



**Revitalization of the College of ACES System of Field
Research and Education Centers
for the 21st Century**

Report of the University of Illinois, Urbana-Champaign

Provost's Task Force

November 1, 2006

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September 25, 2006

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CHARGE TO THE TASK FORCE

The Interim Provost and Vice Chancellor for Academic Affairs of the University of Illinois at Urbana-Champaign (UIUC) in spring 2006 formed a stakeholder task force charged with the review of the off-campus field research stations of the College of Agricultural, Consumer and Environmental Sciences (ACES). Task Force stakeholder members were selected to represent the broad scope of agricultural industries in Illinois. The Task Force was to review the portfolio of the ACES Field Research and Education Centers (FRECs) and to make recommendations concerning future needs.

The Task Force met four times during the summer of 2006, once in Urbana in May, once via teleconference in June, once again in Urbana in July, and once in Springfield in August. Background information was provided by the College and by the departments that have oversight of individual FRECs. These departments include Animal Sciences, Crop Sciences, and Natural Resources and Environmental Sciences, as well as the College of Veterinary Medicine through the Veterinary Programs in ACES. Background information provided for each FREC included descriptions of departmental research and educational programs conducted on site, productivity of those programs, management structure of each site, financial information about costs and funding, reductions in funding over the past five years, and projections of the future of the site under current funding models. The Task Force approached the charge with the intent of first understanding the current status of the FRECs, and then addressing how the FREC system might be revitalized and redesigned to accommodate future needs of the College and of the agricultural industries of Illinois. In reviewing the FRECs and arriving at final recommendations, the Task Force drew heavily on visions and proposed plans generated by the College units.

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EXECUTIVE SUMMARY

The Interim Provost and Vice Chancellor for Academic Affairs of the University of Illinois at Urbana-Champaign, in Spring 2006 formed a stakeholder task force charged with the review of off-campus field research stations of the College of Agricultural, Consumer and Environmental Sciences (ACES). Task Force stakeholder members were selected to represent the broad scope of agricultural industries in Illinois. The Task Force was to review the portfolio of the ACES Field Research and Education Centers (FRECs) and to make recommendations concerning future needs.

The Task Force met four times during the summer of 2006. Background information was provided to the Task Force by the College of ACES and by departments with oversight of individual FRECs, including Animal Sciences, Crop Sciences, Natural Resources and Environmental Sciences (NRES), and the College of Veterinary Medicine.

The mission of a Land-Grant University such as the University of Illinois is founded on the scholarly activities of teaching, research, and extension. The FREC system plays a crucial role in the success of achieving the full promise of the interlocking components of the University's Land-Grant mission. Many challenges faced by the agricultural community in Illinois have local or regional underpinnings that cannot fully be addressed in a laboratory on the Urbana-Champaign campus or at an individual farm facility such as the UIUC South Farms. University researchers must have access to research opportunities at multiple locations around the state in order to address these location- and region-defined issues. In addition to providing the physical facilities in which to conduct that research, the University of Illinois FRECs have the potential to offer exceptional value as points for education and engagement of the Illinois public, as well as for providing regional visibility of programs and local identity of the University of Illinois.

The realities of budget cuts have resulted in compromising the ability of the FREC system to meet the needs of the state of Illinois. In fact, continuation of recent and current eroding funding conditions has raised the serious expectation of withdrawal of some major programs in the FREC system and potential closing of select FREC sites. Concerns about the current conditions and structure of the FREC system led to the formation of the Task Force to review the FRECs. This report summarizes findings and recommendations of the Task Force.

The Task Force recognizes the importance of the FREC system to the University of Illinois and the College of ACES, as well as to serving the needs of the stakeholders of Illinois. The Task Force also recognizes that the current FREC system is not allowing the College to reach its goals, nor is it adequately serving the needs of the state of Illinois. The Task Force developed recommendations that would serve as a foundation for the reorganization and revitalization of the FREC system so that it will meet current and future needs. Several common themes were evident throughout the Task Force deliberations: a) that College units must develop sustainability models for each FREC before implementing any revitalization or restructuring plans, b) that the revitalized system of FRECs must provide world-class facilities for research, and c) that the educational and outreach value of the FREC system must be further enhanced. The Task Force considered sustainability to mean securing a long-term commitment for funds to insure that each FREC location can be maintained and operated, at minimum, in a status quo condition.

The Task Force made these specific **recommendations**:

- A) The Department of Crop Sciences should close the Monmouth and DeKalb (Shabbona) Crop Sciences Facilities and establish a new Northwestern Illinois Research and Education Center with good accessibility and linked to enhanced collaborations with other ACES units and other local and regional institutions.
- B) The Department of Crop Sciences should continue to operate and expand the Orr Research and Education Center as a part of the Crop Sciences system, and enhance collaborations with other ACES units and other local and regional institutions.
- C) The Department of Crop Sciences should close the Brownstown and Dixon Springs Crop Sciences Facilities and establish a new Southern Illinois FREC between Marion and Mt. Vernon. This new FREC should be linked with expanded interactions with other ACES units, Southern Illinois University, and other local and regional institutions. This plan must include a means for continuing some level of agronomic research at the Dixon Springs Agricultural Center to support special geographically significant needs.
- D) The Department of Natural Resources and Environmental Sciences should expand the St. Charles FREC program opportunities in horticulture and environmental research, outreach, and academic education, and link these expanded FREC programs with enhanced collaborations with other ACES units and other local and regional institutions.
- E) The Department of Natural Resources and Environmental Sciences is encouraged to fully study the opportunities for expansion and revitalization of its programs at Dixon Springs Agricultural Center and to come forward with a new plan for NRES programs at DSAC once the ongoing economic study is completed. This plan should be linked with expanded interactions with other ACES units, Southern Illinois University, and other local and regional institutions.
- F) The Department of Animal Sciences should not liquidate assets of animal programs at the Dixon Springs Agricultural Center or expand the Animal Sciences beef herd at the Orr Center.
- G) The animal programs at Dixon Springs Agricultural Center should be revitalized and consolidated by expanding the Animal Sciences beef herd, withdrawing or consolidating the College of Veterinary Medicine beef program into the Animal Sciences beef herd, expanding educational programs, renovating buildings, and withdrawing the College of Veterinary Medicine swine unit by the end of one year. The program should be linked with expanded interactions with other ACES units, Southern Illinois University, and other local and regional institutions.

Realization of the overall recommendations generated by the Task Force will result in a revitalized, restructured FREC system in which:

- 1) The recommended five off-campus FREC sites will be strategically located to provide the most effective venue for demonstrating new practices and products to today's farmers and their advisors in the region, and relatively easily accessible to the stakeholders served.
- 2) The FRECs, organized into a few key regional thrusts, will provide enhanced efficiency and a "critical mass" of effort within each region.
- 3) Implementation of the sustainability model for each FREC will provide facilities that have a) an adequate land base; b) buildings to meet the research needs; c) classroom facilities that contain start-of-the-art distance education equipment.
- 4) Implementation of the sustainability model for each FREC will provide adequate staff to allow each site to fully realize its potential for impacting Illinois agriculture through research, teaching, and outreach.
- 5) Programs at each FREC will be linked with enhanced interactions with other ACES units and other local and regional institutions.

INTRODUCTION

The mission of a Land-Grant university such as the University of Illinois is founded on the scholarly activities of teaching, research, and extension. Research is the generation of new knowledge and development of new technology. Extension is the transfer of that new knowledge and technology to the current generation of productive citizens of the state of Illinois. Teaching is the preparation of the next generation of leaders and citizens.

The strength and success of each component of the Land-Grant mission is predicated on the pursuit of excellence in the other two components. The faculty of the University of Illinois provide the manpower for achieving the University's Land-Grant mission. Most faculty members in the College of Agricultural, Consumer and Environmental Sciences (ACES) and the College of Veterinary Medicine (CVM) are directly involved in at least two of the Land-Grant missions, and many contribute directly and indirectly to the success of all three components.

The connections among the three missions are not unidirectional, with new knowledge directed only from research to citizens via extension or to students via teaching. Interactions of faculty members with citizens and students through the educational activities of the colleges also provide conduits for questions, concepts, and issues to flow back to the university and have a direct impact on research directions.

Many challenges faced by the agricultural community in Illinois have local or regional underpinnings that cannot fully be addressed in a laboratory on the Urbana-Champaign campus or at an individual farm facility such as the UIUC South Farms. Excellent examples can be seen in the importance of the different soil types in Illinois for raising crops. Each soil type and region requires specialized inputs and management to result in profitable outputs. Similarly, the evaluation of management practices for grass-fed beef cattle requires region-specific analysis.

To address these location- and region-defined issues, University researchers must have access to research opportunities at multiple locations around the state. The facilities operated by the University of Illinois for this purpose are the Field Research and Education Centers (FRECs). Descriptions of the current FREC sites under review by the Task Force are included in Appendix C.

In addition to providing the physical facilities—literally the field laboratories—in which to conduct research, the FRECs have the potential to offer exceptional value as points for education and engagement of the Illinois public, as well as for providing regional visibility of University of Illinois programs and local identity of the University of Illinois. All of the FRECs maintain ongoing educational programs through field days and other events where the public is invited to participate in programs on site. In many cases, these public engagement events form a primary link between the extensive activities conducted by faculty and staff of the University of Illinois and both the agricultural and nonagricultural communities of Illinois. In some areas of the state, the regional FREC is the public face of the University of Illinois, and it needs to reflect the pride and sophistication of the University as a world-class institution.

It is clear that the FREC system plays a crucial role in the success of achieving the full promise of the interlocking components of the University's Land-Grant mission. On-campus units that have direct responsibility for the FRECs fully understand the importance of the FREC system. Recent repeated rounds of cuts in state funding, the primary source of financial support for the FREC system, have forced the respective UIUC units to deemphasize the off-campus programs in order to maintain viability and impact of on-campus programs.

These units each have expended substantial effort to accommodate budget cuts while ensuring excellence of departmental programs overall (see Appendix C – Financial Model for FREC Activity). The realities of those cuts, however, have resulted in compromising the ability of the FREC system to meet the needs of the state of Illinois. In fact, continuation of recent and current eroding funding conditions has raised the serious expectation of withdrawal of some major programs in the FREC system and potential closing of select FREC sites.

The current conditions and structure of the FREC system led the College of ACES and the Provost of the University of Illinois at Urbana-Champaign, to form a task force of stakeholders from around the state to review the FREC system and make recommendations for revitalizing that system.

RECOMMENDATIONS

The Task Force recognized the importance of the FREC system to the University of Illinois and the College of ACES. The Task Force also recognized that the current FREC system was not allowing the College to reach its goals, nor was it adequately serving the needs of the state of Illinois. The Task Force developed recommendations that would serve as a foundation for the reorganization and revitalization of the FREC system so it will meet current and future needs. Several common themes were evident throughout the Task Force deliberations, including:

- a. College units must have in place a sustainability model, as defined below, for each FREC before pursuing any revitalization or restructuring plans.
- b. In order for the University of Illinois to address the agricultural needs of the state of Illinois and the nation as a whole, the revitalized system of FRECs must provide world-class facilities for research and educational activities.
- c. Plans for revitalizing or restructuring the FRECs must include means for enhancing their educational and outreach value and enhancing interactions with local or regional educational institutions.

The Task Force considered sustainability to mean securing a long-term commitment for funds to insure that each FREC location can be maintained and operated, at minimum, in a status quo condition. The sustainability model should include, but not be limited to, means for:

- Maintaining buildings and other fixed infrastructure in status quo condition (e.g. reinvesting, as needed and similar to what a conventional business would do to reinvest depreciation-type dollars, to maintain the capital [depreciable] assets, though it is realized that public assets do not have taxable depreciation rates), and updating facilities, as needed over time, to function and operate safely, efficiently, effectively, and in an

environmentally responsible manner. The infrastructure would include an adequate land base, buildings to meet research needs, and classroom facilities with start-of-the-art distance education equipment.

- Maintaining machinery and rolling stock in a status quo condition (e.g. spending annual operating dollars to maintain equipment at an efficient and effective level of operating condition).
- Maintaining personnel (numbers and level of competence) at a status quo level, including salaries, benefits, and other people-related costs.
- Maintaining funding for non-production operating costs (power, light, heat, etc.) to continue to execute each location's strategic mission.

Realization of the overall recommendations generated by the Task Force will result in a revitalized, restructured FREC system in which:

- 1) The recommended five off-campus FRECs will be strategically located to provide the most effective venues for demonstrating new practices and products to today's farmers and their advisors in the region, and they will be relatively easily accessible to the stakeholders served.
- 2) The FRECs, organized into a few key regional thrusts, will provide enhanced efficiency and a critical mass of effort within each region.
- 3) Implementation of the sustainability model for each FREC will provide facilities that have a) an adequate land base; b) buildings to meet the research needs; and c) classroom facilities that contain start-of-the-art distance education equipment.
- 4) Implementation of the sustainability model for each FREC will provide adequate staff to allow each site to fully realize its potential for impacting Illinois agriculture through research, teaching, and outreach.
- 5) The FRECs will provide a means for enhancing and expanding interactions with local and regional educational institutions.

Details of the proposed plans that form the basis for these recommendations are included in Appendix A. In addition, several alternative proposals were considered by the Task Force and deemed not acceptable for recommendation. These latter proposals are summarized in Appendix B.

Recommendation A: The Department of Crop Sciences should close the Monmouth and DeKalb (Shabbona) Crop Sciences Facilities and establish a new Northwestern Illinois Field Research and Education Center with good accessibility and linked to enhanced collaborations with other ACES units and other local and regional institutions.

- A1. The Task Force fully endorses the Department of Crop Sciences' plan (see Appendix A) and recommends that Crop Sciences close the Monmouth and DeKalb (Shabbona) FRECs and establish a new Northwestern Illinois FREC.
- A2. A detailed sustainability model must be developed for the Crop Sciences' plan before implementation of the plan to close current FRECs or establish a new FREC.
- A3. Programmatic development for the new FREC should be linked with enhancing and expanding interactions with other ACES units and local and regional educational institutions.

Recommendation B: The Department of Crop Sciences should continue to operate and expand the Orr Research and Education Center as a part of the Crop Sciences system and enhance collaborations with other ACES units and other local and regional institutions.

- B1. The Task Force endorses the extended proposed plan by Crop Sciences for the Orr FREC (see Appendix A) and recommends that the plan be implemented.
- B2. A detailed sustainability model must be developed for the planned expansion of the Orr FREC before implementation of the plan.
- B3. Programmatic development for this FREC should be linked with enhancing and expanding interactions with other ACES units and local and regional educational institutions.

Recommendation C: The Department of Crop Sciences should close the Brownstown and Dixon Springs Crop Sciences Facilities and establish a new Southern Illinois FREC between Marion and Mt. Vernon. This new FREC should be linked with expanded interactions with other ACES units, Southern Illinois University, and other local and regional institutions. This plan must include a means for continuing some level of agronomic research at the Dixon Springs Agricultural Center to support special geographically significant needs.

- C1. The Task Force supports the vision of the Crop Sciences' plan (see Appendix A) and recommends that Crop Sciences close the Brownstown FREC and withdraw from the Dixon Springs Agricultural Center in order to establish a new Southern Illinois FREC between Marion and Mt. Vernon.
- C2. A detailed sustainability model must be developed for the Crop Sciences' plan before implementation of the plan to close current FRECs or establish a new FREC.
- C3. The Task Force recommends that Crop Sciences submit a plan to the Dean of ACES for continuing some level of agronomic research at the Dixon Springs Agricultural Center to support special geographically significant needs.

- C4. Programmatic development for the new FREC should be linked with enhancing and expanding interactions with other ACES units, Southern Illinois University, and other local and regional institutions.

Recommendation D: The Department of Natural Resources and Environmental Sciences should expand the St. Charles FREC program opportunities in horticulture and environmental research, outreach, and academic education and link these expanded FREC programs with enhanced collaborations with other ACES units and other local and regional institutions.

- D1. The Task Force fully supports the overall vision of expansion of programs at the St. Charles FREC to support NRES research, education, and outreach objectives and develop an urban showplace for demonstrating the relevance of education and research for the 21st century.
- D2. The College and NRES are encouraged to vigorously pursue all collaborations indicated in the extended proposed plan (see Appendix A), including expansion and enhancement of interactions with other ACES units and local and regional educational institutions.
- D3. The College and NRES are strongly encouraged to pursue discussions with the Illinois Department of Corrections to determine the long-term availability of the St. Charles FREC site before pursuing expansion.
- D4. A detailed sustainability model must be developed for the St. Charles FREC before implementation of the expansion plan.

Recommendation E: The Department of Natural Resources and Environmental Sciences is encouraged to fully study the opportunities for expansion and revitalization of its programs at Dixon Springs Agricultural Center and to come forward with a new plan for NRES programs at DSAC once the ongoing economic study is completed. This plan should be linked with expanded interactions with other ACES units, Southern Illinois University, and other local and regional institutions.

- E1. The current NRES programs should be maintained at DSAC until the study is completed.
- E2. At the completion of the study, NRES should come to the Dean of ACES with a plan for expansion and revitalization. A detailed sustainability model must be developed for the planned expansion of the NRES programs at the FREC before implementation of the plan.
- E3. Programmatic development for this FREC should be linked with enhancing and expanding interactions with other ACES units, Southern Illinois University, and other local and regional institutions (see Appendix A).

Recommendation F: The Department of Animal Sciences should not liquidate assets of animal programs at the Dixon Springs Agricultural Center or expand the Animal Sciences beef herd at the Orr Center.

- F1. The Task Force recommended maintaining the current Animal Sciences beef cattle research, education, and outreach programs at the Orr Center as a key part of the College's FREC system (see Appendix B).

Recommendation G: The animal programs at Dixon Springs Agricultural Center should be revitalized and consolidated by expanding the Animal Sciences beef herd, withdrawing or consolidating the College of Veterinary Medicine beef program into the Animal Sciences beef herd, expanding educational programs, renovating buildings, and withdrawing the College of Veterinary Medicine swine unit by the end of one year. The program should be linked with expanded interactions with other ACES units, Southern Illinois University, and other local and regional institutions.

- G1. The Task Force recommends that the Animal Sciences program at Dixon Springs Agricultural Center be expanded as indicated in the extended proposed plan (see Appendix A).
- G2. The Task Force recommends that the Veterinary Medicine beef program be withdrawn from Dixon Springs Agricultural Center or consolidated into the Animal Sciences beef herd.
- G3. The Task Force recommends that the swine unit be maintained for up to one year to complete the current economic study and then be closed at the end of that year, regardless of the outcome of the study.
- G4. A detailed sustainability model must be developed for the Animal Sciences plan before implementation of the plan to expand the beef herd and educational programs.
- G5. Programmatic development for this FREC should be linked with enhancing and expanding interactions with other ACES units, Southern Illinois University, and other local and regional institutions.

APPENDIX A

ELABORATION AND DISCUSSION OF FREC PROPOSED PLANS

This appendix gives further details on the proposed plans used by the Task Force to make recommendations.

Recommendations A, B, and C

CROP SCIENCES FIELD RESEARCH AND EDUCATION CENTERS

Introduction

The FRECs are essential to the Department of Crop Sciences' ability to attain its goals. Much of the research conducted in the Department goes from basic discovery in a laboratory to early phase development under field conditions at a single site to field evaluations under multiple systems and environmental situations before being released as findings and recommendations. The availability of off-campus field stations allows scientists to carry out this final phase of the discovery process under a wide range of environmental and cropping system conditions. Strategically located off-campus field stations provide venues for demonstrating new practices and products to farmers and their advisors in the region in settings similar in conditions to those used by commercial farming operations. Geographically distributed Centers have allowed scientists to observe the natural movement and establishments of pests. Examples include the westward movement of the rootworm variant, the seasonal movement of soybean aphid, and an increase in soybean cyst nematode pressure from southern to northern Illinois over time. There are many ways in which a large, diverse state such as Illinois could be divided into zones for the purpose of locating field crop research programs that have relevance for the soils and climate of that zone. While we recognize the drawbacks of dispersing the crops research efforts into relatively few zones (and thus a considerable average distance from people and fields within each zone to the place where research is conducted), we also consider the benefits to be gained from concentrating the research efforts into relatively few regional thrusts, with the resultant efficiency and "critical mass" of effort within each region.

The Department of Crop Sciences would like to build world-class research facilities at all off-campus Centers. These facilities should be the window to the Department and the University of Illinois for those involved in crop production as well as the general public. Ideally, each of these Centers should be staffed with at least one research agronomist and one or more regional extension field staff. With improved facilities, more campus-based scientists will utilize the system more fully and thus create even more new scientific information. Outreach activities (extension) will be improved with improved facilities and with increased proximity to applied research.

The Centers have, with the exception of salaries of most of the full-time staff, been operated using funds generated by crop sales and the fees assessed to research projects for use of land.

These000000 funds, which currently average only about \$25,000 for each of the off-campus Centers, are barely adequate to maintain equipment and operate the Centers; there is little or no funding available for the purchase of equipment. As a result, equipment is aging at all of the Centers, meaning not only more expensive and more frequent maintenance (and untimely breakdowns during critical field operations), but also the increasing use of equipment that is outdated, and which might produce results in certain types of study (e.g., tillage) that are irrelevant to farmers who use modern equipment. We estimate that the current operating budget would need to increase sustainability to provide even good-quality used equipment adequate to run the Centers as they should be run. As recommended by an outside review panel convened in 1998 to examine the planned revitalization of the South Farms area near the Urbana campus, this funding should be not solely from operations, but must be stabilized and provided from recurring sources for the long-term health and vitality of the system. The FRECs, which are outdoor field laboratories, merit such stable, recurring operating funds just as those provided for indoor laboratories in campus buildings.

In summary, the off-campus Crop Sciences FRECs could, with adequate funding, with improved buildings and additional land, and with steps taken to make them into locations from which extension field staff would work, become premier Centers of excellence in the production and dissemination of research-based crop production and protection information. Not making these changes will result in the FRECs' becoming increasingly invisible to crop producers and agribusiness persons who could benefit greatly from viable research and educational efforts. The long-term sustainability and global competitiveness of Illinois agriculture is inextricably linked to the future success of these Centers.

The ability to maintain high levels of productivity at the outlying FRECs will be challenged in the future if the current rate of deterioration of support for these facilities continues. Establishment and maintenance of facilities comparable to those in neighboring states will require an infusion of new funds, a restructuring of current operations, or a combination of the two options. To that end, the following proposals are provided as an option for consideration as part of the solution. Even with the drastic consolidations proposed, a mechanism must be created to fund long-term operation and maintenance.

NORTHWESTERN ILLINOIS RESEARCH AND EDUCATION CENTER

Recommendation A: The Department of Crop Sciences should close the Monmouth and DeKalb (Shabbona) Crop Sciences Facilities and establish a new Northwestern Illinois Field Research and Education Center with good accessibility and linked to enhanced collaborations with other ACES units and other local and regional institutions.

Background: The major soil groups west of the Illinois River include the Tama-Muscatine-Sable association (4.6% of state land area) and, to some extent, the Fayette-Rozetta-Stronghurst association (6.3% of state land area). The Northwestern Illinois Agricultural Research and Education Center was established in 1980 to represent this highly productive group of soils. There are 160 acres at this Center, 118 crop acres, and 85 acres suitable for research. The Center has equipment storage, but office and laboratory space is inadequate, and there are no indoor

meeting facilities at all. There is essentially no suitable space for group meetings, though a metal machine shed can be used when the temperatures are moderate and it's not raining hard enough on the metal roof to disrupt hearing. The land area for research is inadequate.

The northern region of Illinois consists mostly of productive soils formed in loess—silty, wind-deposited parent material—over glacial outwash or glacial till. The soils north of Interstate 80 and west of the Chicago–Joliet area are generally quite productive. The Northern Illinois Agronomy Research Center, established in 1948 near Shabbona in DeKalb County, represents these soils. Soil types are primarily in the Catlin-Drummer-Flanagan soil association, representing some 2.1 million acres, or about 5.9% of the state's land area. There is a total of 160 acres, with net research plot area of 107 acres. The Center has inadequate buildings and the quality of space is generally poor, but unlike other Centers it does have a small meeting room.

The portion of northeastern Illinois included in this region has wide variations in soils, many of them subject to wetness. The largest of the soil associations of this area are the quite productive Plano-Proctor-Worthen (5.2% of state's land area) and Varna-Elliott-Ashkum (2.7% of state's land area), which tends to be wet. Until the mid-1980s, Crop Sciences operated a REC representative of these soils near Elwood.

Source of funds: A land trade of the existing facilities at Monmouth and DeKalb will provide adequate funding to purchase the new farm that contains the physical facilities necessary for offices, machinery storage, meeting rooms, and laboratories. A recurring budget equivalent to 2007 dollars plus the funds generated with crop sales and user fees will be needed.

Size of facility:

Land area—480 acres

Office, laboratory, meeting facility—6,000 square feet

Machinery storage and shop—9,000 square feet

Grain storage—40,000 bushels

Pesticide storage and handling—2,800 square feet

Advantages: Establishment of a modern facility that is well equipped and funded to allow research to be conducted with equipment and conditions similar to those used by area farmers. Easily accessible by clientele of the area, including producers, consultants, elementary and secondary students, and community college students and faculty. Improved efficiency of operations and reduced labor cost.

Disadvantages: Reduction of environments to evaluate products and practices. While the difference in average temperature between the proposed location and current facilities is small, the existing locations are about 150 miles apart, and moving to a single location will lessen the ability to monitor changes in pest infestations and to experience a range of weather conditions. Longer travel time for some clientele of current Centers.

WESTERN ILLINOIS RESEARCH AND EDUCATION CENTER

Recommendation B: The Department of Crop Sciences should continue to operate and expand the Orr Research and Education Center as part of the Crop Sciences system and enhance collaborations with other ACES units and other local and regional institutions.

Background: The Orr Center at Perry is associated with the extensive Clinton-Keomah-Rushville soil association, which occupies 7.9% of the state's land area. These soils were developed in deep loess (>60 inches) under forest vegetation. They respond well to management, although uses for row crops are limited on steep slopes. This Center was established in 1978; about 120 acres are suitable for crop production and about 70 for research. Adjoining is a University of Illinois animal science (beef) research facility, and the Center is co-located with the agriculture campus of the John Wood Community College (JWCC), with meeting rooms, office, and shop space provided by JWCC in exchange for the initial provision of land by the U of I. For the past several years, Crop Sciences has operated its portion of the Orr facility with only one full-time employee.

If the Monmouth facility is closed, there will likely be enhanced research activity by faculty at the Orr Center, as that will be the only research facility available to measure the impact of the western Illinois environment. Similarly, with the closure of the Crop Sciences' Dixon Springs facility (Recommendation C), there will be no research conducted on rolling land other than that at the Orr Center.

Source of funds: A recurring budget equivalent to 2007 dollars plus funds generated with crop sales and user fees will be needed.

Facilities upgrade

60 acres of additional land

Machinery storage—6,000 square feet

Grain storage—15,000 bushels

SOUTHERN ILLINOIS RESEARCH AND EDUCATION CENTER

Recommendation C: The Department of Crop Sciences should close the Brownstown and Dixon Springs Crop Sciences Facilities and establish a new Southern Illinois FREC between Marion and Mt. Vernon. This new FREC should be linked with expanded interactions with other ACES units, Southern Illinois University, and other local and regional institutions. This plan must include a means for continuing some level of agronomic research at the Dixon Springs Agricultural Center to support special geographically significant needs.

Background: Much of the area of Illinois south of Interstate 70 is characterized by soils with moderate to serious restrictions to productivity. This part of the state also has somewhat different climatic characteristics than the rest of the state, with milder winters, more rainfall, and higher summer humidity and temperatures. Though much of this area has soils with similar characteristics, the two existing FRECs in the region do not particularly well represent these

major soils. The Brownstown Agronomy Research Center, near I-70, is in the northern edge of this region. It was established in 1937 to help develop agriculture in what was, due primarily to soil-related problems, an area of very low productivity. Soils are primarily of the Hoyleton-Cisne-Huey association, found on 4.2% of the state's land area. These soils have a relatively light surface texture and a natural claypan, which acts to restrict root growth, resulting in propensity to drought. The soils at Brownstown are even less productive than most in this important soil series. There are a total of about 180 acres, 160 owned by the University of Illinois and 20 leased, with a net research area of about 120 acres. Office space is minimal and of low quality, there is no usable laboratory space, and there is no suitable space for indoor meetings.

The Dixon Springs Agricultural Center (DSAC) was established in 1934. Soil types are of the Grantsburg-Zanesville-Wellston soil association (1.1% of state's land area), with some Sharon, Bonnie, and Belknap soils in the river bottoms. Important emphases during the past 60 years have included the initiation and demonstration of no-till crop production by Prof. George McKibben during the 1950s and 1960s. While Crop Sciences currently controls about 750 acres of land, most of the land is owned by the U.S. Forest Service, and pesticide restrictions prohibit many crop research activities, including past and potential long-term studies. Some 180 acres of private land are leased to meet the need for research land on which pesticides can be used. Much of the physical plant is quite old, and storage and maintenance facilities are marginal. There is some laboratory space that originally accommodated forage utilization research, but it is outmoded and not equipped with adequate safety features, and so is not usable as a laboratory at present. Offices are adequate, but they are located in the headquarters building, about a mile from the equipment storage and maintenance buildings and nearly 10 miles from plot areas under lease. The DSAC includes, in addition to Crop Sciences, research and outreach operations of the Department of Natural Resources and Environmental Sciences, the Department of Animal Sciences, and the College of Veterinary Medicine.

The Ava-Bluford-Wynoose association (6.7% of the state's land area) occurs in the central part of southern Illinois. The major problems with these soils are erosion on sloping land, clayey subsoils on level land, low fertility, and low organic matter in the surface soil layer. There are at present no U of I crops research facilities representing this important group of soils.

Source of funds: A land trade of the existing facility at Brownstown along with the trade of University-owned land in northern Illinois will provide adequate funding to purchase the new farm that contains the physical facilities necessary for offices, machinery storage, meeting rooms, and laboratories as described in the earlier document *Crop Sciences Research and Education Centers: Vision of the Future*. A recurring budget equivalent to 2007 dollars plus the funds generated with crop sales and user fees will be needed.

Size of facility:

Land area—640 acres

Office, laboratory, meeting facility—6,000 square feet

Machinery storage and shop—9,000 square feet

Grain storage—40,000 bushels

Pesticide storage and handling—2,800 square feet

Advantages: Establishment of a facility that more adequately represents the soils of southern Illinois and that will be equipped and funded to allow the research to be conducted with equipment and conditions similar to those used by farmers of the area. The new facility will result in improved efficiency of operation and consequently reduced labor cost. The facility will be easily accessible by clientele of the area, including producers, consultants, elementary and secondary students, community college students and faculty, and Southern Illinois University students and faculty. Cooperative research with faculty from Southern Illinois University will be strongly encouraged. The Department of Crop Sciences will cooperate with the Department of Natural Resources and Environmental Sciences on fruit and vegetable research at the facility.

Disadvantages: Reduction of environments to evaluate products and practices. Longer travel time for some clientele.

Recommendations D and E

NATURAL RESOURCES AND ENVIRONMENTAL SCIENCES FIELD RESEARCH AND EDUCATION CENTERS

The Department of Natural Resources and Environmental Sciences envisions a system of FRECs that represents the urban-to-rural gradient of Illinois. This system would be structured around a north-south transect stretching from Chicago to Dixon Springs. The system would include 1) a fully developed FREC at St. Charles, representing the urban environment, 2) the research and education facilities of the Urbana campus, representing a more agricultural environment, and 3) the NRES facilities and programs at the Dixon Springs Agricultural Center, representing an alternative agricultural environment, as well as a rich natural resources environment. The visions for the north and south components of this FREC system are described below.

Future visions for NRES at the St. Charles FREC

Recommendation D: The Department of Natural Resources and Environmental Sciences should expand the St. Charles FREC program opportunities in horticulture and environmental research, outreach, and academic education and link these expanded FREC programs with enhanced collaborations with other ACES units and other local and regional institutions.

Overview: As the northern and urban component in the NRES field station network, the St. Charles FREC site offers unique and important opportunities for horticulture and environmental research, outreach, and academic education. The FREC's history and visibility make it ideal as a showplace for demonstrating the critical relevance of the Land-Grant model of education and research for the 21st century.

The development must be done through a combination of capital projects and programmatic development. A sustainable financial management model must be developed and implemented as well, to assure that the strategic investments of time, energy, and resources at this point are supported into the future.

Design of station: Thanks to strong stakeholder support, NRES is in the middle stages of designing a state-of-the-art field research and education center at St. Charles, based on the additional land NRES has secured through lease and the results of two brainstorming exercises.

With this experience as a base, NRES is moving forward with a formal design. One of the largest commercial landscape companies in the U.S. is interested in supporting and facilitating this design project and in landscaping a portion of the site as a demonstration garden. This area could also be used as a site for hands-on training related to landscape design, installation, and maintenance as part of the Department's Chicago horticultural degree.

Capital: Capital buildings and land requirements include a) a greenhouse space of 20,000 square feet for demonstration and research; b) a three-story "green" building and grounds (rooftop gardens, storm water pond, windmill, and solar arrays, with a high-speed link to campus computers and classrooms), and c) educational field sites for hands-on courses in landscape and nursery plant production, vegetable and fruit production, composting, storm water management, recreation field management, and similar topics.

Programs: While NRES should lead development at St. Charles, there are numerous opportunities for other units on campus, both in ACES and in other colleges, to participate in research and extension. Potential collaborators include Food Science and Human Nutrition, Animal Sciences, Human and Community Development, Agriculture and Consumer Economics, Recreation/Sports/Tourism, Kinesiology, Veterinary Medicine, Landscape Architecture, Urban and Regional Planning, and Civil and Environmental Engineering. NRES has had discussions with members of all of these units about joint, interdisciplinary research and education programs at urban locations like St. Charles.

Education: One important recent development is the approval of an NRES Chicago horticultural B.S. degree-completion program. Courses in all aspects of horticulture will be offered. This program provides an opportunity to hire staff with teaching-extension appointments that can serve both functions in the Chicago area, as well as applied research.

Demonstration/extension: An extensive demonstration garden is proposed that would be developed and maintained by industry. For example, one of the country's largest commercial landscaping companies is interested in supporting design of the entire site, construction of a specific memorial acreage, and long-term site maintenance. The site could likewise provide an ideal location for education and research related to humans and companion animals. Discussions with Animal Sciences and Veterinary Medicine staff suggest there is interest in extension outreach. The large population of interested clientele in the area could provide rich research populations as well.

Research: The recent discovery of the emerald ash borer in Illinois (with the first sighting a few miles north of St. Charles) is just one example of the problems faced in dynamic suburban landscapes that this FREC could help solve through research and extension. Food systems, water management and water quality, urban pest and wildlife management (enhancement or control), resolution of urban-rural conflicts, energy efficiency and production, companion animal

research, community–environment issues, economic development, and land use are all areas of potential research. The research should be done in collaboration with experts from departments across ACES and the campus.

Budget requirements and potential funding

Superintendent: This position is critical to the success of the station.

Agricultural gardeners: In addition to the current position, two more agricultural gardeners are needed to assure that the grounds can be developed and maintained appropriately and that research projects and field teaching programs can be supported in a timely and high- quality fashion.

Enhanced green industry presence: At least two teaching–extension positions in the green industry. Teaching would include courses in the Chicago horticulture program. Extension specialization would include plant production and landscape installation and management.

Specialty food systems at the urban fringe: One position in teaching–extension, perhaps vegetable and fruit crop production and enterprise development and management.

Horticultural business position: A teaching–extension position to work with horticultural entrepreneurs in developing successful businesses in horticulture at the rural–urban fringe.

Basic clerical: Support for the academic professional and professorial research staff—one full-time clerical staff, three full-time agricultural gardeners.

Approximate total budget needs: capital—building and grounds; annual salaries; supplies and expenses.

Potential funding sources: tuition for teaching courses; state funding for extension and research specialists; industry annual support; miscellaneous private and foundation annual support; endowments for long-term stability.

Advantages:

- Capitalizing on ongoing planning of facility with stakeholders.
- Potential collaborations with a range of UIUC units.
- Linkage with Chicago horticulture B.S. degree program.
- Extensive demonstration garden developed and maintained by industry.
- Ideal location for education and research related to humans and companion animals.

Disadvantages:

- Substantial additional investment.

Future visions for NRES Dixon Springs Agriculture Center

Recommendation E: The Department of Natural Resources and Environmental Sciences is encouraged to fully study the opportunities for expansion and revitalization of its programs at Dixon Springs Agricultural Center and to come forward with a new plan for NRES programs at DSAC once the ongoing economic study is completed. This plan should be linked with expanded interactions with other ACES units, Southern Illinois University, and other local and regional institutions.

A number of opportunities have been identified for productive collaboration in teaching, research, and extension between UIUC and Southern Illinois University.

Forestry and wildlife

Timber management research: The Illinois Department of Natural Resources, Southern Illinois University, and the U of I Forest Resource Center have four one-acre plots being studied for oak–hickory regeneration using timber stand improvement and burning.

Watershed management and planning (with the Department of Agricultural and Biological Engineering): There are remains of five water runoff sheds, two at the base of pine plantings and two in a hardwood forest. Southern Illinois University would be approached to determine if their faculty who work in watershed management are interested in following up on the earlier studies.

Fire management research: Charles Rufner is in charge of Southern Illinois University’s “Fire Dawgs,” who are participating in fire management projects on DSAC.

Operations base for summer camp program: DSAC would be an excellent facility for summer camp, with a dormitory that sleeps 17, one house that sleeps 11, and a second house that sleeps 15. All accommodations are furnished and have kitchens. A classroom seats 30 with table and chairs.

At DSAC there are lakes, ponds, forests, fields, and archeology sites within short distances of the center. Ties exist with the U.S. Forest Service, the Illinois Department of Natural Resources, the Soil Water and Conservation District, the USDA Natural Resources Conservation Service, and other natural resources professionals for hands-on lecturers.

Outdoor learning lab for forest resource and recreation courses: DSAC is only a short distance from Lake Glendale, Millstone Bluff, Sugar Creek watershed, Dixon Springs State Park, and Ohio River recreation areas, to name just a few.

Continuing education practicum for park management and natural resource interpretation: See above.

More active participation in spring Forest Stewardship Days: Any natural resource professional would be welcome to have a station during Stewardship Week on his or her expertise.

Plant, Soil, and Agricultural Systems

Soil fertility and nutrient management research:

Soil-water conservation research—UIUC has long-term tillage trials with soil science faculty at Southern Illinois University.

Plant protection: diseases, insects, and weeds.

Fruit and vegetable production research: grapes, variety and pruning trials. Vegetable variety trials in conventional production, intense integrated production systems management, and organic agriculture systems.

Other possible collaborations:

Agricultural and resource economics

Rural development

Alternative rural-based energy sources

Watershed management and planning (with Forestry)

Ecosystem services from working agricultural landscapes

Non-market valuation of ecosystem services

Multi-functionality of agricultural and rural lands

Sourcing of inputs for bioenergy production

Environmental and market consequences of agricultural intensification to meet demands for ethanol production

Animal Sciences, Food and Nutrition -

Forage-finished beef program

Fescue toxicity research

Forage nutrition research

Evaluation of swine production systems (outdoor vs. indoor)

Beef and swine teaching/outreach

Recommendations F and G

DEPARTMENT OF ANIMAL SCIENCES AND VETERINARY MEDICINE PROGRAMS
IN ACES

Introduction

1) The sustainability of the FREC system is inevitably dependent upon establishment of a new paradigm for funding. Available funding for applied research is limited. Funds obtained through USDA competitive and state-appropriated programs such as CFAR do not allow full recovery of indirect costs required to maintain critical infrastructure. Recurrent funding must provide, at the very least, a baseline to support educational programs and infrastructure to support research operations and maintenance. Without a long-term commitment to continued funding for future centers and programmatic activities, efforts to streamline, consolidate, or otherwise restructure the centers are futile, only delaying their inevitable demise. With the assumption that a recurrent funding scheme can be devised, the following describes the proposed plans from the Department of Animal Sciences and College of Veterinary Medicine Veterinary Programs in ACES to address scenarios 5 and 7 from the July 14, 2006, meeting of the FREC Task Force.

2) Consolidation of research and educational activities of the Department of Animal Sciences and College of Veterinary Medicine Veterinary Programs in ACES is both feasible and logical. In the scenarios described for Recommendations F and G, the Department of Animal Sciences

will be the lead academic unit responsible for coordinating the research and educational programs and for managing their operational aspects.

Recommendation F: The Department of Animal Sciences should not liquidate assets of animal programs at the Dixon Springs Agricultural Center, nor expand the Animal Sciences beef herd at the Orr Center.

The Task Force rejected a proposal to centralize the beef programs at Urbana and the Orr Center and to close the respective programs at Dixon Springs Agricultural Center. See Appendix B (“Proposals Considered and Not Recommended”) for a summary of the plan as reference information.

Recommendation G: The animal programs at Dixon Springs Agricultural Center should be revitalized and consolidated by expanding the Animal Sciences beef herd, withdrawing or consolidating the College of Veterinary Medicine beef program into the Animal Sciences beef herd, expanding educational programs, renovating buildings, and withdrawing the College of Veterinary Medicine swine unit by the end of one year. The program should be linked with expanded interactions with other ACES units, Southern Illinois University, and other local and regional institutions.

Timeline and Approach

1) The Department of Animal Sciences will manage and operate an expanded herd of approximately 900 cows at DSAC. Expansion would occur over two years, with the number of animals increased to 700 by the end of FY08 and 900 by the end of FY09. Animals will be procured through purchase of animals from the College of Veterinary Medicine herd and other sources. Veterinary Medicine will reallocate the nonrecurring assets from sale of cattle and equipment to expand facilities and capabilities at the Veterinary Medicine Research Farm in Urbana. State-supported salary lines for the civil service employees in Veterinary Programs in ACES will be moved by the College of ACES to support Animal Sciences programs at Dixon Springs or joint activities within College of Veterinary Medicine Veterinary Programs in ACES. The College of Veterinary Medicine position of veterinary clinical assistant professor will be used to continue veterinary programs moving to the College of Veterinary Medicine in Urbana. Buildings would be transferred to the College of ACES for use by the expanded Animal Sciences cattle programs or joint educational or research programs within Veterinary Programs in ACES.

2) The outdoor hog unit is self-sufficient at this time due to favorable hog prices. An experiment will be initiated this fall to determine whether the recent increase in consumer demand for certified humane, “free-range” pork can offset the losses from antibiotic withdrawal. We hypothesize that a high-health outdoor operation will not suffer as much as pigs in a confinement environment. If this turns out to be true, more research will need to be done. If hogs can be raised at DSAC in an outdoor, natural way without the use of antibiotics, producers can be taught to do the same and perhaps fill a niche market, garnering larger profits for hog farmers in the area and improving the local economy.

The Task Force recommends that the swine unit be maintained for up to one year to complete the current economic study, and then be closed at the end of that year, regardless of the outcome of the study. If the research results demonstrate an economic advantage for outdoor swine rearing, then Veterinary Medicine should pursue other options to continue that research and not continue at DSAC. The College of Veterinary Medicine will reallocate the nonrecurring assets from sale of pigs and equipment to support expanded facilities and capabilities at the Veterinary Medicine Research Farm in Urbana.

3) The role of the academic professional manager of the DSAC Animal Sciences beef herd would be immediately expanded and redefined to include responsibilities for developing and coordinating educational opportunities with area community colleges and Southern Illinois University. The academic professional would also coordinate opportunities for students with the beef industry and private veterinary professionals in southern Illinois. The Department of Animal Sciences and Veterinary Programs in ACES will continue to conduct field day programs.

4) Full-time employment opportunities would be expanded to include six salaried herder/farmer positions in the fall of 2007 (FY08). These additional positions are needed to compensate for the altered priorities of the academic professional toward coordinating educational programming and away from daily hands-on operational tasks. Two additional staff positions would be required in FY09 to support the expanded research and educational programs.

5) One-time allocations for building refurbishment will be needed. The calving barns, the horse barn, the associated cattle handling equipment, and lots will be repaired and upgraded to accommodate the increased activity in these locations. Facilities currently used for the cow-calf herd in College of Veterinary Medicine Veterinary Programs in ACES will be reallocated to be managed and operated by the Department of Animal Sciences. Feedlot trials will no longer be conducted at the Boaz feeding floor, as it is not economically feasible to upgrade these facilities to meet the current regulatory requirements for animal care. Usable equipment will be relocated to the calving barn area or to pasture handling locations as needed. The Robbs barns and lots will be improved to allow housing of weaned calves but will no longer be used for feedlot trials.

6) Area businesses will be engaged in contractual arrangements for providing services such as construction and maintenance of buildings and fences. The recurring maintenance funds for these activities will encourage economic stability in the area.

Opportunities and Impact

1) Feedlot calves from the DSAC fall-calving herd will be relocated to the Urbana beef unit for research trials conducted in spring through summer, when feedlot calves are not as readily available from commercial spring-calving operations. The availability of DSAC feedlot calves would improve the efficient use of the Urbana confinement barns by providing a more continual flow of growing cattle throughout the year.

2) Undergraduates from Animal Sciences, Southern Illinois University and area community colleges, and veterinary students interested in continuing experiential learning opportunities will benefit from new practical externships at DSAC, designed to include paid stipends over a full

semester. The available residences and dormitory at DSAC could provide living accommodations for extern students.

3) Workshops and short courses will be developed that address current student and industry training needs such as husbandry and reproductive management courses, large animal veterinary medicine, and animal evaluation workshops. Funding will be necessary for students and for faculty summer salary for their participation.

Needed Resources

1) One-time appropriation to repair and improve facilities in order to meet guidelines for animal care and to accommodate the increased activities of the expanded herd. Contractual agreements with area construction and service providers will be included.

2) A recurring salary line for the academic professional position in the Department of Animal Sciences with a research–teaching–extension appointment. Salary is indexed to increase by 3% annually.

3) Recurring salaries for six staff lines in FY08, with two staff lines added in FY09. Staff members hold herder or farmer classifications. Salaries are indexed to increase by 3% annually.

4) Recurring operation and maintenance budget will include service and maintenance contracts with area businesses.

5) Recurring budget annually to support instructional and outreach programming, including student externships and subsidies for husbandry and reproductive courses and animal evaluation workshops.

Advantages

- Greater integration of teaching, research, and outreach programs in southern Illinois.
- Opportunity to capture increased efficiencies through economies of scale.
- Enhanced coordination of animal movement between DSAC and Urbana.
- Enhancement of experiential learning opportunities for UIUC undergraduate, graduate, and professional programs, as well as for Southern Illinois University and area community colleges.
- Development of workshops and short courses.

Disadvantages

- Substantial further state investment.
- Swine farm issue remains temporarily unresolved.

APPENDIX B

PROPOSALS CONSIDERED AND NOT RECOMMENDED

The Task Force discussed a range of potential plans and scenarios for restructuring and revitalizing the FREC system that were not included in the final recommendations. These are summarized below.

1. **Closing all FREC and relocating resources to Urbana South Farms** was briefly discussed, but quickly discounted. The Task Force recognized the fundamental importance of the FREC system to the research and education missions of the College.

2. The concept of **conducting research on privately owned farm facilities** was discussed. Several departments already use this method to enhance research programs. However, the significant limitations placed on research on privately owned facilities make this an ancillary research approach that does not diminish the need for the FREC system directly under the College's control. This alternative to maintaining a viable FREC system was not further pursued.

3. The **Department of Natural Resources and Environmental Sciences** was asked to consider whether to utilize the DeKalb (Shabbona) site to complement their expansion plans at the St. Charles FREC if Crop Sciences withdrew from the Shabbona site. However, the land at the Shabbona FREC is expected to be used in securing land necessary for Crop Sciences to develop the Northwestern Center (see Recommendation A). In addition, NRES does not consider the Shabbona site to enter into the proposed expansion plans for the St. Charles FREC (see Recommendation D). The proposed scenario was not considered further.

4. **Animal Sciences and Veterinary Medicine** were charged with developing a detailed plan for centralizing the beef programs at Urbana and the Orr Center and closing their respective programs at Dixon Springs Agricultural Center. In discussions of all the proposed plan scenarios, this plan was rejected (see Recommendation F) in favor of Recommendation G—expansion of the Animal Sciences beef program at DSAC and withdrawing or merging the Veterinary Medicine beef herd with the Animal Sciences beef herd. The plan for centralizing the beef programs at Urbana and the Orr Center is included below as reference information only.

Timeline and Approach

a) Animal Sciences and College of Veterinary Medicine Veterinary Programs in ACES would both liquidate assets at the DSAC. Each academic unit would determine the most economically feasible method of disposition of the livestock and would reallocate these nonrecurring assets within their units. Disposition of livestock (both beef and swine) would include sale of the animals, transport of animals to Urbana or the Orr Center, or a combination of the two. Recurring salary lines for Animal

Sciences and Veterinary Programs would be moved to Urbana or other stations as approved by the College of ACES within the Department of Animal Sciences and the College of Veterinary Medicine, respectively. Complete withdrawal from DSAC would be implemented by June 30, 2008 with fiscal closeout in FY08.

b) The Animal Sciences beef herd at the Orr Beef Research Center would be expanded to 250 breeding animals. It is logical to maximize the efficient use of the Orr Center through expansion of the cowherd regardless of the fate of DSAC. The barns and feedlots at the Orr Center can accommodate this expansion of 50 to 70 head. However, an additional 100 acres of land would be required to sustain the expanded herd. The land acquisition or reallocation would need to occur as soon as possible to establish forage crops and fencing prior to purchase or relocation of cattle from DSAC.

Opportunities and Impacts

a) The expanded herd at Orr would continue to support current cooperative educational programs with John Wood Community College as well as a modestly increased level of research in reproduction, forage ecology and management, and growth. Herd expansion at Orr would provide an opportunity to capture increased efficiencies through economy of scale. Labor requirements for a herd of 250 animals are marginally increased above those required for 180 animals.

b) Externship opportunities for area community colleges and four-year institutions would be expanded at Orr, and would include interdisciplinary opportunities wherever possible. In addition, externships would include some opportunities for experiential learning at the Urbana south farms. Externships would be devised as hands-on working and experiential learning opportunities and would contribute supplemental labor resources to the activities at the Orr Center.

c) The additional 50- to 70-head calf crop from the Orr Beef Research Center would supplement the annual number of feeder calves integrated into research trials at the Urbana unit.

d) Faculty in the College of Veterinary Medicine would continue to have access to the Urbana and Orr Center beef herds for use in educational programs and collaborative research endeavors in agriculture. Although a limited number of cattle are housed at the Veterinary Medicine Research Farm in Urbana for instructional use, the facilities are limited to short-term use during the academic year. Opportunities would continue for fourth-year veterinary students to accompany clinicians to the Urbana Beef and Sheep Field Laboratory during veterinary service calls and to the Orr Beef Center for annual health examinations and vaccination procedures.

Needed Resources

- a) Continuation of the current level of support from the annual state appropriation for the beef operation at the Orr Center.

- b) Procurement of 100 acres of land through purchase or through reallocation of acreage currently utilized by other academic units (if other academic units were to diminish activities at Orr).
- c) Recurring budget to support the expansion of instructional and outreach programming, including student externships, and subsidies for husbandry and reproductive short courses and animal evaluation workshops.

Advantages

- Consolidation of UIUC beef programs.
- Precludes the need for extensive increases in annual state appropriation for UIUC beef programs (i.e., at DSAC).
- Continued cooperative educational programs with John Wood Community College.
- Modestly increased level of research in reproduction, forage ecology and management, and growth.
- Marginal opportunity to capture increased efficiencies through economies of scale.
- Expanding externship opportunities at Orr Center for community college students.

Disadvantages

- Loss of program visibility and statewide responsiveness for Animal Sciences and Veterinary Medicine in southern Illinois.
- Successful expansion of the Orr Center requires procurement of additional land, which is expected to be expensive given the demand for land for recreational and hunting purposes.

APPENDIX C

DESCRIPTION OF FIELD RESEARCH AND EDUCATION CENTERS

Financial Model for FREC Activity

The College of ACES and its departments have responsibility for managing resources from all sources to conduct programs in teaching, research, and outreach. The funding available to support programs at the off-campus FREC sites is based on allocation decisions made by the individual departmental units, within funding sources. These decisions for off-campus FREC sites are made in the context of total departmental unit operations, including all on-campus programs and the FRECs. When funding allocations are reduced, the departments are faced with trying to maintain outstanding programs on ever-tighter funds. The FRECs have not been immune to those reductions.

St. Charles Horticultural Research Center, St. Charles

The Department of Natural Resources and Environmental Sciences is the only department that maintains a program at this Center, which is 118 acres of land leased from the Illinois Department of Corrections and an additional 120 acres of leased land. It includes three buildings with a total square footage of 6,338. Research is conducted in the areas of ornamental horticulture, turf grass management, and vegetable crops. The Center holds several outreach activities annually, including Pumpkin Field Days, Vegetable Field Days, and Master Gardener practices. This Center is in an ideal location to connect urban and rural populations through research and education about landscape horticulture and food crops.

Northern Illinois Agronomy Research Center, Shabbona

The Department of Crop Sciences is the only department that maintains a program at this Center. The Center was established in 1948 near Shabbona in DeKalb County. Soil types are primarily in the Catlin-Drummer-Flanagan soil association, which represents some 2.1 million acres, or about 5.9% of the state's land area. The Center consists of approximately 107 acres of a 160-acre U of I-owned parcel. Overall, the buildings and facilities are inadequate for providing effective world-class research and education. The total square footage of all buildings is 13,419, which includes office/shop/storage building, dwelling, machine shed, pesticide storage building, grain bin, and small greenhouse. The Crop Training Center is an educational outreach program at the Northern Illinois Agronomy Research Center designed to provide continuing education for professionals. A Weed Science Twilight Tour (attendance about 110) and an annual Field Day for producers and practitioners (attendance about 95) also are held at this Center.

Northwestern Illinois Agricultural Research and Education Center, Monmouth

The Department of Crop Sciences is the only department that maintains a program at this Center. It has a land base of 160 acres owned by the U of I, with 85 acres suitable for crops research. There are 11 buildings on site encompassing 16,580 square feet: equipment and supply sheds, a dwelling, a shop and office building, and two grain bins. The major soil groups west of the Illinois River include the Tama-Muscatine-Sable association (4.6% of state land area) and to some extent the Fayette-Rozetta-Stronghurst soil association (6.3% of state land area). The Center, established in 1980 to represent this highly productive group of soils, is used to conduct extensive trials in crop rotation, tillage, crop management, and pest management. The Center also holds an annual Field Day for producers and practitioners (attendance about 100) and hosts occasional visits by producer and industry representatives.

Orr Agricultural Research and Education Center, Perry

The Departments of Animal Sciences and Crop Sciences maintain programs at this Center, established in 1978. The U of I owns 270 acres that are used for beef research and include 15 buildings (33,496 total square feet). The Center is co-located with the agricultural campus of the John Wood Community College, with meeting rooms, office, and shop space provided by the College in exchange for the initial provision of land by the U of I. The U of I also owns 199 acres, with three buildings (10,492 square feet total), available for crop research. Animal Sciences maintains a research program on systems to produce high-quality beef, such as early weaning and creep feeding. Other research has focused on reproductive management, heifer development, grazing systems, forage supplementation, and beef genomics. Veterinary students have trained at this Center.

Crop Sciences to date has underutilized the crop research capabilities of this Center. The Orr Center at Perry is associated with the extensive Clinton-Keomah-Rushville soil association, which occupies 7.9% of the state's land area. These soils were developed in deep loess (>60 inches) under forest vegetation. They respond well to management, although uses for row crops are limited on steep slopes. The Center holds an annual Field Day for producers and practitioners (attendance about 100) as well as an annual event for elementary-school children. John Woods Community College utilizes the facility for extensive undergraduate student training.

Brownstown Agronomy Research Center, Brownstown

The Department of Crop Sciences is the only department that maintains a program at this Center, which consists of 160 acres of UI-owned land. The site's five buildings, totaling 11,275 square feet, include equipment and supply storage and a small office/dry laboratory building. Research focuses on weed and crop management under a different soil type. The Center was established in 1937 to help develop agriculture in what was, due primarily to soil-related problems, an area of very low productivity. Soils are primarily of the Hoyleton-Cisne-Huey association, which is found on 4.2% of the state's land area. This soil has a relatively light surface texture and a

natural claypan, which acts to restrict root growth, resulting in propensity to drought. The soils at Brownstown are even less productive than most in this important soil series. There are a total of about 180 acres, 160 owned by the University of Illinois and 20 leased, with a net research area of about 120 acres. Office space is minimal and of low quality, there is no usable laboratory space, and there is no suitable space for indoor meetings. The Center holds an annual Field Day for producers and practitioners (attendance about 80).

Dixon Springs Agricultural Center, Dixon Springs

The Dixon Springs Agricultural Center was established in 1934. The DSAC is composed of 580 acres of U of I-owned land (482 field acres and 98 wooded acres) and an additional 4,350 acres (3,907 field acres and 443 wooded acres) leased under special-use permit granted by the U.S. Forest Service, USDA, Shawnee National Forest. Total acreage is 4,930. Shared facilities include the main building with offices and a small dormitory with meeting hall. Outreach and education activities at DSAC include annual field days and other activities.

The Department of Animal Sciences maintains a 480-head beef cowherd at DSAC. Research is focused on extensive pasture-based cow-calf production systems that are most relevant to beef producers in southern Illinois and throughout the southeastern US. The beef program provides opportunities for learning experiences for Animal Sciences undergraduate and graduate students. Animal Sciences has 30 buildings (118,575 total square feet), including sheds, barns, feedlots, feed mill, grain and silage storage, and dwellings/offices.

Most of the land owned by the U.S. Forest Service has pesticide restrictions that can severely prohibit many crop research activities. Some 180 acres of private land are leased by Crop Sciences to meet the need for research land on which pesticides can be used. Soil types are of the Grantsburg-Zanesville-Wellston soil association (1.1% of state's land area), with some Sharon, Bonnie and Belknap soils in the river bottoms. Crop Science maintains 16 buildings (31,869 total square feet), including equipment and storage sheds, a small office building, and several grain bins. Much of the physical plant is quite old, and storage and maintenance facilities are marginal. There is some limited and inadequately equipped laboratory space.

The Department of Natural Resources and Environmental Sciences maintains research and education programs at DSAC that relate to horticulture, forestry, and natural resources. The department has 26 buildings (39,104 total square feet) including storage sheds and greenhouses.

Veterinary Programs in ACES, administered by the College of Veterinary Medicine, maintains a beef herd for research and teaching of veterinary students, including summer interns and beef rotations. Veterinary Medicine maintains an outdoor farrow-to-finish swine unit and a beef herd. Its program includes 20 buildings (46,460 total square feet) with barns, mechanic shop, dwellings, office/laboratory, storage rooms, garages, and a grain bin.