A Message from the Vice President of Agriculture

Dear Friends,

After a year as your first Vice President, I write to our friends and family across the state with great expectations and to tell you that the College of Agriculture and Montana Agricultural Experiment Station have a superb team. As you might imagine, relocating from the central valley of California last January has led to some adjustments in dealing with the weather, in spite our mild winters. As different as California and Montana may seem, both share a rich history of partnerships between Land-grant universities and their respective state citizens. I am honored to be the first Vice President of Agriculture at Montana State University.

The College of Agriculture and Montana Agricultural Experiment Station have reached to celebrate for the 2015–2016 year. This year, we welcomed our eighth year of increasing enrollment and our programs have landed on several nationally-ranked lists. In May, we graduated 130 students from our college and expect our students while they earn their college degree and allows them to fully participate in all our educational opportunities outside of the classroom.

This year our college brought in $28 million in research expenditures and we continue to garner national attention and funding due to our agriculture research in animal health, food safety, agricultural economics, plant sciences, natural resources and pest management. Our Research Centers across the state continue their vital presence and their respective research profiles remind us the entire state of Montana is our campus. Certainly, the State of Montana during the 122nd legislative session this year proved once again that scientific research, access to higher education, and agricultural production and programs will aid to our collective success on a national and global scale.

As we offer you a comprehensive review of our year in this annual report, know that the College of Agriculture and Montana Agricultural Experiment Station continue to honor the Land-grant mission of educating Montana’s sons and daughters while supporting industry and trade with scientific research. I am proud to join our state supporters, faculty scientists and students in honoring the incredible 122 year legacy of the Montana State University College of Agriculture and Montana Agricultural Experiment Stations.

Sincerely,

Charles Brown, PhD | Vice President of Agriculture Dean and Director
MSU College of Agriculture & Montana Agricultural Experiment Station

Barry Jacobson, PhD | Associate Director of the Montana Agricultural Experiment Station & Research Center Department Directors

Nora Smith, PhD | Assistant Dean for Academic Programs, College of Agriculture

January 2016
The Year in Numbers

The College of Agriculture is the 2nd fastest growing college at MSU. Enrollment for Fall Semester 2015 was 949 undergraduate and 143 graduate students; 1,143 total. It is the 4th year of increasing enrollment.

4,240,762 opportunities and 88,802 awarded in our first ever Twitter Town Hall, #BigSkyAgChat on July 2nd. In just over an hour, “BigSkyAgChat” reached almost 89,000 and 1,000 engagements.

Named 4th best college in the country for agricultural research by Campus Explorer.

Our Arthur H. Post Farm was ranked 28th in total research expenditures for the entire university.

Two new student scholarships; ten students enrolled in their first year of veterinary school in the Washington Metro Montana State Regional Veterinary Program.

Ten students enrolled in their first year of veterinary school in the Washington Metro Montana State Regional Veterinary Program.

100 years — the amount of time the Northern Agricultural Research Center has been an agricultural science presence along Montana’s Hi-Line.

204 buildings, 1,099 sheep, 3,554 blue and gold FFA jackets from Montana FFA chapters graced our campus this year.

Our college hosts 22 majors, 13 graduate programs, 22 options and 7eminets and our student body represents:

- 47 states and 17 countries
- 67% students from Montana
- 29% from other US States
- 4% from other countries
- More students from New York (9) than Wyoming (7)
- 3% non-traditional students
- 40% attended another institution before enrolling at MSU.
- 36 United States Veterans
- Largest department — Animal & Range Sciences, 33% students
- Department with most graduate students — Land Resources & Environmental Sciences
- 50% of enrollment growth since 2007.
- 8th straight year of increasing enrollment.
- We’re proud to serve an increased student enrollment and each semester we welcome nearly 5,000 new students.
- We closed the year with 1,146 students.

The MSU College of Agriculture is one of the fastest-growing three colleges at MSU, with the 8th straight year of increasing enrollment. With a speed to serve an increased student enrollment and each semester we welcome nearly 5,000 new students, we are proud to serve an increased student enrollment and each semester we welcome nearly 5,000 new students, Montana students, with an average GPA of winners being 3.6.

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The top 3 research scientists; ten students enrolled in their first year of veterinary school in the Washington Metro Montana State Regional Veterinary Program.

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The people that are involved in plant breeding, pest management and crop rotation studies are absolutely the best in the nation by College Ranker, an independent online college decision source. Additional institutions that made the list were Penn State University, Dartmouth College, Yale University and Cornell University.

Our college is continually ranked nationally and it is no surprise,” Boyer said. “This success begins with our incredibly active farm in terms of research, activities and community engagement,” Gettel said.

“Agriculture students represent MSU, Montana and the College of Agriculture in academics, service and leadership. Our students continue to benefit from student clubs, mentorships and research opportunities that help them define their MSU College of Agriculture experience.”

The 2015 College of Agriculture Outstanding Senior went to Denise Zezima, a Geospatial and Environmental Analysis major from LRES, nominated by her faculty advisor in LRES, Professor Rick Lawrence.
The College of Agriculture and Montana Agricultural Experiment Station believe in sharing how we invest resources in Montana programs and the fiscal foundation for how we are able to make a difference for agricultural production across the state.

Below is the base funding chart showing what MAES, MSU Instruction and Extension contribute to our total annual budget. The state fiscal year runs July through June.

FIGURE ONE: BASE SUPPORT FROM THE STATE FOR MAES
Base support from the State was critical as it provided nearly $13 million toward MAES. The University contributed $7 million from its general operating fund for instruction. Federal U.S. Department of Agriculture capacity funds (Hatch Act) provided $2.9 million of the MAES total.

FIGURE TWO: BASE FUNDING, FEDERAL V. STATE

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<th>Year</th>
<th>MAES State</th>
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FIGURE THREE: MAES EXPENSES BY EXPENDITURE CATEGORY
MAES funds other faculty expenses over base line for 113 faculty, 213 in staff and labor, $400,000 in graduate student stipends, 204 buildings, and 39,372 acres of land affiliated with COA/MAES.

- Salary
- Benefits
- Operations
- Overhead
- Utilities
- Maintenance
- Capital

*FY12 FY13 FY14 FY15*  
*Millions*

FIGURE FOUR: COLLEGE OF AGRICULTURE GRANT EXPENDITURES BY DEPARTMENT
The majority of the competitive grant money secured in the College and MAES faculty comes from the National Institutes of Health which funds critical projects in the biomedical sciences impacting human, livestock, and wildlife health. The College boasts three of the top five departments at MSU for grant expenditure funding: Microbiology & Immunology, Land Resources & Environmental Sciences, and Plant Sciences & Plant Pathology. Faculty members compete for private grants and also those from State and National programs. The College and MAES successfully awarded $18 million of State and Federal money to leverage an additional $20 million in grants from external sources to support teaching and research programs.

FIGURE FIVE: GRANTS BY AGENCY, EXTERNAL FUND SOURCES PROVIDING SUPPORT TO COA/MAES
The College and MAES are critical components to MSU research as evidenced by competitive grants secured from National Institutes of Health, National Science Foundation, USDA, NASA, and the U.S. Department of Defense. Funds were also procured from the non-federal entities such as the National Weed Trust Fund and the Montana Wheat & Barley Committee.

FIGURE SIX: RESEARCH EXPENDITURES BY COLLEGE AT MSU

- University Program
- Nursing
- Letters & Science
- Engineering
- EHHD
- Business
- Arts & Architecture
- Agriculture

*FY12 FY13 FY14 FY15*  
*Millions*
Welcome, New Faculty
The College of Agricultural & Montana Experiment Station welcomed 25 new faculty in the 2014-2015 year:
Faculty research continues to be a strength of the department, and several faculty members have had their work published or accepted for publication this last year. The work is wide-ranging, focusing on topics including the effect of parental involvement laws on teen birth control use, the impact of the 2014 Farm Bill on farm debt, the growing role of for-profit colleges, the impacts of primary election spending and analysis of the wild horse and burro program.

The department graduated 27 students this fall, which represented the largest fall graduating class of the department: 19 undergraduates in Economics and 8 students in Agriculture Business. Eleven of these students graduated with honors or highest honors, meaning they earned GPAs of at least 3.25 or 3.70, respectively, during their time at MSU.

The Department of Agriculture Economics & Economics and MSU Extension hosted the annual outlook conference as part of the Celebrate Agriculture weekend, titled "Montana Agriculture: Global Trade to Local Foods" on November 6th at the Procrastinator Theater.

Christiana Stoddard and Carly Urban, with co-authors, presented "Does Salient Student Loan Information Affect Academic Behavior?" at Utah State University, the University of Illinois at Chicago, and Philadelphia Federal Reserve Bank’s Consumer Credit Payment Conference. Their research translated into a study this fall semester, where students received letters with information about their student loan debt. They found the letter reduced borrowing in the subsequent semester by $1,360 and also increased credits completed and GPAs. This research has since received national attention from Bloomberg News.

The department welcomes Richard Ready, whose research interests include environmental and natural resource economics.

DEPARTMENT FACULTY NAMES

College of Agriculture Departments and Degree Programs

Visit ag.montana.edu for more information.

Like us on Facebook: www.facebook.com/musaq
and follow us on Twitter: @MSUCollegeofAG

DEPARTMENT

MAJORS

Agricultural Economics & Economics
Agricultural Business
Agriculture Relations
Finance & Banking

Financial Engineering

Agricultural Education
Agriculture Relations
Business Management

Animal & Range Science
Animal Sciences
Animal Science Management

Natural Resources &amp; Rangeland Ecology
Rangeland Ecology & Management

Land Resources & Environmental Sciences
Environmental Sciences
Environmental Biology

Plant Sciences & Plant Technology
Plant Science

Immunology & Infectious Disease
Pre-Veterinary Medicine

Microbiology

Plant Sciences & Plant Pathology

Entomology (LRES A&RS and PSPP)

DEPARTMENT DEPARTMENTS AND DEGREE PROGRAMS

MAJORS OPTIONS MINORS

Agricultural Economics & Economics
Agricultural Business
Agriculture Relations
Finance & Banking

Agricultural Engineering

Agricultural Education
Agriculture Relations
Business Management

Animal & Range Science
Animal Sciences
Animal Science Management

Natural Resources & Rangeland Ecology
Rangeland Ecology & Management

Land Resources & Environmental Sciences
Environmental Sciences
Environmental Biology

Plant Sciences & Plant Technology
Plant Science

Immunology & Infectious Disease
Pre-Veterinary Medicine

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Finance & Banking

Agricultural Engineering

Agricultural Education
Agriculture Relations
Business Management

Animal & Range Science
Animal Sciences
Animal Science Management

Natural Resources & Rangeland Ecology
Rangeland Ecology & Management

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Environmental Biology

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DEPARTMENT DEPARTMENTS AND DEGREE PROGRAMS

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Entomology (LRES A&RS and PSPP)
Agricultural Education Division Head Tracy Dougher attended a national meeting of agricultural education outreach and educators in Washington, D.C. last January. Agricultural Education departments across the U.S. are seeing reduced research dollars and fewer calls for research focused on agricultural education, despite the fact that there is an ever increasing need to educate more people about agricultural issues.

The Division hosted the Montana Association of Agricultural Educators in June, with more than 70 agriculture teachers from across the state of Montana meeting at MSU for teacher development and program discussions.

Shannon Arnold, PhD, associate professor in agricultural education, has been awarded the 2016 President’s Award for Excellence in Service Learning. The award recognizes a faculty member and community partners who use a service learning activity to meet a community need. To meet the need for increasing interest among youth in science, technology, engineering and math (STEM) education, Arnold’s students collaborated with county 4-H leaders to design a STEM-based day camp held at MSU with students teaching 4-H youth. Overall results of a post-workshop test showed that youth increased their knowledge, interest and career aspirations in STEM and natural resource concepts as a result of attending the camp.

Dustin Perry, PhD, joined the Division as assistant professor in Agricultural Systems Technology, Teacher Education and Leadership Development. Perry’s extended research plans include initiating collaborative efforts across multiple disciplines to allow the opportunity for a more holistic understanding of potential relationships among undergraduate education and critical thinking developments, particularly those of undergraduate students enrolled in agricultural systems technology courses at MSU.

This fall, the Division welcomed 1,500 Montana FFA members to campus during the annual John Deere Ag Expo, exposing thousands of Montana high school students to agricultural science, education and leadership opportunities at MSU.

The department continues to be the largest in student enrollment for the college. Fall 2015 student numbers, by major:

- 23 Graduate Students
- 99 Livestock Mgmt./Industry
- 73 Science
- 36 Rangeland Ecology/Mgmt.
- 4 Sustainable Livestock
- 51 Wildlife Habitat Ecology
- 375 total

Student Club Highlights

- The Animal Science Academic Quadrathalon team took 2nd place at the Western Section American Society of Animal Science in 2015.

- The department’s Society for Range Management Plant Identification Team, placed nationally in the Undergraduate Range Management Exam:
  - 3 students in top 50 and 1 in top 25 plant ID
  - 137 students, 23 schools, 3 countries
  - 9 students in top 50 and 5 in top 25 URME
  - 159 students, 25 schools
  - 1st place student in extemporaneous speaking
  - 3 of the 4 executive positions on the SRM student conclave are MSU

In the past year, Animal & Range Sciences teaching, research, and extension faculty garnered $1.49 million in competitive funds. The department currently has more than $2 million in pending research and extension grants.

Nancy Cameron Chair in Animal & Range Science

With the help of dedicated agriculturists and fundraising efforts, $5 million was raised to establish the first endowed chair dedicated to the beef industry for Montana. The Montana Stockgrowers Association pledged $1M in support of graduate fellowships for the Chair, and recently raised more than $260,000. The Bair Ranch Foundation recently contributed $500,000 for graduate fellowships for the Cameron Chair. Currently, the chair position descriptions is posted and is attracting national candidates. A search committee has been formed and a review of applicants will begin as soon as applicant finalists are chosen.

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- 23 Graduate Students
- 99 Livestock Mgmt./Industry
- 73 Science
- 36 Rangeland Ecology/Mgmt.
- 51 Wildlife Habitat Ecology
- 6 Sustainable Livestock
- 87 total
Western Sustainable Agricultural Research and Education (WSARE) produced a video featuring a study led by Rick Engel and its subsequent recommendations for improving sustainability on Montana wheat farms.

Fabian Menalled and David Weaver were chosen as Premiere Presenters for the Entomological Society of America. Their presentation was highlighted in the Entomology 2015 Program Book.

LRES researchers have found that producers throughout Montana who grow cover crops cite soil health as their main reason for growing these crops. The study findings come from a survey that addressed producers’ perceptions and ideas about management of cover crops and the barriers and incentives for cover crop adoption. The survey was part of a larger study by researchers, including Clain Jones, Perry Miller and Cathy Zabinski on soil quality and agronomic responses to cover crop mixtures.

The Hayden Ferguson Soil Lab in Leon Johnson Hall was rededicated after receiving a face lift earlier this year. Students walking down the second floor hallway can now see into the lab through a 24 foot window and admire the magnificent monoliths hanging in the lab.

Summarizing more than 40 years of work by the authors and students, LRES Associate Professor, Jack Brookshire, and Ecology Professor Emeritus, Tad Weaver, who co-founded the study in 1969, published their findings in *Nature Communications*. By monitoring a mountain meadow northeast of Bozeman — analyzing plants and examining regional climate records — the two scientists documented a sustained decline of more than 50 percent in native grassland productivity because the Greater Yellowstone Ecosystem has gotten drier over the last four decades.

**MAES RESEARCHERS AND EXTENSION SPECIALISTS CONTRIBUTING TO EDUCATION AND OUTREACH**

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<td><strong>MSU MAES Research Centers</strong></td>
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<td><strong>MSU Schutter Diagnostic Lab</strong></td>
<td>Weed samples tested (2012–2014): 5,106</td>
<td>Counties where submitted plant sample(s) to MSU Schutter Diagnostic Lab in 2014</td>
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Research Highlights
Jennifer Voyich, PhD, received a $1.5 million grant from the state’s first large-scale research initiative of $15 million to bolster economic development through research. For the past Montana Voyich will focus on the impacts of inflammatory and infectious diseases on animal and human health, with a focus on developing therapeutics to adjust the human and animal immune responses to reduce the burden on antibiotic use and to develop new treatments for inflammatory disorders.

Mark Reddick, associate professor of microbiology in the MSU College of Letters & Science, and Eric Boyd, M&I assistant professor, co-authored “Reactive Oxygen Species and Lysosome-Endoplasmic Reticulum Compartments in the Regulation of Plant Defense.”

The department is pleased to highlight faculty who garnered national awards and recognition this year:

- Ansgar Young Investigator Award: Blake Wiedenheft
- Thelma Schoelln 1970 Award from the Society of Leukocyte Biology: Diane Schmidt
- ABET Outstanding Alumni Award from the Swedish Wenner-Gren Foundation: Ed Schmidt
- Editorial Board, Applied and Environmental Microbiology: Eric Boyd
- Sabbatical Assistantship Award from the Swedish Wenner-Gren Foundation: Diane Schmidt
- Sabbatical Assistantship Award from the Swedish Wenner-Gren Foundation: Ed Schmidt
- International Journal of Microbiology: Eric Boyd
- Peptide Science: Eric Boyd
- American Society for Microbiology: Taija Johnson
- Canadian Journal of Microbiology: Taija Johnson
- American Society for Microbiology: Taija Johnson
- Canadian Journal of Microbiology: Taija Johnson
- American Society for Microbiology: Taija Johnson
- Canadian Journal of Microbiology: Taija Johnson
- American Society for Microbiology: Taija Johnson
- Canadian Journal of Microbiology: Taija Johnson

In spring 2015, the department graduated:

- Landscape Design: 3
- Sustainable Crop Production: 6
- Doctorate in Plant Science: 1
- Masters in Plant Science: 2
- Diplomates in Plant Science: 4

This fall, the department graduated:

- Horticulture Science: 3
- Landscape Design: 3
- Sustainable Food & Bioenergy Systems: 4
- Masters in Plant Science: 2
- Diplomates in Plant Science: 4

Montana Plant Sciences Chair housed in Plant Sciences & Plant Pathology

Hidde Reitsma, M&I, started in Montana’s first Plant Sciences Chair in January 2016. Reitsma is considered a world leader in cereal genetics and is expected to build a significant integrative research program addressing Montana challenges in the grains industry. The new selection for the chair is compelling the $5 million fundraising effort. With the help of producers and agriculturists, more than $2.7 million has been raised to date.

The department welcomed four new faculty and two new professionals this year:

- Michelle Hoeschen, PhD: Biotechnology lab studies the molecular mechanisms underlying host-pathogen interactions in agriculturally important systems, including honey bees. Projects in the lab focus on five principal areas of honey bee biology.
- Ryan Thum, PhD: Thum’s research interests are evolutionary and molecular ecology, with a specific emphasis on invasive aquatic species.
- Jessica Rupp, PhD: Rup’s research program is focused on plant disease problems facing Montana seed potato and sugar beet growers. The main areas of focus are: field research, storage research and genetics.
- Bridget Worstell (professional) now manages the Montana Seed Growers Association and the Montana State Seed Lab.

New Pollinator Garden at the Bozeman Agricultural Teaching and Research Farm

Numerous departmental volunteers planted primarily native plants, including Blanketflower (Gaillardia aristata), Rocky Mnt. Penstemon (Penstemon strictus), Silver Leaf, Phacelia (Phacelia hastata), Hairy False Golden Aster (Heterotheca villosa), Hairbell (Campanula rotundifolia), Yarrow (Achillea millifolium) and Bee Balm (Monarda fistulosa) at a new pollinator garden at the BART farm this summer. This site features bee friendly forage and habitat, a pavilion, an equipment shed and more than 20 bee colonies. This project is funded by the Montana Agricultural Education, Research and Extension Foundation.
We consider the entire state of Montana our campus. Seven research centers are strategically located across Montana, totaling a combined 3,700 faculty and staff working on agricultural challenges for the state of Montana. Collectively, the Research Centers and the Moccasin campus constitute the Montana Agricultural Experiment Station (MAES). Each of our Research Centers is guided by independent advisory councils to keep our research localized so that we can meet the needs and challenges of Montana farming, ranching and agriculture communities.

Faculty and staff conduct research and outreach programs addressing crop and animal production, market growth, opportunity, pests, environment, water quality issues and agricultural water management research.

We provide a long heritage and trustworthy source of science-based agricultural research and support. And we’re not just from Montana; we represent the entire globe, from all corners, crops, landscapes and climates. We have Chinese, Ghanaian, Ethiopian, Cambodian, Peruvian and Portuguese scientists. We consider our diversity a rich asset to the state of Montana that provides a deep and important global mindset in crop and livestock production for Montana’s rural towns and cities.

MAES and Research Center Highlights in 2015

Barry Jacobsen and Bruce Maxwell (LRES) are the lead PIs for the State of Montana Ag MREDI (Advancing Montana’s Grain and Renewable Energy Development and Innovation) project. LRES’ major accomplishments include:

- Intensify pulse and cover crop production of 4.6 million acres of land left fallow each year.
- Increase adoption of precision agriculture technologies through On-Farm Precision Experimentation and optical based sensors for weed control.
- Develop new, improved or quality differentiated products, crops or farm practices.
- Increase adoption of precision agriculture technologies through On-Farm Precision Experimentation and optical based sensors for weed control.

Montana farmers planted wheat varieties developed by the MSU MAES more than any other variety in the state of Montana in 2015, according to the United States Department of Agriculture (USDA). USDA statistics show that MSU wheat varieties accounted for approximately $500 million of $1.2 billion wheat sold by Montana farmers in 2015, according to MSU wheat breeding specialists.

MAES and the Department of Research Centers

The proposal, “Increasing profitability by Improving Efficiency of Montana’s Farm and Ranch Lands” was submitted to the National Institute of Food and Agriculture (NIFA) for review. The proposal includes three interrelated goals over the course of 18 months:

- Intensify pulse and cover crop production of 4.6 million acres of land left fallow each year.
- Increase adoption of precision agriculture technologies through On-Farm Precision Experimentation and optical based sensors for weed control.
- Develop new, improved or quality differentiated products, crops or farm practices.
- Increase adoption of precision agriculture technologies through On-Farm Precision Experimentation and optical based sensors for weed control.

Honing Our Friends in Agriculture

Outstanding Agricultural Leaders for 2015

The College of Agriculture presented its annual Outstanding Agricultural Leader Awards during the annual Celebration Agriculture weekend, held this November. Some highlights of the College’s Celebrate Agriculture event were:

- Lola Raska
- Max and Kirsti Cederberg
- Barry Jacobsen and Bruce Maxwell
- Donna Ediger from the State of Montana Ag MREDI project

Lola Raska

During her time at MSU, Raska has emerged as a respected leader in Montana and the country on federal farm and crop policy issues and farm policy education. She has been most recently serving the Montana community in the 2008 and 2014 Farm Bills, where she advocated for Montana agricultural producers. Raska also supported a variety of MSU projects, most notably her position in fundraising with the Montana Grains Foundation and her search committee position for the Montana Plant Sciences Chair. Raska has dedicated much of her time to public service and volunteering organizations including Belt Public Schools, the Great Falls and Montana chambers of commerce, state and national grain promotion associations, Montana Society of Agriculture Educators and the Treasure State Resource Industry Association.

Max & Kirsti Cederberg

Max and Kirsti Cederberg have provided more than 30 years of direct support to the Northern Agricultural Research Center (NARC) in Havre through their multi-generation cattle ranch, Hot Rod Ranch Inc., near Turner, which was homesteaded in 1928 by Max’s great grandfather. The family’s property and agricultural legacy has been a longstanding source of leadership and support for the agricultural community in the counties of Hill and Blaine and Philips counties. In addition to serving in a variety of roles with NARC, Max and Kirsti have also dedicated much of their time and agricultural passion as members of NARC’s Advisory Board, including positions as past and chair volunteers.
Montana State University’s success is rooted in the vision and investment of its founders and the dedication of many to create the state’s first institution of higher learning in 1893. Today, members of the 1893 Society continue to invest in the future of the university. The 1893 Society honors and recognizes those who have made a planned gift commitment, as a gift through their estate, a charitable gift annuity, or charitable remainder trust.

Through planned gifts, more than 500 alumni and friends have shared their vision for the University’s next generation of success. Please consider making MSU and the College of Agriculture part of your legacy. To learn more contact the Estate, Trust and Gift Planning team at the MSU Alumni Foundation, 406-994-7099 or email plannedgiving@msuaf.org.

1893 Society Donor Roll

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<td>David &amp; Terry Cameron</td>
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<td>Luis Day</td>
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The 1893 Society

This fall, MSU launched What It Takes: The Campaign For Montana State University. This is the university’s first comprehensive fundraising campaign and it couldn’t come at a better time. We are building on unprecedented success and our opportunity to capitalize on that momentum is now. The Campaign is key to the university’s ability to deliver on its mission. We are asking the sons and daughters of Montana and beyond, Campagnone like this one allow MSU to ask our alumni and friends who care about the institution to financially invest in the university’s future, our students and the community we serve. These private dollars, separate and apart from state funding, give us the freedom to raise the bar and set higher standards in facilities, programs, and services. The campaign will also allow us to raise our profile serving both national and global alumni and further establish Montana State as a leader in academic excellence.

Montana State University is a very special place. The faculty and staff who choose to work here, the students who choose to come here, and the alumni and friends who choose to philanthropically invest in the campus make for a unique combination of quality, authenticity, and vision that few American universities can claim. It is an inspiring place and an exciting time.

Montana’s College of Agriculture has a reputation for excellence in teaching, research and outreach. Investing in the College of Agriculture is an investment in Montana’s prosperity and well-being. MSU’s College of Agriculture & Montana Agricultural Experiment Station has distinguished itself with research that advances science and informs public policy to the benefit of people in Montana and around the world.

World-class teaching and research demand world-class funding. Your support of the College of Agriculture is essential to the success of our students and the continued excellence of our programs. Join us in advancing innovative teaching, learning and scholarship for graduate research that makes Montana—natural resources will sustain our competitive edge in agricultural markets.

You’re making MSU what it is today and you help the university’s future through your giving and engagement. Thank you for making a difference and for having What It Takes to make your university the best it can be.
The connection between science and art in the geospatial sciences is overwhelmingly apparent to me. Stuart Challenger’s GIS courses stress the importance of good design. Taking this experience a step farther, I created a purely aesthetic interpretation of spatial data. I created this piece using soils data for the Gallatin Valley. Soils data is an ideal data set for artistic manipulation because it is made of many small polygons that are each unique, much like a child’s Color By Number worksheet. In order to differentiate classes of polygons, I selected and exported them as a new shapefile. I created several shapefiles for the leaves, three shapefiles for the trunk, and one for the roots. I then manipulated the colors of each shapefile to produce the desired image.

—Emma Bode