percent teaching responsibility, the team consisted of faculty with one-hundred percent Extension appointments. The team has more than 100 years of collective Extension-related experience; 4 of the 5 instructors have direct experience in farming and/or providing commercial agricultural services. The interdisciplinary, collaborative and applied instructional approach was viewed as a unique strength of the course during the SEBS curriculum review and approval process.

The class premise was simple. Cooperative Extension agricultural agents and specialists have delivered training and educational resources to farmers, agricultural service providers, government officials and the general public for a century. Much of the same information taught in the field is applicable to undergraduate agricultural sciences students in search of technical, current, real-world knowledge on agricultural topics that will help them find success within a dynamic industry.

### Course Design

The 14-week class was first offered in the Fall 2013 semester with an enrollment of 17 students. The course emphasized and encouraged experiential and self-directed learning opportunities through a combination of interactive lectures, farm visits, in-class activities, directed independent research and a capstone project. The class learning objectives were to provide students with the knowledge and skills needed to:

- develop and manage profitable agricultural enterprises in urbanizing areas where farming opportunities often involve direct sales to retail customers;
- analyze the costs and benefits of alternative direct marketing and agritourism enterprise opportunities; and,
- identify and mitigate the regulatory, policy, liability and other risk factors affecting direct marketing and agritourism operations.

The teaching modules were derived from a needs assessment of farmers in the Northeast U.S. region, conducted by the lead author as part of a USDA-Northeast Sustainable Agriculture Research and Education grant (award ENE11-121) supporting agritourism development and risk management. Topics were refined based on

the instruction team's professional and programming experiences in agricultural marketing, policy, production, farm safety and other aspects of agritourism and direct marketing. Course content was organized as follows:

- An introduction to agritourism and direct marketing- what it is, its growth and increasing incorporation into U.S. farm enterprises;
- Tools for assessing the suitability of agritourism from the perspective of a farm operator, farm resource availability and location;
- Marketing basics for direct marketing and agritourism;
- How to assess and manage external business risks (legal and regulatory issues, neighbor nuisance complaints);
- How to assess and manage internal business risks (farm safety, labor, hazard mitigation, legal liability);
- Financial analysis and partial enterprise budgeting; and,
- Hospitality and customer relations.

Student performance assessments were based on two written farm evaluations (20%), five independent research assignments (30%), a final capstone project (40%) and class participation (10%). Two farm visits provided students with opportunities to interact with farmers who have incorporated direct marketing and agritourism into their operations. Both farm visits were coordinated by a county agricultural agent familiar with the farms and the regional pressures influencing the marketing adaptations of the farms over recent decades. Students spent roughly one and a half hours with each farm's primary operators to tour the operation and learn about its history and evolution. Specific focus was placed on exposing students to the factors that encouraged farm diversification and related marketing changes and deepening their understanding of the benefits and challenges associated with inviting visitors to the farm. Each farm visit culminated with a student SWOT (strengths, weaknesses, opportunities, threats) analysis of the farm. During the following class, each student submitted and discussed a written farm evaluation and recommendations for operational improvement and risk mitigation. The instructors synthesized these assignments into reports provided to participating farm operators.

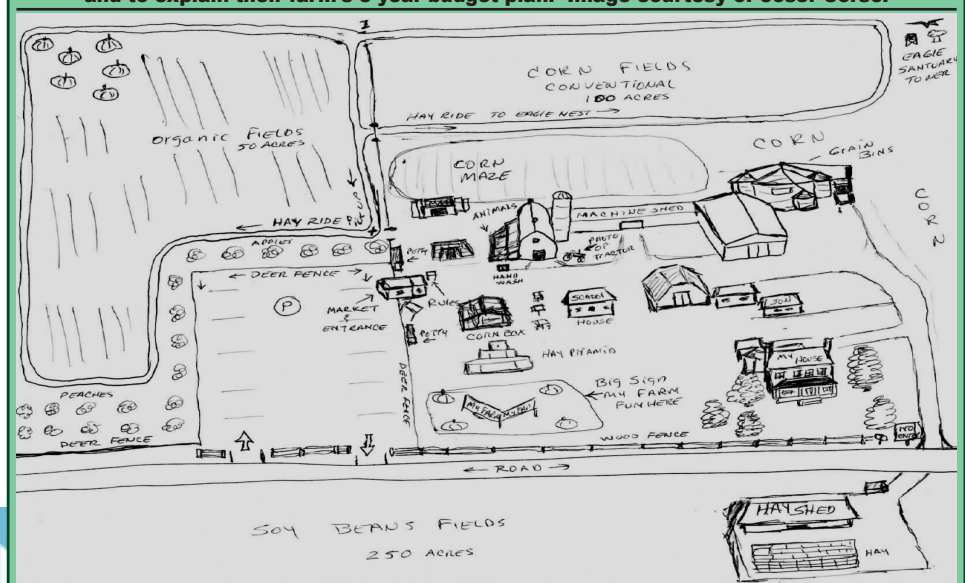
The independent research assignments and capstone project embraced the student-centered learning model, allowing students to explore, at differing levels, class content stimulating their interests. Each student prepared five business memos (i.e., simulating cor-

respondence to a business owner, manager, financial lender, etc.) summarizing their research on a topic introduced in class (topics included agricultural policy, marketing, farm safety, types of agritourism and direct marketing offerings). One assignment was a "free-choice," allowing students to select a food or agriculture-related topic of their choosing. These memos challenged students to synthesize and present information in a concise, professional and impactful manner.

Each independent research exercise, teaching module and farm visit was designed to aid students with the preparation of a comprehensive agritourism or direct marketing business development plan. This exercise allowed students to explore and develop aspects of their plans in varying depths. For the capstone project, students individually prepared a written farm business and management plan based on farm scenarios (including farm size, financial position, family goals, geographic context, available resources, etc.) assigned early in the semester. Scenarios reflected alternative farm business challenges encountered by the Extension team (e.g., an adult child's inheritance of a family farm; establishment of a new, small-scale farm catering to a local niche market opportunity; a commercial farm preparing for the integration of a second generation into the business).

Each farm business plan outlined an agritourism/ direct marketing business concept and contained a farm sketch (Figure 1), resource and staffing requirements, pro forma budget and cash flow projections, marketing strategies and farm safety risk and liability management practices. In addition to the submission of a written business plan, students verbally presented a 20-minute summary of their concepts to the instruction team and class in emulation of a "pitch" to a financial lender. A question and answer session moderated by the instructors followed each presentation.

**Figure 1. A student's drawing of their project farm. Students were asked to explain their farm layout, identify risks to direct marketing/agritourism visitors and to explain their farm's 3 year budget plan. Image courtesy of Josef Corso.**



### Results and Discussion

#### Student Assessment and Feedback

A standard course evaluation was administered during the final day of class. Course evaluations validated the educational and experiential value of bringing county Extension professionals into the undergraduate classroom. Formal assessments of the curriculum and instructor effectiveness were positive. For example:

- Students (n=10) rated the “overall quality of the course” as 4.7/5.0 and the “teaching effectiveness of the instructor[s]” as 4.9/5.0 (scale: 1=poor to 5 = excellent);
- Each student was asked to agree or disagree with the statement “I learned a great deal in this course”, resulting in a rating of 4.6/5.0 (scale: 1 = strongly disagree to 5 = strongly agree);
- Students tended to strongly agree that the “instructional methods encouraged student learning”, 4.8/5.0 (scale: 1 = strongly disagree to 5 = strongly agree); and,
- Students also agreed that the “Instructor[s] generated interest in the course material”, 4.8/5.0 (scale: 1 = strongly disagree to 5 = strongly agree).

A recurring theme in the open-ended student assessments was the value students placed on the “practical” nature of course content and an instructional delivery that brought multiple “real world” perspectives into the classroom. One student remarked that “[t]he practicality, real life experiences, practice “crunching numbers”, touring successful farms and providing examples on how to achieve goals made this an *all-around great class*.” Others noted:

- *“The expertise that each professor brought to the class made it very interesting.”*
- *“I learned a great deal of information and the hands on approach to teaching was the best I have ever seen.”*
- *“The professors all had a very engaging style, pragmatic approach to teaching and materials presented were extremely applicable to the course.”*
- *“The final project for the class made students think about all aspects of a business and opened their eyes to what it would take to run a direct marketing or agritourism business from start to finish.”*

Similar student responses to experiential learning methodologies have been reported by other educators. Curtis and Mahon (2010) find that agribusiness students reported higher valued learning experiences following in-person interactions with business professionals (in comparison to students who conducted Internet-based research or had only telephone interactions with business operators). Barlow (2012) affirms the value of service learning opportunities in forestry programming as a form of experiential-based instruction, finding that 97% of forestry and wildlife students completing a field-

based service-learning project rated the usefulness of the experience more highly than other learning experiences.

#### Lessons Learned: A Critical Evaluation of County Agricultural Agents’ Role in Undergraduate Instruction

The formative stages of class development were driven by a belief that many essential qualities of successful Extension programs are transferable to undergraduate instruction. Several core ideals motivated the structure and delivery of the course, including:

- Adopting a collaborative, interdisciplinary, team approach to instruction;
- Instilling in students’ practical knowledge and skills applicable to real world issues;
- Providing opportunities for experiential and student-centered learning;
- Engagement and networking within the farming industry; and,
- Ensuring benefits to farmers and non-university partners that contribute to the class.

These ideals are central to recent proposals for transforming undergraduate education, particularly within agricultural curricula (Fields et al., 2003).

The instruction team held a class debriefing session at the conclusion of the 2013 semester. The consensus view among the instructors was that the process of organizing and delivering undergraduate instruction benefitted their Extension programs by keeping them abreast of the latest trends in educational delivery, methods and technologies. The process of synthesizing course materials, preparing lectures and responding to student inquiries resulted in both a broadening and deepening of content knowledge among instructors that will aid county-based program delivery. Participating county faculty also reported increased professional satisfaction from sharing their collective knowledge in an undergraduate curriculum setting and an increased sense of connection to the university system. An ancillary benefit identified by the instructors was the development of relationships with the students who may become industry leaders or potential clientele of/ advocates for Extension educational programming (see Franz, 2011 for more on the “public value movement” aimed at promoting awareness of Extension).

#### Course Delivery-Related Challenges

While the overall class experience was positive, a number of issues requiring attention were identified by the instructors in order to maximize the learning experience for future students. The most significant challenge encountered by the team is the need to prepare course content and delivery in a manner that is appropriate for the intended audience. Undergraduate education differs significantly from traditional Extension program delivery which is typically geared toward changing participants’ behavior through practice demonstrations and issue-

specific programming. For example, Extension agents rarely implement formal assessment or grading. Pre- and post-surveys are often used to gauge the effects of educational outreach, but formal “student” performance assessments or grading are uncommon. In sharp contrast, academic instruction requires communication of clear performance expectations, grading criteria and a transparent grade assignment process.

Retrospectively, the instruction team still embraces the student-centered learning opportunities as a pragmatic strategy for allowing students to explore specific interests; however, not all students excel under this approach. Observations drawn from the 2013 semester suggest that students exercise varying levels of initiative and respond differently to alternative learning methods. Some students required more structure and accountability to ensure that learning objectives were met. One notable lesson learned is the need to incorporate more grading opportunities (quizzes, exams) that encourage students to remain engaged and current with their work and to assess students’ grasp of core materials and principles in real time. This preference was also expressed by students.

Despite two scheduled student-instructor meetings to discuss progress toward the completion of the capstone project (farm plan), allocating 40% of the final course grade to the project led to too much student uncertainty about course performance. This uncertainty may be attributed to students’ unfamiliarity with experiential learning or student-centered learning methods (and, in this instance, a lack of historical course context - i.e., not having past students’ feedback on coursework and grading). To mitigate these challenges, the instructors have implemented several changes to the course grading structure in the Fall 2015 semester. Changes include: (1) reducing the grade weights of the capstone project and independent research assignments (from 40% and 30%, respectively, to 30% and 10%), (2) requiring the submission of three discrete farm plan elements, or “milestone assignments,” to ensure that students make steady progress throughout the semester and receive instructor feedback (15% of a student’s final course grade) and (3) adding three quizzes based on lectures and course readings (15% contribution to final grade).

While many county agricultural agents--and other county-based Extension professionals--are excellent educators, making an effective transition to a formal classroom environment may require training to familiarize them with campus-based instructional resources, technologies and procedures. Our experience highlighted limited familiarity with formal academic course development (e.g., syllabus creation, grading protocols, refinement of learning objectives, etc.) and the approval processes required to establish the class as a component of the AFS curriculum. Establishing access to and working knowledge of university teaching tools (e.g., online class management software and roster/grade submission portals) and student assistance resources (e.g., student disability services, psychological and

mental health counseling) also proved to be an unanticipated early barrier to overcome for the off-campus members of the instructional team.

A logistical challenge encountered during the semester was that instructors are not co-located. This impeded regular weekly interaction between the full instruction team and students and reduced the efficiency of class delivery (e.g., coordination of instructional content, grading). For a true synergistic team impact on students, it is important that instructors attend classes delivered by their colleagues; however, this further increases the time spent away from county duties. This avoids instruction pitfalls, including either discontinuity or overlap in course content and inconsistencies across instructors in terms of grading. It also builds trust and mutual respect among students and instructors necessary for effective course delivery.

A related concern raised among the team is the likelihood that changes in faculty availability may affect the consistency and continuity of course content over future semesters. For example, annual variability in workload, changes in job responsibilities (e.g., initiation of extramurally funded projects), promotion and tenure considerations and relocation within the state could change the personnel involved in the course. However, changes in participating faculty can also improve course delivery and enhance student learning by incorporating new content or instructor expertise.

### **Instructor-Related Challenges**

The instructional team also recognized several instructor-related issues arising from county agricultural agents’ involvement in formal undergraduate instruction. Most fundamentally, teaching campus-based classes diverts agents’ time away from their primary county-based responsibilities. Exacerbating this challenge is the fact that some agents are assuming an increasingly regionalized set of responsibilities because of declines in Extension staffing. The course was organized as a weekly double period (rather than two 80-minute periods) to reduce time commitments away from county responsibilities. Nevertheless, agents spent a substantial amount of time on campus to prepare and deliver the course. Commuting from county offices to campus consumed additional time. Distance learning or potentially a hybrid course could reduce travel time and potentially increase the efficiency of instructional delivery for county-based faculty, but these benefits need to be balanced against the loss of “face time” with students and the costs of necessary technology and equipment.

All four county agents have committed to again teaching the course in 2015 and their continued involvement in the class is encouraged by administration as a means to diversify support for Extension programming and enrich student instruction. Participating in the 2013 class, however, increased the burden on county agents to carefully schedule and budget their time so that they can continue to meet the needs of their county clientele and the expectations of county administrators who

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appropriate funding to Extension. Historically, Rutgers University's county agricultural agents have been hired exclusively on 100% Extension lines. In 2015, for example, 31 of Rutgers Cooperative Extension's 32 county agricultural agents were funded exclusively by Extension and Experiment Station dollars; one had a nominal amount of salary offset by teaching dollars. On average, 25-50% of funding for agricultural agents comes from county government and the balance derives from state and federal sources appropriated by the university. Continued engagement in teaching may necessitate reconsideration of county agricultural agents' line splits and hence funding streams. As a related financial matter, policies and funding sources (e.g., tuition dollars) need to be established to reimburse course-related expenses (e.g., mileage and incidental expenses such as the reproduction of materials) incurred by off-campus faculty.

Lastly, Rutgers county agricultural agents are tenure-track faculty. Fulfilling county Extension duties ("Extension Practice") is the primary evaluation criterion for agricultural agents undergoing review for tenure and promotion by the university. This includes the use of effective methods to share research-based information with clientele that leads to knowledge gain and change in behavior, as well as applied and evaluative research, grantmanship and impact on the profession. A principal concern among instructors was how--or even if--providing leadership in undergraduate instruction will be considered in promotion evaluations or rewarded in merit-based salary increases. In contrast to the team's Extension Specialist, who is formally evaluated in part by teaching effectiveness, considering participation in undergraduate instruction would be a paradigmatic shift in the review of county agricultural agents at Rutgers University.

### Summary

Extension's 2014 Centennial warranted reflection on the organization's rich history and a future defined by declining resources and increasing client demands. Extension's future is intertwined with calls for transformative thinking to align agricultural education at land grant universities with the realities and needs of modern agricultural systems. Civic engagement, experiential learning and development of practical knowledge and skills sets to address real world issues are inherent elements of Extension programs and important parts of narratives calling for reforms to undergraduate agricultural education.

A multidisciplinary team of county- and campus-based Rutgers Cooperative Extension faculty developed a Direct Farm Marketing and Agritourism class within the university's Agriculture and Food Systems major. Course design embodied a practical, student-centered, experiential learning paradigm. Student feedback was overwhelmingly positive, highlighting a high value placed on "real world", "practical", "pragmatic" educational lessons and farm-based learning opportunities.

Undergraduate teaching by county-based Extension faculty may help bring needed revenue to Extension, particularly under a responsibility centered management budgetary model. It also can facilitate the development of curricula, training materials and methods that may be used with traditional Extension clientele. However, the participation of Extension personnel in undergraduate instruction presents potential challenges. Most intuitive is the additional strain on personnel time and diversion of county agents' time from traditional client programming. The time burdens of off-campus Extension personnel can be partially reduced through university investments in distance learning technology and other infrastructure needed to overcome time and geographic barriers that make it difficult or inefficient for county agents to teach or interact with campus-based undergraduates. A second important issue relates to an expansion of Extension personnel responsibilities beyond contractual obligations. For some county agents, undergraduate instruction may be tantamount to a form of professional "mission drift" that is not recognized or rewarded through university tenure and promotional reviews. If deeper engagement of Extension agents in formal classroom teaching is desired, universities may need to evaluate faculty line splits that define these expanded responsibilities.

### Literature Cited

- Acker, D. 2001. Budget cutbacks: Some strategies for deans, directors and the staff they lead. *Journal of Extension* [online] 39(2): Article 2COM1. <http://www.joe.org/2001april/comm1.html>
- Association of Public Land Grant Universities. (APLU). 2009. Human capacity development: the road to global competitiveness and leadership in food, agriculture, natural resources and related sciences. <http://www.aplu.org/members/commissions/food-environment-and-renewable-resources/board-on-agriculture-assembly/academic-programs-section/documents/human-capacity-development.pdf>. February 19, 2015.
- Barlow, R. 2012. Natural resource service learning to link students, communities and the land. *Jour. of Extension* [On-line], 50(5): Article 5IAW3. <http://www.joe.org/joe/2012october/iws.php>. February 20, 2015.
- Barr, R.B. and J. Tagg. 1995. From teaching to learning: A new paradigm shift for undergraduate education. *Change* November/December 1995. 13-25.
- Berry, D. 1978. Effects of suburbanization on agricultural activities. *Growth and Change* 9(3): 28.
- Boyer Commission. 1996. Reinventing undergraduate education: A blueprint for America's research universities. Carnegie Foundation for the Advancement of Learning.
- Brittingham, M.C. 1999. Challenges facing today's Extension specialists: Where's the stress? In R.M. Timmand S.L. Dan (Eds.). *Leading the way toward sustainability: Extension in the new millennium*. Pro-

- ceedings of the 9th National Extension Wildlife, Fisheries and Aquaculture Conference. Portland Maine.
- Cheek, J.G., L.R. Arrington, S. Carter and R.S. Randell. 1990. Relationship of supervised agricultural experience program participation and student achievement in agricultural education. *Journal of Agricultural Education* 35(2): 1-5.
- Clark, S., C. Byker, K. Niewolny and J. Helms. 2013. Framing and undergraduate minor through the civic agriculture and food systems curriculum. *NACTA Journal* 57(2): 56-67.
- Curtis, K. and J. Mahon. 2010. Using Extension fieldwork to incorporate experiential learning into university coursework. *Journal of Extension* [online] 48(2): Article 2FEA4. <http://www.joe.org/joe/2010april/a4.php>
- Dewey, J. 1938. *Experience and education*. New York, N.Y.: Collier Macmillan Publishers.
- Fields, A., E. Hoiberg and M. Othman. 2003. Changes in colleges of agriculture at land-grant institutions. *NACTA Journal* 47(4): 7-15.
- Franz, N.K. 2011. Advancing the public value movement: Sustaining Extension during tough times. *Journal of Extension* [online] 49(2) Article 2IAW1. <http://www.joe.org/joe/2011april/comm2.php>. February 2, 2015.
- Goecker, A., P.G. Smith, E. Smith and R. Rebecca Goetz. 2010. Employment opportunities for college graduates in food, renewable energy, and the environment: United States, 2010-2015. United States Department of Agriculture, National Institute of Food and Agriculture. (USDA-NIFA) report. <http://blogs.usda.gov/2010/06/07/demand-rising-for-agricultural-college-graduates/>. February 18, 2015.
- Haines, A. 2002. Blended teaching: Land use planning education in Wisconsin and lessons learned. *Journal of Extension* [online] 40(5): Article 5IAW2. <http://www.joe.org/joe/2002october/iw2.php>
- Jones, S.B. and J.C. Finley. 1997. Integrating Extension in natural resources graduate education. *Journal of Extension* [online] 35(6) Article 6FEA5. <http://www.joe.org/joe/1997december/a5.php>
- Joplin, L. 1981. On defining experiential education. *Journal of Experiential Education* 4(1): 17-20.
- Kellogg Commission on the Future of Land-Grant Universities. 1999. *Returning to our roots: The engaged institution*. Washington, DC: National Association of State Universities and Land-Grant Colleges. <http://www.nasulgc.org/publications/Kellogg/engage.pdf>. February 2, 2015.
- Kolb, D.A. 1984 *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs: Prentice Hall Inc.
- Kunkel, H. 1992. Overview. In National Research Council Board on Agriculture, *Agriculture and the undergraduate* (pp 1-15). Washington, D.C.: National Academy Press.
- Loveridge, S. 2003. Strategies for Extension specialists with research or classroom instruction assignments. *Journal of Extension* [online] 41(5) Article 5IAW1. <http://www.joe.org/joe/2003october/iw1.php>. February 2, 2015.
- McDowell, G.R. 2001. *Land grant universities and Extension into the 21st century: Renegotiating or abandoning a social contract*. Ames: Iowa State Press.
- National Research Council. (NRC). 2009. *Transforming agricultural education for a changing world*. Washington, DC.: National Academies Press.
- National Science Foundation. (NSF). 2015. *Science and engineering indicators, 2012: Chapter 2. Higher education in science and engineering*. <http://www.nsf.gov/statistics/seind12/c2/c2s2.htm>. February 19, 2015.
- Niewolny, K.L., J.M. Grossman, C.B. Byker, J.L. Helms, S.F. Clark, J.A. Cotton and K.L. Jacobsen. 2012. Sustainable agriculture education and civic engagement: the significance of community-university partnerships in the new agricultural paradigm. *Journal of Agriculture, Food Systems, and Community Development* 2(3): 27-42.
- Trexler, C., C. Haynes and L. Davis. 2003. Helping future educators learn to teach through horticulture: A case study of an experimental interdisciplinary course. *NACTA Journal* 47(4): 43-50.
- Wang, S. 2014a. *Extension faces challenges entering is second century*. *Amber Waves*. Sept. 2014.
- Wang, S. 2014b. *Cooperative Extension System: trends and economic impacts on U.S. agriculture*. *Choices* 29(1): 1-8. [http://www.choicesmagazine.org/magazine/pdf/cmsarticle\\_355.pdf](http://www.choicesmagazine.org/magazine/pdf/cmsarticle_355.pdf)
- Zilbert, E. and G. Leske. 1989. *Agricultural education and experiential learning*. *The Visitor* 76(1): 1-4.

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