

**External Review Team Report
Missouri Agricultural Experiment Station
College of Agriculture, Food and Natural Resources
University of Missouri**

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Review Team

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A. Introduction

Background:

The Hatch Act of 1887, named for Missouri Congressman William Hatch, who chaired the House Agriculture Committee, gave federal funds to state land-grant colleges to establish agricultural experiment stations (the Morrill Act emphasized the education mission; it was the Hatch Act that emphasized the research mission and funded it for the land grant universities and later on the Smith-Lever Act brought in the Extension mission and funding). The University of Missouri, College of Agriculture, Food and Natural Resources (CAFNR) was established in 1870, and in 1888, the Missouri Agricultural Experiment Station (MOAES) was created within the college to develop the agricultural sciences by practical research, particularly for taking the research to the communities the university served.

Throughout its history, CAFNR has had a major local, national, and global impact in advancing science in agriculture, food, and natural resources. Missouri stakeholders have benefited from the basic, translational, and applied research conducted at the MOAES centers and farms around the state (from here on “centers”). The overarching goal of “taking the research to communities served across the state” is well documented, and past and current college leadership and faculty and staff should be commended for it.

Currently, MOAES has the following operations:

- 18 Farms and Centers (11 of them with Superintendents)
- Soil Health Assessment Center (self-funded for the most part)
- AES Chemical Laboratory (self-funded for the most part)
- Missouri Foundation Seeds (self-funded for the most part)
- Agricultural Lime Certification program (self-funded)

Arguably, all Colleges of Agriculture at land grant institutions across the US have gone through challenging to severe budget cuts over the past 10-15 years. These reductions are primarily connected to State and Federal budget cuts to higher education; however, they are also due to necessary adjustments in funding as public Universities adjust to changes in societal needs and evolve their research focus to future demands. Without this evolution, Colleges like CAFNR will not be able to maintain their relevance. The introduction of resource-centered budgets has changed how the “land grant mission” is valued; thus, a profound restructuring of resources, focus, and future funding sources is imperative for CAFNR to maintain its relevancy in the 21st century.

Recurring budget cuts over the last five fiscal years have also negatively impacted the MOAES. It is imperative that the College’s leadership, faculty, staff, and stakeholders participate in, agree on, and execute structural changes that will increase the efficiency and effectiveness of MOAES. These changes are urgent and necessary to support the CAFNR research enterprise and deliver research-based information to benefit stakeholders and citizens of the State.

State budget cuts coupled with other challenges (e.g. lower commodity prices, deferred maintenance) have eroded the ability to move the MOAES-managed centers and farms forward and assist the college and overall university with its drive for distinction. Initial conversations coupled with MOAES-provided supporting documents highlight well this problem which has led to most, if not all, centers and farms having to maintain research and outreach efforts with reduced staffing and inadequate equipment and infrastructure. This system-wide issue has led to a thoughtful restructuring exercise that included this external review.

A necessary restructuring (two-phase) process has been taking place at MOAES. The Silent Phase has been completed. The Public Phase included this review by an external team. To prepare, the review team received:

1. A report submitted by a sub-committee of the superintendents that looked at an appropriate budget model for MOAES, but in the process clearly identified the need for MOAES center restructuring
2. A self-study of the Centers
3. The process and timeline for MOAES center restructuring
4. A compilation of the specific strategic vision/plan each center.
5. A map with the location of MOAES farms and Centers that also included farms owned and operated by other state universities with an agricultural program.
6. The final report from CAFNR Agricultural Experiment Station Budget Model Committee.

For their overall vision, the review team met with CAFNR leadership, including Vice-Chancellor and Dean Chris Daubert, Associate Deans Shibu Jose, Bryan Garton, and Rob Kallenbach. Tim Reinbott, Director of Field Operations & Assistant Director, provided his perspective to the review team. Subsequently, the review team met with superintendents and staff from all research farms and centers. During these meetings, each superintendent gave a brief PowerPoint presentation, followed by questions and open conversation. The review team gathered additional information in discussions with CAFNR Business Office personnel, the Director of Communications & Marketing, the Director of Advancement, the faculty at large, and CAFNR Division Directors. Conversations and discussions among the review team members have derived in the essential findings and recommendations included in this report. All meetings were conducted remotely using the online zoom platform. The background information was beneficial, but it was not specific enough for the review team to evaluate each center's activity.

B. Review

Key Findings

- Under the current budgetary constraints and future funding opportunities, the existing number and distribution of the research farms and centers are disproportionately large and geographically unbalanced. The large number of centers compete for limited resources that will not increase foreseeable future. In addition, given significant reductions in CAFNR faculty over the past decade, the extent of land, personnel, and facilities overall are greater than the demand that faculty and staff require. Thus, CAFNR must make the necessary reductions, restructuring, and changes that will align the MOAES with a financially healthy and mission effective system of centers.
- Budget reductions, reallocations, and changes in funding sources have been part of the CAFNR communication effort. However, there is a minimal understanding among faculty, staff, and stakeholders of current funding flow through the system and the impact on existing programs and operations. There is even less understanding of changes that will be needed, given present and likely future resources.
- Although there are many examples of faculty involvement at the centers, it appears that centers operate very independently without supporting higher-level goals for the research, extension, and teaching missions. The research focus and projects at some centers do not reflect the College and/or Division visions, funding opportunities, faculty expertise, and future potential. The lack of a consistent dialogue among participants about the future of the centers is a symptom of the absence of shared vision.
- There is limited participation of campus-based faculty at most centers.
- There is no clear line of command/authority from the College to the centers. The lack of clear guidelines, shared objectives, and processes limits responsibility or accountability. Most centers function by protecting their own fiefdom, without an overarching care about the entire system. Too many managers in the system are responsible for outcomes when they do not have the power to make changes.
- There is a lack of consistency in the management and finances of these centers. There is a need for more uniformity of land charges across the system and a willingness to charge for research crop management services in federal grant awards are necessary.

There seems to be no consensus on what it means to be a supervisor. Is that an academic position, a farm management position, or some hybrid? Some supervisors feel responsible for generating income to sustain center operations, while others think their only responsibility is to facilitate research. Some center superintendents have extension responsibilities in addition to management of center operations. In some

cases, one could question whether center superintendents with extension responsibilities are adequately fulfilling their mission-oriented duties.

- There is a lack of uniformity in staffing across the system. This is leading to concerns of work/life balance for some employees at centers where attrition has occurred.
- At present, there appear to be seven separate beef cattle herds in the MOAES system. Duplication was not always apparent, but the staff and funds needed to maintain that number of research or demonstration herds are problematic. The system should routinely evaluate the efficient use of land, animals, and facilities from a mission fulfillment perspective. During our meeting with stakeholders, one cattle industry leader did not know there were seven cattle herds. He was aware of about four, but he could not name them all. It is also noteworthy that the Animal Sciences faculty have limited opportunity to provide regular input to management, alignment and the use of the cattle herds from a mission perspective system wide.
- There may not be a land grant institution with a research dairy herd that is not experiencing budget issues – MOAES is no exception.
- There needs to be a clear and agreed upon role for centers' advisory committees. The role of academic faculty and extension professionals in advising operations and setting priorities for the centers and farms seemed to be a gap at MOAES. While stakeholder input is important and necessary, expectations for stakeholder members as "advisory" is needed. The committees should not operate as a board with decision making authority for replacement of key positions and budgetary priorities. Their role should be purely advisory.
- There is a lack of partnership at the centers between the MOAES and MO Extension.
- Advancement and development are lacking, and where endowments are present, there seems to be no best practice as to how they affect funding from the system.
- CAFNR appears to have a robust marketing and communications effort for the Centers that could be a model for peer institutions.

Recommendations

- College leadership should consider a sweeping but potentially beneficial restructuring of the centers. The committee suggests that this restructuring is based on the State's geographical areas and center programmatic or disciplinary focus. We proposed no more than six "main centers or hubs" that will serve a geographical region or a disciplinary focus. The main centers will unify financial management and human

resources, establish a reporting hierarchy, establish formal communications with CAFNR Divisions, and encourage faculty participation. The remaining centers should be restructured as part of the cluster to serve as programmatic and financial support of the main centers.

An example of a structural and administrative model is utilized by the University of Nebraska-Lincoln/Institute of Agriculture and Natural Resources. It is based in fewer but larger centers with on-site faculty, state Extension specialists, and others. The director manages the center in addition to defined and smaller farms that are relatively close to their location. Such a model would involve thoughtful discussion and stakeholder engagement to build consensus and reveal financial and programmatic upside.

Considerations of such a model include:

- Outlining position descriptions for center directors, farm managers, and support staff.
- Avoidance of encumbering (or allowing) tenure track faculty with managing smaller center locations.
- Fair and thoughtful accounting of displaced staff from any such restructuring.
- Strategic plans for equipment and infrastructure improvements at main centers.
- Consider one full FTE fiscal/HR staff member at each of the main centers.
- Re-evaluation of South Farms resources including staffing given recent interpretation of state building and repair limitations coupled with the proposed center concept.
- Consideration of state Extension specialists for maintaining some level of presence at farm locations – this should be a defined administrative appointment and part of their work plan.
- Consider cash renting or crop sharing land at farm locations where doing so makes sense. The latter may be strategically better in that a well-defined crop share agreement can include opportunities for the tenant farmer to either engage directly with or facilitate any studies proposed for that location. In addition, MOAES and especially the center directors will have knowledge of and a say in what crop inputs (e.g. pesticides) are used at the farms.
- The CAFNR should set budgetary targets for contributing base funds to operate the centers and make informed decisions and choices based on mission critical delivery of programs.
- A word of caution should be placed on part-time superintendents with major extension responsibilities. If the CAFNR is not going to reduce locations, then it should still consider restructuring to some “hub” locations that might have administrative responsibility for smaller, satellite locations. While the fiscal staff perform a variety of duties, the review team believes that there could be efficiency and savings by regionalizing fiscal staff to “regional centers”.
- The review team recommends that the original gift agreements when properties were donated be reviewed. Some farms may need to be rented, some sold, some

used in other ways, and there should be thoughtful conversations about such alternatives or options.

- We applaud the CAFNR's efforts at communicating budget reductions, new budget models being adopted, and the University of Missouri and the College's financial health. Continuing efforts in clearly communicating the new fiscal reality are imperative. Most land grant universities across the country are struggling to adapt to changes in funding sources that required difficult decisions on what to financially support in the future. Only transparent communication will help with the understanding of transformative choices.
- Divisions at the CAFNR need to connect their strategic plans and existing and future faculty expertise with their resources and infrastructure needs at specific centers. There should be an alignment between the research vision from the Divisions and what these centers could offer to make CAFNR as competitive as possible for external funding. A good example is the Agroforestry program. The CAFNR is a recognized leader in agroforestry; there is strong leadership in the faculty, foundational funding, and infrastructure to lead the future research in this area nationally and globally. Agroforestry is a case where existing centers could be one of the proposed cluster center structure based on disciplinary focus.
- Regardless of the adopted restructuring model, centers' leaders should seek to engage Division faculty at their campus meetings to increase faculty participation. Formal presentations to faculty can better expose resources at their locations.
- We strongly encourage that clear lines of authority and decision making between MOAES and the centers should be established and strictly followed. All centers should report to the assistant director of MOAES (Tim Reinbott). The Assistant Director could work with Division Heads to assist with collaboration, priority setting, and decision making. A specific example is the South Farm situation where interaction between Tim Reinbott and Animal Sciences Operations should be re-thought to ensure closer alignment and collaboration. This case is essential since significant acreage of land currently dedicated to beef farms may transition to other university uses. In addition, we suggest that MOAES should align personnel levels with budget resources for agricultural facility repair and maintenance, and focus efforts on repair and maintenance rather than new construction.
- Efforts should be made to unify and standardize the income & expense accounting across the center system. Doing so will aid MOAES and overall college leadership in understanding flow of funds within the center and farm system. Fiscal staff may presently be using codes for direct expenses related to research inputs and efforts at centers and farms, but additional efforts should be made to identify costs per researched commodity at the field or orchard level more accurately (i.e. enterprise budgeting). Doing so could lead to approved rates for conducting specific commodity

research across the centers and farms. It should be noted that, at present, several centers and farms have varying (or no) rates for studies with the same commodity. This is problematic when such research is undertaken with federal awards, not to mention that MOAES has to subsidize such studies more heavily.

- We strongly suggest establishing uniformity in goals and responsibilities across the MOAES system for personnel with supervisory responsibilities.
- We strongly suggest some clear rules for staffing to production and research responsibilities.
- Faculty and critical staff associated with all-beef research and overall herd management should consider leading a review committee to develop a beef animal usage strategy and flow across the system. Reducing herds to four should reduce the need to allocate as much state rate or use on-center cattle income to cover such labor expense(s).
- Dairy producers have been rapidly disappearing in Missouri making it difficult to justify maintaining a very expensive research enterprise. The dairy research team should do a needs analysis focusing on milking herd size to accommodate funded research. When feasible or possible, agreements leading to the use of a commercial dairy herd should be considered and pursued. A milking herd of 350-400 does require substantial and consistent feedstock procurement in addition to the need for adequate acreage for manure applications. The latter can be a challenge given soil nutrient loading issues, odor problems, and the staff/time needed to stay on top of manure management. Funded research may not need the current herd size.
- We recommend an overall advisory committee of faculty to advise MOAES in the operation of centers. On an ad-hoc basis, they could be called upon when input is needed. The advisory committees for specific centers (or restructured centers) should refocus their efforts to advise center/farm and MOAES leadership and promote the location(s). Existing committee by-laws, etc., should be reviewed and better reflect the intent of such committees. This includes, but should not be limited to, the advisory nature of such a committee. The number of members should be large enough to be representative, but not too large to be effective. Stakeholder input should be protected and encouraged but within clearly defined responsibilities.
- We recommend a stronger programmatic and administrative partnership between MOAES and MO Extension at each of the centers.
- Under a restructured center system, CAFNR advancement should concentrate on the sustainability of the centers emphasizing their programmatic excellence and disciplinary focus. Current endowments should be reviewed thoroughly and focused to directly maintain the centers including staff and faculty positions, research infrastructure, and outreach programmatic needs.

C. Future of MOAES Centers... final thoughts.

The University of Missouri CAFNR is among the top agricultural research colleges in the country. It has had a significant local, national, and global impact in advancing science in agriculture, food, and natural resources. Missouri stakeholders, along with national and international audiences, have benefited from the basic, translational, and applied research conducted at the MOAES centers. Like many other agricultural colleges at land grant institutions in recent years, CAFNR has been impacted by budget restructurings and reductions, reductions in the number of faculty, and changes in funding sources. These changes have directly affected the activities at the centers. As a result, the centers collectively have seen reduced faculty engagement, reduced research funding, lack of research infrastructure investment, and reduced impact of their activities. In addition, centers have operated without a concerted research focus, without a clear line of command, and without coordinated financial management. Consequently, there is a lack of consistency in the overall management of the centers. Furthermore, the number of centers appears to be large and geographically unbalanced to the number of faculty, funding sources, and research goals.

In this report, the review committee strongly recommends reducing the number of centers to no more than six "main centers or hubs" that will serve a geographical region or a disciplinary focus. We urge CAFNR leadership to guide the centers' activities based on the college's and division's goals and faculty numbers and expertise. Clarity and consistency in staff reporting, consistency in financial processes and crop management fees, and uniformity in supervisory responsibilities will improve centers' future structure. Partnerships with MO Extension and stakeholders will synergize the centers' activities along with a renewed charge and composition of the advisory committees.

The CAFNR's leadership has worked hard to envision and transform the college for the 21st century. Change is difficult but essential to preserve and grow the MOAES as a premier research enterprise that will attract future funding, attract, and retain exciting faculty, and serve stakeholders with relevant and cutting edge basic and applied research. The review team is thankful for the opportunity of this review. We are humbled by faculty and staff's great work, and we respectfully ask the CAFNR's leadership to consider the team's recommendations.