

# COLLEGE OF AGRICULTURE, HEALTH AND NATURAL RESOURCES

## ACADEMIC PLAN

### **Background**

The University of Connecticut (UConn) will provide solutions to ensure that adequate resources will be available for feeding the 9 billion people anticipated to be living on earth by 2045. The College of Agriculture, Health and Natural Resources (CAHNR) will engage directly with the global community to meet this challenge by contributing to the expanding knowledge system to ensure a sustainable future. Aldo Leopold, renowned writer, philosopher, and conservationist, famously declared the oldest task in human history as “living on a piece of land without spoiling it.” Today, our society is global and the “piece of land” is the entire planet.

CAHNR embodies the land and sea grant principles through implementation of its tripartite mission of teaching, research and public engagement. CAHNR has a wealth of disciplinary strengths and expertise, and the capacity for substantially expanding current programs and developing new initiatives to directly address society’s grand challenges. These challenges include ensuring food security, protecting and improving human and animal health, adapting to climate change and conserving and planning wise use of diminishing natural resources. On a state, regional, national and global level, CAHNR will continue its crucial role in enhancing Connecticut’s economy. CAHNR will train and retrain our 21<sup>st</sup> century workforce to function productively and be competitive in a world that increasingly finds itself at the limits of existing technologies for producing food, sustaining animal and human health and well-being, and protecting the environment. These are exciting times for agriculture, food and nutritional sciences, health sciences, and environmental sciences as these disciplines, which are an integral part of CAHNR, intersect to address the grand challenges of our world.

## CAHNR VISION, STRATEGIC VALUES, & MISSION

### **Vision:**

The College of Agriculture, Health and Natural Resources will provide for a global sustainable future through scientific discovery, innovation, and community engagement. Our accomplishments will result in safe, sustainable and secure plant and animal production systems, healthier individuals and communities, greater protection and conservation of our environment and natural resources, balanced growth of the economy, and resilient local and global communities.

### **Strategic Values:**

The College of Agriculture, Health and Natural Resources is committed to the land grant mission – serving Connecticut and the global economy through research, education, and public engagement. CAHNR has four core values:

- Learning: provide high-quality, broad-based, relevant educational opportunities that prepare diverse graduates to address the challenges of life today;
- Discovery: expand the frontiers of knowledge through research and innovation;
- Engagement: collaborate with diverse institutions, communities and people to improve the quality of life; and
- Global Citizenship: knowledge, tools, and technologies developed and implemented by CAHNR help citizens meet the challenges of living in a global community and create opportunities to prosper in the global economy.

### **Mission:**

Ensuring a sustainable global future through research, teaching and public engagement utilizing agricultural, health, and environmental sciences.

### **Bold Steps:**

The College can significantly enhance its reputation regionally and nationally by taking bold steps in line with the *UConn Academic Plan*.

The creation of local food systems is leading to an explosion of agriculture in New England and the Northeast. In contrast to much of the nation, the number of farms and farm acreage is increasing rather than decreasing with Connecticut leading all of New England.

Connecticut's Governor has charged his Council for Agricultural Development to recommend ways to increase local consumption of Connecticut grown products from 2% to 5%. One proposal from the Council recommends the development of an Agricultural Innovation Initiative that would include the creation of an Agricultural Innovation Center for Controlled Environment Food and Plant Production, and a Food Innovation Center, both to be located at UConn. We strongly support these Council-led initiatives that will enhance economic development in Connecticut.

The proposed Food Innovation Center aligns with our desire to create an accredited Food Science major. Such programs have very high employment rates with high entry salaries. The Food Innovation Center would provide the necessary facilities required for a food processing laboratory as well as provide client space for food entrepreneurs.

We propose establishment of two campus-wide Institutes of Excellence. We believe that the significant strengths and investments in CAHNR position us to lead the collaborative efforts of these two institutes. The *proposed Institute for Food, Nutrition, Health, and Wellness* aligns with UConn's Health and Wellness area of strategic investment in the *UConn Academic Plan*. The *Institute for Sustainability* aligns with UConn's Sustainability and Resilience: Environment and Energy area of strategic investment in the *UConn Academic Plan*. Creating these two Institutes leverages significant infrastructure and investment in CAHNR and positions UConn as a global leader on issues of food, health, and sustainability.

## CAHNR STRENGTHS and OPPORTUNITIES

The importance of Science, Technology, Engineering and Mathematics (STEM) programs offered by Colleges of Agriculture and related sciences nationally are more relevant than ever, as witnessed by steadily increasing student enrollment nationally and in CAHNR. This is due, in part, to the recognition that agriculture and life sciences, environmental sciences, and nutrition and health sciences intersect where our lives are most affected. CAHNR's programs are central to *Next Generation Connecticut* and other institutional initiatives. The mission of CAHNR is aligned with the University's new *Academic Plan* because it emphasizes excellence in research, innovative education and engaged collaborations.

Quality-of-life, a highly educated population, and a skilled workforce are important factors that attract businesses that offer and retain high-wage jobs to Connecticut. CAHNR has identified two major areas of strength and opportunity that contribute to improving quality-of-life issues and supporting economic growth in the 21<sup>st</sup> century: 1) ***Food, Nutrition, and Health*** and 2) ***Environmental and Agricultural Sustainability***. These areas of strength are intimately connected because healthy and sustainable environments are the foundation for healthy individuals, families, and communities. Connecticut has a strong and vibrant agricultural economy delivering food, forest products, and plants and plant products to citizens across New England and the Northeast. CAHNR provides the science, technology, and educational outreach needed to promote healthy lifestyles, sustain a diverse and resilient agricultural economy, protect the natural resource base in Connecticut, and guide sensible and sustainable development that will help citizens and communities adapt to climate change. A list of Centers, Institutes, and Programs in CAHNR that highlight the breadth and depth of food, nutrition, health, and environmental and agricultural sustainability appears in Appendix A.

### 1) **Food, Nutrition, and Health**

The Food, Nutrition and Health disciplines within CAHNR are nationally recognized. Due to the multidisciplinary nature of these areas, the potential for collaborations with other Schools and Colleges at UConn, the nation, and internationally is very strong. The College focus relates to both human and animal nutrition and health. In the Department of Allied Health Sciences alone, there are three nationally accredited human health programs and another in

Nutritional Sciences. The addition of the Department of Kinesiology will add several accredited programs and add further programmatic strength in the health-related disciplines.

### **Strengths**

- Substantial extramural funding from federal and private sources as evidenced by CAHNR being in the top three Schools/Colleges for grant expenditures per faculty member.
- Strong graduate programs cited by UConn's Committee for Excellence in Graduate and Professional Programs (CEGaPP) report or by the National Research Council (NRC), with Nutritional Science named as one of eight programs of national distinction and Agricultural and Resource Economics identified as having potential to significantly increase in national reputation. The Department of Animal Science was nationally ranked by the NRC and four of seven academic departments in CAHNR were ranked above the 50<sup>th</sup> percentile by Academic Analytics.
- Rapidly growing undergraduate enrollment in programs related to food, health, and animal science. The undergraduate program in Allied Health Sciences graduated 26 students in 2007 and in 2013 graduated 172 with total enrollment topping the 800 mark.
- Engaging undergraduate programs with a strong emphasis on experiential learning, study abroad and research training.
- Recognized research strengths in the nutrition and health of animals and humans using methods that involve basic laboratory research through to clinical studies, including community and worksite interventions.
- Expertise in genetic improvement of food crops and animal production for enhanced nutritional value and increased availability of bioactive compounds.
- Expertise in pathogenesis and immunotherapeutics and diagnostics for prevention and control of infectious diseases (Center of Excellence for Vaccine Research and Connecticut Veterinary Medical Diagnostic Laboratory); home of the Connecticut Veterinary Medical Diagnostic Laboratory (CVMDL), the only fully accredited laboratory of its type in New England and member of the National Animal Health Laboratory Network (NAHLN).
- Award-winning statewide Extension outreach and public engagement programs in agricultural production, nutrition, animal health, food safety, healthy homes, and youth development.

## Opportunities

- **Nutrition and Health:** The “One Health” concept (<http://www.onehealthinitiative.com/>) has spurred worldwide collaboration fueled by focused research to improve human, animal and environmental health, as well as provide more nutritious food products. Federal agencies have focused funding priorities on reaching this One Health goal by developing areas of research that identify methods to prevent or treat the current epidemics of obesity, type II diabetes, metabolic syndrome and zoonotic diseases among others. There are numerous current and emerging funding opportunities for research that address this concept including NIH, USDA, NSF, private foundations, and industry. Collaborative relationships exist between faculty members in CAHNR and others in the Center for Health Intervention and Prevention (CHIP), Center for the Promotion of Health in the New England Workplace, the Departments of Molecular and Cell Biology and Chemistry, the School of Engineering, and the UConn Health Center. We can further strengthen this core opportunity through the addition of research faculty in key areas such as obesity, genetics, dietary components and chronic disease, and metabolomics. Significant needs exist in Connecticut and globally for outreach education in nutrition, and complementary expansion of existing nutrition education programs in our schools, workplaces and urban centers will help address these needs.
- **Genomics:** Meaningful improvements in the health and wellness status of human and animal populations will be accomplished by application of technologies made possible by fundamental science discoveries. Genomics is a critical area of fundamental science and its potential for improving the human condition holds its greatest promise in agriculture and medicine. Faculty members across CAHNR direct research programs that address human and animal health at the genomic and epigenetic levels. CAHNR has existing research strengths in microbial genomics related to pathogenic microorganisms, human and animal nutrition (nutrigenomics), and plant and animal improvement. Significant funding opportunities exist and the research is well aligned with *Bioscience Connecticut*, *Next Generation CT* and the new *Institute for Systems Genomics*. CAHNR is well positioned to participate meaningfully in the expanded genomics initiative at the University.
- **Animal Disease and Prevention:** Faculty members across CAHNR have research programs addressing disease pathogenesis and immune responses, disease detection, disease prevention, and disease control. The concern for zoonotic diseases, those which are transmitted between humans and other animals, has increased substantially with increased global movement,

population growth and security threats. Significant funding opportunities exist with USDA, DOD, DHS, NIH, USAID and NSF. CAHNR has significant research capacity in microbial pathogenesis and vaccine development through the Center of Excellence for Vaccine Research.

- **Microbial Science:** There is unprecedented interest in microbial communities as they affect human nutrition and gut health, food safety, animal health and homeland security. Faculty members in the Departments of Animal Science and Pathobiology and Veterinary Science have multi-faculty research programs concerned with microbial communities that impact animal and human health; this strength aligns with programs in Molecular and Cell Biology and the Health Center. Faculty members across CAHNR also have research programs addressing both human and animal stem cells. This strength aligns with the Connecticut Stem Cell Program, and programs in Molecular and Cell Biology and the Health Center. Significant funding opportunities also exist. For example, \$10 million is allocated to stem cell research in Connecticut from the CT Stem Cell Program.
- **Food and Health Policy and Development:** Food and health issues will continue to dominate policy discussions at the state, federal and global levels. CAHNR is prepared to move forward and build upon the noted strengths in food marketing through the Zwick Center for Food and Resource Policy. The addition of capacity in health policy will complement existing strengths in food policy with clear linkages to CHIP, CPHHP, and the Health Center, as well as other CAHNR departments.
- **Educating the 21<sup>st</sup> Century Workforce:** Creation of an accredited interdepartmental curriculum in Food Science is a logical and compelling next step for CAHNR to address future needs of the food system in the Northeast and globally. Substantial faculty expertise is in place in the Departments of Animal Science and Nutritional Sciences with the addition of new faculty acquired under the UConn Hiring Plan. An accredited program would attract undergraduate and graduate students to participate in providing a safe and healthy food supply through the application of basic and applied science. The food science focus creates additional opportunities for research collaboration within and outside CAHNR and UConn. Furthermore, with growing interest in improving health through targeted improvements in diet and nutrition, and development of innovative foods and methods of nutrient delivery, a food science emphasis will attract interest and research funding from industries producing foods, dietary supplements, and medical and other specialty foods. Nationally, student interest in these programs remains high with very high demand for interns and graduates. Compared with other majors within Colleges

of Agriculture and related sciences across the country, food science majors often command the highest starting salaries.

- **Mobile Curriculum:** The rapidly expanding knowledge base for food production, nutrition and health leaves individuals further from the cutting edge of science each day. An opportunity exists to develop a “mobile curriculum” that creates learning environments for citizens across the region or around the globe to renew their skill sets. We must expand UConn Extension to create mobile curricula that allow individuals to retool their skills, develop new certificate programs for retraining, and provide engaged scholarship opportunities for mobile learners. Through current programs in UConn Extension, youth and teen populations are continually exposed to STEM-related programming through 4-H and other programs that encourage them to explore STEM careers. These opportunities will be expanded to adults as well.

## 2) Environmental and Agricultural Sustainability

Environmental and Agricultural Sustainability is a historic strength of CAHNR. Sustainability is at its core an economic, environmental, and social concept, involving complex interactions that are best addressed using multidisciplinary approaches. With the traditional Land Grant disciplines providing the foundation for sustainability science, opportunities exist for allied disciplines to collaborate synergistically and build upon this strength in the College. The mission of CAHNR encompasses the core issues and needs related to sustainability including: food production and security; wildlife, fish, and forest management; agricultural, food, and environmental economics; landscape and community planning and development; clean air, water, soil, and environmental quality protection; and human, animal, and plant health and well-being. The unique and well-developed Extension infrastructure within CAHNR places the College at the nexus of information delivery and societal impact within the state and region, as well as nationally and internationally, as UConn Extension engages and educates a diverse public on sustainability. Because of the multidisciplinary nature of sustainability science, the opportunity for collaborations with units of other UConn schools and colleges is great, particularly with Civil and Environmental Engineering, Marine Sciences, Geography, Geosciences, Ecology and Evolutionary Biology, Molecular and Cell Biology, Economics, Chemistry, Statistics, Political Science, and Community Medicine and the Health Center.



## **Strengths**

- Agricultural and resource economics and policy related to food and food security, and environmental and resource management.
- Geospatial and remote sensing science for characterizing land-use changes, assessing environmental quality and assisting communities with sustainable development.
- Fisheries and wildlife conservation and natural resource protection.
- Water resource management to protect water quality and enhance wise use of water resources.
- Animal and plant genomics and molecular biology to improve livestock and plant production, environmental stress tolerances, disease resistance, and adaptation to climate change.
- Sustainable community planning and development to protect and conserve natural resources and the environment while allowing for sensible growth.
- Sustainable ornamental horticulture and turfgrass science to reduce resource and chemical inputs while maintaining functional, aesthetically-pleasing, and healthier living and recreational spaces.
- CAHNR retains cropland, pastures, forest stands, greenhouses, and livestock used in research, teaching, and public engagement. The development of CAHNR agricultural and natural resource facilities has emerged as a significant strength that provides the physical infrastructure to test, develop, and evaluate sustainable systems of plant, animal, and forest production, as well as natural and managed landscapes, while simultaneously evaluating the environmental impacts.
- Extension faculty and staff located throughout the state deliver research-based expertise to communities, families and businesses to solve problems and enhance personal and economic well-being.

## **Opportunities**

- **Water Resource Management:** CAHNR has demonstrated strength in environmental sustainability including water resource management, sustainable development, and environmental economics with a focus on the interface between the rural and urban environments. Worldwide, water is becoming a limited natural resource with water quality and availability driving predictions of a world food shortage. Climate change predictions for the Northeast suggest major challenges due to sea level changes, shifts in precipitation and temperature, and increased storm events but there are also opportunities for facilitating adaptation. With the participation of CAHNR in the new Institute for Community Resiliency

and Climate Adaptation and a hiring cluster in climate and sustainable water resources, UConn is well positioned to emerge as a national leader in water resource management.

- **Local Food Production Systems:** Renewed interest in shortened chains of supply and local food production are emerging in the Northeast, nationally and abroad. Recently, the Governor of Connecticut set a goal of increasing local consumption of Connecticut grown agricultural products from 2% to 5%, an effort that would require a substantial reinvestment in agriculture far beyond local “farmer’s markets,” Community Supported Agriculture (CSA), and roadside garden stands found in the state. Opportunities exist to develop smaller acreage food production systems that will likely differ from current farming. They will be focused on sustainable production methods, including organic and free-range, diversified in their range of products, and likely include intensive urban and indoor agriculture intertwined with renewable energy technologies, water-recycling systems and other resource-saving technologies. Interest in “heritage” breeds and strains of domestic animals that may be both smaller in size and less reliant on grain-based feeds, and many different aspects of aquaculture represent other opportunities for local food production. Much of this work will be transferrable to disadvantaged regions of the globe that need efficient small-scale local food production to ensure basic health and well-being. Emerging federal agency programs focused on local small-scale food production represent substantial opportunities for CAHNR.
- **Plant and Animal Improvement through Fundamental and Applied Life Sciences:** Population growth, continuing loss of arable land, and climate change will provide additional stresses on the plant and animal species used for food, fiber and aesthetic purposes. Improvement of these species through molecular and cellular approaches offers opportunity for increased production and adaptation under increasingly challenging climatic conditions. CAHNR strategic development of its animal, crop and forest facilities and lands, provides a unique opportunity to integrate current and new plant and animal improvement initiatives into a more comprehensive research and evaluation program that extends from basic molecular and cell biology studies through to applied field evaluation of new technologies.
- **Food Security:** Creating sustainable systems of food production, processing and distribution at the local level provides benefits as well as challenges. Benefits include increases in local employment and economic activity and fresher and better quality food available to local residents. Challenges, particularly in populated environments, include management of land, labor, energy, water, light, and chemical inputs needed for food production while also protecting the

environment. Even in developed regions such as the Northeast, many citizens do not have access to fresh, healthy foods in their neighborhoods. CAHNR programs and departments are uniquely positioned to link food production, processing, and distribution to human health and well-being.

- **Low-Impact, Sustainable Development, and Green Infrastructure Design:** Currently, we have several programs and centers that conduct research and provide information to help guide future development in support of balancing sustainable growth and natural resource protection. These include Nonpoint Education for Municipal Officials (NEMO), Center for Land Use Education and Research (CLEAR), Connecticut Environmental Conditions Online (CT-ECO), Integrated Pest Management (IPM), Geospatial Training Program (GTP), Sea Grant, and Community Research & Design Collaborative (CRDC). All of these programs work directly with each other and with Connecticut communities, but the opportunity exists for these programs to work more collaboratively and broadly to address common goals of sustainable, low-impact development, and green infrastructure design on regional and national levels.
- **Educating the 21<sup>st</sup> Century Workforce:** An interdepartmental “Environmental and Agricultural Sustainability” Bachelor of Science major focused on agricultural and natural ecological systems, adaptation to population growth demands and climate change, and resilience can be developed to better serve today’s students looking to thrive in tomorrow’s working landscapes. The ever-changing interface between urban, suburban and rural life and the desire to provide sustainable food systems while preserving our natural environment complements current UConn initiatives to serve Connecticut, the region, and the world.

Citizens of Connecticut are strongly committed to a sustainable future. However, new tools and ideas are needed to engage and inform that take advantage of new technologies. UConn Extension has great opportunity to make use of new and emerging technologies to better serve Connecticut citizens.

These identified strengths are aligned with UConn’s new *Academic Plan* and are consistent with our strategic vision for the future. CAHNR remains committed to addressing the priority needs of our state, nation, and the world through education, research and outreach.

## CAHNR THREATS & WEAKNESSES

- **Our Image:** The perceived image of the programs of CAHNR has too often been rooted in nostalgia associated with farming. Often, the cutting-edge scientific research accomplishments and societal contributions of CAHNR are not immediately visible or are overlooked. There appears to be a general lack of understanding of the scientific, technical, and social roles in advancing modern agriculture and environmental sustainability, nutrition and health, community development, and public engagement by CAHNR. Although we are proud of our heritage, CAHNR's disciplines are important to most of the grand challenges facing a burgeoning global society – and our image needs to convey that strategically.

CAHNR could benefit from stronger interactions with University Communications that better portrays our role in addressing major societal and economic challenges. CAHNR needs to become more aggressive in marketing its strengths, and it needs to focus on more strategic promotion and publicity of its research and outreach accomplishments that would help faculty receive the recognition and acclaim commensurate with the quality and impact of its scientific endeavors.

- **Our Faculty Carry a High Administrative and Teaching Responsibility:** Faculty in CAHNR across all ranks are reporting a substantial administrative load relative to the past, at this institution and compared to other peer universities. The demands on CAHNR faculty time devoted to administrative duties have risen to a level that limit faculty members' abilities to excel at other aspects of academic life, including participating in collaborative and multi-institution activities, devoting significant time towards grant proposal writing, and conducting impactful Extension programs. We also note that sharp enrollment increases in many of our programs have increased the amount of time spent in undergraduate advising, as most CAHNR majors promote advisement by faculty rather than professional advisors. We struggle to balance our commitment to high-quality faculty-student interactions with our need to expand research, public engagement, and scholarship. In some CAHNR majors, the number and size of laboratory sections of courses have increased to meet demand. Many of these laboratory sections are taught by faculty, because no increases in teaching assistance support have accompanied our substantial enrollment growth. There is no doubt that research activities are hampered by the increasing demands on faculty time, and that many CAHNR faculty members are losing the quality and quantity of time needed for achieving a high return on research investment activities.

This concern is partly linked to low numbers of CAHNR support staff, but also could be partially mitigated through a renewed focus on a customer service approach to CAHNR business and work flow. A strategic college review of our administrative services may well find ways to streamline, centralize, and reduce inefficiencies that could provide faculty with more meaningful administrative services, even at present low staffing levels. Some departments and majors may need to consider strategic investment in professional advisors to recapture faculty time for research.

- **Many of Our Departments are Small Compared with Our Peer Institutions:** Whereas some CAHNR departments have recruited new faculty recently as part of the faculty Hiring Plan, they remain smaller (much smaller in some instances) across the board in faculty numbers when compared to similar units at aspirant peer institutions. Small department sizes can limit graduate program size, particularly in “laboratory-based” science fields. This is of concern because growth in graduate programs is a key area for the university as a whole and one to which we aspire. We also remain “stretched” in many instances, with a need to cover many key topics within disciplines with a single faculty member, without the ability to create depth in strategic areas for expanding research. We need to move beyond being 1- or 2-deep in strategic research areas. In particular, our inability to replace lost faculty in Cooperative Extension has significantly limited our ability to address critical stakeholder needs at a time when there is growing need for UConn support in workforce development to promote sustainable agriculture in Connecticut.

In response, we propose to continue aggressive pursuit of strategic new faculty lines to bolster our human capital and build on recent successes. We anticipate that this document will provide the vision for a larger investment from the UConn administration in our identified areas of strength and opportunity. A further modest investment of 30 faculty members in CAHNR would be transformative. We will undertake an evaluation of our graduate degree offerings with a focus on strategic combinations, particularly at the PhD level, that may provide synergy within CAHNR and across the University, with the ultimate goal of increasing our national rankings through increased leveraging of FTEs.

- **CAHNR Infrastructure and Deferred Maintenance:** Many of the buildings and facilities associated with CAHNR are outdated and in critical need of renovation, addition, or complete replacement. Teaching and research laboratory space is fragmented and out-of-date. There is a lack of office and modern laboratory space for new hires, which has at times limited the ability to

attract and retain high quality faculty members. Compounding this problem is the situation that some departments have faculty members distributed in different buildings, which can hinder collaborations and exchange of ideas.

We need to capitalize on potential opportunities through planned expansions and find ways to renovate and replace existing space. Future decisions about ‘renovate-or-replace’ need to carefully consider the need for increased modern laboratory square footage in the decision-making process. Many of the renovate-or-replace decisions are made at the university level and fail to address key space needs for CAHNR.

- **CAHNR Lacks Adequate Support Staff:** Additional demands are continually placed on a dwindling support staff that in turn either slows workflow or increasingly passes more administrative work onto faculty. Recent growth in faculty numbers with increased emphasis on acquisition of extramural funding and research productivity has exacerbated the issue. Increased demands on office-support staff begins with new faculty searches and continues with supporting the new faculty once they arrive. We also are increasingly aware that the job descriptions used for support staff hires are out of date with both the workflow and technology common in today’s office environment. Additionally, the viability of the research facilities unique to the College (livestock, fields, forests) is threatened by understaffing due to past downsizing of personnel. This downsizing impedes the scope and extent of research that can be conducted and for meeting the demands of IACUC and AAALAC.

The specialized spaces managed by CAHNR require additional support staff to maximize their research value. CAHNR should aggressively seek industry partnerships and endowments to leverage University support to help manage some of our special facilities. A hiring plan is needed for support staff vacancies. This plan should identify and capitalize on opportunities for centralization of certain functions to ensure that new hires are made within job descriptions that allow employees to be qualified and capable of contributing to the most critical support tasks.

- **Declining Federal Funding for Land Grant Colleges:** CAHNR has historically maintained a considerable dependence on federal formula funding and targeted state or federal funding programs in support of Land Grant activities. The anticipated continued static or declining federal research and Extension funding is a major challenge to the College. Not unique to CAHNR, this situation is common across all land grant universities. It is important to recognize that these funds support, in part or in full, many faculty salaries in the College.

CAHNR can reposition its fundraising focus from its historic priority on student scholarships to funds dedicated for research. Goals for creating endowed chairs, endowed institutes, and industry partnerships are outlined elsewhere in this plan. Like the rest of the university, our future is linked more to private contributions than ever before.

## **TARGET GOALS & PERFORMANCE INDICATORS**

- Increase the number of Eminent Scholars and Endowed Chairs to support the programmatic strengths and opportunities areas of Environmental and Agricultural Sustainability (EAS), and Food, Nutrition, and Health (FNH), as indicated in the Strengths and Opportunities section of this document. It is desirable to have at least five of these recognized scholars.
- Increase the total grant portfolio (dollars) to \$200,000 per research FTE, with an emphasis on STEM-related federal funding opportunities.
- Increase private, foundation, and donor gifts to at least \$10 million in the next 5 years to support research in our FNH and EAS strength and opportunity areas.
- Strategically develop at least two public-private partnerships in our FNH and EAS strength areas through new collaborations housed at the UConn Technology Park. These partnerships will increase industry and state funding directed at research in our strength and opportunity areas, and create higher-wage job opportunities for our students.
- Increase the number of peer-reviewed scholarly publications and citations in high-impact factor journals, books, and conference proceedings across the next five years for each academic unit within the College.
- Aggressively pursue positioning in the upper 75th percentile of Academic Analytics research measures (on a Department level).
- Increase the number of post-doctoral fellows by 10 individuals within the next five years, and increase by at least 50% the number of PhD-level graduate students in our EAS and FNH strength and opportunity areas.
- Add up to 30 new faculty lines in our strength and opportunity areas of FNH and EAS, with emphasis on research and Extension responsibilities that will enable us to reach the target goals noted above. This will require an increased number of non-tenure track faculty members to address teaching and advising loads within the College.

## **Appendix A. CAHNR Research Centers, Institutes, and Programs.**

### **Research Centers and Institutes**

Center for Environmental Health and Health Promotion  
Center for Culture, Health, and Human Development  
Center for Land Use Education and Research (CLEAR)  
Center of Excellence for Vaccine Research  
Charles J. Zwick Center for Food and Resource Policy  
Connecticut Institute for Water Resources  
Connecticut State Climate Center  
Home and Garden Education Center  
Connecticut Institute for Resilience and Climate Adaptation (CIRCA)  
New England Invasive Plant Center  
Northeastern Research Center for Wildlife Diseases  
NU Center of Excellence on Storm Hazards Mitigation & Power System Resilience (shared with College of Engineering)  
Turfgrass Diagnostic Center  
Wildlife and Fisheries Conservation Center

### **Public Engagement and Outreach Programs**

Aquaculture Extension Program  
Agricultural Waste & Nutrient Management Program  
Avian Molecular Diagnostic and Research Laboratory  
Community and Natural Resource Planning Program  
Community Research & Design Collaborative (CRDC)  
Connecticut 4-H Program  
Connecticut 4-H Fitness and Nutrition Clubs in Motion (4-H FANS-IM)  
Connecticut Invasive Plant Working Group (CIPWG)  
Connecticut Land Use Academy  
Connecticut Farm Risk Management Program  
Connecticut Sea Grant Extension Program  
Connecticut Veterinary Medical Diagnostic Laboratory (CVMDL)  
Dairy Extension Program  
Expanded Food and Nutrition Education Program (EFNEP)  
Supplemental Nutrition Assistance Program – Nutrition Education (SNAP-Ed)  
Equine Program  
Fruit & Vegetable Extension Program  
Greenhouse and Nursery Extension Program  
Geospatial Training Program  
Integrated Pest Management (IPM)  
Master Gardener and Composter Programs  
Natural Resources Conservation Academy (NRCA)  
Nonpoint Education for Municipal Officials (NEMO)  
Plant Diagnostic Laboratory  
Science and Technology: Reaching Out to New Generations in Connecticut (STRONG-CT)  
Soil Nutrient Analysis Laboratory



