The Denison Pequotsepos Nature Center Giving Garden at Coogan Farm: A Practitioner Report on Community Gardens for Health and Regional Food Security

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The Denison Pequotsepos Nature Center Giving Garden at Coogan Farm: 
A Practitioner Report on Community Gardens for Health and 
Regional Food Security

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Abstract

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The Denison Pequotsepos Nature Center (DPNC) is a community organization that, through its various programming, works to perpetuate a vision of humans as part and parcel of the world. In 2013, when the Nature Center acquired the Coogan Farm property, the organization built a community garden called the Giving Garden to serve surrounding communities, expanding services to the foodservice sector educational programming around sustainable agriculture. DPNC’s partnership with the Robert G. Youngs Family Foundation, United Way of Southeastern Connecticut, and Gemma E. Moran mobile food pantry, forged in 2014, has allowed the garden to minimize area food insecurity through its contribution of seasonal fruits and vegetables farmed through biointensive, regenerative agricultural practices. This report integrates a participatory research approach, reflecting on my time spent as an intern in the garden in summer 2017 and, now, on my position as the Assistant Garden Manager in the Coogan Farm Giving Garden. Major studies indicate the positive effects that community gardens can have on minimizing regional food insecurity, creating cohesive communities, and increasing overall health of residents. The purpose of this study is to investigate and convey the impact that community gardens have on community health and regional food security in New London County, Connecticut, using the Giving Garden as a case study. Findings suggest that members of the Giving Garden experience a heightened sense of community, recipients of garden outputs achieve greater overall health, and that educational programs teaching the importance of sustainable farming practices over conventional agriculture promote household farming and gardening practices that are more ecologically friendly on a community level.

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Abstract

Academic History 2

Introduction 4

Literature Review 7
  History and Structure of Community Gardens 7
  Types of Community Gardens 9
  The Community Gardening Movement in North America 11
  Community Gardens for Community Health 13
  Food Insecurity in the United States 18
  Food Insecurity in New London County 20
  The Denison Pequotsepos Nature Center and Coogan Farm 28

Methodology 32

Results 40

Conclusion 49
  Physical Environment 49
  Volunteers 50
  Partnerships 50
  Education and Outreach 52
  Evaluations 53

Works Cited 55

Appendix 59
  DPNC Organizational Chart 59
  2018 Giving Garden Gardening Series Description 60
  2018 Giving Garden Volunteer Survey 63
Introduction

Food systems are an integral component of community health. Concerned with processes involved in producing, harvesting, processing, transporting, aggregating, and consuming food, food systems influence a community’s economy, nutrition, and food security as well as other factors. In a community food system, those with lower access and resources suffer higher rates of health-related issues because of the low availability of nutritionally-dense food products in low-income communities. Overweight and obese individuals are susceptible to higher rates of potentially fatal diseases and health conditions such as hypertension, coronary heart disease, cancer, and diabetes (United Way & NLCFPC, 2013). *Nourishing Change*, a baseline community health report convened by the United Way of Southeastern Connecticut and the New London County Food Policy Council in 2011, cited that New London County, Connecticut saw a rise in the number of adults diagnosed with diabetes from 6.6% in 2004 to 8.1% in 2009 (United Way & NLCFPC, 2013). The region has also seen an increase in rates of obesity, malnutrition, and food insecurity, with higher occurrences of chronic disease and malnutrition among residents (United Way & NLCFPC, 2013). Only 27.4% of the adult population ingest the recommended serving of at least five fruit or vegetables daily. The report attributed this to the fact that residents in New London County consume less of the healthier foods that are more time-consuming and intimidating to prepare (United Way & NLCFPC, 2013). Minimizing diet-related diseases in the county, especially among children and low-income populations, was identified as a priority in the United Way baseline report.

At Coogan Farm, the Denison Pequotsepos Nature Center (DPNC) works to minimize food insecurity in the region through their partnership with the Robert G. Youngs Foundation and the United Way of Southeastern Connecticut and through initiatives grounded in the organization’s mission to “*inspire an understanding of the natural world and ourselves as a part of it - past, present, and future*”. Since 1946, DPNC has provided the community with resources and educational programs that foster greater connectivity between humans and the natural world, hosting summer camps, preschool, homeschool, and afterschool programs, and
educational programs for community members of all ages and interests. DPNC’s acquisition of the Coogan Farm property in 2013 and subsequent installation of the Giving Garden in 2014 has allowed the organization to further develop their mission and bolster services directed towards reducing food insecurity in the region. The garden serves as an educational resource for New London County residents, hosting a variety of programs that engender awareness and understanding of the benefits of sustainable farming practices, and acting as a physical resource for the food insecure through bi-weekly produce donations to regional food pantries operated by the United Way. In 2017, the Giving Garden donated nearly 15,000 pounds of produce to Gemma E. Moran at no cost, contributing a bounty of nutrient-dense fruits and vegetables to New London County residents with the highest degree of need. DPNC acknowledges the role that food systems play in overall community health and how educating communities on the importance of sustainable food systems can reverse environmental problems by connecting people to the processes involved in food production.

The United Way of Southeastern Connecticut has played an integral role in addressing food insecurity in New London County. The Gemma E. Moran United Way Labor Food Center has given away the equivalent of nearly two million meals and snacks to over 80 food pantries, shelters, daycare centers, community meal sites, and nursing homes in the region, providing food to those with less access. While several farms in the area donate seasonal produce, the Coogan Farm Giving Garden is the only volunteer-run farm in New London County that donates produce to the Food Center at no cost and at the steadiest rate throughout the spring, summer,
and fall months due to the fact that the agricultural practices used in the garden help sustain a longer grow season. Aside from Giving Garden and other area farms’ contributions, most of the food products donated to the United Way Food Center are canned, processed, and/or close to expiration and do not contribute adequate nutrients to residents’ diets, meaning that the poorest populations in New London County lack access to the fruits and vegetables necessary for overall health. The Coogan Farm Giving Garden seeks to mitigate this by growing nutrient-dense food products for the food insecure of New London County to expand emergency food service providers’ ability to reach more people and feed more families. The biointensive, regenerative agricultural practices and community-centric approach integrated on the farm endeavor to heal humans and the earth simultaneously and to cultivate diet-related health awareness in the overall region.

Besides expanding access to nutrient-dense food, the Giving Garden has functioned to improve the health of communities in New London County by engaging residents with practices in agriculture that are environmentally sustainable and foster community cohesivity. Garden volunteers are of a variety of ages, from toddler to senior, and come from an assortment of cultural, social, and economic backgrounds, which makes the garden a platform for community interactions that might not otherwise catalyze. The Giving Garden runs gardening programs throughout the year for residents of New London County and beyond who desire to learn about sustainable garden practices, encouraging community members to grow their own gardens by equipping them with the necessary skills and resources. Prioritizing youth education, the Giving Garden hosts school groups and afterschool programs that seek to engage children with a sustainable model for food production and best practices for regenerative agriculture. At current, no other such programs exist to teach regenerative, biointensive agricultural practices to youth in the New London County region.

Studies have proven that hands-on, garden-based education can greatly improve the eating habits of young gardeners, as the social interactions that are a part of gardening, harvesting, dispensing, and preparing produce enhance young people’s understandings of how food
systems work and the importance of healthy dietary practices (Libman, 2007). Youth education programs aimed at increasing knowledge of dominant agricultural and dietary practices in the United States will help to inform future generations of the importance of food justice and farming sustainably, lower childhood rates of obesity, and raise future generations farmers and other land stewards. In New London County, where food access remains an issue and childhood rates of obesity are still high, these programs are imperative to the development of a successful, sustainable food system.

As a resident of New London County, a previous intern in the Giving Garden, and the current Assistant Garden Manager at the Coogan Farm, I have an insider’s perspective on the area’s food system. The purpose of this report is to outline the importance of community gardens for overall community health, using presiding literature and participatory research to quantify the impact of Gemma E. Moran and DPNC’s partnership on the surrounding community, and to demonstrate how community gardens like the Giving Garden can pave the way to wider food security through acting as learning centers to the public.

Literature Review

History and Structure of Community Gardens

By definition, a community garden is a piece of land gardened mutually by a group of people (ACGA, 2007). Community gardens make use of individual or shared plots on private or public land and produce fruit, vegetables, and/or plants (ACGA, 2007). Many different membership and management models for community gardens exist in the world. In North America, where this study is focused, community gardens range from tiny container gardens and street planters for neighborhood beautification, to small-scale “victory gardens” where community members can cultivate their own produce, to large-scale “greening projects” focused on safeguarding wilderness areas (ACGA, 2007). Typically, what is produced in a community garden is shared collectively among members or volunteers tending the space but, other times, produce and plants are sold for profit or donated to community groups and/or organizations in need (ACGA,
2007). However, there are many nonprofits that provide aid to low-income families, youth groups, and community organizations by assisting them to plan, grow, and care for their own gardens (ACGA, 2007).

In urban areas, community gardens are used to alleviate the effects of food deserts on human populations. Food deserts are “parts of the country vapid of fresh fruits, vegetables, and other healthful whole foods,” and are usually located in geographic areas with high rates of poverty (American Nutrition Association, 2015). The problem with food deserts is that, within them, people lack access to the less-expensive, nutrient-dense, whole foods they need for positive health, and have greater access to the processed, pre-packaged food sold at quickie marts, gas stations, and fast food restaurants that are filled with fats, sugars, and chemical additives (American Nutrition Association, 2015). Community gardens bring fresh produce to areas that would otherwise be food deserts, heightening overall access to affordable food and combating the proliferation of obesity, diabetes, and other health-related conditions associated with poor dietary habits.

Community gardens provide those tending them with greater access to fresh vegetables and with a space for exercise. Consuming fresh fruits, vegetables, and other plant-based food products is essential to good health. Since community gardens boost community access to these foods, they improve the overall health of the communities of which they are a part. Community gardens are particularly significant in areas with high concentrations of socioeconomically disadvantaged populations since these communities are afflicted with low food access at disproportionate rates (Harris, 2009). These gardens also prevent the alienation that commonly occurs in urban settings by bringing community members closer to the processes involved in growing food and by creating social communities that prevent individual isolation (Harris, 2009). Community gardens yield other social benefits, as members share food production knowledge with the wider communities they are a part of, creating safer, well-informed neighborhoods and communities. Studies in landscape and urban design have
established that active communities have lower rates of crime and vandalism (Melville et al., 2002).

Community gardens can be held on private or public land, and can be installed in virtually any space. In North America, it is common to revitalize abandoned lots and convert them to productive community gardens. Community gardens can also be added to public parks and serve as additional facilities for health and recreation. Throughout history, community gardens have functioned to supplement food supplies in times of war or economic distress (Buder, 1990). In World War I and II, victory gardens, or war gardens, filled with vegetables, fruits, and herbs were planted to decrease pressure on public food supplies (Living History Farm, N.d.).

Land access and tenure are obstacles that community gardeners face throughout the world because, in most cases, they are not the owners or stewards of the space they are maintaining. However, many gardens are grown collectively by a group of people working together. Other gardens are divided into plots, and each plot is managed by an individual garden member or group of members. This is dependent upon the size, knowledge, and resources of the garden space and the members involved in managing and maintaining it.

Community gardens are unlike public parks in the sense that that the body managing the space decides the hours it is open to the general public. Terms regarding the lease of the land the garden is planted on can dictate whether or not the garden is open to the public. While some gardens have open-gate policies, others do not. A significant difference between public parks and community gardens is that most community gardens are managed and cared for by the gardeners that are a part of the space rather than by hired staff. Another key difference lies in food production: In parks, plants serve an ecological or ornamental function, whereas community gardens support food production by offering gardeners a space to grow vegetables and other crops, supplementing household and community health and nutrition.
Types of Community Gardens

There are a variety of models under which a community garden can operate. Elements of different operational models can be recombined or melded together based on their membership structure and the community they are a part of and function to serve.

- **Neighborhood gardens** are the most commonly seen type of community garden, where a group of members come together to cultivate fruits, vegetables, and ornamental plants. Under this model, public or private land is gardened collectively or divided into individual plots and rented by gardeners at an annual rate (UCANR, 2018).

- **Residential Gardens** are spaces shared among residents living in apartment housing, assisted living communities, or affordable housing units. This type of garden is coordinated and kept up by the residents on premise (UCANR, 2018).

- **Institutional Gardens** are connected to public or private organizations and provide a variety of advantageous services to residents or members of the institution. These services include mental and/or physical therapy and rehabilitation, and educational programming for skills development and job-replacement (UCANR, 2018).

- **Demonstration Gardens** are utilized for recreational and educational purposes. Typically, these gardens offer brief seminars and presentations on gardening, and act to equip communities with the resources needed to manage a successful community garden (UCANR, 2018).

Community gardens can be built in neighborhoods, schools, hospitals, or in residential neighborhoods. The place that a community garden is located determines how the garden is used and managed. Community gardens achieve a wider reach when individuals are capable of walking or driving to the location rather than taking public transportation (Blaine et al., 2010). Travel time also plays a role: those living within a fifteen-minute travel distance of a community garden are more apt to visit than those located farther than fifteen minutes away (Blaine et al.,
2010). These determinants should be taken into account when selecting the location for a community garden serving a target population (Blaine et al., 2010).

Although food production is the principle mission of many community gardens, not all gardens are focused on vegetable production (ACGA, 2007). Gardens prioritizing the restoration and preservation of natural areas and native plants are also popular, as are art and permaculture gardens (Wallace, 2006). It is common for community gardens to incorporate multiple planting elements, and plots often integrate small-scale orchards, herbs, and pollinator gardens. For urban dwellers, an individual garden plot can serve as a sort of virtual backyard, wherein the member cultivating it has a space for self expression through growing certain varieties of fruits, vegetables, and flowers. Raised beds are frequently used to separate plants from toxic soils or natural flora, as well as to facilitate access to beds for disabled gardeners (Wallace, 2006).

**The Community Gardening Movement in North America**

The role of community gardens in creating conditions for food justice in local food systems has garnered attention by researchers. In North America, the community gardening movement is built on inclusivity, diversity, democracy, and community support. Many gardens are self-supported through membership dues, while others depend on sponsorships for seeds, tools, and/or monetary donations from churches, schools, private businesses, parks and recreation departments, and community leaders (ACGA, 2012). Gardens may possess a few active members or hundreds of involved gardeners. In all circumstances, members of a community garden form their own communities in the gardens they are a part of, as the garden acts as a space that facilitates the creation of new relationships and social ties. Gardeners come from an array of cultural backgrounds, are young and old, rich and poor, first-time and lifelong growers. Through a community garden, which serves as a “locally-oriented center of interaction,” individuals and groups can “work towards improving their local social institutions, culture, and ecology, which can allow them to shape the social forces that most directly affect them” (Kearney, 2009).
All community gardens have an organizational structure. This is dependent upon whether the garden embodies a top-down or bottom-up, “grassroots” approach (ACGA, 2007). Many different organizational models exist: Some gardens elect board members in a democratic process, while others are managed by delegated officials (ACGA, 2007). Some community gardens are managed by non-profit organizations, including community gardening associations, churches, and individual landowners. Others are operated by a city or town’s recreation or parks department, hospitals, or schools/universities (ACGA, 2007). Grassroots groups are often formed to initiate the installment of community gardens, like in the case of the Green Guerillas of New York City (Green Guerillas, N.d.). This nonprofit rallies community members and partners with key stakeholders in order to leverage “community gardening as a tool to reclaim urban land, stabilize city blocks, and get people working together to solve problems” (Green Guerillas, N.d.). In other situations, a garden can be organized and run by a municipal agency through a more top-down approach. The Eastern Connecticut Community Garden Association (ECCGA) works with schools, non-profits, and community groups to provide resources to offer educational and financial resources to individuals and groups desiring to start a community garden (ECCGA, 2018). In most community gardens, members pay annual dues to assist in upkeeping the garden, and it is the organization’s responsibility to manage the money collected from fees (ACGA, 2007). Some of the tasks involved in a community garden are mulching paths between garden beds, weeding, sifting soil, recruiting new members, and fundraising money for overall operations (ACGA, 2007).

Community gardens are known to have positive health effects on those participating in their programs, and decrease rates of obesity and BMI (Castro et al., 2013). Studies have proven that schools in community gardens improve students’ health and average BMI (Castro et al., 2013). A 2013 study by Castro et al. reported that 17% of obese and overweight children improved their BMI significantly over the course of seven weeks through a community garden program in their school (Castro et al., 2013). In this study, 13% of obese children attained a lower BMI in the overweight category, and 23% overweight children managed to achieve a normal BMI (Castro et al., 2013). A variety of studies have been carried out among low-income,
Hispanic/Latino communities in the United States to investigate how community gardens affect ethnically marginalized populations (Davis et al., 2011). In the programs evaluated, gardening lessons co-occur with nutrition and cooking courses, and parental engagement is encouraged (Davis et al., 2011). The most successful programs highlighted the need for programming tailored to cultural populations being served (Davis et al., 2011). Participation in community gardening has also been shown to increase household availability and consumption of fruits and vegetables (Castro et al., 2015). Castro’s 2015 study found that children who were members of households participating in community gardening programs consumed, on average, an additional two servings of fruits and close to five additional servings of vegetables weekly (Castro et al., 2015).

**Community Gardens for Community Health**

The World Health Organization’s Healthy People 2020 stresses the importance of addressing Social Determinants of Health by creating physical and social environments that promote good health, listing this as one of the four larger central goals hoped to be achieved this decade (HealthyPeople.gov, 2018). Social Determinants of Health are “conditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks” (HealthyPeople.gov, 2018). The socioeconomic status and physical condition of an individual are recognized as a Social Determinants of Health, and the environments or settings that a person is a part of are Physical Determinants of Health (HealthyPeople.gov, 2018). In addition to material aspects of place, social patterns and feelings of wellbeing and security are also influenced by the places people live and engage with (HealthyPeople.gov, 2018). Access to resources that improve quality of life can have a significant effect on the health outcomes of populations (HealthyPeople.gov, 2018). Some of these resources include: public safety, education, safe and affordable housing, local healthcare and emergency services, access to healthy and nutritious food, and environments free of chemically fatal toxins (HealthyPeople.gov, 2018); “Understanding the relationship between how population groups experience ‘place’ and the impact of ‘place’ on health is
fundamental to the Social Determinants of Health – including both social and physical determinants” (HealthyPeople.gov, 2018).

A key Social Determinant of Health listed in Healthy People 2020 is the availability of resources for daily needs, which includes access to local food markets and nutrient-dense foodstuffs (HealthyPeople.gov, 2018). Another social determinant outlined in the report is the availability of community-based resources that support communal living arrangements and opportunities for recreation and leisure (HealthyPeople.gov, 2018). One of the physical determinants of health is the natural environment, which includes access to green space and weather/climate (HealthyPeople.gov, 2018). Community gardens, in their various forms, work to address these social and physical determinants of health by creating conditions that increase community food access, especially in food insecure areas. Community gardens give their members a space for recreation and leisure time in the natural environment, and facilitate new social ties and relationships between individuals and groups. The WHO leads that, through working to create policies that positively affect social and economic conditions and that encourage constructive changes in individual behavior it is possible to improve health on a wider national and even global scale in a way that is sustainable (HealthyPeople.gov, 2018). By enhancing the quality of the conditions within which we learn, work, live, and play, we can create healthier workforces, societies, environments, and human populations (HealthyPeople.gov, 2018). Community gardens can play an indispensable role in this, as they can be adapted and applied in different capacities based on the populations they are serving.

A flood of recent studies have incited greater awareness among researchers and healthcare professionals of the abeyant benefits of community gardening for human health (Soga et al., 2016). These studies have shown that gardening inspires greater physical activity enhances individual life satisfaction, boosts energy levels, incites greater psychological and social well being, increases sense of community, and heightens cognitive function (Soga et al., 2016; George et al., 2015). “Being outside provides a rich combination of multi-sensory stimulation and emotion,” which improves the quality of life of victims of alzheimer’s, dementia, and other
neurological conditions (Gilliard & Marshall, 2012, p. 12). Decreases in anger, stress, fatigue, depression, and anxiety symptoms have been reported by gardeners. On a physical level, contact with nature reduces cortisol levels, blood pressure, and heart rate, and stimulates parasympathetic and sympathetic nerve activity (Song et al., 2016). As a result, gardening has become increasingly recognized as a cost-effective form of health intervention, and more doctors are suggesting gardening as therapy for their patients (Soga et al., 2016).

The World Health Organization defines health as a “state of complete physical, mental, and social well being, and not merely the absence of disease or infirmity,” meaning that human health is managed holistically and not simply by treating or reducing the symptoms associated with chronic illness (WHO, 2006, p. 1). Community and public gardens, fostering contact with nature, are proven to have psychological, social, and physical benefits on human populations, and can play an integral role in combating public health issues and in increasing overall community health. When a person is able to engage in the daily actions of their everyday life with positive emotions and without the “hindrance of both physical and psychological dysfunction,” he or she is said to have achieved positive health (Soga et al., 2016, p. 93). In the last decade, individuals and communities have shifted their orientation towards health to one directed at preventative measures and practices due to mounting skepticism of big pharmaceutical companies and the influence of Eastern traditional medicine. As opposed to simply treating illness, the Affordable Care Act requires that hospitals and academic health centers provide preventive healthcare services, the ultimate goal being to support the improvement of health outcomes on a population level (George et al., 2015). This has effectively altered the way that Americans identify with health overall, and incited a wider movement for preventative care through exercise and mindfulness. Gardening, as a relatively simple form of exercise and a means to grow nutritious food at home or in a community plot, has increased in popularity in the last ten years; from 2008 to 2013, the number of in-home and community gardens grew from 36 million households to 42 million (Sinnes, 2014). This 17% increase symbolizes the highest level of food gardening practiced in America in over a decade (Sinnes, 2014).
Gardening familiarizes people with the biological processes associated with food production in the United States by engaging them in the physical practices involved in growing food, helping individuals to apprehend that the earth is a source of health. Because of this, community and home gardening can improve individual and family dietary practices and reduce overall risk of health disorders (ACGA, 2012). In most school systems, current curricula do not prioritize food system knowledge although the system is corrupt, unsustainable, and in need of revision. As a result, many Americans are blind to the practices and consumer behavior that industrial agriculture encourages and that have been responsible for making our crops less nutrient-dense over time. Industrial farming, characterized by large-scale monoculture, promotes the application of chemical pesticides and herbicides and the use of concentrated animal feeding operations for meat production (CAFOs) (NRCS, N.d.). Mass production of corn and soy crops through monoculture feeds consumer demand for cereal products, animal fodder, and an array of processed food stuffs, but furthers chemically intensive agricultural practices that damage topsoil, ecosystems, and surrounding human communities. Alongside many other negative environmental impacts, the pesticides integrated on industrial farms are linked to increased cancer levels for workers and consumers and have been scrutinized for their role in endocrine disruption and reproductive dysfunction (Horrigan et al., 2002). Still, in many schools and particularly in urban areas, curricula that emphasize the significance of American agriculture in history and development are not integrated and the importance of biologically sustainable practices is overlooked (Meulendijks, N.d.). Community gardens that teach sustainable, regenerative agricultural practices can play a role in shifting dietary practices by engendering awareness and understanding of the ways agriculture operates in America, simultaneously leveraging power against industrial methods by altering consumer habits.

In addition to being a robust means for food access, health intervention, and disease prevention, community gardens are powerful tools for community building, inciting neighborhood collaboration and cohesion, lowering crime rates, promoting neighborhood pride, and elevating community beautification (Siewell et al., 2015). Community gardens are
also known to increase social capital and neighborhood value, helping to build more sustainable communities (Siewell et al., 2015). In many areas of the country, community gardens are being used to help foreign-born citizens cultivate community and new social ties to adapt to life in a new cultural system. Foreign-born refugees and immigrants entering the United States often experience heightened stress around food due to the pressures of adjusting to life in a new country and, many times, due to past trauma (Hartwig & Mason, 2016). Additionally, many refugees and immigrants who come to the United States leave behind cultures that value farming and do not have adequate space on their properties for a garden. A 2016 study completed by Hartwig and Mason stated that gardens can “serve as a meaningful health promotion intervention for refugees and immigrants adjusting to the complexity of their new lives in the U.S. and coping with past traumas” (Hartwig & Mason, 2016, p. 1153). Refugees and immigrants who engage in gardening have articulated a greater sense of identity and belonging in their communities, indicating they receive great physical as well as emotional benefits from the activity (Hartwig & Mason, 2016). Refugee and immigrant gardeners have also reported lower rates of depression and anxiety and higher intakes of fruit and vegetables in their diets, describing the gardens they are a part of as healing spaces (Hartwig & Mason, 2016).

Farming First, a global coalition for sustainable agricultural development, indicated that “engaging youth in agriculture has been a prominent topic recently and has risen up the development agenda, as there is growing concern worldwide that young people have become disenchanted with agriculture” (Farming First, 2013). Today, nearly half of all farmers in the United States are over 55, and rural youth continue to migrate to urban centers (Food Tank, N.d.). As a result, many community and school gardens are turning their attention towards creating programs aimed at training the next generation of sustainable farmers. Many community gardens integrate an element of youth education through offering after school programs, classes, camps, or cooking courses (Thomas & Irwin, 2011). These educational outlets equip young people with invaluable life skills, and are especially important for at-risk youth who lack opportunities to engage with natural world to develop food literacy and knowledge of food systems (Thomas & Irwin, 2011).
Scientific research validates that nature has an enduring impact on the mental and physical health of youth (Soga et al., 2016). Healthcare professionals have released studies indicating children that do not have adequate exposure to nature can experience behavior problems from a “nature-deficit disorder,” which indicates a need for the invention of more programming that engages youth with the natural world (Lou, 2005). A 2007 study by Lautenschlager and Smith set out to examine the impact of community gardens on youth dietary habits, morals and beliefs, and gardening and cooking conduct (Lautenschlager & Smith, 2007). Findings revealed that youth who took part in an after school gardening program were more inclined to eat nutritious foods and to try new or unfamiliar foods than those who were not enrolled in the program (Lautenschlager & Smith, 2007). It was clear from the findings that participants in the youth gardening program were more apt to cook and garden on their own than those not involved, and that “garden programs positively impact youth garden habits, food choice, social skills, nutrition knowledge, and cooking skills” (Lautenschlager & Smith, 2007, p. 245). Youth in the program left with sophisticated agricultural knowledge, able to describe relatively advanced concepts like polycropping and companion planting (Lautenschlager & Smith, 2007). Participants in the afterschool youth garden program expressed the desire to install their own small garden plots at home and demonstrated greater understanding of nutritional concepts in comparison to youth who did not participate in the program (Lautenschlager & Smith, 2007). Apart from enhancing the mental and physical wellbeing of youth, youth gardening programs can assist in raising the next generation of earth stewards and sustainable farmers and support the creation of greener communities in the future.

**Food Insecurity in the United States**

The majority of households in the United States (87.7%) have adequate, dependable access to the amount of food required to live an active, healthy lifestyle – they are considered food secure (Coleman-Jensen et al., 2017). Still, many households in the country undergo periods of food insecurity, which means their access to enough food is constrained by a lack of money and/or other resources one or more times throughout the year (Coleman-Jensen et al., 2017). Food spending and dietary habits are affected by the affordability and accessibility of area food
retailers (Coleman-Jensen et al., 2017). The amount of time that it takes to go shopping, availability of nutrient-dense fruits and vegetables, and food prices influence consumer food habits (Coleman-Jensen et al., 2017). Low-income communities face higher barriers to food access, which can negatively influence diet and food security. In 2016, an estimated 12.3% of American households (15.6 million households) were food insecure at least once in the year (Coleman-Jensen et al., 2017). Close to five percent of U.S. households had very low food security, meaning their food intake was reduced and typical dietary patterns were interrupted multiple times throughout the year due to restricted resources (Coleman-Jensen et al., 2017). Children were food insecure in eight percent of the households surveyed, meaning over three million American households were unable to provide sufficient nutritious food to their children more than once in the year. Out of all U.S. households with children under 18, 83.5% were food insecure (Coleman-Jensen et al., 2017). Considering that nutrition and health are inseparably linked, food security is recognized by the USDA as one of the conditions fundamental to a healthy and well-nourished population (Coleman-Jensen et al., 2017).

As of 2012, nearly half of all American adults had one or more chronic health conditions, and one in four adults had more than two chronic health conditions (CDC, 2017). Seven out of ten of the top ten causes of death in 2014 were chronic diseases and, together, heart disease and cancer were the cause of nearly 46% of all fatalities from chronic disease (CDC, 2017). Globally, rates of lifestyle diseases like heart disease, stroke, anxiety, depression, and obesity have continued to climb in the last decade (Soga et al., 2016). Between 2011 and 2014, over one-third of all adults identified as obese and approximately one in six youth (age two to 19 years) were obese (CDC, 2017). At present, it is estimated that approximately 415 and 350 million individuals suffer from diabetes and depression respectively, which represents an expense to national healthcare budgets (Soga et al., 2016). Particularly in urban areas, high-fat diets, sedentary lifestyles, and increased exposure to harmful pollutants and environmental conditions have increased the onset of adverse health conditions (Soga et al., 2016). As urbanization continues, the levels of lifestyle diseases in cities will inevitably increase, acting as a threat to community health and spending.
41.2 million Americans lived in food-insecure households in 2016: 28.3 million adults and 12.9 million children (Feeding America, 2016). Since they are in the most formative years of their life for cognitive and physical development, children possess the highest risks related to dietary habits. Children with poor eating habits and low-access to food are unable to concentrate in the classroom, meaning their academic achievements over time are lower than those receiving proper nutrition (United Way & NLCFPC, 2013). Children who lack access to nutrient-dense food are more likely to be victims of health-related conditions that affect them long-term, including obesity, diabetes, cardiovascular disease, and high blood pressure (United Way & NLCFPC, 2013). In 2010, the rate of child food insecurity was 16.9%, amounting to 9,990 children (United Way & NLCFPC, 2013). In-school food service programs like the national school lunch and breakfast programs have become integral to relieving child hunger. While some schools could increase their participation rates, in New London County, school breakfast programs are well-attended, and only three out of 20 school districts do not partake in the program (United Way & NLCFPC, 2013). In order to improve the health of children in New London County, it is imperative that consumption of nutrient-dense, local food products be prioritized in school cafeterias. On-site gardens at schools and childcare centers foster community and act as spaces for environmental learning. Children are more likely to consume nutrient-dense foods when they have grown their own because it familiarizes and connects them to the processes involved.

**Food Insecurity in New London County**

New London County is one of the eight counties located in Connecticut (Figure 1). It occupies 771 square miles in the southeastern corner of the state. New London County contains 21 municipalities: Bozrah, Colchester, East Lyme, Franklin, Griswold, Groton, Lebanon, Ledyard, Lisbon, Lyme, Montville, New London, North Stonington, Norwich, Old Lyme, Preston, Salem, Sprague, Stonington, Voluntown, and Waterford (Figure 2) (United Way & NLCFPC, 2013). In 2010, the total population of New London County was 274,055, with an average of 2.4 people per household (United Way & NLCFPC, 2013). 31.3% of these households contained individuals under 18 years of age, and 26.2% of households contain individuals over 65 (U.S. Census
The towns within the county are diverse, and range from rural farmland to urban industrial cities (United Way & NLCFPC, 2013). Ethnically, the county is also diverse: 78.3% of the population is Caucasian, 5.8% Black/African American, 4.2% Asian, 0.9% American Indian, and 8.5% Hispanic or Latino (Figure 4) (United Way & NLCFPC, 2013). To break this down further, 21.7% of New London County’s population identifies as non-white (United Way & NLCFPC, 2013). The majority of the non-white population in the county is clustered in three towns: Groton, New London, and Norwich (Figure 4) (U.S. Census Bureau, 2010). These three municipalities contain the largest populations in the entire county, Groton with 40,190, Norwich with 40,085, and New London with 27,550 people (Figure 3) (U.S. Census Bureau, 2010). There are wide disparities in income across all municipalities: in 2010, median household income ranged from $40,624 in New London to $107,483 in Lyme (Figure 5) (U.S. Census Bureau, 2010).

Figure 1. Counties in the state of Connecticut, showing the location of New London County. Data source: ArcGIS Online/ESRI.
Figure 2. Towns in New London County, Connecticut. The unlabelled town in the lower left corner is the town of East Lyme. Data source: ArcGIS Online/ESRI and UCONN MAGIC.
Figure 3. Populations of New London County municipalities. Data source: U.S. Census Bureau, 2010.

Figure 4. Demographics of municipalities with highest concentrations of non-white individuals. Data Source: U.S. Census Bureau, 2010.
Presently, there are various health resources that exist in New London County to assist and serve low-income and ethnically marginalized populations proven to lack food access and to be more susceptible to chronic medical conditions. Lawrence and Memorial Hospital in New London and William W. Backus Hospital in Norwich are the two regional medical institutions operating to manage and treat residents’ chronic diseases and health conditions in New London County. In 2012, Lawrence and Memorial and Ledge Light Health District released a comprehensive Community Health Needs Assessment for the county (Lawrence and Memorial, 2012). Findings indicated that the rate of diabetes in Lawrence and Memorial’s primary care area for residents age 18-87 was 33.7%, which is higher than advised by Healthy People 2020 (Lawrence and Memorial, 2012). Focus groups conducted for the regional needs assessment asked residents to fill out deliberative needs cards and revealed the following results:

- 69% of respondents identified food access/hunger as a concern;
- 36.2% of respondents specified nutrition as a priority;
- 34.5% of respondents stated fitness and obesity as a critical concern (Lawrence and Memorial, 2012).

In Norwich, Backus Hospital engaged in a comprehensive Community Needs Assessment in 2013 in order to identify the health needs of residents living in the hospital’s service areas. The results showed that a greater number of residents in the area (27.8%) were considered obese in comparison to the state average (23.3%) (Backus Hospital, 2013). The study also showed that fewer Norwich residents (32.3%) are of a healthy weight when compared to state (39.4%) and national (35.0%) averages (Backus Hospital, 2013). In the Norwich service area, the rate of residents with diabetes who had never been told by a doctor that they had a condition was 92.8% in 2010, which far exceeded average rates for the state (87.7%) and nation (87.2%) (United Way & NLCFPC, 2013).

### Obesity

<table>
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<tr>
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<th>New London County</th>
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<th>% change 1996 - 2012</th>
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**Figure 6.** Obesity rates for New London County compared to state and national averages. Data source: The United Way of Southeastern Connecticut and New London County Food Policy Council, 2013.

### Mental and Substance Use Disorders Mortality

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<th>Connecticut</th>
<th>National</th>
<th>% change 1996 - 2012</th>
</tr>
</thead>
<tbody>
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<tr>
<td>Male</td>
<td>22.5</td>
<td>20.9</td>
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</tr>
</tbody>
</table>

**Figure 7.** Mortality rates for mental and substance use disorders in New London County compared to state and national averages. Data source: The United Way of Southeastern Connecticut and New London County Food Policy Council, 2013.
While New London County holds a variety of programs directed towards helping individuals to develop healthful dietary habits and weight management techniques, they are disparate and disconnected from one another (United Way & NLCFPC, 2013). *Nourishing Change*, a baseline report that researched and sought to characterize the New London County food system, expressed a need to index and integrate efforts aimed at minimizing food insecurity in the county in order to best determine demographic populations in need. The report also pointed to a need for scaled up nutrition education outreach and resources in the county, and increased information channels connecting food insecure populations to the locations of distribution sites for nutritionally-dense food (United Way & NLCFPC, 2013). Due to their role in the community, those involved in healthcare are well-positioned to provide leadership to the public and to model best diet practices for health. Connecting institutions to supply chains that prioritize local producers, creating fast food-free zones, and substituting processed, high-sodium, high-sugar snacks with healthy snack choices in vending machines are all actions that can be taken to reduce food insecurity and to enhance community health (United Way & NLCFPC, 2013). Health-related policies enacted through legislation and promoted within institutions could inspire larger health-related changes in New London County, encouraging healthy cafeteria choices and providing fresher, more nutrient-dense food at staff functions and meetings. Institutional community gardens could play a role in this by supplementing institutional food procurement.

In 2010, food insecurity affected 11.7% of the total population in New London County and there was a meal gap of 5,468,558 meals (United Way & NLCFPC, 2013). Meal gaps are measured by converting the “total annual food budget shortage divided by the weighted cost per meal in the area” and “[represent] the translation of the food budget shortfall into a number of meals” (Feeding America, 2016, p. 7). In Connecticut, the average price per meal is $2.73, compared to a national average of $2.52. In New London County, the average meal price is $2.78 (United Way & NLCFPC, 2013). This price point is infeasible for families without the financial resources or means of transportation necessary to meet their nutritional needs. To address this, New London County has greatly expanded their emergency food system. In 2012, New London
County contained 48 food pantries, including the Gemma E. Moran United Way/Labor Food Center, 18 community meal sites, and five shelters. In the last decade, demand for emergency food in the county has tripled; from 2001 to 2013, the Labor Food Center’s distribution jumped from 843,000 pounds annually to roughly three million pounds annually. Approximately 52% of clients surveyed in Nourishing Change indicated using federal Supplemental Nutrition Assistance Program (SNAP) benefits in conjunction with emergency food services. 56% of clients disclosed that they visited an emergency food site due to insufficient income or an ongoing need for food (United Way & NLCFPC, 2013).

In New London County, transportation is one of the largest barriers to food access. The county contains five census tracts that are food deserts: two regions in Griswold, northeastern and southern Norwich, and Groton. Voluntown, North Stonington, Sprague, Lyme, and Salem have been identified as the lowest-access food retail areas in the state (United Way & NLCFPC, 2013). 13 out of the 21 districts in New London County possess public transportation, and 7.7% of households are without any vehicle (United Way & NLCFPC, 2013). Nourishing Change stated that interviewees’ stories relating to food access varied from town to town, but that clients’ across all municipalities shared hardships in arriving at emergency food sites (United Way & NLCFPC, 2013). While seniors (adults over 60) have access to Meals on Wheels for prepared meals, reports from individuals who are not seniors describe the struggle involved in accessing meal assistance programs due to inadequate public transportation. In the 2012 growing season, there were eight CSA (Community Supported Agriculture) programs in operation in New London County. However, current data does not capture the reach of CSA services to the poorest residents with the lowest access to food in the county. It is important to note that, for many low-income individuals, the cost of CSA subscription is out of limits. The United Way and New London County Food Policy Council suggest increasing awareness of CSA programs and their benefits to boost community reach. In 2012, 18 farmers’ markets were present in New London County. This was an increase from the 14 farmers’ markets identified in the 2011 season. Five of the 18 markets welcomed SNAP benefits, and 13 out of 18 accepted WIC cash value vouchers. All 18 farmers’ markets were Farmers’ Market Nutrition Program approved. In
order to better connect food system actors and increase food access, the United Way and NLCFPC recommend information about farmers’ markets and maps of their locations be dispensed at emergency food sites. In addition, they urge a greater number of farmers’ markets to seek SNAP or WIC authorization, as this would benefit low-income populations and food security in the region.

There are eight mobile food pantry sites in New London County located in the towns of Colchester, Groton, Jewett City, New London, Norwich, Salem, Stonington, and Taftville. Sites distribute produce to qualified families and individual once monthly. However, there are many times, especially during winter months, that distribution is cancelled and dates are changed. New locations for mobile food sites are often introduced, which can be difficult and confusing for recipients of mobile food pantry services. There is a mobile text service available to update residents when mobile food pantry dates or locations change, but no formal data has been gathered to provide evidence as to how these alterations influence the populations they serve. Many of the individuals and families served by United Way mobile food pantries are not literate in English, which further complicates date and location changes made to the distribution schedule. Often, food products donated by grocery stores and food retailers have traveled many miles to their mobile distribution sites, which leaves those served by mobile food pantries with less-than-satisfactory food stuffs that contribute little nutritionally to their overall diet and health. By growing and donating produce from May through November, the Giving Garden ensures nutrient-dense produce is delivered to those served by New London County mobile food pantries, contributing to the health of food insecure populations in the region.

**The Denison Pequotsepos Nature Center and Coogan Farm**

The extraordinary success of DPNC’s Giving Garden has contributed greatly to the Southeastern Connecticut community and to increasing area food security. During the 2017 grow season, the Giving Garden provided roughly 15,000 pounds (seven tons) of fresh produce to mobile food pantries in New London County. Without these donations, many of Gemma E. Moran’s mobile food sites would be entirely reliant on canned/processed food products that contribute little
nutritionally to residents’ diets or to overall health improvement in the region. Between 2014 to 2017, garden production tripled without any increase in inputs, from 2,080 to 15,000 pounds annually (Figure 8, Figure 9). The regenerative techniques used in the Giving Garden to maintain soil health help plants to mature in a shorter period of time and accelerate the processes involved in flipping beds for new crops to be sowed or transplanted, equating to higher outputs for the food insecure without any increase of inputs. As the quality of the soil in the Giving Garden has improved, so has the nutritional quality of the produce that it donates. A greater amount of nutrient-dense foods can help to improve the health of the overall region. The Giving Garden has increased the United Way of Southeastern Connecticut’s capacity to feed the food insecure of New London County by offering their mobile food pantries nutrient-dense outputs from the garden free of cost. In 2014, United Way mobile food sites in New London County served 1,408 individuals; in 2015, 2,141 individuals were served; and in 2016, 3,140 individuals were served. In 2017, over 3,500 individuals were served by New London County mobile food sites and, in 2018, the organization anticipates setting another record (United Way & NLCFPC, 2013). The dozens of volunteers who help in the garden every day year-round - planting, pruning, picking, weeding, washing and much more - have made this success possible. Since the Giving Garden’s opening, volunteer numbers have doubled and the Giving Garden has received regional and national recognition as a model for sustainable farming for the food insecure.

<table>
<thead>
<tr>
<th>Year</th>
<th>Pounds of Production</th>
</tr>
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<tbody>
<tr>
<td>2014</td>
<td>2,080</td>
</tr>
<tr>
<td>2015</td>
<td>3,500</td>
</tr>
<tr>
<td>2016</td>
<td>13,089</td>
</tr>
<tr>
<td>2017</td>
<td>15,000</td>
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</table>

Figure 8. Table showing Giving Garden production levels from 2014-2017.
In New London County, there is a wide disparity in school and organizational budgets. DPNC is fully committed to environmentally responsible gardening practices and educating people from all backgrounds about the important connection between the health of our planet and our own health. The organization works tirelessly to ensure that members of the community get the same opportunities to connect to the planet - to explore, discover and learn. The Nature Center works closely with all school districts, but especially with those in underserved districts, seeking out grants to make it possible for these schools to afford necessary experiences in life-learning. In addition, collaborations with other non-profit organizations and civic groups, libraries, community and senior centers has provided educational enrichment opportunities for all. In February 2014, the Nature Center, the United Way’s Gemma E. Moran/Labor Food Center of Southeastern Connecticut, and the Robert G. Youngs Family Foundation formed a cooperative partnership to provide fresh produce to thousands of food insecure residents of New London County. The United Way and New London County Food Policy Council’s *Nourishing Change* report, seeking to create a more unified regional food economy to connect food insecure populations to resources, stated the following key recommendations:
1. Research nutrition education efforts in New London County in order to build centralized, coordinated programs that close educational gaps among target demographic populations.

2. Scale up nutrition education at emergency food locations.

3. Expand education around access to nutrient-dense food. This might involve the establishment of a sourcing guide that displays the locations of farmers’ markets, farms with CSA programs, and farm stands in New London County for low-access residents.

4. Support the development of health improvement programs based in workplaces to build workplace environments that prioritize and promote healthy dietary habits.

5. Integrate nutrition into healthcare to facilitate an interdisciplinary and comprehensive approach to health that underscores best practices to achieve holistic health.

6. Increase the convenience of emergency food by giving out larger portions once weekly rather than smaller portions every three days.

7. Identify the locations and status of community gardens in the county in order to establish a public, central location where community members can attain information and resources, regardless of their immigration and socioeconomic status.

Through its services, the Giving Garden seeks to build programs that close educational gaps among target demographic populations, to scale up nutrition education at emergency food locations, and to increase community access to nutrient-dense food, particularly among low-income populations, effectively addressing recommendations one, two, and three. Through biologically regenerative agricultural practices, the Giving Garden has been able to increase the poundage of fresh produce given to Gemma E. Moran’s mobile food pantry weekly, helping to address recommendation six. Adjacent to the town of Groton, which has been labelled as one of the New London County’s food deserts, the Giving Garden already acts as a publicly central location for the dissemination of resources on community gardening and could become a more formal destination for residents to learn how to create community gardens in their own communities. Apart from these services, the Giving Garden serves as a community space for the
formulation of new relationships, partnerships, and other social networks that inspire cohesive communities.

**Methodology**

The Denison Pequotsepos Nature Center is a community asset that has served the local community and surrounding regions since 1946 with programs and activities that inspire an understanding of the natural world and connect people to the planet. The Nature Center has over 1,800 members and provides programs and services that reach more than 50,000 people each year. The land around the Nature Center features over ten miles of trails through a historic landscape of woodlands, meadows and wetlands of varying ecologies, past rocky ledges, old quarries, foundations and stone walls - a walk through time. The organization’s indoor exhibits, habitat displays, and flight enclosures with native birds of prey, provide hands-on/minds-on connections to the unique history, habitats and wildlife of Southeastern Connecticut.

In 2013, the Nature Center acquired an adjacent property, the Coogan Farm, which now forms the Western boundary of a 250-acre conservation land/greenway. The property is an intact cultural landscape that includes more open (field, meadow) habitat, old stone foundations and outdoor gathering places. This historic farm now boasts a renovated barn that serves as a classroom, farmhouse kitchen, and upstairs meeting and office spaces. On the Coogan Farm
property, a large vegetable garden was created. Built for food production and educational programming, it is called the Giving Garden.

The vision for the Nature Center’s Giving Garden is deeply embedded in the rich history of the region and the land. As one of the first colonial settlements on the Mystic River (John Gallup, 1654), the Coogan Farm land long supported the community through farming and food production. When DPNC acquired the property in 2013, establishing the Giving Garden allowed the Nature Center to actively maintain an aspect of the land’s farming heritage while creating new opportunities for the organization to connect people to planet through sustainable, environmentally-friendly food production practices. The garden serves as an outdoor classroom for experiential learning for all involved: volunteers and students of all ages, interns, visitors, and recipients of the nutrient-dense produce grown there.

In May 2017, I began a summer internship in the Giving Garden at Coogan Farm. My position was grant-funded through the ECCGA, and required me to spend twenty hours weekly in the Giving Garden. I spent the summer in the Giving Garden, alongside Farm Manager, Craig Floyd, and his ardent body of volunteers, who donated 3,150 hours of labor collectively in the 2017 season. My role in the garden was to act as an assistant to the Farm Manager, meaning that I took on all of the tasks associated with managing the garden and its body of volunteers. Five days a week for a four month period, I
helped to plant, harvest, and “flip” beds in the garden, learning the fundamental practices involved in biointensive, regenerative agriculture and in running an 11,250 square foot productive garden. I saw firsthand the ways that the Giving Garden influences the New London County food landscape, and how members of the garden and those receiving the garden’s services are impacted by the mission of the garden to feed the 23,000 food insecure in New London County, with a specific focus on increasing food access for youth and the most disadvantaged socioeconomic populations. The selflessness of the Giving Gardens services have inspired individuals, families, and community groups from throughout the region and beyond to give their time, labor, and, in some instances, physical donations to further its mission. Personally, the Giving Garden has sparked my interest in biointensive, regenerative agriculture and regional food security, and helped me to develop the skills necessary to manage a small-scale community garden. Today, I act the Assistant Garden Manager to Craig, carrying out work to deepen and widen the reach of our services. I manage the tasks of volunteers, assign daily tasks and duties, ensure viability and safety of the garden area, operate and maintain essential farm equipment, perform visitor tours, and act as a backup presenter to continue to improve the visibility and educational outreach of a regenerative garden. The information gathered for the purpose of this study has come from direct experiences I have had in the garden, conversations with various volunteers, and from eyewitness accounts of New London County’s community response to the Giving Garden model.

Twice weekly during peak seasonal production (late April through mid-November), the Giving Garden conducts harvests for United Way/Gemma E. Moran mobile food pantries. This work requires the entire community of volunteers and staff in the garden. We begin as soon as our first volunteers arrive, typically around seven thirty in the morning or so, and split into task forces to harvest different vegetables, fruits, and herbs. Depending on the time of season, production levels, and volunteers/staff on hand, this can take between two and four hours. We start with the leaf vegetables because they are the most susceptible to warm temperatures, and end by harvesting heavier root vegetables and winter and summer squashes. After gathering the produce in harvest baskets, we rinse, weigh, and package it for distribution to
mobile food pantries. Packaging the produce for mobile food sites is a practice we have only adopted recently in order to preserve the quality of our food during the distribution process. Many families bring their children with them, which gives them a chance to ask questions from Craig and I about the practices and methods being used and why they are important. Harvest days are the time when our entire community comes together behind the mission of the Giving Garden. On these days, the air in the garden is charged with enthusiasm, and many new social bonds are formed between individuals and families, promoting our community’s growth.

The biointensive, regenerative agricultural methods used in the Giving Garden are the heart of our work. If we don’t discontinue industrial and chemically intensive farming methods on earth, it is estimated that, in roughly 60 years, all topsoil will be degraded (World Economic Forum, 2012). Roughly 40% of global soils are currently classified as degraded or seriously degraded due to agricultural practices that deplete soil of carbon and leave it weaker in nutrients (World Economic Forum, 2012). Given this fact, Craig and I feel it is our mission to counteract the industrial agricultural forces that are stripping the earth of its topsoil through bioregenerative practices that rebuild topsoil. Adding decomposing leaf matter, seaweed, and aged wood chips in the Giving Garden helps add organic matter, natural inoculants, and nitrogen to the soil, helping to improve overall soil health. Craig and I test the soil in the garden at least once a year, which helps us to determine the essential minerals and nutrients that we need to add to the soil in order for it to digest organic matter the most effectively and produce the most nutrient-dense crops. Most industrial farmers perform basic “N, P, K” soil tests, which look solely at the Nitrogen, Potassium, and Phosphorus levels present in soil, and neglect to identify
levels of critical micronutrients that can be uptaken through root systems for more nutrient-dense and tasteful produce and that facilitate soil regeneration. The crude protein and nutritional sugar levels in crops grown biodynamically have been proven to be higher than those crops grown using fertilizer treatments and agricultural techniques associated with conventional agriculture (Granstedt, 1997). Adding micronutrients and minerals to soil through amendments allows Craig and I to yield the most nutritious produce for the food insecure populations that we serve and to simultaneously build soil, meaning we are healing the earth and humans through our practices. As a teaching garden, we are able to disperse the message of how significant bioregenerative agriculture is to reversing environmental damage and human suffering to our community, spreading a movement in opposition to conventional, industrial farming methods.

The Giving Garden takes on qualities of institutional and demonstration community gardens. The garden physically and institutionally belongs to DPNC and, through its partnership with the United Way, the Giving Garden produces nutrient-dense fruits and vegetables for those served by New London County mobile food pantries. The produce that is not used immediately is transferred to soup kitchens across the region to minimize food waste and increase overall food system sustainability. Apart from supplying food directly, the Giving Garden provides advantageous services to residents and many members of the United Way. In many ways, the garden offers intangible services to those who enter it. The Lighthouse and Arc New London
County are two local non-profits that bring mentally and physically handicapped individuals to the Giving Garden to volunteer weekly. During my summer in the garden as an intern, I received many testimonials and saw firsthand how it functions as an educational and rehabilitative space for these volunteers. Working in the garden helps Lighthouse and Arc volunteers to develop refined motor skills and greater self-awareness, which helps them build competencies for job placement. While the garden doesn’t provide services directly to members of the United Way on an institutional level, individual members of the United Way as well as groups of United Way employees, taken with the altruism of the Giving Garden and its mission, have donated their time through work parties and as volunteers, desiring to gain a better understanding of the garden as a model and the services it administers. On two occasions in 2017, the United Way of New London County came with volunteer groups of over ten individuals and completed five hours of work. Other larger regional institutions have also completed work parties in the Giving Garden, including Pfizer, Electric Boat, Medtronics, and the Coast Guard Academy. These were some of the most productive days we encountered all season.

The Giving Garden is unique because it does not ascribe to any singular community garden model. It serves as both a production and demonstration garden, used for educational purposes. It integrates biologically regenerative agricultural practices and seeks to teach the fundamentals of this approach to the surrounding community in a manner that does not proselytize. Craig and I accommodate any visitors that walk through our gate, inviting them in to learn more about our efforts on behalf of the community. Many of our visitors keep small
gardens, but have little to no knowledge of farming or the impacts of the food system on the most disadvantaged socioeconomic populations. Craig and I embody a nature-based approach to agriculture that intrigues visitors to the Giving Garden, captivating them to learn more. We encourage visitors to join the Giving Garden Facebook group, through which I, Craig, and senior volunteers post photos, articles, and debriefings related to daily garden activities. This online community has 532 members from around the world learning through, and contributing to, the online platform we have created.

Educational curricula for adults and children that integrate concepts involved in agriculture and environmental sustainability have been established around the Giving Garden. For the 2018 season, Craig created a year-long, monthly gardening series for adults. Meant to equip gardeners of all skill levels with practical knowledge, the series began and ended with a class on garden planning, leading attendees through the tasks involved in planning and maintaining a productive, biointensive, regenerative garden for a full year. This intensive gardening program seeks to introduce first time and long time gardeners to knowledge about regenerative agriculture and to help them grow more nutritious, tasteful produce through correctly balancing soil minerals. The courses also endeavor to connect gardeners to local resources that lower the overall cost of keeping a garden and that boost outputs, such as public beaches looking to dispose of seaweed, which acts as an inoculant and natural pest deterrent in the garden. These sessions are offered to the general public and members of the Nature Center at a discounted rate. Those who are unable to pay upfront are permitted to spread their payment period out over time to make the cost more feasible, which makes the programming accessible to all socioeconomic populations. So far, the classes have been well-attended, with an average of 18 individuals attending each session.

The Nature Center has a legacy of providing outdoor education programs for children in the region, and hosts camp programs, school groups, and other youth educational programs on both of its campuses. Camp programs for youth run for 14 weeks every summer at the Denison Pequotsepos and Coogan Farm campuses, and engage children of all ages with the central
mission of the organization, to inspire an understanding of the natural world and ourselves as part of it – past, present, and future. Educational programs for youth run year-round, and bring children in contact with knowledge that brings them into touch with the importance of environmental stewardship and living in a way that sustains the earth. All education programs for youth provide children with experiences that connect them to the natural world and to their position within it. Speaking from my own experiences as a camper at the Nature Center, my time spent outdoors in the programs I was a part of shaped my outlook on the world and formed the attitude I hold towards the natural world, which has inspired me to follow the path of environmental stewardship I have chosen through regenerative agriculture. The acquisition of the Coogan Farm Giving Garden has allowed the Nature Center to create even more educational programs for children, and has provided the organization with opportunities to offer programming around sustainable agriculture and regenerative farming practices, extending the reach of the Nature Center’s services. In 2017, Nature Center programs saw 335 school children and over 200 campers visit the Giving Garden.

Each month, the Nature Center offers new programs for children as well as adults. Some educational programs offered are geared towards children and adults, which accommodates families. Several of the programs offered for the Spring of 2018 for youth include Creative Coogan Kids, Eagle Explorers, Wee Wanderers, a plant-based cooking series, and homeschool classes. Creative Coogan Kids is a preschool program that provides children with educational experiences through time in the Giving Garden, time spent hiking and exploring many trails at Coogan Farm, and opportunities to create in the art barn. In 2017, 15 children were enrolled in the program and visited the Giving Garden regularly as a part of their curriculum. Eagle Explorers is a program that offers young children a chance to experience a classroom setting for the first time. Appropriating natural themes and incorporating nature play, this is a popular program in the community, with 12 children enrolled in each course for Spring 2018. Wee Wanderers is a morning educational hike meant to provide children and their caregivers with a chance to celebrate spring by exploring nature, “peeking under logs, listening for birds, and having fun outside” (DPNC, 2018). Suitable for children, adults, and families, the plant-based
cooking series gives students the chance to create their own cuisine and learn about ingredients, sprouting techniques, and the necessary equipment for plant-based cooking under the tutelage of a professional chef-in-training. Pre-registration for all programming is preferred for all educational programs that the Nature Center runs, and required for camp programs due to health policies and insurance reasons, but walk-ins are welcome for any of the one-day programs or series. Giving Garden programs for children have been popular in the community, and Craig and I hope to invent a larger number of programs directed towards youth in the future as we continue to develop our practices of regenerative agriculture.

Results

The selflessness of the Giving Garden’s mission and its centralized location attracts volunteers and interns from all over New England, from Worcester, Massachusetts to Providence, Rhode Island. Just off I-95 and overlooking the picturesque Mystic River, the Giving Garden is located along the main route to Downtown Mystic, with heavy car and foot traffic and many summer visitors. Most of our volunteers only spend time in the garden during spring and summer months; coastal Connecticut is a popular summer retreat for many of our volunteers and many of our volunteers are students and teachers that cannot be in the garden during the academic year. Still, the Giving Garden has approximately 20 volunteers that are in the garden at least once weekly throughout the year. The Giving Garden’s mission to feed the food insecure and reduce hunger in New London County resonates with members of our volunteer workforce. Most volunteers come from homes that are food secure and come to the Giving Garden seeking to give back to their communities. Our volunteers have a wide range of identities, from high school students who want to volunteer before college, to previous electrical engineers and international pilots with little to no prior gardening experiences. Although volunteers come from an assortment of backgrounds and are of a variety of ages and abilities, each and every person recognizes he or she can play a role in improving the lives of the food insecure through working in a garden that gives away all of its outputs. Volunteers contribute where they can; a chalkboard just outside the entrance to the Giving Garden with daily tasks listed gives volunteers the freedom to choose a task based on their skill level or depending on how they are
feeling that day. A handful of individuals have started to spend time volunteering at mobile food sites in the region as a result of the ways working in the Giving Garden has influenced and given them new awareness of food insecurity. Their suggestions from time spent watching consumers of the produce we grow process and distribute has allowed us to alter the way that we package produce and has helped us to learn what crops are the most useful to the populations that we serve. This shows the impact the garden and its mission has on volunteers and the communities that it serves.

In February 2018, we submitted a survey to Giving Garden volunteers to evaluate their experiences in the garden and to give individuals an opportunity to provide feedback on Giving Garden operations. Responses to the survey demonstrated that volunteers enjoy the fact that they can come to the Giving Garden on their own time and that they don’t have to sign up for a specific day or week each month to volunteer. The data collected indicated that, if they were required to sign up for a specific day each week or month to volunteer, they would like to do so through a shared calendar showing the other volunteers planning to be at the garden certain
days. 50% of survey respondents indicated that extended hours for the Giving Garden would be advantageous with scheduling a time to volunteer. 92.3% of survey respondents said that they do not prefer volunteering on a designated team in the garden, and instead prefer to work on a task of their choosing out of the overall list of garden tasks for the day. Several short answers to the question “What do you enjoy most about volunteering in the Giving Garden” are worth quoting at length:

“I like the idea of helping people in need, and I already love to work the earth. Craig is a wonderful man and so full of knowledge that he loves to share. You can feel how much he cares about his mission.”

“There is guidance and purpose when you are there, and you feel like you are contributing to something that makes a difference.”

“Doing some good, being outside and unplugged for a bit, knowing that I’m helping the community, and the people who need it most. Working with the garden team is a gift.”

Overall, Giving Garden volunteers are pleased with their experiences and the practices they are learning, and profess interest in more teaching workshops and educational postings on our Facebook page. Survey results point to the impact that the Giving Garden has on volunteers and community members, and signify the positive influence Craig’s presence and teachings have on those who desire to learn more about regenerative farming and gardening.

The Giving Garden benefits from volunteers of all ages and backgrounds, although most of our garden volunteers are seniors. My presence in the garden helps to expedite tasks that otherwise could take days or even weeks to complete. As an active 25-year-old with experience on farms, I am capable of lifting poundage that our senior most volunteers cannot handle, which makes me an asset in the garden, especially during harvests, when we have to lift harvest crates onto the mobile food pantry distribution truck. Digging eighteen-inch trenches for
plumbing and electricity is physically strenuous, as are many of the jobs associated with upkeeping the garden. My young knees and back allow me to carry more weight in a wheelbarrow, to kneel more easily to weed, and to shovel greater amounts of mulch, soil, and seaweed, which are all added in layers to individual beds in the garden at least four or five times annually. The relief that my presence in the garden gives volunteers from having to undertake so much physical labor keeps them from feeling overwhelmed with laborious tasks and from injuring themselves, which keeps them coming back to the garden. I try to behave in a way that is non-invasive but also supportive to our volunteers in order to give them the best possible experiences and to learn as much as they can in the garden.

Without the community that it has behind it and a core body of dedicated volunteers, the Giving Garden would be hard-pressed to exist or provide the volume of food to New London County that it does. Financially, it would be a virtually impossible for the Nature Center to pay staff to sow, weed, harvest, wash, prune, and manage the garden as volunteers do currently. In the 2017 season, several volunteers contributed over 200 hours each to the garden. One incredibly devoted volunteer donated over 300 hours in 2016 and over 500 hours in 2017. Several regional organizations, including the United Way, Electric Boat, and Pfizer, also donated over 500 volunteer hours to the Giving Garden through work parties and other scheduled staff events. These contributions by volunteers and organizations in New London
County make it possible to expedite tasks associated with garden operations. The knowledge that the garden’s seniormost volunteers have built through their time spent in the garden makes it possible for them to perform quasi-managerial duties, enabling garden staff to dedicate their time to the most critical tasks. Market farms, sustainable farmers, seed companies, and agribusinesses in and around New London County have donated seeds, liquid amendments, worm castings, microscopes, wheelbarrows, fruit trees, marketing services, and other items essential to the Giving Garden’s production. Stakeholders in agriculture understand the importance of gardens like the Giving Garden in reducing food insecurity, and Johnny’s Seed Company awards the garden a 25% discount on seeds for the garden annually. The garden purchases 90% of its seed from Johnny’s, so the price reduction on seed significantly reduces overall costs. Partnerships formed with local tree removal services, beaches, and cemeteries provide the organic matter for garden staff and volunteers to build soil. By building its own soil, the Giving Garden reduces overall inputs and boosts production of nutrient-dense crops for the food insecure.

As an intern, I built up knowledge of the agricultural practices involved in running a biodynamic farm. Now, volunteers feel comfortable asking me questions about anything they are unsure of in the garden. This makes it possible for Craig to leave the garden when he needs to, which allows him more time for garden planning and community outreach. Since its acquisition in 2014, the Giving Garden has grown in terms of its community visibility. An increasing number of schools, local rotary clubs, and gardening groups ask Craig to consult or give presentations. This translates into less time for Craig to oversee garden operations and to be in the garden with volunteers, which is crucial if we are to continue to support our volunteers and maintain current levels of production. Craig is one of the community leaders that first brought formal knowledge of bioregenerative farming and gardening practices to New London County through the Giving Garden’s partnership with Gemma E. Moran and hands-on programming offered in the garden. In order to further the momentum of the community movement he has created, it is imperative that he is able to continue to reach out and educate surrounding communities for the benefit of the environment and human populations.
Prior to working in the garden, I was an outdoor educator and camp counselor for the Nature Center. While Craig is interested in teaching youth, he lacks the time to engage with them one-on-one due to the other volunteers he has to supervise and his busy schedule. As my role in the garden has developed, I have been able to create camp and education programs that blend themes of wildlife and environmental conservation with farming and gardening, teaching children the importance of holistic sustainability. As an intern, I ran a garden program called “A Little Dirt,” which incorporated themes on sanitation, cleanliness, and health, and sought to interrupt children’s beliefs on sanitation, cleanliness, health, and gardening. Some children entered the camp feeling hesitant about touching “dirt,” but as soon as I taught them that soil is filled with beneficial microbes and can be washed away with ease, they dove into everything we were learning. This embodies so much of what Craig and I seek to accomplish through the Giving Garden: to disrupt common beliefs and misconceptions around the “correct” farming and gardening practices, and to familiarize individuals with methods that are biologically regenerative and give rise to more nutrient-dense produce for human health. Several of the children that took part in the camp have initiated their own small garden plots with their families at home since. The programs that I have offered in the garden since have been aimed at increasing youth food literacy and knowledge of food systems for health.

Aside from teaching individual visitors, Craig also offers brief seminars and presentations to the community. In 2014, Craig ran a ten-session gardening series for adults called “Sow, Don’t
Mow,” which sought to equip attendees with skills to begin their own small garden beds at home, and to teach participants how to transform lawn clippings into organic matter to grow vegetables, herbs, and flowers (DPNC, 2018). The course covered all of the processes associated with bringing a garden into production, from seed starting through harvest, and culminating with a celebratory harvest dinner from the garden. This year, for the 2018 season, Craig and I are implementing new techniques of biointensive, regenerative agriculture and sharing them through a similar yearlong gardening series. While the series is still underway currently, it has been well-attended so far, with 15 students attending our seed planning workshop and 21 signing up for our February seed starting workshop. The Giving Garden also hosts educational programs for youth, including after school programs in partnership with a daycare center adjacent to the Coogan Farm property, and homeschool classes and activities. Homeschool courses are run based on age group, and incorporate an experiential, science-based curriculum that awards children time outdoors, which positively influences them socially, emotionally, and physically. All educational programming offered in the garden endeavors to further individuals’ knowledge of sustainable agriculture and to support them in integrating biointensive, regenerative agricultural practices in whatever capacity they are able to. In the New London County area and beyond, the Nature Center has a reputation for guiding children, adults, and families through experiences and practices that put them in touch with their place among the natural world, and equip them with
skills to have richer experiences outdoors, promoting community awareness of environmental sustainability in action.

Craig and I have visited nearly every mobile food pantry that Gemma E. Moran delivers to in New London County. We do this so that we have a better understanding of the populations that we are serving and how we can provide food products that align with certain dietary practices. In July 2017, Craig and I had informal conversations with several recipients of the produce that we donate. We always try to talk to a diverse body of recipients so that we have a broad understanding of our clients’ needs, talking to children and elderly and to people from all racial/ethnic backgrounds. Through our conversations, we discovered that many recipients had no idea how to process or cook kale, and they much preferred cooking collard greens. This persuaded Craig and I to start growing collards and to begin including recipe cards with our donations so that clients can learn about different methods to prepare nutrient-dense fruits and vegetables. In all circumstances, mobile food pantry clients are grateful for the nutrient-dense produce we provide, which contrasts the majority of donations to mobile food sites of packaged, highly-processed foodstuffs that contribute little to no nutritional content. The volunteers in the Giving Garden who have started to volunteer time to United Way mobile food sites proclaim that, many times, donations from groceries, farms, and food producers are molding, expired, or have other defects. Sadly, this is the state of most food insecure people: without access to proper nutritious foods, individuals are forced to compromise their health out of desperation for any form of nourishment. We seek to supplement the nutrition of the populations we serve through the donations we provide. With 15,000 pounds of produce generated and distributed across mobile food sites in 2017, the Giving Garden is contributing significantly to reducing food insecurity and increasing access to nutrient-dense foods in New London County. According to the USDA-approved equation that converts pounds of food to meals (1.2 lbs of food = 1 meal; 15,000 lbs ÷ 1.2 = 12,500 meals), the Giving Garden accounted for 12,500 meals in 2017 (generationOn.org). Next year, our team hopes to reach 20,000 pounds of production.
The Giving Garden acts as a platform for community interaction with bioregenerative farming practices. Through the Giving Garden, Craig contributes to wider community conversations and discourse around food insecurity and practices that regenerate humans and the earth. Craig’s lectures embolden people because he shows them the real results of our practices, which are hard to be ignored. Tripling production in a three-year period perks the ears up of anyone listening. Still, biointensive, regenerative agricultural practices are only just beginning to be recognized by the organic community for their validity. In upcoming years, Craig and I hope to track our production levels and our inputs through partnering with Connecticut College, which will provide us with data that proves the success that ensues when using biointensive, regenerative agricultural practices in a community garden. Through this data, we hope to demonstrate that biointensive farming methods minimize inputs while maximizing outputs, which is an optimal model in a community garden setting where there is typically a lack of staff.

Craig Floyd is an incredible community leader, with an abundance of skills and a lifetime of farming experience, which makes him an outstanding Farm Manager and the most valuable asset in the Giving Garden. His compassionate way of teaching volunteers and visitors to the garden about the mission and practices of the Giving Garden promotes deeper awareness and curiosity about food insecurity and regenerative farming practices in our own community and in the communities of visitors from other areas. Craig guides practices of community gardening in the area as the advisor to the ECCGA, which has granted him greater respect and recognition in New London County, and which has given the Giving Garden greater visibility. Aligned with the motives of the Community Garden Movement in North America, Craig speaks on behalf of the food insecure without a voice whenever he performs a public presentation or educational seminar. Craig has also begun to consult for community members, institutions, and organizations, which has caused other area community gardens to adopt methods similar to those practiced under our model. As Craig’s apprentice, I have begun to act as a consultant for groups and individuals hoping to start their own garden plots, to schools with cooking programs who desire to learn more about biointensive farming, and to organizations who possess the resources, but lack the knowledge to operate their own community gardens for the food.
insecure. Craig and I are a memorable team, as he represents the venerated wisdom and practices that go along with farming, and I am an emblem of the young farmer movement currently taking place in our country, which appeals to our supporters and the community around us, helping us gain traction and support. Moving forward, we hope to continue to harmoniously coordinate the operations involved in running a successful and productive community garden for the food insecure, and to truly stimulate momentum for a wider regional movement for regenerative agriculture for food security and community health.

Conclusion

Physical Environment

First and foremost, the Giving Garden is a unique community garden because of its placement. Nestled between the Mystic River and a ten-acre trail system – the last parcel of undeveloped land on town’s coastline – the Coogan Farm lies in a picturesque environment that is inviting to community members, volunteers, students, and visitors. On many occasions, residents visit the Coogan Farm to take a walk with their dog, only to stumble upon the magic of the Giving Garden and its mission when they meander down the central corridor towards our trails. Sometimes, community members will visit the Nature Center to browse the Welcome Center Gift Shop and end up strolling towards the Giving Garden out of curiosity and astonishment at the beauty of our grounds. The tremendous milking barn foundations and stone walls that have been kept intact since the Coogan Farm was first established over 100 years ago are enticing to visitors, and these aesthetic features factor into the way communities around us perceive us. The fact that the legacy of the Coogan Farm continues to live on through the Giving Garden and that the land is still used for agricultural production resonates with visitors to the campus. Visitors are taken by the fact that Craig and I manage a contemporary community garden that abides by principles of regenerative agriculture and distributes to the food insecure in a space farmed for centuries. As a pair, Craig and I physically embody seemingly dissonant identities but, upon closer examination, it is evident that we combine our bodies of knowledge to create more effective farming practices. We are beyond fortunate to operate a garden as dazzling as
the Giving Garden, and owe much of the appeal of our services to the farmland preserve the
garden is located on.

**Volunteers**

Our volunteers are the backbone of the services we provide as, without them, it would be only
Craig and I operating the garden for production. The members of our volunteer workforce are
dedicated to the garden’s mission and go out of their way to provide Craig with the resources
he needs to continue feeding the food insecure. Volunteers bring different skills and abilities
into the garden with them, but Craig and I are always able to find a place where they can work
and contribute to garden productivity and feel included in the greater mission of the garden.

Garden volunteers form a community where no one person is ever valued or devalued for
donating more or less of their time than another. Craig and I adopt the perspective that each of
our volunteers has a specific and unique capacity to contribute to the garden. This welcoming
attitude alongside our community-minded morale is what has stimulated so many of our
volunteers to continue donating time to the garden’s mission and services; a large number of
volunteers are returning for their second and third years in the garden. Volunteers are the
lifeblood of the community we have formed in the garden, and radiate enthusiasm when they
walk into the garden, which keeps Craig and I’s spirits high and helps us work longer into the
day. Since volunteers have a myriad of skills and experiences, many exciting and informative
conversations take place in the garden, and often lead to the exchange of knowledge between
individuals. Without them, the garden would not be nearly as vibrant, there would be far fewer
stimulating conversations, and there would be no community in the Giving Garden beyond
staff. Volunteer services also form a platform for the Giving Garden to interact with community
members and other regional food system leaders who learn about and are drawn to our
mission, driving new partnerships.

**Partnerships**

The Giving Garden is a unique community garden because it combines different models to
address food insecurity and health in the region, acting as both a teaching center and a
productive garden. Our partnership with Gemma E. Moran to minimize area food insecurity attracts volunteers to our garden and students to our programs, helping stimulate wider regional conversations on food insecurity and tactics for minimizing it. The Giving Garden’s mission has sparked new partnerships between DPNC and other community organizations attracted to the selflessness of our model and driven to reduce food insecurity. On an institutional level, work parties in the Giving Garden familiarize larger organizations, like the United Way, with community-level operations involved in supplying mobile food pantries with produce. By spending time in the Giving Garden, United Way staff are put in touch with the agricultural processes used to feed the food insecure served by mobile food pantries. It is our hope that, by doing this, we can provide educational experiences that demonstrate the significance of regenerative agriculture in reversing environmental damage and inspire a greater understanding of the importance of nutrient-dense food at emergency food sites. Craig and I would like to scale up our outreach to area institutions moving forward, inviting new regional institutions to spend time in the garden, as we recognize the importance of connecting large consumers to information regarding the chemically-intensive agricultural inputs typically used to source large supply chains.

Regional data demonstrates that food insecurity remains an issue in New London County. Qualitative data collected through informal conversations with recipients of food pantry produce demonstrate that the services provided by mobile food pantries, while adequate, still leave much to be desired. While there are many community gardens in New London County, the Giving Garden is one of the only gardens that is authentically engaged with the populations that it serves. When Craig and I enter a mobile food site and meet a community member we are serving for the first time, we take off our hats and shake their hand, treating them with the same compassion and respect we would treat any other person. We never judge, we never behave in a way that minimizes a person’s humanity, and we always smile. Through the Nature Center’s partnership with Gemma E. Moran, the Giving Garden practices outreach to surrounding communities in the form of produce distribution. By growing nutrient-dense produce, the Giving Garden provides supplemental nutrition assistance to mobile food pantries.
that typically can only afford to source pre-packaged, processed foods that contribute little to overall health and heighten the risk of chronic disease. Through reaching out and having conversations with the populations that we serve, Craig and I discerned that many individuals and families do not know how to process, cook, and serve Giving Garden produce. As a result, we invented recipe cards with the help of one of our senior volunteers so that recipients understand how to use the food we are growing, effectively minimizing food waste. The outreach that Giving Garden volunteers who have begun to spend time volunteering for the United Way at mobile food sites should not go unnoticed. Craig and I already have plans to introduce cooking classes at mobile food sites because of the information our volunteers at the mobile food pantries have provided us with as insiders, and are collaborating with the United Way to find the resources to make this a reality. Craig and I have learned from experience that a close-knit relationship between an organization and the population(s) that it serves is imperative for success and positive community development.

**Education and Outreach**

Connecting people to the planet is at the core of all DPNC programming and services, but the Giving Garden has strengthened the organization’s capacity to promote the nature-human connection by expanding the reach of services to incorporate food insecure populations. The Nature Center has always offered programs and services that give individuals tangible appreciation of the natural world, but the acquisition of the Giving Garden has allowed the Nature Center to expand the organization’s reach to new demographics and permitted them to create programming that connects individuals to the importance of regenerative farming and sustainable food systems for environmental conservation and preservation. At Coogan Farm, agriculture and conservation interface in a unique way — the land is used to grow nutrient-dense food, but also serves to protect biological diversity through the conservation of ecosystems and wildlife, including bees, butterflies, and other insects that pollinate food plants. DPNC offers opportunities for people of all ages, from acorn to oak, to get involved with the natural world, to learn more about plants, animals, ecology, soils, all aspects of gardening, cooking, and more. Programs and services offered at the Giving Garden introduce individuals
and groups to agricultural methods and concepts that are not common knowledge and that are best learned through observation and practice. Adults who have practiced conventional techniques in their gardens for their entire lives are taken by the quality and level of production in a garden using regenerative methods and, seeing the benefits of working with nature rather than against it, are moved to implement regenerative practices. Time in nature, while essential for all humans, is vital for youth wellbeing and development. Youth programs in the garden provide children with hands-on experiences where they get their hands dirty and watch life grow before their very eyes. This form of interactive learning is not always incorporated in formal classroom settings and in many public school systems. The Nature Center feels the human-nature connection is absolutely integral to youth development and overall human health, and is thrilled to be able to offer educational programs in the garden that illustrate, through practice, that environmental conservation and agriculture are inextricably linked. On a grassroots level, the Giving Garden has influenced the surrounding community to endorse new policies and practices and to introduce new programming for youth agricultural education.

Evaluations

As stated in the body of this report, the Giving Garden has received local, state, and even national recognition for its model. Garden services address human development and environmental conservation simultaneously, using agriculture as a platform for intervention. The Giving Garden model, integrating regenerative farming practices, is capable of being scaled in any context, as biological inputs exist across all ecosystems that can be used to bolster agricultural production. Regenerative agriculture seeks to use materials, tools, and inputs on hand. In our model, regenerative farming practices are utilized in order to maximize production of nutrient-dense produce for food insecure populations and to minimize cost, which has attracted gardening organizations, federal stakeholders, and out-of-state community gardens to consider implementing a model similar to our own. Programs and services modeled by the Giving Garden have been replicated by other community groups in New London County, speaking to DPNC’s regional influence. Further, on this grassroots level, DPNC is inspiring other educational institutions and community groups to prioritize environmental education and to
see the influence that time spent in the natural world has on young people's minds and spirits, contributing to a community ethic of environmentalism. This has all been possible, first, stemming from the grand vision of DPNC’s Executive Director, and extending to Craig’s expertise, enthusiasm, and, finally, through the dedication of a community and determined body of volunteers.
Works Cited


Lautenschlager, Lauren & Smith, Chery. Beliefs, knowledge, and values held by inner-city youth about gardening, nutrition, and cooking. Agriculture and Human Values, 24, 245-258.


56


Appendix

DPNC Organizational Chart

Board of Directors

Board Committees

Executive Director
Maggie Jones

Associate Director
Davne Schaffer

Education Director
Kim Hargrave

Preschool Director
Davne Schaffer

Camp Director
Pauline Gaucher

Marketing Dir.
Cassandra Meyer-Ogren

Development Dir.
Tricia Cunningham

Finance Director
Kevin Metivier

Education Staff
Mary Audette
Nikki Bousee
Diane McCarthy
Amy Stich
Marianne Goddard
Jessica Morris
Afterschool Prg.
Rob Reas
Head Educator
Steve Sarnoski
Ed Grants Writer
Laura Craver-Rogers
Animal Curator
Lori Edwards

Preschool Staff
Pauline Gaucher
Lori Edwards
Mame Courtney
Marianne Goddard

Seasonal Camp Staff

Volunteer Coordinator
Chelle Farrand

Building & Maintenance
Joe Sands

Giving Garden Assistant
Emma Suphen

Front Desk Staff
Nikki Bousee
Saney Chicanaca
Sandra Lewis

Accounting
Mayada Wadsworth
Bookkeeping Asst.
Laura Craver-Rogers

Farm Manager
Craig Floyd

VMS Manager
Pauline Gaucher

Tech/Pub
Al Brown

Updated March 2018
<table>
<thead>
<tr>
<th>Course Title, Date, and Duration</th>
<th>Brief Description</th>
<th>Cost</th>
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| Gardening Planning 101 Two hours | Learn how to plan your garden for the entire year: Farm Manager, Craig Floyd, will provide tips on what to grow, where to buy supplies, when to start plants inside, how to transplant, and how beds can be flipped to extend the grow season. | Members: $12.75  
Non-members: $15.00 |
| Seed Starting Two hours | Learn best practices for starting your seeds indoors and why seed saving can help your garden produce more fruits and vegetables. | Members: $10.20  
Non-members: $12.00 |
| Transplanting Seedlings One hour | Now that you have a collection of seedlings, join us for a discussion on what the best ways to transplant seedlings are. Our farm manager will teach you tips and tricks to ensure plants transition successfully to garden beds and teach you about how to integrate companion planting for best results. | Members: $10.20  
Non-members: $12.00 |
| Soil Testing One hour | Discover that soil tests aren’t so complicated after all. Our farm manager will show you how to test soil and what to do with the results to ensure successful garden production. Farmer Craig will address how to add biology to the soil to improve plant health and productive capacity. | Members: $10.20  
Non-members: $12.00 |
| Planting the Spring Garden Two hours | Learn what different plants need for a healthy start when they are transplanted to a new environment. Find out in-depth information about the processes involved in planting and maintaining your garden when it comes time for spring planting. | Members: $15.00  
Non-members: $20.00 |
| Feeding the Soil Two hours | Plants are hungry and so is soil. In order for plants to be able to produce to their | Members: $15.00  
Non-members: $20.00 |
true capacity, it is necessary to feed the soil and the plant. Learn how we add amendments to the soil in the form of organic matter and liquid amendments to boost garden production and, consequently, your own health. Our farm manager will teach you how to add specific minerals to increase the microbial life of your soil and give you suggestions on best practices and products for maintaining soil health.

<table>
<thead>
<tr>
<th>Event</th>
<th>Description</th>
<th>Members: $15.00</th>
<th>Non-members: $20.00</th>
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<tr>
<td>Harvesting and Planning for the Fall Garden</td>
<td>Learn tips on how to harvest different veggies and how to plan your fall/winter garden. Contrary to popular belief, it is possible to grow produce through the winter. Learn about the importance of cover crops, about planning deadlines, and how to compost.</td>
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<tr>
<td>Starting Planting for Next Year</td>
<td>August is the time to get fall/winter crops in the ground and to plant cover crops to feed the microbes in your soil through the off-season. Learn how to “flip” a garden bed so that it is ready for new plantings. More information on composting will be shared, including how to generate compost in the shortest period possible.</td>
<td>Members: $15.00</td>
<td>Non-members: $20.00</td>
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<td>Two hours</td>
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<tr>
<td>Row Covers, Saving Seeds, and Season Extension</td>
<td>September is the month to be sure you are ready to grow through the fall and winter. Learn about cover cloth, hoop houses and caterpillar tunnels, and how to keep your soil temperature as high as possible for as long as possible. Our farm manager will teach you the importance of seed saving.</td>
<td>Members: $15.00</td>
<td>Non-members: $20.00</td>
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<td>Two hours</td>
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<tr>
<td>Prepping for Next Year</td>
<td>Fall is the time to be thinking about next year’s garden. This is the time to test soil and begin making adjustments that take a few months to take effect. This class will reintroduce bed amendments and cover crops for the fall. You will be required to evaluate the status of your garden’s production during the year, and</td>
<td>Members: $15.00</td>
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<tr>
<td>Winter Tasks and Tools</td>
<td>This class will cover how to maintain all of your garden tools for longer life and improved enjoyment of use. Learn an age-old formula to bring old, wooden tool handles back to life. Find out how to protect the metal parts of your hand tools. A hands-on demonstration will be given, and we suggest that students bring their own wooden-handled tool. We will include instruction on how to use a file to sharpen hoes and shovels.</td>
<td>Two hours</td>
<td>$15.00</td>
</tr>
<tr>
<td>Garden Planning</td>
<td>Order your seeds in December to be proactive! Learn about different regional, sustainable seed companies, and which seed companies support conventional, industrial agriculture, furthering chemically intensive methods. Participate in a group order from Johnny’s Selected Seeds to save shipping costs on your order. Through an informal discussion, we will go over methods and practices that worked in your garden during the 2018 season, and then help you to plan an even better garden for 2019.</td>
<td>Two hours</td>
<td>$15.00</td>
</tr>
</tbody>
</table>
2018 Giving Garden Volunteer Survey

Do you prefer to come to the Giving Garden when you can or signup for a specific day each week or month?
13 responses

- Yes, I would like to sign up for a certain day of the week: 2 (15.4%)
- No, I prefer not to sign up ahead of time: 11 (84.6%)

If you would like to signup for a specific day each week or month, how would you like to do so?
6 responses

- 1 (16.7%)
- 2 (33.3%)
- 2 (33.3%)
- 3 (50%)
Would extended hours for the Giving Garden be advantageous to scheduling a time to volunteer?

12 responses

If extended hours would be helpful, what days and timeframes would you suggest?
Do you prefer volunteering on a designated team in the garden?

13 responses

- Yes, please let me know what teams are available: 0 (0%)
- No, I like to work on whatever is needed that day: 12 (92.3%)
- I enjoy both! Sorry :) Fun to: 1 (7.7%)
- I still have so many things to learn: 1 (7.7%)

Please rate your overall satisfaction with your volunteer experience in the Giving Garden.

12 responses

- 11 (91.7%)
- 0 (0%)
- 0 (0%)
- 1 (8.3%)
- 0 (0%)