Cornell University Main Campus Research and Extension and New York State Agricultural Experiment Station Research Combined Plan of Work
2021-2025

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I. Plan Overview

1. Executive Summary

At Cornell University, Federal Capacity Funds are administered strategically to address a wide range of issues in the state and foster integration of applied research and extension programming.

Cornell University Agricultural Experiment Station (Cornell AES), New York State Agricultural Experiment Station (AgriTech at NYSAES), and Cornell Cooperative Extension (CCE) work collaboratively to determine planned programs that align with NIFA priority areas and direct funds to individual research and extension projects as well as projects that integrate these two domains. The approach used to integrate the work of the experiment stations and CCE is designed to serve the citizens of New York State and improve the human condition through excellence in scholarship--linking research, non-formal teaching, and extension to "real life" challenges and opportunities. Director-level staff from Cornell AES, AgriTech at NYSAES, and CCE meet as an Integrated Program and Research Team (IPaRT) to discuss relevant issues, research and extension projects, and new opportunities.

IPaRT recruits and communicates with a group of richly diverse research and extension stakeholders, who provide input and inform priority-setting for use of Federal Capacity Funds. These stakeholders review proposals submitted through an internal competitive process by which faculty may apply for Federal Capacity Funds for projects with research and extension components matching current priorities. In addition, we have 37 active Program Work Teams comprised of extension educators, faculty, and stakeholders from across New York State who work together to develop, implement, and evaluate priority programs.

University-wide strategic plans have reinforced the land grant research and extension mission. The Office of Engagement Initiatives (OEI) advances Cornell University's mission through community-engaged learning — preparing and inspiring students, faculty, staff and community partners to work together to solve the world's most difficult problems. OEI works closely with Departments and Cornell Cooperative Extension to increase opportunities for community-engaged research, learning and service projects. In 2016, a liaison position was created to strengthen collaboration among Cornell students, faculty and staff, and the CCE association offices across the state--supporting development of new university links with association offices and facilitating opportunities for other extension units on campus to strengthen and diversify engagement in New York communities. In 2019, university wide internships connected to Engaged Cornell were added to the annual CCE Internship opportunities.

The College of Agriculture and Life Sciences (CALS) and the College of Human Ecology (CHE) continue to reinforce the bridges between science and practice, campus community partnerships, and leadership and outreach. The CHE Bronfenbrenner Center for Translational Research is dedicated to expanding, strengthening and accelerating the connections between research, policy, and practice to enhance human development and well-being. Both colleges along with the Industrial Labor Relations School of Cornell University and the Cornell University College of Veterinary Medicine are committed to research, teaching and extension, and the need to translate knowledge for public purpose.

This report documents the intentional planned program work that results from Federal Capacity Fund projects, programs, and initiatives and the results of formerly funded projects. Planned Programs were addressed collectively by CCE, Cornell AES, and AgriTech at NYSAES. Further detail, outcome indicators, and success stories are included in the formal report.

Each organization is described below to better explain our unique system at Cornell University.

Cornell University Agricultural Experiment Station

The Cornell University Agricultural Experiment Station (Cornell AES) – an integral part of three colleges – advances research on food and agriculture systems, the environment, applied economics, and community and individual development. By doing so, Cornell AES improves people's lives and contributes towards Cornell's Land Grant mission of discovery, engagement, and advancement of learning.

Cornell AES links Cornell's world-class research facilities with one of the nation's most comprehensive statewide cooperative extension systems. Through this engaged, interactive system we address pressing issues that directly affect the health and welfare of the state and beyond. Many of today's most urgent societal concerns – from childhood obesity to invasive species to global climate change – are not bound by state or national boundaries. With more than 130 years of experience identifying, quantifying, and responding to emerging issues in an ever-changing world, Cornell AES directs some of the most important projects in the state.

The station directly manages over 5,600 acres of farms and forests, and includes the university compost facility, eight farm operations, and over 127,000 square feet of plant growth facility space—providing critical research services to scientists. Our student-run organic farm, Dilmun Hill, is a model of a student-run agricultural operation that has been emulated by other organizations and universities. Every aspect of our operation - from staff development to forest management to field practices - is viewed through the lens of sustainability.

The Cornell University Agricultural Experiment Station:

Manages more than $5.6 million in federal Hatch grants.
Annually distributes approximately $1.5 million to new competitively reviewed projects. Federal Capacity Fund projects and initiatives are an essential element of Cornell's research portfolio, supporting applied research that benefits residents of the state, region, and the nation.
Employs over 50 full time operations staff and eleven full-time directors and administrative staff.
Operates eight farms with agricultural production and forest acreage across the state, from Willsboro on Lake Champlain to Long Island on the Atlantic Seaboard.

AgriTech at New York State Agricultural Experiment Station

Agriculture and food are multibillion-dollar industries in New York, and to underscore the value that New York State Agricultural Experiment Station brings to improving the health of the people, environment and economy of the state and beyond NYSAES has changed its name to AgriTech at NYSAES. Established in 1880, AgriTech at NYSAES in Geneva develops cutting-edge technologies essential to feeding the world and strengthening New York economies.

From developing safe and nutritious foods to pioneering means to preserve the environment, AgriTech at NYSAES serves millions of New York consumers, agricultural producers, food businesses and farm families throughout the state. AgriTech at NYSAES helps New Yorkers capitalize on new food and agricultural opportunities and is uniquely positioned to translate state-of-the art research into industry innovation and economic growth.

AgriTech at NYSAES:

Operates a budget of approximately $39 million—approximately one-third of which is funded through SUNY's base budget.
Employs nearly 300 staff and over three dozen tenure-track professors.
Partners with Faculty and Extension Associates: on the range of ten visiting scientists, ten postdocs, and 25 research and extension associates.
Extends research and knowledge through students. In recent years there have been 50 to 55 graduate students conducting masters and doctoral studies. Annually provides opportunities for 25-30 undergraduate students to experience research projects during a nine week summer internship program.
Encourages cross departmental/Research Association operations: Our four departments—horticulture; plant pathology and plant-microbe biology; entomology and food science—have faculty in Geneva and Ithaca. The main focus is on

improving the genetics, cultivation, production, protection, handling and processing of fruit and vegetable crops.
Partners with the Northeast Center for Food Entrepreneurship (NECFE), at the NY Food Venture Center at Geneva to provide assistance to over 200 food entrepreneurs annually, promoting sustainable economic development in rural communities.

The AgriTech at NYSAES campus includes:

Center of Excellence for Food and Agriculture – launched in September 2019; its mission is to grow NY's food, beverage and agriculture economy by serving as a hub for NY businesses to connect with the expertise and resources they need to innovate, grow and thrive.
The U.S. Department of Agriculture's Plant Genetic Resources Unit (PGRU), responsible for the collection of apple, sour cherry and cold-hardy grapes and selected seed-propagated crops, such as onion, garlic, broccoli, cabbage and winter squash; and the Grape Genetics Resources Unit (GGRU), responsible for the national program on grape genetics and genomics.
A central Geneva campus made up of 20 major buildings, several smaller buildings for farm machinery storage and similar purposes, and two houses with rooms rented to graduate students, visiting scientists, and postdocs.
Two pilot plants -- the Fruit & Vegetable Processing Pilot Plant and the Vinification & Brewing Technology Laboratory -- provide opportunities for entrepreneurs and processors to add value to the state's raw products.
The NYS IPM Program
Cornell Agriculture and Food Technology Park adjacent to the main AgriTech at NYSAES campus
Research/extension laboratories - Hudson Valley at Highland, NY, and the Cornell Lake Erie Research and Extension Laboratory at Portland, NY.
Eleven farms for experimental plot work close to the Geneva campus with a total of 870 acres. There is also one acre of greenhouse space on the campus.
The High Pressure Processing Food Validation Center

Cornell Cooperative Extension

Cornell Cooperative Extension extends Cornell University's land-grant programs to citizens all across New York State. With a presence in every county and New York City, CCE puts research into practice by providing high-value educational programs and university-backed resources that help solve real-life problems, transforming and improving New York families, farms, businesses and communities.

County associations of Cornell Cooperative Extension work with their local boards, committees and volunteers to influence decisions on program priorities and delivery. Our county extension associations and multi-county programs are separate 501(c) 3 organizations under the general supervision of Cornell University as agent for the state of New York.

Cornell Cooperative Extension:

Annually reaches over 1.6 million participants directly, and pushes information out thoroughly through print, social media, television, radio, and web pages – potentially reaching an indirect audience in 100 million ways.
Employs 1054 local and regional staff and educators organized around program initiatives and local needs including 71 regional specialists from 11 regional area agriculture teams who focus on dairy and field crops, commercial horticulture, ag entrepreneurship, grapes/viticulture, fruit, and vegetables.

Extends community work by partnering with over 26,000 volunteers who advise, plan, teach and mentor in all program areas.
Partners with nearly 300 Cornell staff and faculty; primarily from the College of Agriculture and Life Sciences and the College of Human Ecology.
Engages a program development process that relies heavily on community input to identify issues of local importance.

Often research is informed by the two-way flow of information and experience.
Includes 55 learning centers and 9 residential youth camps across New York State, and is fully equipped to deliver events and instruction through various modes including webinars, online coursework and on-demand videos to remote audiences.
Connects 30 student interns annually to internship opportunities that bridge research connected to faculty in the College of Agriculture and Life Sciences, the College of Human Ecology, and throughout the University with the assistance of the Office of Engagement Initiatives.

Collective, planned program areas are described below.

AGRICULTURE AND FOOD SYSTEMS: Projects support a NY food and agriculture industry that is diverse, sustainable, and profitable, and that produces a safe, reliable, and healthy food supply.

CLIMATE CHANGE: Projects develop and/or implement practices to reduce impacts from and prepare for damage from climate-related events. Special consideration will be given to projects that will develop implementable strategies, linked to agriculture, for meeting New York's new law on reducing use of carbon-based fossil fuels and lowering greenhouse gas emissions.

ENVIRONMENT AND NATURAL RESOURCES AND SUSTAINABLE ENERGY: Projects lead to improved use of the state's available land resources, renewable energy production from and/or for agriculture, and energy conservation that benefits agriculture.

NUTRITION, FOOD SAFETY AND SECURITY, AND OBESITY PREVENTION: Projects lead to childhood obesity prevention; improved youth, family and community nutrition; and food security and food safety.

4-H YOUTH DEVELOPMENT/CHILDREN, YOUTH, AND FAMILIES: Projects focus on life skill development, STEM opportunities for youth, human development, and the quality of home and work environments.

COMMUNITY AND ECONOMIC VITALITY: Projects empower entrepreneurship and workforce development, agriculture and food systems development, community and economic development, and community sustainability and resiliency through access to research, data, best practices, university-based resources, and community education.

2. FTE Estimates

Year	1862 Extension	1862 Research
2021	871.0	28.2
2022	871.0	28.2

2023	871.0	28.2
2024	871.0	28.2
2025	871.0	28.2

II. Merit / Peer Review Process

Use of media to announce public meetings and listening sessions
Targeted invitation to traditional stakeholder groups
Targeted invitation to non-traditional stakeholder groups
Targeted invitation to selected individuals from general public
Survey of traditional stakeholder groups
Survey of traditional stakeholder individuals
Survey of the general public
Survey specifically with non-traditional groups
Survey specifically with non-traditional individuals
Survey of selected individuals from the general public

Brief explanation.

Gaining stakeholder input and encouraging stakeholder participation is a system-wide expectation of all levels and units. Across the system, all of the stakeholder participation methods listed are employed; no single unit uses them all.

At the state level, IPaRT works with external stakeholders that provide guidance for CORNELL AES, NYSAES and CCE by reviewing funding support requests. Involvement is intentionally monitored and updated to ensure involvement and ties to traditional and non-traditional constituents, and established and emerging partnerships.

In addition, we have 37 active Program Work Teams (PWTs). PWTs are made up of extension educators, faculty, and stakeholders who work together to determine, develop and implement priority programs within PWTs and to advise IPaRT as needed. PWTs are expected to nurture research-extension integration, to encourage campus-field interactions and collaborations, to take multi-disciplinary approaches, to evaluate their efforts, and to involve their external members in all aspects of their work. More than 1,000 participants were involved in the work of these teams in 2019.

Beyond this state-level stakeholder input structure/process, each of Cornell Cooperative Extension's county extension associations continue to work closely with local stakeholders via participation in their local governance structures, i.e. board of directors, and advisory committee structures. In 2019, more than 3,179 board and committee volunteers from diverse backgrounds participated and assisted in the direction, priority setting programs throughout the state, and over 26,000 enrolled volunteers assisted with program delivery adding to stakeholder involvement.

III. Stakeholder Input

1. Actions to Seek

Use of media to announce public meetings and listening sessions
Targeted invitation to traditional stakeholder groups
Targeted invitation to non-traditional stakeholder groups
Targeted invitation to selected individuals from general public
Survey of traditional stakeholder groups
Survey of traditional stakeholder individuals
Survey of the general public
Survey specifically with non-traditional groups

Survey specifically with non-traditional individuals
Survey of selected individuals from the general public

2. Methods to Identify

Use Advisory Committees
Use Internal Focus Groups
Use External Focus Groups
Open Listening Sessions
Needs Assessments
Use Surveys

In local CCE offices stakeholder input is sought from all audiences including under-represented or under-served audiences. One of the strategies used for gaining input and developing working relationships with new audiences is by networking and partnering with organizations that do have existing and strong relationships with target groups. Local boards of directors and advisory committees also recruit an intentionally diverse membership representative of the people and the needs in the community.

Effective involvement of youth in program determination and implementation is a priority. Our local advisory committees are expected to include youth members as part of the needs assessment and decision making structure. In 2019, more than 7,270 youth reported serving in appropriate leadership, governance and program delivery roles statewide.

3. Methods to Collect

Meeting with traditional Stakeholder groups
Survey of traditional Stakeholder groups
Meeting with the general public (open meeting advertised to all)
Meeting specifically with non-traditional groups
Survey specifically with non-traditional groups
Meeting with invited selected individuals from the general public
Survey of selected individuals from the general public

4. How Considered

In the Budget Process
To Identify Emerging Issues
Redirect Extension Programs
Redirect Research Programs
In the Staff Hiring Process
In the Action Plans
To Set Priorities

The stakeholder input process for statewide program development jointly utilized by CORNELL AES, AgriTech at NYSAES and CCE was established in February 2001.

IPaRT stakeholders and PWTs work to improve program focus, relevance, and planning activities. Stakeholder input informs Federal Capacity Fund priorities and provides project-specific input on the relevance and value of the proposed work. IPaRT stakeholders provide input that informs decisions around funding of current extension and research projects, contributing ratings of perceived relevance among other rating criteria. Statewide applied research and extension priorities are updated annually, communicated to faculty and staff, and used as a consideration in funding decisions.

County associations of Cornell Cooperative Extension work with their local boards, committees and volunteers to influence decisions on program priorities and delivery. County extension associations and multi-county programs are separate 501(c) 3 organizations under the general supervision of Cornell University as agent for the state of New York. Their local plans of work are established under guidance of stakeholders in local advisory structures and governing

boards and are in alignment with the statewide plan of work.

Stakeholders help to frame and shape plans of work, funding proposals, programs, and educational activities. System-wide, the IPaRT stakeholders and PWTs have affirmed a commitment to the NIFA priorities and have elevated needs and opportunities to make use of campus resources for educational programs. Feedback from stakeholders is sought in a variety of ways, welcomed and considered for planning. Communication between CORNELL AES, NYSAES and CCE is open and regular at IPaRT meetings and through funding decisions.

IV. Critical Issues

1 Agriculture and Food Systems

Description:
Projects support a NY food and agriculture industry) that is diverse, sustainable, and profitable, and that produces a safe, reliable, and healthy food supply.

Programmatic outcomes for this issue are organized around: Business Management, Agriculture/Natural Resources Enterprises Labor, Producer Alternatives/New Ventures, General production Practices, and Agricultural Environmental Management.

Term: Long

Science Emphasis Areas
Sustainable Agricultural Production Systems

2 Climate Change

Description:
Projects develop and/or implement practices to reduce impacts to agriculture from climate change and/or to use agriculture and forestry practices to mitigate climate change. Special consideration is given to projects that will develop implementable strategies, linked to agriculture and forestry, for meeting New York's new law on reducing use of carbon-based fossil fuels and lowering greenhouse gas emissions.

Programmatic outcomes for this issue are organized around: Climate Change, Water Resources, Biodiversity and Natural Resource Protection.

Term: Long

Science Emphasis Areas
Agroclimate Science
Environmental Systems
Sustainable Agricultural Production Systems

3 Environment, Natural Resources, Sustainable Energy

Description:
Projects lead to improved use of the state's available land resources for agriculture and forestry industries, renewable energy production from agriculture or forest resources, and energy conservation and renewable energy that benefits agriculture and food systems.

Program emphasis areas include: Bioenergy, Producer Energy Alternatives/Conservation, Consumer energy Alternatives & Costs, Community Energy Planning, Waste Management and Energy, Environment & Natural Resources

Term: Long

Science Emphasis Areas
Bioeconomy, Bioenergy, and Bioproducts
Environmental Systems

4 Nutrition, Food Safety/Security, Obesity

Description:
Projects lead to childhood obesity prevention; improved youth, family and community nutrition; and food security and food safety.

Program emphasis areas include: Healthy eating and Active Living, Food Resource Management, Decision Makers/Policy Education, Food Security and Hunger, Food Safety and Consumers, Food Safety and Producers/Processors/Retailers/Food Service Providers, and Food Safety and Decision Makers.

Term: Long

Science Emphasis Areas
Family & Consumer Sciences
Food Safety
Human Nutrition

5 Youth Development/Children, Youth, Families

Description:
Projects focus on life skill development, STEM opportunities for youth, human development, and the quality of home and work environments. For Hatch or McIntire-Stennis supported research there should be a connection with agriculture and food industries.

Program emphasis areas include: Youth Competence, Youth Contribution, Youth & Volunteer Leadership, Parenting, Human Development (Individual and Community), Economic Security, and Indoor Environment.

Term: Long

Science Emphasis Areas
Family & Consumer Sciences
Youth Development

6 Community and Economic Vitality

Description:
Projects empower entrepreneurship and workforce development, agriculture and food systems development, community and economic development, and community sustainability and resilience which address social determinants of health. For Hatch and McIntire-Stennis supported research these activities must have a connection to agriculture and food industries.

Program emphasis areas include: Community and Economic Development, Community Capacity Building, Community Sustainability and Resiliency Decision-Making, Land Use and Energy, Land Use and Public & Residential Spaces, and Agriculture and Food Systems Development.

Term: Long

Science Emphasis Areas
Education and Multicultural Alliances

Environmental Systems
Family & Consumer Sciences
Human Nutrition
Sustainable Agricultural Production Systems
Youth Development