Contents

New York's Food Supply System

Overview and Perspectives Relating to COVID-19

The enactment of Chapter 24 is a recognition of the importance of a robust food system to the well-being of New York residents. It also serves as a reminder of the opportunity that New York State has to grow the state's agriculture and food industries, enhance food security for all residents, increase employment opportunities in food-related businesses, and strengthen the links between consumers and farmers.

New York State's food system is made up of a series of food supply chains developed over decades and evolving with marketplace, product, and technological changes. A recent economic impact analysis by Dr. Todd Schmit of Cornell University illustrates the strong economic multiplier impact of agriculture in New York State.[1] "In 2019, agricultural industries, including agricultural production, agricultural support services, and agricultural manufacturing, directly contributed $43.6 billion in total industry output, 163.1 thousand jobs, and $12.3 billion in gross domestic product to the New York State economy. When backward-linked supply chain business-to-business transactions (indirect effects) and household spending out of labor income (induced effects) are considered, these values grow to $65.2 billion, 269.7 thousand, and $26.3 billion, respectively."

Further economic analysis indicates if we view the food and agriculture system in its broadest sense, including restaurants, grocery stores, and related businesses, the employment number reaches to 1.25 million or 9.7% of New York State's employment.[2]

New York's focus on improving food supply chains is not being done in isolation. President Biden issued Executive Order (EO) 14017, "America's Supply Chains" in February 2021. This EO focused on the need for resilient, diverse, and secure supply chains to ensure US economic prosperity and national security. As part of the EO, the Secretary of Agriculture is required to submit a report to the President on supply chains for the production of agricultural commodities and food products. Similar to the approach utilized in New York State, the United States Department of Agriculture (USDA) began soliciting comments from stakeholders in the food system in April of 2021.

As part of analyzing food supply chains, USDA has identified a number of areas of interest: local and regional food systems, creating new market opportunities (including for value-added agriculture and value-added products), facilitating fair and competitive markets (including traceability and supply chain transparency), advancing efforts to transform the food system, meeting the needs of the agricultural workforce, supporting and promoting consumers' nutrition security, particularly for low-income populations, and

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1 Schmit, T., The Economic Contribution to the New York State Economy: 2019; Cornell University Charles H. Dyson School of Applied Economics and Management, SC Johnson College of Business, College of Agriculture and Life Sciences, 2021. https://dyson.cornell.edu/wp-content/uploads/sites/5/2021/08/EB2021-04_TShmit.pdf

2 Mehta, C., Center for Regional Economic Development, Cornell University; A Call for Innovation: New York AgriFood System prepared in conjunction with the Center of Excellence for Food and Agriculture. Agrifood-related industries include on-farm jobs; fishing; forestry; food, beverage and tobacco manufacturing; wood product manufacturing, textile and leather manufacturing; food wholesale and distribution; food and beverage stores; and food service, eating and drinking places. 2021.

supporting the needs of socially disadvantaged and small- to mid-sized producers and processors.

The USDA report will provide a national perspective on actions to be taken to strengthen food supply resilience and as such will complement and enhance the recommendations made in this report.

Gathering Critical Input

To provide advice, guidance, and recommendations on improving the resiliency and self-reliance of New York State's farm and food supply and related food shortages, food waste, and the inability to get New York farm goods to market that occurred as a result of the COVID-19 pandemic, the New York State Council on Hunger and Food Policy (the Council) was engaged as a critical group of stakeholders to contribute to the recommendations outlined in this report. The goal was to create permanent solutions beyond the state of emergency to reflect the changing wholesale, retail, and consumer marketplace. The Council was created in 2016 to play a key role in advising the State on policies and programs to improve access to food, including healthy, locally grown food, making it a uniquely capable group to access New York's food supply system.

Working Groups

The Council is broken down into five working groups specializing in:

1. increasing the agricultural knowledge base of New York State supply chains,
2. improving nutrition and promoting food as medicine,
3. strengthening food assistance networks,
4. increasing food access, and
5. cultivating food equity.

The Council has met routinely in the years since its creation.

Council on Hunger and Food Policy Members

The Council on Hunger and Food Policy includes individuals from the following organizations:

1. American Association of Retired Persons	13. Cornell University College of Agriculture and Life Sciences
2. Reeves Farms	14. Hunger Solutions New York
3. Empire State Development	15. New York State Office of Temporary and Disability Assistance
4. New York State Department of Health	16. Grow New York City
5. University of Rochester Medical Center	17. Food Bank for New York City
6. The Campaign Against Hunger	18. Foodlink
7. Price Chopper Supermarkets	19. Island Harvest Food Bank
8. New York State Office for the Aging	20. New York State Department of Agriculture and Markets
9. Crist Brothers Orchards	21. American Dairy Association and Dairy Council
10. New York Farm Bureau	22. New York School Nutrition Association
11. Hunger Free America	23. New York City Department of Education, School Fund
12. Rise & Root Farm	24. FarmOn! Foundation

Critical input was also provided from the following organizations: New York State Commission on National and Community Service, New York State Office of Mental Health, New York State Office of Children and Family Services, New York Department of State, Feeding New York State, New York State Department of Environmental Conservation, NYS Homes and Community Renewal, Glynwood Regional Center for Food and Farming, New York State Office of General Services, State University of New York, School Nutrition Association, City Harvest, Greater New York Hospital Association, Food Pantries for the Capital District, New York State Division of Veterans Affairs, Suffolk County, New York State Health Foundation, New York State Department of Education, New York State Office for New Americans, Adirondack Council, and Essex Farm Institute.

The Council and its working groups convened multiple meetings in January, April, June, and July of 2021 to gather input on both the challenges and opportunities the food supply chain faced during the COVID-19 pandemic. As part of this effort, the Council sought additional input from approximately fifty-two individuals with varying perspectives via a survey and open public comment period. The open comment period was pursuant to enactment of legislation (AB 952 and SB 1305), sponsored by Assembly Member Donna Lupardo and Senator Michelle Hinchey and signed by Governor Andrew M. Cuomo, which also asked for the creation of this report. Two specific questions were asked during the open comment period:

1. The COVID-19 pandemic temporarily resulted in food shortages, food waste, and the inability to get New York farm goods to markets. Please provide any advice, guidance, or recommendations on improving the resilience and self-reliance of New York's farm and food supply and supply chain logistics.
2. Ideally, any proposed state or federal laws, rules, policies, or programs should strengthen and improve the state's food supply in a manner that benefits New York farms, food businesses, workers, retailers, restaurateurs, food banks, and consumers. Do you have any information and/or recommendations related to new

laws, policies, or programs intended to effectively strengthen and improve the state's food supply that will benefit all involved?

Demographics of Survey Respondents

A demographic breakdown of the survey respondents, along with a summary of topics covered, follows:

Ethnicity	
African American	1
Caucasian	42
Hispanic/Latino	3
Native American	1
Other/unknown	2
Prefer not to say	5
Gender	
Male	20
Female	32
Prefer Not to Answer	1
Food Supply Chain Role	
MWBE-owned, small, or family-owned business or farm	11
Other representatives of agriculture, the food industry, or economic development	13
Total farmers	18 (organic farmer: 7; conventional farmer: 11)
Academic expert in food production, marketing, distribution, food safety, and consumers	9
Interested citizen not associated with agriculture, the food industry, or economic development	4
Retail food business (including but not limited to retail food stores and direct farm-consumer businesses)	9
Food processor (including but not limited to dairy, produce, meat, and beverage)	5
Food service industry – restaurant or institutional food service	4
Local, state, or federal agency with responsibility for food production, processing, marketing, and safety	2
Food wholesaler and/or distributor	4
Food transporter (including but not limited to direct-to-consumer transporters serving retail food stores, foodservice, and farmers)	3
Emergency food provider	3
New York Region	
Long Island	8
New York City	1
Mid-Hudson	3
Capital Region	4
Mohawk Valley	3
North Country	13
Central New York	3
Finger Lakes	5

Southern Tier	2
Western New York	3
Statewide	11

Survey Response Categories

When responding to the questions posed in the survey, the main comment categories which emerged from the public comment period, CHFP meetings, and CHFP working group meetings are as follows:

- combatting food insecurity using local foods,
- enhancing state and institutional procurement of local foods,
- expanding farm innovations and technologies,
- food systems workforce availability and retention,
- improving processing capacity,
- increasing food equity,
- mitigating climate change,
- securing a food supply chain workforce, and
- strengthening support for diversified marketing and improved transportation.

Vulnerabilities in the Food Supply Chain

The food supply chain is highly complex in the movement of farm products from the farm to the consumer. Studies[3] conducted show that food supply chains may be regional, national, or international and that individual food stores may have more than one food supply chain for the same or similar products. Between farms and consumers are thousands of businesses including processors, shippers, food brokers and wholesalers, grocery and convenience stores, and institutional food service entities.

A Congressional Research Service report[4] released in May 2020 described the food supply chain and the potential for disruption: “The food supply chain refers to the path that raw agricultural commodities take from the farm where they are produced, through the food processing and distribution network to the consumer where they are used….The domestic food supply chain has the potential to break down at any of a number of different points; availability of inputs and labor for agriculture production; trucks and truck drivers for transporting raw and finished products; food processing plants, plant workers, and food safety inspectors; packaging, warehousing, and storage capacity; and wholesale and retail outlets and their workers. For exported products, the supply chain includes containers, ships, crews, and port workers.”

[3] Park, K., Gomez, M., Clancy, K., Case Studies of Supermarkets and Food Supply Chains in Low Income Areas in the Northeast: New York City Store, New York and Case Studies of Supermarkets and Food Supply Chains in Low Income Areas of the Northeast: Syracuse Store 2 New York. October 2017.
[4] Schnepf, R., Monke, J.,Congressional Research Service, COVID-19, U.S. Agriculture, and USDA’s Coronavirus Food Assistance Program (CFAP), May 8, 2020

Disruptions in the food supply chain became apparent in the early months of the COVID-19 pandemic as the food service industry abruptly lost markets including schools and restaurants. This quickly impacted farmers and agricultural processors including farmer-owned cooperatives that depended on these markets. For New York, the disruption caused problems for farmers producing a wide variety of food products including milk, fruit, vegetables, livestock, and seafood. It further impacted other New York farmers producing non-food products including nursery and greenhouse products and those engaged in equine businesses. While grocery store sales surged in March and April 2021 with the closure of restaurants and schools, food processors, including many who process fluid milk and cheese for institutions, could not retool packaging equipment and develop alternate retail markets quickly enough to avoid agricultural product waste and the loss of millions of dollars in revenue.

Food system disruptions were not limited to the loss of institutional and food service markets.[5] As workers in agricultural processing plants became ill with COVID-19, food processing plants, especially meat plants outside of New York State, closed or reduced output. Throughout the pandemic, food supply chain participants incurred additional costs in an effort to keep workers and customers safe and comply with regulatory requirements. While the disruptions were severe and consumers were not prepared to find empty store shelves in a grocery store, it's notable that the farm community and food system and not-for-profit hunger relief providers reacted relatively quickly to ensure that consumers largely retained access to food. While shortages were severe, they were not prolonged, and the food system retooled far more quickly than expected in the beginning of the pandemic.

An issue noted extensively in comments received for this report was the challenge faced by livestock producers with meat processing capacity. This livestock producer's challenge was discussed in detail in a report[6] released in February 2021 by Cornell College of Agriculture and Life Sciences:

"In 2020, the COVID-19 pandemic caused a spike in demand for local meat. The increase in local meat sales resulted in increased need for the services offered by the small processors, who could not accommodate the surge. Many reported having hundreds of names on a waiting list and telling their farmer customers they could not accept new bookings through 2021. As a result, panicked livestock producers were scrambling to provide for their customers. In July 2020, the Cornell Small Farms Program surveyed New York State livestock producers about the impacts of COVID-19 on their businesses. Of the 650 farmers responding, 85% reported that demand for their products had increased, but 81% could not meet this increased demand because of inadequate processing capacity."

[5] Impact of COVID-19 on New York's Farms and Food System – white papers, Cornell University College of Agriculture and Life Sciences, Charles H. Dyson School of Applied Economics, Cornell University and Cornell Cooperative Extension.
[6] Baker, M., Havas D., Glazier, N., Bliven, L., Stanton, t., and Freney, R., Red Meat Processing in NYS: Bottleneck in the Local Food Economy; Cornell Cooperative Extension, Livestock Program Work Team, 2021.

While farmers and processors were suffering from the loss of markets, the dramatic increase in COVID-related unemployment resulted in a sharp jump in food insecurity and the need for more food assistance. Food banks and pantries faced labor shortages from a reduction in volunteers. In a paper by Dr. David Just of Cornell and Dr. Anne Byrne of the USDA Economic Research Service, the severity of the food insecurity during the COVID pandemic is clear: "While there is slight variation from study to study, research has shown that at least one in four U.S. residents has experienced food insecurity since the start of the pandemic (Bauer, 2020; Niles, et al., 2020; Wolfson & Leung, 2020)." This is a sizeable increase from previous levels, which hovered between 9% and 15% from 2001 to 2019 (Coleman-Jensen et. al 2020) Food insecurity is correlated with several ailments, including but not limited to asthma, birth defects, anemia, suicide ideation and diminished oral health (Gunderson & Ziliak, 2015)."[7] In response to the rapid disruption in the food system and an unprecedented spike in hunger, New York State created the Nourish New York program, which helps people who are food insecure access the nourishment they need, while providing a market for farmers to sell their products. A total of $85 million has been dedicated to the program so far. The funding will allow New York's emergency food providers to continue to purchase surplus products from New York farmers and dairy manufacturers and deliver it to New York families in need through the end of the year.

The vulnerabilities in our food supply chains illustrated in the COVID-19 pandemic were also highlighted in June 2021 when a cyber-ransom attack on JBS Foods[8] forced the temporary shutdown of meat packing plants. The ransomware attack, believed to originate in Russia, was against the world's largest meat supplier operating 150 plants in 15 countries and disrupted meat supply distribution in the United States. The vulnerabilities exposed during the COVID-19 pandemic and the JBS Foods cyberattack underscore the importance of diverse food sources and local food supply chains.

Agricultural Production

A strength of New York agriculture is its farm production diversity. While the dairy industry is the largest agricultural sector, New York is a major producer of many fruit, vegetable, field crop, and greenhouse-nursery products. It is also a state with considerable commercial fishing, aquaculture, forest products, and farm value-added products. As illustrated in the following chart, the diversity of New York agriculture is important as the state considers programs that support food resilience and self-reliance.

[7] Byrne, A., Just, D., Impacts of COVID-19 on Food Banks; prepared for Choices, Agricultural & Applied Economics Association; https://www.choicesmagazine.org/. 2021. Anne Byrne is with the USDA Economic Research Service and Dr. David Just is with Cornell University, Dyson School of Applied Economics and Management.
[8] Newman, J., Bunge, J., Meat Supplies Tighten as Cyberattacks on JBS Snares Food Chain, Wall Street Journal, June 2, 2021.

New York State's Diverse Agriculture[9] 2017

Farm Type	Number of Farms	Land in Farms (Acres)	Market Value of Products Sold ($) and Government Payments
Total New York State	33,438	6,866,171	$5,428,317,000
Oilseeds and grain farming	2,058	1,080,237	$417,658,000
Vegetable and melon farming	1,978	284,824	$376,233,000
Fruit and tree nut farming	2247	250,197	$402,170,000
Greenhouse, nursery, and floriculture	1,990	157,087	$384,222,000
Hay and all other crop farming	9,636	1,801,627	$335,834,000
Beef cattle ranching or farming	4,603	658,369	$179,755,000
Cattle feedlots	165	46,156	$34,348,000
Dairy and milk production	3,799	2,170,136	$2,984,884,000
Hog and pig farms	380	22,434	$21,421,000
Poultry and egg production	517	41,998	$199,705,000
Sheep and goat farming	1,201	64,692	$14,944,000
All other animal production including aquaculture, equine, and apiculture	4,864	288,414	$77,144,000

The state's 33,438 farms[10] operate on 6.9 million acres and vary widely in farm output, production practices, marketing approaches, labor requirements, and size. Overwhelmingly, New York farms are family operations, some of which involve multiple generations. While some New York farms are full-time operations and involve numerous family members and employees, many New York farms are relatively small and rely in part on off-the-farm income to supplement farm income. Thus, the challenges faced by each farm differ and generalizations are often not applicable.

A positive trend in New York production agriculture is the adoption of practices that have environmental and climate mitigation benefits including reduced tillage practices, cover crops, renewable energy, and precision agriculture. According to the most recent census of agriculture,[11] between 2012 and 2017, New York farmers increased the number of

[9] USDA Census of Agriculture for New York 2017. North American Industry Classification System. Selected data from Table 75. A point of clarification may be helpful to the reader. Under the NAICS census table, the farm is being categorized based on the highest market value crop on the farm. Many farms have income from more than one farm product. This explains why NAICS data shows 3,799 dairy farms as compared to other data in the 2017 Census of Agriculture that indicates that there are 4,648 farms that have "milk cows" (Tables 1 and 11) and 3,884 farms that have "income from milk from cows" (Table 2).
[10] United States Department of Agriculture, Census of Agriculture for New York 2017. Note that this data uses land in farms which includes land that is part of the farm, but not in production.
[11] United States Department of Agriculture, Census of Agriculture for New York, Chapter 1, Tables 47 and 49.

acres in which reduced tillage practices were utilized by 22.5% to 778,919 acres. Reduced tillage practices help conserve soil by reducing erosion and decreasing water pollution. The same 5-year census comparison indicated that acres planted to cover crops, which helps enhance soil quality, increased by 37.2% to 295,433 acres. With respect to renewable energy producing systems, the census found that 3,238 farms had systems including solar panels, wind turbines, and methane digesters. This was a 138% increase in five years. Finally, a 2021 report[12] by the New York office of the National Agricultural Statistic Service indicated that 26% of New York farms report use precision agriculture practices to manage crops or livestock. This includes the use of global positioning (GPS) guidance systems, GPS yield monitoring and soil mapping, variable rate input applications, use of drones for scouting fields or monitoring livestock, electronic tagging, precision feeding, and robotic milking. These important trends point to the value of New York programs that promote soil health, climate friendly practices, and renewable energy.

As work is done to develop stronger and more vibrant local and regional food system networks, urban agriculture has an important role. Grassroots urban farm projects already contribute to food security, community empowerment, access to green space, youth opportunities, and educational enhancement. Urban agriculture is also helping many new Americans take root in their new communities and develop their entrepreneurship skills in the US economy. In addition to New York City, inspirational and important urban agriculture activities can be found in many upstate New York cities. Urban agriculture and community gardens can be relatively small production environments that are an integral part of the community's social fabric. Urban agriculture can also be innovative, unique rooftop farms enhancing food security while providing environmental benefits and larger Controlled Environment Agriculture (CEA) businesses that employ underutilized warehouse space or empty lots and offer new employment opportunities.

Direct Farm to Consumer Sales

Throughout the COVID pandemic, interest in buying directly from farmers reportedly increased.[13] Whether this will be sustained over time is uncertain, but the trend is positive for many farmers and consumers. Direct to consumer sales through farmer's markets, community supported agriculture, and u-pick farms are an important and growing outlet for farm products. Between 2012 and 2017, the value of farm products sold direct to the consumer increased 121% from $100.6 million to $222.7 million. Food sold directly to retail markets, restaurants, institutions, and food hubs resulted in sales of $316.7 million. New York has also seen a significant increase in farm processing or value-added sales over the past two decades.

[12] United States Department of Agriculture, National Agricultural Statistics Service, Northeast Region Farm Computer Usage and Ownership Report, Precision Agricultural Practices, August 19, 2021.
[13] Higgins, E., Perspectives on Local Foods, Impact of COVID-19 on New York's Farm and Food System, Cornell University College of Agriculture and Life Sciences, October 2020.

New York State has also seen an increase in the sale of organic farm products. Between 2012 and 2017, the market value of organic production increased 112% to $206.4 million.

Selected Production and Marketing Practices and Value Added – New York State 2017[14]

	Number of farms	Value of Sales ($)	Percent of Total Agricultural Sales	Average Per Farm
Food sold directly to consumers	5,697	$222,711,000	4.1%	$39,093
Food sold directly to retail markets, institutions, or food hubs	1,587	$316,286,000	5.9%	$199,288
Farm value-added ag products sold	1,977	$182,305,000	N/A	$92,213,000
Farms with organic sales	1,330	$206,462,000	3.8%	$155,234

A limitation of direct-to-consumer sales is the lack of reliable internet service to conduct online sales. Between 2012 and 2017, farms with internet access increased by a modest 292 farms. Over 20% of New York farms in the 2017 Census of Agriculture reported no internet access. While part of this may be individuals and families with beliefs against their use of the internet, other farms are limited by availability of high-speed internet.

Farms with Internet Access – New York State[15]

2017	% of 2017 farms	2012	% of 2012 farms	2007	% of 2007 farms
25,780	77.1%	25,480	71.7%	22,738	62.5%

Agricultural Producers

While New York State has 33,438 farms, it has 57,865 producers. Under the 2017 US Census of Agriculture, a farm may have up to four producers that are responsible for different aspects of the farm. The census producer information allows us to understand information on gender, race, ethnicity, and age of those engaged in farming.

[14] USDA Census of Agriculture for New York State, 2017. Chapter 1, Tables 2 and 51
[15] USDA, Census of Agriculture for New York State, 2017, 2012 and 2007

Selected Producer Information – 2017 Census of Agriculture for New York State[16]

Total Producers	57,865
Male	35,985
Female	21,880
Race and Ethnicity	
American Indian/Alaska Native	125
Asian	166
Black or African American	139
Hispanic, Latino, Spanish origin	606
More than one race	240
Native Hawaiian/Pacific Islander	40
White	57,155
Occupation	
Primary Occupation is Farming	28,343
Primary Occupation is not Farming	29,522
Age	
Under 35	6,026
35-64	34,889
65 and older	16,950

The lack of diversity on New York farms is an issue noted in public comments submitted and in recent hearings held in the Legislature. While the number of farms with Black or African American producers is very limited, the equity issue becomes even more starkly apparent when investigating the data around demographics and net return. On average, farms with Black or African American producers have an average negative net cash farm income of -$906.[17] It is notable that the net return for Black or African American owned farms is considerably below other New York farmer demographics. Farms with Hispanic, Latino or Spanish producers have an average net cash farm income of $28,013; farms with Asian producers have an average net farm cash income of $27,373; and farms with women producers have an average net farm income of $28,273. The average net cash farm income for all farms in New York is $42,875. While neither the topic of this report nor a conclusion, the impact of systemic racism and a lack of generational wealth may have an even greater impact on Black and African American farmers in New York. Fortunately, greater focus is now being placed on the opportunity to strengthen agriculture by encouraging greater racial diversity. In response to a 2020 State of the State initiative, the New York State Department of Agriculture and Markets released the Diversity and Racial Equity Working Group Report on August 23, 2021. This comprehensive report includes numerous recommendations to "foster the development of a more equitable agricultural industry and empower Black, Indigenous, People of Color (BIPOC) farmers across New York."[18]

Attention to diversity and inclusion in agriculture and food systems is being elevated at the national level. In May 2021, USDA announced debt relief efforts for socially disadvantaged farmers funded through the American Rescue Plan. While this debt relief

[16] USDA, Census of Agriculture for New York State. 2017, data from Chapter 1, Table 52.
[17] United States Department of Agriculture, 2017 Census of Agriculture New York - Race/Ethnicity/Gender Profile.
[18] New York State Department of Agriculture and Markets, Diversity and Racial Equity Working Group Report, August 23, 2021.

is in litigation, USDA Secretary Tom Vilsack has just established an Equity Commission. The purpose of the Equity Commission is to help USDA analyze how its programs, policies, systems, structures, and practices contribute to barriers to inclusion or access and systemic discrimination, or exacerbate or perpetuate racial, economic, health, and social disparities, and form recommendations for action. Further reports indicate that the USDA Build Back Better initiative will also include specific support for small and socially disadvantaged farms.

Initiatives to encourage more diverse agriculture and food-related businesses will help make our food system stronger and more vibrant. This includes not only production agriculture, but food processing and distribution.

Farm Size and Production

As noted previously, New York farms vary widely with respect to crops grown, production methods, marketing, and many other factors. To understand the current farm size make-up and production, we have categorized farms into three groupings:

Farms by Market Value of Agricultural Sales[19]

Size of Farms by Market Value($) of Ag Sales	Number of Farms	Percentage of Farms	Market Value of Ag Sales ($)	Percent of Total Market Value of Ag Sales
Farms with Less than $10,000	16,831	50.3%	$42,262,000	0.8%
Farms with $10,000 to $99,999.	10,019	30.0%	$340,985,000	6.4%
Farms with $100,000 or a more.	6,588	19.7%	$4,985,964,000	92.8%

As efforts are made to enhance food resiliency and increase New York State's local food supply, it is important to consider policies that sustain and enhance the individual goals and motivations of New York State's farm population. While the most immediate thought is to encourage farms to scale up and increase production, that strategy may be incompatible with the goals and desires of some farms, especially those in the micro or small-scale farm size that are farming more as a life-style choice. New York State is blessed with a plethora of small, medium, and larger scale farms and it is important to consider policies and programs that are simultaneously size and scale neutral, while providing diverse opportunities for all. Particularly as we consider the impending impact of climate change on our state, national, and global food supply chains, the greatest opportunity for New York State agriculture – of all scales – may be in sustainable intensification of agricultural production, i.e. using existing land bases and intensifying via greater efficiencies, technologies, and taking advantage of additional growing degree days in a changing climate to increase production. Sustainable intensification as well as

[19] USDA, Census of Agriculture for New York State, 2017. Data from 2017 Census of Agriculture (NY) Chapter 1, Table 1 regarding farm sizes and Table 2 regarding market value of agricultural sales.

other strategies may provide both environmental and economic benefits to farms at all scales while also increasing local production in a way that carefully considers the different motivations of people farming in New York State today and in the future.

Farm Labor

New York farm employees and farmers have a vital role in our food supply chain and were considered essential workers throughout the COVID-19 pandemic. With few exceptions, most farms did not incur COVID-19 outbreaks that forced the complete closure of operations. The pandemic did require farms to make operational changes to allow for social distancing and, in some cases, seek additional housing, ensure appropriate testing, and take other safety precautions.

Out of New York's 33,436 farms, 8,963 farms have hired farm workers. The total number of hired farmworkers is 55,636 - including both year-round and seasonal workers - and the farm expense for hired labor in 2017 was $811.8 million.[20] In addition, $52,858,000 was paid for contract labor. A total of 11,821 farm workers are considered migrant workers in that the travel to the farm prevents the worker from returning daily to their permanent residence. Migrant workers include those hired workers (11,512) and those working with a farm labor contractor (309). In addition, there are 40,269 unpaid workers (not on the payroll, for example: family members). The migrant worker category includes temporary farmworkers that participate in the H-2A Visa program operated under the US Department of Homeland Security. In the most recent census, 46.5% of the hired workers worked 150 days or more and 53.5% worked less than 150 days. This reflects the make-up of New York farms in that dairy farms require year-round workers, while many vegetable and fruit farms have significant seasonal labor peaks associated with the spring planting and fall harvest seasons.

Food Processing and Manufacturing

New York ranks second[21] nationally in the number of food and beverage processing plants. New York food manufacturers process farm products that originate from New York farms and from farms outside of New York. Farm Credit East data[22] shows nearly 90,000 direct farm processing jobs in New York which includes over 50,430 associated with the dairy industry. Other major sectors in the Farm Credit East data include frozen and canned food manufacturing (15,396), animal slaughter and processing (11,653), and wineries (8,785).

Empire State Development has worked with many food related businesses to provide economic incentives and facilitate location and expansion in New York State. Since 2018, Empire State Development has worked directly with agribusiness companies that have pledged to retain over 2,700 jobs, create over 950 jobs, and invest over $825 million. To

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[20] USDA, Census of Agriculture for New York State, 2017, Chapter 1 Table 4 and Chapter 2, Table 7. Discussion with New York NASS official confirmed that H-2A workers are included in the migrant worker category.
[21] Martinez, S. USDA Economic Research Service Amber Waves, November 2017; https://www.ers.usda.gov/amber-waves/2017/november/number-of-food-and-beverage-processing-plants-varies-across-the-united-states/.
[22] Farm Credit East, Northeast Economic Engine: Agriculture, Forest Products and Commercial Fishing, 2020.

encourage this growth in New York State, Empire State Development provided these businesses with over $50 million in targeted, performance-based incentives. In addition, the Center of Excellence for Food and Agriculture at Cornell AgriTech works extensively with food businesses. The Center functions as a hub linking interested businesses and entrepreneurs to researchers, farmers, processors, marketing businesses, and economic development experts. The focus is on expansion of the agriculture and food economy with business and product development. The role of the Center is important today and will be increasingly important in the future as the state seeks to strengthen its food resilience and self-reliance. During the period of July 2018 to December 2020, the Center assisted 143 clients which resulted in increased revenues of $30.8 million, 296 jobs retained or created, cost savings of $6.7 million, and non-governmental funds acquired of $23.8 million.

As with farm production, there is considerable diversity within the food processing and manufacturing businesses in New York State. The Department of Agriculture and Markets indicates that there are currently 5,000 establishments engaged in food manufacturing in some manner. New York State's large food processing and manufacturing industry includes the following types of facilities[23]:

- Grain and oilseeds milling
- Fruit and vegetable processing and canning
- Dairy product manufacturing (including milk, yogurt, butter, ice cream and cheese)
- Animal slaughter and processing
- Animal food manufacturing
- Sea food product preparation and packaging
- Poultry processing
- Bakeries and tortilla manufacturing
- Cookie, crackers, and pasta manufacturing
- Sugar and confectionary product manufacturing
- Beverage Manufacturing (including soft drinks, wineries, breweries, and distillers)
- Other food manufacturing including snack foods, sauces, and dressings)

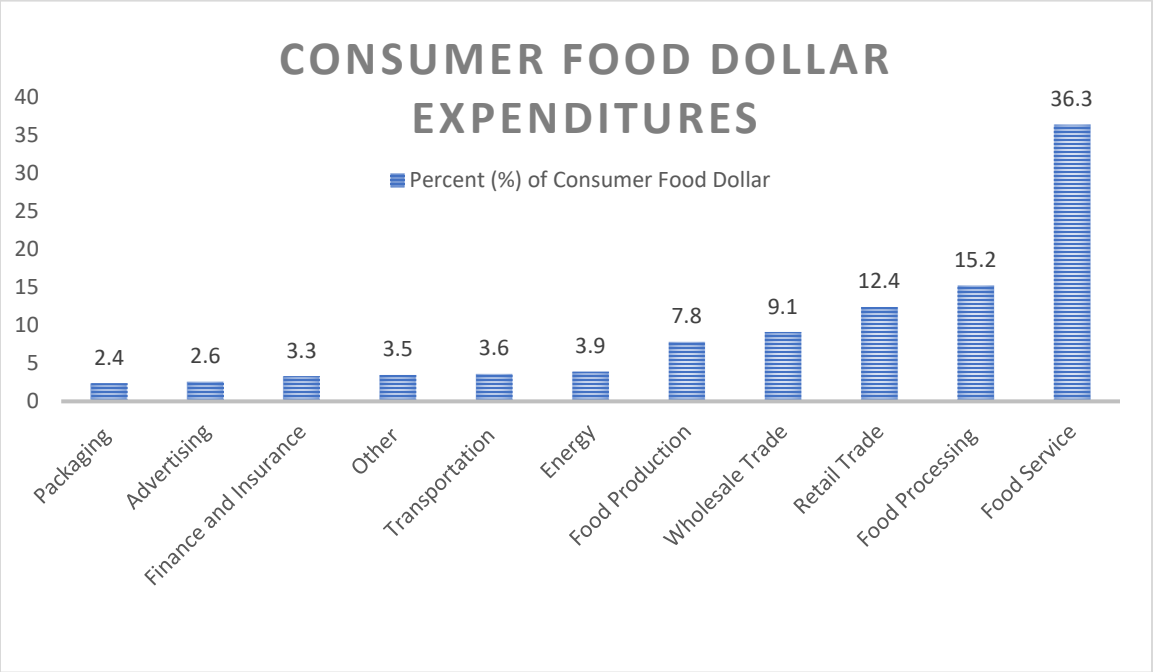
Another way to view the components involved in the food system is to look at where the consumer food dollar is spent. USDA[24] data illustrates this point: for every consumer dollar spent on food, the farmer (food production) receives less than 8%. Thus, strengthening the food supply chain involves many other components.

It is important to note that a significant part of the consumer food dollar goes toward wholesaling, transportation, and packaging. While agricultural production and food processing are recognized as critical components in our food system, wholesale, transportation, and packing businesses, to name a few, also play a critical role.

[23] Selected categories and groupings are taken from the U.S. Department of Commerce, Bureau of Census, Annual Survey of Manufacturers: Summary of Statistics for Industry Groups and Industries in the U.S., 2017.
[24] USDA Economic Research Service, Ag and Food Statistics, Charting the Essentials. October 2018.

Wholesale markets, including Hunts Point, are an integral part of the food chain and participated in the Roundtable held for this report.

Consumer Food Dollar Expenditures



Restaurant, Food Service, and Grocery and Beverage Stores

From an employment perspective, retail businesses, including restaurants, food service businesses, and grocery stores, make up the largest component of the food system.

New York State has 50,100[25] eating and drinking establishments and 30,000 food handling establishments including 27,000 retail food locations.[26] The COVID-19 pandemic created challenges for all of these businesses.

While many restaurants initially closed with COVID-19 pandemic related restrictions, others eventually pivoted to takeout or innovative online approaches to serve frontline workers. Restaurants and food service facilities illustrated amazing levels of creativity to successfully attract and retain takeout customers. Fortunately, New York State took a number of actions to support restaurants, including allowing the sale of alcoholic beverages for off-premise consumption as part of the takeout and delivery services.[27] The

[25] United States Department of Commerce, Bureau of Census, Annual Survey of Manufacturers: Summary of Statistics for Industry Groups and Industries in the U.S. 2017.
[26] New York State Department of Agriculture and Markets.
[27] New York State Liquor Authority, sla.ny.gov/Restrictions-in-Response-to-COVID-19
The State of Emergency that allowed for off-premises privileges ended on June 24, 2021.

COVID-19 pandemic has taught us to look for alternatives that allow businesses to continue to operate with different models and approaches to ensure public safety.

Number of Workers in Food Retail 2021 – New York State Department of Labor Statistics[28]

Type of Facility	Number Employed
Food and Beverage Store	200,300
Grocery and Related Products Merchants	46,600
Grocery Stores	165,000
Specialty Food Stores	22,400
Special Food Services	39,400
Full-Service Restaurants	252,700
Restaurants and other eating places	477,100
Drinking Places (Alcoholic Beverages)	23,000
Accommodation and Food Service	605,300
Community Food & Housing and Emergency and other related services	21,300

Retail food stores saw a significant increase in sales yet were challenged to adapt operations to ensure the health and safety of its workforce and customers, including the implementation of a number of protocols ranging from social distancing to mask wearing to ongoing cleaning and disinfecting. Retail food stores saw a significant increase in online shopping as well, with online grocery purchases[29] more than doubling when comparing pre-COVID-19 to May 2020 during the pandemic. This behavioral shift is worth noting and may continue as a new norm post-COVID.

Food Banks and Food Security

The dramatic increase in unemployment starting in March 2020 had an equally dramatic increase in food insecurity. As noted in an Assembly hearing[30] in September 2020 by Anne Byrne, Cornell doctoral student, “demand for food bank services is fundamentally a reflection of economic conditions, so while demand spikes have coincided with the pandemic, the pandemic is not the underlying cause. To that end, while we may see an end to the pandemic with the introduction of a vaccine, we should not expect to see a decrease in food bank demand until economic conditions recover.”

[28] New York State Department of Labor, Selected data from Current Employment by Industry; https://statistics.labor.ny.gov/cesemp.asp, 2021.
[29] Park, K. , Brumburg, A., Yonezawa,K. The Covid-19 Shopper: Shopping Habits during Covid-19, Cornell College of Agriculture and Life Sciences , Department of Applied Economics and Management, Extension Bulletin, December 2020. A survey conducted as part of the report indicated that grocery purchased on-line increased 8.4% to 21.1% from before COVID-19 to May 2020.
[30] Byrne,A., Testimony for New York State Assembly hearing on Food Security, Cornell College of Agriculture and Life Sciences, September 19, 2020.

Further analysis[31] by Dr. David Just and Anne Byrne, Cornell University provides insights on the level of food insecurity that New York residents faced as a result of the high levels of unemployment. As of November 2020:

"Early March saw a dramatic rise in unemployment claims across the state of New York, preceding a similar rise in COVID-19 diagnoses by approximately two weeks. Prior to this point, new weekly claims had been in a range of 160 hundred thousand to 180 hundred thousand, while after claims jumped first to over 300 hundred thousand, and eventually more than 1.8 million just six weeks later. The same period saw empty shelves in many grocery stores across the state as a period of widespread panic buying of both paper and food products spread throughout the state. This period of substantial economic upheaval saw a 189% increase in weekly online searches for private food assistance. Such inquiries generally represent households that are experiencing food insecurity for the first time, or after a long period of food security. Search rates remained in this elevated range for the next 8 weeks. This increase in food assistance inquiries accelerated much more quickly in New York than in the rest of the US, which peaked about 4 weeks later, though relative increases to peak were similar. A sample of 111 food banks in the US found a year over year increase in pounds of food distributed of 20.0% in the month of April, reach 25.8% in the month of May. Each of these indicators suggest a large and rapid rise in food insecurity both in New York State, and around the United States, such as had not been seen in generations.

"Such a sudden and dramatic increase in the need for food assistance would strain the food assistance system under normal circumstances. However, this rise took place as the nation simultaneously experienced widespread stock outs at grocery stores, coupled with restaurants and food producers throwing large amounts of food product away as shutdown orders eliminated normal sales venues. Grocery store stockouts led to an estimated 70% decline in retail food donations to Food Banks. This was coupled with a modest increase in cash donations that could be used to purchase replacement product. Unfortunately, the same supply chain issues causing stockouts in grocery stores caused significant delays in order fulfillment. Food orders that would normally have arrived within 2 to 3 weeks would now take multiple months. Increased USDA shipments played a key role in filling the gap. However, some food banks within New York report the only way they could meet increasing demand for food as retail donations decreased was to reduce the amount of food given per food insecure household."

In a more recent paper[32] by Dr. Just and Dr. Byrne, they discussed changes that food banks made in light of COVID-19:

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[31] Just,D., Byrne,A., Perspectives on Food Security, Impact of COVID-19 on New York's Farm and Food System, Cornell College of Agriculture and Life Sciences, Cornell Dyson School for Applied Economics and Management, Cornell Cooperative Extension, October 2020

[32] Byrne, A., Just, D., Impacts of COVID-19 on Food Banks; prepared for Choices, Agricultural & Applied Economics Association; https://www.choicesmagazine.org/. 2021. Anne Byrne is with the USDA Economic Research Service and Dr. David Just is with Cornell University, Dyson School of Applied Economics and Management.

“Food banks are part of a larger patchwork of food assistance. SNAP remains the largest source of federal assistance. Many food banks appear to view their own role as being a compliment to, rather than substitute for, SNAP since 39.7% of who provide services related to SNAP (Weinfield, et al., 2014).”

Additionally, “while efforts are being made to alleviate the effects of the pandemic, food insecurity persists. Even if rates return to pre-pandemic levels, millions will still be food insecure. It is likely that food banks will continue to be a large component of food assistance across the United States. What we have learned from our work study food bank operations during the COVID-19 pandemic is that by and large these organizations have the capacity to meet increased demand and the ability to transition services to meet onerous safety precautions.”

Responding to COVID-19– Programs and Initiatives That Worked

The shock to the food supply chain from the COVID-19 pandemic caused a plethora of challenges for farmers, food processors, and the supply chain. In New York, numerous programs quickly pivoted to provide COVID-19 related assistance. Some of the important efforts are enumerated here.

State Assistance

New York State Department of Agriculture and Markets

The New York State Department of Agriculture and Markets recognized early in the pandemic that COVID-19 related specific guidance must be created to guide the state’s food industry during this unprecedent time. As such, numerous guidance documents were created, with the sole purpose of ensuring that those who worked within the state’s various food sectors were safe, that the state’s food industry understood how to comply with the most-up-to-date public health guidance and to ensure that our food supply remained unaffected by the pandemic. Additionally, the New York State Department of Agriculture and Markets felt it equally important to communicate frequently with key stakeholders within the state’s food industry and worked with such stakeholders to provide: timely updates describing changes related to state Executive Orders, personal protective equipment, hand sanitizing solutions and partnered with such stakeholders and the Department of Health to provide COVID-19 specific testing for those identified in the state’s food industry as high-risk.

Nourish New York

Governor Cuomo announced the establishment of Nourish New York in April 2020 to provide funding to food banks and other emergency food providers to purchase NYS products directly from NYS farmers and agricultural processors distribute to food insecure individuals and families. Initiated with $25 million in funding, the program was provided additional funding for a total of $85 million by June 2021. The program administered through a partnership with the New York State Department of Health (NYSDOH)

successfully assisted food banks in addressing food insecurity, opened new market opportunity for farmers, and reduced food waste.

Pandemic Small Business Recovery Grant Program

The $800 million COVID-19 Pandemic Small Business Recovery Grant Program provides grant funding to small and micro businesses and for-profit independent arts and cultural organizations impacted by the pandemic. The grants will be flexible and can be used for a number of different business operating expenses, including payroll, rent or mortgage payments, taxes, utilities, personal protective equipment, or other business expenses incurred between March 1, 2020 and April 1, 2021. This program is administered by Empire State Development.

Restaurant Resiliency Program

Building on the successful Nourish New York initiative, the Restaurant Resiliency Program sets aside $25 million to provide grants to restaurants that offer meals and other food-related items to New Yorkers within distressed or underrepresented communities. The Restaurant Resiliency Program, administered in collaboration with the NYSDOH, partners with New York's network of food banks and emergency food providers to purchase nutritious prepared meals from New York restaurants and deliver them to families in need.

Restaurant Return-To-Work Tax Credit

The $35 million Restaurant Return-to-Work Tax Credit Program provides an incentive to COVID-impacted restaurants to bring restaurant staff back to work and to increase hiring at New York State restaurants. Qualifying businesses are eligible for a tax credit of $5,000 per new worker hired, up to $50,000 per business. The program is open to small, independently owned restaurants within New York City or any area in New York State designated by the New York State Department of Health as either an Orange or a Red zone for at least 30 consecutive days. This program is administered by Empire State Development.

New York Forward Loan Fund (NYFLF)

The New York Forward Loan Fund (NYFLF) is an economic recovery loan program aimed at supporting New York State small businesses, nonprofits, and small residential landlords. NYFLF targets the state’s small businesses with 50 or fewer full-time equivalent (FTE) employees (90% of all businesses), nonprofits, and small residential landlords that have seen a loss of rental income. NYFLF is providing working capital loans so that small businesses, nonprofits, and small residential landlords have access to credit as they reopen. These loans are available to small businesses and nonprofits that did not receive a US Small Business Administration Paycheck Protection Program of greater than $500,000 or an Economic Injury Disaster Loan (EIDL) for COVID-19 of greater than $150,000, and small landlords. The loans are not forgivable in part or whole. The loans will need to be paid back over a five year term with interest.

Raising the New York State Bar Restaurant Recovery Fund

The $3 million Raising the New York State Bar Restaurant Recovery Fund was a partnership between New York State, Diageo Wine and Spirits, Southern Glazer Wines and Spirits, and the National Development Council that offered grants for up to $5,000 to eligible businesses. The program was intended to support full-service restaurants – the industry hit hardest by the pandemic – during the winter months when outdoor dining is limited and as restaurants adjusted to New York State's COVID-19 safety restrictions and new mandates.

Federal Assistance

At the national level, USDA, and the Small Business Administration (SBA) undertook a number of programs to support agriculture. These efforts included two versions of the Coronavirus Food Assistance Program (CFAP 1 and CFAP 2), SBA's Restaurant Revitalization Fund, Farmers to Families Food Boxes, the Payroll Protection Program (PPP), and Economic Injury Disaster Loans (EIDL).

Coronavirus Food Assistance Program (CFAP 1 and CFAP 2)

The CFAP 1 program[33] made direct payments to eligible farms to ensure they received the critical support needed to maintain the integrity of our food supply chain and ensure New Yorker's continued to receive and have access to the food they needed. In May 2020, Commissioner Ball sent a letter to the United States Department of Agriculture (USDA) regarding COVID-19 and the inadequate nature of the initial CFAP payments. This additional advocacy on behalf of New York famers directly shaped the amount of payments New York farmers received, especially dairy farmers, enabling the CFAP payments to more adequately addressing the devasting losses of farmers during the COVID-19 pandemic. The program was open for applications from May through September 11, 2020. During the operation of CFAP, USDA took action in July and August to expand the number of crops eligible for the program[34]. Among the additional commodities added on August 11, 2020 were nursery crops and cut flowers, aquaculture, and certain types of eggs. CFAP 2 was initiated in late September 2020 with a deadline of December 11, 2020. USDA Secretary Vilsack expanded and reopened CFAP 2 for applications in early April 2021 (closed October 12, 2021). Farms could participate and receive payments under both CFAP 1 and CFAP 2.

In New York, the number of approved applications under CFAP 1 was 5,719 or 17.1% of the state's farms;[35] for CFAP 2 the approved applications increased to 8,035 or 24.0% of

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[33] Source: USDA, Coronavirus Food Assistance Program, https://www.farmers.gov/cfap1/data, and https://www.farmers.gov/cfap2/data, June 2021.

[34] Elizabeth,H., CFAP 1 in New York State, by County; Cornell Cooperative Extension, Eastern NY Commercial Horticultural Program. June 3, 2021.

[35] The percent participation compares CFAP 1 approved and distinct applications (5,719 for CFAP 1 and 8,035 for CFAP 2) as reported on the USDA CFAP dashboards and the total number of New York farms (33,438) as reported in the 2017 Census of Agriculture. While directionally correct, this comparison is not exact in that CFAP eligibility requirements differed from Census reporting. For example, certain types (not all) of equine operations are reported in the Census of Agriculture, but were not eligible for CFAP payments. PPP data provided by Elizabeth Higgins, Cornell Cooperative Extension.

the state's farms (data as of October 17, 2021). Reviewing the data in comparison to national participation indicates that a lower percentage of New York farms participated in the USDA CFAP programs than nationally, but payments per farm were higher in New York than the national average. The CFAP program clearly benefited the New York farms that participated. The lower percentage levels may relate to the fact that New York has many small, diversified farms which may not have found the program to be helpful in their situation. It is also important to note that some farms were not eligible for CFAP 1 or 2, including equine operations. Information released by USDA Secretary Vilsack in March 2021[36] has indicated that Black farmers received 0.1% of the CFAP funds. Future efforts must ensure that all farms receive support with similar type programs.

Dairy farm income data from Farm Credit East provides interesting insights into the profitability of dairy farming in 2020. While the overall milk price to farmers declined in 2020 by 70 cents per hundred pounds of milk, average profitability increases from $447 per cow in 2019 to $663 per cow in 2020 as a result of government payments. Christopher Laughton, Director of Knowledge Exchange for Farm Credit East expressed concern with future profitability levels as government support has declined in 2021 and feed costs have increased.[37]

The Payroll Protection Program

The Payroll Protection Program was also used by New York farms to help keep the workforce employed and businesses running during the COVID-19 crisis. The leading New York State county in terms of both number of PPP loans (367) and loan amount was Suffolk County with 367 loans for a total of $32.8 million.[38] While the EIDL program was also utilized by farmers, data was not available, which indicates the extent of its use in New York agriculture.

New York Participation Coronavirus Food Assistance Program and Payroll Protection Plan

	CFAP 1	Total CFAP 2	PPP
Number of Approved Applications or Loans (Agriculture)	5,719	8,035	5,354
Percentage of New York farms	17.1%	24.0%	16.0%
Total Payment or Loan (Agriculture)	$224,477,612	$266,043,330	$299,509,535
Average per farm	$39,251.	$33,110.	$55,941.

[36] Reiley, L., Washington Post, "Agriculture Secretary Tom Vilsack says only 0.1 percent of Trump administration's covid farm relief went to Black farmers", March 25, 2021
[37] Laughton, C., The 2020 Northeast Dairy Farm Summary, Farm Credit East, information taken from presentation to the NYS Milk Marketing Advisory Committee, October 2021.
[38] Higgins, Elizabeth, PPP Loans to Farms in New York State, by County, PPP data as of May 27,2021, Cornell Cooperative Extension, Eastern NY Commercial Horticulture Program.

Small Business Association's Restaurant Revitalization Fund

Small Business Association's Restaurant Revitalization Fund offered COVID assistance grants to businesses that experienced losses due to COVID or started a business during COVID and incurred more costs than revenue. Wineries, distilleries, breweries, and cideries that sold directly to the public and farms where more than 33% of gross revenue came from on-site food and beverage sales were eligible.

Farmers to Families Food Box Program

The USDA Agricultural Marketing Service implemented the Farmers to Families Food Box Program,[39] which was announced on April 17, 2020 and concluded in May 2021. The program[40] provided fresh fruits and vegetables, dairy, and meat products from local and regional suppliers to public and nonprofit organizations, including food banks, schools, tribal organizations, and faith-based organizations. Suppliers were directed to provide "family-sized boxes" for distribution. USDA allocated $6 billion to the Farmers to Families Food Box Program and reported distribution of nearly 174 million food boxes through April 30, 2021. While the Farmers to Families Food Box Program helped provide products to food insecure individuals and families and a national market for food products (including dairy), it is less clear to what extent it helped provide a market for New York farmers and food processors. A letter[41] to USDA Secretary of Agriculture Sonny Perdue initiated by Representatives Tonko and Delgado and signed by 14 members of the New York Congressional delegation notes, "only 4 percent of the distribution contracts awarded by the USDA were awarded to the Northeast region in the first cycle of distribution, despite having been the hardest-hit region of the Coronavirus pandemic. The Northeast received one-fifth of the relief per COVID patient than the next-least-funded region. The second cycle of distribution, released on July 1 2021, did not substantially change the unequal distribution of contracts to Northeast vendors."

Food System Partnership: Land Grant System

Cornell Cooperative Extension

Cornell College of Agriculture and Life Sciences and Cornell Cooperative Extension[42] have worked to connect the dots by educating local health officials on the farm community, placing farmers and processors in contact with food distribution programs, bringing farm employees together with medical experts, and defining a pathway forward for farms to operate as safely as possible. Cornell Cooperative Extension also activated the New York State Extension Disaster Education Network (EDEN) as a primary tool to

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[39] United States Department of Agriculture Agricultural Marketing Service, Farmers to Families Food Box website, https://www.ams.usda.gov/selling-food-to-usda/farmers-to-families-food-box
[40] Aussenberg, R., Billings, K., Congressional Research Service, USDA Nutrition Assistance Program Response to COVID-19 Pandemic, March 24, 2021.
[41] Letter by Representatives Tonko, Delgado, Suozzi, Rice, Meng, Valazquez, Jefferies, Clarke, Nadler, Serrano, Engel, Lowey, Morrelle and Higgins to USDA Secretary Sonny Perdue, July 10, 2020.
[42] Impact of COVID-19 on New York's Farms and Food System – white papers, Cornell University College of Agriculture and Life Sciences, Charles H. Dyson School of Applied Economics, Cornell University and Cornell Cooperative Extension.

communicate with consumers and residents the latest information on COVID-19 and governmental responses for the first two months of the crisis. All of these efforts and more were possible thanks to the strong partnership between New York State's Department of Agriculture and Markets and the Cornell College of Agriculture and Life Sciences and Cornell Cooperative Extension system.

Institute for Food Safety at Cornell University – All Components of the Food Chain

To assist food processors, farmers that sell directly to consumers, and food retailers, the Institute for Food Safety at Cornell University instituted weekly food industry "virtual office hours" in partnership with the Department of Agriculture and Markets. During these sessions, interested parties were provided an opportunity to speak directly to food safety experts in dairy, fresh fruit, fresh vegetables, processed foods, and beverages. The Institute prepared COVID-19 training videos for food processing employees in both English and Spanish and teamed up with the Food Industry Alliance in New York State and the Institute for Food Safety at Cornell University targeted educational sessions for grocery store personnel. As of September 2021, the Institute for Food Safety had conducted over 50 sessions that helped dairy and other food processors and related businesses minimize the risks of shutdown and business interruptions.

Distribution of Personal Protection Equipment to Farms and Farmworkers

Through a coordinated effort with the Department of Agriculture and Markets, Cornell Cooperative Extension distributed hand sanitizer and face coverings to more than 57,000 farmers and farm employees. In October of 2020, almost 57,000 farm employees and farmers were provided with approximately 139,000 face coverings to help protect a vulnerable essential workforce. In all, more than 35,000 gallons of hand sanitizer were distributed with an emphasis on the distribution of sanitizer to farm operations open to the public and/or with non-family employees.

Supporting Farm Employees

The Cornell Farmworker Program (CFP) developed a text messaging system to provide timely information to the personal cell phones of more than 3,000 farm employees, and a mechanism for workers to send return text messages indicating needs for masks, food, medical supplies, and other supports. The CFP efforts included Spanish, Mam, and English language communications and graphics for farm employees to ensure that everyone had accurate and up-to-date information to maximize worker safety. The program partnered with the Finger Lakes Community Health Center for Spanish language public health webinars on COVID-19 prevention.

Supporting Farmers

The development of best management practices (BMPs) was essential for farms to operate in the COVID-19 world and comply with public health requirements. Working in close partnership with the New York State Department of Agriculture and Markets, Cornell faculty and extension staff developed over six separate educational BMP guides so that

farmers could take the necessary steps to ensure compliance with state guidance and operate as safely as possible during the pandemic to keep local agriculture growing.

Extensive efforts were made by the Cornell Agricultural Workforce Development and Pro-Dairy programs to educate farmers through live webinars, blogs, web content, and other written materials addressing COVID-19 prevention, development of New York Forward's business safety plans, and labor requirements and best practices.

The Cornell Small Farms Program also developed resources to assist small farms through the COVID-19 period. Their "Building Farm Resilience During COVID-19" resource collection provided sector specific information to assist farms to operate successfully during the COVID-19 pandemic.

Importance of Communications – State, Federal, and Land Grant System

Throughout the COVID-19 pandemic, the need for direct and accurate communications has been of utmost importance. The Department of Agriculture and Markets and Empire State Development worked with Cornell College of Agriculture and Life Sciences and Cornell Cooperative Extensions used existing and newly established networks to share as much real-time information as possible. In this regard, COVID-19 has demonstrated the value, and ongoing need, for the delivery of timely and relevant information to food system businesses to ensure their successful operation.

Future Considerations and Final Notes

It is important to note that at no point during the COVID-19 pandemic was the overall supply of food in question. While customers encountered out of stock items[43] and grocery stores in some areas had challenges securing food supplies, the total supply of food was adequate even if processing and distribution bottlenecks occurred. National and state food production, manufacturing, and distribution systems, as well as hunger relief services, worked together to ensure that food was available to consumers in a way that is emblematic of a vibrant and well-established food supply chain system.

While the recommendations contained in this report reflect appropriate areas for consideration, it is clear that other factors will affect food systems that need to be factored into deliberations on the best steps forward. Future considerations include:

- Implementing the Climate Leadership and Community Protection Act and spearheading potential changes in federal policies relating natural and working lands carbon sequestration incentives aimed at creating new opportunities. With enhanced research, demonstration, and meaningful farm program changes, agriculture is in a unique position to reduce greenhouse gases, increase the amount of carbon in soils, improve soil quality, and enhance farm profitability. This

[43] Park, K; Brumberg, A; Yonezawa, K: The Covid-19 Shopper: Shopping Habits during Covid-19; December 2020. Cornell University Department of Applied Economics and Management. A survey found that 86% of the respondents said they encountered out of stock items.

will not happen in vacuum; extensive engagement with the farm community will foster this effort and ensure a positive outcome.

- A goal of creating greater food justice, in which high quality, nutritious, fresh food products are available to individuals and families in all communities, should increasingly drive policies and programs at the intersection of nutrition, food security, farm production, and food distribution. While Nourish New York is a very positive effort that makes that direct connection between food insecure communities and the farmers, further focus on initiatives that can address nutrition, future food security and hunger should be addressed by the Department of Agriculture and Markets, NYDOH, and other agencies to define new avenues for greater food justice.
- Recognizing the importance of fresh, locally grown food to the health and well-being of New Yorkers will be important. The concepts embodied in “Food as Medicine” are beginning to gain greater recognition, and local food production can be a critical component of this emerging trend. With further focus on reinvigorating the successful Community Gardens Program in urban communities as well as the continued development and support of community based urban farms, we can continue to keep focus on healthy foods for the wellbeing of residents.
- Mitigating potential and devastating impacts of cyber-attacks to the food system of must be a public and private sector priority. We live in a digital world dependent on constant data communications and any disruption can force a shutdown that can interfere with the movement of food and quickly destroy key networks that the food system depends on. While the lead on addressing cyber-attacks is the federal government in conjunction with the private sector, New York’s food system participants need to be fully informed and fully engaged in preventing such cyber-related attacks.
- Innovation and research, in conjunction with economic development assistance, will be essential in the growth of our food system. As more research and development occurs on soil health and precision agriculture, we will see modifications in production practices that benefit agricultural production, mitigate greenhouse gases, and improve the environment. As plant breeding and new food processing and packaging evolve, we will see market and product development that will change food distribution and potentially help address the challenge with food deserts. It is essential that we encourage food system entrepreneurs and connect them with existing New York food businesses, researchers, and economic development specialists.

New York State has a long history of supporting key agriculture and food related programs that strengthen these industries and help to keep them competitive in a global marketplace. As we look to build a more robust food system, the continuation and in some cases enhancement of these programs will be essential. This includes Taste NY, Integrated Pest Management, Pro-Dairy, FarmNet, the Center of Excellence for Food and Agriculture, and industry-specific agricultural research and development programs.

The journey toward stronger New York State food resiliency and greater self-reliance will require initiatives which will evolve over time. The reality is that an effort to create a more robust agriculture and food system will depend not only on strengthening the activities of our past practices, but also on embracing opportunities and new realities unknown to us today.

Report on Food System Resiliency and Self Reliance Recommendations

The farm families, entrepreneurs, food processors, and agri-businesses that comprise New York State's food supply chain play a vital role in protecting and enhancing food systems across the state, ensuring that New Yorkers can enjoy locally produced fruits, vegetables, dairy, craft beverages, and added value food products. Annually, New York State provides resources to fund critical supportive programs to ensure a strong and vibrant food system, both those that support farmers directly with grant or tax incentives, as well as programs that support critical infrastructure in the land grant system and school districts, and encourage agriculture based economic development. With a number of successful programs already in place, the state must not only look for new ways to drive resiliency across the food system moving towards a more locally grown food system, but also ensure programs such as the Agricultural Environmental Management Program (AEM), Cornell Pro-Dairy, the New York State Integrated Pest Management Program, the Cornell Small Farms Program, the Center of Excellence for Food and Agriculture, and the Climate Resilient Farms Program, among others, remain driving forces in local food systems progress.

More specifically, this report includes number of recommendations that aim to improve and strengthen the long-term resiliency of our state's farmers and food supply chains. Recognizing that many of the supply chain issues currently hindering growth of food processing are a result of national and international constraints in supply and distribution bottlenecks from overseas, bringing back a more regionalized economy in agriculture, food manufacturing, and related inputs becomes more critical in a post-pandemic world. It's important to note that as New York State views the growing challenges posed by climate change to our farm families at home, and to our traditional food supply areas on the west coast and internationally, it has never been more important to think about investing in local farms and infrastructure, coupled with smart incentives to sustainably intensify New York's food production. Food security in our children's and grandchildren's lifetimes may be impacted by the decisions we make today.

Each of the subject areas in which recommendations have been developed were addressed during the open comment period or roundtable session held in preparation of this report. The feasibility and cost of each of these recommendations will be assessed in the future, but it's clear that a significant commitment of private and public partnerships to invest in a more regionalized and diverse farm and food system is warranted. Improvements in infrastructure – both human capital and physical – are needed to improve the capacity of local farm goods to be aggregated and efficiently shipped to rural, peri urban, and urban markets. Capital investments and grant cost share dollars for

farmers to grow their agricultural enterprises and invest in the technologies of today and tomorrow, including controlled environment agriculture and urban agriculture, are critical. Investments in the physical infrastructure of the land-grant system based public research and extension enterprise are also needed to ensure that farmers have the tools they need to sustainably grow into the future, as well as to develop a new innovation-based framework to utilize nature based solutions to climate change.

Strengthen Coordination Between Local, State, Federal, and Private Stakeholders

Resources are best utilized when there is coordination between various stakeholders. However, a lack of coordination among federal, state, and local agencies and the private sector has led to confusion, inefficiencies, and far greater health risks and consequences than are necessary. This lack of integration and coordination was particularly acute in the beginning stages of the pandemic. Ensure robust coordination exists between the New York State Department of Agriculture and Markets, Cornell College of Agriculture and Life Sciences, Institute for Food Safety, Cornell Cooperative Extension, other state and federal partners and other food industry stakeholders to provide direct guidance to the state's food industry on best management practices, how to interpret state health guidance, as well as partner in distribution of personal protective equipment, testing and vaccination programs for food industry employees.

Building a Stronger Food Supply System through Agricultural and Food Resiliency Teams

A stronger and more resilient food system will only be possible with extensive efforts over many years involving all components of the food system from farmer to consumer. Finding new ways for farmers to be more profitable, encouraging more food system entrepreneurs, and keeping a focus on environmental sustainability will require a cadre of state-supported regional Cornell Cooperative Extension specialists to work more directly with farmers in the field, as well as surface solutions to current food system bottlenecks. This will help strengthen existing food systems by complementing New York's existing Cooperative Extension structure, along with the Harvest NY program, by addressing current resource inequities within the state and focusing on revitalizing our farm to fork connectivity. This will be achieved through the ongoing work of the Council on Hunger and Food Policy.

New York State Department of Agriculture and Markets and Institute for Food Safety (IFS) Collaboration

The New York State Department of Agriculture and Markets food safety and dairy inspection staff and Cornell Institute for Food Safety (IFS) was instrumental in maintaining the safety of New York's food supply. Working together with diverse audiences as broad as food retail stores, local farmers' markets, to fruit, vegetable, and dairy production and manufacturing, the expertise and partnership was unparalleled, and the New York State Department of Agriculture and Markets and IFS Covid-19 websites became two of the most trusted NY based information sources for food safety during a pandemic. Creating

a Rapid Response and Extension team will enable the IFS to continue its science-based training for food entrepreneurs and processors, as well as keeping a cadre of trained scientists available during future food system outbreaks and disruptions.

Develop Urban Agriculture and Focus on Food Justice

Urban agriculture has been growing by leaps and bounds all throughout New York – both in the five boroughs and in upstate cities. There are many benefits to urban agriculture, such as extraordinarily shortened supply chains, but perhaps even more importantly the creation of urban, community centered farms, most with a social justice mission, can help encourage youth development, aid in nutrition education, provide culturally appropriate hyper local foods, and serve as heat islands and needed green spaces. New York should continue to strengthen urban and community farms, while also paying close attention to ensuring that upstate and Long Island farms are accessing underserved urban areas that are considered to be food deserts.

Focus on infrastructure needed for better aggregation of food products and delivery to underserved neighborhoods. One of the lessons from the pandemic is that improved food access and healthier eating strategies can help eliminate health disparities faced by underserved communities. To alleviate this, we must implement the recommendations of the New York State-New York City Regional Food Hubs Task Force by revitalizing efforts to incent additional food hubs either in New York City or just outside of the city, streamlining distribution for local farmers. In addition, explore additional aggregation efficiency strategies to combat the challenge faced by local farmers in supplying the vast New York City marketplace when competing at scale. $20 to $40 million in public funds per food hub with major funding being spread out between New York State and New York City partners.

Build on the existing Harvest New York urban agriculture and community gardens specialists' outreach efforts embedded in academia to reach more urban communities and assist in developing local urban food businesses with food safety education and training, pest, and disease management, as well as youth education. Alongside this is a consideration for adding space in New York City, partnering with local non-governmental organizations, to create a small-scale urban research farm to assist academia in conducting necessary research and development on the different pest and disease complexes faced by urban growers. This will require $1.8 million annually ($800,000 for the Community Garden Grant program, $600,000 for Harvest New York, and about $400,000 annually for the community gardens specialists under existing funding).

Coordinate with New York City's Department of Planning, working to identify available green space in the City suitable for farmers, and consider implementing additional successful New York City Housing Authority based farming operations like the Red Hook Initiative. Additionally, we must consider how to incent New York City based co-packing and additional commercial kitchens/incubator facilities to help urban based food entrepreneurs, as well as access Cornell College of Agriculture and Life Sciences online and in-person food safety training and food safety/process validation required to enter the food supply.

Ensure that community groups operating education and technical assistance services and land access providers with a focus on creating greater equity in food systems are able to access available resource-based programs such as soil and water conservation cost-share dollars, climate resilient farms dollars, non-point programs, and more. This can be achieved through ongoing education and outreach to community groups.

Strengthen and Reimagine Existing Food Availability Programs

Increasing access to healthy local foods and ensuring that hunger is alleviated during future food system shocks and disruptions to our state's economy is warranted, given the experiences of so many who faced rapid unemployment and food insecurity during the pandemic. One of the lessons of the pandemic remains the vital importance of new programs like Nourish New York, strong farm to institution programs, and the federal Supplemental Nutrition Assistance Programs, Special Supplemental Nutrition Program for Women, Infants, and Children, and school breakfasts and summer meals during times of food system disruptions. Many of these programs are designed to reduce food insecurity and provide supplemental nutrition to ensure a healthy diet. Reimagining how New York State can make it easier for residents to apply for these critical programs is paramount moving forward.

Strengthen and Scale up the Nourish New York and Restaurant Resiliency Programs

The Nourish New York initiative was launched during the height of the COVID-19 pandemic and served as a lifeline between New York's families and farmers addressing market and food insecurity challenges. This program was extremely successful in its infancy and the creation of a permanent, scaled up program can further strengthen the partnership between emergency food providers and farmers to provide healthy, fresh foods to food insecure individuals and families. It should be noted that pairing a permanent Nourish New York program with the State's Prevention Agenda, New York State's health improvement plan, the blueprint or state and local action to improve the health and well-being of all New Yorkers and to promote health equity in all populations who experience disparities, can assist with more effectively reaching communities experiencing the greatest need and experiencing the greatest rates of food insecurity. Further, in October 2021, the Department of Agriculture and Markets in collaboration with NYSDOH, launched the Restaurant Resiliency Program which provides New York State regional food banks with the ability to source meals from qualified restaurants that will be delivered to feeding programs administered through the food bank's network of providers such as food pantries, soup kitchens, and shelters. This program is currently funded through March 2022, but restaurants need to be a permanent part of the emergency food supply chain, particularly when responding to disasters. These programs could be made permanent and be designed to fund both the program and the associated administrative costs, and a shining example of how state agencies can work together to leverage different strengths and resources.

Strengthen Farm to School and Farm to Institution Programs

Farm to School and Farm to Institution programs create a pipeline from local farms to local institutions, strengthening local supply chains and creating opportunities for local farms. Several commenters mentioned the importance of schools stepping in to keep feeding kids during school closures, as well as keeping the State's groundbreaking Farm to School reimbursement program, which helps incent schools to utilize fresher, healthier local specialty crops and dairy products. To strengthen these programs, consider adopting a procurement approach that calculates the true value and cost of food, to facilitate greater New York product competitiveness. Funding for Farm to School and State Department of Education currently exists in the executive budget. We recommend an increase in the appropriation to $1 million.

Pilot projects aimed at identifying ways to make it easier for eligible New Yorkers to apply for multiple food benefits online ensuring cross agency collaboration so that eligible individuals do not have to go to separate state agencies to apply for needed assistance.

Technical assistance and equipment to farmers' markets and individual farmers to help increase acceptance of Supplemental Nutrition Assistance Program (SNAP) and Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) online particularly in urban and rural food deserts to ensure that local community residents who are experiencing food insecurity can enjoy local food that is healthful and from their own communities. The current Department of Agriculture and Markets grant program, which provides this assistance, is funded at $243,250 annually, with the individual equipment itself costing $349 per set up. This program should be renewed.

Alleviate the significant lack of cooler space at food pantries and emergency food assistance providers by providing "vouchers" or "coupons" as piloted by Nourish New York in partnership with local grocery retailers to facilitate fresh dairy product purchases for families in need. Provide a permanent funding stream for the Nourish New York program.

Restructure and Enhance State and Federal Feeding Programs by creating a structure that encourages food banks and other feeding programs to build sustainable, long-term relationships. Contracting with food businesses within our own state as a routine matter of business, where cost effective, will ensure our food businesses are better prepared to react to future crises as they will have built their business around existing, local, New York consumer need.

Strengthen Empire State Development Incentives to Farmers and Food Processors

New York, according to the United States Department of Agriculture Economic Research Services, is ranked second in the nation in the number of food processors (which includes smaller scale craft beverages and added value farm producers). Farmers however need more medium and larger sized processor options to sell their product to in order to remain economically competitive, and New York's access to consumer markets, relatively robust transportation network, and availability of water will give the state an edge in the

marketplace in years to come. Existing incentive programs such as Regional Economic Development Council capital funding, state workforce credits, and low-cost power options should be retained. Empire State Development should continue to place a high priority and a demonstrated recruitment focus on expanding and attracting food processing in New York.

Invest in New York Farms through Regional Economic Development Council Dollars

Most Regional Economic Development Council (REDC) regions have prioritized agriculture and farming as areas of focus. The successful pilot project whereby all REDC regions were provided with a pool of dollars to grant to farmers to facilitate the cost-share of capital equipment needed for compliance with food safety requirements to encourage enrollment in the Grown and Certified Program was an example of a successful, statewide effort where REDC dollars helped facilitate local food system growth. Similar incentive programs for farmer entrepreneurs, perhaps focused on countering the seasonality challenge, enabling cost-share dollars for greenhouses or high tunnel systems run through the REDC system, should be explored. Additional ideas for incentives to encourage food access center around cost share possibilities enabling farmers to add tools such as field-based cooling and minimal processing equipment needed to help farmers get more of their fresh product to market. Provide additional Grown and Certified Producer's Grant Program funding at a recommended $5 million with $500,000 going to each of the 10 REDC regions. The current funding stream is at a 90% utilization rate.

Renew and Expand the Grow-NY Competition

The Grow-NY Competition, now entering its third year, has been a remarkable success and is administered by Cornell's Center for Regional Economic Advancement. Operating in 22 New York counties in the Central New York, Finger Lakes, and Southern Tier regions, in its first two years the program has led to the creation of over 150 jobs and helped New York food system entrepreneurs raise $32 million in commercial capital, and just as importantly has helped facilitate new markets for farmers, new food products and services, and led to high tech innovation. Both local and international applicants have entered the competition, and eight new business leases have been established in New York after participation in the competition. Empire State Development should renew Grow-NY, which ended in November 2021, and expand this competition to Western New York to ensure full state participation. Renewing the program requires $5 million annually for 4 years.

Expand Food Systems and Agriculture Innovation

In order to keep New York farms thriving and resilient in the face of crises, food system and agriculture innovation is essential. Climate change has the potential to be our next disruptive force in the food system. Building greater resiliency into the food system means that we will need to focus on improving climate resiliency for our farms for adaptation purposes, mitigating greenhouse gas emissions from agriculture, and developing solutions-oriented technologies and practices that verifiably sequester carbon in our soils

and working lands. The reality is that moving into a more regionalized food system will require a significant investment in the research infrastructure capacity at Cornell College of Agriculture and Life Sciences (CALS), New York State's Land-Grant partner for over 150 years, as well as the Cornell Cooperative Extension system. In doing this, we could do the following:

Create specific opportunities that encourage dairy product innovation such as providing basic and applied research and development to utilize milk and it's high value attributes in a more innovative way, test the development of new, consumer friendly shelf stable dairy products, and take advantage of New York's diversity by developing new ethnic dairy and cheese products. After research and development is commercialized, ensure that Empire State Development has the resources available to help incent entrepreneurs to locate in New York. Increase the Cornell Pro-dairy program annual allocation by $500,000 and expand the scope to include research and development for dairy food innovation.

Create the nation's only climate resilient research farms and forests at Cornell College of Agriculture and Life Sciences creating climate smart innovations, scientifically verified, demonstrated, and de-risked on Cornell CALS research lands, and then extended throughout New York's farms via Cornell Cooperative Extension. Development of scientifically verified carbon sequestration strategies and net negative climate technologies will poise New York's farmers to take advantage of public and private sector carbon markets. This requires a significant capital infrastructure upgrade at Cornell CALS research farms throughout the State of New York, as well as a thoughtful and science-based transition to the CALS dairy and livestock teaching and research farms to develop and showcase methane mitigation reduction strategies. Additionally, we must encourage New York State Energy Research and Development Authority to offer program opportunity notices on natural carbon sequestration research and development, incenting science that will help farmers become a part of climate solutions and earn income from emerging carbon markets through new climate technologies to store inorganic soil carbon like enhanced photosynthesis, natural weathering, and biochar. $6 to $7 million to be allocated annually for three to five years to Cornell for research and development and capital to develop new and expand existing facilities.

Establish a Sustainable Food Systems Plant Science Innovation Hub to develop the future plant scientist workforce and ensure that New York's farmers have climate resilient food crops for future generations of New Yorkers. This includes a focus on speeding up the plant breeding process utilizing new non-genetically modified organism technology, and ensuring that apples, grapes, and vegetables, and dairy forages are able to grow in New York's climate of the future. Investments in plant breeding capacity will benefit controlled environment agricultural operations seeking new crops to grow under cover, year-round, to improve New York's food security, as well as developing new varieties of culturally appropriate vegetables designed to meet nutritional needs of diverse population demographics. $40 million URI application is being evaluated through the Southern Tier REDC.

Foster innovation in digital agriculture and a continued revolution in the usage of remote sensing. Biologically based crop protectants and labor-saving efficiencies will give New York farmers a competitive edge in the marketplace as well as ensure success in a changing climate wherein local farmers will need to sustainably intensify agricultural production. This can occur with Cornell College of Agriculture and Life Sciences investments in new faculty hires, and multi-disciplinary undergraduate and extension-based education and training that recognizes the farmers of today and tomorrow will need training in computer science and digital technology just as much as in basic agronomy and soil health. This would require a $1.5 million onetime cost for staff and writing curriculum for Cornell College of Agriculture and Life Sciences, workforce training for current farmers through the State University of New York system partners and Cornell Cooperative Extension, and undergraduate education of future farmers throughout the State University of New York system educational pipeline.

Encourage additional innovation in food processing plants to ensure modernization. We must encourage automation for social distancing and greater usage of technology for improvements in cold storage and processing technologies taking products directly from the field, to the processor, and then to the consumer. Additionally, we must seek to incent private sector investments into safe, modernized small to large scale minimal processing facilities. Cost will require further collaboration with industry and state partners.

Prevent and reduce food waste by utilizing data-informed approaches to reduce food waste from primary production to consumers and use dairy and specifically fluid milk as a model system. Similar efforts are underway in the state that focus on the development of computational tools that can (i) dynamically predict product shelf life and (ii) predict the impact of different strategies on reducing food spoilage and food waste; part of these projects is also focused on developing dynamic pricing strategies that can be used to encourage sales of products close to end of shelf life, which would otherwise likely be discarded and create food waste. These efforts are pursued as collaboration between food scientists, data scientists, and economists. In addition, researchers at Cornell University also explore novel prevention and preservations strategies that reduce food spoilage as well as “upcycling” approaches that use by products of food production to produce value added products.

Diversify food manufacturing in order to build on the market shifts experienced during the pandemic, work closely with food manufacturers to diversify the types and sizes of products they produce, and work with food buyers to explore diversifying the types of products they offer to their consumers. Connect food manufacturers, and food buyers with Empire State Development to explore opportunities to invest in more manufacturing flexibility, enabling existing or new processing facilities the ability to produce a variety of products, in different sized packages.

Embed Equity Into New York’s Farm and Food System

Part of protecting and developing the workforce is promoting equity and inclusion within it. Workforce is defined in this context as both farm and food processing employees, as

well as farmer and food system entrepreneurs. Promoting equity and inclusion can be done through the following steps:

Adopting the comprehensive recommendations of the Commissioner's Task Force on Equity and Inclusion, which includes a focus on grant-based entrepreneurship support, land access, and higher education and technical training for farmers in underserved groups.

Providing support for the Cornell Small Farms Equitable Farm Futures Initiative, which seeks to build greater equity by focusing targeted training and educational efforts and building communities of support services for underrepresented farmers, particularly Latinx farm employees and farmers. This requires $400,000 annually in local assistance funding for program that was funded originally as part of the 2021-22 Enacted Budget.

Support communities of New Americans interested in developing farming skills and accessing land, centered in refugee resettlement programs. Additionally, we must consider creating micro-grants for incubator and community farms to help these endeavors afford start-up costs of seed, equipment, etc.

Create Better Pathways to Farm and Food Systems Careers

There is a need to attract and retain highly skilled individuals in farm employment. To fully understand the complexities of this issue, a career development position should be created at the Department of Agriculture and Markets to focus on workforce preparedness and to communicate across stakeholder groups. By connecting farmers to labor and education there will be no assumptions on what is needed in the food system and a pipeline will be created from educational programs to farm employment. Additionally, the Department of Agriculture and Markets can work with the State Department of Education to create certified agriculture-based training programs within Boards of Cooperative Educational Services (BOCES). This can also be supported by connecting with the Department of Labor to designate certain trades within the agriculture industry as official skilled trades. This can create funded apprenticeships within the industry, connecting individuals with farms and processors. These efforts will support those looking to enter the farm and food system and attract new talent. Cross collaboration is required between state partners and industry partners including State University of New York, the Department of Labor, the Department of Agriculture and Markets, the State Education Department, the FFA organization, etc.

Ensure Labor Availability and Immigration Reform

Concerns relating to labor availability particularly in the migrant and seasonal agricultural workforce are long-standing and have been a limiting factor in agricultural development in New York and other states. While New York has taken steps to assist farmworkers and farmers with the Cornell Agriculture Workforce Program and Cornell Farmworkers Program, along with investing in the Agri-Business Child Care Development Program geared towards childcare needs and youth development for the children of farm employee families, it is essential that Congress act on immigration reform that will allow more

stability in the farm workforce and create opportunities for New Americans as future farm owners.

Address Housing Issues for Farm Employees

Labor availability is greatly affected by the availability of housing. With scarce housing in rural areas, and expensive housing in areas of excellent farmland but high population densities like Long Island, an already limited workforce is affected further when available workers cannot find affordable, convenient housing. The issue of scarce housing was exacerbated by the pandemic, as neither local health departments nor farmers were prepared to deploy isolation housing for seasonal farm employees in need of quarantine facilities. By providing grants to support on-farm housing for farm workers, in addition to the State's low-cost loan program administered by the Division of Housing and Community Renewal, farms will be able to attract the workforce they need at no additional cost.

Create and Utilize Data Driven Food System Software and Programs

The food system can be better coordinated with tools that allow real-time data assessment and multiprogram facilitation and execution, including:

Developing a Dashboard Monitoring Determinants of Hunger and Food Insecurity

To identify and ensure the deployment of adequate resources to critical populations during times of need, a real-time dashboard or digital application should be developed that shields private individual information but integrates various government payments and incentives, the Department of Labor's unemployment insurance claims information, the early warning system for large employer lay-offs, as well as COVID-19 tracking numbers, would provide a much needed predictive tool whereby state food assistance and other focused attention and services could be deployed to address communities in great need in a crisis, as well as highlighting areas of systemic financial distress and high poverty where food interventions are more needed. This would require cross agency collaboration to build and maintain the dashboard.

Developing a Farm to Fork Online Marketplace

New York currently has no front-facing website where New York State agricultural products and food manufacturers are highlighted, making awareness and access to New York State agricultural products challenging. The purpose of this project is twofold – to develop a consumer-friendly website to encourage more local agri-tourism and drive consumers to smaller scale farm market entrepreneurs, and to ensure that restauranteurs, retailers, and institutional purchasers can more readily find who is selling products at a scale to encourage aggregation and robust purchases of larger scale food product orders. Having a sense of who has products, through a database tool that is able to be updated by the user, would have been quite useful during the initial establishment of programs like Nourish New York. $100,000 to Cornell Cooperative Extension to create

this online marketplace. Additional recurring funding will be needed to maintain the database.

Improve Farm to Fork Transportation Infrastructure

A significant component of a resilient food supply chain is a farm to fork transportation infrastructure that is robust, effective, and cost effective for smaller-scale producers. As part of the Build Back Better agenda, we must explore additional options to improve aggregation infrastructure such as: (1) a discounted E-Z pass rate for vehicles owned and operated by a person or entity engaged in the production of crops, livestock, and livestock products, creating a 20% discounted rate for farmers moving local foods into urban markets; (2) State incentivized "last mile" docks that enable better aggregation of food products from smaller scale producers into downstate markets; (3) significant expansion and/or utilization of freight rail infrastructure, particularly into Hunts Point, from upstate ports and rail hubs where feasible; (4) Modernizing existing ports and creating additional inland ports to ease food movement; (5) Further development of regional food aggregation and distribution infrastructure for small and medium sized farmers. This becomes particularly important as commercial driver licenses are in short supply and obtaining a commercial driver's license is soon to become increasingly more difficult,[44] exacerbating supply chain issues. In recognizing the current constraint on licensed CDL drivers on the supply chain, Governor Hochul recently signed legislation to allow a CDL class A youth training license to create new opportunities.

Expand Meat Processing and Small Livestock Farms

During the pandemic, one of the most repeated and intractable shocks to the food supply system was the meat supply. With COVID-19 causing shutdowns at local processing plants in Pennsylvania, and New York's generally smaller scale processors not able to keep up with the sudden demand for local meats, the opportunity for New York's smaller scale livestock farmers to see significant sales gains was lost in many cases, as farmers simply were unable to make appointments for meat processing. Thus, we must address supply/demand imbalance through a joint effort involving Cornell Cooperative Extension in conjunction with the Department of Agriculture and Markets and Empire State Development. Cornell Cooperative Extension will focus on livestock production expansion and outreach to processors, along with necessary food safety education. The Department of Agriculture and Markets will work the State University of New York at Cobleskill on workforce development efforts, which are critical to the needs of livestock processors seeking to expand operations. As appropriate, Empire State Development will continue to provide economic development incentives for livestock processing projects, in conjunction with fully accessing available federal United States Department of Agriculture funds to assist new and existing processors interested in expanding.

[44] https://www.fmcsa.dot.gov/registration/commercial-drivers-license/entry-level-driver-training-eldt