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## The Integration of Research and Extension: A Preliminary Study

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## The Integration of Research and Extension: A Preliminary Study

### Abstract

How are Research and Extension integrated in land-grant systems throughout the United States? This question was answered by Directors of Agriculture Experiment Stations and Cooperative Extension who completed an online survey. Ninety-two individuals responded to the survey; 53% were with AES, and 47% were with CES. Interaction tended to occur through joint appointments and cohousing of faculty. Best-integrated practices revolved around a commodity or specific issue such as water quality. Funding was a common catalyst for collaboration in the form of competitive RFPs, internal grants, or special accounts.

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### Introduction

"Almost all of the problems of contemporary America require interdisciplinary solutions." Furthermore, "...our institutions could be better organized to bring them to bear on local problems in a coherent way." These statements from *In Returning to Our Roots: The Engaged Institution* (1999) point to the need for increased connectedness within the land-grant system. According to Kerr (1987), no one questions the financing of agriculture research with public monies. What is in question is how to best leverage funds to enhance the return on investment of both federal and state dollars and to fulfill the land-grant mission. Simply stated, the mission of public and land-grant institutions should be to advance the common good (Kellogg Commission, 2000).

Implied in the 1996 Farm Bill (<http://www.usda.gov/farmland/titles.htm>) and specified in the 1998 Farm Bill (<http://www.agnr.umd.edu/users/NERA/workshop/NERAReview.html>) was integration of Research (AES) and Extension (CES). The National Research Council (1996) reported on the need for change in the land-grant system in four key areas, one of which was to stimulate the linkages among teaching, research, and Extension. The report recommended changes in formula funding to alleviate separation of these entities. In his remarks regarding the National Research Council (NRC) report, Webb (1998) commented that the organization of administrative and funding structures within the land-grant system hinders integration. McDowell (2001) discussed the rhetoric of integration by pointing out that of the \$950 million budget FY 2000 CSREES budget, \$39 million was allotted for integration activities.

Although there are challenges to integration, Webb (1998) pointed out that where research-Extension linkages exist, the dynamic that occurs through the flow of information enriches the research process and the use of these findings to serve the public. These linkages also ensure that current knowledge is disseminated through outreach. Thompson and Gwynn (1989) reported that deans of Colleges of Agriculture have been concerned about the lack of such linkages or increasing integration for a long time.

## Purpose and Objectives

Since the 1996 NRC report, the realignment of research and Extension has received heightened attention. However, there was no information found in the literature on how this was occurring throughout the land-grant system. The purpose of the study reported here was to investigate the status of the integration of research and Extension within the land-grant system. Specific objectives included to:

- Determine who set the research and Extension agendas for institutions
- Uncover ways in which collaboration between Extension and research is fostered
- Provide examples of collaborative efforts, and
- Understand basic resource allocation within the land-grant system.

## Methods

An online survey was developed and pilot tested. The 22-item survey was based on a review of the literature and discussions with administrators within a land-grant system. Nine close-ended questions pertained to setting agendas, determining appointments, methods of interaction, future directions, and demographics. Open-ended questions were designed to gain more specific examples about collaborative efforts, incentives for collaborating, allocating funds, submitting joint AES/CES proposals, and additional suggestions for integrating Extension and research. The survey was built using an in-house developed survey software package.

Approximately 10 AES/CES faculty around the United States were emailed a draft of the survey and asked to review the questions for clarity and relevance to the purposes of the study. Three of the faculty suggested changes to the wording, length of the survey, and extensiveness of close-ended questions.

The survey was then configured for online distribution. An email notice was sent to the [us-aesdirs@reeusda.gov](mailto:us-aesdirs@reeusda.gov) and [us-cesdirs@reeusda.gov](mailto:us-cesdirs@reeusda.gov) listservs requesting that they link to the Web site and complete the survey. Individuals on these listservs include dean/directors, associate directors, and assistant directors at each land-grant institution. Because of the unique way in which AES/CES is organized at land-grant institutions, there was no way to determine the exact number of individuals at each institution who might be on the listserv; therefore an overall response rate could not be calculated. A follow-up reminder was sent approximately one week after the initial electronic mailing.

The executive directors of the four regional associations of research directors (Northeast, North Central, South, and West) who received the online survey suggested that the orientation of the questions was by state and difficult to answer from a regional perspective. Therefore, open-ended questions were posed to the executive directors. These included:

- Is enhancing the collaborative efforts between AES and CES a concern among regional directors?
- As an executive director do you have suggestions for ways to enhance interaction between AES and CES?
- Are you aware of any "best practices" among the land-grant universities that illustrate innovative collaborative efforts?

Qualitative and quantitative data were downloaded into an Excel™ spreadsheet and analyzed using descriptive statistics. The Institutional Review Board of Kansas State University approved the study.

## Results and Discussion

### Demographics

Ninety-two individuals responded to the survey, with 53% having their primary area of responsibility in AES and 47% holding CES appointments. About 30% of the respondents were from the western region of the United States (Table 1).

**Table 1.**  
Extension Region Affiliation

Primary Area of Responsibility by Region of the Country	AES (N=47)		CES (N=41)	
	Frequency	%	Frequency	%
West	17	36	10	24
South	11	23	11	27

Northeast	8	17	13	32
North Central	11	23	7	17
N=88				

### Responsibility for Research and Extension Appointments and Agenda

Sixty-seven percent of the respondents indicated that the Administrative Head of Agriculture made AES appointments, while 82% of the respondents indicated the Director of Extension assigned CES appointments (Table 2).

Open-ended comments from respondents indicated that the respective administrative heads made appointments after input from department heads and faculty. Individual researchers (74%), stakeholders (71%), and College of Agriculture administration (69%) established the AES agenda. Extension agents and specialists (83%), stakeholders (79%), and the Director of Extension (77%) established the CES agenda (Table 3). One respondent commented that a regular and ongoing needs assessment was conducted at the county level to prepare the CES agenda.

**Table 2.**  
Individual or Group Responsible for Either AES or CES Appointments

Individual Responsible for AES/CES Appointments	AES <sup>a</sup>		CES	
	Frequency	%	Frequency	%
Administrative head of agriculture	62	67	42	46
Director of research	51	55	---	---
Director of extension	--- <sup>b</sup>	---	75	82
Department heads	43	47	40	44
County boards	---	---	17	19
Other	14	15	14	15
N= 92				
<sup>a</sup> Multiple responses were reported				
<sup>b</sup> Not a response provided				

**Table 3.**  
Individual or Group Responsible for the AES/CES Agenda

Individual/Group	AES Agenda		CES Agenda	
	Frequency <sup>a</sup>	%	Frequency	%
Director of extension	--- <sup>b</sup>	---	71	77
Individual researchers	68	74	19	21
Stakeholders	65	71	73	79
College of Agriculture administration	63	69	42	46
Available grant funds	56	61	46	50

Extension agents and specialists	39	42	76	83
State legislature	38	41	40	41
University administration	22	24	17	19
Other 16 17 11 12 N=92 <sup>a</sup> multiple responses were reported <sup>b</sup> not a response provided				

### Methods for Enhancing Collaboration Between Research and Extension

Eighty-six percent of the respondents indicated that enhancing the collaborative efforts between AES and CES was a concern at their university; 80% identified ways to enhance the interaction. Many commented that collaboration was already ongoing. One respondent aptly stated that, "...our ability to document/demonstrate relevance is driving us to improve." Another respondent summarized the reasons for integration, "We are an applied research and extension system, one family, different functions, same goals, ultimately."

A strategic plan/vision was the impetus for enhanced cooperation at some universities. Funding opportunities was yet another driver of collaboration. Examples included the establishment of internal grant funds, special accounts, or a reorientation towards outcome-based funding. According to several individuals, there are more available competitive funds through AES, which are awarded with outcomes as the dominant consideration. Outcomes for CES are harder to measure and articulate.

In nonagricultural related areas, research is not as closely aligned with CES as deemed necessary. To paraphrase one respondent, Extension in land-grant universities is broader than the AES agenda. The need for an effective feedback mechanism between CES field staff, who hear the concerns of clients, and the campus staff, who conduct the research, was a concern. Funding sources, expectations of faculty, and differences in reporting requirements contribute to problems with collaboration. Several respondents pointed out that collaboration must be reinforced by administration.

The most common method of interaction was co-housing AES and CES faculty within a department, which was reported by 50% of the respondents (Table 4). The respondents also indicated that joint faculty appointments, some county faculty joint appointments, college- and community-based teams, and all of the options listed were common methods of interaction. One university held joint monthly meetings to keep AES and CES faculty informed on issues facing both programs.

**Table 4.**  
Common Methods of Interaction Among AES/CES Faculty

Methods of Interaction	Frequency	%
Co-housing of research and extension faculty within departments	45	50
Issue-based teams that include research and extension faculty	27	30
Development of centers of faculty from research and extension	3	3
Professional association meetings including regional and national events	1	1
Other	14	16
N=90		

Thirty-five percent of the respondents indicated that the number of joint proposals submitted was 1 to 20% (Table 5). Joint proposals were encouraged using the assistance of a grants/contract office that saw the grant process through from inception through closing of a funded grant,

administrative oversight by respective associate directors, greater merit increases based on joint proposals, and higher funding ceilings on seed grants for integrated projects.

**Table 5.**  
Percent of Proposals That Are Joint AES/CES Submissions

Percentage	Frequency	%
1-20%	28	34.6
21-40	20	24.7
41-60	8	13.6
51-70	4	9.9
71-90	2	2.5
>91%	2	2.5
Don't know	16	19.8
Not applicable	2	2.5
N=81		

Respondents provided numerous examples of collaborative efforts among land-grant universities. A summary of these follows.

- Adopt the concept that faculty are "faculty" regardless of the appointment.
- Award program planning grants, program development grants, rapid response grants.
- Develop program area thrusts, common interests groups (CIGs).
- Eliminate individual PI Hatch projects.
- Establish teams to work on key issues.
- Evaluate all Extension faculty in academic departments.
- Expect outreach from all faculty.
- Form commodity-oriented and science area groups.
- House Research and Extension in departmental units.
- Require Extension components in all research projects.

### ***Incentives for Collaborative Efforts***

Incentives to enhance collaborative efforts ranged from legislative mandates to seed grants. For one respondent, the primary incentive was the federal AREERA requirement. Some universities require interaction as part of the position, which is evaluated through the promotion and tenure process. Salary adjustments for individuals who served as coordinators, merit increases, nonfinancial acknowledgement, and overload payment for CES faculty who teach also were mentioned. One university set aside monies to bring CES and AES faculty together to develop joint projects.

### ***Examples of Best Practices in Collaboration***

Both general and specific examples of best collaborative practices were provided. These included Area of Expertise teams, Research to Outreach initiatives, and a three-tiered team system of individual project teams, group teams, and college-wide teams. Many of the best practices centered around commodity-type programs, such as blueberries, cotton, and wheat, or issue-based programs, such as fire ants, water quality, manure management, and nutrient management. As an example of a best practice, program-planning groups were used for needs identification, priority setting, and review of preproposals for federal formula funds.

Other universities touted their best practice as a diagnostic to discovery activity approach and research farms that were fully integrated Extension/research facilities. In one state, the Directors of AES and CES conducted regional listening sessions to understand how research and Extension could address issues facing agriculture. In some instances, Extension faculty were conducting applied research in conjunction with campus faculty. Other respondents commented that they were not interested in integration beyond AES and Extension agriculture, where integration makes sense.

Additional comments on enhancing collaborative efforts were provided. Some noted the lack of

understanding of the land-grant mission and the development of a more modern perspective of AES and CES. Implied in many comments was the need for increased communication between AES and CES, a respect for the missions of each entity, and a desire to work together.

### Funding Sources and Resource Issues

Seventy-seven percent of respondents indicated that CES faculty qualify for AES research funds. Respondents (60%) most frequently cited the College of Human Ecology as the recipient of AES/CES dollars allocated outside of the College of Agriculture (Table 6). A 1-5% allocation of AES dollars outside of the College of Agriculture was the most common response (27%) (Table 7). Respondents indicated that funds were typically allocated by the administrative head (either Dean of the College of Agriculture, AES Director, or unit leader). Funds also were allocated by faculty appointments at the time of hire, Hatch project designation, competitive proposals, departmental block grants, or a combination of these. One university provided funds to academic departments and other units based on research portfolio, level of activity, uniqueness of the unit, and project expense.

**Table 6.**  
Investment of AES/CES Outside of the College of Agriculture

Colleges	Frequency <sup>a</sup>	%
Human Ecology/Human Sciences	55	60
Veterinary Medicine	42	46
Arts and Sciences	33	36
Engineering	30	33
Education	24	26
Business	14	15
Medicine	12	13
Other	27	29
N=92 <sup>a</sup> Multiple responses were reported		

**Table 7.**  
Percent of Total AES Dollars Allocated Outside the College of Agriculture

Percentage	Frequency	%
≤ 5%	22	27
6-15%	12	15
16-30%	6	7
31-50%	4	5
51-70%	0	0
> 71%	4	5
Not in College of Agriculture	3	4

Don't know	14	17
Not applicable	16	20
N=81		

The amount of CES dollars allocated outside the College of Agriculture tended to be 1-10%, which was the response given by 23% of the participants in the study (Table 8). Respondents commented on the need to continue to integrate federal funds. One respondent suggested that the process for budgeting and research proposals become more open, because the current system tends to be closed. Staff members might have to be replaced before integration occurs. Another stated the current CSREES administrative and accounting system is an impediment to the collaborative process. One accountability system was recommended so that the faculty/agent could complete their program of work and report it once using the CRIS or EASE type system. Still another suggested that the new AREERA reporting guidelines are forcing greater accountability.

**Table 8.**  
Percent of CES dollars Allocated Outside the College of Agriculture

Percentage	Frequency	%
≤ 10%	18	23
11-30%	9	12
31-50%	7	9
51-70	3	4
71-90	6	8
> 91%	5	7
Not in College of Agriculture	2	3
Don't know	16	21
Not applicable	11	14
N=77		

### Establishing Current and Future Directions

Program development groups (62%) was the most common manner in which AES/CES faculty met the needs of clientele and determined future directions (Table 9).

**Table 9.**  
Ways in Which AES/CES Faculty Meet the Needs of Clientele and Determine Future Direction

Methods for Meeting Present and Future Needs	Frequency	%
Program development groups	55	62
Commodity exchange groups	18	20
Interaction with landowners	2	2
Interaction with legislators	2	2



Other	12	14
N=89		

## Summary of Comments from Executive Directors

The executive directors surveyed indicated that integration was a high priority. To achieve this goal, there must be an appreciation for and understanding of each other's mission and programs at the director level, which will result in "spill over" to the research scientist and Extension specialist. When carried to the regional and national level, appreciation and understanding fosters the establishment and perpetuation of joint programs and activities.

The directors commented on the movement towards collaboration as evidenced by:

- Joint meetings between AES and CES at regional and national levels,
- Combined efforts of the NASULGC Extension and Experiment Station Committees on Organization and Policy--Agricultural Biotechnology and Implementation Task Force and the Food Safety Subcommittee, and
- The use of multistate research funds (25% of Hatch) only for approved multistate projects

## Summary

Research and Extension are engaged in collaborative efforts throughout the land-grant system. Beyond joint appointments of AES and CES faculty, cohousing, and funding opportunities, there was no one best practice that pervaded the qualitative comments. Land-grant systems might use the suggestions provided by peers to enhance integrative efforts at their respective universities.

In summation:

- One third of the respondents indicated that they are using AES/CES teams to plan and implement projects.
- AES/CES funding tends to be concentrated in Colleges of Agriculture.
- Extension scientists are engaged in applied research
- Request for proposal strategies to stimulate joint AES/CES, multidisciplinary, and multi-university proposals appear to be justified.
- There is strong evidence of stakeholder input.
- Progress is being made in facilitating environments where discussion between Research and Extension scientists occurs at the departmental level.
- A best practice at one institution might not "fit" another.
- Many of the collaborative efforts were financed with seed money or through a competitive grant process.

## Limitations

The limitations of the study included the small sample size, the inability to quantify listserv participants, the inability to send follow-up responses to all nonrespondents, and timing of the study, which occurred in early May.

## Future Research

The above limitations should serve as a catalyst for follow-up studies. Future research might evaluate the integration of research and Extension from the research faculty and Extension specialist perspectives. An in-depth description of best practices in integration occurring throughout the land-grant system universities is needed. Identifying barriers to Extension and research linkages at the local, unit, and individual level might be yet another area to research.

## Acknowledgements

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