

University of Maryland College Park Combined Research and Extension Plan of Work 2022-2026

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I. Plan Overview

1. Executive Summary

During 2020, the University of Maryland was able to continue its research and Extension activities despite restrictions due to the COVID-19 pandemic. We are currently operating under Phase 2 with 50% capacity and one per 150sqft space requirement inside buildings. The university will transition to Phase 3 with 75% capacity and will continue to follow all CDC guidelines including 6ft social distance. Negative test for COVID-19 is required from all university personnel and students, every 14 days. The pandemic may have slowed down activities in our laboratories and in the field, but we foresee research and extension activities ramping up to pre-pandemic level in 2021. We have learned that online delivery of our services is effective in reaching our stakeholders and will continue to use the technology in combination with in-person delivery in 2021 and onwards.

Also, in 2020, the college underwent an extensive review of its policies and developed a robust and comprehensive Diversity, Equity, Inclusion and Respect (DEIR) Strategic Plan that was launched on March 25, 2021. Moving forward we are committed to ensure that the DEIR principles are ingrained in our research and Extension activities.

Within Maryland, the Governor issued a stay at home order that led to University of Maryland Extension physical offices closing to the public and Extension employees began a number of weeks of telework status. Extension administration established a 90 day rapid response task force to address the needs of Extension workers across the state so programming could continue. Even though office doors were locked, Extension was still open. The task force worked quickly to establish a website where supportive software was posted along with instructions for use as well as instructional videos to assist with technology. A state wide survey was conducted to assess the learning needs of Extension faculty regarding distance teaching and use of virtual teaching options. Based on the results, a 12 weeks series of instructional webinars were offered. In the early fall of 2020, Extension began to reopen offices that met metrics to do so, as established by state government and University protocols. At the time, a post survey was offered to faculty and staff to assess their level of confidence in continuing hybrid technology delivered programming, their perceptions of clientele readiness to continue to receive programs that way, and any personal challenges they may have experienced.

Additionally, according to the Institutional Review Board (IRB) guidelines during COVID-19 at UMD, no in-person or face-to-face research activities will take place until the University's Research Restrictions have been lifted or individual project approval has been granted after submitting the Safety Assuredness & Guidance Plan for Resuming In-Person Human Subject Research.

The Strategic Plan for the University of Maryland-College Park (UMCP) states that "The University of Maryland will be an institution with sweep and impact, where new ideas and ways of thinking make a difference." The University of Maryland Extension (UME) and Maryland Agricultural Experiment Station (MAES), in alignment with the University's and the College of Agriculture and Natural Resources' (AGNR) Strategic Plan, are also focused on sweep, impact, and making a difference through outcomes that benefit Maryland's agro-ecosystems, communities, youth, and adults. This will be achieved by

implementing relevant research and extension programs in the areas of genomics, sustainable (e.g., environment, economic, and social) plant and animal production systems, healthy and nutritious food, and resilient communities and families. The UME will tackle the big, critically important societal issues including those that are the "most challenging and vexing." To determine the most challenging and vexing issues, UME engages stakeholders in dialogs, scans the environment for changing conditions, analyzes data available from multiple, trusted sources, and relies on the expertise and leadership of impact teams made up of field-based educators, researchers, campus-based Extension Specialists, and stakeholders that guide program development and delivery. Coupled with the exemplary research through MAES and teaching expertise at UMCP, UME can achieve measurable impacts that build strong and resilient economies, communities, families, and individuals. The MAES, in partnership with UME, coordinates the research arm of AGNR and responds to the state and national questions and issues related to agro-ecosystems at all levels (e.g., genomics, plant and animal systems, community, and ecosystems) through well-thought-out research and extension programs. It fosters science-based discoveries through basic and applied research that range from plant and animal biology/physiology to animal health, food safety, ecosystem health, and economic viability of the agro-ecosystem.

The UME and MAES have identified six "grand challenges" in this 2020 Plan of Work that represent major programmatic and research initiatives that UMCP will direct its resources towards accomplishing. These areas are in alignment with the Experiment Station Committee on Organization and Policy (ESCOP)'s grand challenges and with AGNR's Strategic Initiatives. The six grand challenges and AGNR and UME initiatives are aligned as such:

ESCOP Grand Challenge 1: Sustainability, Competitiveness, & Profitability of Food and Agriculture

AGNR Strategic Initiative: Advance Innovative, Profitable, and Sustainable Agricultural Production Systems

ESCOP Grand Challenge 2: Adapting to & Mitigating the Impacts of Climate Change

AGNR Strategic Initiative: Advance eco-system health in a changing world, specifically agro-ecosystems affecting the Chesapeake Bay

ESCOP Grand Challenge 4: Ensuring a Safe, Secure & Abundant Food Supply

AGNR Strategic Initiative: Establish a Healthy Food System and Ensure Global Food & Nutritional Security

ESCOP Grand Challenge 5: Improving Human Health, Nutrition & Wellness

AGNR Strategic Initiative: Improve Human, Animal and Environmental Health

ESCOP Grand Challenge 6: Environmental Stewardship & Sustainable Practices

AGNR Strategic Initiative: Optimize Urban Environments through Design, Green Technology, and Community Engagement

ESCOP Grand Challenge 7: Strengthening Individual, Family & Community Resilience

AGNR-UME Strategic Initiative: 4-H Youth Development

2. FTE Estimates

Year	1862 Extension	1862 Research
2022	170.0	115.0
2023	170.0	115.0
2024	175.0	115.0
2025	175.0	115.0
2026	175.0	115.0

II. Merit / Peer Review Process

1. Extension Faculty Reviews

The merit review process for UME faculty occurs annually when faculty members are formally evaluated by the Program Leader (Assistant Director) or Director as appropriate. The Agricultural (AG) Program Leader evaluates AG Educators and Specialists; the Family and Consumer Sciences (FCS) Program Leader, the FCS Educators; the Natural Resources/Sea Grant (NR/SG) Program Leader, the NR/SG Educators and Specialists; and the 4-H Program Leader, the 4-H Educators and Specialists. Input is obtained from the Area Extension Director (AED). Emphasis is placed on program impacts and the difference made to constituents and the residents of Maryland during the preceding 12 months. Each faculty member is evaluated on individual merit. Documents used for merit review are the approved Individual Extension Plan (IEP), Curriculum Vitae, University of Maryland Extension Reporting Systems (UMERS) reports, self-evaluations, and Teaching Effectiveness Summary. Extension Specialists housed in academic departments are also evaluated by their respective Program Leaders and input is given to the Department Chair on faculty members' performance reviews.

2. Research Faculty Reviews

All research faculty have a departmental home, and while there are subtle differences between departments, they all have a peer-review system (for UMCP), wherein, assigned faculty or a faculty committee reviews the annual performance of each faculty member and assigns a merit ranking. The criteria, from a research perspective, in general, include grantsmanship, publications, the quality of journals (based on a citation index) where the research is published, graduate student training, and invited and/or contributed scientific talks and seminars. These are also the same criteria that are used to evaluate promotion and tenure decisions. For UMCP, the peer committee recommendations are reported to the respective department chairs who provide their input and then provide a final ranking. This process is followed for tenured, tenure-track, and research faculty appointments.

3. Programmatic Reviews

Programmatic reviews are conducted for UMCP at the departmental level at the request of the respective deans, associate deans, and/or department chairs. They generally range in the five-to-ten year cycle. These reviews are conducted by a panel of external reviewers from prestigious departments, institutions, or federal agencies that have similar departmental or agency diversity in their programs. Individual programs are rarely reviewed independently but within the context of how they fit within the mission of the college and department.

4. Project Reviews

All research projects funded through MAES undergo both internal and external reviews. There is an internal review of federal projects by at least two faculty with knowledge of the discipline, a review by the associate dean for research and associate director for MAES, and an external review from a state agency or federal partner like USDA-Agricultural Research Service. Projects are uploaded in REEport and reviewed by NIFA program leaders for official approval. MAES offers an internal competitive grant program for faculty within the college to fund preliminary research findings that increase competitiveness for faculty to be successful in competing for extramural funding. For the internal competitive grant program, a panel composed of university faculty and scientists from partner agencies evaluates the proposals using a set of standardized criteria such as clarity of objectives, relationship to college's mission, quality of proposed research, and deliverables.

III. Stakeholder Input

1. Actions to Seek

Stakeholder participation is encouraged through the State Extension Advisory Council (SEAC), local Extension Advisory Councils, 4-H Club leaders (volunteers), and various surveys (including needs assessments) targeted to UME clients. On an annual basis, approximately 50-75 surveys are conducted with UME clientele to solicit feedback and encourage participation in UME programs. Surveys are deployed either via paper or electronically, depending on the best strategy to reach a particular clientele. Social media strategies (Facebook, web sites, blogs, Twitter, Instagram) are also now being used to solicit feedback. Text messages are also being used to reach stakeholders.

Inclusive and diverse mailing lists are maintained by all Extension units. These lists include a variety of ways to reach stakeholders, either via mail, telephone, email, or a web site. Traditional methods (outside of using technologies) are still important strategies for soliciting stakeholder feedback. Extension Educators and Area Extension Directors are visible and accessible in local communities through face-to-face engagement. In addition, UME administrative leaders connect with many other stakeholder groups outside of agriculture, such as with local departments of health and nonprofit organizations that provide direct service to stakeholders, including public schools, and civic and community groups.

The administrative officers of MAES and UME sit on and attend a wide array of committees with the State's agricultural

leaders. Such continuous contact with the agricultural leadership, including the Maryland Secretaries of Agriculture, Natural Resources, and Environment, provides additional contact to keep current the research and education issues examined by research and extension in the State's two land-grant universities. In addition, there is also close collaboration with groups such as the Maryland Agricultural Commission, the Maryland Grain Producers Association, the Delmarva Poultry Industry, the Southern Maryland Agriculture Commission, the Maryland Association of Soil Conservation Districts, Department of Housing and Community Development, Maryland Department of the Environment, and many other similar groups. Both research and extension faculty also seek stakeholder inputs through their participation and presentation of their projects to stakeholder audiences in state, regional, and national workshops and conferences. The college hosts summits and symposia on specific research areas during the year. Input from stakeholders and partners are also collected from these events.

The College of Agriculture and Natural Resources will continue to use stakeholder input in setting priorities for Extension and research activities. An important thing we learned during the pandemic was the dedication to serve our stakeholders as demonstrated by our faculty, staff and students. Over 400 individuals volunteered to sign up as 'essential personnel' so they can continue important research and outreach activities, care for animals, plants and tissue culture, and maintain our laboratories and research facilities amidst strict pandemic-related restrictions.

2. Methods to Identify

Input from Maryland's residents will be solicited through the Statewide Extension Advisory Council (SEAC) and local, county-based advisory councils. Program Leaders meet twice a year with SEAC representatives in their specific program areas and then again with the entire Council. AGNR utilizes a Dean's Leadership Council consisting of a broad cross-section of agricultural industry leaders to provide input on major directions for the College's research, teaching, and Extension agenda. The Advisory Council meets periodically to discuss rising issues in the State. MAES has established a Faculty Research Council and has formed research teams around vital topics such as sustainable bioenergy, watershed sustainability and climate change, nutrition and health, food safety and security, and genomics and biotechnology that will provide a platform for scientists to debate the integrated research and extension programs. These groups will hold meetings and will be central in attracting other faculty to join.

3. Methods to Collect

- Face-to-face meetings with stakeholder groups
- Web sites, Twitter, Facebook, Instagram, Pinterest, and LinkedIn social media sites
- State and local advisory council meetings
- Needs assessments across all program areas' existing and new clientele
- Community forums
- Focus groups and listening sessions
- Strategic planning committees
- Volunteer feedback (4-H, Master Gardener, Master Naturalists, etc.)
- Involvement in civic organizations
- Summits and symposia hosted and organized by AGNR

4. How Considered

Stakeholder input will be utilized in a variety of ways to include:

- Informing the budget process, particularly at the local level.
- Identifying emerging issues through understanding the most critical needs that can be addressed by educational programs.
- Re-directing Extension & Research programs by understanding critical needs and defining new priorities.
- Hiring faculty and staff that are the best professionals available to affect change in an ever-changing society. Working in communities to affect positive change and to set priorities for impacting the future.

IV. Critical Issues

1 Food and Agriculture

Description:

ESCOPE Grand Challenge 1: Sustainability, Competitiveness, & Profitability of Food and Agriculture

AGNR Strategic Initiative: Advance Innovative, Profitable, and Sustainable Agricultural Production Systems

Increase plant and animal productivity.
Improve and conserve soil health and water quality.
Contribute to the success of agricultural businesses.
Prepare the next generation for careers in agriculture.

Maryland has a strong traditional agriculture base with grain crops, dairy, poultry, vegetables, fruits, and aquaculture. In addition, urban agriculture and the green industry have added to the Maryland economy. Focus areas include production agriculture with an emphasis on soil health and water quality. Business success, profitability, and training the next generation of farmers, researchers and agricultural professionals are also key areas of focus.

Term: Long

Science Emphasis Areas

Agroclimate Science
Environmental Systems
Food Safety
Sustainable Agricultural Production Systems

2 Climate Change**Description:**

ESCOPE Grand Challenge 2: Adapting to & Mitigating the Impacts of Climate Change

AGNR Strategic Initiative: Advance eco-system health in a changing world, specifically agro-ecosystems affecting the health of the Chesapeake Bay

Design land use management strategies to minimize negative environmental impact.
Develop stormwater management technologies to improve water quality.
Safely apply fertilizer, manure, and other nutrients to protect soil health and water quality.
Evolve in the face of climate change to address sea-level rise and extreme weather.

Create environmentally aware communities and promote increased interest and participation. Focus will be on helping producers plan and make decisions in adapting to changing environments, ensuring economic viability, and translating cutting-edge ecosystem-based research into innovations and economic opportunities offered by climate change mitigation technologies. UME and MAES will develop research and education programs that generate knowledge to develop agricultural systems that maintain high productivity in the face of climate change and variability, and efforts that will ensure the protection and health of the Chesapeake Bay. Extension workshops will educate stakeholders on the indicators and importance of ecosystem health. Workshops will focus on both agricultural and urban ecosystems.

Term: Long

Science Emphasis Areas

Agroclimate Science
Education and Multicultural Alliances
Environmental Systems
Sustainable Agricultural Production Systems

3 Safe, Secure, Abundant Food Supply

Description:

ESCAP Grand Challenge 4: Ensuring a Safe, Secure & Abundant Food Supply

AGNR Strategic Initiative: Establish a Healthy Food System and Ensure Global Food & Nutritional Security

Encourage entrepreneurship in food production, accessibility, availability, and processing.
Improve the health and well-being of populations through sharing knowledge of food production, processing, access, and consumption.
Inform policy based on sound research.

AGNR has the expertise to identify issues pertaining to inequality in food and nutritional security and the ability and creativity to explore innovative solutions. Our research, academics, and Extension programs are educating the next generation of food systems researchers, professionals, and educators. Our wide-ranging research and Extension activities help devise innovative and creative solutions to guarantee a healthy food system in Maryland. Moreover, our existing expertise, partnerships, programs, and geographic location place us in a unique position to assess needs, provide solutions, and have an impact on a global scale. Our healthy food systems initiatives encompass all the processes that are required to produce and deliver food in a socially, economically, and ecologically sustainable manner to promote and protect human health. This is achieved through sustainable production, safe processing, consumer accessibility to nutritious food, and requires knowledge, access, resources, education, innovative technologies, and entrepreneurship.

Term: Long

Science Emphasis Areas

Environmental Systems
Family & Consumer Sciences
Food Safety
Human Nutrition
Sustainable Agricultural Production Systems

4 Human Health, Nutrition, & Wellness

Description:

ESCOP Grand Challenge 5: Improving Human Health, Nutrition & Wellness

AGNR Strategic Initiative: Improve Human, Animal, and Environmental Health

Decrease chronic diseases and diseases transmitted from animals to humans.
Promote and support healthy and livable communities through education.
Investigate links between human, animal, and environmental health.
Analyze environmental and agricultural policy and inform decision makers.

The UME Family & Consumer Sciences is engaged in making sure that all Maryland residents are healthy and economically successful at every stage of life. We accomplish this by working with people to prevent and manage chronic diseases through healthy food and physical activity choices, having basic financial literacy, and safe and healthy places to live, work, play, and learn. Our work is based on the latest research from the University of Maryland to help inform public policy decisions.

Term: Long

Science Emphasis Areas

Education and Multicultural Alliances
Environmental Systems
Family & Consumer Sciences
Food Safety
Human Nutrition
Sustainable Agricultural Production Systems

5 Environmental Stewardship

Description:

ESCOP Grand Challenge 6: Environmental Stewardship & Sustainable Practices

AGNR Strategic Initiatives: Optimize Urban Environments through Design, Green Technology, and Community Engagement

Create sustainable energy solutions.

Improve understanding of agriculture and environmental awareness in urban areas.
Improve the performance of built environments.
Manage climate change in urban and urban-rural interface

This initiative addresses the improvement of healthy environments, urban resilience in conditions of climate change, social justice, impacts of built environments on community health, maintenance of human dignity, equitable access to nutritious food, and access to formal/informal agricultural and environmental design. The health of non-tidal waters and the Chesapeake Bay depend on improved land use practices.

Term: Long

Science Emphasis Areas

Agroclimate Science
Bioeconomy, Bioenergy, and Bioproducts
Environmental Systems
Sustainable Agricultural Production Systems

6 Family & Community Resiliency

Description:

ESCOPE Grand Challenge 7: Strengthening Individual, Family & Community Resilience

AGNR-UME Strategic Initiative: 4-H Youth Development

Maryland 4-H provides safe, welcoming, and affirming environments where young people engage in age-appropriate, meaningful educational programs and experiences that allow them to build positive life skills, supportive adult and peer relationships, and understanding and connections to their communities.

Term: Long

Science Emphasis Areas

Education and Multicultural Alliances
Family & Consumer Sciences
Human Nutrition
Youth Development

7 Renewable Energy Resources

Description:

The development of a secure, and sustainable renewable energy framework that will support the rapidly expanding human population is a critical goal for Maryland and the nation. This will be an essential step in the efforts to wean consumers from an over dependence on fossil fuels and the other challenges associated with their use, such as pollution. Renewable energy sources have the potential to boost the 'green economy', thus contributing to job creation, regional development, and long-term economic growth. Biomass is one of the most important sources of renewable energy especially when its production does not compete with food production. Thus the importance of bioenergy and bio-based products in the US is expected to increase over the coming decade, and fundamental and applied research on biomass sources and conversion technologies for sugars and biofuels and process technologies will pave the path to achieve a more self-reliant bio-based economy.

Term: Long

Science Emphasis Areas

Agroclimate Science

Bioeconomy, Bioenergy, and Bioproducts

Environmental Systems