

Montana Agricultural Experiment Station (MAES)

Agency Overview

The Hatch Act of 1887 created the Montana State Agricultural Experiment Station system. This unique federal/state partnership, supporting agricultural and natural resource research and outreach, is a contract for maintaining viable agricultural and natural resource communities and an affordable supply of food and fiber for America.

In 1893, Montana endorsed the terms of the Morrill Act, creating the land-grant university and the designation of the Montana Agricultural Experiment Station (MAES). The MAES operates under these enabling Acts and subsequent federal and state legislation and amendments through the authority of the MAES Director as approved by USDA. MAES houses people and programs at its research centers throughout Montana and the main station at the Bozeman campus.

The research center system consists of: Northern Agricultural Research Center (ARC) at Havre, Northwestern ARC at Creston, Western ARC at Corvallis, Central ARC at Moccasin, Southern ARC at Huntley, Western Triangle ARC at Conrad, and Eastern ARC at Sidney. The research centers are located so they address the diverse climatological, ecological and environmental challenges of Montana's largest economic sector. Individual research center priorities reflect challenges faced by producers in that region. The oldest research centers, Central and Western, were established in 1907 with the most recent, Western Triangle, established in 1978. MAES also cooperates with the federal USDA ARS Fort Keogh Livestock and Range Research Laboratory at Miles City, a partnership that has been in place since 1924, and the USDA ARS research programs at the Northern Plains Agricultural Research Center in Sidney.

The Bozeman MAES component includes research in the academic departments of Agricultural Economics and Economics, Agricultural and Technological Education, Animal and Range Sciences, Land Resources and Environmental Sciences, Plant Sciences and Plant Pathology, and Microbiology and Cell Biology. The majority of the MAES faculty are located on the main station at MSU-Bozeman campus, with split appointments between research, teaching and extension service, which provides unique and high-quality educational opportunities on- and off-campus that are appropriate for the region, and also appeal to students and clientele from around the world.

MAES cooperates with state, regional, and federal agencies on research to generate and disseminate superior knowledge and produce advances in technology that increase the competitiveness, profitability, and sustainability of agricultural and natural resource systems. MAES aids agricultural stakeholders in competing and succeeding in a global environment, preserving environmental quality, improving the quality of life, and adding value to state, regional and national resources within the global economy, as well as developing cutting-edge outreach and education programs.

Highlights

MAES and the College of Agriculture continue to be successful in securing and leveraging new extramural funding to support research programs. The College of Agriculture, which is

collaboratively funded by MAES, has been the most productive of the academic disciplines in terms of research expenditures with a total of \$54 million for FY2024. This represents an 8% increase in sponsored research from the prior year. MAES base-funded programs are financed by state (87.3%) and federal (12.7%) funding.

Montana State University has once again been selected as the host institution of the western region Sustainable Agriculture Research and Education organization, the country's foremost, producer-led research and education grant program for sustainable agriculture. The 10-year agreement confirming MSU as the Western SARE host started on Oct. 1, 2023. During that time, Western SARE will distribute about \$100 million in grants to producers and researchers. The program's mission is to advance American agricultural sustainability by investing in groundbreaking research and education that leads to innovation and improved profitability, stewardship, and quality of life. MSU was first selected to host Western SARE in 2018 for a five-year term.

Plant breeding at MSU develops and assesses a range of crops, including winter, spring and durum wheat, malt, forage and winter barley, peas, lentils, chickpeas, winter peas, camelina, and canola, providing farmers, extension agents, and private companies with valuable agronomic data to match the best varieties to Montana's diverse environments. A recent report from the Montana Wheat and Barley Committee indicated that 50% of the Winter Wheat, 44% Spring Wheat, and 27% of the Spring Barley acres were planted to MSU developed varieties. Montana traditionally plants around 5.4 million acres of winter and spring wheat combined and 1.2 million acres of barley. These are some of the highest yielding varieties in Montana.

With legislative support provided during the 2023 session, Montana Agricultural Experiment Station developed a Precision Agriculture program focuses on applying the newest technologies in robotics, sensors, data science and artificial intelligence in advancing sustainable farming through education, research, and outreach. The program has transformed one of MSU's farms into a demonstration site for precision agriculture and sustainability, providing hands-on learning for students and the public. The new faculty cohort in precision agriculture offer courses, outreach, and conducts in-house research to develop and explore emerging cutting-edge technologies. Additionally, MSU faculty collaborate directly with Montana producers to implement precision agriculture practices on their own farms, creating an interdisciplinary approach that benefits students, faculty, staff, and the local agricultural community.

Outlook

The College of Agriculture and Montana Agricultural Experiment Station (MAES) play a vital role in supporting the state's agricultural and natural resource systems through collaborative federal and state research, outreach, and education. With facilities across the state, MAES conducts cutting-edge research across disciplines such as agricultural economics, plant sciences, animal and range sciences, and environmental sciences. This research helps to enhance agricultural competitiveness, sustainability, and profitability while ensuring the conservation of natural resources and the development of innovative farming practices.

Looking ahead, MAES is committed to advancing agricultural sustainability and fostering regional economic growth by leveraging new funding opportunities, including its role as the host institution for the Western Sustainable Agriculture Research and Education (SARE) program. MAES continues to support groundbreaking research and education that benefits producers and enhances Montana's agricultural industry. The success of programs like crop variety development, precision agriculture, and sustainable farming education ensures that MAES and the College of Agriculture remain at the forefront of addressing the evolving needs of farmers and ranchers, both in Montana and globally. By partnering with state, regional, and federal agencies, MAES continues to generate knowledge that improves the quality of life for agricultural communities and promotes environmental stewardship, solidifying its role as a leader in agricultural research and innovation.