

2019 Annual Report of Accomplishments and Results

New York
Cornell University Agricultural Experiment Station
New York State Agricultural Experiment Station
Cornell Cooperative Extension

I. Report Overview

The NIFA reviewer will refer to the executive summary submitted in your Plan of Work. Use this space to provide updates to your state or institutions as needed.

1. Executive Summary (Optional)

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 (CAL S) 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, agricultural 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: Support, maintain and develop a NY agriculture industry that is diverse, sustainable, and profitable, which produces a safe, reliable, healthy and local food supply.

CLIMATE CHANGE: Engage with multidisciplinary researchers, educators and extension faculty to quantify the current climate trends and prepare for future impacts. This plan also includes related topics - biodiversity and water quality/erosion control.

ENVIRONMENT, NATURAL RESOURCES AND SUSTAINABLE ENERGY: Engage in research and extension that uses available resources - including land and organic waste streams for renewable solutions. This plan also supports research and extension strategies that promote energy and natural resource conservation.

NUTRITION, FOOD SAFETY AND SECURITY, AND OBESITY PREVENTION: Support families, youth, communities and the agricultural industry with research and extension connected to childhood obesity prevention; youth, family and community nutrition; food security and food safety.

4-H YOUTH DEVELOPMENT/CHILDREN, YOUTH, AND FAMILIES: Enrich the lives of youth and families with research and extension programs. 4-H youth programs focus on life skill development and STEM opportunities. Family programs emphasize human development and social well-being, parenting, economic well-being, and quality of home and work environments.

COMMUNITY AND ECONOMIC VITALITY: Empower individuals and communities to make sound decisions for the future through access to research, data and resources, best practices, university-based resources and community education. This plan also supports extension efforts related to entrepreneurship, workforce development, and community based food systems support through the Master Gardener Volunteer program.

II. Merit and Scientific Peer Review Processes

The NIFA reviewer will refer to your Plan of Work. Use this space to provide updates as needed or activities that you would like to bring to NIFA’s attention.

Process	Updates
<p>1. The <u>Merit Review Process</u></p>	<p>Cornell AES, AgriTech at NYSAES and CCE work together on a process of merit review for applied research and extension projects, including review for integrated and multistate activities. Key elements of the process are described below, and include statistics from the most current (2019) proposal cycle. Director-level staff from CORNELL AES, AgriTech at NYSAES, and CCE meet regularly as an Integrated Program and Research Team (IPaRT) to discuss relevant issues, research and extension projects, and new opportunities.</p> <p>Submission and Review Process (Research, Extension, and Integrated Projects with Federal Capacity Funds):</p> <ul style="list-style-type: none"> • Principal investigators (PI’s) are asked to consult program priorities (established as outlined in the stakeholder involvement section) and develop pre-proposals for new or revised projects funded by Federal Capacity Funds. • PI’s who meet eligibility requirements are generally allowed to submit one pre-proposal within each funding stream (e.g. Smith Lever, Hatch, Hatch Multistate), and do so through an online system, which tracks each proposal through its life cycle. • Pre-proposals are reviewed for purpose and relevancy by external stakeholders, the PI’s department/unit chair, Extension Program Associate/Assistant Directors, and the Agricultural Experiment Station directors (CORNELL AES and AgriTech at NYSAES). Reviews are submitted via a secure website. <p>For research proposals:</p> <ul style="list-style-type: none"> • Agricultural Experiment Station directors make final determination of pre-proposals for development into full proposals. • Full proposals are reviewed by two or three peer reviewers suggested by the PI and the PI's Department Chair. • The final proposal is submitted to NIFA through REEPORT. Pending approval by NIFA, Hatch funds are allocated to a unique account associated with their specific project. <p>For extension proposals:</p> <ul style="list-style-type: none"> • Extension Program Directors rank/recommend extension pre-proposals. • Extension Program Directors meet with Agricultural Experiment Station (Ithaca and Geneva) staff to discuss potential research and extension linkages within extension pre-proposals.

	<ul style="list-style-type: none"> • Extension Assistant Director, Organizational Development & Accountability reviews for equal program opportunity and affirmative action considerations. • Extension Program Directors finalize Smith-Lever funding recommendations. <p>Cornell University Review Criteria:</p> <ul style="list-style-type: none"> • Alignment with NIFA priorities • Alignment with internal priorities • Anticipated significance of results relative to current priority needs or opportunities • Scientific merit of objectives • Clarity of objectives • Appropriate approach and methodology • Feasibility of attaining objectives • Accomplishment during previous projects • Research performance and competence of investigator(s) • Relevance of the proposed work to state, regional, or national goals • Impact on underserved audiences • Level of research-extension integration • Relevance to stakeholders <p>For FY19, our most current data, a total of 137 pre-proposals were submitted to CORNELL AES, Agritech at NYSAES and CCE of which 68 were funded.</p>
<p>2. <u>The Scientific Peer Review Process</u></p>	<p>See above.</p>

III. Stakeholder Input

The NIFA reviewer will refer to your Plan of Work. Use this space to provide updates as needed or activities that you would like to bring to NIFA’s attention.

Stakeholder Input Aspects	Updates
<p>1. Actions taken to seek stakeholder input that encouraged their participation with a brief explanation</p>	<ul style="list-style-type: none"> • 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 <p>Brief explanation.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>

<p>2. Methods to identify individuals and groups and brief explanation.</p>	<p>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.</p> <p>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.</p>
<p>3. Methods for collecting stakeholder input and brief explanation.</p>	<p>Methods for collecting Stakeholder Input</p> <ul style="list-style-type: none"> • 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 <p>All of the techniques listed were used in 2019 but methods varied site to site and program-to-program across the system. Structures and processes for aggregating data are addressed in this section. The most active data gathering occurred in three venues - local advisory bodies, PWTs, and the IPaRT stakeholders. Web-based surveys; interactive webinars and response to social media also provide programmatic feedback. Examples of efforts to gather stakeholder input include:</p> <ul style="list-style-type: none"> • Adopting Positive Practical Lifestyle Education Series (APPLES): CCE Oswego CCE Oswego Nutrition programs based on the Oswego County Community Health Needs Assessment, which indicates that the age-adjusted rate for adults who are obese is 33.8%. The rate was 32% in 2009 and is the second highest among the six Central New York counties. The leading cause of death in Oswego County are diseases of the heart. The Oswego County ESNY/SNAP-Education Program Educators deliver the APPLES program in four to six lessons monthly to participants at the Oswego County Department of Social Services providing individuals, families with children, and groups with nutrition classes to promote healthy eating, exercise and shopping on a budget. • CCE/Fort Drum Partnership Benefits Soldiers and Families: CCE Jefferson Extension increased impacts of food and nutrition programs with military families by bringing additional stakeholders to the table to help with recruiting and retaining participants. To best meet the needs of the families and to maximize the content of the hourly classes, the series was jointly led by two educators, focusing on nutrition, physical education and hands-on cooking. To further engage participants, partnering organizations sent electronic reminders through existing

	<p>communication systems, providing weekly incentives to reinforce lessons, and coordinate childcare volunteers.</p> <ul style="list-style-type: none"> • Way2Go - Coordinated Volunteer Driver Recruitment: CCE Tompkins. Way2Go held a series of meetings with organizations that had volunteer driver pools to discuss the status of volunteer driver programs in Tompkins County and to explore potential improvements to the way we as a community enroll, dispatch, coordinate and/or support volunteer drivers and riders. The information gathered during these meetings indicated that organizations struggle to meet the needs of the populations served with current driver pools. Way2Go implemented a volunteer driver and recruitment effort along with nine community partner organizations in order to help fill transportation service needs in Tompkins County. This project served to expand access for the transportation for disadvantaged populations including those with low-incomes, seniors and persons with disabilities, increase organizational efficiency by coordinating recruitment, and inform the Tompkins County community members of the importance and need for a deep pool of volunteer drivers. • Farm to School Support in New York: Harvest NY. Farm to School programs have existed for decades, but ignited in 2018 as a result of Governor Cuomo’s No Student Goes Hungry Program. A key provision of this program is the \$.25 incentive to those schools that purchase at least 30% of their lunch ingredients from NY farms and food processors (hereafter referred to as the ‘30% initiative’). To mitigate supply chain barriers, Harvest NY provided both direct and indirect support to encourage peer-to-peer learning; identifying stakeholder needs, delivering educational programs in response; and developing a clearinghouse of shared information and resources. During this period, Harvest NY helped establish a new statewide Farm to School Program Work Team, which consists of 114 active members. • Farmer Needs Assessment Survey Yields Great Results: CCE Clinton. Farmers' needs and wants were unclear to local extension educators. A needs assessment survey was sent out. 81 responses (a 30% response rate) were submitted to guide future extension programming. Marketing programs, pasture walks, business classes, new on-farm experiences for 4-H and FFA youth are now being planned for local and regional staff. • Mapping Rockland County stormwater assets: CCE Rockland. CCE Rockland is leading efforts to map stormwater assets for the 24-participating municipalities of the Stormwater Consortium of Rockland County. Stormwater assets include outfalls, green infrastructure, and the stormwater conveyance system. The NYSDEC has proposed advanced stormwater mapping requirements in their draft stormwater permit. Mapping will help better determine work ahead. • Parenting A Second Time Around (PASTA - NYC) Workshop Series and Focus Groups: CCE NYC. Focus groups sessions were conducted following PASTA Series workshops. The workshop series and the focus groups were held in Brownsville Senior Center, in Brooklyn, Patterson Senior Center in the Bronx, and William Hodson Senior Center, also
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	<p>located in the Bronx. Focus group results strengthened program design and implementation.</p> <ul style="list-style-type: none"> • Point of Sale Technology for the farmers market: CCE Tompkins. The Point of Sale Technology for the Farmers Market was a pilot project conducted with a small group of Ithaca-area vegetable farms. The pilot was tested to better understand needs for future program. The intent is to expand the work to a larger audience of farmers market vendors. Previous research using the Market Channel Assessment Tool (MACT) revealed that among wholesale and direct-to-consumer channels, farmers markets were typically the poorest performing channel in terms of dollars of sales generated per hour of labor devoted to marketing activities. Despite their poor performance, farmers markets also offer unmeasured benefits to the farm such as customer feedback and publicity. • Taking Steps to Unite 4-H!: CCE Erie. The Erie County 4-H Program initiated a needs assessment to better understand the level of intercultural competence in county 4-H programs and the extent to which 4-H is effectively serving diverse populations of youth. The needs assessment showed both assets and needs in terms of building intercultural competence and creating a sense of belonging for all youth in Erie County 4-H. Based feedback, the program conducted initial interventions to build intercultural competence in 4-H. • Utica Somali Bantu Farming Project: CCE Oneida. Utica, NY has become home to over 3,000 displaced Somali Bantu tribal members. CCE Oneida worked with other stakeholders to survey the Somali Bantu community about their needs for personal growth and development. Survey results indicated that the community wants to learn to grow food for their immediate family, the community they are part of and the community they are trying to integrate into. Extension is working with partner organizations to find land to rent, resources to use, and educational programs for the population. The educational series included; soil health, plot planning, harvesting and food safety. • European Cherry Fruit Fly: Lake Ontario Fruit Program Following the initial detection of this new invasive pest in a park near Toronto, Canada, the Lake Ontario Fruit Program joined efforts with USDA and New York state Department of Agriculture and Markets and others to identify information gaps, administer the Cooperative Agricultural Pest Survey, participate in strategic planning, and disseminate information to growers. • In support of the objectives creating programs that meet the needs of all community stakeholders, Cornell Cooperative Extension requires local Associations to annually review and commit to the CCE Affirmative Action, Diversity and Inclusion Plan (AADIP). AADIP is a comprehensive plan that sets a foundation for building a more diverse and inclusive
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	<p>organization and supports organizational development and sustained culture change.</p> <ul style="list-style-type: none"> • Preparing staff to understand how to meet the needs of stakeholders is a priority. In 2019 mandatory all-staff training on Title VI Civil Rights were held. Additionally, diversity and inclusion topics were built into every larger staff training effort including: New staff orientation, the Program Development Leadership Cohort, Supervisory Development Training, Executive Director Boot Camp – and as the feature of the 4-H Youth Development Diversity and Inclusivity Cohort and Opening Doors Diversity training. These offerings, along with distance learning training in the program development process, help staff learn how to identify local needs and then meet the needs of audiences through programs.
<p>4. A Statement of how the input will be considered and brief explanation of what you learned from your stakeholders.</p>	<ul style="list-style-type: none"> • 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 <p>The stakeholder input process for statewide program development jointly utilized by CORNELL AES, AgriTech at NYSAES and CCE was established in February 2001.</p> <p>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.</p> <p>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.</p> <p>Stakeholders help to frame and shape plans of work, funding proposals, programs, and educational activities. System-wide, the IPaRT stakeholders and</p>

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	<p>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.</p>
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IV. Planned Program Table of Contents

No.	Program Name in order of appearance
1.	Agriculture and Food Systems
2.	Climate Change
3.	Environment, Natural Resources, & Sustainable Energy
4.	Nutrition, Food Safety and Security, Obesity Prevention
5.	4-H Youth Development, Children, Youth, and Families
6.	Community and Economic Vitality

V. Planned Program Activities and Accomplishments

Please provide information for activities that represent the best work of your institution(s). See Section V of the Guidance for information on what to include in the qualitative outcomes or impact statements. Add additional rows to convey additional accomplishments. You may expand each row as needed.

No.	Title or Activity Description	Outcome/Impact Statement	Planned Program Name/No.
1.	Agriculture and Food Systems	<p>Program participation in direct education events:</p> <ul style="list-style-type: none"> • Adult participants: 219,942 • Youth participants: 43,558 • Volunteers: 1,897 <p>Overall indications of program success:</p> <ul style="list-style-type: none"> • 3,739 producers, horticulture business persons, and/or natural resource managers modified existing practices and/or adopted new production practices or technologies to address current issues and improve yield efficiency, consistency and/or quality and/or conservation of resources • 2,552 participants documented that they have applied knowledge and skills gained from extension programs to existing business operations. • 1,621 producers, horticulture professionals, and/or natural resource managers documented that they assessed potential environmental impacts of their operations and developed and acted on plans to eliminate or minimize those concerns. • 1,293 participants reported improved agricultural/horticultural business profitability attributed at least in part to program participation. • 451 participants documented that they adopted innovations in food enterprises including production, allied services, processing, and distribution • 205 participants demonstrated knowledge gains related to needs of potential employees and/or availability of qualified employees <p>Innovative and Sustainable: The Future of Agriculture Lester and Cindy York’s small organic dairy farm in Canaseraga seemed destined to become another sad small farm statistic. Age and lifestyle changes added stress and uncertainty to the small family business. Tapping into the expertise of CCE Farm Strategic Planning Specialist Tim Terry, the family received grants from the New York State Department of Ag & Markets Southern Tier Agricultural Industry Enhancement Program to implement dairy automation to relieve some of the physical burden of the</p>	Agriculture and Food Systems

		<p>family farm. With CCE support, the Yorks installed a new compost bedded pack barn with robotic milking machines and feed pushers.</p> <p>“We went from the stone ages to landing on the moon,” explained Lester York. “It’s paying for itself and it allows us to do the farming we’re supposed to do better. Cooperative Extension helped us the most on this whole plan.”</p> <p>Robotics are not the only agriculture frontier CCE is exploring. Precision agriculture techniques like enhanced soil sampling, auto-guidance systems, yield monitors, satellite imagery, aerial photography, tool-bar mounted cameras and sensors, and agricultural drones, are increasing efficiency, refining management, and monitoring soil variation and crop progression across the state.</p> <p>With an eye toward sustainability, reduced greenhouse gas emissions, better energy efficiency and increased farm resilience, CCE agriculture specialists and county educators closely monitor the rapidly changing environment farmers are wrestling with and offer the latest research and methods growers and producers can apply to combat an increasingly uncertain world. Through educational offerings and on-farm consultations, CCE specialists and educators help growers adopt season extension technologies such as high tunnels and greenhouses, allowing them to capitalize on the “eat local” movement and ensure that a supply of local fruits and vegetables are available year-round.</p> <p>Sowing Seeds to Grow Ag in NYC</p> <p>From rooftops to climate controlled shipping containers, New York City urban farms are sprouting vegetables and fueling new businesses. Working these small plots are farmers young and old, from backgrounds as diverse as their agricultural needs and challenges.</p> <p>CCE Harvest New York urban agricultural specialists deliver educational programming and on-site technical assistance in all five boroughs to commercial vegetable growers and nonprofits operating urban gardens.</p> <p>Hosting workshops and one-on-one consultations, the specialists also help current and prospective urban farmers understand and adopt general food safety best practices while clarifying confusion around food safety rules, such as GAP (Good Agricultural Practices) certification and the FDA Food Safety Modernization Act. Providing behind-the-scenes support, Harvest New York also consults with community urban gardens, helping those farms run</p>	
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		<p>smoothly as they address issues of food access, food sovereignty and empowerment.</p> <p>Green Shoots for New Americans Refugee Agricultural Program In Buffalo, newly resettled refugees from the Democratic Republic of the Congo, Nepal, Bhutan and Myanmar grow produce through the Green Shoots for New Americans Refugee Agricultural Program at its Brewster Street teaching farm. The fresh produce is distributed locally through Community Supported Agriculture, at farmers markets, and to nearby restaurants. Vegetables are also shared with families in the neighborhood.</p> <p>Featuring raised beds and a high-tunnel, the organic farm sits on a couple of inner-city blocks in a neighborhood with limited access to fresh fruits and vegetables. Educators from CCE Erie County join CCE Cornell Vegetable Program specialists in teaching urban farmers how to adapt to farming in their new environments, along with basic agribusiness skills—such as yield profitability, budgeting and pricing.</p> <p>Evaluating Soil Microbiome Composition as an Indicator of Soil Health <i>Principal Investigator: Daniel Buckley, Associate Professor</i></p> <p>Soil health describes the functional characteristics of soil that have agricultural and ecological value. These soil characteristics include the potential to store carbon, retain moisture, suppress disease, prevent erosion, and mitigate greenhouse gas and other off-site pollution, in addition to sustaining crop yields in the long-term. Soil health is determined by routine testing, which would benefit from the use of microbiome analysis. Crop and soil researchers can better support agriculture with a nationwide dataset linking soil microbiome composition to soil health.</p> <p>The purpose of the study was to test the predictive value of the soil microbiome for properties of soil health and identify differences in the ecological function of populations indicative of poor versus good health. Researchers collected soil health and microbiome data for 950 soil samples from agricultural sites across 40 of the contiguous states with the help of a network of trained professionals. From the samples, bacterial communities were profiled, DNA was collected, and machine learning approaches were used to</p>	
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		<p>determine the predictive ability of the soil microbiome. We then tested whether bacterial groups identified in these studies were predictive of or associated with soil health. We identified trends in several major bacterial populations associated with properties of soil health and in ecological traits relevant to carbon cycling. The value of leveraging publicly available data to interpret trends in microbiome data led researchers to build a database of 45 studies focused on agricultural soils and management practices, termed the ecoDB. Work to build the ecoDB is ongoing and seeks to develop a set of taxa with known ecological-attributes that are predictive of soil health.</p> <p>Our study demonstrated that microbiome data is predictive of soil health and our ability to leverage our ecological understanding of soil microbes to deepen dimensions of soil health. In summary, this work offers a range of meaningful insights into the use of soil microbiome data in measuring soil health. This foundation can be used to continue to improve soil health practices by refining our capacity to monitor and measure health metrics. These approaches also have great potential as our capacity to use machine learning as a predictive tool improves greatly as more data is collected.</p> <p>Vegetable Variety Improvement for High Tunnel Production <i>Principal investigator: Michael Mazourek</i></p> <p>Consumer demand for year round access to high quality, fresh produce is increasing, especially in urban communities. This project addressed the need for growers to improve the availability and quality of produce beyond New York State’s relatively short growing season through the use of high tunnels – plastic covered hoop houses that provide an alternative growing environment to field soil. While high tunnels have been a great way to grow tomatoes and leafy greens, there is need to diversify the varieties of vegetables grown in high tunnels – specifically peppers, cucumbers and snap/snow peas, for which there is an established market.</p> <p>Plant breeding provides an evolutionary-based approach to adapt crops to a high tunnel environment. The adaptation occurs through cross pollination of plants that each contribute valuable traits followed by selection of the best individuals of each generation. In this project, we evaluated the performance of cultivars and breeding in high tunnels</p>	
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		<p>maintained on campus in formal replicated trials and on grower farms alongside their standard cultivars. This approach was used to evaluate and improve peppers, peas and cucumbers for growth in high tunnels in New York.</p> <p>New bell pepper and pole bean cultivars that were selected in and for production in high tunnels in the Northeast were bred and released. The five bell pepper breeding lines that were created, evaluated and released are now being shared with organic vegetable seed companies based in the Northeast, to be distributed commercially to benefit regional growers. Boosting the performance of new cultivars and breeding lines to be grown in high tunnels enhances farm revenue and increases the availability of new varieties in the locally grown food supply.</p> <p>Investigation of Pathogen Ecology, Biology and Epidemiology for Improved Management of Hop Powdery Mildew <i>Principal Investigator: David Gadoury</i></p> <p>Once the leading producer of hops in the U.S., New York state is making investments to strengthen a re-emerging hops industry, including tax incentives to expand NY’s craft brewing industry. However, powdery mildew – which destroyed the industry in New York state in the early 1900s – remains a threat. We need to increase understanding of pathogen ecology and to find ways to apply this new knowledge to reduce crop loss with less pesticide use.</p> <p>This project focused on finding ways to better control the destructive disease of powdery mildew through a better understanding of pathogen biology and ecology. The approach was to track for two years the seasonal distribution of ascospore discharge in three locations – New York, Raleigh, NC, and Madison, WI. Samples of hop powdery mildew were collected from all hop growing regions – across the United States and Europe – with an emphasis on collecting samples from commercial and feral plantings of hop. Also, the impact of acute cold events was exhaustively analyzed in the primary way in which an acute cold event could occur and affect the hop powdery mildew pathogen.</p> <p>The results of this project are helping stakeholders of the craft brewing and hop industry, including growers and brewers, advisors, graduate and undergraduate students with an interest in this area, legislators, and cooperative extension teams. The project is helping them battle the hop</p>	
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		<p>powdery mildew pathogen by understanding the impact of acute cold on disease suppression and by improving integrated pest management programs informed by this research.</p> <p>Unwrapping the Mysteries of Fungal Foliar Diseases of Onion in New York <i>Principal Investigator: Frank Hay, Sr. Research Associate</i></p> <p>The fungal disease Stemphylium leaf blight (SLB) has emerged as a major threat to New York state’s \$52M-a-year onion industry. The disease causes premature leaf death leading to decreased size and yield of bulbs. Premature leaf death also affects the plant’s ability to absorb sprout inhibitors applied near harvest, which impacts how long and well onion crops can be stored. Greater understanding of this leaf blight is needed to help growers manage the disease and adopt more effective use of fungicides to promote sustainable practices in the state’s onion industry.</p> <p>The project was designed to answer some basic questions about SLB to assist growers manage it. Researchers were seeking to confirm the causal agent, assess onion varieties for relative resistance to SLB, identify agronomic factors that might need to be changed to reduce the susceptibility of plants to infection and disease carryover between seasons, and to identify fungicide resistance in the Stemphylium population.</p> <p>The project has educated onion growers in NY about SLB and its resistance to fungicide. With this increased understanding of SLB, growers can develop improved integrated management strategies and more rational and effective use of fungicides. For example, fungicides shown to be effective against SLB but at risk of developing resistance were identified. Two fungicides to which resistance had become widespread have been removed from use. Widely adopted by growers was a fungicide program that restricts the number of fungicide applications in a season within a particular mode of action group and rotates between fungicides with different modes of action. These steps are part of our work to support more sustainable crop management practices in NY’s successful onion industry.</p> <p>High-Density Lipoprotein as a Novel Means to Decrease Production-Related Diseases in the Dairy Cow</p>	
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2.	Climate Change	<p>Program participation in direct education events:</p> <ul style="list-style-type: none"> • Adult participants: 60,163 • Youth participants: 8,871 	Climate Change

		<ul style="list-style-type: none"> • Volunteers: 2,926 <p>Overall indications of program success:</p> <ul style="list-style-type: none"> • 2,312 consumer, residents, agricultural/natural resource producers, organization and business representatives, and/or local government and community leaders documented that they modified existing practices or technologies and/or adopted new practices to protect/enhance natural resources and/or enhance biodiversity • 1,662 consumers, residents, agricultural/natural resources producers, organization and business representatives, and/or local government and community leaders demonstrated knowledge gains about the causes and implications of climate change and adaptive or mitigation strategies • 924 consumers, residents, agricultural/natural resources producers, organizations and business representatives, and/or local government and community leaders documented that they modified existing practices or technologies and/or adopted new practices to protect/enhance water resources • 676 instances were documented where consumers, residents, agricultural/natural resource producers, organization and business representatives, and/or local government and community leaders improved and/or protected water resources • 671 agricultural/natural resource producers, organization and business representatives documented that they adopted recommended adaptation strategies for production agricultural and natural resource management, including invasive species, pest management, pollutant loads, wetlands, emergency preparedness, etc. • 224 agencies/organizations/communities documented that they adopted recommended climate mitigation practices and policies <p>Building Resiliency CCE Suffolk County is using its extensive aquaculture expertise to rejuvenate Long Island’s waters by spawning 179 million oysters and hard clams and planting them in five coastal sanctuaries in Nassau and Suffolk counties. The effort is a key part of New York state’s \$10.4 million Long Island Shellfish Restoration Project, which enabled CCE Suffolk County to build the largest hatchery in the state, in Southold.</p>	
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	<p>Aquaculture Specialist Gregg Rivara and his colleagues designed a floating upweller (called FLUPSYs) system to quickly grow shellfish, and installed around 40 FLUPSYs throughout Long Island waters. Towns and individuals who host FLUPSYs in their waters can keep the systems to raise their own shellfish after the project is complete. Schoolchildren benefit by learning about shellfish biology through accompanying STEM curriculum. “It’s important to engage the public in the whole process, so they understand how this works,” CCE Suffolk County Marine Program Director Christopher Pickerell says. “It fosters a sense of stewardship, and that’s really important to us.”</p> <p>The spawned shellfish are transported to the five sanctuary sites, chosen specifically for their moderately compromised water. “We’re hoping to improve water quality as the algae-laden water passes through these areas with high densities of shellfish that can filter out the harmful algae,” Pickerell says.</p> <p>Oyster reefs also create habitats in tidal areas, which improve the health of estuaries and offer breeding habitat for fin fish, which provide food for larger ocean animals. The restoration project will also benefit the commercial fishing, sport fishing, tourism and real estate industries that are the lifeblood of Long Island’s economy.</p> <p>Sustainable Skills High school and middle school students from 14 NYS school districts gathered at the 2019 Catskills Youth Climate Summit hosted by CCE Delaware County. Students learned about climate change and how to lead climate actions in their school and community. Workshops and activities focused on 4 tracks: recycling, water, science and earth and were presented by experts like Cornell University College of Engineering Professor Anthony Ingraffea. Funding for the Youth Climate Summit was provided by NOAA, Catskill Watershed Corporation, NYC DEP and NYSERDA. Student scholarships for Delaware County Schools were provided by Delaware County Soil and Water Conservation District. Cornell Cooperative Extension worked with funders, The Wild Center and advisory teachers and students to develop this informative and empowering program.</p> <p>Climate Smart Communities In pursuit of New York’s Climate Smart Community certification, CCE energy educators in the Southern Tier are helping municipalities such as Broome and Tompkins County</p>	
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<p>3.</p>	<p>Environment, Natural Resources, & Sustainable Energy</p>	<p>Program participation in direct education events:</p> <ul style="list-style-type: none"> • Adult participants: 114,365 • Youth participants: 39,076 • Volunteers: 4,282 <p>Overall indications of program success:</p> <ul style="list-style-type: none"> • 8,390 agricultural/natural resource producers, organizations and business representatives, community leaders, and/or residents documented that they modified existing practices or technologies that will assist with natural resources management and the environment • 2,410 consumers reported that they adopted appropriate energy cost control and/or conservation practices • 1,567 agricultural/natural resources producers, organization and business representatives, community leaders, and/or residents documented that they modified existing practices or technologies and/or adopted new practices to manage and reduce waste • 1,057 agricultural/natural resources producers, organization and business representatives, community leaders, and/or residents documented that they reduced costs through improved waste management practices • 906 consumers reported savings on energy costs attributable to adopting energy conservation measures 	<p>Environment, Natural Resources, & Sustainable Energy</p>

		<ul style="list-style-type: none"> • 848 consumers reported savings on energy costs attributed to adopting alternative energy sources <p>Renewable Energy Transitions This project investigates New York State's renewable energy (RE) transition. We explore upstate/downstate tensions in RE, and how public engagement can be used to alleviate them. We draw on experience in outreach and research on regional energy development. Using surveys and interviews with stakeholders, we will identify key social and policy barriers for renewable energy development in NY. Progress Summary: As the research side of the project has advanced, we have worked hard to build on and strengthen or coordinate our outreach relationships and efforts with other key players working and educating in this space. Foremost among them are staff concerned with Large Scale Renewables in The Nature Conservancy and with the American Farmland Trust on the nonprofit side, and the National Renewable Energy Lab, the Office of Climate Change (DEC) and NYSERDA on the government side. In both informal and formal ways we have to a greater or lesser extent helped to raise the profile of this issue with local, state, regional, and national extension affiliated organizations as well with our active participation in a variety of related events: CCE as a whole, the CCE Community and Energy Program work team, the National Sustainability Summit & National Extension Energy Summits, the National Association of Community Economic Development Professionals, and the Northeast Regional Center for Rural Development. We have developed working hypotheses on the reasons that the evolving relationships between agriculture and solar seem increasingly to be crucial to the future of solar development, and have prioritized the development of outreach materials on this and related topics for the coming year.</p> <p>Expected and Observed Impact/Outcome: We believe we have made some progress, and are poised to make much more, increasing awareness of the issues involved in solar development with a variety of audiences. We are now able to better understand and target priority audience needs.</p> <p>We have developed relationships through which information can be more effectively shared with key audiences. As awareness of the issues increases, and our own and others' research begins to fill in the many knowledge gaps about the impacts of LSRs, we expect better informed decisions to be made on the part of those</p>	
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		<p>influenced by current and forthcoming outreach efforts. With the signing into law of the Climate Leadership and</p> <p>Evaluation Approaches/Methods and Results: Community Protection Act on 1/1/2020, it is clear that the salience and impact of this work will only increase. Informal feedback only. Demand for our work is increasing significantly.</p>	
<p>4.</p>	<p>Nutrition, Food Safety and Security, Obesity Prevention</p>	<p>Program participation in direct education events:</p> <ul style="list-style-type: none"> • Adult participants: 250,182 • Youth participants: 443,550 • Volunteers: 11,115 <p>Overall indications of program success:</p> <ul style="list-style-type: none"> • 59,287 children and youth demonstrated knowledge or skill gains related to healthy eating and active living • 44,862 parents/caregivers and other adults demonstrated knowledge or skill gains related to healthy eating and active living • 6,283 consumers documented that they implemented new and/or increased application of ongoing safe food purchasing, handling, storage, and preparation practices • 5,768 program participants have acted to improve their food security status • 603 producers/processors/food service providers documented that they implemented new and/or increased application of ongoing safe food production, processing, storage, handling, marketing, and preparation practices • 191 communities/firms/organizations documented that they implemented improved practices or food safety policies as a result of participating in relevant educational programs <p>Healthy Foods, Healthy Habits</p> <p>Hot dog day at City Honors School in Buffalo is a favorite among the school’s 600 students who opt for school lunch. And notable, because thanks to CCE’s Harvest NY program, the hot dog, chips, broccoli, salad, milk and juice the students are served all originate from New York farms. By localizing supply chains through farm-to-institution programs, CCE facilitates the re-investment of millions of dollars back into the agricultural sector. Successful Farm2School programs are re-connecting cafeterias to local</p>	<p>Nutrition, Food Safety and Security, Obesity Prevention</p>

		<p>farmers, and students are learning the value of eating fresh and local for better nutrition. Buffalo’s Farm2School program is just one example. There, the district now spends \$2.6 million on local foods—easily surpassing New York State’s 30% local food procurement benchmark. While Harvest New York specialists coordinate local foods in the lunchroom, CCE Erie County educators work with students and families on nutrition and gardening projects designed to expose kids to local food systems and encourage healthy choices.</p> <p>The Farmers Market Nutrition Program, a state-wide effort to connect communities and populations that are food insecure and the local farmers who could be put to work feeding them, is yet another example of CCE building bridges to deliver quality, local foods. Local associations run displays and demonstrations at farmers markets, showing how to cook and offering samples of the lesser known fruits and vegetables found there.</p> <p>Beyond the farmers market, CCE facilitates other food-related community programs at the county level, including education for SNAP-eligible participants to learn about cooking, nutrition, meal planning, health and physical activity. The Expanded Food and Nutrition Education Program (EF-NEP) has been an anchor of CCE community outreach for the past 50 years. Through hands-on workshops, educators teach adults about food and exercise, food safety and security, and work to instill a sense of mastery, belonging, independence, and generosity among youth participants. The Adopting Healthy Habits program tackles obesity by working on behavioral changes that support health, nutrition, physical activity and play.</p> <p>Ag in the Classroom New York Agriculture in the Classroom programming facilitated by CCE fosters awareness, understanding, and appreciation of how we produce food and fiber, what we eat, and how we live by helping educators, students, and their communities learn about and engage with agriculture and food systems.</p> <p>In partnership with Cornell University, the NYS Department of Agriculture and Markets, the NYS Education Department, and the New York Farm Bureau, CCE works with elementary and middle schools to increase agricultural literacy in the state.</p>	
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5.	4-H Youth Development, Children, Youth and Families	<p>Program participation in direct education events:</p> <ul style="list-style-type: none"> • Adult participants: 148,219 • Youth participants: 402,955 • Volunteers: 11,211 <p>Overall indications of program success:</p> <ul style="list-style-type: none"> • 32,888 youth demonstrated that they increased their ability to express their ideas confidently and competently • 28,769 youth demonstrated they gained new STEM skills • 12,540 youth demonstrated improved college and career-readiness skills • 10,578 parents/relative caregivers reported experiencing positive changes in parent-child relationships and parenting skills that they attribute to implementing new parenting behaviors and methods learned in parent education programs • 8,999 youth lead community service projects in partnership with adults using skills learned in 4-H 	4-H Youth Development, Children, Youth and Families

		<ul style="list-style-type: none"> 6,334 program participants reported that they are practicing improved money management skills such as comparison shopping, paying bills on time, paying more than minimum payment, checking credit report, and reviewing and understanding bills/statements as a means to meeting financial goals <p>4-H Youth Development 4-H is a national organization of associated youth programs and clubs with a broad mission to support kids as they work toward their greatest potential. From Buffalo to New York City—and nearly every community in between—CCE educators provide 4-H programming and experiences to over 300,000 children and teens.</p> <p>In Jefferson County, youth in the 4-H after school program recently watched as a program that focuses on promoting civic engagement and career readiness through the execution of community improvement projects. In Broome and Monroe Counties, the 4-H Urban Neighborhoods Improved Through Youth (UNITY) program focuses on the needs of vulnerable teens and their parents to strengthen family well-being, break the cycle of generational poverty and improve the community.</p> <p>For example, 4-H Camp Bristol Hills in Ontario County has specialty programs that serve various youth populations, including children with autism, boys with behavioral considerations, middle school girls, and Rochester and NYC urban youth. Each program uses traditional activities in different ways to reach intentionally selected youth development goals.</p> <p>4-H PRYDE: A Living Laboratory The Program for Research on Youth Development and Engagement (PRYDE) engages faculty throughout Cornell to develop research that fosters youth development and promotes innovative intervention studies that solve problems affecting youth. PRYDE aims to create solid and enduring partnerships between county 4-H staff and Cornell researchers for the improvement of both science and service, and to the benefit of New York state youth. For example, Anthony Burrow, a professor at the School of Human Ecology and the director of the PRYDE lab, is researching how to create resilience to negative stressors. His lab noted that while social media has many benefits for</p>	
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		<p>kids—it exposes children to ideas and experiences and gives them a voice in situations where they otherwise might not have an outlet for expression—it can also be fraught with social stress and anxiety. In his research, Burrow finds having a strong sense of purpose in life can stave off heightened affective or emotional reactivity to something as simple as receiving (or not receiving) a thumbs-up on a social media selfie.</p> <p>PRYDE’s overarching goal is to make the New York State 4-H Youth Development Program a “living laboratory” for research and evaluation, using science to determine the best ways of promoting optimal youth development.</p> <p>Career Explorations Conference For over 90 years, NYS 4-H has hosted the annual Career Explorations Conference at Cornell University’s Ithaca campus. Nearly 500 4-H youth attend the three-day event to immerse themselves in exploring their future education, career opportunities, and to experience campus life. Cornell faculty and graduate students conduct engaged-learning workshops in engineering, animal science, astronomy, environmental science, food science, nanotechnology and human development. The workshops help youth understand what a particular career field entails, what type of education they would need to pursue, and to learn from the experiences of the program facilitators. “I’ve always had a love for marine biology,” said Warren County 4-H-er Willow Hogan. “By doing this program, I got to explore different fields, departments and subject areas that I was interested in and wanted to do but, honestly, to also find out what I did not want to do—which I think is very important. I’ve been in 4-H for almost 13 years, and it’s changed my life.”</p> <p>Opioid Crisis Response Cooperative Extension systems across the country are aligning with efforts to combat the growing opioid crisis. In New York, that means building capacity for CCE to partner with national efforts on a local level. In 2019, CCE started exploring and identifying a role for programming to assist in the problem many of New York state’s communities face. In early 2019, Extension Administration conducted two statewide trainings for educators and administrators to understand the continuum of stakeholders involved in this work. An Opioid Program Work Team has been established and currently has over 100 members across 31 associations.</p>	
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		<p>In the years to come, CCE will continue to focus on prevention and education opportunities in other vital programs such as parenting and youth development.</p> <p>Stronger Future for NY Families CCE supports the ever-evolving needs of New York Families through hands-on parenting workshops, peer support groups, respite events, intergenerational activities, and a deep well of science-based resources. The Relatives as Parents Program addresses the specific needs of grandparents and relative caregivers who are parenting for the second time around. Workshops engage participants in all aspects of family life, from diet quality and self-image, to communication and relationship building. Through the Strengthening Families Program, educators support families in preventing teen substance abuse and behavioral problems by facilitating interactive learning activities for the whole family. “I’m 62 and my grandkids are 10 and 13. I’m raising them by myself so I’m mom and dad and a grandparent. CCE parenting classes provide a wonderful way to bridge the age gap between us and spend time together.” -- Marlin Willis, Hartford</p> <p>For families with infants and toddlers (The Magic Years) and children 5-10 (The Middle Years), CCE parenting classes teach discipline skills and facilitate age-appropriate parenting skill development. Faculty and extension associated in the Cornell University College of Human Ecology and the Bronfenbrenner Center for Translational Research support the work of CCE educators by offering a suite of family development curricula and trainings to help educators enhance parent-child relationships and support family development.</p>	
6.	Community and Economic Vitality	<p>Program participation in direct education events:</p> <ul style="list-style-type: none"> • Adult participants: 194,854 • Youth participants: 73,591 • Volunteers: 8,560 <p>Overall indications of program success:</p> <ul style="list-style-type: none"> • 20,505 residents are practicing management tactics in homes, lawns, gardens and landscapes that support environmental stewardship and a sustainable community • 1,755 residents are enrolled as active Master Gardener volunteers 	Community and Economic Vitality

		<ul style="list-style-type: none"> • 721 communities instituted new or enhanced participatory processes related to community and economic vitality • 122 agriculture/horticulture/natural resource business professionals are better prepared to deal with disasters and emergencies • 69 communities planned for and have implemented initiatives on community based agricultural economic development, land use, energy, workforce development, business and entrepreneurial development and assistance, non-profit sector development and/or other elements of sustainable growth • 16 communities implemented projects that enhanced community sustainability and/or protect public health and community well-being through sound environmental management <p>Local Flavor Builds Local Economies</p> <p>JADA Hill Farm in Deposit specializes in goat milk bath and body products. Owners John and Dawn Alfano raise 19 dairy goats and Dawn produces the soap in small batches in the family kitchen. It’s a true cottage enterprise, but it wouldn’t be financially sustainable without one key ingredient: a spot on the shelves of five local Taste NY stores across the state.</p> <p>Fostering economic prosperity for New York State’s 33,000 family farms is chief among CCE’s mission. Working with the Cornell Small Farms Program, a collaboration featuring Cornell College of Agriculture and Life Sciences and CCE educators, new farmers are connected with resources to get their fledgling farm businesses off the ground. Through programs like Labor Ready Farmer and Baskets to Pallets, farmers learn how to hire and manage a workforce and get their produce into food hubs, restaurants, and groceries. Cornell Small Farms also seeks to diversify the ag industry by offering scholarships and discounts to their business training programs, conducting workshops and farm tours in Spanish and sponsoring projects like Farm Ops which matches military veterans who are interested in farming with education and apprenticeship opportunities.</p> <p>Established farm businesses can reach out to CCE’s Agriculture Workforce Development program to demystify new farm and labor laws and learn how to build committed, engaged and effective teams through tried-and-tested human resource management practices and research-based leadership and management development education. CCE</p>	
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		<p>educators also help produce growers and distributors meet food safety regulations. In partnership with the New York State Department of Agriculture & Markets, educators take producers through confidential facility food safety consultations as part of the On-Farm Readiness Review program.</p> <p>Once a farmer has identified and perfected the product they will produce, CCE efforts can help get it on the shelves. In partnership with the New York State Department of Agriculture & Markets, CCE operates several Taste NY store locations which market and sell local foods, beverages and value-added products.</p> <p>Initially, the Alfanos were unsure how to get JADA Hill Farm products on retail shelves, but CCE staff in Broome County were able to help the Alfanos understand and meet retail requirements like specific insurance coverage and bar-coding requirements. Now, thanks to the exposure provided by Taste NY, online and phone orders are even up. “I’m so glad we did it,” Dawn said. “This is what pays for the farm.”</p> <p>Dairy Processing</p> <p>Thanks to a rich supply, dairy food processing flourishes in New York, employing over 8,000 across the state. The strength and vitality of this industry depends on attracting new manufacturers as well as supporting those that are established. CCE dairy processing specialists work with the plants, regulatory agencies, workforce development agencies and suppliers all across the state to train up a strong and capable workforce. CCE also supports startup companies by connecting them with technical and business resources and providing insight into regulatory requirements, plant operations, market dynamics, and emerging market trends.</p> <p>Maple Production</p> <p>NYS ranks second in maple production in the U.S. In 2018, this accounted for roughly 20% of the nation’s maple syrup which flowed from about 2.7 million taps. CCE supports this industry by providing education for producers and agritourism opportunities for consumers. CCE also partners with Cornell Maple Program to improve the production and distribution of maple products by providing workshops on research-based best practices and helping them create, test, and market value-added products.</p>	
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