Linking Consumers and Agriculture Producers

Harvest NY is an innovative Cornell Cooperative Extension team that focuses on growing New York's Farm and Food Economy. Harvest NY seeks to link consumers and producers in three major areas: Food Systems, Urban Agriculture, and Emerging Crops.

Kwesi Joseph and Makela Elvy

Letter from the Team Leader

Thanks for your interest in our Year in Review!

2021 was a year of growth and transition for Harvest NY. Our team said goodbye to valued colleagues, added staff, and built new educational models based on our partnerships across New York State. Major growth for Harvest NY took place in the Urban Agriculture, Farm to School, and Emerging Crops programs. In all cases, partnerships with New York State Department of Agriculture and Markets facilitated this growth.

Urban Agriculture has been a key program for us since 2017 with two educators providing support for commercial urban farms in the 5 boroughs of NYC. In 2021, we launched our Urban Garden component of this program by adding three new educators–two in NYC and one serving Western New York. The thousands of community gardens in these urban settings have the potential to contribute to community resiliency, social and environmental justice, and food sovereignty. Our program seeks to contribute to production, harvest, and food access by:

- Providing urban gardens with their own dedicated Educational Specialists to implement projects.
- Establishing a four-season educational urban farm in Rochester, NY where people from all walks of life can gather to learn, grow, and strengthen the resilience of urban neighborhoods.

Join me in welcoming two new Urban Educators to the team, Kwesi and Makela! You can read more about their work in the following pages. We are currently pursuing a candidate to be their colleague and lead the way for community gardens in WNY.

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Harvest NY has been a statewide leader in Farm to School for the last decade, with demand for our expertise exceeding capacity. In 2021, we built on our success in Western New York to expand to three new regions: the Hudson Valley, Long Island, and North Country. Read about these coordinators' success inside! In 2022, the program will expand to Central New York and New York City. Credit for this success goes to our program lead, Cheryl Bilinski, and her colleagues.

Emerging Crops is Harvest NY's 'on-farm' program. In 2021, we added two educators—Anya and Daniela—to directly help farmers adapt to changes in crops and production methods. Key work here involves the research of low-toxicity pest management in berries, and hemp as an environmentally friendly way of producing grain, fiber, and other products.

As always, our goal is to provide demonstrable impacts in the communities we serve. Some impacts from 2021 include:

- **Supported the procurement $4,650,000 of NY Food products in service of 83,000 students.**
- **Developed pest management plans, increasing revenue $12,000 per acre for NYC urban farm.**
- **Helped develop an urban CSA where participants reported eating 33% more fruit and 58% more dark green vegetables.**
- **Initiated the first ever New York Hemp Production guide for the growing NYS Cannabis industry.**
- **Expanded Farm to School efforts to include a focus on cultural diversity, support BIPOC food and farm partners to develop culturally appropriate food for a diverse student body.**
- **Publication of "30% NYS Initiative: Opportunities, Barriers, and Pathways to Success", an analysis of procurement data from 53 of the 57 School Food Authorities that qualified for the NYS 30% Initiative during the previous school year.**

We thank our partners in this work: New York State Department of Agriculture Markets, NYS Berry Growers Association, Buffalo Public Schools, our colleagues within the Cornell system, and most importantly our audience—farmers, food processors, gardeners, and citizens of the great state of New York!

Judson Reid
Team Leader and Extension Vegetable Specialist

Ginger as a Farm Enterprise in New York City

Two Year Trial Promises Profitability that Requires Very Little Work During the Busy Summer Months

In New York City, urban farmers work with whatever space they can find, figuring out workarounds for the limitations of the site. The available spaces are often small—measured in square feet rather than acres—and lack any soil suitable for most crops, although compost can often be obtained for free from the city. Beginning in 2020, Harvest New York Urban Agriculture Specialists Sam Anderson and Yolanda Gonzalez began trialing methods for growing fresh ginger as a profitable enterprise which could be adapted to fit the most common limitations and opportunities of NYC urban farms. After the trial's success in 2021, at least eight NYC urban farms plan to grow ginger in 2022.

Adapting a method trialed by the University of Hawaii, Gonzalez and Anderson planted ginger in five-gallon poly nursery bags, with free municipal compost as a growing medium. Partner farms hosted the trial—John Bowne High School in Queens and New Roots Community Farm in the Bronx—and four other urban farms received ginger to seed to trial their own methods, comparing notes along the way.

After ironing out logistics the first year, the 2021 trial exceeded expectations. At two ginger plants per nursery bag, each bag averaged 1.25 lbs of marketable rhizome, grown under plastic (in a hoophouse), each bag averaged 1.5 lbs, while those grown outdoors averaged 1 lb per bag. Both results promised profitability: with costs estimated at $5 to $7 per bag, and fresh ginger selling for $15 to $20/lb in NYC, urban farmers could earn a net profit of over $1,500 per 100 bags of ginger—all with an enterprise that requires very little work during the busy summer months.

Our total conference and webinar outreach from both the 2020 and 2021 trials reached an audience of over 200 urban growers, proving that more and more urban farmers are approaching this subtropical crop as not just a curiosity, but a viable farm enterprise. At our latest December 2021 event, urban farmers began planning their bulk ordering options for the 2022 season.

Finally, we would like to extend an enormous thanks to New Roots Community Farm, who hosted this year's trial, including the amazing volunteers who helped with this project all year and made harvest day a breeze!

Volunteers at New Roots Community Farm harvesting ginger from the 2021 trials.
A whopping 35 bags were harvested and weighed in just 2 hours!

Creating Gardens and Restoring Communities in New York City

The urban neighborhoods in New York City are known to have an abundance of food deserts (areas that have limited access to affordable and nutritious food) and food swamps (areas where have an abundance of fast food, junk food, and liquor stores that outnumber healthy food options). In 2021, Urban Gardens Specialist, Kwesi Joseph began his outreach to the community gardens and community services in the boroughs of Brooklyn and Queens, NY. His goals were twofold: to assist community gardens with any issues they may have with gardening, and to help people create new gardens so they can grow their own hyperlocal food.

At Good Shepherds Garden in East New York, Brooklyn, Kwesi held a cover crop workshop that was attended 15 community members. Most the attendees indicated that they would like to join or rejoin the garden. Good Shepherds Garden had lost most of its members in recent years due to aging. Now, the garden is primed for a rebirth with new members and updated garden methodologies, such as cover cropping. Soil remineralization will be introduced to the members of Good Shepherds Garden in the spring of 2022.

In Springfield Gardens, Queens, there is a Salvation Army residence that temporarily houses displaced families. Kwesi was contacted by the Education Coordinator to assist in creating a garden. The garden will be used to teach the children at the residence how to grow their own food and how to prepare nutrient dense foods that they may not be familiar with. Kwesi tested the soil for heavy metals (all levels are normal) and created a plan to create two raised 8x2 ft beds in 2022. The beds won't be made from wood, instead they will be a "living wall" of Dutch White Clover–a nitrogen fixing legume that will add nitrogen to soil and attract beneficial insects.

Developing Stronger Connections Between New Yorkers, Their Food, and the Natural World Around Them

Makela Elvy Joins Harvest NY as an Urban Garden Specialist

Makela Elvy is a Bronx-native who discovered her love for the environment and urban agriculture when she joined A.C.T.I.O.N. at The Point CDC in 2009. With A.C.T.I.O.N., Makela worked on several community development projects including the restoration and preservation of North Brother Island as a bird habitat in partnership with the Audobon Society, the Sheridan Expressway Corridor campaign which created safe pedestrian access to crucial green spaces in partnership with the South Bronx River Watershed Alliance and Pratt Institute, and the development of an urban garden at the riverside campus to introduce fresh produce into the Hunts Point area in the South Bronx all before graduating from high school.

In pursuit of higher education that would better enable her to serve her community, Makela achieved a B.A. in Environmental Geoscience from Depauw University and a M. Ed. in curriculum and instruction from Concordia University. During her graduate studies, Makela joined the education department at Snug Harbor Botanical Garden and Cultural Center, home to the 2.5-acre Heritage Farm, and began to focus on food systems in NYC. At Snug Harbor Botanical Garden and Cultural Center, Makela earned a DSNY Master Composter certification, completed the Municipal Arts Society's Livable Neighborhoods Program and led a farm engineering program that taught elementary students about food systems and the importance of urban agriculture.

Most recently, during the height of the COVID pandemic, Makela served as the Compost Outreach Coordinator for Staten Island. In this role, Makela partnered with the horticulture and farm staff to increase Snug Harbor's ability to process organic matter onsite through the conversion of several backyard composting systems to a mechanized windrow system. Makela also developed several partnerships with gardeners, and other community-led organizations throughout the borough resulting in the successful establishment of DSNY food scrap drop-off sites in all three community board districts on Staten Island.

In her new role with Harvest NY, Makela will continue helping New Yorkers develop a stronger connection with their food and the natural world around them.

URBAN COMMUNITY GARDENS

Harvest NY Expands Farm to Institution Support Across New York State

CCE Harvest NY launched a new Regional Farm to School Coordinator program in 2021, which builds upon their existing Farm to Institution program. The Regional Farm to School Coordinator program prioritizes a system-based approach that is smart, strategic, and sustainable. Objectives are guided by a statewide plan of work, yet responsive to regional needs and opportunities. The primary goal of the Farm to School program is to increase the volume and variety of NY food products procured by School Food Authorities, which is accomplished in two ways:

1. Providing technical assistance to supply chain stakeholders, including farmers, distributors, processors, food hubs, and School Food Authorities
2. Providing statewide support via resource development, training, and technical assistance

Building on a track record of success, the Regional Farm to School Coordinator Program was submitted to the NYS Department of Agriculture & Markets, which provided $255,440 to fund a soft launch of the program in three new regions: Hudson Valley, Long Island, and North Country, while maintaining support in Western NY. The new regions were chosen based on need, as existing Coordinator support was scant, and opportunity, given the significant number of students served. New regions will be added in 2022, to include Central New York and New York City.

FARM TO SCHOOL

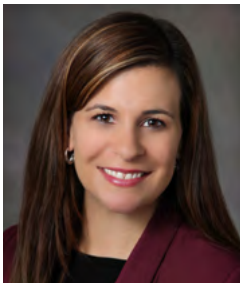

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photo by Josh Baldo

"...This comes at a critical moment, when the pandemic has increased food insecurity and laid bare how fragile our global food system can be. With the launch of a statewide Farm to School Coordinator program, reimbursement awards for schools that successfully reached 30% spending in past years, and the release of clear guidance on how more schools can qualify for New York's Farm to School incentive in the future, the State has taken key steps forward to provide school the support they need to increase purchases from local farms and serve healthy fresh food to kids across New York."

– Samantha Levy, New York Policy Manager for American Farmland Trust, March 24, 2021

2021 Program Highlights

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- Directly supported the procurement of $1,749,914 of NY Food products, in service of 36,632 students and indirectly supported the procurement of an additional $2,916,663 of NY food products in service of 46,220 students during the 2020-21 school year.
- Provided 1,960 hours of direct technical assistance to 2,353 Farm to School supply chain stakeholders.
- Delivered 24 workshops to 749 Farm to School stakeholders.
- Co-led the Cornell Farm to School Program Work Team, which provided six hours of training to 364 individuals, launched a statewide Farm to School website, which serves as a repository for curated Farm to School resources, and co-created a 30% resource guide with our partners at the NY School Nutrition Association.
- Expanded the Buffalo Farm to School program to include a focus on cultural diversity, specifically to support BIPOC food and farm partners and to develop and menu more culturally appropriate local food to the diverse student body.
- Co-authored the 30% NY Initiative, Opportunities, Barriers, and Pathways to Success report, which analyzes procurement data from School Food Authorities that were successful with the 30% NY Initiative during the 2019-20 school year.
- Partnered with the NYS Department of Agriculture and Markets to identify and pilot a technological solution to increase transparency and support traceability in the NY Farm to School supply chain.
- Developed a series of resources intended to assist School Food Authorities in qualifying for the 30% NY Initiative, to include an updated tutorial of the 30% NY Initiative Eligible Product Database, and updated guidance on the 30% NY Initiative documentation requirements.
- Provided 14 hours of professional developing training to five new Farm to School Coordinators.
- Aided in securing $189,578 in additional Farm to School grants to support supply chain partners.

Sustainable Methods to Prevent Pest and Disease Issues in New York Berries

Berry profits can be severely affected by disease and pest issues. Sustainable management of pests can help growers save money on pesticides and grow more marketable fruit.

Anaerobic Soil Disinfection in Strawberries

Soilborne fungal diseases attack strawberry roots and cause plant collapse. Weeds also contribute to profit losses, crowding out low-growing strawberries. Anaerobic soil disinfestation (ASD) is a biological means to fumigate soil. ASD is done by mixing a carbon source such as a seed meal into soil, wetting the soil, and then tarping the area for 3-5 weeks. Anaerobic bacteria already present in the soil will naturally generate heat and toxic fumes, that can kill soilborne pests.

Cornell Cooperative Extension's Berry Specialists received funding from Sustainable Agriculture Research and Education to test how well ASD works in New York perennial strawberry systems. We tested 3 different carbon sources–molasses, alfalfa meal, and brassica seed meal–against the conventional fungicide Ridomil Gold, and an untreated control.

Our first year suggests that using alfalfa meal as a carbon source is nearly as effective as Ridomil Gold when it comes to plant health, but the best survivability was with the fungicide drench. This experiment will continue into summer 2022 as we learn how ASD may fit into a strawberry production system.

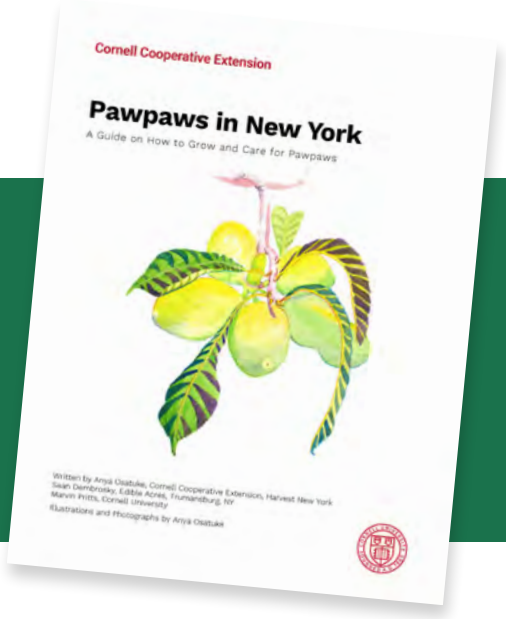
Exclusion Netting in Blueberries to Deter Spotted Wing Drosphila

In blueberries, spotted wing drosophila (SWD) lay eggs in unripe fruit, causing early closures of U-picks and reduced fruit marketability. Pesticide sprays for SWD can be costly and difficult to time with the weather.

Cornell Cooperative Extension received funds from New York State Department of Agriculture and Markets to trial SWD exclusion netting on a commercial farm. The trial was a great success: the half-acre of blueberries under netting produced marketable yields into mid-September without a single SWD outbreak!

Pawpaws Growing Guide Published

Pawpaws in New York is a guide for growers listing several pawpaw varieties successfully grown in New York State. The resource, written by Anya Osatuke, Berry Specialist with CCE Harvest NY, Sean Dembrosky of Edible Acres in Trumansburg, NY, and Marvin Pritts of Cornell University, describes how to sprout and care for pawpaw trees.



Harvest NY Hires Specialist to Improve Hemp Cultivation in New York and Address Other Emerging Crops

“Hi! I’m Dr. Daniela Vergara, one of the newest members of CCE Harvest NY!

For my PhD at Indiana University, I researched host-parasite coevolution. One of the major hypotheses of diversity in natural populations through sexual reproduction is to avoid disease. In other words, in natural populations sexual reproduction (vs. cloning) gives variation to reduce disease infections. Given that during these six years I was thinking about diseases and sexual vs. asexual reproduction, what caught my attention in *Cannabis* is the fact that there are males and female plants, as well as monoecious populations with hermaphrodites. How does this affect disease resistance? I needed to advance my understanding of *Cannabis* genetics.

Vergara while doing field work in New Zealand for her PhD thesis in host-parasite coevolution and the maintenance of sexual reproduction in natural populations.

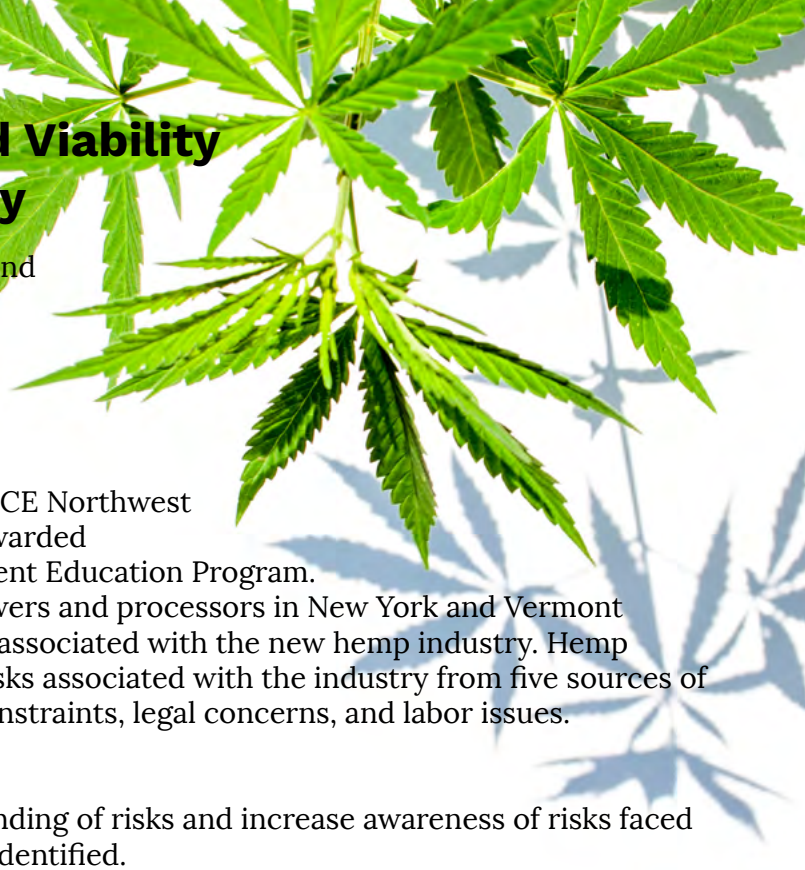
Therefore, In 2013, I began postdoctoral research at the University of Colorado studying, *Cannabis* genomics in Professor Nolan Kane’s lab. Most of my work was the bioinformatic analysis of *Cannabis* genomes.

I was very productive in my research over eight years at CU Boulder, with about 15 peer-reviewed publications, lots of connections with the industry, two successful undergraduate courses, multiple mentees, and several outreach projects. I started a 501(C)3 non-profit organization, the Agricultural Genomics Foundation (AGF), whose mission is to provide accurate information on *Cannabis* to the interested public. Through AGF we established the undergraduate courses, and a widely listened podcast ‘*Cannabis* Science Today’. During my time as a researcher, educator, data analyst, and member of the *Cannabis* industry, I also became a consultant for national and international companies, a policy advisor for governmental agencies, a legal expert witness, and public speaker. Many of my scientific publications have been highly cited and drawn the attention of mainstream media, with features in news platforms such as *Science*, *The Atlantic*, and *FiveThirtyEight*. The *Cannabis* industry in Colorado became my personal and professional network, with many fruitful and productive relations.

I joined the Harvest NY team in October 2021 with the aim of bringing *Cannabis* knowledge and experience to improve hemp cultivation in New York State. My goal is to help farmers thrive with this new crop in the emerging industry with so much economic, agricultural, and industrial potential. Hemp may be an environmentally friendly way of producing construction and insulation materials, plastic, biofuel, and of course medicine among multiple other uses. This versatile crop has huge untapped potentials that I hope to explore with farmers, breeders, producers, and the emerging *Cannabis* industry in New York. Further projects may address other Emerging Crops such as hops and more!

Contact me at dv255@cornell.edu, via LinkedIn, follow me on Instagram or Twitter @CannaBacana.”

Risk Management for Improved Viability of the Northeast Hemp Industry



The hemp industry in the Northeast is still very new and experiences considerable fluctuation. Hemp growers and processors are excited about the opportunities the hemp industry offers. However, with any new agriculture commodity, growers and processors face risks and uncertainty.

Lindsey Pashow of Harvest NY and John Hanchar of CCE Northwest NY Dairy, Livestock, and Field Crops Program were awarded $29,220 from the Northeast Extension Risk Management Education Program. The grant project focuses on working with hemp growers and processors in New York and Vermont to identify, evaluate and implement solutions to risks associated with the new hemp industry. Hemp growers and processors will supply insight into the risks associated with the industry from five sources of agricultural risks—production, marketing, financial constraints, legal concerns, and labor issues.

Planned project outcomes include:

- Increase hemp growers' and processors' understanding of risks and increase awareness of risks faced by supply chain firms. Three priority risks will be identified.
- Small hemp grower and processor working groups will analyze risks by assessing and evaluating alternative strategies to mitigate risk. They will then choose the best set of strategies.
- Hemp growers and processors will become aware of and learn about solutions identified by the small working groups.
- Hemp growers and processors will create and document risk management plans.
- Hemp growers and processors will implement risk management plans to mitigate priority risks leading to improved economic viability of hemp enterprises.

Over the past year, Pashow and Hanchar have sent out press releases in NY and VT that have reached over 1,800 individuals that are involved in the hemp industry. Due to COVID, Pashow and Hanchar were unable to have face-to-face meetings; instead they surveyed the industry and received responses from 53 hemp growers and processors. The respondents identified the current risk in the hemp industry. Then, Pashow and Hanchar held an industry meeting in New York and one-on-one meetings in Vermont to work with hemp growers and processors to find solutions to the survey-identified risks. The information that was collected will prove to be invaluable to mitigate risk in the future.

In 2022, Pashow and Hanchar will be releasing the results of the project at a variety of programs including Empire State Producers Expo (online format based in NY), University of Vermont Hemp Conference (Burlington, VT), and Field Days in NY and VT. They will also continue with industry meetings and one-on-one meetings with the hemp growers and processors to identify risks and solutions for the industry. If you would like to participate in the stakeholder meetings or want more information, please contact Lindsey Pashow lep67@cornell.edu or John Hanchar jjh6@cornell.edu.

Throughout the grant, Pashow and Hanchar are working with Heather Darby from the University of Vermont for outreach and educational opportunities. The grant period is April 1, 2021 to September 30, 2022 and is supported by USDA/NIFA under Award Number 2018-70027-28588.

NORTHEAST EXTENSION RISK MANAGEMENT EDUCATION

USDA National Institute of Food and Agriculture
U.S. DEPARTMENT OF AGRICULTURE

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