

Production

Food System Baseline Assessment

Prepared by Tompkins Food Future,
a team coordinated by the Food Policy
Council of Tompkins County

Presented to the Tompkins
Community in January 2022

Cover image: Markus Spiske

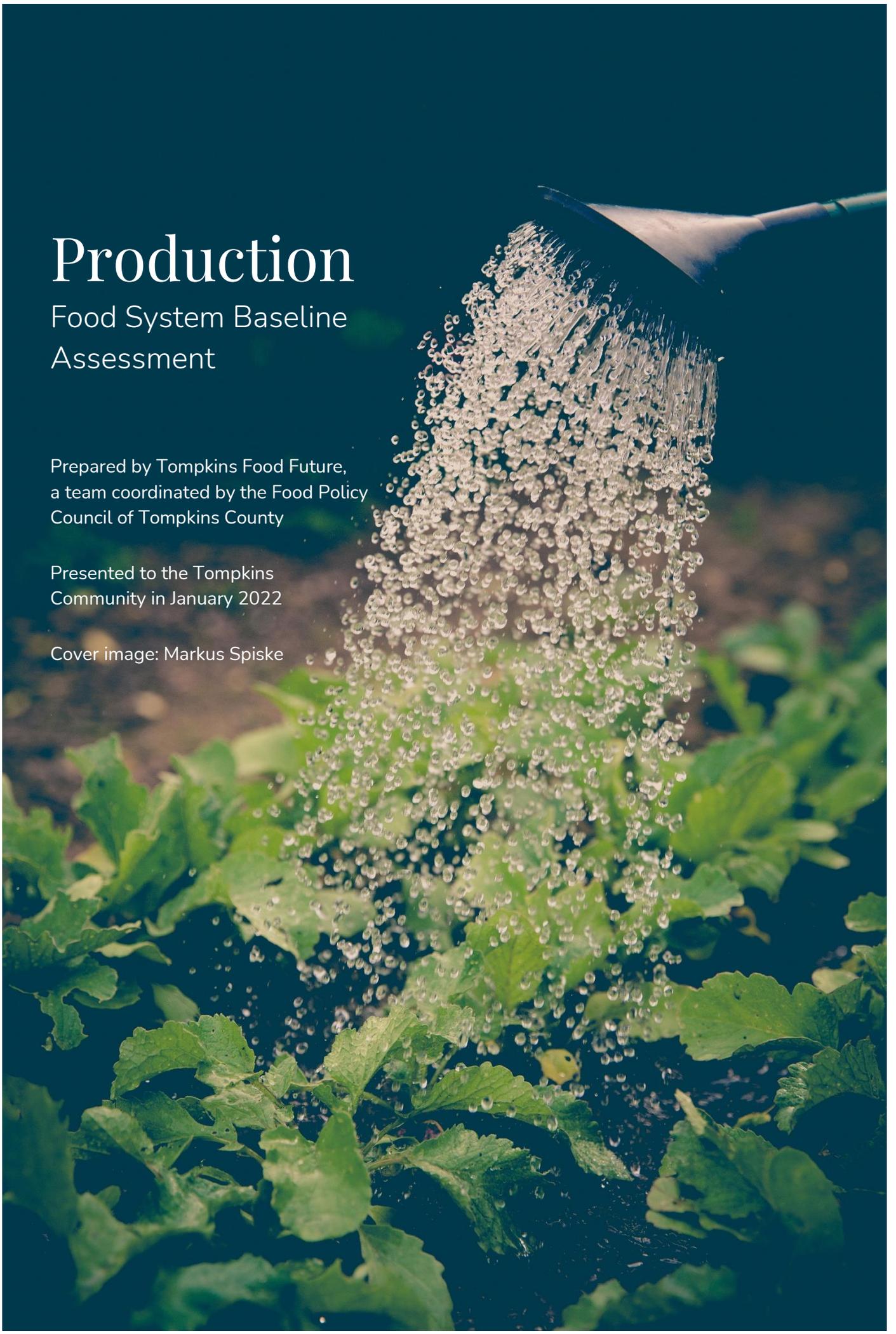




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Introduction

The people who plant, grow, raise, and harvest the food we eat are at the heart of our food system. Farmers work in relationship with the land and environment to provide food for our community and beyond. In this section, we explore who grows our food, how it is produced, and the type and quantity of food produced in our region. We also look at what producers need to create strong and sustainable businesses for the long-term.

While Tompkins County boasts an abundance of locally produced food, for most residents, the vast majority of food consumed originates from outside the county, as part of the global food system. Three quarters of Americans say they try to include locally grown food into their diets (2018 Gallup poll), but this estimate doesn't translate to food purchasing habits locally. Our best estimates assume that approximately 20% or 20,000 residents purchase some amount of food from local producers (CCE Tompkins past studies).

*“**Food production** comprises such factors as the use of land for productive purposes (land use), the distribution of land ownership within communities and regions (land tenure), soil management, crop breeding and selection, crop management, livestock breeding and management and harvesting.”*

— from Food Systems: Environments, Production, Distribution, and Household Utilization of Food

Land acknowledgement

Tompkins Food Future and the Tompkins County Food Policy Council acknowledge that Tompkins County is located on traditional, ancestral, and contemporary lands of the Gayogohó:nq' Nation. The Gayogohó:nq' (whose colonized name is Cayuga) have long stewarded this land and were the original people of this place before being forcibly removed and dispossessed of their homeland. We recognize this painful history, and honor the long-standing and ongoing connection of the Gayogohó:nq' people to this place. In this spirit, we strive to support the repatriation of traditional Gayogohó:nq' people on Gayogohó:nq' land, and to ensure that the the future of Tompkins County's food system addresses past injustices and builds greater food sovereignty among Indigenous people.

Justice and Equity Issues in Farming

The human element of food production cannot be ignored. Are the farmers and laborers providing our food treated fairly and working in safe conditions? Providing fair, just, and dignified conditions for workers is often usurped by profitability concerns. Access to land and capital is not equitable. Gender, age, and racial disparities in who owns and farms land in Tompkins County abound today.

The history of the U.S. food system is dark - rooted in oppression and racism. European colonization meant the land we farm today was stolen from Indigenous peoples. Slavery was more than just a regional institution of cruelty – it was the driver of U.S. economic prosperity and the origin of inequities still plaguing our nation today. The struggle for fair pay and improved working and living conditions among farm workers in the U.S. illuminated the injustices experienced by millions of laborers central to food production. This historical context matters when it comes to understanding the food-related health, economic, and social disparities experienced by Black, Brown, and Indigenous people today. Food system inequities include but are not limited to:

Lack of access to land and food production resources: Fewer than five of the 525+ farmers in Tompkins County are farmers of color. In NYS, there are only 139 Black farmers among the 57,000 farmers. Nationally, black farm ownership declined from 15 million acres in 1920 to 1 million acres in 2017. Black farmers represent 1.34% of farmers in the U.S., despite making up 13.4% of the total population.

Food access and security: In Tompkins, despite representing 4% of the total county population, Black residents are overrepresented among SNAP (food stamp) recipients at 12.7%. Nationwide, Black Americans face food insecurity rates twice the rate of white households.

Food as a barrier to / predictor of health: Diabetes and other nutrition-related illnesses are higher among communities of color. Black residents in Tompkins County have 96% higher diabetes hospitalizations than white residents.

Figure 1 tells part of the story of how systemic racism interacts with the U.S. food system:



Figure 1: Systemic Racism in the U.S. Farm Policy - Recent Trends

Systemic Racism in U.S. Farm Policy - Recent Trends

1999 Pigford v. Glickman



USDA systematically denied loans and subsidies to U.S. farmers of color

\$1B settlement (many missed the chance to receive payments)

2017 Annual USDA Subsidies (excluding crop insurance)



\$10B to white farmers

\$60M to Black farmers

2018-19 USDA Relief Payments



99% went to white farmers

Disproportionately helped white, upper class, wealthy men and their families

2020 USDA Covid Food Assistance Program



97% of relief went to white farmers

Black farmers received average of \$422

white farmers received average of \$3,398

2021 American Rescue Plan Act



\$1.9T COVID relief

\$5B historic debt relief to socially disadvantaged farmers including Black / African American and other farmers of color

'In the Biden-Harris Administration, USDA is committed to transforming America's food system with a greater focus on more resilient local and regional food production, fairer markets for all producers, building new markets and streams of income for farmers and producers using climate smart food and forestry practices, making historic investments in infrastructure and clean energy capabilities in rural America, and committing to equity across the Department by removing systemic barriers and building a workforce more representative of America.'

USDA website April 2021

Soil, Water, and Climate

Soil Resources

Soils are an essential farming resource and farmers play a vital role in maintaining soil health through proper management practices that retain nutrients and water and sequester carbon. The soils of Tompkins County vary considerably in their physical characteristics and suitability for crops and other uses. The complexity of our soil originates from the once-glaciated landscape which resulted in varied topography of hills, valleys and plateaus. Farming is concentrated in valleys and plateaus. Soil capability is based on the lime content of the soil. High lime soils are located in the northern plateau areas of the county and are more suitable for crop production than low lime soils found in the southern part of the county where the varied topography also limits productive row crop farming. Active row crop farming in the county is most commonly found on the best soils with higher yield potential in the north. This does not mean that farming is impossible in areas of lower quality soils, it does however require more inputs such as lime or field drainage. Smaller niche farm operations and grassland and forest farming can still be viable throughout the county.

High quality soils are a limited resource and efforts to preserve them are essential. Soils are classified by USDA Natural Resources Conservation Services as being prime soils and soils of statewide significance (Figure 2).

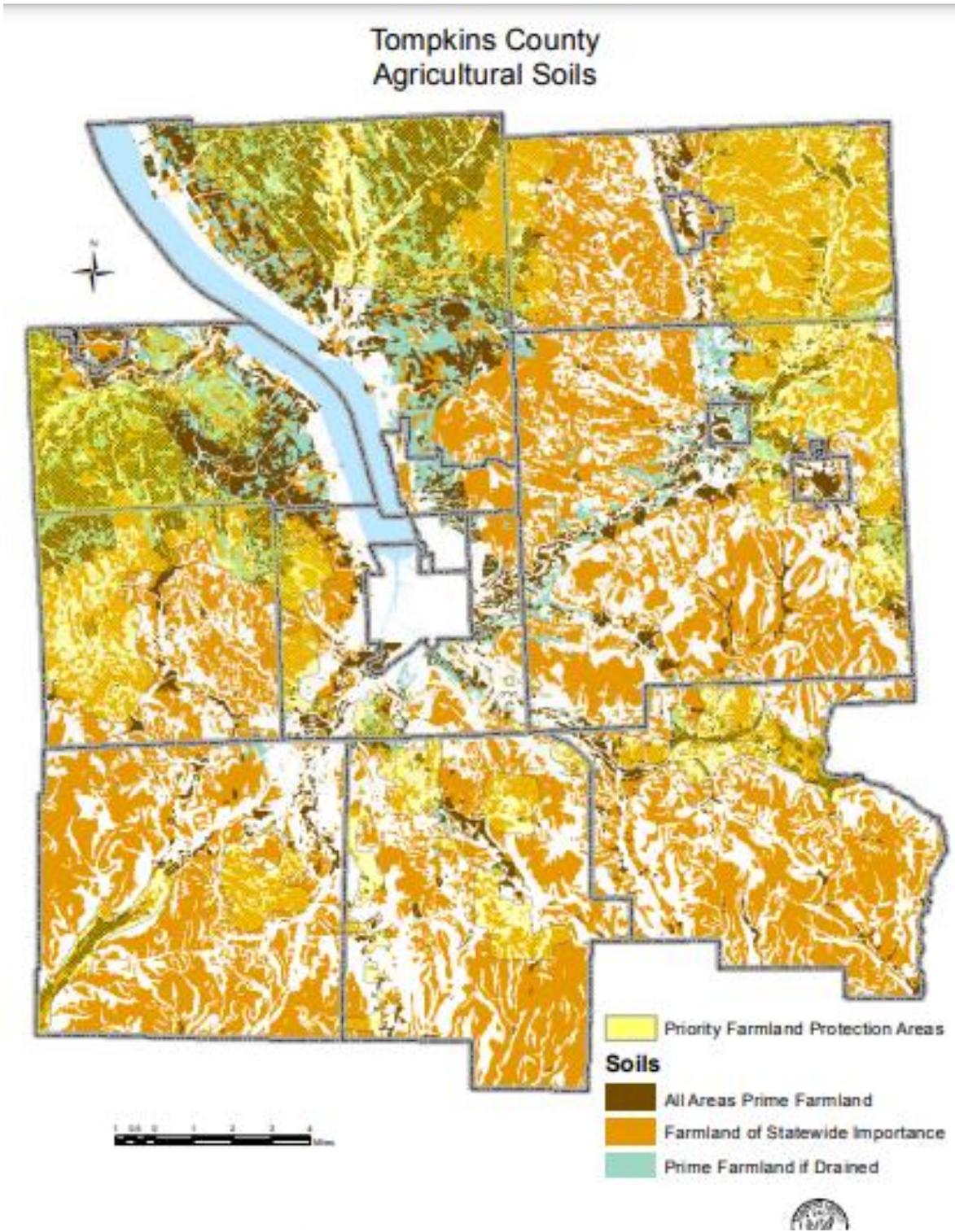


Figure 2: Tompkins County Agricultural Soils

Prime soils occupy 41,453 acres of land, soils of statewide significance include 127,762 acres, and a third category, soils suitable for farming if drained include another 19,428 acres of land for a total of 188,643 acres of land suitable for farming out of a total county acreage of 315,000. Currently farming occupies a total of 91,300 acres of land and of that only 68,357 is actively farmed. This suggests that we have more land available (120,286 acres) for farming than is currently used or owned by farmers. In terms of future farm and food security, this raises some key policy questions: how do we preserve potential farmland for farming and how do we encourage more farmers.

Water and Climate factors

Water

Tompkins County's abundant fresh water supply is an essential agricultural asset. According to the 2015 Tompkins County Agriculture and Farmland Protection Plan, nearly every farm in the county has an onsite water supply in the form of a stream, wetland or pond. Most of these resources are protected by stream or wetland buffers, though can be adversely impacted if mismanaged.

Cayuga Lake is the county's most prominent water feature, and according to the 2015 Tompkins County Comprehensive Plan, 80% of the county's water drains into Cayuga Lake. The Comp Plan further states that, "although water quality is generally high, a number of concerns have been identified. Chief among these is sedimentation...a significant impairment to water quality..." Land use impacts on Cayuga Lake's shallow southern end are driven by inputs from Fall Creek, Cayuga Inlet and Six Mile Creek, which contribute 40% of all surface water entering the lake. Sediments chiefly come from streambank erosion which is exacerbated during storm events.

In recent years, nutrient pollution -- primarily phosphorus from wastewater treatment plants, storm sewer systems, agricultural runoff and other sources -- has become a key concern and efforts to protect water quality are underway. In April 2021 the NYS Department of Conservation proposed a 30% reduction of phosphorus loads to the watershed and an implementation plan to achieve the requirements.

Climate

According to the 2018 National Climate Assessment, between 1895 and 2011, temperatures in the Northeast increased by almost 2° F (0.16° F per decade), and precipitation increased by approximately five inches, or more than 10% (0.4 inches per decade) (National Climate Assessment - Northeast). The Northeast has experienced a greater recent increase in extreme precipitation than any other region in the United States; between 1958 and 2010, the Northeast saw more than a 70% increase in the amount of precipitation falling in very heavy events.

The primary impacts of climate change for agriculture are temperature and precipitation related, (*NYSERDA ClimAID Report*). Warmer temperatures may result in an extended growing season and drought will impact water resources available for crop production. Indeed, farmers already have reported selecting longer season varieties, early and later season planting, a longer hay and pasture season, and when there is a drought, lower yields and dry ponds. Increasing rain severity has impacted timeliness of planting and harvest as well as potentially leading to soil runoff and more plant diseases. Practices that mitigate runoff will be essential for protecting soil and water quality. The report states, “Farmers will be on the front lines of coping with climate change, but the direct impacts on crops, livestock, and pests, and the costs of farmer adaptation, will have cascading effects beyond the farm gate and throughout the state’s economy.”

Absent climate change, variations in topography have a significant impact on temperature differences in the county. Cayuga Lake has a moderating influence on temperatures below 900 feet where it may be 10 degrees warmer than in the surrounding hillsides. In most years, the freeze-free season ranges between May 5 to 20 through September 25 to October 15. Annual precipitation totals between 30 and 40 inches.

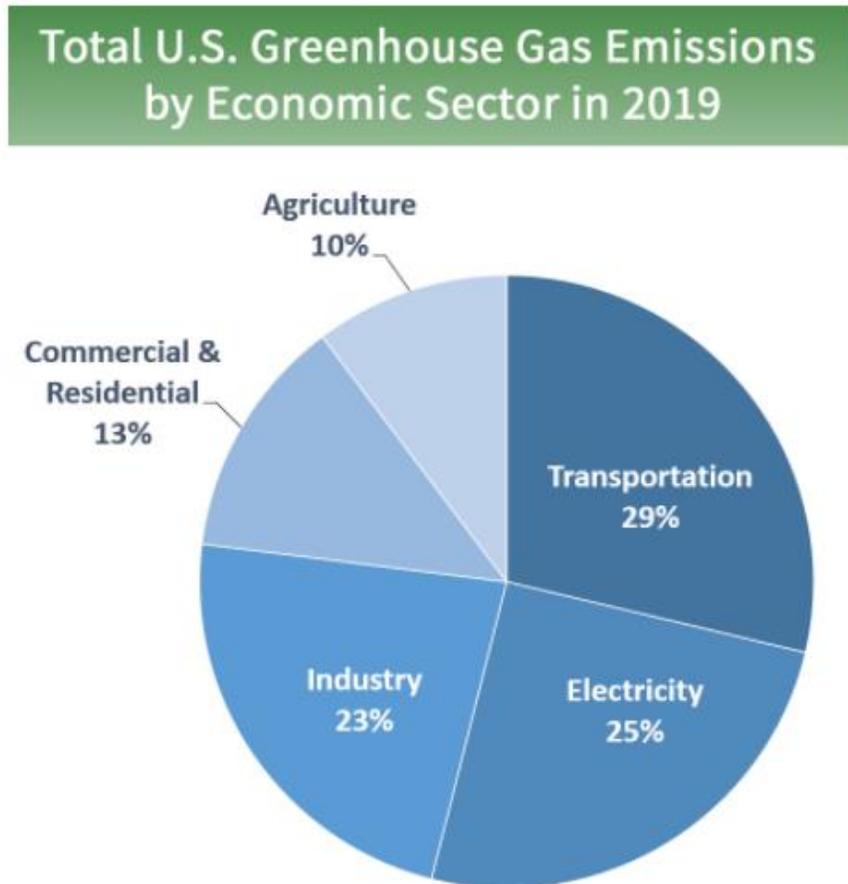
Environmental Impacts of Agriculture

Farming depends on healthy ecological systems and plentiful natural resources. Agriculture is built upon fertile soil, a favorable climate, ample freshwater, a diversity of plant and animal species, and the skills and labor of farmers and farm workers. Nearly 40% of the planet’s land surface is used for agriculture, with 1/3 for crops and 2/3 for livestock (“[Land Use in Agriculture by the numbers](#)”). These are the ecological foundations of our food system. They are also endangered by the depletion of these resources, pests, extreme weather, and toxicity from industrial and chemical inputs to the environment.

Historically, farmers have worked in relationship with the land to feed humanity while maintaining the health of the soil, air, and water. Advances in recent history have accelerated productivity and the human population at a tremendous rate. It is one of humanity's greatest achievements, but it has come at an environmental cost.

From a global perspective, farming systems and practices that impact ecological and human health have been observed and documented. In the last 40 years, more than one-third of the world's arable land has been lost to erosion or pollution ("[Soil loss: an unfolding global disaster](#)"). Intensive agriculture that depends on high energy inputs damages and degrades our environment and contributes greenhouse gas emissions that drive climate change. Inorganic fertilizers and chemical pesticides impact soil, water, climate and human health.

While not all of these apply locally, finding ways to better preserve the health of agricultural ecosystems is key to the long-term sustainability of our food supply.



Total Emissions in 2019 = 6,558 [Million Metric Tons of CO₂ equivalent](#). Percentages may not add up to 100% due to independent rounding.

Figure 3: Total U.S. Greenhouse Gas Emissions by Economic Sector in 2019



Moving away from environmental harm towards restoring landscapes and ecosystems through farming is a challenge with a 21st century imperative. Figure 2 shows that agriculture is responsible for 10% of U.S. greenhouse gas emissions according to the US EPA ([US EPA, OAR](#)). Uniquely, it is the only economic sector that has the potential to shift from a net carbon emitter to a net carbon sink, capturing more carbon dioxide than it produces.

Environmental Solutions through Agriculture

Sustainable agriculture

Sustainable farming practices - including organic farming - aim to protect the resources and systems that farms rely on. This means farming in ways that enhance environmental quality, provide benefits to society and sustain economic viability while efficiently utilizing resources.

Organic agriculture

Organic agriculture uses sustainable techniques, focusing on sustaining ecological, human and societal health. Some farms may practice organic agriculture without being certified organic. This is certainly the case in Tompkins County, where the demand for organic food seems to be greater than in many communities.

Regenerative agriculture

Regenerative agriculture, according to the Rodale Institute, is a method of farming that “improves the resources it uses, rather than destroying or depleting them.” Focusing on the foundation of food production, “regenerative agriculture improves soil health, primarily through the practices that increase soil organic matter.” ([What is regenerate agriculture?](#)) Regenerative agriculture focuses on rebuilding soil health by restoring soil’s organic carbon. Key practices include regenerating topsoil, supporting carbon sequestration, enhancing ecosystem services, improving the water cycle, and increasing biodiversity.

Carbon farming

Carbon farming, simply put, is agriculture’s answer to climate change. Carbon farming is an array of methods that can remove carbon dioxide from the atmosphere and store it for long periods of time in soil, microorganisms and plant matter. By changing the way food is grown, the agricultural sector can help mitigate the worst climate impacts by removing carbon dioxide from the atmosphere.

Payment for Ecosystem Services

Payment for Ecosystem Services (PES) programs provide financial incentives to farmers implementing practices and systems that provide clean water downstream, increase soil water-holding capacity, sequester carbon, and facilitate pollination of crops and other plants.



Many of the techniques practiced under these systems are similar, and may include: reducing or eliminating tillage, cover cropping, integrated pest management (IFM), polycropping, integrating livestock and crops, reducing or eliminating pesticides and fertilizers, and managing landscapes holistically. Each framework offers crucial lessons for how to shift towards a more sustainable food production system.

Farms and Gardens: what is the difference?

The differences between a farm and a garden have to do with revenue and intention. The U.S. Agriculture Department (USDA) defines a farm as “any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the year.” A garden, in contrast, produces food or agricultural products for personal use, even if some is shared. By the USDA’s definition, an operation can still be considered a garden if less than \$1,000 of product is sold. Gardening for food security at most offsets a family's food budget by \$530 per year (National Gardening Association), amounting to almost one month of groceries calculated by the USDA for a family of 4 at \$611 to as much as \$1217.

A farmer, on the other hand, needs to bring in enough money to cover all costs of production, and provide a living wage for themselves and their employees. The skills needed to run this business operation are more extensive than those needed to maintain a garden. Farmers must operate a full business enterprise, planning their planting and harvest calendar, maintaining their equipment, performing bookkeeping, hiring and paying workers, marketing their product, and planning for the future.

Field crops such as grains and legumes require substantial acreage to harvest enough for even one family. The specialized equipment needed to process these crops are typically beyond the reach of home gardeners. Dairy and livestock production similarly depends upon large tracts of land for grazing and/or feed crop production and storage. Even small homesteaders who raise their own livestock often depend upon farms to source their feed.

Community gardening and home gardening provide a great deal of nutrition in small plots. The importance of access to fresh fruits and vegetables and the experience of spending time outside tending a garden are proven to positively impact health and wellbeing. However, the proportion of calories gained from these activities is small enough to warrant a diverse approach to production.

Experiences Growing Food in Tompkins

In-depth Interviews with Growers, Producers, and Agricultural Advocates & Professionals

The data for this section was gathered in 2020-2021 from 30 stakeholder interviews with local producers and agricultural advocates and professionals. Additional public data (e.g, USDA Census of Agriculture) is also cited as relevant. We interviewed 30 people in our local food shed (i.e. growers within a 30-mile radius) representing a diversity of people and enterprises: small, mid, & large-scale; beginning & transitioning to retirement; dairy, livestock, fruit & vegetable; perennial & crop farmers; and home & community gardeners. Farmers and stakeholders shared wide ranging challenges, concerns, needs and goals related to the following key topics, which serve as a road map for our forthcoming food system recommendations:

- **Labor and workforce**
- **Finances and resources**
- **Rules and regulations**
- **Food system infrastructure**
- **COVID-19**
- **Scale and markets**
- **Land access, use and costs**
- **Community support**
- **Climate change**
- **New and beginning farming**
- **Home and community gardening**

Labor and Workforce

A thriving local agricultural economy depends on many factors. Farmers need skilled workers to support the production of quality products, and workers need well-paying, fulfilling jobs. Currently, there is an unmet need for farm labor, with a limited labor pool, lack of training and capacity, and a shortage of young farmers ready to take over and operate farms in transition. Mentorship programs are needed to teach skills and prepare people to farm. Looking to the future, farmers shared concerns that young people have a negative image of farming, and that we must find ways to inspire the next generation of farmers. Many farmers need help now, and

many will be retiring in the next few years - with no one to take over the farm. This represents a loss of human capacity and land in production which is not easily recovered. But to preserve a future in farming, a proactive approach to training and transitioning farms is needed.

Some noted a high degree of interest in farming paired with a lack of awareness of “what it takes to farm,” along with limited skills and education. Many depend on and appreciate H2A (temporary, nonimmigrant agricultural work visa program) workers because there are so few people locally who want to farm or have the skills. The seasonal flux of H2A workers can be difficult, however.

“Many people are surprised to hear how necessary migrant labor is to local farms, and that the need isn’t met locally... migrants are really helpful – they work hard and have the skills sets needed.”

Labor issues were the number one challenge farmers described. Labor was consistently cited as the highest cost of doing business. Paying overtime and higher wages is an affordability issue for many, sometimes resulting in a disincentive to hire. New NYS Overtime pay requirements impact the cost of farming, and workers (especially migrant and seasonal workers) usually want closer to 70 hours during the growing season in order to send home necessary income. A rising minimum wage was also noted as a concern by some. These factors contribute to farmer’s perceptions that it can be challenging for NYS farms to compete at regional and national scales.

Farmers noted the value of local organizations like Groundswell and Cornell Cooperative Extension of Tompkins County (CCETC), and encouraged an expansion of the hands-on courses, resources, and support offered through these organizations. Additionally, more opportunities for training, education, and mentoring should be explored in partnership with Ithaca College, Cornell University, and Tompkins Cortland Community College.

Finances and resources

Many farmers in Tompkins County struggle financially:

“Farm income is low. You must do everything yourself to reduce costs.”

Despite strong local markets and a supportive customer base, small scale operators typically need off-farm income to survive and cover basic expenses like health care, taxes, and housing. Additionally, many farmers themselves are food insecure and depend on programs like the Supplemental Nutrition Assistance Program (SNAP). These same producers are concerned about community food access and security. They strive to get high quality food to people and to make it affordable, but struggle with pricing it so that they can make a living.

Farmers shared that local purchasing is often based on affluence, which makes for a limited market for farmers, and limited accessibility for consumers. For dairy farmers, profitability is stagnating because milk prices are not keeping up with production costs.

More broadly, labor, equipment, property taxes, and inputs are the biggest costs, along with looming and unexpected costs associated with regulatory changes. Growing farms often need more equipment and infrastructure, but it can be hard to justify the cost of a new tractor, for instance. The trend toward more sophisticated, automated equipment makes it harder for people to fix and maintain it themselves. Options for sharing, renting, and buying used tools and equipment may be a partial solution. The local Soil and Water District has some equipment to lend (no-till seeder) but has reservations about getting more equipment. Custom operators are perhaps an underdeveloped sector in the local farm service economy. For example, custom haying or harvest is a common shared need especially among livestock farms.

Additionally, the increasing number of rules and regulations impede profitability (see the section “Rules and Regulations”).

Government programs available through USDA National Resources Conservation Services (NRCS) are advantageous, offering grants for high tunnels and conservation improvements. However, not all farmers are accessing these resources. More outreach about government programs and services could be helpful. New and beginning farmers may be unaware of programs that could provide some limited assistance with the start-up process.

Farmer access to finance is generally not a limiting factor if they have land and equipment as collateral. Typically, larger farms obtain loans from Farm Credit East and when buying equipment, dealer financing is common. For smaller farmers getting started, it is more challenging. Without employment or property, financial institutions are unwilling to engage.

Most beginning farmers must rely upon their own savings, family funds, or an outside job to get started. Juggling a job and a new farm extends the start-up period which, on average, takes 5-7 years until assets are in place to cut job ties.

Given the risks associated with farming, it is wise to take time and build skills while growing a farm business. If a priority was placed on starting and supporting new farm businesses in the first 10 years of operation, this would go a long way towards ensuring future farm operations.

Rules and regulations

Regardless of farm size and characteristics, most farmers struggle with the increasingly burdensome regulatory environment. These rules impact labor (described above), processing, food safety, zoning and other aspects of the industry.

State and federal regulations are often not scaled to the size of operations. USDA meat inspection rules are one-size-fits-all. This makes sense when you are producing for an anonymous commodity system, but with direct-to-consumer sales, farmers see a strong need for more custom processing options, and for regulations appropriate to the needs of smaller producers. Similarly, starting new ventures in the dairy industry is prohibitive for most, with huge upfront investments required by NYS Agriculture and Markets milk processing regulations. A minimum of \$100,000 must be invested in facility requirements before an ounce of milk can be sold, and this is true whether you have six cows or 600 cows.

Many farmers expressed concerns about the outsize emphasis on food safety, and the difficulty in maintaining those standards:

“The public (and regulators) are overly concerned about food safety. Policies are a reaction to consumer concerns, not really based on logical assessment of risk...e.g. raw milk concerns. Regulations are preventing small farms from selling milk that, if managed safely, should be allowed to be sold”.

These and other processing regulations limit on-farm value adding opportunities such as applesauce, cider, freezing strawberries, and much more. Farmers believe many food products could be processed safely without a processing license for drying, freezing, and some limited canning, and help bolster income. Commercial kitchen access further impedes options, for

instance, offering ready-to-eat food at farmers markets along with fresh produce. Locally there is no central commercial kitchen available to rent, though there are several licensed kitchens at churches, community centers and at CCETC. Most spaces require insurance and the person using the facility needs the appropriate Health Department or Ag & Markets license.

While well-intentioned, the Food Safety Modernization Act (FSMA) and the Good Agricultural Practices (GAPS) program place a burden on farm expansion into larger markets. Specifically, FSMA requires a written food safety plan, hazard analysis, preventive controls, monitoring, corrective actions and corrections, verification, supply-chain program, recall plan, and associated records. There is an exemption for farms with sales under \$500,000 and therefore many small direct market farmers in the area are exempt from the rule. In some cases, rules like this become a disincentive for farm expansion. GAP certification is voluntary; however, many retailers are requiring crops to be GAP certified in order to sell to them. Locally, Wegmans, which has a strong buy local program, requires GAP certification, resulting in significant barriers for some producers. Most direct market farmers have chosen to emphasize other outlets such as CSA shares instead of selling to retailers with stringent requirements.

Regulations and rules across the many agencies that govern agricultural activities are difficult to sort out, and requirements are not complementary or logical. For example, in dealing with worker housing, local zoning laws, Department of Labor, and the local health department all collide in ways that are difficult for producers to navigate. Greater coordination and rationalization among regulatory agencies is needed to streamline farmer understanding and compliance.

Food System Infrastructure

The lack of processing, storage, distribution, and 'relationship' capacity are some of the biggest issues for local producers. For livestock producers, slaughterhouse access and capacity is the greatest issue, and has been a longstanding need for the past twenty years. Facility access is becoming more difficult as some slaughterhouses are closing, and new ones aren't opening. For example, Cudlins Meat Market in Newfield provided custom services under USDA regulations for 40 years, and the current owners retired. Luckily, the facility has recently been re-opened by two enterprising young meat cutters. Another nearby butcher in Owasco is 70 years old with no succession plan. This limited local and regional capacity means there is often not enough slaughterhouse space, and long-term planning is required to get on the docket. Producers shared they have to plan out two years in advance to get on the slaughter schedule

and supply markets. Furthermore, with minimal competition between USDA slaughterhouses, some farmers encounter quality issues, and struggle to get custom service.

Beyond livestock, fruit and vegetable growers need ways to make their products available year-round. With processing facilities to preserve crops (e.g. freezing) located outside the region, creating value-added products is burdensome and not profitable. A local processing facility could provide value adding opportunities for farmers.

Distribution is another key challenge farmers deal with in accessing diverse and profitable markets. Relationships with wholesale buyers can be tenuous with lots of turnover in the industry. Selling to restaurants has limitations as well, characterized as a dependence on chefs (who turn over), too many deliveries, small orders, slow to pay, last minute, and lots of work.

While there are several local and regional wholesale distributors, there are only a handful of local producers who have capacity to sell to wholesale distributors. Many smaller direct market operations are not growing enough of a single crop to sell in wholesale quantities, nor do they pack in standard case lots. Working with distributors helps farmers move more product, simplifies planning, transport and overall logistics.

“When distributors build the market, farmers can scale up...scaling up / mechanizing is hard and takes time, farmers need help with this.”

Farmers highlighted the crucial need for collective infrastructure, such as shared, accessible cooler and freezer space, as well as processing and aggregating facilities to support market expansion and product diversification.

“Farmers want to move from niche to larger markets... Need food hub to connect farmers and their products with customers and pantries, and to help small farmers tap into larger markets (like institutions, restaurants, or bigger farmers markets).”

Farmers noted the value of local suppliers, the general ease of accessing inputs they need, support services like the USDA Natural Resources Conservation Service (NRCS), Farm Credit, Farm Bureau, CCETC, and Groundswell. Also noted was the potential of programs like Nourish NY and its local complement, Nourish Tompkins, with mid-size farms well-positioned to meet more of the demand. However, these programs require advance crop planning so more work is needed to make it accessible.

In light of the interest in expansion and potential opportunities, strategic business planning is needed to help local farmers position themselves for growth. Along with growth come added regulatory burdens and costs previously discussed, that impact expansion beyond simple expansion of acres or livestock numbers. Many small farmers prefer to stay small and do not have the desire to expand. This results in a higher rate of turnover among small farms and perhaps has an impact on the sustainability of local food production. A more robust local food system will require both farms that serve local customers and others that are part of a regional food supply system.

COVID

COVID-19 has helped demonstrate the value and importance of local farms in ensuring our food supply. The pandemic has more people cooking at home, and more people growing their own food. COVID's impacts on local farmers have varied.

While restaurant, farmer's market, and other retail sales declined, CSA and other direct-to-consumer sales increased for many farmers. The sudden surge in demand, however, did not benefit all local producers - it was too late for many to expand, especially livestock producers. When the Ithaca Farmers Market opened back up in the early summer of 2020, many farmers experienced lower-than-average sales, with fewer local shoppers regularly visiting the market. Other reported impacts included shortages on certain inputs such as feed energy sources, and milk dumping to stay within quotas.

Farmers are eager to see whether the heightened level of interest in local food will continue as the pandemic winds down, and how the community might sustain this demand. On-line shopping has become a popular way to avoid crowds. In response, the Ithaca Farmers Market offered an on-line shopping option at their winter market. CSA farms are indicating they are offering more shares and have been filling up faster than usual. It is, however, unknown if there has been an increase in local food shoppers since the pandemic. Some means of tracking

local food consumption would be helpful as growing the base of consumers committed to buying local food is seen as an important way to strengthen our local food system.

Scale and Markets

Tompkins County boasts a supportive customer base interested in local food and farming, with relatively high demand and greater market access than in some similar communities. Tompkins County may not be metropolitan enough to support a truly vibrant local food production sector where food is affordable for all and farmers can earn a good living. Rough estimates assume that about 20,000 out of 100,000 residents are local shoppers, and that the “pie just may not be big enough.”

Marketing was the biggest challenge identified by small farmers, who described it as an uphill battle in need of constant attention. Farmers described difficulties in attracting new customers with limited mechanisms for expanding markets (especially for livestock), and the importance of building relationships and operating efficiently. Small farmers commonly produce a diversity of products with differing planting and harvest demands. With small farmers trying to do marketing on their own, efficiency and market growth is made extremely challenging.

Healthy Food For All was noted as a great resource for participating local farms, serving essentially as a farmer marketing cooperative and reaching a new clientele of low income consumers who otherwise may not be able to afford local foods. The Ithaca Farmers Market is an important local market, but farmers noted issues, such as the divergent interests among vendors, with farmers wanting “shoppers” (e.g. locals) and prepared food businesses needing “turnover populations” (e.g. tourists and students).

The need for collective marketing was identified as a priority. Better access to local retailers who would purchase significant volumes of local goods would make a significant difference. As one farmer put it, “Small farms aren’t competing with each other; we’re competing with Wegmans.” Currently, few mechanisms exist to sell from farm to retail. For example, individual Wegmans stores can no longer buy directly from farmers – farmers must go through a regional warehouse first and GAP certification is required.

“Constant promotion is needed. Maybe there is a way to make local more competitive if there is some cooperative marketing/branding. How can farmers attract customers who shop at retail stores to buy from them?”

The issue of scale was also noted as a barrier to farm and local food system viability. Most small scale farmers would need to expand and grow more acres to be profitable, and may be forced to do so whether they want to or not; sustaining business at a very small scale is hard. It was also noted that lots of very small farms (which Tompkins County has) makes it hard to have an effective food system because they do not have the capacity to supply substantial food needs. Mid-sized farms are able to produce more quality volume at profit, which can expand both local food production and local farm profits. Feeding the local population to a greater extent would likely require the addition of more mid-sized farms.

“Does it contribute to the local food system to have lots of small direct-market farms? [It is] so much more effective for the food system to have farms that produce on large/mid-scale (e.g. 7-20 acres).”

Land Use, Cost, and Access

Land prices in the county have been going up making it more expensive to buy land. Land that cost \$1,000/acre in 1995 now may sell for \$6,000/acre or more. Much of the increase in prices is driven by large dairy farms buying land to expand production and meet CAFO regulations for manure spreading. As dairy or crop farmers retire, that land is often immediately snapped up by large dairy operations resulting in bidding wars driving up prices. Where there is no competition for land, it is likely that the land will be divided into smaller tracts that could easily transition out of agriculture in the future as development moves in. In the next 20-30 years, it is conceivable that there will be considerable loss of farmland, quality soils and farms. More recently, large scale solar is moving into the area, especially in Lansing, Dryden and Groton. The firms offer significant lease payments that appeal to both farmers and rural landowners renting to farmers.

Inexpensive land is often not good for farming (lacking in soil quality, drainage, requires too many inputs to make it productive, etc). \$5000-7000 per acre is too much for beginning farmers to pay, especially if you also have to clear land, add water, erect buildings, etc. Infrastructure costs can quickly amount to \$10,000 per acre or more.

While it is cheaper to rent land than own it, it is becoming somewhat harder to find land to rent. Renting land generally also involves making improvements - clearing, tilling, fencing, etc.

to make it productive again. Renting land at a distance from the home farm means moving equipment from field to field which results in inefficiencies. For annual grain crops and vegetables, 2-3 times as much land is needed for rotations and cover cropping to be sustainable. Additional land is also needed for increasing pasture for livestock or for rotational grazing. For some farms, finding land has become a limiting factor for their expansion.

An important conversation on equitable land access, reparations and reconciliation is currently happening in Tompkins County, led by individuals and organizations working collaboratively at a grassroots level to raise awareness and affect change. Historical and present-day trends highlight the need for more work to address the disparities, inequality, and racism related to land, sovereignty and access in Tompkins County.

Exclusion from the land and the resulting impacts disproportionately impact Indigenous, Black, and other people of color. Historically and presently, these issues have not received the attention they deserve.

“We are inherently tied to land as humans, this conversation spans the intersections of nutrition, public health, housing crises.... From an Indigenous perspective, we look at what we grow and how many people we can feed. We’re connected to our land, most look at land as a commodity, a resource they can build on.”

In Tompkins and surrounding counties, Indigenous people are still fighting their way back to their homelands. Black people are trying to purchase land and being denied by realtors and lenders. Long standing systemic inequities continue to keep marginalized people from accessing land. For example, according to American Community Survey 2011-2015 estimates, Black residents of Tompkins County have a disproportionately low rate of homeownership relative to their overall population size. In Tompkins, 27.7% of Black residents own homes compared with 55% of all races on average. Within public housing units, which represents 5% of all rental units, 20% of the renters are Black, more than 3 times the Black percentage of the population. Additionally, Black households had 49% of the income of their white neighbors, with Asians faring better, American Indians faring worse, and a mixed pattern locally among Hispanics. To learn more about structural racism and its impacts in Tompkins County, read [Chasin and Franke, Structural Racism in Ithaca City and Tompkins County 2017](#).

The impacts of being excluded from the land are many, including unequal outcomes in people’s lives related to health and nutrition, healthy food access, mental and emotional well-



being, and food sovereignty. According to the Tompkins County Health Department's Community Health Assessment (2013-2017), white residents have significantly better health outcomes than do other groups. In Tompkins County, Black residents have:

- 63% higher percentage of premature deaths (<age 75)
- 48% more years of potential life lost per 100,000
- 29% lower rate of adequate prenatal care
- 178% higher asthma hospitalization rate
- 47% higher diseases of the heart hospitalization rate
- 59% higher congestive heart failure hospitalizations per 10,000
- 96% higher diabetes hospitalizations
- 240% higher drug-related hospitalizations

Very few entities locally are working to facilitate equitable land access in Tompkins County. The ability to acquire land is a difficult process made harder by legal, financial, and interpersonal constraints. People are interested in purchasing land, but without lenders willing to support beginners, the longstanding pattern of outside actors snapping up available land will continue. More work from local agencies and institutions is needed to address the causes of these issues, and to develop strategies and policies to overcome them.

“People who have held land [and] wealth need to have a realization that in order for others to have more, you need to have less. There’s only so much land. Resources like food and land, in terms of land it’s a limited resource. The people who hold the majority of it, some people will have to be ok with letting some of that go, can people start stepping aside?”

Community Support

Community support of farming was noted as a strength within our local food system, but Tompkins County farmers do encounter conflicts with neighbors and residents. With larger dairies buying land to feed growing herd numbers and to spread manure, farmer-neighbor conflicts over farm operations, odor and runoff concerns arise. Farmers expressed frustrations in having to deal with operational and business issues on top of keeping neighbors happy. Increased development in rural areas can exacerbate these tensions.

Farmers also expressed concern about the lack of respect for their profession. It was felt that more people need to understand what it takes to farm and that younger people need to be aware of farming as a viable career option. Farmers feel they are farming with respect for the environment and do not get credit for the practices they are employing. A Payment for Ecosystem Services program may serve to highlight benefits farmers provide.

Farmers generally were positive about access to quality soil resources, parts and equipment, seed and feed supplies, including organic sources, government programs, proximity to Cornell specialists, and a highly supportive farmer network. Farmers in the area are willing to share information and support each other. This is especially true among the smaller farms producing local produce and meats. Farmers who want to know where to find something or how to do something will reach out to others in the area for advice. Farmers helping farmers was seen as being unique to our community.

There are many challenges when it comes to farming. It is an all-consuming occupation requiring knowledge of animal husbandry and agronomic production, basic understanding of soils, equipment operation, business acumen and marketing skill. One of the basic production challenges mentioned was understanding the soil and its impact on field operations, input and yields. Predators are another big issue for farmers - deer, racoons, birds, coyotes - all of which have an impact on yield.

Climate Change

Nearly every farmer we spoke with remarked that climate change has had significant impacts. The most commonly cited problems were drought, erratic rainfall and the emergence of new pests. One farmer shared:

“My neighbor gets half an inch and I get .5 10ths...it was an ugly summer, cracks in the lawn, you can’t irrigate when there’s no water.”

And another that:

“Every year is either too wet or too dry...have to assume that every year there will be a challenge...this is the new normal.”

Farmers reported substantial increases in resources and time devoted to mitigating and adapting to these challenges, mostly for water-related infrastructure. Profit is directly impacted by erratic weather and climate patterns, making planning difficult, needing to reseed, losing vulnerable crops like fruit trees to frosts, preparing for the changing profile of what can be grown locally and how to fight new pests. More education on how to prepare, plan, and maintain resiliency in the face of the changes was a need identified.

Prospective and Beginning Farmers

Access to start-up capital and land are major barriers for new and beginning farmers. Unless you have money from other sources, it’s hard to get started. This is a difficult catch-22: banks do not lend if you have no assets, but you need money to build assets. Accessing markets is another central challenge, with some farmers wondering – how do new, small farmers “get in the game?”:

“We are always trying to figure out how to get into the farmers market...couldn’t make the numbers work...even though we felt like we were growing immense amounts, the vendor fee was too high, seems like you had to be large scale. I wish there were more ways for smaller farmers to compete in this environment, something to equalize.”



Like so many small businesses, it takes new farmers time to get the hang of operations, to build infrastructure, and establish their markets. These early years are hard on farmers, with continuous upfront investments needed plus time to turn a profit. Similarly, new farmers often begin on land they do not own, which poses its own challenges:

“Vegetable farming requires intensive upfront and ongoing infrastructure investments. If you don’t own land, are you going to fence, put up high tunnels that you have to take down and move?”

While Tompkins County can be a great place for established farmers, some questioned whether we should be encouraging more people to get started without better support and conditions for farmers and farms.

Current Agriculture Data

Data Sources

To paint a fuller picture of food production locally, community experience must be considered in tandem with published data. What follows is a summary of Tompkins County information extracted from the USDA Census of Agriculture, a comprehensive national data resource collected since the early 1900's. This provides context for longer term trends in agriculture, corroborates what farmers experience, and informs land use and food system planning efforts moving forward. The Agriculture Census is conducted every five years, with the most recent census year being 2017. To read more about the USDA Census of Agriculture Methodology please visit this [link](#).

Introduction

Tompkins County includes a healthy diversity of farm types and sizes, from small farms that market their products from the farm, via CSAs or farmers markets, as well as larger dairy and crop farms whose products flow through conventional processing and marketing channels. Larger farms occupy the majority of the farmland acres whereas smaller farms fit into many areas less suited to larger scale production. Both large and small farms contribute to working landscapes, open space, biodiversity, soil health, carbon sequestration, and other ecosystem services, as well as local foods. Having an urban core surrounded by farmland also offers a measure of food security, as does having skilled farmers with capacity to grow a variety of foods.

Farms and Farmland

Figure 3 shows the number of farms and farmland acres in Tompkins County during the ten year period from 2007-2017. There was a large decrease in farmland and average farm size from 2007 to 2012, followed by a small increase in both categories from 2012 to 2017. In 2017, approximately 30% or 91,277 acres of Tompkins County land was owned and/or operated by farmers. The average farm size was 175 acres.

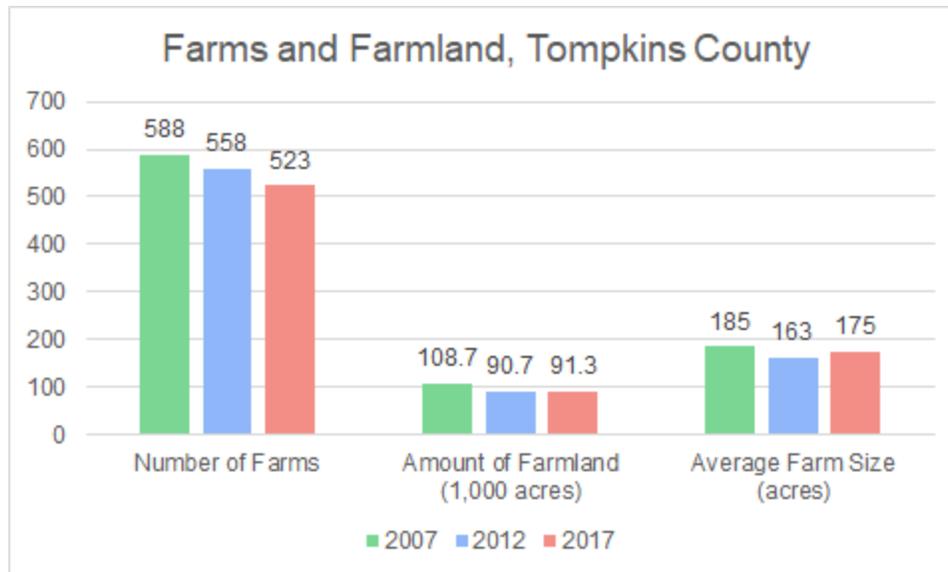


Figure 4: Farms and Farmland, Tompkins County, 2007 – 2017 - Data Source: USDA Agriculture Census, 2017, 2012, 2007

A possible explanation for the decrease in farm numbers from 2007 to 2017 is the 2008 Recession, while the increase from 2012 to 2017 may be explained by large dairy farmers buying land from retiring farmers, which decreases the total number of farms and increases the average farm size.

How Big are Farms in our County?

Table 1 shows the number of Tompkins County farms in acreage groupings. Nearly half (249) of the farms in the county are under 50 acres in size and utilize only 5.5% (5,028 acres) of the total farmed land. These farms include a mix of enterprises from homesteaders to farms selling higher value crops direct to consumers. Similarly, the next cohort with 50 to 179 acres is likely to be raising hay, livestock or produce with varying returns depending on the enterprise. The three largest cohorts comprising 25% of all farms farm nearly 80% of the land in the county farming about 550 acres on average are most typically dairy or crop farmers with nearly full-time farm incomes.

Size of Farm	Number of Farms	Total Acres	Percent of Total Acres
1 to 9 Acres	69	347	0.38%
10 to 49 Acres	180	4,681	5.13%
50 to 179 Acres	142	13,832	15.15%
180 to 499 Acres	87	26,287	28.8%
500 to 999 Acres	30	20,208	22.14%
1,000+ Acres	15	25,922	28.4%

Table 1: Farms by Size, 2017 (Data Source: USDA Census of Agriculture, 2017)

Who Owns the Land?

Figure 5 shows the trend in farm ownership status from 2007 to 2017. Full owners are farmers who only operate on land they **own**. Part owners are farmers who operate on land they **own and rent** from others. Tenants are farmers who only operate on land they **rent**. There has been a steady decrease in farmers who only farmland they own from 2007 to 2017, while there has been a significant increase in farmers who only rent from 2012 to 2017.

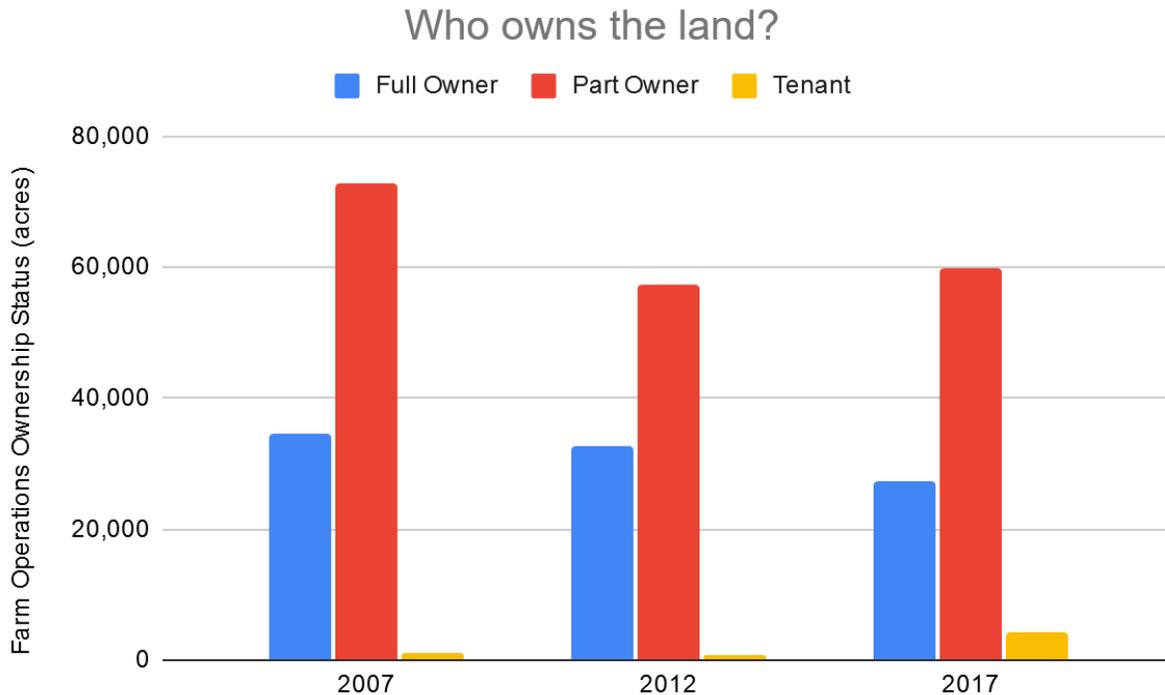


Figure 5: Farm Operations Ownership Status - Data Source: USDA Census of Agriculture 2007, 2012, 2017

Table 2 shows that in the 10 year period from 2007 to 2017, land owned by farmers has decreased. While there has been a slight gain in rented land in the last 5 years, the overall trend in the last two census periods shows that farmland owned and rented has been lost. This is a trend worth watching, what is the nature of this loss.

	2007	2012	2017
Land Rented	34,269	24,123	29,004
Land Owned	74,470	66,651	62,273

Table 2: Land Rented vs. Land Owned (acres), 2007 to 2017.

Having a high proportion of rented land can lead to an uncertain agricultural future. Landowners renting to farmers may choose to divide and sell property, forcing farmers to find land, sometimes at a distance from their home farm, or risk not having sufficient land to maintain a viable farming enterprise.

Land ownership may be decreasing due to the cost of ownership (primarily taxes). As long as there is plenty of land available to rent and no development pressure, ownership is not as important. However, farmers indicate there is competition for good land in areas of active farming (Lansing, Dryden, Groton) and as a result, this is driving up land prices in those areas. In recent years, some landowners have leased land to solar companies that pay higher rent than farmers can pay. This may also have an impact on farmland availability in the future.

What is Produced Here?

Of the 91,277 acres of land owned and operated by farmers, the majority is cropland (68%). Cropland is a broad category that includes perennial crops such as hay and fruit crops, and annual crops such as corn, soybeans, small grains, and vegetables. This is followed by woodland (16%), other uses (9%), and pastureland (7%). Other uses include land in house lots, barn lots, ponds, roads, ditches, and wasteland. This is a catchall category to include land in farm operation not classified as cropland, pastureland, or woodland (Figure 6).

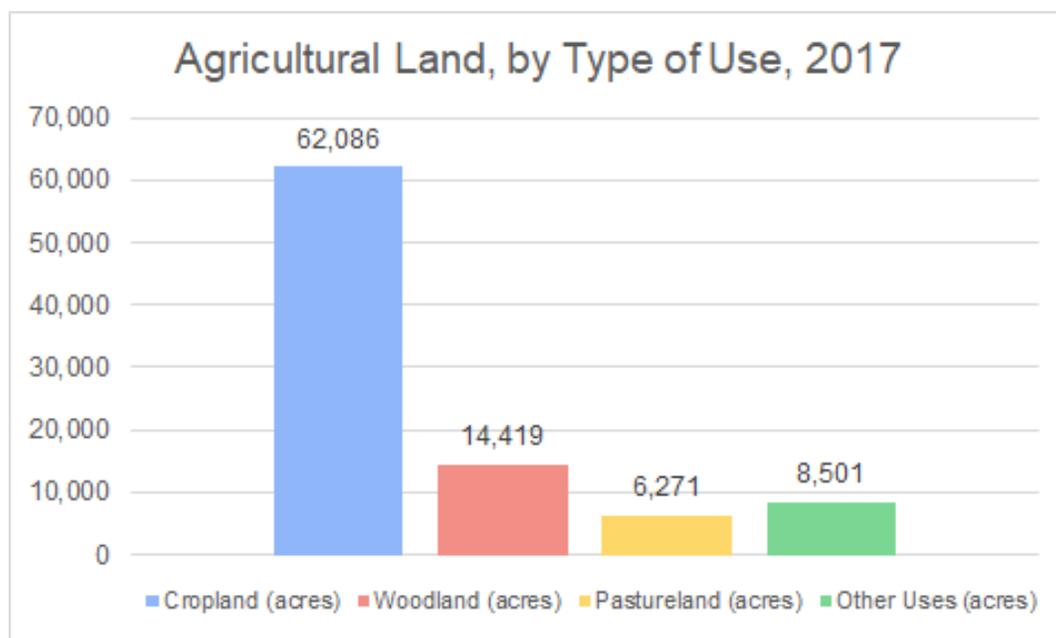


Figure 6: Agricultural Land, by Type of Use, 2017 - Data Source: USDA Census of Agriculture, 2017.

Most of the crop acreage in Tompkins County is destined for animal feed. With only a small percentage of land devoted to growing food for humans, opportunities to increase local food production abound. However, it must become a local policy priority and assistance must be provided to support new farmers.

Table 3 describes crops harvested by type. The majority of cropland in the county is devoted to hay and haylage, accounting for 48% of farmed acres (29,931). This is followed by corn silage and grain corn at 20% of the farmed acres (12,299) and other field crops at 8% of acres (5,225). Vegetables account for only 1.6% (1,025 acres) of total cropland and orchards for .35% (219 acres). It is presumed that most of the wheat crop enters marketing channels destined for humans (1,673 acres). Notably, of the 48,699 acres of crops harvested, 45,782 acres are used to grow hay, corn, soybeans, sorghum, and oats to mostly feed animals, whereas 1,244 acres of orchard crops and vegetables are directly consumed by local eaters. However, harvested feed crops do end up as milk, meat and eggs including some that are consumed locally.

	2007	2012	2017	Percent Change 2007 - 2017
Barley	163	196	N/A	N/A
Corn, grain	8,763	8,232	4,821	↓50.0%
Corn, silage	7,527	6,951	7,478	↓0.6%
Hay and Haylage	31,509	24,474	29,931	↓5.0%
Oats	3,285	1,051	423	↓87.1%
Sorghum, grain	128	N/A	52	↓59.4%
Soybeans	1,319	2,561	3,077	↑133.2%
Wheat	2,951	654	1,673	↓43.3%
Vegetables	1,316	1,329	1,025	↓22.1%
Orchards	232	186	219	↓5.6%

Table 3: Selected Crops Harvested by Type (in acres), 2007 to 2017.

While Tompkins County has a reputation for a robust local food system, there is only a small amount of acreage devoted to local food production. However, Tompkins County serves as a marketing hub for farmers just outside our borders within a 30-mile radius of Ithaca. To more fully understand the scope of the regional food system, a survey of farmers both in and outside of Tompkins County selling food products to area consumers would need to be undertaken.

Table 4 shows the value of sales from animal production in Tompkins County. Dairy generates the largest number of overall sales and includes the majority of full-time farm operations in the county. The average sales value for the 72 dairy farms is \$570,569. There are at least 5 large dairy farms that own land in Tompkins County with their main dairy facilities are in surrounding counties.

The average sales value generated from livestock farms with sheep, pigs, goats and poultry is low owing to the fact that these farmers are raising small numbers of animals to sell via the freezer trade to local consumers. Another reason for low sales in the non-dairy livestock sector could be the processing bottleneck cited by many farmers which may be a disincentive to expansion. It is interesting that the slaughter operators indicate they could be more efficient if they had a steady number of animals per farm per week. Also, many very small livestock operations are homesteaders with minimal sales.

Beef numbers in Table 4 include conventional beef breeds, cull dairy cows sold as beef, or young stock sold to other herds. The actual number of farms with beef breeds is most likely about 21 (93 total less 72 dairy = 21 actual beef operations). Most of these are small operations raising no more than 12 to 20 cows per year, and with sales under \$20,000/year.

Animal	Number of Farms with Inventory	Number of Animals	Value of Sales
Dairy (cows, milk)	72	10,272	\$41,081,000
Beef (cows, beef)	93	1,236	\$6,453,000
Pigs	20	249	\$71,000
Sheep (food & fiber)	51	1,242	\$134,000
Goats (dairy, fiber, some meat)	27	323	\$12,000



Chickens (eggs & meat)	79	3,370	\$48,000
Turkeys	16	59	N/A
Ducks & Geese	14	130	N/A
Equine, alpaca (non-food livestock)	153	1,390	N/A

Table 4: Animal Numbers and Value, 2017.

*Other categories are available such as honey bee colonies.

The majority of milk from dairy farms is sold to regional processors like Byrne Dairy in Cortland, DFA (Dairy Farmers of America) in Syracuse, and Organic Valley. Some of this milk shows up in local retail stores and can be identified as coming from NY farms if the number 36 is printed on the container (generally near the sell by date). While Tompkins County does not have a commercial dairy processor, the Cornell University Food Science Department operates a milk processing plant for research and where milk from their Harford dairy farm is processed and sold on campus to the Dairy Bar and campus dining locations, and at the P&C Fresh at East Hill Plaza. This is the freshest source of milk available to community residents with the least amount of food miles traveled. Byrne Dairy in South Cortland is another nearby source. Three other small brands come from nearby farmer-owned processing facilities: Ithaca Milk is located in Ovid, Hillcrest Dairy in Moravia, and Trinity Valley in Cortland.

An innovative milk processing business started and utilized by two of the largest dairy farms in our county, along with some larger Cayuga County dairies, is Cayuga Milk Ingredients. This facility is designed to process liquid milk into ingredients such as milk protein concentrates, milk protein isolates, 42% butterfat cream, skim milk powder, and whole milk powder. By adding value to milk, farmers can capture a slightly higher overall price.

What is the Value of Farm Products Sold?

The total value of agricultural products produced in the county is \$64,703,000. This number has been steadily increasing with each Census for many years, however if accounting for inflation, the value of farm production has decreased over time. And while farm numbers have decreased significantly over time, the amount of land in farms has stayed fairly steady for the last 30 years. This reflects the general trend for fewer but larger farms.

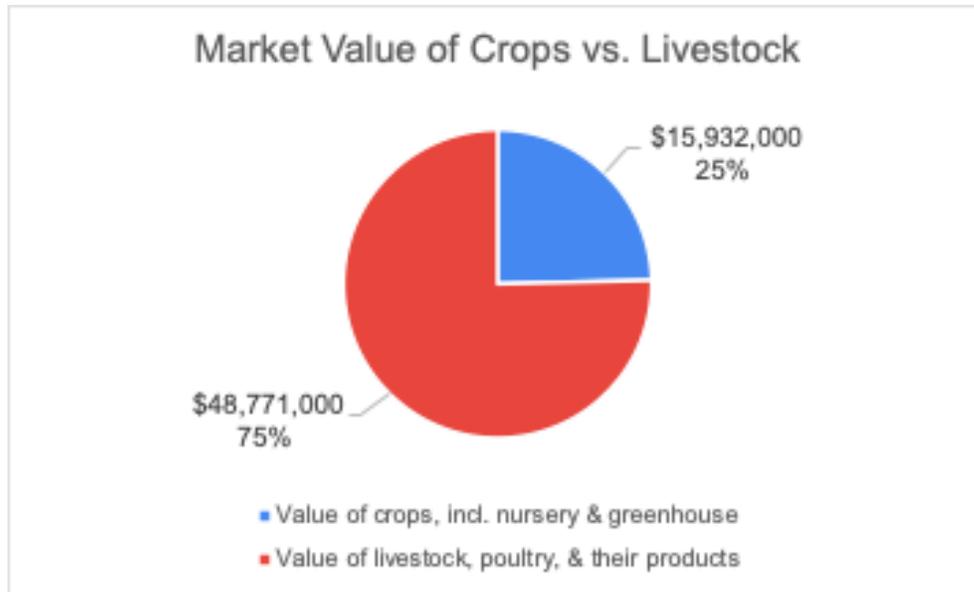


Figure 7: Market Value of Crops vs. Livestock, 2007-2017.

The market value of livestock (livestock, poultry and their products) accounts for 75% of the total market value for all farm products produced in Tompkins. Crops (including nursery, greenhouse and other harvested crops) make up 25% of the market value (Table 5).

	2007	2012	2017
Crops, total	\$15,267,000	\$22,691,000	\$15,932,000
Grains	\$5,335,000	\$8,310,000	\$5,114,000
Corn*	\$3,318,000	\$5,827,000	\$3,247,000
Other Crops and Hay	\$1,531,000	\$3,950,000	\$4,630,000
Vegetables and Fruits, total	\$3,995,000	\$5,951,000	\$3,098,000
Nursery, greenhouse, floriculture, and sod	\$4,311,000	\$4,242,000	\$2,544,000
Cultivated Christmas Trees and short rotation woody crops	\$94,000	\$237,000	\$547,000



Animal Products, total	\$44,918,000	\$44,700,000	\$48,771,000
Cattle	\$4,486,000	\$5,534,000	\$6,453,000
Milk	\$36,794,000	\$37,831,000	\$41,081,000

Table 5: Market value of Farm Products, 2007 to 2017.

*corn is a subset of grain

Fluctuations in the market value of farm products may in part be due to weather changes or transitions in farming operations.

Table 6 shows the number of farms by levels of sales. The majority (70%) of farms in Tompkins County sold less than \$40,000 worth of products in 2017. The next group of farms selling between \$40, 000 and \$99,999 makes up 15% of farms - these are generally considered to be significant part-time or small full-time operations. Farms with \$100,000 to \$499,999 makeup 12% of farms, and the largest farms with sales over \$500,000 is 4% of all farms. The largest agriculture sales are generated by dairy farms with milk sales as shown in Table 5 above.

Value of Products Sold	Number of Farms
Less than \$39,999	364 (70%)
\$40,000 to \$99,999	76 (15%)
\$100,000 to \$499,999	61 (12%)
\$500,000 or more	22 (4%)

Table 6: Farms by Value of Products Sold, 2017.

Table 7 shows the number of organic farms and their sales in Tompkins County. Both the number of and sales from organic farms decreased from 2007 to 2012, followed by an increase from 2012 to 2017. Approximately 9% of Tompkins County farms are certified organic. Many Tompkins County farmers follow organic or sustainable practices but are not certified.



	2007	2012	2017
Number of Organic Farms	41	23	45
Sales from Organic Farms	\$5,263,000	\$1,905,000	\$9,493,000

Table 7: Number of and Sales from Organic Farms, 2007 to 2017.

Tompkins County has a strong organic dairy farming community dating back to 1997. Today there are six organic dairy farms in the county (two small with 100 cows combined, one mid-sized dairy with 250 cows, and one with three herds in three locations with over 1,000 milk cows).

Local livestock (sheep, beef, pigs, goats) are raised on pastures and animals are fed hay or corn as supplements to pasture. As such, locally raised livestock is produced with very few chemical inputs. Many of these farmers forgo organic certification because of cost and paperwork requirements. Some farms with a high level of direct customer engagement provide extra assurance by becoming certified organic and animal welfare approved.

The majority of local vegetable farms follow organic practices; some are certified, some are not. Certification is often driven by consumers shopping at farmers markets or joining a CSA who want assurance that food is free of chemical residue and grown without negative environmental impacts. Orchard crops are a bit more challenging to produce organically because of the large number of pests, so most farmers follow a low spray integrated pest management program.

Farm Viability

Table 8 summarizes farm income in Tompkins County from 2007 to 2017. Average sales per farm steadily increased from 2007 to 2017. Total government payments, net cash farm income from operations, and average net cash income per farm decreased from 2007 to 2012, followed by an increase from 2012 to 2017. Total sales, total farm production expenses, and the percent of farms reporting net losses increased from 2007 to 2012 before decreasing from 2012 to 2017. The total number of farms steadily decreased from 2007 to 2017.



	2007	2012	2017
Farms	588	558	523
Total Sales	\$60,185,000	\$67,391,000	\$64,702,000
Total Government Payments	\$955,000	\$900,000	\$1,575,000
Total Farm Production Expenses	\$48,254,000	\$56,306,000	\$54,317,000
Net cash farm income from operations	\$16,170,000	\$13,976,000	\$16,876,000
Average net cash income, per farm	\$27,499	\$25,046	\$32,267
Percent of farms reporting net losses	58.7%	60.4%	55.4%

Table 8: Farm Net Income, 2007 to 2017.

Looking at the total sales for all 523 farms in the county is only informative in showing the big picture. To fully understand farm viability, it needs to be broken down by type and size of the farm operation, and involves other factors like amount of debt, management expertise, cost control, as well as prices received for products which can vary by marketing channel.

It is clear, however, that even though the overall farm sales value is \$64 million dollars, expenses are high, leaving only \$16,876,000 in cash returns resulting in an average net farm income of \$32,267. This is not very much for the farm family to live on. As a result, more than half of farms report losses. Farming is not easy, and many farms forgo some of the basic living necessities that the rest of the population enjoys. Unless there is a family member with a job off the farm, some farmers forgo health insurance and savings for retirement. Many farmers qualify for SNAP benefits but may forfeit this benefit because they raise food and are too proud to apply. Food in this country is plentiful and inexpensive by most world standards. Unfortunately, American farmers often receive the smallest portion of the consumer's food dollar, with the majority going to processing and distribution.

Table 9 shows farm expenses in 2017. The areas with the greatest expense were feed purchased, hired farm labor, and supplies, repairs, and maintenance. This is consistent with

what farmers mentioned during interviews. Farm labor is of particular concern to farmers at present because the NYS Legislature has moved to require farmers to pay overtime wages. This presents a financial hardship for farmers, and for workers if farmers have to cut back on worker hours.

Feed Purchased	\$11,813,000
Hired Farm Labor	\$9,643,000
Supplies, Repairs, and Maintenance	\$6,061,000
Other	\$4,462,000
Gasoline, Fuels, and Oil	\$2,854,000
Interest Paid on Debts	\$2,785,000
Seeds, Plants, Vines, and Trees	\$2,470,000
Fertilizer, Lime, and Soil Conditioners	\$2,016,000
Utilities	\$1,603,000
Chemicals	\$1,337,000
Livestock and Poultry Purchased or Leased	\$1,319,000
Custom Work and Custom Handling	\$1,224,000
Contract Labor	\$172,000
Total	\$54,317,000

Table 9: Farm Expenses, 2017.

The People who Farm

Farmers in Tompkins County include a mix of operators comprising those who have been farming the land for over 100 years and others new to farming gathering the resources and skills to get started. Multi-generational farm families place a high value on keeping their farm going if economically feasible and if the next generation is interested in taking over. There is a large cohort of middle-aged farmers who have built solid businesses during the last 40-60 years through innovation and expansion. These groups are joined in recent years by a new, in some cases younger and more diverse generation of farmers, many identifying with approaches such as 'carbon farming' and 'regenerative agriculture;' frequently relying on off-farm income; at times lacking substantial farming experience, but with other relevant skillsets; and often motivated to work out business models that address issues of equity and environmental crisis alongside making a living. Farming corporations are locally owned and operated, with a corporate business structure as a legal entity. Many farms have formed LLC's to limit liability, though the majority of farms still operate as sole proprietors.

Small scale farming has always been a significant part of agriculture. However, because scale influences profit, small livestock and hay farmers integral to maintaining the working landscape are generally part-time operators with limited sales. Some make at least \$10,000 in sales to receive NYS Agricultural Assessment on land they own (or they may rent land to a larger farmer to receive the exemption).

Small scale fruit and vegetable production was part of all farms in the early 1900's for both home use and sale. After World War II, food retailers started sourcing food nationally and local produce sales declined significantly. However, the emergence of farmers markets in the early 1970's - driven by a younger generation of farmers - cemented a strong local foods movement that thrives today.

Many new farmers have started farming in our area during the past 20 years. This has changed the composition of our farming community to include "old timers" along with a younger generation of farming innovators raising a large variety of farm products, some that are new to the area (e.g. kale, asian greens, ginger, mushrooms, microgreens, tree nuts, pigs, and many others).

Of the total of 523 farms, 383 considered their primary occupation to be farming in 2017.

Table 10 shows a summary of principal producers in Tompkins County by race. A principal producer is the person who makes the majority of farming decisions and works the least time off the farm. If there is more than one principal producer per farm, for purposes of the census, USDA selects one. However demographic data may be collected for up to 4 people per farm.

The majority of principal producers in the county are white and they own most of the land in farms. The numbers showing other ethnicities and races are accurate in that they are low. Within the local farming community, there is a diverse group of new farmers emerging that are not reflected in the Census. Some of these farmers have started since 2017 and were not captured in the Census. Organizations such as Groundswell Center for Local Food and Farming and programs like Quarter Acre for the People are prioritizing equity in the food system by helping people of color gain access to land and build skills and capacity to become producers in the local food system.

	Farms with Principal Producer	Land in Farms (acres)
White	519	90,847
Hispanic, Latino, or Spanish origin	15	983
American Indian or Alaska Native	4	574
Asian	2	N/A
Black or African American	1	N/A
More than one race	8	36

Table 10: Principal Producers by Race, 2017 Census of Agriculture.

According to Census data, there were 165 farms with hired labor, for a total of 980 hired farm workers and a combined payroll of \$9,643,000 (Table 11). The local farm workforce is generally composed of owners who perform a variety of farm functions from business and decision making to production, harvest, marketing and equipment maintenance. Hired workers counted in the census are workers other than owners who tend to be more specialized in the task they perform and may include milkers, barn workers, tractor operators, harvesters, or other such functions.

The numbers in Table 11 depicting migrant workers or H2A workers are inconsistent with what is known to be the case by extension educators and others working with county farmers. The reason could be the way the question is phrased in the census. On dairy farms, many migrant workers are here year round often for multiple years so farmers consider them to be part of a stable workforce.

Farms with Hired Farm Workers	165
Farms with Migrant Workers	6
Workers	980
Seasonal workers with H-2A visas	20
Payroll	\$9,643,000

Table 11: Hired Farm Labor, 2017.

Definitions:

- **Migrant worker:** any worker whose employment on the farm prevented them from traveling back to their permanent residence the same day.
- **The H-2A temporary agricultural program:** helps employers who anticipate a lack of available domestic workers to bring foreign workers to the U.S. to perform temporary or seasonal agricultural work including, but not limited to, planting, cultivating, or harvesting labor.

Table 12 summarizes principal producers in Tompkins County by sex. There are more farms with male operators, more male principal producers, and more land in farms of male owners than female. This table is somewhat misleading: the person responding to the census may be listed as the principal producer but the role of the second operator (commonly a spouse or partner) is often equally as significant. Farm partners often keep the books, may be in charge of young livestock, or do other work associated with animal health and crop production. It is not uncommon for a partner to maintain an off-farm job to ensure health insurance for the family. Even so, the percent of male farmers in Tompkins County is equivalent to national trends.

	Farms	Principal Producers	Land in Farms (acres)
Male	428	478	84,927
Female	257	264	23,130
Percent Male	62.5%	64.4%	78.6%
Percent Female	37.5%	35.6%	21.4%

Table 12: Principal Producers by Sex, 2017 Census of Agriculture.

Figure 8 summarizes the number of principal producers in the county by age. The average age of principal producers in the county is 56.8 years. In comparison, the average age of principal producers in New York State is 57.3 years, and the average age of principal producers in the United States is 58.6 years. In Tompkins County there is a steady increase in the number of principal producers by age cohort until the age cohort of 55 to 64. After this age cohort the number of principal producers decreases.

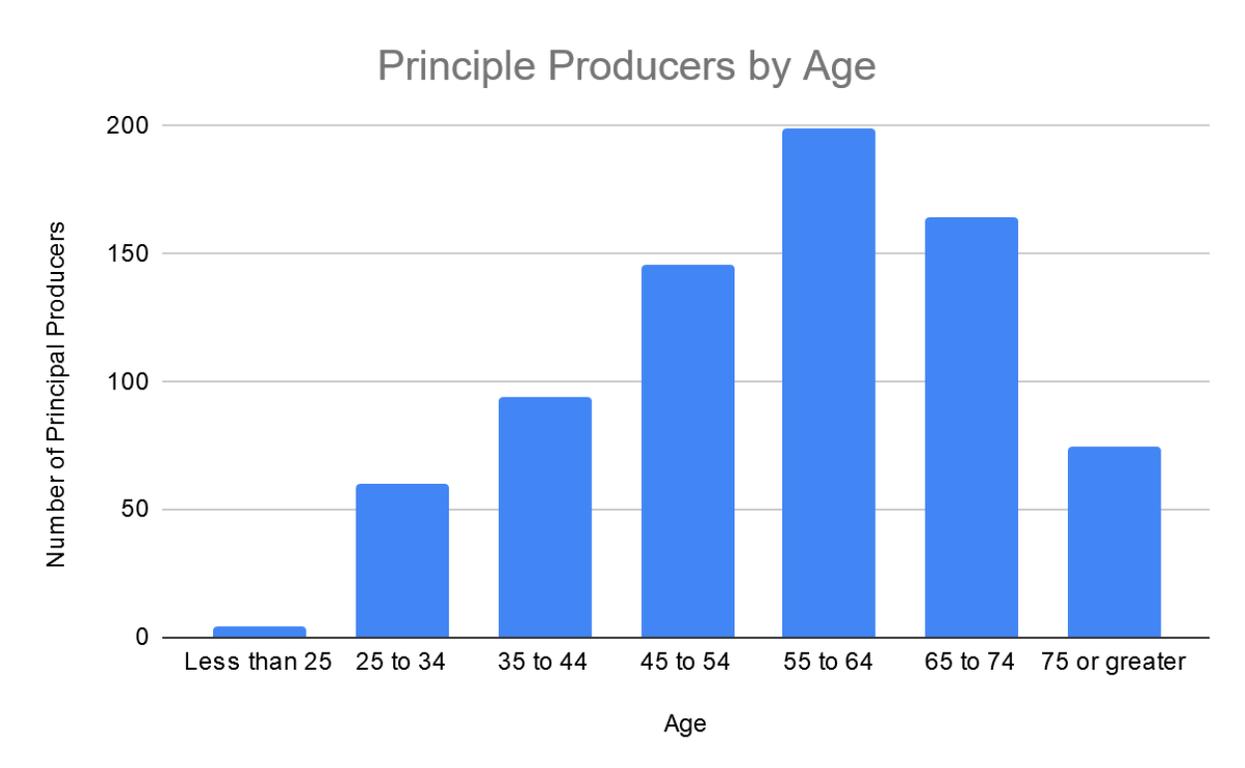


Figure 8: Principal Producers by Age, 2017 Census of Agriculture.

Farms Feeding Local People

Direct sales are the value of edible products, including value added products, produced and sold for human consumption directly to consumers at farmers markets, on-farm stores or farm stands, roadside stands or stores, u-pick, CSAs (Community Supported Agriculture), online marketplaces, etc. ([USDA Agriculture Census Appendix B](#)). It should be noted that the 2017 data is not directly comparable to 2007 or 2012 as data from those years did not include value-added sales.

Agritourism income is any income that comes from recreational services such as hunting, fishing, farm or wine tours, hay rides, etc. ([USDA Agriculture Census Appendix B](#)).

Table 13 shows that the number of farms with direct sales, the total amount of direct sales, direct sales as a percent of total market value of products sold, the average value per farm of direct sales, and farms with direct sales as a percent of all farms increased from 2007 to 2012 and then decreased from 2012 to 2017. The number of agritourism farms and agritourism income decreased from 2007 to 2012 and then increased from 2012 to 2017.

	2007	2012	2017
Number of Farms	588	558	523
Total Market value of products sold	\$60,185,000	\$67,391,000	\$64,702,000
Farms with direct sales	84	126	101
Total direct sales	\$933,000	\$2,487,000	\$1,911,000
Direct sales, as percent of the value of all products sold	1.6%	3.7%	3.0%
Average Value per Farm of Direct Sales	\$11,107	\$19,738	\$18,921
Farms with direct sales, as percent of all farms	14.3%	22.6%	19.3%
Farms with products sold directly to retail outlets	N/A	N/A	36
Farms with Added value production	N/A	N/A	36



and sales			
Farms with CSA sales	N/A	N/A	N/A
Agritourism Farms	21	15	22
Agritourism Income	\$165,000	\$90,000	\$703,000

Table 13: Direct Marketing Production Summary 2007 to 2017.

How farmers respond to Census questions or whether the methodology or definition changed could account for the significant increase in revenue between 2012 and 2017. This may account for some of the big discrepancies in numbers from Census to Census. On a national level, there have been concerns among people involved in local food system research, that the value of direct marketing is under-counted and hence there is no true measure of the value of a local food system in meeting food needs or of the impact of a local food system in a local economy. A more concerted effort to secure local data is needed.

As with other Census data, there is a discrepancy between what is reported and what is known to be happening in the county. In this case, we know that there are many CSA farms both within and outside the county dating back to 1990. The reasons these farms may not be showing up in the Census are: farmers who operate CSAs may not be on the USDA Census mailing list, or the numbers are too low to report. In the CCETC directory of CSA Farms, there are 12 produce CSA farms operating in the county and five more beyond the county’s borders with a significant number of customer bases from our county and with CSA pickups located in Tompkins County.

Table 14 shows the type of direct sales by farms from each of the seven counties in the region. Seneca County has the greatest sales direct to consumer, direct to retailers or wholesalers, and of value-added products. Cayuga and Schuyler are similarly high. These three counties include a large number of wineries owing to overall higher direct sales value.

	Direct to Consumer (farms)	Direct to Consumer (sales)	Direct to Retailers or Wholesalers (farms)	Direct to Retailers or Wholesalers (sales)	Value Added Products (farms)	Value Added Products (sales)
Tompkins	101	\$1,911,000	36	\$372,000	36	\$419,000
Cayuga	113	\$5,774,000	30	\$1,270,000	29	\$942,000

Seneca	93	\$14,182,000	36	\$6,382,000	42	\$31,765,000
Cortland	78	\$546,000	40	\$1,032,000	24	\$157,000
Schuyler	82	\$3,779,000	25	\$1,535,000	34	\$4,027,000
Chemung	58	\$467,000	11	\$216,000	17	\$458,000
Tioga	88	\$2,690,000	12	\$1,405,000	31	\$285,000

Table 14: Seven County Region Type of Product Sales, 2017.

Gardening, Homesteading, and Wild Food Provisioning

Home Gardening

Gardening at home is actively practiced by many residents in our county but there are currently no efforts tracking these trends. Data sources include sales at retail garden centers or farm stores and the numbers of people attending gardening classes. Cornell Cooperative Extension of Tompkins County (CCETC) provides gardening classes, seed giveaways, gardening advice, and composting education. Other sources of education and information include (but are not limited to) Ithaca Community Gardens, Cornell University Horticulture Department online courses, Ithaca Children’s Garden, Groundswell Center for Local Food and Farming and the Finger Lakes Permaculture Network.

Respondents to the 2021 Tompkins Food Future Community Questionnaire ($n=592$) listed gardens as the top item they would like to see more of in the community, whether they be community gardens, school gardens, or urban farms and gardens. Respondents also want a community greenhouse to facilitate an extended growing season, planting fruits and vegetables in public spaces for everyone to harvest, and general shared community growing spaces. 48% of respondents identified as a home or community gardener.

In response to the COVID-19 pandemic, the Solidarity Gardens project was launched by CCETC in 2020 to connect community members traditionally excluded from gardening with resources, infrastructure and education. The program built and installed 110 garden beds at 17 sites around the county, many at sites serving low-income, BIPOC, and SNAP-eligible families. The program also provided free seeds and plants, cooking classes, and other resources. In addition to Solidarity Gardens, CCETC has been operating the Seed-to-Supper program for the



past five years, training volunteers to teach gardening classes to beginning gardeners with lower incomes.

These opportunities help remove barriers to growing your own food, but it is hard to know who isn't being reached, and how many more people could benefit from this type of support. With a low rate of home ownership compared with the national average (55.3% vs. 63.9%), many renters in Tompkins County face additional barriers to home gardening, such as lack of space, lack of support from landlords, and obstacles related to race, class, and other factors. Homeownership rates are even lower among non-white residents (see page 20).

Others noted barriers of time, knowledge, and the labor-intensive nature of gardening. Climate change will bring increasing disruptions in coming decades including increased drought, erratic precipitation, new pests, pathogens, and weeds, changes in crop viability, and more. Stakeholders emphasized the need to prepare now so that people are not scrambling when the capacity to grow food is truly needed. Incrementally developing the capacity to grow and preserve one's own food points to an increased need for programming, services, and land. This includes preserving green spaces in the City that can be used to grow food and easily accessed by lots of people living nearby.

Community Gardening

Community gardens are defined as public spaces where gardeners can sign up to use a plot for growing vegetables and flowers. There are several large community gardens located within the Ithaca City and Town limits (e.g. Ithaca Community Gardens, Floral Avenue Community Gardens, Town of Ithaca West Hill Garden, Cornell Community Garden plots). While these gardens operate on public land, they are mostly managed by the gardeners. Only the Town of Ithaca offers plot reservations and provides water and mulch. Surrounding rural towns, including Caroline, Brooktondale, Enfield, Dryden, Lansing, Freeville, Groton, and others also have had some community and school gardening activity however, without strong leadership from community volunteers, parents or teachers, the level of use fluctuates. Most operate with limited funds generated from the small fees charged to rent a plot. For a list of active community garden sites visit [the CCE Community Gardens page](#).

Educational Gardening

Small garden plots have been established at many schools throughout the county. The main focus of these plots is educational rather than food production. However, it is of critical

importance for youth to learn how to grow food at an early age and have this as a life skill to sustain themselves in the future.

Besides gardens at schools, the Ithaca Children's Garden offers gardening education to young children and teens. The Youth Farm, located on South Hill in Danby, offers an active hands-on sustainable farming and food justice curriculum to 10-15 teens ages 14-20 each summer. Tompkins Cortland Community College has a sustainable farming and food systems program which offers hands-on farming education. Additionally, Groundswell Center for Local Food and Farming offers an annual farm business course and some hands-on workshops to aspiring farmers. Groundswell also operates an incubator farm on West Hill in Ithaca, where new farmers, primarily recent immigrants and people of color, can access land and equipment as well as guidance to start farming. Generally there are six to 10 people engaged in farming each season, and some have been there for as long as five seasons.

While there are a variety of ways young people can learn about farming and food production from an early age, there is no direct pipeline from these experiences that links youth or young adults to jobs on farms. During interviews, farmers noted the lack of training programs and a need for mentorship opportunities.

Homesteading

Homesteading is based on the premise of self-sufficiency, where most of the food eaten including vegetables, fruits and livestock is raised by the household, and preserved or processed at home for year-round eating. An unknown number of Tompkins residents practice some form of homesteading, though this is not formally tracked. It is likely that many of the small farms with sales between \$1000 to \$9,999 captured in the Census of Agriculture data could be considered homesteaders selling their surplus products to neighbors and friends. Most of these individuals would not be filing IRS Farm income tax returns, nor are they eligible for NYS Ag Land Assessment (lower property taxes) if their sales are under \$10,000 per year.

Wild Food Provisioning

Other strategies for food provision on an individual and family level includes hunting, fishing, and foraging. It is not known the extent to which these activities contribute to food supply. In Tompkins County the total deer take in 2019 (most recent data) was 3,099. Most of this is



eaten by the hunter or donated to the Venison Donation Program and distributed by the Southern Tier Food Bank.

Fishing is common on the lake and in area streams. Numbers do not seem to exist for the amount of fish harvested for eating. Local hunting and fishing might become a more viable means of acquiring local food if state regulations prohibiting the sale of lake caught fish and venison were addressed. Ducks and geese could also be considered a food source if regulations were to change.

Foraging - the act of searching for and gathering wild food for free - once a necessity among native ancestors, is a practice gaining greater popularity in recent years. Eating wild edibles, including plants / herbs, nuts, berries, mushrooms, and more, allows for access to food outside of the existing food system. Alongside hunting and fishing, foraging can provide opportunities to build deeper connections with the land and natural world. While many hunters, fisherpeople, and foragers alike care deeply about the environment, it must be noted that damage can come from overharvesting. As with learning any new skill, time and care should be given to learning best practices.

Opportunities

Throughout the course of the interview and outreach process, stakeholders shared ideas for improving the Production sector. The following preliminary priorities were identified:

Financial incentives and transition support for retiring and beginning farmers would keep agricultural land productive. Facilitated transition support would increase equitable access to agricultural land for the next generation of farmers.

Education, training, and mentorship program expansion would prepare and support beginning farmers and expand access to the industry.

Financial investment in small farmers who wish to expand would increase capacity in our local food system, feed more of the local population freshly harvested, nutrient dense crops, and potentially lower prices. Fencing, irrigation, greenhouses, and other capital improvements expand our overall capacity as well as that of an individual farm.

Climate impact education would help farmers prepare, plan, and maintain resiliency in the face of rapid shifts in weather, pests, and disease.

Climate mitigation funds would help farmers invest in infrastructure to control irrigation, protect from frost damage, extend season capabilities, and avoid crop losses.

Payments for ecosystem services would increase the carbon carrying and water retention capacity of our cultivated areas as well as supporting the financial viability of farms investing in such outcomes.

Collective infrastructure such as cold storage space, freezers, processing facilities, and distribution and marketing hubs would enable farmers to extend their season and add value to crops thereby allowing them to increase production and contribute to farm viability as well as local farm jobs.

A grower's cooperative would help farmers position themselves for growth by helping with marketing, strategic business planning, and other business services. A cooperative can also identify opportunities for new products and promote local purchasing.



Food systems education expansion for children and area residents would increase consumer support and build a stronger coalition of future farmers.

Conclusion

Tompkins County is a food rich community, with a strong agricultural tradition, a diversity of farming operations, and a deep and enduring interest in sustainable, local foods. Despite these strengths, the vast majority of food consumed locally originates from outside our region. And farming remains a difficult profession, for veterans and beginners alike. If, as we profess, Tompkins County is a place where all people should have access to healthy, local food, and a place where food and agriculture are central to our local economy, we must do more to strengthen, promote and develop these sectors of our food system. The food system baseline assessment revealed common themes that serve as important keys to unlocking meaningful solutions. The data, survey responders, residents, and stakeholders tend to agree that:

- Support of new and transitioning farmers is central to our farming future
- Financial investments in small farms are essential to scaling up local food production
- Land access for BIPOC community members is the foundation of an equitable food system
- Collective infrastructure (both physical and programmatic) would go a long way in expanding capacity
- Preparing for climate change must be prioritized to ensure long-term viability and resilience

The vision, commitment, and creativity of the local people and groups working on food provides the inspiration needed to sustain this movement. Creating a more sustainable, equitable, healthy and affordable food system requires us to see beyond the status quo. To envision a future where, as one resident put it, “Farming is a viable way of life.” This future is not out of reach, as long as we maintain that our local farming economy and the people tending this land are central to our community food system. Equipped with a better understanding of the challenges we contend with today, we can work collectively to bring a better future into reality.

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