



# DRIVE to DISTINCTION

CAFNR STRATEGIC PLAN  
2019-2025



College of Agriculture,  
Food & Natural Resources

University of Missouri



# CAFNR STRATEGIC PLAN 2019-2025

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CITIZENSHIP AND ENGAGEMENT



## Dear Colleagues, Friends and Students of CAFNR,

Fast-changing environmental, economic, technological and sociological forces, including food needs, climate change, agriculture advancements and health demands for humans, animals and plants will transform our future. These changes will shape our research, student training and community connections. Missouri is fortunate to have strong agriculture, natural resource, financial and healthcare industries as allied partners to provide CAFNR, as part of Missouri's land-grant university, an opportunity to affect the lives of every citizen by providing unbiased, relevant and accessible education, information and resources.

### STRATEGIC PRIORITIES

As a college, we work in a coordinated way to meet these challenges. Our strategic plan is a roadmap for us to improve the health of our environment, food, economy and people. *Imagining a healthy world* is our unifying theme with six strategic priorities:

- ▶ Ensuring Student Success
- ▶ Advancing Research and Innovation
- ▶ Empowering Missourians
- ▶ Showcasing Leadership
- ▶ Cultivating A Diverse and Inclusive Community
- ▶ Championing Global Citizenship and Engagement

### PROGRAMS OF DISTINCTION AND GRAND IDEAS

CAFNR has existing areas of excellence now designated as *Programs of Distinction*. These programs will have preferred consideration for investment of resources, marketing, fundraising and communication services. Complementing the Programs of Distinction, CAFNR will pursue *Grand Ideas*. These initiatives will focus on solving big societal problems and will bring distinction to CAFNR.

### A BRIGHT, BOLD FUTURE

Our strategic planning process identified ways CAFNR contributes to building better communities, but also identified numerous issues to tackle. We designed a plan to make a difference by asking more from ourselves in enhancing student success, faculty research, diversity, and innovation through our *Programs of Distinction* and *Grand Ideas*.

I want to thank you for being a part of our strategic planning activities and invite you to continue to be involved in our process of evolving CAFNR because this plan benefits you: students, faculty, staff, alumni, industry partners, legislators and citizens. Only by working together can we shape the future that we all envision for CAFNR and Missouri. Please join me, as together we will drive CAFNR to distinction.

CAFNR Proud!

A handwritten signature in black ink that reads "C. R. Daubert". The signature is written in a cursive, slightly slanted style.

Christopher Daubert  
Vice Chancellor and Dean



# The Drive to Distinction

“I have an image of our college six divisions strong. I liken it to a six-cylinder engine where each one of those cylinders is strong, but they are firing independently. You all likely know what happens when an engine is out of tune, you need a timing belt adjustment and you have to work to get all of those pistons firing together. When successful, the engine moves the organization forward. This strategic plan is a tuning process that will transform our college. In two years, if we look the same as we do now, it will have failed... and I don't expect us to fail.”

**- VICE CHANCELLOR AND DEAN  
CHRISTOPHER R. DAUBERT**

# The Process

The strategic planning process has been all-encompassing, spanning 16 months, engaging faculty, staff, students, alumni and stakeholders from across Missouri. In an attempt to be comprehensive, inclusive and forward-looking, our development process consisted of three phases: Discovery and Idea Generation; Testing and Refining; and Finalizing and Launching.

## BY THE NUMBERS:



**5** Leadership Workshops



**150** interviews and focus groups



**34** strategic plans reviewed



**120** CAFNR marketing materials reviewed



**10** industry reports reviewed



**1,335** responses to the quantitative survey

\*See Appendix for complete plan development process

## CAFNR's VISION

### *We imagine a healthy world.*

The College of Agriculture, Food and Natural Resources' (CAFNR) food for life philosophy cultivates this world through visionary and transformative solutions for the environment, food systems, economies and communities.

## CAFNR's MISSION

To strive toward a *healthy world*, we are dedicated to...

### **Preparing students for a complex, interconnected planet.**

To thrive in tomorrow's society, students must be adaptable learners and informed citizens to make purposeful contributions in the world. CAFNR provides these opportunities through exceptional experiential and practical learning experiences based on cutting-edge science and through communicating and engaging with people and the community.

### **Discovering and disseminating new knowledge.**

Through research and scholarly endeavors, CAFNR discovers and disseminates new scientific information and innovations through both traditional and contemporary approaches to reach the broadest audiences.

### **Developing human and community potential.**

CAFNR's ultimate vision is to create a healthy world including improving socioeconomic status, self-esteem, well-being and leadership abilities. We are dedicated to providing educational opportunities and science-based information to the public to meet grand challenges. CAFNR's programs examine how research, education and public policy in agriculture and natural resources affect individuals and their communities.

### **Enhancing the sustainable application of agriculture and natural resources.**

Food, feed, fuel and fiber generation depend on the efficient and sustained use of soil, water and air. CAFNR improves the management and conservation of Missouri's agricultural and natural resources that affect human welfare through education, research and service. We share best practices beyond our borders to create a *healthy world*.

### **Contributing to our land-grant mission through entrepreneurial impact and economic development.**

CAFNR's programs teach, partner and empower Missouri's citizens

to use technology and innovative thinking to bring value-added products and services that increase the market value of food, feed, fuel and fiber products.

## CAFNR's VALUES

To cultivate a *healthy world*, we believe in...

- Passionately caring by bringing conscientious initiative and effort to the well-being of our community through efforts in education, research and engagement.
- Responsively innovating by creating new solutions where a real need has been identified.
- Being consistently trusted by continuously working to be the reliable source of respected teaching, research and engagement.
- Collaboratively accomplishing by striving to achieve our strategic priorities with distinction as individuals as well as with our colleagues.
- Being respectfully open-minded by being inquisitive and pursuing with integrity those solutions that best serve all people while creating a healthy world.





CAFNR educates students to be decision-makers who cultivate a healthy world. We recruit, retain and graduate students from diverse backgrounds while providing a supportive environment that promotes scholarship, leadership, service and personal growth. It is the dedicated CAFNR faculty and staff that create an inspirational, collaborative and productive teaching, mentoring and advising environment that instills the spirit of discovery, knowledge-sharing and application for all students.

### **GOAL 1:**

#### **INCREASE ACCESS TO UNDERGRADUATE EDUCATION PROGRAMS.**

##### **ACTIVITIES:**

##### **1A. Recruit in Missouri with purpose and intent.**

- ▶ Build relationships with targeted high schools and send representatives to visit, including staff, faculty, students and alumni.
- ▶ Consult alumni to identify prospective students.
- ▶ Engage CAFNR Ambassadors throughout the recruitment process.

##### **1B. Pursue enrollment of transfer students from Missouri's community colleges.**

- ▶ Collaborate with community colleges to build relationships and design pathways for student access to CAFNR programs.
- ▶ Create degree program transfer guides to assist in a seamless transfer.
- ▶ Develop online courses to lessen transfer students' time to degree completion.

##### **1C. Improve faculty and undergraduate student engagement in cross-disciplinary, exploratory summer programs for prospective students.**

- ▶ Provide college support in planning and implementation of the programs.
- ▶ Ensure all degree programs have the opportunity to engage in summer academies.
- ▶ Secure external funding to ensure sustainability of summer programs.

##### **1D. Expand faculty and undergraduate student engagement in prospective student visits.**

- ▶ Design exploration days to target specific high schools or regions and work with science teachers, agriculture teachers and counselors to bring groups of students to campus.
- ▶ Encourage each major or Division to establish a visit day either targeting prospective students in their area (in the Fall) or reaching out to admitted students (in the Spring).

# Strategic Priorities



## GOAL 2:

### CULTIVATE UNDERGRADUATE STUDENT SUCCESS.

#### ACTIVITIES:

##### **2A. Improve student engagement with CAFNR and the agriculture and natural resources communities.**

- ▶ Create new and strengthen existing engagement programs for students, connecting them with peers, faculty and alumni.
- ▶ Incorporate the CAFNR *Student Development Plan* across the curricula and course syllabi.
- ▶ Include information about CAFNR majors, minors and opportunities in introductory courses.
- ▶ Provide pre-semester experiences for conditionally admitted students to prepare them for college success.
- ▶ Offer college-wide student success courses each semester for conditionally admitted students and those placed on academic probation.

##### **2B. Improve advising resources and recognition to encourage excellence.**

- ▶ Streamline advising by creating a central location (CANVAS, website, etc.) to train advisors, provide resources and encourage collaboration for both faculty and professional advisors.
- ▶ Utilize annual advising survey results for recognition and professional development.
- ▶ Conduct a comprehensive review of CAFNR Promotion and Tenure guidelines to recognize advising.

##### **2C. Advance teaching excellence through collaboration and frequent opportunities for professional development.**

- ▶ Require peer teaching reviews on a set timetable.
- ▶ Encourage degree program curriculum reviews on a regular basis.
- ▶ Incentivize and recognize faculty for excellence in teaching and advising.
- ▶ Engage the Advising, Teaching and Learning Enhancement committee in recommending and hosting professional development opportunities for faculty, staff and graduate students.

##### **2D. Provide greater financial assistance to students pursuing a CAFNR degree.**

- ▶ Seek endowments to support non-resident students and degree program-specific scholarships.
- ▶ Increase endowed scholarships and awards.



## GOAL 3:

**INCREASE GRADUATION RATES FOR UNDERGRADUATES AND ENSURE SUCCESSFUL PLACEMENT OF STUDENTS IN A CAREER OR IN GRADUATE/PROFESSIONAL SCHOOL WITHIN SIX MONTHS OF GRADUATION.**

### ACTIVITIES:

#### 3A. Lower barriers for time to graduation.

- ▶ Expect each student to outline a degree plan in the first semester at MU.
- ▶ Require each degree program to review course scheduling to identify and address course conflicts in scheduling that lead to increased time to graduation.
- ▶ Build flexible course offerings.
- ▶ Provide financial assistance to students in need in their last semester of coursework.

#### 3B. Provide opportunities for students to be career ready upon graduation.

- ▶ Incorporate the CAFNR Student Development Plan from first year to graduation.
- ▶ Increase employer engagement with students on campus.
- ▶ Create a career mentorship program with alumni, business professionals and retired professors.
- ▶ Designate a class in each year of the curriculum to incorporate career development skills appropriate to the major.

## GOAL 4:

**REQUIRE A SIGNATURE EXPERIENCE AS A COMPONENT OF THE UNDERGRADUATE DEGREE PROGRAM (RISE: Research, International, Service learning, Experiential learning).**

### ACTIVITIES:

#### 4A. Degree programs will develop and implement multiple RISE experiences.

#### 4B. Students will document completion of signature experiences as part of their program for graduation.

# Strategic Priorities



## **GOAL 5:**

### **GRADUATE STUDENTS WILL ACHIEVE ACADEMIC SUCCESS AND BE CAREER READY.**

#### **ACTIVITIES:**

##### **5A. Ensure timely graduation.**

- ▶ Require annual student progress updates by graduate program.

##### **5B. Ensure career readiness and job placement.**

- ▶ Promote participation in professional development workshops.
- ▶ Expand the existing Reich Executive-in-Residence program to the graduate level.
- ▶ Provide opportunities for professionals and leaders from academia and industry to serve as mentors.
- ▶ Provide training and mentorship in grantsmanship, teaching, entrepreneurship and in communication with the public.
- ▶ Sponsor travel grants for presentations at national and international professional conferences.

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## **PERFORMANCE MEASURES: ENSURING STUDENT SUCCESS**

- ▶ Enroll 650 new students (first-time college and transfer) annually.
- ▶ Retain 93% of first-year students.
- ▶ Graduate 65% of students in four years and 75% in six years.
- ▶ Ensure that 95% of degree recipients, undergraduate and graduate, achieve career success within six months of graduation.
- ▶ Increase scholarships awarded on an annual basis to \$2 million.



### Strategic Priority 2

# ADVANCING RESEARCH AND INNOVATION

CAFNR faculty, staff and students advance agriculture, food and natural resource scholarship through discoveries that address major challenges and help cultivate a healthy world. We integrate research results and teaching with engagement and Extension programs to promote economic growth and life-long learning opportunities. CAFNR takes a leadership position in driving innovation and entrepreneurship while fostering and sustaining a vibrant, collaborative and supportive research environment.

#### GOAL 1:

#### CREATE A CULTURE OF RESEARCH AND INNOVATION EXCELLENCE.

##### ACTIVITIES:

##### 1A. Incentivize, reward and retain faculty through innovative programs designed to promote excellence.

- ▶ Adopt salary and programmatic support systems to encourage research excellence.
- ▶ Implement a *CAFNR Distinguished Research Professor* program.
- ▶ Use endowed professorships and chairs as part of strategic and targeted hires, as well as an academic recognition.

##### 1B. Develop programs for enhancing research skills.

- ▶ Support campus-wide professional development programs for faculty and trainees (postdoctoral fellows and doctoral students) that focuses on grant writing and development. Provide proposal development training to early career faculty.
- ▶ Incentivize faculty to serve on grant proposal review panels.
- ▶ Coordinate visits of program directors of federal, industry and private research entities to campus. Support early career faculty travel to visit program directors.
- ▶ Implement a CAFNR faculty mentoring program, focusing on research impact while assisting early career faculty to navigate available resources and training.

##### 1C. Conduct a comprehensive review of CAFNR promotion and tenure policies and processes, specifically to reflect contributions to research, innovation and entrepreneurship by individuals and interdisciplinary groups.

##### 1D. Nominate faculty for awards, fellowships and memberships in the National Research Council list of highly prestigious awards.

# Strategic Priorities



## GOAL 2:

### INCREASE RESEARCH, INNOVATION AND ENTREPRENEURSHIP.

#### ACTIVITIES:

#### **2A. Implement growth plans for research, innovation and entrepreneurship by CAFNR Divisions.**

- ▶ Focus plans to grow multidisciplinary research, faculty development, targeted scholarly outcome, award nominations and other key performance indicators.
- ▶ Submit applications for multidisciplinary center and program project-type grants to programs such as the National Science Foundation (NSF), U.S. Department of Agriculture (USDA) and National Institutes of Health (NIH).
- ▶ Establish master research agreements with industry and commodity groups.
- ▶ Identify and capitalize on areas that serve the needs of stakeholders and industry to position CAFNR to enhance Missouri's economy.
- ▶ Increase disclosures, patents, trademarks, licenses and intellectual property revenue by creating programs to support faculty and staff in efforts to transform innovation to entrepreneurial activities through collaboration with the Technology Advancement Office.
- ▶ Implement an *Entrepreneur-in-Residence* program.
- ▶ Enhance student success and leadership through research excellence by promoting interdisciplinary research for postgraduates.

#### **2B. Develop a strategic hiring plan for faculty with a research focus.**

- ▶ Identify target hires who contribute to growth of federal research funding, growth of prestigious national and international awards, and enhance national and international reputation based on existing and emerging *Programs of Distinction* and CAFNR's *Grand Ideas*.
- ▶ Hire faculty who will directly contribute to the economic development of Missouri.
- ▶ Build endowments to hire research faculty.

#### **2C. Invest in facility upgrades, infrastructure and equipment to support existing and emerging *Programs of Distinction* and CAFNR's *Grand Ideas* to enable large grant proposals.**

## GOAL 3:

### CULTIVATE MULTIDISCIPLINARY COLLABORATIONS.

#### ACTIVITIES:

#### 3A. Drive collaborative research focused on new and emerging ideas.

- ▶ Develop a process to continue identifying ideas that require a multidisciplinary team approach encompassing basic and translational science.
- ▶ Build strategic partnerships and acquire extramural funds for emerging ideas.
- ▶ Establish a *Joy of Discovery and Opportunity Fund* to sponsor interdisciplinary teams and subsequent grant proposals to federal (NSF, NIH and USDA), corporate, foundation or commodity groups.
- ▶ Pursue grand ideas and new legislative initiatives to support agriculture research and entrepreneurship in the State of Missouri.

#### 3B. Capitalize on shared resources in the UM System and seek opportunities to collaborate with MU colleges and other universities and centers as well as industrial partners.

- ▶ Establish partnerships and pursue strategic hires between CAFNR and other MU colleges, as well as other universities and institutions. Establish research collaborations with academic centers of excellence at other institutions and industrial partners.

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## PERFORMANCE MEASURES: ADVANCING RESEARCH AND INNOVATION

- ▶ Increase research FTE by 20%.
- ▶ Promote inter- and trans-disciplinary and multi-institutional collaboration to increase proposal submission and research expenditures by 10% per year.
- ▶ Increase peer-reviewed publications and citations by 10% per year.
- ▶ Increase faculty awards and recognitions by 10% per year.
- ▶ Double Intellectual Property outputs (disclosure, patents, trademarks) and outcomes (licenses, royalty, start-ups).



## Strategic Priorities



Discoveries and innovations created by CAFNR and our collaborators provide the ability to attain a healthy Missouri together. It is at the nexus of science and community that our college aspires to empower every citizen, rural and urban, by offering Extension programming and engagement that advances economic prosperity, life-long learning and healthy living.

### **GOAL 1:**

**GROW MISSOURI'S AGRICULTURAL AND NATURAL RESOURCE ECONOMY BY COLLABORATING WITH STAKEHOLDERS TO CREATE NEW, SCIENCE-BASED BUSINESS PIPELINES.**

#### **ACTIVITIES:**

##### **1A. Organize multidisciplinary, agribusiness teams to build discovery-to-business pipelines.**

- ▶ Lead and support Missouri agriculture through industry audits and on-farm consulting to create new business ventures.
- ▶ Promote Extension initiatives to build economically resilient communities.

##### **1B. Create a campus culture focused on innovations and entrepreneurship in food, agriculture and natural resources.**

- ▶ Implement business-minded programs that prepare new entrepreneurs with key elements for business success.
- ▶ Build partnerships with entrepreneurs and investors who want to engage in a profitable, sustainable and healthy Missouri food system.
- ▶ Utilize the Entrepreneur-in-Residence program to mentor food, agriculture and natural resource-based entrepreneurs.





## GOAL 2:

**CREATE LIFE-LONG LEARNING OPPORTUNITIES THAT BUILD MISSOURI'S AGRICULTURAL ECONOMY AND SUSTAIN ITS NATURAL RESOURCES.**

### ACTIVITIES:

**2A. Create signature Extension programs that promote life-long learning by teaching new and experienced agriculturalists the latest techniques that promote efficient, healthy and profitable production systems.**

- ▶ Adopt educational strategies to engage diverse audiences.
- ▶ Develop intentional ways to incorporate MU Extension specialists into all CAFNR Divisions.
- ▶ Leverage Agricultural Research Center resources to develop and demonstrate technologies relevant to local food, agriculture and natural resources entrepreneurs.
- ▶ Align Agricultural Research Centers with CAFNR's *Programs of Distinction and Grand Ideas*.

**2B. Establish new and expand existing rapid response teams dedicated to engaging stakeholders on crisis management and/or emerging issues.**

- ▶ Prepare a list of potential crises, early responders and suggested initial responses.
- ▶ Implement networks to disseminate critical information.
- ▶ Create a "drop everything" culture to manage crises.
- ▶ Establish partnerships with state and federal emergency management agencies.

# Strategic Priorities



## GOAL 3:

### CONTRIBUTE TO A HEALTHIER MISSOURI BY SHARING SCIENCE AND DISCOVERIES WITH OUR COMMUNITIES.

#### ACTIVITIES:

#### 3A. Design programs that address health challenges through partnerships with other MU colleges, MU Health and outside agencies.

- ▶ Create an initiative for rural agriculture communities that strengthens MU and community ties to local environment and health organizations.
- ▶ Foster healthy community Extension programs aimed at enhancing the public's knowledge of science.

#### 3B. Engage CAFNR student organizations and graduate students in educating the public.

## PERFORMANCE MEASURES: EMPOWERING MISSOURIANS

- ▶ Increase the number of producers engaged at traditional and non-traditional field days and workshops by 25%.
- ▶ Attain a top 5 U.S. ranking of media presence for CAFNR programs.
- ▶ Double economic impact of Missouri agriculture (technology/analysis developed by MU and adopted by agri-business).
- ▶ Improve the natural resources state ranking by five spots (Natural Resources Inventory for USDA).
- ▶ Improve Missouri's Health Ranking from 41 to 35 (United Health Foundation rankings).



Strategic Priority 4  
**SHOWCASING  
OUR LEADERSHIP**

CAFNR strives to be a nationally and internationally recognized college for agriculture, food and natural resources by successfully cultivating compassionate leaders who drive education, research, engagement and policy. We advance relevant, innovative solutions and provide leadership on a local, regional and global basis across the landscapes of agriculture, food and natural resources to create a healthy world.

**GOAL 1:**

**ENHANCE VISIBILITY WHILE GAINING RECOGNITION AS A NATIONAL LEADER IN AGRICULTURE, FOOD AND NATURAL RESOURCES.**

**ACTIVITIES:**

- 1A. Expect CAFNR administrators to serve in national and international leadership roles.**
- 1B. Encourage faculty and support travel to serve in the following leadership roles:**
  - ▶ Grant review panels
  - ▶ Journal editorial boards
  - ▶ Industry boards
  - ▶ Professional society leadership teams
- 1C. Nominate faculty for awards and fellowships.**
- 1D. Support faculty and staff with leadership potential to participate in leadership development programs and opportunities.**
- 1E. Support students selected to present research at national and international conferences.**
- 1F. Share stories, internally and externally, of alumni, students, faculty and staff who demonstrate leadership in their fields.**
- 1G. Provide faculty with tools and services to promote their research using multiple media outlets.**

# Strategic Priorities



## GOAL 2:

**BUILD GREATER AWARENESS OF AND PARTICIPATION IN CAFNR'S PROGRAMS OF DISTINCTION AND GRAND IDEAS AND EFFECTIVELY COMMUNICATE THE IMPACT OF THESE INITIATIVES.**

### ACTIVITIES:

- 2A. Share CAFNR impact stories with national audiences and produce an Annual Report.**
- 2B. Conduct broader impact studies for each Program of Distinction to convey leadership roles in the community.**
- 2C. Develop a fundraising strategy and goal for *Programs of Distinction* and *Grand Ideas*.**
- 2D. Feature Programs of Distinction and Grand Ideas on CAFNR's website and social media outlets.**

## GOAL 3:

**DEVELOP FUTURE LEADERS FOR AGRICULTURE, FOOD SYSTEMS AND NATURAL RESOURCES.**

### ACTIVITIES:

- 3A. Organize CAFNR's student leadership experiences under a common brand.**
- 3B. Establish core leadership knowledge and skills for all students to experience.**

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## PERFORMANCE MEASURES: SHOWCASING LEADERSHIP

- ▶ Double the number of faculty engagements in national and international leadership roles.
- ▶ Double the reach and views of CAFNR's presence on social media.
- ▶ Double the number of CAFNR Programs of Distinction.
- ▶ Double the number of students engaged in new and existing CAFNR leadership programs.



Strategic Priority 5

CULTIVATING A DIVERSE AND INCLUSIVE COMMUNITY

CAFNR creates and nurtures healthy communities and a diverse culture by providing a welcoming, open-minded and vibrant environment with pathways to success for all. This commitment to diversity and inclusion will be realized by recruiting students, faculty, staff and partners from diverse backgrounds and mindsets, who work and learn together in a scholarly environment that teaches, empathizes and demonstrates the importance of the variety of local, regional and global viewpoints when cultivating a healthy world.

**GOAL 1:**

**ESTABLISH A CULTURE OF ACCEPTANCE AND INCLUSIVITY AMONG EVERYONE IN THE CAFNR COMMUNITY.**

**ACTIVITIES:**

**1A. Create an administrative responsibility in the college dedicated to advancing diversity and inclusion.**

- ▶ Establish benchmarks and strategies to increase enrollment and employment of under-represented populations.
- ▶ Ensure communications reflect our commitment to diversity and inclusion.
- ▶ Introduce diversity and inclusivity experiences into curricula with the objective of personal growth and development.

**1B. Provide opportunities for faculty and staff to engage in cultural events that foster interactions between students, faculty and staff, which include topics on inclusivity.**

**GOAL 2:**

**RECRUIT AND RETAIN A DIVERSE AND INCLUSIVE STUDENT BODY.**

**ACTIVITIES:**

**2A. Implement strategies to recruit under-represented student populations.**

**2B. Develop recruitment materials that reflect our welcoming and inclusive culture.**

**2C. Establish pipelines with high schools and community colleges that serve under-represented student populations**

**2D. Develop a peer-mentoring program to support students from under-represented populations.**

# Strategic Priorities



## GOAL 3:

### CULTIVATE A MORE DIVERSE FACULTY, STAFF AND ADMINISTRATION.

#### ACTIVITIES:

- 3A. Implement the Five Ps of recruiting and retaining a diverse faculty, staff and administration (Product, Price, Place, Promotions and Process).**
- 3B. Require a statement of diversity and inclusivity from all applicants.**
- 3C. Conduct exit interviews to be better informed of diversity and inclusivity issues and challenges impacting the retention and promotion of faculty, staff and administrators.**



#### PERFORMANCE MEASURES:

#### CULTIVATING A DIVERSE AND INCLUSIVE COMMUNITY

- ▶ Double the number of opportunities for the CAFNR community to engage in diversity and inclusivity events and activities.
- ▶ Integrate cultural awareness and competence in curricula across degree programs.
- ▶ Increase ethnic/minority enrollment representation to reflect state demographics.
- ▶ Double diversity representation among faculty, staff and administration.



Strategic Priority 6

# CHAMPIONING GLOBAL CITIZENSHIP AND ENGAGEMENT

CAFNR will be a global land-grant college with a physical and virtual presence strategically positioned around the world. Through learning, discovery and engagement, students, faculty and staff will address grand challenges that affect our interconnected world. Missouri-based solutions will contribute to healthy plants, animals and humans, and healthy communities, economies and ecosystems to change the world for the better.

## GOAL 1:

### EMPOWER CAFNR TO ENGAGE GLOBALLY.

#### ACTIVITIES:

**1A. Partner with student service programs throughout campus to expand learning opportunities (e.g., study abroad, internships, practicums, service learning and research) that provide student engagement in international service and develop cultural competence.**

**1B. Foster international research, education and Extension collaborations that create connections between Missouri and the world.**

- ▶ Assist students and faculty when navigating the requirements, processes and funding of international experiences.
- ▶ Provide support services that facilitate faculty/scholarly collaborations and exchanges.
- ▶ Invite global partners to Missouri to learn and collaborate.

**1C. Sponsor learning activities focused on international issues, challenges and opportunities.**

## GOAL 2:

### SPEARHEAD COLLABORATIVE EDUCATION AND TRAINING PROGRAMS WITH COMMUNITIES AROUND THE WORLD.

#### ACTIVITIES:

**2A. Create a database of existing international educational programs, workshops, research collaborations and Extension relationships.**

**2B. Select global regions for focus and target universities and organizations for strategic investments.**

- ▶ Charge the CAFNR International Programs Committee to determine regions of focus.
- ▶ Identify institutions in these regions and build on existing relationships.

**2C. Establish education and training programs for international audiences.**

- ▶ Conduct education and training needs assessment in global regions of focus.
- ▶ Secure federal funding and create education and training programs that have broad utility by global partners.

# Strategic Priorities



## GOAL 3:

### ENGAGE WITH PARTNERS AROUND THE WORLD ON GLOBAL ISSUES AND CHALLENGES.

#### ACTIVITIES:

#### **3A. Grow capacity and recognition among peers in international research, teaching and Extension program development and implementation.**

- ▶ Build thematic interdisciplinary teams to secure major international grants.
- ▶ Collaborate with peer institutions and consortia to develop joint external funding proposals.

#### **3B. Promote CAFNR strengths, comparative advantages and collaborations in research, Extension and capacity building.**

- ▶ Increase visibility with international agencies and foundations.
- ▶ Collaborate with international governments and research organizations.
- ▶ Market the success of international programs and enhance online presence.
- ▶ Develop a speaker's bureau with faculty who can provide presentations for domestic and international audiences.

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## PERFORMANCE MEASURES: CHAMPIONING GLOBAL CITIZENSHIP AND ENGAGEMENT

- ▶ Increase international engagement learning opportunities for students by 10% per year.
- ▶ Double CAFNR's global education and training program portfolio.
- ▶ Increase submissions of collaborative international education and research grant proposals by 10% per year.
- ▶ Grow extramural funding to a level that ensures CAFNR International Programs is self-sustaining.





# CAFNR Programs of Distinction

## OVERVIEW

CAFNR has numerous existing research, teaching and Extension programs that are nationally and internationally recognized. To highlight the recognized strength of existing or future programs, CAFNR has established criteria for **Programs of Distinction**, a select collection of programs that exemplify CAFNR's drive to distinction. CAFNR's **Programs of Distinction**, together with our academic programs, define our current impact on Missouri's agriculture and natural resource economies, providing understanding for how CAFNR is addressing challenges facing Missouri agriculture and natural resources.

## CRITERIA

To be a CAFNR *Program of Distinction*, a program must demonstrate excellence in the following criteria:

### Identity

The program will have:

- A clearly defined set of goals
- A named director or leader willing to advance the program's goals, while serving as the program's champion
- A minimum of five years of activity
- A multidisciplinary faculty with a demonstrated commitment to the program

### Impact

The program will have:

- A well-documented profile of impact on the state, region or nation
- A clear story detailing economic development (e.g., job creation), community assistance programs, or providing value to a CAFNR-related industry
- A history of achievements in addressing college, campus, national or global challenges

### Recognition

The program will be:

- A recognized resource for addressing the specified scope of work
- A nationally or internationally recognized brand
- Valued by external partners who will address the importance of the program

Additionally, the program should align with CAFNR's vision of imagining a healthy world.

# CAFNR Programs of Distinction

## BENEFITS

*Programs of Distinction* will receive special consideration from the CAFNR administration in the following ways:

- Representation among the elite programs contributing to CAFNR's identity
- Preferential consideration for future investments and resources (e.g., personnel needs, major equipment purchases)
- Priority status from CAFNR advancement for fundraising efforts
- Preferred access to college marketing and communication services
- Priority status for CAFNR grant management and statistical consulting support
- Support for development of programmatic leadership

## SELECTION AND REVIEW PROCESS

► **SELECTION:** On an annual basis, the CAFNR Associate Dean of Research will solicit and the CAFNR Deans and Directors will review proposals for inclusion in this program based upon the aforementioned criteria. The process will follow a general timeline:

- Call for proposals: 1 October
- Submission deadline: 1 November
- Proposal review deadline: 26 November
- New *Programs of Distinction* announcement: 1 December

**OBLIGATION OF ACCEPTANCE:** The director will submit an annual executive summary (two-page maximum) by 1 September, detailing program impacts and achievements. The summaries will be reviewed by college leadership, and the Associate Dean of Research will share feedback with the Program Director.

► **PROGRAM REVIEW:** All *Programs of Distinction* will be reviewed for continued identity as a *Program of Distinction* by the CAFNR Dean and Division Directors on a five-year basis. The five-year review will include a collection (5) of the annual reviews, and a meeting between the Director, Associate Dean of Research, and the Division Directors.

**Note:** Academic programs are not eligible for identification as a CAFNR *Programs of Distinction*. All CAFNR academic programs strive for excellence and undergo continuing review for improvement, relevance and importance to the stakeholders we serve.



# Grand Ideas

The Grand Ideas for 2018-2019 include the following:

- ▶ Center for Genomics Reproduction and Health Innovation
- ▶ Healthy Ecosystems for Life on the Planet (HELP)
- ▶ Precision Foods for Health (PFH)
- ▶ Precision Models for Health (PMH)
- ▶ Show-Me-State Food, Beverage and Forest Products Manufacturing Initiative
- ▶ Smart Farms, Smart Agriculture: The Digital Age of Farming
- ▶ University of Missouri Institute for Plant Sciences (U-MIPS)

## CENTER FOR GENOMICS REPRODUCTION AND HEALTH INNOVATION

Animal Sciences at the University of Missouri is a national leader in animal genetic engineering, genomics, and reproductive sciences and health research. We have the potential to be the world leader in genomics and reproduction research, and a dedicated center of excellence is essential to realizing this goal.

CAFNR will partner with public and private entities to create a center of excellence to capitalize on our existing strengths and build the intellectual and physical infrastructure across campus to enhance success in precision animal agriculture, precision medicine,

and human/animal health. We will target investments in mammalian genomics, genetic engineering, reproductive biology, reproductive sciences and theriogenology to complement current leadership and merge existing strengths to provide critical mass for center grants to add to our current NIH center for genetic models and pending center for gene editing. The Animal Sciences research into genetic engineering and theriogenology provides a pathway to apply outcomes found in animal health to human health issues.

Mizzou's National Center for Applied Reproduction and

Genomics will serve as the translational research and national training center for the use of cutting-edge reproductive technologies and genomics. Training in the application of these research areas creates healthier animals and results in a more profitable animal agriculture.

This center is critical for Mizzou researchers to address grand challenges in human and animal health. Animal Sciences at the University of Missouri will address the health and well-being of humans and animals with a focus on genomics and reproduction.

# Grand Ideas

## HEALTHY ECOSYSTEMS FOR LIFE ON THE PLANET (HELP)

Missouri enjoys the unique distinction as a conservation leader in the country due to people's conviction that the diverse natural resources of the state are essential to environmental and economic vitality, and the quality of life of every citizen. These resources are experiencing increased pressure from a number of stressors. CAFNR has existing and emerging strengths to address some of these challenges, but efforts are scattered across our college and other colleges. Mizzou also lacks expertise in some areas to address these major challenges. Ecosystem health and sustainability, as an

integrative concept, includes both the biophysical and socioeconomic dimensions. A coordinated campus-wide effort to study plants, animals, ecosystems, the environment, and humans and their interrelationships is essential.

CAFNR's integrated nature can look at the health of our world in a holistic way not many other institutions can. Without healthy soil, air and water, we will not have healthy plants and animals, healthy people or healthy communities. HELP will bring together a talented group of faculty, staff, students and stakeholders to develop a branded

program to revitalize and expand our environmental and plant, animal and human health-related programs with a focus on ecosystem health and sustainability.

HELP will propel Mizzou to a national and eventually global leadership position in the study of coupled social-ecological systems or ecosystems. This effort will lead MU to distinction as the destination college in the country where the best minds come together to solve complex problems to sustain life on planet Earth.

## PRECISION FOODS FOR HEALTH (PFH)

The number one priority for the University of Missouri System is the construction and programming of the new Precision Health Center. CAFNR, along with other areas of the MU campus, also has world-class strength in plant biology, animal sciences and biotechnology that enables biosystem design through genomics, transformation and gene editing. Our researchers have the ability to design plants and animals for human health through the introduction of novel traits or through the elimination of compounds harmful to human health. These systems could be designed for direct human

consumption or as pharma foods, in which novel compounds would be extracted for biomedical use.

CAFNR, through its research enterprise and its existing collaborations across campus, is uniquely positioned to address the entire value-chain of enhancing the quality of plant and animal-based foods. Plant and animal biotechnologists identify metabolic pathways or genetic components of significance and seek to design plants/animals to deliver the appropriate traits. Nutrition researchers evaluate the potential impacts on human and agricultural

animal consumption, while food scientists safely process the targeted compounds for consumers. Agronomists and animal scientists will develop applications of these technologies in the context of plant and animal production. And finally, agricultural economists assist Missouri farmers with information about new potential crops or animal production systems to integrate into farming practices.

Precision Foods for Health provides a pathway for plant and animal biology expertise to connect agriculture with the campus priority in precision medicine.

## PRECISION MODELS FOR HEALTH (PMH)

Growth in biomedical research is a University of Missouri System priority but has thus-far been under-exploited potential, triggering targeted investments in precision medicine. Many institutions support basic science using rodent models, and primate research will remain restricted to a few national centers. Considering these institutions, MU is one of few places that can support translational science that needs to bridge to humans through large non-primate models.

MU is among the top few universities with both animal science and veterinary medicine. MU has an integrated campus with ready access to students and basic

scientists, but, above all, has a rare ability to support biomedical research that can be translated through large animal models with the National Institutes of Health-funded National Swine Resource and Research Center located on campus. The development of transgenic animal models is becoming more tractable with the introduction of CRISPR-Cas9 techniques for gene knock-outs, knock-ins and edits. MU and CAFNR is the recognized leader in translational research dependent on availability of emerging large animal transgenics.

The Precision Models for Health initiative will be a vehicle through

which basic scientists in many units on campus can add a biomedical component to their research portfolio, expanding their own funding opportunities, while leveraging MU strengths in basic science towards targeted and necessary growth in medical research. It is recommended that the near-term emphasis for Precision Models for Health be recruitment to expand and broaden MU leadership in the foundational technology in gene editing, gene therapy (animals as well as humans), conditional deletions and insertions, etc., and trend-setters who are opening new areas of biomedical science with advances in the technology.

## SHOW-ME-STATE FOOD, BEVERAGE & FOREST PRODUCTS MANUFACTURING INITIATIVE

To help Missouri agriculture achieve even greater economic impact, our many commodities must be transformed in-state into products that consumers desire. Food, beverage and fiber products manufacturing can diversify basic commodity production that occurs throughout rural Missouri and enhance its value. At the same time, Missouri has rich potential to develop regional food systems that deliver healthy, local and regionally appropriate foods to its residents.

This initiative seeks to diversify and add value to agriculture- and

forestry-based businesses through food, beverage and fiber products manufacturing in Missouri. The goal is to expand the economic impact of Missouri's agriculture, forestry and agribusiness sectors. This initiative will involve identifying opportunities to strengthen partnerships across public and private entities. We will direct the strengths of our university, state and federal governments, commodity groups and other agricultural stakeholders toward a common goal - an enhanced food entrepreneur assistance program centered on job growth. We will also determine the factors - such

as transportation infrastructure, government agencies, trade and international policies - that must be addressed for Missouri to thrive as a food, beverage and fiber products manufacturing destination.

Food, beverage, and forest products manufacturing can drive the local Missouri economy through job creation and business development, using commodities we already produce in-state. From developing innovations that have commercial significance to increasing payrolls at new manufacturing sites, our goal is clear: Grow jobs, and expand the agricultural economy of Missouri.

# Grand Ideas

## SMART FARMS, SMART AGRICULTURE: THE DIGITAL AGE OF FARMING

Technology offers to change the way we work, play – and yes – farm. As the digital age comes to farms, technologies like robotics, artificial intelligence (AI), global positioning systems (GPS), sound-and-sight monitors, embedded sensors, and big data analytics offer unprecedented opportunities to enhance efficiency and product quality. In addition, technology promises to transform consumer involvement and cut agriculture’s impact on the environment.

While exciting, realizing the promises of SMART FARMS depends on solving some major hurdles. Foremost, producers need to understand which technologies

fit their needs best. Connected to this is helping users understand “big data” both from an analysis and ownership point-of-view. New users often miss the full value of data because analytic systems do not provide swift or simple answers. Another hurdle, though Missouri-specific, is the lack of broadband internet access statewide. SMART FARMS often depend on cloud computing, and farms without broadband access cannot participate.

The College of Agriculture, Food, and Natural Resources intends to clear these hurdles in four ways. First, our research programs

dedicate themselves to developing new sensors and data processing technologies focused on making Missouri a farm technology hub. Secondly, we aim to couple these new innovations with user-tested (and refined) decision management tools that focus on ease of use and real value. Third, we intend to partner with public and private entities that bring broadband internet access to all Missourians. Finally, CAFNR plans to offer on and off-campus programs that teach users practical ways to employ robotics, AI, GPS, audio-visual monitoring, and data analytics, to reduce costs and help the environment.

## UNIVERSITY OF MISSOURI INSTITUTE FOR PLANT SCIENCES - U-MIPS

The state of Missouri, MU and CAFNR all have noted strengths in plant sciences. Research excellence is particularly notable in three strength areas: plant stress biology, crop systems management, and plant genetics and genomics. Each area is central to addressing issues of agriculture and food production in a changing world environment.

The University of Missouri Institute for Plant Biology (U-MIPS) will integrate MU’s internationally renowned plant biology strengths to advance the creative potential of faculty and students to address issues critical to sustainable and ecologically sound food

production in Missouri and the world. U-MIPS will be built on the institution’s excellence in discovery and applied research, Extension, and undergraduate and graduate student education. U-MIPS will serve as the western anchor of the Missouri Plant Sciences Corridor. The Eastern Anchor is the St. Louis 39 North District that includes the Donald Danforth Plant Science Center, Washington University, St. Louis University, University of Missouri-St. Louis, and numerous multinational and start-up plant science industries.

U-MIPS and the Plant Sciences Corridor will bring together hundreds of scientists, students and staff intensely focused on plants to advance our understanding of basic processes that determine/influence plant structure and function, to translate/transform insights to advance the state’s agricultural economy, and to advance the potential for providing food and nutrition for a burgeoning world population. In addition, this community will focus on development of a talented workforce through student education that will support and advance diverse agriculture needs in both private and public sectors.

# Appendix

## **THE STRATEGIC PLAN DEVELOPMENT PROCESS**

Current brand research, supported by research, indicated that CAFNR launched this planning process from a solid foundation reflecting strong CAFNR research capabilities, excellent teaching and high levels of trust. Eighty-four percent of recently surveyed groups (combining responses from students, faculty, staff, alumni and stakeholders) indicated being satisfied with their CAFNR experience.

However, the Strategic Plan would need to address a variety of future, seen and unforeseen industry and educational challenges. As a beacon for its stakeholders, this roadmap will have the important task of directing CAFNR's contributions to the state, nation and world over the years ahead in both a responsible and inspirational way.

In an attempt to be comprehensive, inclusive and forward-looking, our development process consisted of three phases conducted throughout 2018.

### **Phase I: Discovery & Idea Generation for the Strategic Plan**

From November 2017 through April 2018, we set about exploring the characteristics that best defined

CAFNR and the marketplace in which it would be operating over the course of the next decade.

To do this, we used a variety of means, i.e., leadership workshops, focus groups and individual interviews to engage our internal and external audiences. This phase brought us into direct contact with 200 individuals, where we listened to their opinions and generated ideas for CAFNR's future. In addition to conducting an extensive review of our own practices and ways of communicating with key stakeholders, we also reviewed our peers' programs, strategic plans and their communication practices. And finally, we analyzed future trends in higher education and agriculture, food and natural resources-related industries to identify future strategic opportunities.

All of this work was compiled and shared in a Leadership Team workshop that provided recommendations for strategic priorities to be further explored in subsequent phases.

### **Phase II: Testing & Refining the Strategic Plan**

With stakeholder-based hypotheses generated in Phase I, the goal of Phase II was to test those propositions and also give a

broader base of stakeholders the opportunity to provide their input. Therefore, a survey was distributed to CAFNR audiences (students, faculty, staff, alumni and stakeholders) to determine reactions to a list of strategic priorities and quantify perceptions of CAFNR and its peers. The development, distribution and analysis of this quantitative phase was conducted from April through August 2018.

The survey findings were shared in a Leadership Team workshop that included recommendations for a draft version of the Strategic Priorities, Vision, Mission, Values and the addition of Programs of Distinction and Grand Ideas.

### **Phase III: Finalizing & Launching the Strategic Plan**

Based upon input provided the broader CAFNR audience, the final phase was to engage priority champions and groups of faculty and staff to refine the six strategic priorities and develop goals, activities and performances measures for each strategic priority. From September 2018 through January 2019, the Strategic Plan went through multiple revisions and modifications to produce the desired living, flexible and engaging plan.



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