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Assessment of food safety compliance to federal, state and local regulations within NYS Capital Region farmers markets: an investigation of current facilitators, barriers, and future opportunities to increase food safety

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Assessment of Food Safety Compliance to Federal, State and Local Regulations within NYS Capital Region Farmers Markets: An Investigation of Current Facilitators, Barriers, and Future Opportunities to Increase Food Safety

by

Patricia A. Miller

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Abstract

Within the United States there are over 8,000 farmers markets, that sell directly to consumers. New York State has the second-largest number of markets, at 637, with the capital region host to 114 markets. Over the years the selections of offerings have grown to include not only produce but ready-to-eat foods, eggs, dairy products, crafts, beer, and wine. The increasing popularity of farmers markets coupled with inadequate regulatory oversight of these markets, can contribute to incidences of foodborne illnesses. The Centers for Disease Control identified 95 foodborne illness outbreaks in the United States potentially associated with fairs, festivals, and temporary mobile services from 1988-2007, which resulted in almost 4,000 illnesses, including 144 hospitalizations (Centers for Disease Control, 2008). Of these markets, six are held year-round.

This research undertook a needs assessment to identify gaps in food safety as it related to compliance with regulations required by federal, state, and local government by farmers markets and their vendors. This was a multimethod study utilizing content of each farmers markets rules compared to regulations, direct observations of vendor behaviors, and data collection through observation of physical characteristics of the markets, and interviews with market managers. Market compliance was measured by analysis of market rules to key rules and regulations required through the Federal Food Code, and by the New York State Temporary Food Service Establishments Regulations. These rules included adherence to minimal cooking of foods, maintaining and monitoring temperatures of foods, hand hygiene requirements, prevention of cross-contamination, and storage of food. These regulations address transportation of food to the markets, into the markets, display of food, and serving of food. Data collection through observation of each markets was done to assess market facilities, and direct observations were made of vendors during market operations on multiple occasions.
Results showed many markets lacked clearly defined rules, and resources, including handwashing stations, as regulated, were not in evidence. Observational data collection showed that these markets did not comply with the New York State Department of Health Temporary Establishments Regulations and that the vendor behaviors did not meet food code requirements. In addition, this study looked to identify facilitators and barriers to safe food handling behaviors. A lack of handwashing facilities and thermometers were found to be barriers to safe food handling at these markets. While implementing more rules or changing policies may improve these behaviors, enforcement of the required rules would be a better method to decrease these barriers. Inspection by local authorities may improve compliance to regulations as may providing resources to the vendors.
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CHAPTER 1.

INTRODUCTION

Background and Setting

Farmers Markets

The U.S. Department of Agriculture (USDA) defines a farmer’s market as a fixed or central location where at least two farmers sell their agricultural products directly to the public (USDA, 1998). Additionally, farmers markets fall into the category of temporary establishments that do not operate for more than 14 consecutive days. According to the USDA, in 2017, more than 8,000 farmers markets operated in rural and urban areas of the United States, which was an increase of approximately 500% from 1,755 farmers markets that operated in 1994 (USDA, 2018).

Within the United States, California has the largest number of operating farmers markets (700) followed by New York (NY), which contains 637 farmers markets, with approximately 114 of those markets located within the Capital District region (Data NY, 2018). Of the total number of NY farms, 18% participate in direct-to-consumer marketing, commonly referred to as farmers markets. Direct-to-consumer marketing refers to when products are sold directly to their end customers without the use of any intermediary (e.g., retailer, distributor, wholesaler). This concept was developed to allow consumers to purchase the fresh produce they wanted. This concept has evolved from farm roadside stands to the farmers markets of today. On average, in 2012, NY farms participating in direct-to-consumer marketing produced $15,000 in sales per individual farm through farmers markets, thus generating more than $100 million in total sales across the state (USDA, 2014b). In addition to produce, many farmers markets now sell locally produced baked goods, wines, craft beers, flowers, meat, cheese, and other foods to meet consumer demands. Farmers markets provide ready-to-eat (RTE) meals for immediate
consumption at such an increasing level that at some point they may provide more meals to consumers than the more regulated permanent restaurant establishments (Choi & Almanza, 2012).

There are numerous reasons for the increased popularity of farmers markets in the United States. Sellers at local farmers markets generally come from a short distance, so fresh fruits and vegetables do not need to be shipped, refrigerated, and stored for long periods. This may make them fresher than produce at grocery stores and more appealing to consumers (Wolf, Spittler, & Ahern, 2005). Purchasing food from farmers also contributes to the local economy and markets as a whole provide a social setting for consumers (USDA, 2014a). According to Wolf et al. (2005), the primary reasons people attend farmers markets were because consumers thought the products were of high quality, were able to socialize, and were able to eat prepared and prepackaged foods (Wolf et al., 2005).

**Farmers Markets and Benefit Programs**

With the rise in popularity of farmers markets with consumers, the federal and state governments saw an opportunity to provide and encourage fresh fruits and vegetables for those on benefit programs. From a public health point of view, farmers markets have been recognized as a recommended environment-related intervention approach to healthier eating, as there is evidence that farmers market use is associated with improved fruit and vegetable consumption (Abusabha, Namjoshi, & Klein, 2011) which in turn may promote better health. The White House Task Force on Childhood Obesity Report to President Obama sought a greater role for farmers markets in contributing to a reduction in childhood obesity, and former first lady Michelle Obama promoted markets as part of her “Let’s Move” initiative (White House Task Force, 2010). Both the federal and state governments have invested millions of dollars to
increase the number of farmers markets that participate in Women Infants and Children (WIC), Supplemental Nutrition Assistance Programs (SNAP), and the Senior’s Farmers Market Nutrition Program. Their goal was to increase the availability of fruits and vegetables and to reduce “food deserts” in inner-city and rural communities (USDA, 2010). SNAP provides low-income families with benefits in the farmers market, which also benefits the farmers. SNAP benefits at farmers markets have caused a dramatic increase in SNAP funds being spent on local foods in recent years, from $4.2 million in benefits spent at farmers markets in 2009 to $18.8 million in 2014 (Rejto, 2015).

Adding more customers to the markets has the potential to expose more people to food safety issues. Given that governmental agencies are endorsing farmers markets for healthy food promotion and for providing fruits and vegetables to lower-income and elderly individuals, policies should provide guidance for vendors to assure safe food handling and distribution to at-risk populations of low-income individuals, the elderly, children, and pregnant mothers. Foods sold at farmers markets may indeed be fresher, but they are not necessarily safer. One event involving failed food safety practices could cause thousands to become ill.

**Regulations Associated with Farmers Markets**

Farmers markets are less regulated than permanent food service operations, creating gaps in training and oversight. Due to the lack of regulations, there may be increased opportunities for foodborne illness outbreaks from these temporary establishments (Seo & Behnke, 2011). Regulations that have been developed for farmers market vendors to sell food products at a farmer’s market are different for each state, differing even between counties within states, and sometimes between each market. Given the wide variety of types of food products (e.g., meat, bread, fish, jams, milk, cheeses, produce) sold in the markets, it can be challenging to understand
which government entity’s food guidelines are supposed to be followed, as the type of food often determines the regulatory agency. Additionally, while restaurants and grocery stores are subject to routine inspections, this is not necessarily the case at the farmers markets. According to the New York State Department of Agriculture, local markets are generally inspected only in follow-up to a complaint (R. Hill, Personal communication. October 17, 2019). Farmers markets have contributed greatly to the economies of local communities, yet they remain mostly unregulated. One reason for the loose regulations at these markets is to support the local farmers while providing a relaxed environment for farmers and consumers (Rosenberg & Leib, 2012).

Nevertheless, if an outbreak is confirmed at a market, sales could be adversely affected and may lead to the closing of the market. Farmers markets initially captured only a small portion of produce sales in the United States, so public health agencies did not devote their resources to the inspection of them, but now their impact cannot be ignored (Behnke et al., 2016).

**Foodborne Illness**

As defined by CDC ([CDC], 2017), foodborne illness is a disease acquired by consuming contaminated food or beverages. The CDC estimates that each year in the United States, 48 million people become ill from a foodborne illness resulting in approximately 128,000 hospitalizations and 3,000 deaths (CDC, 2017).

Foodborne illness is a common yet preventable disease in the United States. According to the Food and Drug Administration (FDA), the five primary contributing factors associated with foodborne illness are (a) poor personal hygiene, (b) improper holding/time and temperature, (c) contaminated equipment/lack of protection of food from contamination, (d) inadequate cooking, and (e) food from unsafe sources (U.S. FDA, 2000). Despite the ability to identify factors
contributing to foodborne illness, the incidence of foodborne illness remains a problem, as contamination is now commonly found in numerous foods, including fresh fruits and vegetables.

Produce-related foodborne outbreaks have been in the news with numerous incidences of foodborne illness in the past decade. From 1998 to 2013, there were 972 raw produce outbreaks reported resulting in 34,674 outbreak-associated illnesses, 2,315 hospitalizations, and 72 deaths (Bennett et al., 2018). During the years 1998 to 2001, outbreaks of foodborne illness attributed to raw produce increased 8%, and in the years 2010-2013, they grew 16% (Bennett et al., 2018). Among these outbreaks, 38% were attributed specifically to vegetable row crops (e.g., potatoes and soybeans), fruits (35%), and seeded (e.g., eggplant, cucumbers, and tomatoes) vegetables (11%; Bennett et al., 2018). This is harmful considering public health efforts include healthy eating.

According to the Institute of Medicine (IOM; 1998), several trends may contribute to the increased incidence of foodborne illness in produce:

- public health efforts to encourage people to eat healthily,
- the increase in the overall percentage of meals eaten out of the home, and
- the unintentional addition of environmental or chemical contaminants such as pesticides used on crops.

Foods consumed raw are considered to be at high risk for foodborne illness. As these constitute a large portion of foods eaten at farmers markets, they are venues that need further study for food-handling practices. Improper food-handling practices may be more of a problem in the home, churches, farmers markets, fairs, and other temporary food service establishments in which lack of training and staff inexperience may lead to outbreaks of foodborne illness.
Research has assessed the food safety practices of food handlers in settings such as restaurants, but few have assessed the behaviors of food handlers at temporary facilities.

**Statement of Problem**

The CDC estimates that harmful pathogens in food cause an estimated 48 million illnesses and 3,000 deaths every year in the United States, and of total reported illnesses, almost half (46%) of yearly incidents are attributed to contamination from produce (Painter et al., 2013). Many of these illnesses are multistate outbreaks, with many victims becoming ill from a single source of contamination. In many cases, outbreaks are traced to farms that had not been using good certified agricultural practices, and contamination was potentially preventable if farm managers had been trained about risk factors for microbial contamination (Rejesus, 2008). In addition, various protozoan parasites may be transmitted by contamination of fresh produce that is eaten raw, including vegetables found in most salads. This is a large portion of items classified as RTE, including lettuce and tomatoes on sandwiches or in salads.

In New York State alone, during the years 2017 and 2018, 2721 reported cases of foodborne illness led to 735 people hospitalized, of which 27 people died (CDC, 2019). Additionally, specific pathogen reports show that *Salmonella* rose from a 10.46 incidence rate in 2017 to 11.69 (rate/100,000) in 2018. Shiga toxin-producing *E. coli* rose from an incidence rate of 2.42 in 2017 to 2.48 in 2018. The incidence rate of *Listeria* also rose from .33 to .46 (rate/100,000) in 2018 (CDC, 2019).

Farmers markets are less regulated than eateries having permanent structures such as restaurants. They stimulate the local economy and provide a sense of community. However, since we have added some of our most vulnerable populations to the mix, by encouraging the use of SNAP benefits at the markets, regulations need to be specific and monitored.
Farmers markets are often outside with greater exposure to contaminants, such as dirt, and have limited access to water, for handwashing, and to electricity, for cooling or heating of foods (Worsfold, Worsfold, & Griffith, 2004). The lack of electricity at outside vendor booths, makes it especially challenging to keep potentially hazardous foods at the correct temperature. Additionally, when surveyed, consumers believed that food at farmers markets is safer, although studies show a higher prevalence of *Salmonella* and *Campylobacter* at farmers market as compared to retail food operations (Park & Sanders, 1992; Peng et al., 2016). Bellemare, King, and Nguyen (2015) showed that as farmers markets increased in an area, so too did cases of foodborne illness. This is important to note, as the number of U.S. farmers markets increased 76% from 2008 to 2014 (USDA, 2014).

In addition to prevalence of pathogens within farmers markets, studies on food-handling practices of vendors in farmers markets have shown poor compliance with regulatory prompts on handwashing, glove usage, and cross-contamination (Behnke, Seo, & Miller, 2012; Bellemare et al., 2015; Pollard et al., 2016; Scheinberg, 2016; Vandepuette, 2014). The New York State Department of Agriculture and Markets has reported a decline in compliance with NYS Food Safety Regulations by all food service establishments. Compliance is assessed by compiling rates of adherence during food inspections by the New York State Department of Health (NYSDOH). In 2005, compliance with NYS regulations was 72%. Compliance rose to 80% in 2014, but declined to 74% in 2018 (AgricultureNYS, 2018). The top critical deficiencies found in New York included:

- insect, rodent, bird, or vermin activity likely to result in product contamination.
- food-contact equipment, utensils, or conveyances for potentially hazardous foods: contact surfaces unclean or not properly sanitized and likely to contribute to contamination
• employee handwashing facilities inadequate for establishments handling exposed foods
• equipment cleaning or sanitizing facilities inadequate for establishments handling potentially hazardous foods; and
• potentially hazardous foods are not stored at safe temperatures (AgricultureNYS, 2018).

These critical deficiencies mirror what research shows to be the biggest contributors to foodborne illness—temperature abuse, cross-contamination, lack of handwashing, and unclean equipment.

**Study Purpose and Significance**

The purpose of this study was to identify unsafe food-handling practices by vendors in local farmers markets; to identify which market and vendor characteristics act as barriers or as facilitators, and what opportunities there are to improve food safety in these markets. Through direct observation, this research has assessed the compliance to federal, state, and local regulations, as they relate to food safety in capital region farmers markets and has identified facilitators and barriers to regulatory compliance. Identification of potential barriers and facilitators in farmers market characteristics and vendor behaviors may help to increase safe food-handling practices through policy changes. Through an examination of market characteristics such as size, facilities, age of market, presence of a market manager, and each market’s own rules and regulations, this study examines the association of the characteristics of the market itself, the vendors’ behavior and adherence to federal food codes, the NYSDOH code for temporary food service establishments, and local laws.

Although there are numerous studies on food safety and farmers markets, little research has been conducted to evaluate the compliance to regulations in NYS farmers markets. Additionally, little research has examined primarily the winter markets. Winter markets traditionally are held inside from November to March. At one point, very few of them were
established, but now they are more commonplace. Other studies that looked at markets in year-round setting found there was some advantages to winter markets such as electricity and a permanent structure.

With an increased rate of foodborne illness coupled with an increased number of farmers markets in the United States there is a need for further research into food-handling practices and food safety policies at these markets. Understanding the level of compliance to regulations and gaining knowledge in what facilitates or acts as a barrier to compliance with food safety regulations is essential to inform both policy and practice. As important as encouraging people to eat healthily and to support their communities by supporting local farmers, it is also crucial to make every effort to assure the safety of the food. This research was intended to address the gaps in training, oversight, and resources in the markets and to the vendors and customers, all of which increase the risks of foodborne illnesses.

**Research Questions**

The following are the research questions for this study:

1. To what extent are the individual farmers market rules reflective of federal food codes or the NYSDOH temporary food establishments regulations?

2. To what extent is there compliance to federal, state, and local rules and regulations with regard to vendor-specific food-handling practices in local area farmers markets?

3. What characteristics of the market act as facilitators or as barriers to food safety practices in farmers markets?

4. What vendor characteristics and behaviors act as barriers act as facilitators to food safety practices in farmers markets?

5. To what extent do the market managers act as facilitator or as a barrier to compliant vendor behavior or to assuring compliant market characteristics?
CHAPTER 2.
REVIEW OF THE LITERATURE

Foodborne Illness

Foodborne illnesses are the result of food contamination by pathogens. The pathogens most likely to cause illness are bacterial, which include *Salmonella*, *Listeria*, *Campylobacter*, *E. coli*, and *Shigella*; viruses such as norovirus and hepatitis; parasites such as giardia; prions such as those associated with mad cow disease, and allergens, which include peanuts and sulfites among others (CDC, 2009). Researchers found that among the 2,953 foodborne illness outbreaks in the United States, with a single confirmed etiology, these two pathogens were most prominent:

- norovirus with 1,130 outbreaks (38%); the pathogen caused 27,623 (41%) of the outbreak-associated illnesses and
- *Salmonella* caused 896 outbreaks (30%); the pathogen caused 23,662 illnesses (35%; CDC, 2009).

Additional outbreaks caused by *Listeria* and shiga toxin-producing *E. coli* were responsible for 82% of all hospitalizations and 82% of deaths reported from foodborne illness in the United States (Dewey-Mattia, Manikonda, Hall, Wise, & Crowe, 2018). Yet, norovirus is a leading cause of food poisoning in the United States and is responsible for more than half of all cases reported in the United States (CDC, 2016). Symptoms of norovirus may be comprised of stomach cramps, nausea, vomiting, and diarrhea. Norovirus is easily spread through contact with someone infected, especially in crowded areas, and is transmitted through the fecal-oral route from an infected person (CDC, 2018). Foods, drinks, and surfaces also can become contaminated with norovirus. Sources include fresh produce, seafood, ice not meant for consumption, fruit, and
RTE foods, especially salads such as coleslaw. Foods prepared by infected workers are vulnerable, especially if proper glove usage is not maintained (CDC, 2018). The key to minimizing the spread of norovirus is to clean surfaces in food preparation and serving areas with a bleach-based product (CDC, 2018). To prevent its spread, food handlers should never cook, prepare, or serve foods or beverages while sick. Workers hands should be washed with soap and water for at least 20 seconds or longer to remove more germs. (Jensen, Schaffner, Danyluk, & Harris, 2012). Additional safety precautions to avoid foodborne illness includes washing of fruits and vegetables before consumption to remove surface bacteria and through cooking meats and seafood to their proper temperature. Furthermore, keeping sick workers from working is also crucial to reducing the spread of infection (CDC, 2010).

Similarly, Salmonella is one of the most common bacterial causes of diarrhea and is often the cause of foodborne-related hospitalizations and death (CDC, 2012). Since Salmonella bacteria can live in the intestinal tract of humans and other animals, it spreads quickly and requires proper hygiene and appropriate cooking methods to keep it contained (CDC, 2012). Diarrhea diminishes without treatment after four to five days, but in cases of severe diarrhea, dehydration results in over 19,000 hospitalizations each year (CDC, 2012). Salmonellosis, the disease caused by the bacteria Salmonella, is contracted by consuming raw and undercooked eggs, undercooked poultry and meat, contaminated raw fruits and vegetables, as well as raw milk and other unpasteurized dairy products (“WHO fact sheet,” 2016). Salmonella also can be transmitted through contact with infected animals, food handlers who have not washed their hands after using the bathroom, and from those who have tested positive for Salmonella yet are still working (Peng et al., 2016).
Another common pathogen found in foodborne illness is *Listeria*. *Listeria monocytogenes* is the bacterium responsible for listeriosis. It is a severe infection that primarily affects individuals who are at high risk for food poisoning: older adults, pregnant women, young children, and people with weakened immune systems (CDC, 2012). Unlike most bacteria, *Listeria* can grow at refrigerator temperatures. Cooking foods to a temperature of 140° to 165° (depending on the type of meat) will destroy the bacteria, as will pasteurization (CDC 2016). *Listeria* is found in soft cheeses made from unpasteurized milk; including Mexican cheese, feta, brie, camembert, and blue-veined; also, in unwashed produce, raw sprouts, unpasteurized juices, or pates; and RTE foods such as hot dogs and deli meats (CDC, 2016). Methods to prevent *Listeria* contamination include cooking all foods to proper temperatures, including cold cuts and reheating precooked foods to 165°F, and washing raw fruits and vegetables during food preparation (Foodsafety.gov, 2016).

*Campylobacter* is thought to be the most common cause of diarrhea (CDC, 2016). Most cases have been associated with the consumption of raw or undercooked poultry and meat or from cross-contamination of other foods by these items. *Campylobacter* rates are higher in the warmer months, and it is most often found in infants (CDC, 2016). Most often, the sources are raw and/or undercooked poultry and meats, unpasteurized dairy products, and untreated water or contaminated produce (CDC 2016). Prevention methods include cooking foods thoroughly, preventing cross-contamination by using separate cutting boards when handling raw and cooked foods, not consuming unpasteurized milk or untreated water, and washing hands frequently (CDC, 2016).

*E. coli* is a large group of bacteria with strains that are often harmless, but others can lead to death (CDC, 2018). The *E. coli* O157:H7 strain is most associated with food poisoning
outbreaks, and it can cause severe damage to kidneys (CDC, 2018). Prevention emphasizes washing hands, cooking meat and poultry thoroughly, avoiding unpasteurized dairy products, juices, or ciders; keeping cooking surfaces clean; and preventing cross-contamination (CDC, 2018). High-risk populations should be especially attentive to handwashing (CDC, 2018). According to the CDC “children younger than age four have the highest incidence of laboratory-confirmed infections from some foodborne pathogens, including Campylobacter, Cryptosporidium, Salmonella, shiga toxin-producing E. coli O157, Shigella, and Yersinia; infants are one of the age groups to become most sickened by a foodborne illness. Children under the age of five had an incidence rate of 123.94 during the years 2006-2016, with 40,869 cases in the United States (CDC, 2016).

In addition to children, other groups most susceptible to foodborne illness include older adults, pregnant women, and those with immunocompromised status, which include human immunodeficiency virus and acquired immunodeficiency syndrome, cancer patients, and diabetics; (CDC, 2009). The CDC also cautions people older than age 50 and those with a reduced immunity that they are at higher risk for hospitalizations and are at the highest risk of death from intestinal pathogens often transmitted through foods (CDC, 2009).

**Foodborne Illness and Farmers Markets**

The increasing popularity of farmers markets coupled with inadequate regulatory oversight of these markets, can contribute to incidences of foodborne illnesses. The CDC identified 95 foodborne illness outbreaks in the United States potentially associated with fairs, festivals, and temporary mobile services from 1988-2007, which resulted in almost 4,000 illnesses, including 144 hospitalizations in the United States (CDC, 2008). Research examining temporary establishments has studied the possibility of prioritizing food inspections based on the “risk” of the establishment. Frash, Almanza, and Stahura (2003) found that cafeterias, fairs,
festivals, and establishments of a temporary nature were at high risk for foodborne illness due to their inability to keep hot foods hot and cold foods cold. Castel et al., (2005) believed that health departments should pay more attention to inspecting temporary establishments, including churches, because of the unskilled labor utilized at these events. Examining overall food safety, Boo, Ghiselli, and Almanza (2000) found consumers believed that home-cooked meals were the safest and meals at fairs and festivals were the least safe. Insects and dirt contamination were thought to be problematic at outdoor venues.

In September of 1994, two women in Ontario were sickened at a local farmers market from a soft cheese consumed at the market (Ellis et al., 1998). The implicated cheese product tested positive for *S. berta* and *E. coli*. The cheese was produced at a licensed local dairy facility using unpasteurized milk in an unregulated manner. The skim milk curds were stored at room temperature for two to three days without extensive temperature monitoring. The farmers used the same buckets for ripening the cheese and soaking raw chicken carcasses (contaminated with *Salmonella*), and it was likely that the buckets were not disinfected properly prior to the cheese production (Ellis et al., 1998). In a similar incident in September of 2000, an outbreak of *E. coli* O157:H7 was linked to produce samples offered at a Colorado farmers market. A lack of sanitary food-handling practices, including cross-contamination and temperature abuse, resulted in 14 illnesses (Colorado Department of Public Health and Environment, 2000).

In 2002, 13 individuals were infected by *E. coli* O157:H7 in Edmonton, Alberta, Canada, resulting in illnesses and two cases of hemolytic uremic syndrome (Honish et al., 2005). The illnesses were traced back to unpasteurized gouda cheese from a local dairy (Honish et al., 2005). The implicated cheese was found to be contaminated with *E. coli* O157:H7 104 days after
production, despite having met regulated microbiological and aging requirements. While the food products were sold by a small number of vendors, multiple people consumed the product, potentially exposing a relatively large number of people to unsafe products (Honish et al., 2005).

In Oregon an *E. coli* O157:H7 outbreak associated with Oregon-produced strawberries was the result of deer feces found in the strawberry field from which the fruit was harvested. Fifteen individuals became ill between July 10th and July 29th, of which four individuals were hospitalized, two people suffered kidney failure, and one elderly woman died due to kidney failure (Office of the Commissioner, 2011). It was finally determined that a number of local farmers had purchased the contaminated strawberries from a larger farm and had resold them (Oregon Health Authority, 2011; Produce Traceability News, 2011). This practice of resale is generally not allowed and is not allowed in the NYS farmers markets studied here in the capital region.

In the summer of 2010, 44 cases of *Salmonella Newport* were linked to products sold at two Iowa farmers markets (Iowa Department of Public Health, 2010). It was determined that guacamole-based products produced by La Reyna Supermarket and Taqueria were identified as the vehicle of contamination. The restaurant sold guacamole and red and green salsa, along with pork, chicken, and vegetable tamales, at the Iowa farmers markets. Health officials found that some of the ice used for cooling the guacamole products was melted, increasing the risk for temperature abuse of the products. Officials also identified risky food safety factors that could contribute to contamination, including lack of proper sanitation practices, cross-contamination opportunities, and improper washing of avocados at the restaurant during preparation. Additionally, improper holding temperatures at the market could contribute to bacterial
proliferation, as the temperature for that day was above 80° F, an optimal growth temperature for
Salmonella (Iowa Department of Public Health, 2010).

In 2011, Listeria monocytogenes infections (listeriosis) from contaminated cantaloupes
from Colorado hospitalized 143 people and had 33 deaths (CDC, 2012). In 2018 and 2019, 16
states reported 62 illnesses with 25 hospitalizations from contaminated romaine lettuce from a
farm in California. E. Coli was found in a water supply close to one of the farms (CDC, 2019).
What once was roadside stands selling produce to passersby has become a multi-million-dollar
industry attended by thousands. With exposure to contaminants, a lack of handwashing facilities,
and a lack of electricity, farmers markets are a risk for foodborne illness.

Regulations Applicable to Farmers Markets

Outbreaks of foodborne illness at farmers markets are examples of contamination issues
that can occur in small-scale farming; often those are the products sold in local markets, thus
potentially affecting many farmers markets. Small-scale growers must also implement proper
food safety behaviors and practices to ensure risk reduction actions are performed on the farm to
help reduce contamination probability. In NYS, farmers markets fall under the temporary food
service establishment regulations (see Appendix A for regulatory details). A “temporary food
service establishment” means a place where food is prepared or handled and served to the public,
with or without charge, and that operates at a fixed location in conjunction with a single event or
celebration of not more than 14 consecutive days duration (NYSDOH 14.2.1, 1992). Temporary
establishments may only serve foods that require minimal preparation and cooking. The
preparation of potentially hazardous food is not permitted by regulatory statute. A potentially
hazardous food is any natural or synthetic food that requires refrigeration due to its ability to
support the rapid growth of infectious or toxigenic microorganisms (U.S. FDA, 2001).
These food safety regulations, including the Federal Food Code and the NYS Temporary Establishment Regulations, cover the limited amount of cooking that can occur in these temporary establishments. Regulations outline proper temperatures for transporting and holding food; detail the rules on selling only pasteurized milk and milk products; note that all foods not readily identifiable must be labeled; all eggs must be washed and intact; and no bare hands may contact RTE foods. In addition, foods are to be held at or cooked to the temperatures as outlined in the regulations, and proper metal stem-type thermometers are to be used to verify temperatures; handwashing facilities are to be provided; people serving foods should not smoke around food, be ill, or eat while serving food, and hair should be restrained (NYSDOH subpart 14.2 food code, 2020)

To become a vendor at a farmers market, operating permits are issued for vendors by the state commissioner of health. Permit applications vary by the type of products sold (see Appendix B for regulatory details). Vendors in farmers markets must also follow the federal food codes (see Appendix C for regulatory details), which set cooking, holding, and serving specifications for food preparation. The federal food codes were introduced to aid in guiding vendors in providing safe food to consumers.

Federal, state, and local regulatory safe preparation and food handling guidelines should serve as models for the governing bodies of farmers markets when developing their own rules. Unfortunately, the regulatory agencies are many, and the rules can be confusing. USDA and the FDA share jurisdiction over food quality, safety, sales, and marketing. In many situations, USDA and FDA regulations overlap. Generally, while the product is living on the farm, as an animal or plant, USDA regulations apply. Once a food product moves from being grown on the farm into the food processing phase, FDA public health regulations apply (USDA, 2017a).
In New York, the Department of Agriculture and Markets and the Department of Health (DOH) share jurisdiction over food safety. The DOH and the Department of Agriculture and Markets both apply food safety regulations at the local level. The Department of Agriculture and Markets in NYS has 15 divisions and 18 programs, many of which apply to farm-direct sales and food safety, including a Division of Food Safety and Inspection (Agriculture.ny.gov).

Federal efforts at improving produce safety include the Food Safety Modernization Act produce safety rule, which went into effect in 2016. Its intent is to enhance the safety of fresh produce nationwide in a proactive manner. However, it does exempt small produce growers, defined as (a) growers earning $25,000 or less, in average produce sales per year during a 3-year period, (b) their food sales are $500,000 or less, per year during a 3-year period, and (c) they sell directly to consumers, restaurants, and stores within 275 miles of their farm (U.S. FDA, 2019). Therefore, this exempts many vendors at local farmers markets.

To provide farmers with methods to reduce the microbial contamination of fresh and minimally processed fruits and vegetables, the FDA and the U.S. Department of Agriculture (USDA) developed the Good Agricultural Practices program (USDA, 1998). The Good Agricultural Practices are a set of voluntary guidelines for commercial farmers that address numerous factors related to produce production, such as water safety, application of compost/manure, worker hygiene/sanitation, handling of produce after harvesting, and transportation of produce from the farm (Pervinik et al., 2008).

On a state level, the NYS Department of Agriculture and Markets has developed rules specific to farmers markets. Highlights include testing water for potability, both at the farm and the farmers markets; recommendations that bathroom facilities are available for customers and vendors and include handwashing stations with signage instructing employees to wash their
hands before returning to work. It should assure that a spill containment plan (procedure for handling a chemical spill with appropriate agency notifications, equipment for clean-up) is in effect. It recommends that market signage is in effect, and that signage should address washing hands before handling produce, washing produce before consumption, animals other than service animals are prohibited or should be contained to one place with pet needs (e.g., waste bags, water). Within the market a record is to be maintained of vendor licenses for food handling for one year. Each market needs to have a plan for traceback and recall in the event of a foodborne illness. It also details specifics for food demonstrations and that they are conducted following “Food Demonstration Guidelines for Direct Marketing Venues.” Based on the Farmers Market Food Safety Recommendations, this Food Safety at Farmers Market Checklist (Appendix D) assists market managers in creating a safe food environment for market consumers. While there currently is no agency requirement for farmers markets to have a written food safety plan, it may help market managers clarify correct procedures and help in enforcing correct food safety practices to vendors (NYS Agriculture and Markets, 2019).

**Contributors to Foodborne Illness**

Risky behaviors in food handling are often contributors to foodborne illness. These unsafe behaviors include poor hygiene, cross-contamination, temperature abuse, food from unsafe sources, and food not sufficiently cooked. There are specific behaviors and practices that farmers market staff, vendors, and customers should use to help reduce the risk of foodborne illness.

**Handwashing and Glove Usage**

Studies on food-handling practices of vendors in farmers markets have shown poor compliance with regulatory prompts on handwashing, glove usage, and cross-contamination
(Behnke et al., 2012; Bellemare et al., 2015; Pollard et al., 2016; Scheinberg, 2016; Vandepuette, 2014). The most frequently identified factor having an impact on the ability to wash hands was sink accessibility. Too few sinks or sinks inconvenient to the work area were barriers, and these factors were worsened by time pressure during very busy periods or when staffing was low. If food handlers had a large number of customers to wait on, hand washing was a lower priority (Behnke et al., 2012). However, if managers and coworkers placed an emphasis and attention on proper handwashing, then it was done more frequently. If the handlers expected a reprimand from a manager or a question from a coworker, they were more likely to keep their hands properly washed. Some indicated that they used hand sanitizer in place of handwashing, and some said that they used gloves to assure hand cleanliness. Also, some food handlers thought that they did not need to wash their hands if they used gloves (Green & Selman, 2005).

Pollard et al., (2016) identified risky food-handling behaviors in trained and untrained vendors. In her research, no vendors were utilizing thermometers to monitor the temperatures of cold foods. Additional risky behaviors noted the use of wood, which is not easily cleaned for displays, no handwashing stations, and no glove or hand sanitizer use. Scheinberg (2016) conducted a study in Pennsylvania that found fewer than 25% of vendors had gloves available at their stands; he also noted vendors wearing winter-type gloves instead of disposable gloves. Winter gloves are not easily cleaned and should not be used. Scheinberg (2016) also noted vendors wearing gloves handling cash, then handling food without changing gloves between actions. In a similar study in rural Rhode Island, Vandepuette found 74% of markets to be unclean, with animal droppings and pets allowed in the market area. The researcher also noted that only 7% of markets had handwashing facilities. Additionally, storage on the ground, and handling cash and produce without handwashing or gloves was prevalent (Vandepuette, 2014).
Behnke et al. (2012) noted that handwashing was almost nonexistent in their research of food handling practices at farmers markets in Indiana, and that RTE food handling was likely to pose a relatively high risk of foodborne illness to its consumers. Furthermore, a study by Environmental Health Services, a division of the CDC, showed risky behaviors in the U.S. occurring at the following rates:

- 23% of food vendors did not always wash their hands frequently or adequately enough,
- 33% of food vendors did not change gloves between handling raw meat and RTE food,
- 60% of food vendors did not always wear gloves while touching RTE foods, and
- 5% of food vendors worked while sick with vomiting and diarrhea (Boshell, 2008).

All of these behaviors that have been observed at farmers markets can lead to foodborne illness.

**Cross-contamination**

Cross-contamination occurs when bacteria are transferred from one person, object, or place to another. Cross-contamination in foods when bacteria from other foods, from utensils not sanitized between uses, and from hands not being washed between food items. Common types of cross-contamination occur when cutting boards are not sanitized from raw to cooked foods, raw foods drip on cooked foods, foods are handled after using the toilet without proper washing of hands, handling raw meat then handling vegetables without washing hands between tasks, and using a towel or apron to wipe up spills then using it to wipe hands which then touch foods (Bloomfield & Scott, 1997; Bouldercountyfood.org, 2018). Contamination has been categorized into two types: direct cross-contamination (where RTE food is potentially contaminated through direct contact with a contaminant or raw food containing a contaminant), and indirect cross-contamination (where contaminants are passed to RTE foods through intermediate objects such as equipment, food-contact surfaces or hand; USDA, 2013).
Studies focused on cross-contamination of foods, have found numerous violations when researching cross-contamination with farmers market vendors. Behnke et al., (2012) found that vendors were usually engaging in multiple roles, such as handling food or handling cash, which could increase the risk of contamination of produce. He also found a high percentage of vendors engaged in unsafe personal practices such as touching money (80.8%) and eating and/or drinking (30.8%) before touching produce, which increases the risk of pathogens being transferred to produce. Money is a problem for food safety, as it can harbor numerous contaminants, such as fecal coliforms and staphylococcus aureus, that can live for extended periods on surfaces and can be transferred to an individual’s hands (McIntyre, Karden, Shyng, & Allen, 2014). Other unsafe vendor practices observed were vendors touching their bodies immediately before touching produce.

**Market Structure and Organization**

Facilitators are factors that make doing something or following a process easier to accomplish. Infrastructure essential to keeping food safe is a facilitator to compliance. Farmers markets present unique challenges to implement regulatory standards, since their locations often lack infrastructure such as electricity, running water, and soap (Brannon, York, Roberts, Shanklin, & Howells, 2009). Lack of these facilities is shown to decrease the probability of employees (vendors) washing hands when necessary, or in the vendor ability to keep foods at the proper temperatures. Sheinberg’s assessment of farmers markets in Pennsylvania concluded that size, popularity, and food safety oversight could impact vendor behavior, and determined the need for both resources and education and training (Scheinberg, 2016).
Market Size

Market size may impact vendor behaviors. Larger markets with permanent structures may have access to handwashing and restroom facilities not offered at smaller markets which may encourage vendors to wash hands as appropriate. Larger size markets may also be a barrier to handwashing in that they may be hectic and allow vendors less time to practice safe food-handling behaviors. Market managers in large markets may not have time to review the vendor behaviors for safe practices since they are busy with duties such as set up. Size may influence the layout of the market (Stephenson et al., 2007). Larger markets are often planned out by the manager to promote efficient traffic flow and to alternate produce and non-produce booths, thus lessening the cross-contamination of foods. Stephenson et al., (2007) found smaller markets set up first-come-first-served for a spot and often vendors set up near vendors they liked. This study also showed that as markets got larger, the expectations of managers and market vendors increased. Specifically, Stephenson noted that managers perceived that their state’s (Oregon) Department of Agriculture, Food Safety Division expected managers to have knowledge of and enforce food safety practices (Stephenson et al., 2007). It has also been determined that as the size of the market becomes larger, the demand on managers’ time goes to advertising, public relations, budgeting, and strategic planning (Stephenson et al., 2007).

Market Organization

Studies have also examined market organization, including the use of a trained market manager who may provide education and or training for vendors. Studies show that a manager trained in food protection leads to increased manager food safety knowledge and better food safety practices in the retail setting (Brown et al., 2016). Additionally, having food safety trained managers leads to fewer foodborne illness outbreaks (Hedberg et al., 2006). According to a study
by Powell et al., (2001), the use of a risk management assessment to identify food safety violations that occur in a farmers market can reduce foodborne illness when used as a basis for a food safety plan. These plans help to group foods together to keep down chances of cross-contamination.

While the majority of farmers markets are outdoor markets that are open for a couple of days per week, a number of indoor farmers markets are open more regularly. Larger markets often have an inside location for winter months. Behnke (2015) showed that employees working in outdoor farmers markets showed higher violations than indoor farmers market employees. Outdoor employees may engage in violations more easily than indoor employees due to more limited access to handwashing stations (Behnke, 2015).

**Inadequate Temperature**

Time/temperature-controlled foods as defined by the FDA previously known as potentially hazardous food. TCS foods are now commonly sold at farmers markets (U.S. FDA, 2013; Scheinberg, 2016; USDA, 2015c). Generally, TCS foods are those that require refrigerated holding or hot holding at specific temperature ranges following their regular preparation to guarantee their safety and prevent the growth of bacteria on those foods (U.S. FDA, 2013). Common TCS foods found at farmers markets include: raw meat, raw poultry, seafood, raw and pasteurized dairy products, which may include milk, cheese, yogurt, butter, cream, deli meats; washed shell eggs; sliced fruits and vegetables; raw sprouts, cooked vegetable foods; and prepared foods containing TCS food ingredients (U.S. FDA, 2013; USDA, 2015c). Foods that are categorized as RTE are commonly found at farmers markets in the United States and include baked goods (e.g., breads, pies, cookies), fresh or dried herbs, honey, maple syrup, nuts, mushrooms, fresh fruits and vegetables that have been washed, canned, or preserved as well as
jams, and jellies, sauces, coffee, tea, juices, and various cooked food items that are served at the point of sale (U.S. FDA, 2013; USDA, 2015c).

Owing to the large numbers of TCS and RTE foods sold at farmers markets in the United States, we cannot be sure whether farmers market vendors who prepare, process, transport, store, and sell both TCS and RTE foods have the knowledge or training and practice in food safety and food processing to ensure that their products are safe for consumers. Produce is supposed to be cooled to preserve the quality and nutrient value of the product and to reduce microbial risks (USDA, 2018). Fruits and vegetables require specific temperature ranges and humidity levels to guarantee freshness and prevent bacterial growth. Even though the produce is no longer connected to the plant they grew from, they are still metabolically active (continue ripening) long after they are harvested. Cold-season produce should be kept at temperatures close to freezing (32 to 35°F), while warm-season produce should be maintained at 50 to 59°F. In farmers markets, products are often harvested, stored, and transported to markets, where items then sit in the hot sun or under hot conditions for extended periods (Susluw, 2013).

Improper temperature control at farmers markets has been demonstrated in the literature. One study showed only 40% to 90% of vendors across 4 studies provided proper refrigeration of potentially hazardous foods, and 0 to 29% of vendors across 3 studies monitored these temperatures with thermometers (Young et al., 2017.) One study showed the majority (55%) of vendors utilized a large refrigerator for cooling goods, 11% used portable fans, 8% cooled foods in ice in coolers, and 8% cooled in water, but 18% used no cooling methods at all (McIntyre et al., 2013). Portable fans only move air around; they do not cool foods at all. Keeping foods in water is not an acceptable method for fresh fruits and vegetables since most fruits and vegetables should only be exposed to water when washing before consumption. According to Pollard et al.,
(2016), temperature abuse was observed in 68.2% of vendors whose cut produce was not kept in a temperature-controlled environment. One study in the southwestern United States showed a lack of thermometers and refrigeration (Pollard et al., 2016). Temperature abuse of cheese products has been reported at farmers markets, where 47% of the observed vendors did not have adequate refrigeration, resulting in cheese storage at temperatures exceeding 41°F (Teng et al., 2004).

In a study examining foodborne outbreaks, pathogens, vehicles, and trends, it was found that refrigeration in food handling was often lacking. Several outbreaks of foodborne illness in the United States have been associated with improper cooling, lapses of 12 or more hours between preparation and eating, inadequate reheating of foods, improper holding of foods, purchasing and receiving foods from unsafe sources, improper cleaning of equipment and utensils, and inadequate cooking of foods (Bean & Griffin, 1990). Proper temperature regulation is a critical practice in the prevention of bacterial growth in prepared foods.

**Farmers Market Vendor Food Safety Behavior and Practices**

Self-reported results from vendors regarding their food-handling practices (e.g., do they wash hands as appropriate) have been observed to be different from self-reported results (Behnke et al., 2012). Behnke et al., study showed safe food-handling practices as required by regulations were often missed. In addition, Behnke et al., found that the more roles the vendor handled, such as cashier, food server, the greater the number of hand hygiene violations that occurred. When asked why they did not wash their hands as needed, subjects in one study responded they did not have the time. Additionally, they acknowledged that since they had no training specific to hand hygiene, they believed their employers did not think it was significant (Pragle, Harding, & Mack, 2007).
One behavior noted to be inadequate in numerous settings was the use of a thermometer. Vendors believed they could tell doneness of an item without a thermometer (Green & Selman, 2005).

**Food Safety Knowledge and Training**

Training of managers and employees in food safety principles is an essential part of preventing foodborne illness outbreaks and the associated penalties for noncompliance. Hedberg (2013) found that restaurants with trained and certified kitchen managers experienced fewer incidents of foodborne illness outbreaks, including those caused by bare-hand contact with food and those associated with the norovirus infection. Unfortunately, Strohbehn (2003) found that only half of food service workers received appropriate food safety or sanitation training. In addition to initial training, follow-up training is also essential. Walczak suggested that initial training was ineffective without regular follow-up training combined with a managerial commitment to safe practices (Walczak, 1997). His research also emphasized the importance of what he called “pride in cleanliness” or a culture that places value on the health and stress levels of employees but does not allow shortcuts when it comes to food safety. According to Walczak (1997, 2000), such a commitment to cleanliness can result in employees who are more loyal, respectful, engaged, and protective of the goals of the organization. Pivarnik et al., (2013) found that food safety training is most effective when employees believe that a food safety culture is a priority; that leaders listen to issues employees have with expected food safety behaviors, and follow-up training is conducted with attached rewards.

Along with training and culture, a number of additional tangible and non-tangible variables have been found to affect individual food safety behaviors in a restaurant. For example, Griffith, Livesey, and Clayton (2010) found that factors such as the environment, systems,
consistency in rules, and risk perception are all important predictors of individual commitment to food safety compliance. Similarly, Yiannas (2009) found that improved food safety compliance can be partly attributed to consequences for noncompliance. Others, such as Pfeffer and Sutton (1999), have suggested that monetary and social rewards are equally important (Griffith et al., 2010). Training is effective when followed up regularly (Adesokan, Akinseye, & Adesokan, 2015). Ideally, food safety in foodservice establishments begins with managers who are knowledgeable about the following: where contaminants exist, how they transfer to food, and the steps to control or eliminate hazards (McSwane & Linton, 2000). Having recommended practices posted is a facilitator, as found in studies by Dickinson et al., (2014), Dworkin et al., (2015), and Feng (2015). Educational programs directed to specific groups (e.g., elderly, African Americans) were found to be effective in decreasing foodborne illness. Using multiple mediums, such as market newsletters, posters, flyers, and email; according to Yiannas (2009), increases the chances that one’s food safety messages will get through and that vendors will see or hear them several times. Workers who have knowledge of higher risks to the immunocompromised, the young, and the elderly show more concern for doing the right thing (Meysenberg et al., 2013).

York (2009) found that having both food safety training and additional interventions was more successful than training alone. Interventions included monetary rewards, multiple messaging, verbal queuing, and persuasive signage (York et al., 2009). Food safety informational sheets as a communication tool were found to increase numbers of handwashing attempts, and significantly reduce indirect cross-contamination events when used for eight foodservice operations (Chapman, Eversley, Fillion, Maclaurin, & Powell, 2010). Soares et al., (2013) found
that most influential food safety training programs utilized a mix of theoretical, practical, and food safety sheets as teaching tools to effect positive behavior change.

A lack of perceived risk due to a high confidence level of a worker’s skill is a highly documented barrier (Athearn et al., 2004; Bearth et al., 2014; Boone et al., 2005; Cates et al., 2004, 2007, 2006; Feng, 2015). Yiannas (2009) found that personal stories or testimonials of horrific foodborne illness stories add to the severity that risks have real consequences (Yiannas, 2009). Providing real-life experience may help increase workers’ perceived risk. Willis et al., (2015) showed participants who had never had food poisoning to be less likely to follow safe practices. Studies that observed food-handling practices in farmers markets concluded that there was an absence of knowledge about food safety and market managers thought there was not enough capital to invest in food safety training (Harrison, Critzer, & Harrison, 2016).

Food safety practices used by farmers on small to medium-sized farms were assessed by Harrison, Gaskin, Harrison, Cannon, and Zender (2013). Additionally, they examined managers of farmers markets in Georgia, Virginia, and South Carolina. The assessment indicated that some practices being used on small to medium-sized farms and in farmers markets might increase the risk of foodborne illness among consumers. Practices on the farms were found to be problematic, including the use of raw manure without appropriate waiting periods. It also found farms using untested water for both irrigating and washing produce. It determined a lack of sanitation training for workers, limited access to bathroom and handwashing facilities, and a lack of proper cleaning and sanitizing of facilities and equipment. Over 42% of market managers had no food safety standards in place for the market. The results showed a lack of basic sanitizing practices such as cleaning tabletops and cleaning out containers used for transport after use. Additionally,
Harrison found that fewer than 25% of markets offered food safety training to workers or vendors (Harrison et al., 2013).

**Ready-to-Eat Foods and Foodborne Illness**

RTE foods, which are foods ready to eat without further preparation, are some of the more popular items for purchase in farmers markets. However, they are associated with the occurrence of foodborne illness cases and outbreaks. Bacteria such as *Listeria monocytogenes*, *Salmonella*, *E. coli*, *Clostridium botulinum*, and *Clostridium perfringens* can survive and grow in RTE foods, therefore, causing a health risk. *L. monocytogenes* causes a higher number of deaths than any other foodborne pathogen (Contini et al., 2016). Food preparation surfaces, slicing equipment, and dishcloths used for cleaning utensils are often reservoirs for bacterial contamination of RTE foods. Glove wearing, appropriate hand washing, and exclusion of vendors working while ill contribute to preventing bacterial contamination and norovirus transfer by infected food handlers (Kotzekidou, 2016).

Contaminated fresh juices continue to cause foodborne illnesses worldwide. Between 1974 and 2014, fresh juices were involved in at least 48 foodborne illness outbreaks involving the bacteria *Salmonella* and *E. coli*, and the virus’s *norovirus* and *hepatitis A* (Martínez-Gonzáles et al., 2016). The majority of these outbreaks were linked to orange and apple juice, and the sources of pathogens included contamination by animal feces, contaminated water used in the fields, in the process, and from unclean equipment used in juice extraction.

**Food Safety Culture**

The foodservice industry consists of facilities that serve prepared food for immediate consumption by consumers. Sales in the U.S. foodservice industry in 2016 topped $783 billion, with commercial foodservice establishments accounting for the bulk of these expenditures (National Restaurant Association, 2016). For the first time in history, U.S. consumers are
spending more in restaurants than grocery stores, and millennials are choosing to spend more money dining out than eating in the home (Jamrisko, 2015).

A culture of food safety is developed on a set of mutual values that managers and their team follow to produce and provide food in the safest manner (Powell et al., 2010). Maintaining a food safety culture means that managers, staff, and vendors understand the risks associated with the products or meals they produce. They know that managing the risks is important in decreasing foodborne illness, and their behaviors regarding food handling reflect safe practices. Studies have indicated a link between employees’ observations of work environments and individual behaviors within these work environments. This is important in examining the characteristics of market management and organization, as it may show the influence of strong management and rules as a facilitator to safe vendor behaviors. Education and training are the focus of many food-handling behavior interventions. Almanza and Nesmith (2004) suggested that the impacts of food handler training programs were inconsistent, and program evaluation was generally not conducted. Powell found that in organizations where management stresses the importance of food safety through training and in practice, it may help to prevent foodborne illness (Powell et al., 2010). Also, research shows where organizations detail the importance of safe food-handling practices and their relationship to the consumers, employees better understand its importance (Yiannas, 2009).

An effective food safety culture can be characterized as one in which employees share a sense of purpose in maintaining food safety standards (Stanwell-Smith, 2013). The evidence for this can be found in a series of studies (e.g., Griffith et al., 2010; Jespersen & Huffman, 2014; Taylor, 2011). Researchers recognized that food safety problems in the food industry, in part, are caused by behavioral issues, including those involving organizational culture (Griffith, Livesey,
& Clayton, 2010b; Yiannas, 2009). Food safety culture gradually has been recognized as an emerging risk of foodborne illness outbreaks in foodservice organizations (Griffith et al., 2010a). When poor food safety culture is reflected in a lack of management commitment, organizational priority and support, and communication policy, it has been suggested it is the cause of foodborne illness outbreaks involving several food companies (e.g., Peanut Corporation of America and Maple Leaf Foods, Inc.; Powell, Jacob, & Chapman, 2011). Failures to support companywide food safety culture have brought down large food production plants, along with their management.

The goal of a food safety culture is to inspire in all workers a willingness to participate in the standards of quality in an organization. When sanitization, constant observance, and sanitary standard operating procedures become simply a way of life, no longer will workers require outside discipline or incentives to wash their hands properly, wear hairnets, or hold foods at proper temperatures; these will just be normal behaviors. Organizations with good food safety culture have individuals who not only conduct themselves accordingly but point out to those with inadequate behaviors, how to improve. In settings as close to one another as vendors at the markets are, studies have shown vendors with a strong sense of following food safety rules were empowered to speak up to others not as strict. Creating this culture utilizes several tools, including consequences and incentives. An initial way for farmers markets to develop a food safety culture could be by introducing a food safety management plan. Arendt (2015) proposed that foodservice organizations of all types would benefit from the adoption of a framework that demonstrates methods both intrinsic and extrinsic into day to day activities of food handlers. Research thus far concerning farmers markets demonstrates a need for food safety improvement but exposes a gap in knowledge in how to create a framework for them to follow. At this point, it
appears the market rules are not enforced. A good food safety culture would encourage workers to stay home if sick and pay them for it. It would also provide incentives through inspections, rewards, and more resources such as handwashing facilities.

**Efforts to Reduce Foodborne Illness**

Healthy People (Office of Disease Prevention and Health Promotion), a division of Health and Human Services, targets preventable public health issues. Because food hazards, including viruses and bacteria, enter our food supply at any time (i.e., production, transportation, processing, serving, storage) and often without our knowledge, basic training in food safety is essential to give to food handlers. Unfortunately, the foodservice industry is subject to high turnover rates, communication challenges, and cultural differences in how food is prepared. Both vendors and consumers often lack the knowledge to ascertain whether food has been cooked long enough, and which foods are time-temperature sensitive and pose a higher risk of illness. Therefore, Healthy People has made food safety an objective and includes interventions such as: reducing infection rates by pathogens in food and increasing the number of food handlers using safe practices (e.g., hot foods hot, cold foods cold, handwashing).

The CDC suggested efforts to prevent foodborne illness from occurring at all. These steps include quality assurance at the farm, inspection of meat processing facilities, the use of pasteurization and irradiation of food to kill pathogens, proper handwashing facilities, and training for managers and workers handling food.

Fightbac; a collaboration between the USDA, CDC, and the FDA; focuses on food safety education. In a program similar to WHO’s educational program, its focus is clean hands and surfaces, separation of products to reduce cross-contamination, cook foods to a safe internal temperature, and chill or refrigerate foods quickly.
Theoretical and Conceptual Framework

Farmers markets have expanded significantly over the years with consumer perceptions of having fresher foods. This has led to the development of more jobs, such as vendor and market staff, which has, in turn, created a new group of food handlers. Research shows that the mishandling of food is a major reason for foodborne illness (Pollard et al., 2016). Behavioral theories support the view that all behavior is learned and is a consequence of environmental and internal factors. Therefore, behavioral theory is of significance in improving the understanding of the need for food-handling behavior (Spahn et al., 2010). Social Cognitive Theory (SCT) is an interpersonal level theory developed by Albert Bandura that emphasizes the dynamic interaction between people (personal factors), their behavior, and their environments. SCT is instrumental in understanding the food handlers’ beliefs in their ability to affect the transmission of foodborne disease (Bandura, 2012). Despite attempts at training food service workers and vendors at farmers markets, poor food-handling practices continue to cause foodborne illness. Despite having knowledge of safe food-handling practices, workers/vendors do not comply due to a lack of time, too many tasks, a lack of resources, or a lack of sufficient workers.

This research looks at compliance to regulations in a food handling setting. There are numerous regulatory policies designed to protect the public’s health. The regulatory policies of interest here are those dictating the safe handling of food by vendors in farmers markets. Implementation of regulations can have an impact on the behavior of the targets of a regulation—in this case farmers markets and their vendors. According to Coglianese (2012), implementation and enforcement are two parts of the behavioral change process. Implementation of regulatory policies at farmers markets are not generally part of the limited training given to staff at the markets, and, literature shows training is not always done or is not always effective. One of the key components to effective rule behavior change is also the monitoring and enforcement of said
policies. In permanent food settings such as restaurants, policies are enforced through inspections that monitor staff behavior in food handling. These inspections make clear the expected behaviors, and often impose penalties when they are not enforced. This inspection process does not occur at farmers market, unless the DOH is following up on a complaint. That is one piece of the lack of safe food handling behaviors. Another piece is the other influences to achieving behavior. This includes resources at the markets that could help make desired behaviors easier to achieve.

The Theory of Planned Behavior (TPB) helps to predict and change behaviors. TPB assumes that one’s behavior is planned and deliberate (Azjen, 1985). Its foundation is that any action taken by a person is guided by: behavioral beliefs which include consequences for actions, normative beliefs which look at expectations of others, and control beliefs which look at factors that may enable or obstruct the behavior.

TPB can provide the framework to systematically explore the beliefs and commitments vendors use when making hand hygiene decisions. Identifying barriers and facilitators to safe food-handling practices at farmers markets could help in creating policy or rule interventions that encourage safe food-handling.

Green and Selman (2005) showed that even when vendors have been trained in food safety, it does not mean they practice them. TPB can help staff and management to identify barriers to practicing safe food-handling behaviors. Mullan and Wong (2011) suggested that when training food handlers, the focus on food safety needs to be twofold. First, training should focus on the negative impact poor food handling can cause on consumers, and second, to make hygienic food handling a habitual behavior. Perceived behavioral control, which is a person’s perception of their ability to perform a behavior, is linked to individuals’ opinions about how
difficult or simple a task is to complete. For example, if handwashing sinks are fully functional when needed, which includes having soap and towels, food service workers are more likely to use them (Pilling, Brannon, Shanklin, Howells, & Roberts, 2008). Additional factors that determine behavioral intentions are subjective norms surrounding the performance of the behavior and the individual’s attitude to the behavior. In other words, does the food handler understand the relationship between handwashing and food safety? Subjective norms are an individual’s perception of whether significant others think that the behavior should be performed. If perceived behavioral control is a determinant of behavior, then knowledge of the factors that impede or facilitate behavioral control is instrumental in developing interventions focusing on behavior change (Mullan & Wong, 2011). In a study of hand hygiene among physicians, Pittet et al., (2004) found physician behavior for hand hygiene was predicted primarily by variables related to the environment, social pressures such as role modeling, risks for cross-transmission of infection, and to a positive individual attitude to hand hygiene after patient care. Therefore, in farmers markets, if management’s expectation is to have safe food-handling practices among vendors, they will provide the resources needed to carry out handwashing (e.g., sinks, water, soap, towels). As with previous studies, accessibility of hand hygiene supplies and workload impacted the number of times hand hygiene was performed.
Figure 1. Conceptual framework of farmers market characteristics and vendor food handling.

By measuring the independent variables as observed, we can develop recommendations for change. If we can identify facilitators and barriers, we can focus efforts on improving variables that will increase safe food handling in farmers markets.
CHAPTER 3.

METHODS

Purpose and Research Questions

The purpose of this study was to determine the compliance to federal food codes, NYSDOH Temporary Foodservice Establishment Regulations, and local farmers market rules by vendors at capital region farmers markets. As explained in the review of the literature, farmers markets have become very popular and well attended but are loosely regulated and have the potential to cause foodborne illness among customers. The very temporary nature of the market’s venue lends itself to additional food contaminants not seen in other retail settings.

This research also examined what market characteristics act as facilitators or as barriers to vendors maintaining safe food-handling practices. Safe food-handling practices include timely washing of hands, proper glove usage, and transport and storage of food. One of the most important rules and regulations in safe food handling is the avoidance of bare-hand contact with RTE foods. Therefore, the observation of food handling practices, and hand hygiene practices was the focus of food safety compliance.

This study utilized a mixed-methods approach to determine the extent to which vendors at capital region farmers markets maintain food safety compliance in accordance with federal, state, and local laws. This study consisted of a content analysis of regulations required by law as compared to those required by capital region farmers markets; direct observation of vendor behaviors to examine compliance to regulations and to identify behaviors that act as facilitators or those that act as barriers to compliance; an observational analysis of farmers markets that examined characteristics that acted as facilitators or as barriers to compliance with regulatory requirements, and interview with market managers to determine the extent of managers influence on compliant behaviors by vendors or through market characteristics.
These methods were utilized to answer the following research questions:

1. To what extent are the individual farmers market rules reflective of federal food codes or the NYSDOH temporary food establishments specifications?

2. To what extent is there compliance to federal, state, and local rules and regulations with regard to vendor-specific food-handling practices in local area farmers markets?

3. What characteristics of the market act as facilitators or as barriers to food safety practices in farmers markets?

4. What vendor characteristics and behaviors act as barriers or as facilitators to food safety practices in farmers markets?

5. To what extent do the market managers act as facilitators or as barriers to compliant vendor behavior or to compliant market characteristics?

**Study Population**

The study sample was all of the farmers markets open in the winter in the Capital Region of New York, all vendors in the market, and the market managers. This population is inclusive of all markets open in the winter, and includes small, medium, and large markets across the capital region. Indoor winter markets were selected for study as this had not been done previously. Vendors selected for direct observation were all those selling RTE foods.

The winter markets included in this study:

1. This market accepts electronic benefits transfer (EBT) as well as SNAP benefits. It includes a variety of vendors (approximately 85), including dairies, restaurants, and numerous RTE foods such as cheese, desserts, honey products, prepared to order foods and sandwiches. This market is open from 9:00 am to 2:00 pm every Saturday.

2. This market accepts EBT cards. It has approximately 65 vendors who carry numerous RTE foods, as well as coffee, ciders, and meats. This market is open every Sunday from 10:00 am to 2:00 pm, November through April.
3. This market consists of approximately 55 vendors and is held inside the Wilton Mall. Many of their vendors accept SNAP and EBT and senior benefits. This market also sells a variety of RTE foods. This market is open from 9:30 am to 1:30 pm every Saturday from January until April.

4. This market offers a variety of RTE foods, dairy, ciders at the estimated 50 vendors. This market is open every Sunday from 10:00 am to 3:00 pm from November until April.

5. This market offers a variety of RTE foods as well as plants, cider, and vegetables by the estimated 20 vendors. It accepts both WIC and SNAP benefits. This market is open every Wednesday from 10:00 am until 2:00 pm.

6. This market has approximately 15 vendors who sell RTE foods, produce, honey products, and wine. This market accepts SNAP and WIC benefits. This market is open every Thursday from 11:00 am until 2:00 pm.

Data Collection Methods

Market Research

After receiving Institutional Review Board approval, market research began. Table 1 shows the variables used to address each of the study questions and the methods and tools used for data collection. The independent variables, as noted in Table 1, included protection of food, handwashing, compliant and noncompliant behaviors as performed by vendors and behaviors of market managers and resources available in each market.

First, the rules and regulations of each of the farmers markets were gathered from their websites if they exist. Rules were compared to regulations as required by the NYSDOH

Temporary Foodservice Establishments Sanitary Code Part 14:

14.2.1 Temporary food service establishments may only serve food that requires limited preparation requiring only seasoning and cooking.
14-2.3 c. Intact shell egg temperatures shall be considered acceptable if the ambient storage temperature is 45° F (7.2 C) or less.
14-2.3 d. Foods are to be protected from contamination during storage, transportation, and display of food: Foods are to be prepared and served with no bare-hand contact unless heated to 160 degrees.
14.2.8 Handwashing facilities are to be provided at each establishment. This facility is to be at least potable warm water, soap, and individual paper towels.
14.2.12 Toilet facilities serving temporary food service establishments are to include warm running water, soap, and individual paper towels for handwashing by employees.

14-2.16 Personnel. All persons handling food are to be free from infectious disease that can be transmitted by foods and are not to have a boil, infected cut or sore, or respiratory disease. They are to wear clean clothing, not smoke or use tobacco while handling food or in food preparation areas and use hair restraints to minimize hair contact with hands, food, and food-contact surfaces. All personnel handling food are to wash their hands with soap and water after using the toilet, smoking, eating, or when soiled. Living and sleeping quarters are to be separate from food operation areas. (NYS Sanitary Code Part 14, 2009)

Individual market rules and regulations posted on their websites were compared to the above rules on the Market Rules Compliance to the NYSDOH temporary establishment food code (see Appendix A). The extent of compliance and variation to the requirements was noted.

Categories of rules were determined that were reflective of rules as outlined in NYSDOH Temporary Establishment Sanitary Code, Federal Food Codes, and city codes (Appendix A). This form allowed for analysis of the markets rule against the expectation of compliance and allowed for the recording of variances. Appendix D outlines the rule required and the rule posted by the market.

**Direct Observation of Markets and Vendor Characteristics and Booths**

Direct observation of food safety practices in foodservice establishments, including farmers markets, allow for a better understanding of vendor food practices. Market observations examined:

- resources available, such as handwashing stations, whether trash receptacles were present, was electricity present,
- were pets allowed into the market
- how food is transported into the market; to assess compliance pertaining to the transport of food, at least one observation will be made prior to the market opening.
- number of vendors selling RTE food.
- Signage in the market such as no smoking
These observations were recorded on the Market Characteristic Form (Appendix E).

In addition, observations were conducted, and data was recorded using the vendor characteristics and behaviors form (see Appendix F). Observed characteristics of vendors and their booths included:

- apparent health indicated by lack of open wounds, coughing, or sneezing
- cleanliness, as observed by dirty clothes, hair
- whether vendors are smoking, eating, drinking, or talking on the phone while handling food
- whether the vendors have gloves or hand sanitizer in the booth and are they being used
- what number of vendors are in each booth
- whether the same person handles cash and handles food
- vendor booths will be examined to determine whether product is stored off the floor
- whether storage bins and tables appear to be clean
- are permits, if necessary, displayed
- whether a thermometer is present/utilized
- what methods does the vendor use to keep foods cold or hot
- whether foods on display are protected from contamination; and
- if hot foods are being sold, whether they are sold at 145° F or above. whether bins are of a type that is easily cleaned
- what type of food preparation is occurring since temporary establishments are limited to seasoning and cooking
- are temperature holding techniques for both storage and serving of food (food is held in coolers with ice) being monitored and what methods are used for keeping hot food

During the direct observation, all vendors selling RTE foods were observed, and their actions were recorded on the Notational Analysis Observation Form (see Appendix G). This form had been adapted from previously trialed forms (Appendix H) that gathered hand actions as
they occurred. An example of an observational study protocol is a notational analysis that consists of a tool (e.g., paper and pencil, video, telephone) that can record the occurrence of observed events in an ordered succession (Clayton et al., 2004). This form was intended for observations that involve RTE foods. The researcher recorded the observed action (e.g., handle/touch with bare hands, handle/touch utensil, glove use, eating, drinking, smoking, talking on a telephone, handling cash). Next, the researcher recorded whether the vendor was handling a raw protein, a cooked protein, or a wrapped (tissue) RTE food. Finally, the researcher recorded whether the vendors washed their hands (with water, with soap and water), used hand sanitizer, changed gloves, hands were dried (with or without a towel), or hands were not washed. Each vendor selling RTE foods was observed for one-half hour (± 10 minutes) or until 10 transactions occurred. Previous similar studies (Behnke et al., 2012; Pollard, 2012; Vandepuette, 2014) averaged from 6 to 30 minutes which was enough time for 2 to 50 transactions to occur. Some vendors will be busier than others. Recording of the hand actions by vendors was compared to NYSDOH requirements for food handling by/in temporary establishments.

**Market Manager Interviews**

In the final phase of data collection, this researcher contacted all six of the winter farmers markets via telephone to request an in-person interview with person(s) in charge of day to day operations—the market manager. During the initial call, the purpose of the study, the rights of the participants, the time frame, were explained and verbal consent was obtained. Due to the use of human subjects (interviews with market managers) Institutional Review Board permission was sought and granted through the Office of Regulatory Research Compliance University of Albany. Managers that could not meet in person were requested to participate via telephone, email or mailed questionnaire. Ideally, the location was the market itself on a day of operation at
the manager’s convenience. On the day of the interview, the manager was asked to sign an informed consent (Appendix I) that included anonymity for research participants and information gathered during observation at the markets. A list of questions for the interviews was approved for use (Appendix J).

The purpose of these interviews was to gather information on characteristics of the market manager that may act as facilitators or as barriers to safe food-handling practices at the markets. Concepts included in the interview were leadership, both in their role and in whom they report to, communication methods and topics, challenges, and concerns. Demographic data included gender, age, education, and years and type of experience. Any market that did not have rules on their website rules were explored at this time. Interviews lasted approximately 30 minutes to 1 + hour. Three interviews were conducted. One interview was conducted in person at the market during market day. One interview was over the phone, and one interview was done online through email. One manager refused and two of the markets did not have a manager at that time.

**Data Analysis**

Observational data compiled from six local winter farmers markets was analyzed both quantitatively (e.g., number of times behavior was observed) and qualitatively (e.g., interviews and market resources observed). Market characteristics were observed and noted to be potential facilitators or barriers to safe food handling behaviors. As an example, availability of handwashing stations is a facilitator to handwashing behavior and is required by DOH regulations. The food safety behaviors of 52 vendors were observed on 2 or more occasions. Compliance rates to NYSDOH Temporary Establishments regulations were calculated by dividing the total number of times the all vendor behavior as observed by the number of times it
should have been observed. For example, was food protected from contamination during transport using plastic wrap or other means?

**Research Question 1. To what extent are the individual farmers market rules reflective of federal food codes or the NYSOH temporary food establishments specifications?**

For research question one that examined market rule compliance to state, federal, and local codes, this researcher utilized local market compliance to NYSDOH temporary establishment sanitary code, federal food codes, and city codes (Appendix D) form. This form allowed for a comparative analysis of each markets rule (Appendix E) against the expectation of compliance and allowed for the recording of variances. Additional data were analyzed from the Vendor and Vendor Booth Characteristics Form. Each market was analyzed individually noting market rules match to required rules.

**Research Question 2. To what extent is there compliance to federal, state, and local rules and regulations with regard to vendor-specific food-handling practices in local area farmers markets?**

Research question two addressed the compliance to independent variables as outlined in Table 1. Observations included hand hygiene practices as seen through observation of a vendor or through vendor transactions with customers, glove use, no bare-hand contact as observed by each vendor handling RTE food, the observation of pets, resources such as trash receptacles and handwashing sinks. As an example, a bare hand picks up a raw beef patty and places it on the grill. Then, the hand touches the bun for the beef to go on. The violation would be touching the roll without first washing hands. Hand hygiene requirements are based upon industry guidelines as outlined in federal food codes (U.S. FDA, 2017b).
First, employees shall clean their hands and exposed portions of their arms as specified under § 2-301.12 immediately before engaging in food preparation including working with exposed food, clean equipment and utensils, and unwrapped single-service and single-use articles and: (a) after touching bare human body parts other than clean hands and clean, exposed portions of arms; (b) after using the toilet; (c) after caring for or handling service animals or aquatic animals; (d) after coughing, sneezing, using a handkerchief or disposable tissue, using tobacco, eating, or drinking; (e) after handling soiled equipment or utensils; (f) during food preparation, as often as necessary to remove soil and contamination and to prevent cross-contamination when changing tasks; (g) when switching between working with raw food and working with RTE foods; (h) before donning gloves to initiate a task that involves working with food; and (i) after engaging in other activities that contaminate the hands.

Descriptive statistics include frequency analysis of opportunities presented against specific hand requirements against opportunities taken. Observation of hand hygiene processes was coded in Excel for analysis. Coding reflected the hand action observed, then gloves worn (yes/no), gloves changed (yes/no), hands washed under running water (yes/no), was soap used (yes/no), were hands dried (yes/no), how were hands dried (e.g., paper towel, hot air, cloth towel, clothes, not dried), and was hand sanitizer used (yes/no).

**Research Question 3. What characteristics of the market act as facilitators or barriers to food safety practices in farmers markets?**

**Research Question 4. What vendor behaviors act as facilitators or barriers to food safety practices in farmers markets?**

**Research Question 5. To what extent do the market managers act as facilitators to compliant vendor behavior or to compliant market characteristics?**
Questions three through five examine market and vendor characteristics and behaviors and how they act as facilitators or barriers. Facilitators are identified through the compliance with regulations data (frequency). As an example, a market that provide electricity to vendors allows the vendor to use mechanical refrigeration. Additional facilitators were also identified through data gathered during the interviews with market managers. Managers stated what they thought was both good and poor characteristics of the markets and vendors. Barriers were also identified through compliance with regulations data and through market manager interviews. Qualitative analysis was conducted to identify common themes as expressed by the market managers.
CHAPTER 4.

RESULTS

This research identified gaps in food safety as it related to compliance with regulations required by federal, state, and local government by farmers markets and their vendors. A total of six markets were visited that held from 6 to 85 vendors. Of the 246 vendors in the markets, 52 (21%) of them sold RTE food.

Findings from Research Question 1. To what extent are the individual farmers market rules reflective of federal food codes and the NYSDOH temporary food establishments specifications?

A comparison of market rules to federal, state, and local rules are as follows:

The results for code 14.1.2 which requires only a minimal amount of cooking be done at the market, showed compliance to regulation was 100% at 4 of the 6 markets. Two markets had no written rules. Of the markets that had all-encompassing rules to abide by all requirements, one market specifically addressed no cooking at the market.

The results for Code 14.2.3c, which requires intact eggs be sold while held at 45 degrees or less, showed 3 of the markets had 100% compliance in their rules (all-encompassing), 3 of the markets had no rules regarding the sale of eggs. All but one market sold eggs.

The results for Code 14.2.3d, which specifies foods are to be protected from contamination, including no bare hand contact, showed 3 of the markets had 100% due to all-encompassing rules, 3 had no rules addressing this.

The results for Code 14.2.8 that require handwashing facilities are present and must have water, soap, and paper towels showed 3 of the markets had 100% compliance due to all-encompassing rule. Three had no mention of handwashing facilities. None of the six markets had handwashing facilities outside of the restrooms.
The results for Code 14.2.12, which requires toilet facilities and that they have water, soap, and paper towels showed 3 of the markets had 100% compliance due to all-encompassing rule. Three had no mention of toilet facilities. All of the markets had at least one restroom. One market had two. One of the markets restrooms had signage indicating not for public use.

The results for Code 14.2.16, which refers to the cleanliness and health of the vendor, showed 3 of the markets had 100% compliance due to the all-encompassing rules, three had no mention.

In summary three markets had rules in their markets that stated all federal, state, and local rules must be followed. One market had some rules that reflected some rules as required by law. Two markets had no rules. Reselling rules were prevalent in the rules that were present. These focused on how vendors cannot by products somewhere else to sell. Some of the other rules found included what percent of a product had to be made by the seller. For example, if a vendor sold cannolis they were expected to make both the shell and the filling. Rules also reflected penalties for rule violations such as fines for being late to the market.

**Findings from Research Question 2. To what extent is there compliance to federal, state, and local rules and regulations with regard to vendor-specific food-handling practices in local area farmers markets?**

All market vendors (246) were observed during the original walk through of the markets. Table 2. Compliance to Regulations by Farmers Markets and Their Vendors shows market and vendor compliance rates to federal, state, and local regulations. Table 3 Shows the percent compliance to rules by market characteristics. Due to a small sample there were no significant relationships noted.
Handwashing, Hand Sanitizer, and Glove Usage

Observations were made of 52 vendors for behavior that required handwashing. The original intent was to record behavior and handwashing attempts, but since handwashing was not observed in any behavior the notational analysis was discarded. None of the 52 observed vendor behaviors that would by regulation require handwashing, washed their hands.

Observations for gloves and glove usage showed only 7 of the 52 vendors had gloves displayed at their booths. Seven vendors were observed using gloves, but unsuccessfully, as they did not wash their hands prior to putting on gloves, nor did they change gloves after handling cash, trash or eating.

Hand sanitizer was observed at the booths of 17% of the vendor booths, but it was not observed being used.

Personal Hygiene, Vendor Booth Appearance

Observations made of 52 vendors noted cleanliness of vendor (no visible dirt, clothes clean hair clean) in 99% of the vendors. This held the same for vendor booths being clean (99%).

Personal behaviors of the 52 observed vendors, that did not conform to DOH regulations included ten vendors were eating while serving food and 13 vendors were talking on the telephone while waiting on customers. Five of the six markets were orderly, and vendors and their tables appeared to be clean (i.e., clothes with no visible dirt, tables of an easily cleaned material, a disposable or easy to clean tablecloth) and 214 of the vendors appeared to be in good health (i.e., no obvious signs of respiratory illness such as coughing, and no open wounds or sores). Approximately half of the vendors had hair restrained, including hats, hair tied back, or a baseball cap. Vendors had hats on to keep hair out of their face and food or to keep warm, as it was cold at these markets.
**Bare-Hand Food Contact**

Bare-hand food contact occurs when a server uses no barrier between their own hands and the customers RTE food item. When done correctly, RTE foods are served using utensils such as tongs, spatulas, spoons or with the use of deli tissue, foil, or a napkin. Bare-hand food contact was observed in 182 of the 500 or more recorded transactions. The largest mishandling occurred from vendors bagging RTE products without a barrier such as gloves or tissue or with appropriate utensil such as tongs, in 144 of the transactions.

**Minimal Cooking**

Minimal cooking as specified in the NYS Temporary Establishment Food Code 14.2.1 limits food preparation at these markets to seasoning and cooking. This excludes thawing of foods, extensive food preparation such as cutting foods, mixing ingredients, cooling of potentially hazardous foods (PHF), and washing of foods. Regulations also require that a thermometer be utilized to assure proper temperatures are achieved and maintained.

Two vendors appeared to be involved in more than the minimal amount of food preparation, as outlined by DOH. A juicer was set up chopping fruits and vegetables then juicing in the market. Crepes and waffles were being made from scratch on-site, which may also be beyond minimal cooking expectations.

**Eggs**

While vendors selling direct to consumers at farmers markets are exempt from grade and size labeling requirements, eggs must be refrigerated and maintained at an internal temperature of 45 degrees. None of the 24 vendors selling eggs had eggs refrigerated. Even inside during the winter months the market temperature was well above 45 degrees.
Protection from Contamination

Although NYSDOH regulations (14.2.15) require that food be protected during transport, storage and display, there were 2 incidences of mishandling. For example, during load-in in the morning, and throughout the day sheet trays of pizza were carried a block down the street, into the market and placed on a table all day without any covering on the food. The majority (216 of 246) of vendors stored their coolers or bins directly on the floor. Twenty coolers and bins were open the entire time (average four hours), which increased the possibility of cross-contamination from rodents, dogs, or people passing by the coolers. Vendors stored food in cardboard boxes, which in addition to not being easy to clean, tend to harbor insects. Of the vendors selling RTE hot foods, the majority had appropriate protection in place, such as sneeze guards, or in individual bags. Contamination was observed in 50 of the 52 vendors when they handled cash and RTE foods concurrently.

Handwashing Facilities/Toilet Facilities Provided

Handwashing facilities which include warm running water, soap and disposable towels are required by code 14.2.8. While handwashing facilities were available in each market’s toilet facilities, there were no other handwashing stations. There was one restroom in five of the markets and two in one of the markets. The code specifies that handwashing be done frequently and details reasons when it should occur, and states that handwashing stations be convenient. All of the vendors had access to a restroom, but many were 50 to 100 feet from their booths. To use the restrooms would have required the vendor to leave his or her merchandise and take his or her cash box along. At four of the markets, the restrooms were not within sight of the vendors booth. Also observed were vendors wearing one glove on the serving hand, handling cash, and not changing gloves during the observation period. Correct glove usage, as previously detailed, was
minimal (less than 1%). Approximately 14% of the vendors had gloves at their booths. Observations of seven vendors attempts at glove use occurred, 0% actually used them correctly. Hand sanitizer was present in 8 of the booths but was not observed being used. Gloves were misused, with vendors using the same pair of gloves for the duration of the observation period without ever changing them. In between waiting on customers, ten of these vendors were observed eating and 13 were talking on the telephone with no hand hygiene or glove change exhibited. As no vendor completed the handwashing protocol, the notational analysis was discarded from the results.

**Reselling of Foods**

The four markets that had rules made mention of vendors not being allowed to resell foods at these markets. While difficult to ascertain the origin of foods, at the winter markets it would be unusual for certain out-of-season items (lettuce) to be present. During the observations at the winter markets two vendors were selling food not likely to have been grown locally at this time of year.

**Temperature Monitoring**

NYSDOH Temporary Establishments code 14.2.3 part E states that potentially hazardous foods, with some expectations higher, need to be heated to 140 degrees F. This requirement was not included as it would have entailed purchasing the food items and temping them on the spot. Vendors selling hot RTE foods were however observed for temperature controls. No vendor was observed using a thermometer during the observation of foods being held warm or at booths where cooking was being done.

Vendors selling cold foods were monitored for food-handling practices with regard to holding, storing, and serving of foods. As with hot foods, at no time did a vendor use a
thermometer. Foods, seafood, and venison in particular, were held in glass-top, wooden display cases that contained no ice. According to the USDA Farmers Market Rules (2018), all meat and poultry items must be kept frozen and monitored by the use of a thermometer. Meats were displayed with no refrigeration, and evidence of thawing occurred prior to the close of the market. Coolers were being utilized to hold back-up products, but of the 30 coolers observed ice/ice packs or dry ice were not being used.

In total, four dairy booths were observed during the timeframe. Two of them held and transported milk and cheese in mechanically cooled units; two used coolers. These same dairies transported in refrigerated trucks. Booths had cheese and yogurt on tabletops in booths with no cooling methods in place. Other than their samples, these items were prepackaged, which eliminated a number of the RTE issues.

The majority of products were stored in coolers, with or without ice. Foods will only stay at or below 40 degrees with careful monitoring of temperatures with a thermometer and with replenishment of ice. Again, observations yielded no monitoring of temperatures of foods inside these winter markets. Another issue to note is that foods that have sat out for more than two hours should not be put back in the cooler to rechill. Food held over 40 degrees for more than 2 hours is considered unsafe to eat, and it should be disposed of. Mechanical cooling, such as chest refrigerators, was used in 10% of the booths. No cooling of any kind was seen in 13 of the booths selling RTE foods. Additionally, no thermometers were seen during any of the observations. Hot foods are to be served at or above 140 degrees. RTE hot foods were served out of warming units heated by Sterno. The danger zone for food to rapidly grow bacteria is 40-140 degrees F. Twelve food purchases were made and temperatures were taken. All items fell below the required temperature of 140 degrees.
Findings from Research Question 3. What characteristics of the market act as facilitators or barriers to food safety practices in farmers markets?

A general site visit was made to each market to determine what, if any, resources were available to vendors in support of complying to food safety rules. All of the six markets were observed at least twice to capture various tasks as practiced. Their sizes were 1 micro (5-8 vendors), 1 small (9-30 vendors), 2 medium markets (31-54), and 2 large markets (55-90 vendors).

The market characteristics that acted as facilitators to safe food-handling practices included the availability of electricity, and the availability of trash receptacles. Vendors could plug in refrigeration units and warming units if desired. Most relied on warming units heated with Sterno instead because there was a charge for power, a barrier. Trash receptacles, which also act as a facilitator, were provided by some of the vendors selling RTE foods, and most markets had at least one public trash receptacle.

Barriers to safe food handling included a lack of handwashing stations, a lack of signage, a difficult method for load-in of product to the markets, a charge for power and a lack of resource including thermometers, pallets to store food off of the ground, and gloves.

None of the markets had handwashing stations in the vicinity of the vendors, which was a barrier to hand hygiene. Each of the markets had a restroom in the area of the markets available to vendors and to customers (although one market’s restroom stated it was not open to the public).

A lack of signage that addresses food safety was another barrier. There were no hand hygiene signs posted in the market, but there was a handwashing procedure sign in all the restrooms. Only one market had signage regarding no pet allowed. Despite this, 50% (n = 3) of the markets were observed having pets inside.
Markets were observed at different times, including during loading-in, when vendors arrived at the markets anywhere from one to over two hours prior to markets opening to bring in their goods. Generally, hand trucks with bins and coolers were utilized to transport goods into the market areas. Vendors made multiple trips and, in most cases, then had to move their vehicles when finished. This added to storage time of food, and to potential issues with temperatures of foods. One vendor was observed repeatedly bringing food into the market not protected from the environment. Very few vendors had refrigerated trucks for use during transportation. Numerous products; including poultry, eggs, and dairy; should be transported in temperature-controlled trucks to maintain appropriate cooling.

Additional physical market characteristics that also acted as barriers to safe food-handling practices included a lack of supplies such as gloves, thermometers, and hand sanitizer. Since there were no pallets, bins and coolers were stored directly on the floor. Vendors had enough to load-in with merchandise and tables. Although not physical, another market characteristic that acted as barriers to safe food handling included a lack of rules that would make expectations of vendor behavior clear. No signage directed consumers to wash their hands or where they could do so. No food safety signage was available that could help consumers protect themselves with educational recommendations for food bought at these markets.

Findings for Research Question 4. What vendor behaviors act as facilitators or barriers to food safety practices in farmers markets?

Vendor behaviors that acted as facilitators during observation included the use of multiple vendors in a booth, protecting food during transportation with refrigeration, and by packaging food for sale individually to decrease bare hand contact. One facilitator was observed when multiple vendors were in a booth, and one handled food while one handled cash. However, this was seen in less than 4% of the 52 RTE vendors.
Providing protection to food as it is transported along with temperature control methods was a facilitator that improves safe food handling methods. Some vendors (8% n = 4) used refrigerated trucks to maintain temperatures.

Vendors behaviors decreased bare-hand food contact by selling individually bagged food items. This helped decrease cross-contamination by decreasing bare-hand food contact.

Vendor behaviors that acted as barriers to safe food handling were abundant. Barriers observed included not protecting food from contamination while in transport, either from not maintaining correct temperatures, from not covering food to keep safe from elements in the environment, or from the lack of thermometer use.

While this study did not observe any on farm transport, it did observe transport into the markets. A variety of transport methods carried products to the market, including open and enclosed trucks and in the trunks of cars arrived at the markets to offload in the morning. Products were in coolers and boxes which were placed on the ground, next to vendors vehicles, prior to being brought into the markets for display, because there was nowhere else to put them at the time.

Vendors did not monitor cold or hot foods, as evidenced by a lack of thermometers, which was a barrier to safe food handling. Numerous vendors held temperature-sensitive food such as dairy and RTE meals without mechanical refrigeration or heating.

Cross-contamination was a barrier to safe food handling as observed when vendors handled cash and food items concurrently. It was also evidenced by the lack of available resources to clean utensils as they became contaminated.

With the implementation of reusable only bags, signage regarding washing of bags between uses, especially from raw meats to produce, could have been a facilitator if posted.
While observing, it appeared vendors were not supplied with gloves or hand sanitizer to stand in for a lack of handwashing stations. Vendors were eating, drinking, and talking on the telephone without ever sanitizing their hands. While some vendors attempted not to touch food with bare hands, those vendors who were very busy made little effort.

**Findings for Research Question 5. What role do the market managers play in encouraging compliant vendor behavior?**

Market managers’ responsibilities include oversight of the vendors, such as verification of permits, plans for vendor setup, collection and payments of fees, advertising, special events planning and enforcement of rules, including oversight of food safety. Questions asked were meant to cover a variety of subjects such as challenges, resources, and food safety training. Open-ended questions helped to get managers to expound on information not readily available through the website or through observations. Some common themes were identified when analyzing the interview data, shown in (Table 4). Two of the three managers mentioned they were just babysitters. Two of the three expressed concern over getting vendors in place on time, which indicated to them, a lack of importance on the vendors part. Similar, to comments from managers in the McIntyre et al., (2014), he too believed more support from local regulatory agencies would be beneficial.

Three market managers stated they communicated via email with their vendors on a weekly basis. The communication was usually about arrival to the market and being set up on time.

Market managers face numerous barriers. Staffing for these markets can range from a FT manager at the larger markets, to a volunteer crew at smaller markets. The markets manager position ranged from 1 full-time manager who was overseeing 80 or more vendors to small markets where 1 vendor got a discount on his dues to be the manager, to those that currently had
no manager. Interviews with market managers indicated they had entirely different responsibilities and challenges at each of these markets. The manager at the smallest market was a vendor of the market who received a reduction in fees to perform basic duties. He oversaw setup, and collection of fees. He demonstrated little knowledge in safe food handling requirements, such as hand washing or temperature control. He felt their biggest challenge was in making any money.

The manager of the medium-size market was a government employee and stated he could not share much information. His rules did not allow food preparation on-site, so this diminished some food safety issues. This market had the highest level of compliance but had issues with bare-hand food contact with RTE foods, and a lack of hand washing stations were observed.

The market manager at the largest market had a lot to offer in challenges to his position. He believed the challenges of organizing vendors was time consuming (e.g., set-up on time) and did not allow time to prioritize food safety rules. Half of the markets allowed pets, and this manager was annoyed by people bringing in pets, despite “no pets” signs, and he discouraged this practice.

This manager thought much could be improved upon with both physical resources such as sinks, and food safety training for the vendors. He said it was well known to the vendors that the local DOH only came to the market when following up a complaint. He also acknowledged the need for clarification and help to implement regulations. This same manager assumed that some governmental agency was watching permit requirements, cottage industry requirements, weights and measures, and food safety. In reality, he acknowledged that there was little oversight in these areas. According to this market manager, a lack of disciplinary action as a result of poor behaviors was known to the vendors. As a result, they did not feel threatened by the market
manager when approached about food safety requirements. He indicated that the vendors knew no one was checking up on them and knew there would be no repercussions. During the interview portion of this research, two managers expressed concerns about the permitting process and how it could be better streamlined. One suggestion that was mentioned, was to have all permits expire prior to the summer (busy) season. This would allow market manager to incorporate collecting of permits as they do with vendor agreements, and certificate of insurance annually. Of the three managers I communicated with, only one had any training in food safety. One manager had some knowledge gained on his own but admitted thy all needed training.
CHAPTER 5
CONCLUSION

Discussion

Farmers markets, which are temporary establishments offering various commodities for direct sale, are less regulated by the NYSDOH than permanent structures such as restaurants. While there has been significant research done (Bellemare et al., 2015, Jones et al., 2004; Painter et al., 2015) on foodborne illness and safe food handling as practiced by food vendors, many of those studies look at restaurant workers and their hygiene behaviors in food handling. With the growing popularity of farmers markets in the United States, the growing amount of public benefit money given to at risk populations, and the growing problem of foodborne illness, it is important to develop a better understanding of food safety policies and food handling behaviors in these markets.

The principle objective of this study was to determine the level of compliance to federal, state, and local food safety regulations that occurs in local farmers markets. The compliance portion of this research was designed to assess rules as issued by local farmers markets; to assess vendors behaviors as observed for food handling practices; and to observe local farmers markets for compliance to regulations. Additionally, observations included understanding characteristics that acted as facilitators or barriers to achieving safe food handling. This study analyzed a small sample of winter farmers markets (6) and their vendors (246), 52 of which sold RTE food and conducted interviews with 3 of 6 market managers. Results of this study indicate that there is a deficiency in rules as specified in farmers markets, in vendor compliance to rules, and in training.

Regulations in food safety are confusing at best, but some basic rules apply to all food service settings: food is to be held at the proper temperature during transportation to the markets,
while being displayed and when sold; RTE foods are not to be exposed to bare-hand contact, and handwashing is to occur when soiled, after using the restroom, after eating or drinking, and after handling raw proteins. This study showed farmers markets to be inconsistent with which regulations they included in their rules, their behaviors, and in their enforcement. One previous study (Hamilton, 2002) discussed the need for clarity in farmers market rules. Having a rule that states one must comply with all government rules may help bridge the gap to legal requirements, but it lacks the specificity that would facilitate vendors implementation of regulations in food safety meant to protect the public health. There also needs to be a way to implement the rules. Requiring handwashing yet not providing handwashing stations is not beneficial to anyone, markets, vendors, or customers. Having and implementing food safety rules may help to maneuver all vendors into compliant behaviors, thus, encouraging and developing a culture of food safety. Therefore, having explicit rules that address all components of the NYSDOH Temporary Establishment Food Code is the starting point for safe food handling for the markets.

Requirements specific to selling directly to consumers at farmers markets include the need for various permits and licenses that must be obtained prior to be approved as a vendor. These requirements are specific for selling under the permit or license granted in New York. These agencies (NYSDOH and Agriculture and Markets) have detailed food preparation and temperatures at which foods must be held. A large number of vendors need a 20C License which allows them to cook, reheat, blend, baked breads/desserts, can, preserve, prepare and package RTE foods, to sell milk and milk products and to sell eggs. The market managers’ checklist (see Appendix D) details permits requirements for selling produce, fish, meats, cider, juice, dairy and processed foods. Displaying permits may reiterate what processes for food handling are required by food group.
Similar findings that examine compliance of farmers markets rules to government required rules were nonexistent but some studies (Benhke et al., 2014; McIntyre et al., 2014) did mention lack of compliance to behaviors required by code. Findings from this study examined the extent of compliant food handling behaviors are consistent with many previous observations—it is lacking in farmers markets. In a study examining handwashing behaviors, McIntyre et al., (2014) saw no handwashing despite some of the markets having handwashing facilities. Although most of this study’s findings are consistent with other studies, there are some differences. Direct observations of the markets showed market resources that acted as facilitators and as barriers to safe food handling practices. For example, handwashing stations throughout the market may act as a reminder to vendors to wash their hands as appropriate, therefore, acting as a facilitator. Handwashing facilities were limited to those in restrooms and handwashing was not observed. These results are similar to Pollard et al., (2016), where none of the vendors had a handwashing station, and only one had a toilet facility, and in research by Vandeputte et al., (2014), who reported 93% of the markets had no handwashing stations. Research supports that the unavailability or inaccessibility of handwashing stations decreases the adherence to hand hygiene (Pragle et al., 2007; CDC, 2002).

Prior research (Bellemare., 2015) suggested some of the problem behaviors (e.g., no handwashing facilities) seen in summer markets may not be indicative of the winter markets, due in part to their permanent structure. However, in this, we found that there were no handwashing facilities outside of the restrooms, and vendors did not appear to use them for purposes of regular handwashing.

In the current study, 99% of the vendor booths were clean. However, Vandeputte et al., (2014), in a study of vendor food handling behaviors in Rhode Island farmers markets found that
81% of the vendors to have unclean clothing. This difference may be due in part to their study being conducted in the summer when produce is often harvested prior to the markets, which may cause unclean attire, and our study done in the winter.

Additionally, this study reinforced the knowledge that many vendor behaviors act as a barrier in protecting food from contamination. As with Behnke’s (2012) study, this researcher observed numerous incidences of cross-contamination from vendors handling cash and RTE foods, with no hand hygiene occurring. As in Boshell (2008), who determined 60% of vendors handled RTE foods without proper barriers, bare-hand food contact was apparent throughout the markets observed, with vendors handling RTE foods without protection between themselves and the foods they were selling. Additionally, as in the McIntyre et al., (2014) study, foods were being stored directly on the ground/floors of these locations, which is also not permitted by regulation.

As in McIntyre et al., study, this study showed food left exposed during transportation and display, as well as a lack of temperature monitoring. Temperature control was poor in both keeping cold foods cold or hot foods hot. Temperature control is very important to maintaining food safety and can be accomplished by frequently checking temperatures of foods being sold. Pollard et al., (2016) also found a lack of temperature control when studying farmers markets in Virginia. Pollard found that approximately 50% of the vendors utilized some form of refrigeration for foods, but that no one used a thermometer. Pollard et al., (2016) observed temperature abuse in 68% of the products observed, which is similar to this study’s results. As with this study, Pollard et al. showed a lack of thermometer usage. Teng et al., (2004) found unacceptable storage of cheese, resulting in cheese temperatures above 41 degrees, also seen during the observations in this study. Young et al., (2017) showed a higher average of
mechanical refrigeration methods (40%-90%), where this study observed 10% use of mechanical refrigeration. The observed markets did offer electricity, which could have led vendors to utilize mechanical methods of heating and/or cooling, but the majority of vendors chose not to use them anyway.

Results from the market manager interviews indicated that rules were not clear, nor were they enforced. Similar to comments from managers in the McIntyre et al., (2014) study, one manager felt more support from local regulatory agencies would be beneficial. He said it was well known to the vendors that the local DOH only came to the market when following up a complaint. Regulatory inspection could improve safe food handling practices in these temporary settings, if for no other reason than advice and resource they may receive from DOH survey members.

Two of the markets did not have managers at the time of interviews. This could be from high turnover rates as observed. High turnover rates act as a barrier to getting employees to a workplace culture such as a food safety culture. When searching for managers, it was noted that the managers listed in online resources for farmers markets had been at other local markets in the past. In a previous study by Barbour et al., (2014) results showed low market manager salaries and high turnover in these positions, left markets vulnerable and to a high closure rate. This study also suggests market managers roles could enhance safe food handling behaviors by either encouraging vendors to take efforts at protecting foods or to provide resources that may promote safe food handling practices, such as handwashing stations. As was evident in a study by Clayton et al., (2010), knowledge does not always lead to proper or desired behaviors in employees. SCT has shown that a lack of resources, such as handwashing stations and thermometers, acts as a barrier to safe food handling. Farmers markets lack numerous resources that could facilitate
correct behaviors. The markets must offer training that is needed, but only one of the six did. We know from past research (Adesokan et al., 2015) that trained managers have better food safety inspection scores than those who are not trained. There are many resources for food safety training, free of charge, available as tools. There are online classes; the local DOH departments have printed materials, including signage and hand-outs. All of these should be implemented for vendor, market manager, and customer education. Since previous research (Scheinberg, 2016) shows consumers think foods at farmers markets are safer than grocery stores, they need to be educated about handling and consuming RTE foods and produce they buy at these markets. Markets could also provide pallets for farmers to store food off the ground. Having a manager who enables facilitators and enforces policies is the start of moving toward a food safety culture, which is currently lacking. Providing a thermometer would help vendors monitor food temperatures. Until markets change the environment of the markets, it will be difficult for vendors to act appropriately. Vendors who understand that their behaviors impact food safety, and who work in a place that promotes food safety culture, will make efforts to do so. Stakeholders, including the boards of the markets and the market manager, need to communicate expectations of food handling at the markets, provide the resources needed, and enforce the policies that should reflect the regulations of the government.

**Impact on Public Health**

Food safety in farmers market is important to our public’s health for many reasons. The fact that government has encouraged attendance at these market with SNAP and other benefit programs is one. Another reason is the vulnerability of the population that we encourage to attend these markets and use their benefits including the very young and the very old. People of all age groups, race, gender, and income level attend these markets. Providing educational materials to vendors and to customers in attendance is vital. WIC provides educational materials
that detail how to select foods at the market, how to transport them safely back home, how and when to wash produce, and how to safely prepare foods. SNAP provides educational programs right in farmers markets that cover food safety topics including handwashing and proper temperature for storing and serving of foods.

According to the World Health Organization (WHO; 2007) in the United States, contaminated foods, including from temperature abuse, lack of hygiene, mishandling and chemicals, are to blame for nearly 76 million infections, 325,000 hospital cases and 5000 deaths every year. The WHO also reports that temperature abuse (undercooking, improper reheating, or cooling of foods) is responsible for 44% of all foodborne illness. Unrefrigerated eggs were prevalent in five of the markets. While *Salmonella*, as previously discussed can be killed in heating foods to high temperatures, egg cooking does not always achieve that. *E. coli*, as previously discussed, has been the causative agent in many of the past several years large produce contaminations. As it can remain on produce during transportation to the market it is important that vendor hands are clean, and that consumers are informed to wash produce prior to ingestion (Pietrangelo, 2015).

In addition to needing to decrease foodborne illness, the costs of this disease continue to climb. The most recent figures from Scharff (2015) estimate foodborne illness and its associated costs are an annual economic burden of 5.6 billion in New York State alone. Interventions, such as providing resources that promote food safety at farmers markets, may help decrease the costs associate with foodborne illness including medical expenses, lost productivity, and death. Cost-of-Illness estimates are useful when policy makers are looking to show the cost-benefit of the intervention against the expected cost per case of the illness (Schraff, 2015).
Food-borne illness, which is a largely preventable disease, is very dependent on proper handling of foods, providing correct temperatures of foods in transportation, storage, cooking and serving. Hand hygiene continues to be the best method for the prevention of transferring diseases. Maintaining proper hand hygiene is imperative in these markets. Results from the findings show a great deal of improvement needs to be done with farmers markets. Therefore, it is important that the resources-handwashing stations, soap, water, and paper towels are in place. It is also important that vendors have the knowledge of when to wash their hands, and other hand contact practices that need improving, as well as protection of food. This can be provided in training and reinforced with signage throughout the marketplace. It is important that training highlight the severity of illness that can result from poor hand hygiene and from mishandling of food.

**Recommendations for Practice and Policy**

There are opportunities to make improvements to safe food handling practices at the farmer markets and to promote a culture of food safety. The first recommendation is to improve the clarity of rules and regulations for the markets by all applicable governing bodies. In an effort to promote safe food handling behaviors, explicit rules that detailed expectations should be made clear to vendors by the market manager, and all markets should have written rules. Market managers and vendors need to understand their roles in the public’s safety.

Identifying the target audience as a board of directors, market manager and staff, market vendors and customers, allows us to make market operation adjustments to a group with varying purposes. Each of these groups have different goals and responsibilities. The board of directors needs to assure roles and job duties are carefully outlined for staff. As the board has the approval of those allowed to set up as a vendor at the market, they need to approve not only what is sold by vendors, but how it is sold. Adhering to DOH rules for temperature monitoring, food displays,
and handwashing will allow the board of directors to assign who will be responsible for thermometers, refrigeration, hand washing stations, as well as means to keep food off of the ground and protect it from the weather. If the market is not providing those resources, they still have to be responsible for assuring compliance.

According to the Federal Food Code for Temporary Establishments, local regulatory agencies should develop a plan for monitoring compliance. While this is not specifically addressed in the NYS Temporary Establishment rules they do mention that the permit-issuing official or designee may enforce requirements. Requirements that are mentioned include: thermometers (metal stem-type, numerically scaled indicating thermometers-calibrated), that sufficient hot and cold storage facilities are provided to maintain temperatures during transportation and display, and that foods are held and served at proper temperatures.

Vendors, depending on what they are selling, are required to have permits issued by either the NYSDOH, The NYS Department of Agriculture and Markets, and/or the county or local area. Certifying permits and display of such, would generally fall to the market manager and staff. At this point in the certifying process, in-service education for vendors should be mandatory prior to assigning booths for each season. If vendors are given training on hand hygiene requirements, temperature requirements, proper transport, display and handling of food, labeling requirements, sampling procedures, the responsibility for safe food handling practices now falls also to the vendors.

Changing and enforcing the rules to increase food safety, especially considering the current pandemic, should be acceptable to all parties. Advertising that includes safety precautions such as market vendors are trained in food safety could be an advertising bonus that draws more customers as well. Additionally, signage for customers regarding safe food handling
helps keep attendees safe too. Consumers assume that produce is RTE, but it should be washed just prior to consumption. Educating consumers to food handling tips can be done with signage available at no cost from local health departments. Consumer education should be included in training efforts. According to one of the managers, people currently only complain if all of the products sold are not grown by farmers. They need to be more concerned about the safety of the food.

In summary, recommendations to policy changes are as follows:

1. All farmers markets should have clear rules in place that address, at minimum, safe food handling practices dealing with temperature requirement of foods during transportation, display and selling of foods; elimination of bare-hand food contact with RTE foods; and prevention of cross-contamination of foods during transportation, display and selling of foods. This process should begin with an evaluation of the market’s rules.

2. NYSDOH or designee should monitor compliance to the above rules

3. Resources as required are provided by the market or by the vendor including hand washing stations, thermometers, pallets to eliminate storage of food on the floor, and electricity to maintain foods in required range.

Vendors need to improve their food-handling behaviors. Transportation, storage, and handling of foods showed a lack of compliance in these areas. Transporting food into the markets uncovered is unacceptable, and market managers should intervene in those instances. Temperature control is the responsibility of the vendor, just like compliance with rules issued by Weights and Measures. Prepackaging of RTE food would be an enormous help in protecting
food from contamination and from bare-hand contact. Not a single thermometer was in use during observations, which is unacceptable when selling foods classified as RTE.

**Strengths and Limitations**

There were several limitations to this study. The study population was purposefully restricted to winter markets, which resulted in a very small group, limiting its generalizability. While all of the markets were visited at least twice, not all of the market managers were interviewed. Two markets did not have a manager at the time, and one was not interested in participating in the study. Conversations with the three market managers indicated high turnover rates among local farmers markets. Additionally, information was not collected directly from the vendors. This was intentional, as numerous studies address vendors’ thoughts on their hand hygiene.

Despite limitations, there were several strengths to this study. The inclusion of all of the winter markets helped to decrease selection bias. Also, direct observation is considered to be the gold standard of assessing food handling behaviors (Powell et al., 2013) which was used throughout. This research was novel in its focus on compliance to regulations. Other studies have focused on specific behaviors as opposed to market and vendor compliance to required behaviors. This study fills a gap in knowledge regarding the lack of compliance not only to local market rules but also to state and federal regulations. It also points out some markets have no rules and little to no management presence.

**Future Research**

In light of the lack of success to decrease foodborne illness, and due to the pandemic, future research could incorporate consumers into a study by asking their understanding of vendor requirements in safe food handling. If customers became more insistent on correct vendor behavior, and on requiring markets to provide handwashing stations and other resources to meet
regulatory needs, vendor compliance may improve. Future research could look into how best to provide education on food safety to customers while shopping. Discussion at booths by vendors is one way to educate, as is providing signage and take-home flyers. A study that examines roles, hours worked and pay may provide more insight into managers impact on food safety.

Since previous studies show little improvement in food safety behaviors even after food safety training, the markets will have to make changes to infrastructure to improve vendors behaviors and the managers will have to hold vendors accountable for their behaviors.

The results of this study are consistent with other studies regarding a lack of safe food handling practices at farmers markets. It fills a gap in the knowledge regarding research that looks at compliance to rules at farmers markets. Identification of this gap may lead us to focus on enforcement through monitoring which falls to the DOH or its designees. As farmers markets do not get inspected on a routine basis, and are currently only investigated upon a complaint, perhaps a designee for monitoring compliance needs to be appointed. In a letter to the NYS Health Commissioner Howard Zucker, the audit on DOH Oversight of Food Service Establishments recommended changes, including to the incorporation of compliance-based prioritization into inspection frequency and the development of a statewide complaint system (Report 2017-S-62 see Appendix M). Effective food safety practices in the farmers markets need to be a group effort to be successful. Although set up to have minimal regulations in these markets, there are minimal federal, state, and local regulations that need to be adhered to. There should be oversight from governing bodies beyond following up on complaints.

While foodborne illness is often seen as a disease of inconvenience, it is often much more serious. Foodborne illness is a public health threat that may pose great threat to the elderly, infants, pregnant woman and to the immunosuppressed. Since this population is the group the
government encourages to visit farmers markets through their benefit programs, the safety of the food there should be protected.
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### Table 1. Table of Variables

<table>
<thead>
<tr>
<th>Question</th>
<th>Independent Variable</th>
<th>Dependent Variable</th>
<th>Data Collection</th>
<th>Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To what extent are the market rules reflective of Federal Food Code, or of the NYSDOH Temporary Food Establishments specifications?</td>
<td>Individual markets rules and regulations</td>
<td>Compliance with NYSDOH rules and regulations</td>
<td>Rules</td>
<td>Capital region market rules compliance against NYSDOH checklist for temporary markets</td>
</tr>
<tr>
<td></td>
<td>1. Food is protected from contaminants, food is stored off the ground, service animals only, signage promotes penalties in place for reselling of food</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Handwashing stations in market Supplies as appropriate (soap, towels)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- no bare-hand food contact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- gloves are used as appropriate (no bare-hand contact with RTE foods after handling money)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- utensils are used as appropriate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- presence/use of alcohol-based hand sanitizer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. To what extent is there vendor compliance to federal, state, and local rules and regulations with regard to specific food-handling practices as required in local area farmers markets?</td>
<td>Safe food-handling practices as operationalized by hand hygiene, hands washed as appropriate, gloves used as appropriate</td>
<td>Compliance with NYSDOH rules and regulations</td>
<td>Direct observation and walk-through</td>
<td>Capital region market and vendor compliance against NYSDOH checklist for temporary markets</td>
</tr>
<tr>
<td></td>
<td>Bare-hand food contact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hands and sinks present, trash receptacles, pets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Permits posted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. What physical characteristics of the market act as facilitators or barriers to food safety practices in farmers markets?</td>
<td>Resources including restrooms, handwashing stations</td>
<td>Compliance with NYSDOH rules and regulations</td>
<td>Direct observation and walk-through</td>
<td>Market observation form</td>
</tr>
<tr>
<td>4. What vendor behaviors act as facilitators or</td>
<td>Vendors perform compliant food-handling procedures</td>
<td>Compliance with NYSDOH rules and regulations</td>
<td>Direct observation</td>
<td>Colum one of observational tool</td>
</tr>
</tbody>
</table>
Table 2. Compliance to Regulations by Farmers Markets and Their Vendors

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Markets</th>
<th>Number of Vendors</th>
<th>Requirements</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>General compliance</td>
<td>6</td>
<td>246</td>
<td>Food products stored off of floor</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Vendors appear clean</td>
<td>99%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tables are clean</td>
<td>99%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sneeze guards protect displayed RTE foods</td>
<td>60%</td>
</tr>
<tr>
<td>Handwashing</td>
<td>6</td>
<td>52</td>
<td>Pets allowed in market</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Handwashing station Present</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gloves hand sanitizer in use</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gloves used appropriately</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mechanical cooling</td>
<td></td>
</tr>
<tr>
<td>Temperature control</td>
<td>6</td>
<td>52</td>
<td>Cooler</td>
<td>65%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No cooling</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Thermometer in use</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hot foods kept/served at 145 or above</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Access to electricity</td>
<td>100%</td>
</tr>
<tr>
<td>5. To what extent do the market managers enforce compliant vendor behavior?</td>
<td>Market manager is trained in food safety and their years of experience contribute to safe food-handling operations</td>
<td>Vendor behaviors</td>
<td>Market manager interview</td>
<td>Question 1 and 2 Interview questions</td>
</tr>
</tbody>
</table>
Table 3. Compliance Percentage of each Market by Characteristics

<table>
<thead>
<tr>
<th>Age of market</th>
<th>Market 1</th>
<th>Market 2</th>
<th>Market 3</th>
<th>Market 4</th>
<th>Market 5</th>
<th>Market 6</th>
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<tr>
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<tr>
<td>Young 4-6</td>
<td>X</td>
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<td>X</td>
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<td></td>
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<tr>
<td>Established 7-10</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
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<tr>
<td>Historical 11-26</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<table>
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<th>Size of market</th>
<th>Market 1</th>
<th>Market 2</th>
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<th>Market 4</th>
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<th>Market 6</th>
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<tr>
<td>Micro 5-8 vendors</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
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<td>Small 9-30</td>
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<td>Medium 31-55</td>
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<td>X</td>
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<td></td>
</tr>
<tr>
<td>Large &lt; 56</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
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<table>
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<th>Organizational structure</th>
<th>Market 1</th>
<th>Market 2</th>
<th>Market 3</th>
<th>Market 4</th>
<th>Market 5</th>
<th>Market 6</th>
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<tbody>
<tr>
<td>Non-profit</td>
<td>X</td>
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<td></td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Municipality run</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vendor association</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Overall compliance</td>
<td>50%</td>
<td>100%</td>
<td>0%</td>
<td>100%</td>
<td>50%</td>
<td>100%</td>
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Table 4. Common Themes—Market Manager Interviews

<table>
<thead>
<tr>
<th>Participant</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Male</td>
<td>unknown</td>
</tr>
<tr>
<td>(5) Male</td>
<td>HS/ 30+ as farmer 1+ as manager over 6 vendors/no food safety training</td>
</tr>
<tr>
<td>(6) M</td>
<td>Business manager no formal training limited food safety training/over 85 vendors</td>
</tr>
</tbody>
</table>

What is role as the market manager?

Common Themes

Babysitter/ herding cats
Managing special events entertainers
Deal with customers

Oversee vendors permits set-up

What are your challenges?

Common Themes

Getting vendors set up on time x 3
Lack of resources
Cheap customers

Is food safety an issue here at the market?

Common Themes

No everyone wears gloves all the time
Yes could use handwashing stations but takes money we don’t have and no one will use them anyway
Managers wish outside agency would provide some inspection or oversight
No enforcement if there is a issue
Do you offer food safety training for vendors?

Common Themes

No but I would like someone to do online training for them
Yes prior to booth approval we conduct online training
No
Appendix A.

Regulations

New York State temporary food establishment regulations-NYS Sanitary Code

14.2.1 Temporary food service establishments may only serve food that requires limited preparation requiring only seasoning and cooking. The preparation or service of other potentially hazardous foods, including pastries filled with cream or synthetic cream, custards, and similar products, and salads or sandwiches containing meat, poultry, eggs, or fish is prohibited except if prepared under approved conditions, transported and stored at a temperature of 45 degrees Fahrenheit (7.2 degrees Celsius) or below, or at a temperature of 140 degrees Fahrenheit (60 degrees Celsius) or above, in approved facilities, and served without contamination to the consumer. Intact shell egg temperatures shall be considered acceptable if ambient storage temperature is 45 degrees Fahrenheit (7.2 Celsius) or less. The permit-issuing official, or his designated representative, may require that food be served directly in the unopened container in which it was packaged unless the equipment and operations are adequate to protect food from 14-2.3 Definition and cooking of potentially hazardous foods; product thermometers.

(a) All food used by a temporary food service establishment is to be wholesome, safe for human consumption, and obtained from sources that comply with laws relating to food and food labeling. Fluid milk and milk products used or served are to be pasteurized and obtained from sources that comply with laws relating to milk processing and labeling. All foods which are not readily identifiable are to be labeled to identify the food by common name. Only clean, whole eggs, with shell intact and free from cracks or checks, or pasteurized liquid, frozen, or dry eggs or pasteurized dry egg products are to be used. All containers in which shell eggs are received must identify the source.

(b) Potentially hazardous food means any food that consists in whole or in part of milk or milk products, eggs, meat, poultry, fish, shellfish, edible crustacea, cooked potato, cooked rice or other ingredients including synthetic ingredients, in a form capable of supporting: (1) rapid and progressive growth of infectious or toxigenic microorganisms; or (2) the slower growth of C. botulinum. The term does not include foods with a water activity (Aw) value of 0.85 or less, or a hydrogen ion concentration (pH) level of 4.6 or below.

(c) Temporary food service establishments may only serve food that requires limited preparation requiring only seasoning and cooking. The preparation or service of other potentially hazardous foods, including pastries filled with cream or synthetic cream, custards, and similar products, and salads or sandwiches containing meat, poultry, eggs, or fish is prohibited except if prepared under approved conditions, transported and stored at a temperature of 45 degrees Fahrenheit (7.2 degrees Celsius) or below, or at a temperature of 140 degrees Fahrenheit (60 degrees Celsius) or above, in approved facilities, and served without contamination to the consumer. Intact shell egg temperatures shall be considered acceptable if ambient storage temperature is 45 degrees Fahrenheit (7.2 degrees Celsius) or below, or at a temperature of 140 degrees Fahrenheit (60 degrees Celsius) or above, in approved facilities, and served without contamination to the consumer. Intact shell egg temperatures shall be considered acceptable if ambient storage temperature is 45 degrees Fahrenheit (7.2 degrees Celsius) or below, or at a temperature of 140 degrees Fahrenheit (60 degrees Celsius) or above, in approved facilities, and served without contamination to the consumer.
Fahrenheit (7.2 Celsius) or less. The permit-issuing official, or his designated representative, may require that food be served directly in the unopened container in which it was packaged unless the equipment and operations are adequate to protect food from contamination.

(d) Food is to be protected from contamination in the establishment at all times, including storage, preparation, and display to patrons. Food is to be prepared and served with no bare-hand contact unless the food will be subsequently heated to 140 degrees Fahrenheit (60 degrees Celsius) or greater for foods that were not previously heated or to 165 degrees Fahrenheit (73.9 degrees Celsius) or greater for foods that are being heated for a second or subsequent time. Convenient and suitable utensils and/or sanitary gloves are to be provided and used to prepare or serve food to eliminate bare-hand contact and prevent contamination. Waxed paper, napkins, or equivalent barrier to prevent hand contact can also be used to serve food.

(e) All parts of potentially hazardous foods requiring cooking are to be heated to at least 140 degrees Fahrenheit (60 degrees Celsius), except:

1. poultry, poultry stuffing, stuffed meats and stuffing containing meat are to be heated in an uninterrupted manner, so all parts are at least 165 degrees Fahrenheit (73.9 degrees Celsius);

2. pork and food containing pork are to be heated, so all parts of the food are at least 150 degrees Fahrenheit (65.6 degrees Celsius);

3. rare roast beef and/or rare beef steaks are to be heated to an internal temperature of at least 130 degrees Fahrenheit (54.5 degrees Celsius), unless otherwise ordered by the consumer. When meat or fish are served raw, the consumer is to be so notified.

4. shell eggs or foods containing shell eggs are to be heated to 145 degrees Fahrenheit (62.8 degrees Celsius) or greater unless an individual consumer requests preparation of a shell egg or food containing shell eggs in a style such as raw, poached or fried which must be prepared at a temperature less than 145 degrees Fahrenheit in order to comply with the request.

5. every part of ground meat or foods containing ground meat are to be heated to at least 158 degrees Fahrenheit (69.4 degrees Celsius), unless a consumer requests preparation of a single order of ground meat or food containing ground meat which must be prepared at a temperature less than 158 degrees Fahrenheit in order to comply with the request.

(f) Metal stem-type, numerically scaled indicating thermometers, accurate to plus or minus two degrees Fahrenheit (1.1 degrees Celsius) are to be provided and used to determine that proper internal cooking, holding, or refrigeration temperatures of all potentially hazardous foods are achieved and maintained.

14-2.4 Contamination means exposing food to filth, toxic substances, manual contact during service or preparation if such food will not be subsequently cooked prior to service, rodent or insect contact or infestation, or any condition that permits introduction of pathogenic microorganisms or foreign matter. Potentially hazardous foods held at temperatures between 45 degrees Fahrenheit (7.2 degrees Celsius) and 140 degrees Fahrenheit (60 degrees Celsius) for a period of time beyond that required for preparation are considered to be contaminated. Sufficient hot and cold storage facilities are to be provided and used to maintain potentially hazardous
foods at required temperatures during storage. Each facility is to have a thermometer, accurate to plus or minus two degrees Fahrenheit, indicating the temperature therein.

14.2.8 Handwashing facilities are to be provided at each establishment. This facility is to be at least potable warm water, soap, and individual paper towels.

14.2.12 Toilet facilities serving temporary food service establishments are to include warm running water, soap, and individual paper towels for handwashing by employees.

14-2.15 Transportation. During transportation, food is to be protected from contamination, including maintenance of hot or cold temperature requirements.

14-2.16 Personnel.

All persons handling food are to be free from infectious disease which can be transmitted by foods and are not to have a boil, infected cut or sore, or respiratory disease. They are to wear clean clothing, not smoke or use tobacco while handling food or in food preparation areas and use hair restraints to minimize hair contact with hands, food, and food-contact surfaces. All personnel handling food are to wash their hands with soap and water after using the toilet, smoking, eating, or when soiled. Living and sleeping quarters are to be separate from food operation areas.
### Market Managers’ Checklist

**Permits/Licenses/ Certificates Required for Farmers Market Sellers**

The following is a checklist that will help you to understand the permits, licenses and certificates that are required of sellers of various products commonly found in farmers markets. This checklist is not exhaustive but is a general guideline. Please consult the inspection agencies listed at the end for further assistance. All food items offered for sale (excluding whole fruits and vegetables) MUST be prepackaged.

**Fresh Produce**
- No permits, licenses or certificates required, if raw, uncut, and unprocessed.

**Plant Sales**—only one nursery license is required and must be posted in public view at the time of sale.
- NYS Department of Agriculture & Markets Nursery Growers License, if engaged in the production of plant material intended for sale. A nursery grower is also permitted to purchase and resell plant material under this same license.
- NYS Department of Agriculture & Markets Nursery Dealers License, if purchasing and reselling plant material only and the vendor is not involved in any growing of potted plant material
- Valid NYS Sales Tax Certificate.

**Eggs**
- No permits, licenses, or certificates required for cleaned shell eggs maintained at 45 degrees F or less. Eggs must be from farm owned hens (not purchased eggs).

**Honey, Maple Syrup**
- No permits, licenses or certificates required if single-ingredient products.
- Article 20C License from NYS Dept. of Agriculture & Markets, if additional ingredients are added to the products; e.g., maple mustard, maple cotton candy.

**Baked Goods**
- 20C Exemption from NYS Dept of Agriculture & Markets if home-baked, non-hazardous; i.e. Bread (no breads containing fruits or vegetables), rolls, cookies, cakes, brownies, fudge & double crust fruit pies. (Quick breads are considered potentially hazardous and cannot be done under 20C Exemptions.) No internet sales or advertising allowed.
Article 20C License from NYS Dept. of Agriculture & Markets on all other baked products provided the business does 51% of its sales at wholesale. (Requires a separate, commercial kitchen.)

All other baked goods must come from a licensed NYS Department of Health facility.

Cider/Fruit Juice

Article 20C License from NYS Dept of Agriculture & Markets for manufacturers/bottlers.

All cider and fruit juices must be pasteurized, UV treated, or high pressure treated.

Mushrooms

Cultivated mushrooms, sold whole or otherwise processed, require no license.

Cultivated mushrooms, sliced, chopped, washed, and identified as ready-to-eat or any other processing requires an Article 20-C license.

Mushroom species picked in the wild shall be obtained from sources where each mushroom is individually inspected and found to be safe by an approved mushroom identification expert prior to sale. At this time, there are no approved mushroom experts in New York State.

New York State Micro-breweries

Must obtain a no-fee permit from the NYS Liquor Authority:

New York State Wines

Farm Winery Permit, issued by the NYS Liquor Authority

Valid NYS Sales Tax Certificate

Processed Foods

Home Processors are eligible for an Article 20-C Exemption from NYS Dept. of Agriculture & Markets, for non-hazardous foods only, including traditional fruit jams, jellies, and marmalades; candy (excluding chocolate); spices and herbs repackaging only); and snack items such as popcorn, caramel corn, and peanut brittle. Information on registering as a Home Processor in New York can be found on the website, http://www.agriculture.ny.gov/FS/consumer/processor.html, or by calling one of the Regional Offices.

Article 20C License from NYS Dept of Agriculture & Markets, prepackaged and labeled in accordance with NYS Food Labeling Law: Identity of food in package form; name of manufacturer, packer, or distributor; place of business; ingredient declaration in descending order of predominance by weight; and net quantity of contents.

County Board of Health Permit if processing is on-site; i.e. cutting of baked goods to be sold by the piece, slicing of cheese to be sold by the pound; cooking and selling ready-to-eat foods.

Home processing of canned fruits and vegetables is not permitted. All canned fruits and vegetables must be done under 20C License and registered with the federal government as a food processor.
☐ Article 20C License from NYS Dept. of Agriculture & Markets is required for dehydrating herbs and spices or for the blending of any spices for repackaging.
☐ Food processing (portioning, packaging, etc.) is not allowed at the farmers market.

**Meats**—License is required if grinding or processing. License is not required for cutting.

**Red Meat (Beef, lamb, goat)**
- USDA slaughtered and/or processed must have USDA legend
- Article 28D License required if warehousing for wholesale
- Must be maintained at 0°F or below and sold frozen.

**Chicken (Must be frozen)**
- License not required to sell 250 turkeys or 1000 birds of other species.*
- No license required if USDA slaughtered.
- Article 28 License if warehousing for wholesale accounts.
- Article 5A license required if selling over 250 turkeys or 1000 birds of other species.*
- Must be maintained at 0°F or below and sold frozen.

**Exotic Meat (Must be frozen)**
- Must be slaughtered at an Article 5A licensed establishment.
- Must be labeled “Processed at an NYSDAM facility.”
- Article 28 License required if warehousing for wholesale accounts, if not licensed under Article 5A.

**Processed Meats (Shelf-stable processed meats (dry, fermented sausage) only)**
- Article 20C License from NYS Dept. of Agriculture & Markets

**Fish (If processed (fileted, etc.) - Must be frozen)**
- No permit, license or certificate is required if a freshwater fisherman is selling only whole, nonprotected species.
- Article 20C License from NYS Dept. of Agriculture & Market if fish is pan-ready.
- NYS DEC hatchery permit required if selling protected freshwater species.
- NYS DEC permit required if reselling any protected freshwater species.
- NYS DEC Food Fish License to catch and sell marine fish.
- NYS DEC Food Fish and Crustacean Dealers & Shippers License to resell marine fish purchased from a licensed fisherman.

**Dairy**

**Cheese & Other Dairy Products (such as yogurt, butter, sour cream)**
- For producers, Part II Permit, issued by the NYS Dept. of Agriculture & Markets Division of Milk Control and Dairy Services.
- If cut and wrap cheese, need Part II Permit issued by Division of Milk Control and Dairy Services unless part of a food establishment regulated by Division of Food Safety, in which case just need Article 20C License.
Milk and Fluid Milk Products (such as 2%, 1%, and non-fat milk)  ❑ Milk must be pasteurized.
   ❑ Producer must have Part II Permit issued by Division of Milk Control and Dairy Services.
   ❑ Producer and any distributor must have a Milk Dealers license issued by Division of Milk Control and Dairy Services unless amount handled is less than 3000 pounds per month.

Grains and Legumes (prepackaged—cannot be packed on site)  ❑ No permits, licenses or certificates are required.

Fresh Cut/ Dried Flowers
   ❑ Valid NYS Sales Tax Permit

Crafts
   ❑ Valid NYS Sales Tax Permit

For additional information, call:

NYS Dept. of Agriculture & Markets, Division of Food Safety:
   Albany Region: 518-457-5459
   Syracuse Region: 315-487-0852
   Rochester Region: 585-427-2273
   Buffalo Region: 716-847-3185
   New York City: 718-722-2876

NYS Dept. of Agriculture & Markets, Division of Milk Control & Dairy Services:
   Albany: 518-457-1772

NYS Dept. of Agriculture & Markets, Division of Plant Industry:
   Albany: 518-457-2087

NYS Dept. of Environmental Conservation, Permitting Office: 631-444-0471

Compiled by the Farmers Market Federation of New York, 2009, updated 2016
INTRODUCTION

Temporary food events, such as traveling fairs and carnivals, circuses, multicultural celebrations, special interest fundraisers, restaurant food shows, and other transitory gatherings, have become extremely popular and are held at an increasing frequency. Many of these temporary food events have temporary food establishments with high-risk food operations engaging in extensive preparation of raw ingredients; processes that include the cooking, cooling, and reheating of potentially hazardous foods; and advanced preparation of food several days prior to service. The TFEs operate either indoors or outdoors and often have limited physical and sanitary facilities available. As such, TFEs present special challenges to regulatory authorities that have the responsibility to license/permit and inspect them.

TEMPORARY FOOD EVENT COORDINATION Food preparation practices at temporary food events are to be in compliance with the regulatory authority. Because temporary events present particular concerns that are unique to nonpermanent food establishments, the following information should be provided along with information about the food items to be prepared and served, as required on the application:

- The number of expected patrons/day;
- Information on the number and type of toilet and handwashing facilities to be provided;
- Information on the equipment that will be utilized to ensure compliance with the Model Food Code;
- The exact location of the event identifying the availability of potable water, wastewater, solid waste facilities and services, and methods of dust control;
- Description of the water supply and wastewater and solid waste storage and removal provisions to assess if adequate facilities are provided on site or if additional supplies/services are needed;
- The location and source of electricity to be provided; and
- A list of names, telephone numbers, and addresses of the TFE operators, including the name of the designated staff person who will be on site during all hours of the operation of the event and who is responsible for compliance with food code requirements.

“Temporary food establishment” means a FOOD ESTABLISHMENT that operates for a period of no more than 14 consecutive days in conjunction with a single event or celebration.

INTRODUCTION Temporary food events, such as traveling fairs and carnivals, circuses, multicultural celebrations, special interest fundraisers, restaurant food shows, and other transitory gatherings, have become extremely popular and are held at an increasing frequency. Many of these temporary food events have temporary food establishments with high-risk food operations engaging in extensive preparation of raw ingredients; processes that include the cooking, cooling, and reheating of potentially hazardous foods; and advanced preparation of food several days prior to service. The TFEs operate either indoors or outdoors and often have limited physical and sanitary facilities available. As such, TFEs present special challenges to regulatory authorities that have the responsibility to license/permit and inspect them. TEMPORARY FOOD EVENT COORDINATION Food preparation practices at temporary food events are to be in compliance with the regulatory authority. Because temporary events present particular concerns that are unique to nonpermanent food establishments, the following information should be provided along with information about the food items to be prepared and served, as required on the application:

- The number of expected patrons/day;
- Information on the number and type of
toilet and handwashing facilities to be provided; • Information on the equipment that will be utilized to ensure compliance with the Model Food Code; • The exact location of the event identifying the availability of potable water, wastewater, solid waste facilities and services, and methods of dust control; • Description of the water supply and wastewater and solid waste storage and removal provisions to assess if adequate facilities are provided on site or if additional supplies/services are needed; • The location and source of electricity to be provided; and • A list of names, telephone numbers, and addresses of the TFE operators, including the name of the designated staff person who will be on site during all hours of the operation of the event and who is responsible for compliance with food code requirements.

PLAN REVIEW AND APPLICATION PROCESS No person, firm, or corporation is allowed to operate a food establishment (permanent or temporary) where food or beverages are served to the public without permits, licenses, or permission from the local regulatory authority. Licensing/permitting of temporary food establishments may vary due to local regulatory requirements. The plans and application for a TFE should include all the information necessary to assure that the physical and sanitary facilities are adequate to ensure safe food, in the same manner a permanent food establishment goes through plan review. It is recommended that a pre-event meeting be held between the regulatory authority and the applicant(s) and/or the primary food vendor(s) for the event to discuss the requirements that must be adhered to for safe operation of the TFE. Prior to issuing a permit or license to a food establishment, either permanent or temporary, the local regulatory authority is responsible for performing a pre-operational plan review. The pre-operational review provides the opportunity to discuss areas of concern and should be conducted prior to the issuance of a permit/license. The regulatory authority may impose restrictions on the types of food to be prepared and served based upon the preparation and/or sanitary facilities available. For large temporary events there is often an event organizer that is responsible for coordinating the temporary food establishments. In this situation, if the event organizer provides any of the required facilities (i.e., toilet and handwashing facilities, warewashing facilities, refuse or wastewater services) that are to be utilized by a temporary food establishment, a separate application and permit may be required by the regulatory authority. To obtain a permit/license for a temporary food establishment, the permit applicant shall complete and submit an Application to Operate a Temporary Food Establishment (Attachment I) at least 30 calendar days before the event (§8-302.11). Event coordinators providing infrastructure to multiple TFE are required to complete and submit an Event Organizer Application to Operate Temporary Food Establishment.

Food Service (FS) Type 1 • Unpackaged nonpotentially hazardous food (Time/Temperature Control for Safety Food) • Commercially processed packaged potentially hazardous food (Time/Temperature Control for Safety Food) in its original package (Receive-Store-Hold) FS Type 2 • Food Preparation with no cook step (Receive-Store-Prepare-Hold-Serve) • Preparation for same-day service (Receive-Store-Prepare-Cook-Hold-Serve) • Reheating of a commercially processed food item (Receive-Store-Reheat-HoldServe) FS Type 3 • Complex food preparation (Receive-Store-Prepare-Cook-Reheat-HotHoldServe) • Large quantities of food being prepared (e.g., Olympics, Academy Awards, State Fairs) • Using Time as a Public Health Control • Serving a Highly Susceptible Population An applicant may be required to complete and
submit the Temporary Food Establishment Expanded Process Flow (Attachment III) based on the menu identified on the TFE application.

MONITORING AND PLANNING

Due to the complexities of temporary food events, the local regulatory authority should develop a method to monitor and plan for these events so that the necessary resources are available to assist with the review and inspection of the temporary food establishments.

• Many events are scheduled on an annual basis and can be monitored by keeping a calendar of these events. • Information on temporary events can be obtained from flyers, banners, newspaper and radio announcements, and local TV ads.

• A working relationship should be established with local visitor’s associations or Chambers of Commerce as these organizations often maintains schedules of events.

• A working relationship should be established with managers/owners of fairgrounds, parks, and other locations where temporary events are often held.

TEMPORARY FOOD ESTABLISHMENT OPERATIONS CHECKLIST

The following checklist provides an overview of the general requirements that should be considered when reviewing applications and conducting on-site inspections. The local regulatory authority may impose additional requirements based upon the type of food preparation and/or sanitary facilities available. The applicable 2009 Model Food Code Sections have been italicized.

PERSONNEL

PERSON-IN-CHARGE (PIC): A designated person must be on site during all hours of operations of the temporary food establishment. The PIC is responsible for ensuring compliance with health code requirements. (§2-101.11, 2-103.11)

CERTIFIED FOOD PROTECTION MANAGER: At least one employee that has supervisory and management responsibility and authority to direct and control food preparation and service shall be a Certified Food Protection Manager for those temporary food establishments that are classified as Food Service Type 2 or Food Service Type 3. (§2-102.12)

EMPLOYEE HEALTH: Employees with communicable diseases that can be transmitted through food shall be excluded and/or restricted from food activities. (§2-201.11, 2-201.12, 2-201.13, 2-401.12) There must be employee practices and behaviors established that can help prevent the spreading of viruses and bacteria to food. The Centers for Disease Control and Prevention (CDC) and FDA cite five highly infective pathogens that can be easily transmitted by food employees and cause severe illness. These five pathogens known as the Big Five are norovirus, the hepatitis A virus, Salmonella typhi, Shigella spp., and escherichia coli (E. coli) 0157:H7 or other enterohemorrhagic or shiga toxin-producing E. coli. Interventions must be used to prevent the transmission of foodborne illness. These interventions include (a) restricting or excluding ill food employees from working with food; (b) using proper handwashing procedures; and (c) eliminating bare-hand contact with foods that are ready-to-eat (RTE). Proper management involves ensuring that food employees do not work when they are ill and having procedures for
identifying employees who may transmit foodborne pathogens to food, other employees, and consumers. Symptoms that the person in charge (PIC) should be concerned with include: vomiting, diarrhea, jaundice (yellow skin or eyes), sore throat with fever, infected cuts and burns with pus on hands and wrists. Information and forms to aid in complying with Employee Health can be found in the 2009 FDA Model Food Code and the Employee Health and Personal Hygiene Handbook.
(http://www.fda.gov/Food/FoodSafety/RetailFoodProtection/IndustryandRegulatoryAssistanceandTrainingResources/ucm113827.html

HANDWASHING: Food employees shall wash their hands upon entering the TFE or food preparation and service areas, immediately before engaging in food preparation, after using the toilet room, and as often as necessary to remove soil and contamination and to prevent cross-contamination. (§2-301.11, 2-301.12, 2-301.14, 2-301.15)

HANDWASHING FACILITIES: Handwashing facilities shall be located to allow convenient use by food employees in food preparation, food dispensing and warewashing areas. Handwashing sinks are to only be used for handwashing. A handwashing sign shall be posted at each handwashing sink. (§5-204.11, 5-205.11, 5-202.12, 5-203.11, 6-301.11, 6-301.12, 6-301.14, 6-301.20)

FS Type 1 • Packaged food only—Hand wash stations are not required if only commercially prepackaged foods kept in their original containers will be provided to consumers. • Unpackaged food that is not potentially hazardous (Time/Temperature Control for Safety) Food—Hand wash station that provides gravity feed tempered water. For example—A five-gallon insulated container with a spigot that can be turned on to allow potable warm water to flow over one’s hands into a waste receiving bucket of equal or larger volume. Hand soap, single-use dispensed towels, and a waste receptacle shall be provided. (See Below)

FS Type 2—Self-contained portable unit with holding tanks for potable tempered water and wastewater. Hand soap, single-use dispensed towels, and a waste receptacle shall be provided. (See Below)

FS Type 3—Potable hot and cold running water under pressure to provide water at a temperature of at least 100°F. Hand soap, single-use dispensed towels, and a waste receptacle shall be provided.

HYGIENE: Food employees shall maintain a high degree of personal cleanliness and shall conform to good hygienic practices during all working periods. (§2-302.11) • Food employees shall have clean outer garments, aprons, and effective hair restraints. (§2-304.11, 2-402.11) • Food employees are not allowed to smoke or eat (including chewing gum) in the food preparation and service areas. A food employee may drink from a closed beverage container if the container is handled to prevent contamination of the employee’s hands; the container; and exposed food, clean equipment, utensils, and single-service/single-use articles. (§2-401.11) • All non-working, unauthorized persons should be restricted from food preparation and service areas. (§2-103.11)
NO BARE-HAND CONTACT: Employees preparing food may not contact exposed, ready-to-eat food with their bare hands and shall use suitable utensils such as deli paper, spatulas, tongs, single-use gloves, or dispensing equipment. (§3-301.11)

FOOD SOURCE

SOURCE: All food shall be obtained from sources that comply with law. All meat and poultry shall come from USDA or other acceptable government-regulated approved sources. (§3-201.11) • Home-canned foods are not allowed, nor shall there be any home-cooked or prepared foods offered at temporary food events. (§3-201.11) • Ice for use as a food or a cooling medium shall be made from potable water. (§3-202.16) • All Potentially Hazardous Food (Time/Temperature Control for Safety Food) (PHF/TCS) that is precooked and pre-cooled off-site for service at the temporary food establishment shall be prepared at an approved, permanent food establishment. (§3-201.11)

TRANSPORTATION: Food shall be transported in a manner that protects the food from contamination and if a PHF/TCS food item shall be maintained at 135°F or above or 41°F or below. (§3-202.15, 3-501.16)

FOOD PREPARATION

FOOD CONTAMINATION: All cooking and serving areas shall be protected from contamination. Consumers shall be prevented from accessing areas of the TFE where food, food-contact surfaces, and equipment are located. (§2-103.11(B), 3-307.11)

CROSS-CONTAMINATION: Food shall be protected from cross-contamination by separating raw animal foods from ready-to-eat foods and separating types of raw animal foods from each other during storage, preparation, holding, and display. (§3-302.11, 3-307.11)

Equipment and utensils (including knives, cutting boards, and food storage containers) shall be thoroughly cleaned and sanitized after being used for raw animal foods and before being used for ready-to-eat food. (§3-304.11, 4-602.11) The following practices are only permitted with Food Service Type 1 classification

HANDLING OF UNPACKAGED NONPHF/TCS FOOD During preparation, unpackaged food shall be protected from contamination. (§3-305.14, 3-307.11)

HOLDING OF COMMERCIALY PROCESSED PACKAGED PHF/TCS FOOD: PHF/TCS food shall be maintained at 135°F or higher or 41°F or below. (§3-501.16) The following practices are only permitted with Food Service Type 2 classification

HOLDING OF PHF/TCS FOOD: Potentially Hazardous Food (Time/Temperature Control for Safety Food) shall be maintained at 135°F or higher or 41°F or below. (§3-501.16)

COOKING: Food shall be cooked to the minimum temperatures and times specified below**: (§3-401.11, 3-603.11) • 165°F for 15 seconds - poultry; wild game animals; stuffing containing fish, meat, poultry, or ratites; stuffed fish, meat, pasta, poultry or ratites. • 155°F for 15 seconds - mechanically tenderized and injected meats; the following if they are comminuted: fish, meat (hamburgers), game animals commercially raised for food; pooled raw eggs; ratites. • 145°F for
15 seconds - raw eggs that are broken and prepared in response to a consumer’s order and for immediate service; fish and meat. **TFE operators should consult with the local regulatory authority if considering cooking roasts (whole beef, pork, cured pork (ham) and corned beef) or if serving or selling undercooked foods to ensure compliance with the provisions of the Model Food Code.

THAWING: PHF/TCS food shall be thawed either under refrigeration that maintains the food temperature at 41°F or less or as part of a cooking process. (§3-501.13)

REHEATING FOR HOT HOLDING OF COMMERCIALLY PROCESSED FOOD • Food from a commercially processed, hermetically sealed container of food or from an intact package from a food processing plant shall be reheated to 135°F for hot holding. (§3-403.11) The following two practices are only permitted at a Food Service Type 3 classification

COOLING: PHF/TCS shall be cooled by an approved method in accordance with the following time and temperature criteria: (§3-501.14 3-501.15)

Cooked PHF/TCS food shall be cooled within 2 hours from 135°F to 70°F and within a total of 6 hours from 135°F to 41°F or less. • PHF/TCS food prepared from ingredients at ambient temperature shall be cooled within 4 hours to 41°F or less.

REHEATING FOR HOT HOLDING: PHF/TCS food that is cooked and cooled at a permanent food establishment prior to delivery to the temporary food establishment shall be reheated so that all parts of the food reach a temperature of at least 165°F for 15 seconds if hot held. (§3-403.11)
• Reheating shall be done rapidly so that the food is between 41°F and 165°F for no more than 2 hours. • Cooked and refrigerated food that is prepared in response to an individual consumer order may be served at any temperature.

EQUIPMENT Equipment used for cooking or for holding of PHF/TCS food shall be evaluated for approval based on a menu review, foodservice operations that will occur, and the length of the event. (§4-301.11)

COOKING DEVICES: The local fire safety authority shall approve all cooking devices along with any additional safety considerations. • For safety reasons, cooking equipment, such as BBQs, propane stoves, and grills, should be roped off or otherwise segregated from the public (§3-307.11). • When barbecuing or using a grill, the cooking equipment should be separated from the public for a distance of at least 4 feet by roping off or by other means to protect patrons from burns or splashes of hot grease. • Charcoal and wood cooking devices are not recommended. • Propane stoves or grills may be approved as cooking devices. • All cooking of foods should be done toward the rear of the food booth.

COLD STORAGE: • Packaged food may not be stored in direct contact with ice or water if the food is subject to the entry of water because of the nature of its packaging, wrapping, or container or its positioning in the ice or water. (§3-303.12) • Each refrigeration unit should have a numerically scaled thermometer accurate to ±3°F if scaled only in Fahrenheit or accurate to ±1.5°C if dually scaled in Celsius and Fahrenheit to measure the air temperature of the unit. (§4-203.12, 4-204.112) • FS Type 1 and FS Type 2 - An effectively insulated, hard-sided, cleanable
container with sufficient ice or other means to maintain PHF/TCS food at 41°F or below may be approved for the storage of small quantities of PHF/TCS food. (§3-501.16, 4-301.11) • FS Type 2 and FS Type 3 - Mechanical refrigeration units may be required to keep PHF/TCS food at 41°F or below. (§3-501.16, 4-301.11)

HOT STORAGE: Hot food storage units shall be used to keep PHF/TCS food at 135°F or above. Electrical equipment, propane stoves, grills, etc. shall be capable of holding foods at 135°F or above. (§3-501.16, 4-301.11)

THERMOMETERS: A thermocouple or metal stem thermometer shall be provided to check the internal temperatures of PHF/TCS hot and cold food items. Food temperature measuring devices that are scaled only in Celsius or dually scaled in Celsius and Fahrenheit shall be accurate to ±1°C or if scaled only in Fahrenheit shall be accurate to ±2°F in the intended use of range. Temperature measuring devices shall be equipped with a small diameter probe if thin foods are served. (§4-302.12, 4-502.11)

COUNTERS/SHELVES: All food-contact surfaces shall be non-toxic, smooth, easily cleanable, durable, nonabsorbent, and free of seams and difficult to clean areas. All other surfaces shall be finished so that they are easily cleanable. (§4-101.11)

FOOD AND UTENSIL STORAGE

DRY STORAGE: All food, equipment, utensils, and single-service items shall be stored at least 6” off the ground or floor on pallets, tables, or shelving. Food shall be protected from contamination and shall have effective overhead protection. (§3-305.11, 3-305.12)

FOOD DISPLAY: All food and food-contact surfaces shall be protected from consumer handling, coughing, sneezing, or other contamination. (§3-306.11, 3-306.12, 3-306.13) • Use sneeze guards or other effective barriers for food on display. • Keep food covered, except for working containers of food. • Condiments shall be dispensed in single-service type packaging, in pump-style dispensers, or in protected squeeze bottles, shakers, or similar dispensers that prevent contamination of the food items by food employees, patrons, insects, or other sources. • Knives, forks, and spoons that are not pre-wrapped shall be presented so that only the handles are touched.

IN-USE UTENSILS: Food dispensing utensils shall be stored in the food with their handles above the top of the food and container; on a clean portion of the food preparation table or cooking equipment; or in a container of water if the water is maintained at a temperature of at least 135°F and the utensil and container is cleaned as necessary to preclude accumulation of soil residues. (§3-304.12)

CLEANING AND SANITIZING Equipment food-contact surfaces and utensils shall be cleaned and sanitized when changing from working with raw foods to working with ready-to-eat foods; between uses with raw fruits and vegetables and with PHF/TCS food; before using or storing a food temperature measuring device; and if used with PHF/TCS food shall be cleaned throughout the day at least every 4 hours; and at any time during the operation when contamination may have occurred. (§4-602.11)
WAREWASHING: A commercial dishwasher or manual warewashing method should be utilized to wash, rinse, and sanitize equipment and utensils coming into contact with food. (applicable sections in Chapter 4 Model Food Code) FS Type 1 - The minimum requirements for a utensil washing setup to wash/rinse/sanitize should consist of three basins, large enough for complete immersion of utensils, a potable hot water supply, and an adequate disposal system for the wastewater. FS Type 2 - A centralized three-compartment sink that is supplied with hot and cold running water and approved wastewater disposal system for use by multiple food vendors may be permitted by the regulatory authority. FS Type 3—A three-compartment sink that is supplied with hot and cold running water and approved wastewater disposal system within the food establishment.

SANITIZING: Chlorine bleach or other approved sanitizers should be provided for sanitizing food-contact surfaces, equipment, and wiping cloths. Sanitizers shall be used in accordance with the EPA-registered label use instructions. An approved test kit shall be available to accurately measure the concentration of sanitizing solutions. (§4-501.116, 4-703.11)

WIPING CLOTHS: Wiping cloths that are in use for wiping food spills shall be used for no other purpose and shall be stored clean and dry or in a clean sanitizing solution at the approved sanitizer concentration. (§3-304.14)

WATER SUPPLY AND WASTEWATER DISPOSAL WATER: An adequate supply of potable water shall be available on site for cooking and drinking purposes; for cleaning and sanitizing equipment, utensils, and food-contact surfaces; and for handwashing. (applicable sections in Chapter 5 Model Food Code) • Water shall come from an approved public water supply or an approved well water supply. The water supply system and hoses carrying water shall be constructed with approved food-contact materials. Recommend labeling potable water hose. • The water supply shall be protected with backflow devices to preclude the backflow of contaminants into the potable water supply. (§5-202.13, 5-202.14, 5-203.14, 5-203.15) • All hose and other connections to the potable water supply shall be maintained a minimum of 6” above the ground or top plane surface.

A supply of commercially bottled drinking water or sanitary potable water storage tanks may be allowed if approved by the regulatory authority. q WASTEWATER DISPOSAL: Wastewater shall be disposed in an approved wastewater disposal system. Wastewater may not be dumped onto the ground surface, into waterways, or into storm drains; but shall be collected and disposed through an approved sewage disposal system. (§5-402.13) PREMISES q FLOORS: If graded to drain, a floor may be concrete, machine-laid asphalt, or dirt or gravel if it is covered with mats, removable platforms, duckboards, or other approved materials that are effectively treated to control dust and mud. (§6-101.11)

WALLS AND CEILINGS: The TFE shall be covered with a canopy or other type of overhead protection, unless the food items offered are commercially prepackaged food items and dispensed in their original containers. • Walls and ceilings, when required, are to be of tight and sound construction to protect against the elements, windblown dust, and debris, insects, or other sources that may contaminate food, food-contact surfaces, equipment, utensils, or employees.
Window and door openings shall be protected from insects and rodents by 16 mesh to 1-inch screen, properly designed air curtain, or other effective means. (§6-202.15)

LIGHTING: Adequate lighting by natural or artificial means shall be provided. Light bulbs shall be shielded, coated, or otherwise shatter-resistant in areas where there is exposed food; clean equipment and utensils; or unwrapped single-service and single-use articles. (§6-202.11)

REFUSE: An adequate number of nonabsorbent, easily cleanable refuse containers shall be provided both inside and outside of each TFE site. Refuse containers shall be removed at a frequency that will minimize the development of objectionable odors and other conditions that attract or harbor insects and rodents. Dumpsters shall be covered, rodent-proof, and nonabsorbent. Grease shall be disposed of properly and shall not be dumped onto the ground surface. (§5-501.13, 5-502.11, 5-502.12)

TOILET FACILITIES: An adequate number of approved toilet and handwashing facilities shall be provided for food employees at each event. The toilet facilities, preferably permanently established, should be conveniently located to the food preparation areas (within 500 feet of the food preparation areas) and be supplied with toilet tissue. An adequate number of toilet and handwashing facilities shall be provided for patrons at gatherings lasting longer than 2-3 hours. Toilets may consist of properly designed, operated, and maintained portable toilets. (§5-203.12)

CLOTHING STORAGE: Personal clothing and belongings should be stored at a designated place in the TFE away from food preparation, food service and warewashing areas. (§6-305.11, 6-403.11)

TOXIC MATERIALS: Poisonous or toxic materials shall be properly labeled and stored so they cannot contaminate food, equipment, utensils, and single-service and single-use articles. Only those chemicals necessary for the foodservice operation shall be provided. (§7-202.11, 7-202.12)

PESTS: The TFE shall be maintained free of insects, rodents, and other pests. (§6-202.15)
Appendix D. Local Market Compliance to NYSDOH Temporary Establishment Sanitary Code/Federal Food Code/City Code

<table>
<thead>
<tr>
<th>NYSDOH Temporary Market Food Code</th>
<th>Market Rule Market ID</th>
<th>Compliance</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.2.1 Minimal Preparation of food (seasoning or cooking)</td>
<td></td>
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<tr>
<td>14-2.3 c. Intact shell egg temperatures shall be considered acceptable if ambient storage temperature is 45 degrees Fahrenheit (7.2 Celsius) or less.</td>
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<tr>
<td>14-2.3 d. Foods are to be protected from contamination during storage, transportation, and display of food.</td>
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<tr>
<td>Foods are to be prepared and served with no bare-hand contact unless heated to 160 degrees.</td>
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</tr>
<tr>
<td>F14.2.8 Handwashing facilities are to be provided at each establishment. This facility is to be at least potable warm water, soap, and individual paper towels.</td>
<td></td>
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</tr>
<tr>
<td>14.2.12 Toilet facilities serving temporary food service establishments are to include warm running water, soap, and individual paper towels for handwashing by employees.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>14-2.16 Personnel. All persons handling food are to be free from infectious disease which can be transmitted by foods, and are not to have a boil, infected cut or sore, or respiratory disease</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vendors are to wear clean clothing, not smoke or use tobacco while handling food or in food preparation areas and use hair restraints to minimize hair contact with hands, food, and food-contact surfaces</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All personnel handling food are to wash their hands with soap and water after using the toilet, smoking, eating, or when soiled.</td>
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<td></td>
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</tr>
<tr>
<td>Reselling of food is not permitted</td>
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</tr>
</tbody>
</table>
## Appendix E. Market Characteristics Form

<table>
<thead>
<tr>
<th>Observational Question</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Market ID Number</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Number of Vendors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of vendors selling RTE food</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Number of workers in booth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. How many handwashing stations are available?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average distance from station to vendor booth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Is food safety information provided for patrons?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Does the market have access to electricity?</td>
<td></td>
<td></td>
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<tr>
<td>7. Are there sufficient trash cans at each booth selling RTE foods?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Are pets allowed?</td>
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<td></td>
<td></td>
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<tr>
<td>9. How are foods transported into market?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Appendix F. Vendor/Vendor Booth Characteristic Form

<table>
<thead>
<tr>
<th>Observational question</th>
<th>Yes</th>
<th>No</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Was vendor smoking/eating/talking on phone while handling food?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Was there more than one vendor in booth?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Was vendor using gloves when/as appropriate?</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4. Does vendor display permit specific to food they are selling?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Does the vendor have/use gloves?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Does the vendor have/use hand sanitizer?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Are products stored on the floor?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Is food protected from contaminants (sneeze guard)?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Are coolers/ice used for cold storage?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Are foods held/served at 145F or above?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Does the vendor table appear to be clean?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Is there a thermometer visible? Yes, no, where?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Does the same person that handles food handle cash?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Does the vendor appear to be clean and in good health?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix G. Notational Observation

<table>
<thead>
<tr>
<th>Observed Action (check all that apply)</th>
<th>Object of Work Activity</th>
<th>Observed Sanitation Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handle/touch bare hands</td>
<td>Raw protein</td>
<td>No observed handwashing</td>
</tr>
<tr>
<td>Handle/touch utensil</td>
<td>Cooked protein</td>
<td>Hand sanitizer used</td>
</tr>
<tr>
<td>Handle/touch gloves</td>
<td>Wrapped RTE food</td>
<td>Under water</td>
</tr>
<tr>
<td></td>
<td></td>
<td>With soap without soap</td>
</tr>
<tr>
<td>Eat</td>
<td>Cell phone</td>
<td>Gloves changed</td>
</tr>
<tr>
<td>Drink</td>
<td>Purse</td>
<td>And hands washed</td>
</tr>
<tr>
<td>Smoke</td>
<td></td>
<td>Hands not washed</td>
</tr>
<tr>
<td>Handling waste receptacle</td>
<td>Money</td>
<td>Hands dried with towel</td>
</tr>
<tr>
<td>Sanitize surface</td>
<td>Storage container</td>
<td>Hands not dried</td>
</tr>
</tbody>
</table>
Appendix H. Permission to Use

Permission to use

Hi Pat,

You are welcome to use/modify my instrument. I have to warn you – the actual instrument is very large. I have downloaded the questions that were programmed into Qualtrics. The file is so long because we had 50 repeated observations. Between this and the tables in the JFBR article, you should be able to create a paper version. We initially planned on doing that – I have attached some of those initial efforts. The problem was that it was going to be hard to hide the fact that we were assessing behavior, and we didn’t want people to change their behavior thinking they were under observation. That is why we eventually moved to a Qualtrics survey accessible by cell phone.

Good luck,
Carl

Carl Schake, Ph.D.
Associate Professor
School of Hospitality and Tourism Management
Purdue University
Appendix I. Informed Consent for Market Manager Interview

University at Albany

INFORMED CONSENT INFORMATION FOR RESEARCH PARTICIPATION

Study Title: Assessment of Food Safety Compliance to Federal, State and Local Regulations within NYS Capital Region Farmers Markets: An Investigation of Current Facilitators, Barriers, and Future Opportunities to Increase Food Safety

Principal Investigator: Patricia Miller DPH Student

IRB Study Number: _____________

I am a student at the University at Albany, in the School Department of Public Health. I am planning to conduct a research study and I invite you to take part. This form has important information about the reason for doing this study, what we will ask you to do if you decide to be in this study, and the way we would like to use information about you if you choose to be in the study.

Why are you doing this study?
You are being asked to participate in a research study about Capital Region farmers markets managers. The purpose of the study is to identify roles, responsibilities, background, and challenges of market managers.

What will I do if I choose to be in this study?
You will be asked to be interviewed about your position as a farmer’s market manager.

Study time: Study participation will take approximately one-half hour to 45 minutes.
Study location: All study procedures will take place at the farmers market.

I would like to audio-record this interview to make sure that I remember accurately all the information you provide. I will keep these tapes in on my phone and they will only be used by myself. If you prefer not to be audio-recorded, I will take notes instead.

I may quote your remarks in presentations or articles resulting from this work. A pseudonym will be used to protect your identity, unless you specifically request that you be identified by your true name.

What are the possible risks or discomforts?
Your participation in this study does not involve any physical or emotional risk to you beyond that of everyday life.
As with all research, there is a chance that confidentiality of the information we collect from you could be breached—we will take steps to minimize this risk, as discussed in more detail below in this form.

**What are the possible benefits for me or others?**
You are not likely to have any direct benefit from being in this research study. This study is designed to learn more about the roles of farmers market managers. The study results may be used to help other people in the future.

**How will you protect the information you collect about me, and how will that information be shared?**
Results of this study may be used in publications and presentations. Your study data will be handled as confidentially as possible. If results of this study are published or presented, individual names and other personally identifiable information will not be used [if appropriate, add phrase such as “unless you give explicit permission for this below”].

To minimize the risks to confidentiality, we will... [Explain data security measures to be taken, e.g., storage, coding, encryption, limited access to study records, etc. If disclosure of faces or voices is necessary to understanding the research and therefore identifying information may be used in reports/presentations, explain this and provide “I agree” “I do not agree” options at the end of the consent form.] We may share the data we collect from you for use in future research studies or with other researchers—if we share the data that we collect about you, we will remove any information that could identify you before we share it. (Tweak/tailor this data sharing language as needed to fit your study—for example, if you might share data that potentially could be identifiable, such as videotapes, then you should make that clear).

If we think that you intend to harm yourself or others, we will notify the appropriate people with this information.

**Financial Information**
Participation in this study will involve no cost to you. You will not be paid for participating in this study.

**What are my rights as a research participant?**
Participation in this study is voluntary. You do not have to answer any question you do not want to answer. If at any time and for any reason, you would prefer not to participate in this study, please feel free not to. If at any time you would like to stop participating, please tell me. We can take a break, stop, and continue at a later date, or stop altogether. You may withdraw from this study at any time, and you will not be penalized in any way for deciding to stop participation.

If you decide to withdraw from this study, the researchers will ask you if the information already collected from you can be used.
What if I am a University at Albany student or employee?
You may choose not to participate or to stop participating in this research at any time. This will not affect your class standing, grades, employment, or any other aspects of your relationship with the University at Albany.

Who can I contact if I have questions or concerns about this research study?
If you have questions, you are free to ask them now. If you have questions later, you may contact the researchers at [add your contact information—as investigator(s) and for your co-Investigator/Faculty Advisor, including name, telephone number, and email address].

If you have any questions about your rights as a participant in this research, you can contact the following office at the University at Albany:

Institutional Review Board
University at Albany
Office of Regulatory and Research Compliance
1400 Washington Ave, MSC 100E
Albany, NY 12222
1-866-857-5459
rco@albany.edu

Consent
I have read this form and the research study has been explained to me. I have been given the opportunity to ask questions and my questions have been answered. If I have additional questions, I have been told whom to contact. I agree to participate in the research study described above and will receive a copy of this consent form.

Optional Study Elements
[This section should include other explicit consents for optional elements of the research procedures, such as contacting participants again in the future about participation in other research studies.]

Consent for use of contact information to be contacted about participation in other studies
Initial one of the following to indicate your choice:

______ (initial) I agree to allow the researchers to use my contact information collected during this study to contact me about participating in future research studies.

______ (initial) I do not agree to allow the researchers to use my contact information collected during this study to contact me about participating in future research studies.

____________________________________________________
Participant’s name (printed)

____________________________________________________
Participant’s signature ____________________________ Date
Appendix J.

Market Manager Interview Questions

1. Can you tell how you came into your job as a Farmers Market Manager?
2. Will you describe your role here?
3. What kinds of duties do you have?
4. What is your background? Either education or experience.
5. How and why do you communicate with the vendors?
6. What is your biggest concern or challenge?
7. How many years have you worked here or in any other markets or food settings?
8. What one thing would make your job easier?
9. Have you ever had to implement disciplinary action with one of our vendors? If yes, why?
10. Have you had any training specific to food handling?
11. Do you require or provide any training for vendors?
## Appendix K.

### Data Analysis Forms

Capital region market and vendor compliance against NYSDOH Sanitary Code for temporary markets

<table>
<thead>
<tr>
<th>Category Examined</th>
<th>Number of markets</th>
<th>Number of Vendors</th>
<th>NYSDOH requirement Ag and Market Checklist</th>
<th>Compliance % Correct</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General compliance</td>
<td></td>
<td></td>
<td>- Protected from contaminants&lt;br&gt;- Food is stored off of the ground&lt;br&gt;- Animals other than service animals are prohibited&lt;br&gt;- Signage promotes handwashing and food safety&lt;br&gt;- No reselling&lt;br&gt;- Penalties for rules violations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Handwashing</td>
<td></td>
<td></td>
<td>Handwashing stations in market&lt;br&gt;Supplies as appropriate (soap, towels)&lt;br&gt;- No bare-hand food contact&lt;br&gt;- Gloves are used as appropriate (no bare-hand contact with RTE foods after handling money)&lt;br&gt;- Utensils are used as appropriate&lt;br&gt;- Presence/Use of alcohol-based hand sanitizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Temperature Control</td>
<td></td>
<td></td>
<td>Refrigeration method is appropriate (mechanical, cooler or none)&lt;br&gt;- Thermometers are in use&lt;br&gt;- Foods that require cold holding refrigeration must be kept at 41°F or below. Foods that require hot holding heat must be kept at 135°F or above.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix L. Definition of Terms

Certified food handler: a food handler who attends and successfully completes a food safety education program (NYS food safety training, 2010).

Cross-contamination indicates the “transfer of harmful substances or germs from one food product to another through direct contact, or contact with utensils, equipment, work surfaces, or employee hands or clothing” (Spokane Regional Health District N.D., p. 1).

Food hygiene practice: activities carried out by food handlers to protect food from contamination and ensure a safe supply of food for consumers.

Foodborne illness: a disease that is carried by or transmitted to people through food (National Restaurant Association Educational Foundation, 2010).

Foodborne illness outbreak: “the occurrence of two or more cases of a similar illness resulting from the ingestion of a common food” (Olsen, MacKinon, Goulding, Bean, & Slutsker, 2000).

Food safety knowledge: the level of awareness of food handlers concerning food safety issues as measured by scores on a written test.

Food safety culture: “the aggregation of the prevailing, relatively constant, learned, shared attitudes, values, and beliefs contributing to the hygiene behaviors used within a particular food-handling environment” (Griffith et al., 2010a, p. 240).

Hazard analysis and critical control point (HACCP): “a systematic approach to food safety management based on recognized principles which aim to identify the hazards that are likely to occur at any stage in the food supply chain and put into place controls that will prevent them from happening” (Mortimore & Wallace, 2001, p. 1).

Potentially hazardous foods: According to the FDA Food Code (FDA, 2001), a potentially hazardous food is any natural or synthetic food that requires refrigeration due to its ability to support the rapid growth of infectious or toxigenic microorganisms (p. 2).

Ready-to-eat: foods are foods that will not have another treatment, such as heat, to kill pathogens that may be in or on the food. Examples of these foods are salads, some fruit and vegetables (apples and grapes), baked goods, nuts out of the shell, sandwiches, open cheese, dips, and so on. These products must be closely regulated because they present more risk of contamination (FDA, 2019, p. 1).

Safety culture: the product of individual and group values, attitudes and beliefs, competencies and patterns of behaviors that determine the commitment to, and the style and proficiency of, an organization’s health and safety management” (Advisory Committee for Safety in Nuclear Installations [ACNSI], 1993 as cited by Cooper, 2000).

Temperature abuse: occurs when potentially hazardous foods are held in the temperature danger zone of 41°F to 140°F for an extended period of time, giving rise to the possibility of bacterial growth and foodborne disease outbreak (Spokane Regional Health District).
Appendix M. Farmers Markets Rules

Market Rules and Regulations

Market A

1. The use of the markets is restricted to vendors, associate vendors, and prepared food vendors, who are bona-fide growers, craftspersons, and producers of homemade products approved by the Board of Directors.

2. IT IS ABSOLUTELY AGAINST THE POLICY OF THE ASSOCIATION FOR ANY MEMBER TO PURCHASE ITEMS AND RESELL THEM AT THE MARKETS. Only categories approved for specific markets which are produced by a member or his/her household or business on land owned or rented by that member may be sold or given away by the vendor. Only products grown or produced within the membership areas may be sold at the market.

3. The following is a list of products that may be sold at the Market:

   a. Fruits - grown by the vendor.
   b. Vegetables - grown by the vendor.
   c. Meat products - 100% from animals raised from weaning by the vendor.
   d. Fish - raised by the vendor through aquaculture from fingerlings of no more than 2” in size, or legally caught from the wild.
   e. Cider, fruit juice and herb teas - sold in bulk or by the drink by the producer of the fruit or herbs.
   f. Dried fruits and vegetables - only from fruit and vegetables grown and dried by the vendor.
   g. Honey and bee products - produced and bottled-packaged by the vendor.
   h. Preserved and Processed Foods - Jams, preserves, frozen, canned foods, etc. prepared by the vendor from fresh produce from the region. If the produce is grown in the area, the
products must use solely local products. If not grown in the area (such as figs) products from outside the area may be used.

i. Milk - produced from the vendor’s own herd

j. Cheese and other dairy products - preference shall be given to vendors using milk produced by their own herd. Vendors buying milk must do so from small regional sustainable farms which are subject to review by the market.

k. Eggs - from the vendor’s own fowl

l. Poultry - 100% from birds raised by the vendor from day old chicks.

m. Grain products - pancake mix, granola and other grain products from grain collected and blended/mixed by the vendor.

n. Maple Products - processed by the vendor from the vendor’s own or rented sugarbush.

o. Baked goods - fresh baked and prepared from scratch by the vendor (no commercially prepared dough mixes, crusts, shells, fillings, or contents). Preference shall be given to vendors using local ingredients purchased directly from the farmer/producer.

p. Field and greenhouse grown plants, flowers, cut flowers and herbs - grown by the vendor from seeds, plugs, dormant roots or bulbs, or cuttings.

q. Animal products - wool, fleece, yarn, feathers, down, and untooled leather produced from animals owned by the vendor. Preference shall be given to vendors who process their own product.

r. Crafts - high quality craft items designed and produced by the vendor.

s. Ready-to-eat prepared foods - high quality food items prepared by the vendor. Preference shall be given to vendors who use locally grown farm-direct products reflecting seasonable availability.
t. Hay and straw, and feed products - grown/produced by the vendor.

u. Teas, herbs, spices, herbal vinegars - blended/prepared and packaged by the vendor. Preference shall be given to vendors who grow their own ingredients.

v. Services - at the discretion of the board, and as space permits; e.g., massage therapy, bicycle repair.

w. Wine and Spirits - bottled locally from local produce.

x. Beer – brewed and bottled locally.

z. Confections/Chocolates - made by the vendor. No commercially prepared mixes, filling, or content.

4. Home-based vendors of crafts, prepared foods, and baked goods shall be given preference.

5. Vendors may provide free samples to customers as long as this is done in a safe and sanitary manner in compliance with Department of Health requirements.

6. A market and product category, once approved by the board, will generally be preapproved for the following season provided it is marked properly on the member’s application. However, the board reserves the right to deny an item or product at their discretion.

7. For vegetables and small fruits, rental of local land is permitted. Rental of orchards is permitted by members who are in full control and supervision of the individual steps of production with a majority of their own machinery and labor. Any other arrangement must be submitted in writing with the member’s application for action by the board. A map must be submitted with the application, clearly indicating the rental land, and the name and address of the owner, along with documentation of a land rental or use agreement.
8. Consumer inquiries regarding pesticide use and other farm practices must be answered factually without misleading information. The board and Market Manager reserve the right to limit vendor’s claims regarding farm practices that cannot be verified.

9. Goods offered for sale are expected to be of the highest quality. If, in the opinion of the Market Manager, a vendor offers inferior quality products, the vendor may then be asked to withdraw the item(s).

10. Genetically engineered plants and animals, and products grown or produced with engineered hormones (e.g., Bovine Growth Hormone), may not be sold at the market.

**B. Members adding additional products and possible Board restriction of product sales**

All Vendors and Associate Vendors are approved to sell one or more General Products listed as items 2a-x hereto. Once approved to sell items of a specific General Product, a Vendor (but not an associate vendor) may add products for sale, provided they fit within the category of the approved General Product. For example, a Vendor approved to sell vegetables and fruit and actually selling tomatoes, greens, onions, peas, potatoes, apples and peaches (items 2a and 2b) may add asparagus, ginger and/or plums without application for approval. However, such a Vendor could not add eggs (2k), cut flowers (2p), or dried apples (2f) without application and specific board approval. However, the Vendor must update their application and notify the market manager.

From time to time the board may approve the addition of an associate vendor but may restrict the sales of that associate vendor to certain products within a general category. For example, the board may choose to approve the addition of an Associate vendor to sell pork and pork products (item 2c) but no other items within 2c. The Associate vendor originally approved
to sell pork and pork products wished to also sell vegetables (item 2a) they could not do so prior to submitting an application and board approval. The restrictions will be lifted to that of a Vendor when the board approves an Associate vendor for Vendor Membership after at least one year.

C. Market Operations

1. The board reserves the right to cancel the privileges of any member who, in the opinion of the Board of Directors, has willfully violated the Rules and Regulations governing the association and the markets.

2. Vendors must comply with all current applicable federal, state, and local regulations.
   a. Vendors selling taxable items must display a valid NYS Certificate of Authority.
   b. Vendors selling nursery and greenhouse crops must display a valid NYS Nursery license.
   c. Vendors selling meats, processed foods, prepared foods, baked goods, and other perishable items must do so in compliance with the requirements of the NYS Department of Health and NYS Department of Agriculture and Markets and any other applicable requirements.
   d. Vendors selling by weight must have scales approved by the Rensselaer County Office of Weights and Measures.
   e. Vendors selling by measure must use standard size containers such as pint, quart, bushel, etc.

3. The market is held outdoors rain or shine on Saturdays beginning in May and ending in late October. The market moves indoors in November. The exact dates and times will be specified in the application package for each year’s market. Cancellation of the Market or early closure due to dangerous or severe weather conditions shall be at the sole discretion of the Market Manager.

Vendors may set up at their market sites up to two hours before the markets open. For safety
reasons, vendors should have their vehicles and stands in place before the opening of the markets. Vendors shall not begin to transact business until the designated time for the market to open. Vendors are required to remain at the Market for the entire Market day until the official closing time. Vendors must have their market sites dismantled, packed up, and cleaned within 90 (90) minutes of the market closure.

4. Vendors are assigned to markets according to spaces available at market, seniority, type of product, and previous market attendance.

5. Vendors should occupy their spaces no later than 30 minutes prior to market opening. Repeated lateness will result in penalties as outlined in item 17.

6. Vendors are required to notify the Market Manager no later than 7:00 a.m. on market day of their intended absence at the market.

7. Vendor owners/principals/persons directly involved in the production of the product must attend at least 25% of the season’s market days. People working in their place must be informed of their products as well as all of the market’s rules and regulations and the vendor is responsible for any fines and for resolving any other problems that may occur in their absence.

8. Vendor space dimensions are established by the board and are specified in the application packages.

9. Fees are set by the board and are specified in the application packages.

10. Each vendor will be responsible for all equipment and supplies for the setup of a booth, table, scales, bags, signs, etc., and must operate his/her market space in a safe and sanitary manner. Display facilities must be constructed in such a way as to pose no hazards to customers and allow easy access to the goods on display. Produce may not be placed directly on the ground. Vendors who provide samples and/or products which result in waste materials, such as corn
cobs, rinds, and cups must provide containers for such waste disposal and advertise same. At the end of the sale day, the vendor's area must be clean and any refuse taken home by the vendor or disposed of as directed by the Market Manager.

11. All members must have and use weights for all tents being used at the outdoor markets.

12. Each vendor shall remain on his/her own market space when selling and sampling products. Sales should be conducted in an orderly business manner. No shouting, hawking, or other objectionable means of soliciting shall be tolerated. Vendors shall exhibit courtesy and cooperation to customers and to other vendors selling at the market.

13. Illegal discrimination is not permitted at the market. Vendors are expected to be courteous and honest at all times. Disagreements with customers, fellow vendors, and the Market Manager must be handled in a respectful manner so as to not disrupt the Market.

14. Public drinking of alcoholic beverages and smoking while handling products and dealing with customers is prohibited.

15. Political or legislative promotion by political candidates, local civic groups or non-profit organizations will not be permitted. Space permitting the Market Manager may provide local civic groups or not for profit organizations the opportunity to make the public aware of their activities, but such organizations may not solicit donations or sell their wares or services.

16. Amplified music is not permitted at the Market unless it is part of entertainment sponsored by the market.

17. Each vendor must identify themselves or their business by use of an attractively lettered sign stating their name and location. The sign must be clearly visible from the center aisle. Vendors are encouraged to have business cards. All literature displayed on a vendor’s table must relate to his/her product or market affairs.
18. The association shall carry liability insurance to protect the association and the board of directors for their actions on behalf of the association. Vendors must also carry their own liability insurance and provide a certificate showing the Troy Waterfront Farmers’ Market as additional insured for a minimum of $1,000,000 individual coverage.

19. Schedule of penalties for violations:

1. Producer-Only Rule: (For duration as vendor)
   1st violation: Immediate suspension with review and the vendor automatically becomes an associate vendor. 2nd violation: Indefinite suspension or termination

2. Other Rules (e.g., being at market on time, securing canopy, cleaning up) (For each market year)
   1st violation: verbal warning
   2nd violation: warning letter from the board and associate’s status
   3rd violation: indefinite suspension or termination letter from board.

3. Inappropriate Conduct to vendors, staff, customers, members of the board or blatant disregard for market rules: The board will review cases of inappropriate conduct to vendors, staff, customers, members of the board or blatant disregard for market rules and regulations, and may decide on any of the following: A warning letter, change of status to associate vendor or suspension or termination.

   **D. Membership**

1. The board shall establish annual administrative fees which must be paid prior to May 1. Members are expected to attend at least one of the regular meetings during each calendar year; either general meetings or board meetings or a combination thereof. Failure to do so will be considered in the following year’s application process.
2. Applications from returning vendors who have not turned in sales data will be considered as Associate vendor applications one time, and will not be considered in the future if sales reporting is not kept up to date. All data will be collected and held anonymously.

3. Any Member may apply to the Board of Directors for a leave of absence on a yearly basis. However, the Member must continue to pay any annual administrative fee. This will guarantee the Member’s current membership status in those assigned markets. The leave may be granted for one year. Requests for additional years will be considered on a case-by-case basis by the board.

4. Any farm or establishment may be inspected with a minimum of 24 hours advance notice. Inspections will be made only with the Member or his/her representative present unless otherwise permitted. Members must provide any records necessary to thoroughly document products and conditions recorded at the inspection. The Member will be notified of the results of the inspection within 60 days of the inspection. Refusal to allow an inspection may result in suspension from the Market.

5. All member complaints regarding rules and regulations must be directed to the President of the board.


A. Market Products

1. The use of the market is restricted to members who are bona-fide growers, craftsmen and producers of homemade products approved by the board of directors. 2. It is against the policy of Schenectady Greenmarket for any member to purchase items and resell them at the market. Only items which are produced by a member, or his/her household or employee, on land owned or rented by that member may be sold. 3. The following is a list of
products that may be sold at the market: a. Fruits—grown by the vendor. b. Vegetables—grown by the vendor. c. Meat products—100% from animals raised from weaning by the vendor. d. Fresh and salt water fish—raised by the vendor from fingerlings of no more than 2” in size or caught in, or off, the coast of New York, Connecticut, Massachusetts, New Jersey, Rhode Island or New Hampshire. e. Cider and fruit juice—sold only by the producer of the fruit. f. Drinks—cider and fruit juice and herb teas blended by the vendor may be sold by the cup. g. Dried fruit and vegetables—only from fruit and vegetables grown and dried by the vendor. h. Honey and bee products—produced and bottled/packaged by the vendor. i. Jams and preserves—prepared by the vendor from fresh produce from the region. j. Milk—produced from the vendor’s herd. k. Cheese and other dairy products—preference shall be given to vendors using milk produced by their own herd. Vendors buying milk must do so from small regional sustainable farms which are subject to review by the market. l. Eggs—from the vendor’s own fowl. m. Poultry—from birds raised by the vendor from chicks. n. Grain products—pancake mix, granola and other products from grain blended by the vendor. o. Maple syrup—processed by the vendor from the vendor’s own or rented sugarbush. p. Baked goods—fresh baked and prepared from scratch by the vendor. Preference shall be given to vendors using local ingredients purchased directly from the farmer/producer. q. Field and greenhouse grown plants, flowers, cut flowers and herbs—grown by the vendor from seeds, plugs, dormant roots or bulbs or cuttings. r. Animal products—wool, fleece, yarn, feathers, down and untooled leather produced from animals owned by the vendor. Preference shall be given to vendors who process their own product. s. Crafts—high quality craft items designed and executed by the vendor. t. Ready-to-eat prepared foods—high quality food items prepared by the vendor. Preference shall be given to vendors using local ingredients purchased directly from the farmer/producer. u. Hay and straw and feed products—
grown/produced by the vendor. v. Teas, herbs, spices and herbal vinegars—blended/prepared and packaged by the vendor. Preference shall be given to vendors who grow their own ingredients. w. Services—at the discretion of the board. x. Alcoholic Products i. Wine—Labeled with made by, produced by or blended only ii Beer—brewed and bottled locally. iii. Hard Cider—made from local produce iv. Spirits—Labeled with distilled by or distilled and bottled by only. 2 z. Confections/Chocolates—made by the vendor. No commercially prepared mixes, filling or content. ii. Processed and prepared foods—prepared and packaged by vendor. Preference shall be given to vendors who grow their own ingredients or who use local ingredients purchased directly from the farmer/producer. iii. Community organizations—space shall be made available at no charge for the use of community organizations at the discretion of the board and as space allows. 4. Home-based vendors of crafts, prepared foods and baked goods shall be given preference. 5. Vendors may provide free samples to customers as long as this is done in a safe and sanitary manner in compliance with Department of Health requirements. 6. Vendors are approved to sell items in a given category, as specified in Section A.3. A market and product category, once approved by the board of directors upon recommendations from the vendor relations committee, will generally be preapproved for the following season provided it is marked properly on the member’s application; however the board reserves the right to deny any item or product at their discretion during the seasonal application period. Mid-season additions or changes to another category must be submitted in writing and approved by the vendor relations committee. 7. For vegetables and small fruits, rental of land is permitted. Rental of orchards is permitted by members who are in full control and supervision of the individual steps of production with a majority of their own machinery and labor. Any other arrangement must be submitted in writing with the member’s application. A map must be submitted with the
application, clearly indicating the rental land, the name and address of the owner, along with
documentation of a rental or use agreement. 8. Consumer inquiries of farm practices must be
answered factually without misleading information. The board and market managers reserve the
right to limit vendor claims regarding farm practices that cannot be verified. 9. Goods offered for
sale are expected to be of the highest quality. If a vendor offers inferior quality products, the
vendor may then be asked to withdraw the item(s) at the discretion of the market manager and/or
board. 10. Genetically engineered plants and animals and products grown or produced with
engineered hormones (e.g., bovine growth hormone), may not be sold at the market. 11. Sub-
leasing or sharing of market space is not permitted. B. Market Operations 1. The board reserves
the right to cancel any and all privileges of any member, who, in the opinion of the Board of
Directors, has willfully violated the Rules and Regulations governing the market. 2. Vendors
must comply with the appropriate state and local regulations. a. Vendors selling taxable items
must display a valid NYS Certificate of Authority. b. Vendors selling nursery and greenhouse
crops must display a valid NYS Nursery license. c. Vendors selling meats, processed foods,
prepared foods, baked goods and other perishable items must do so in compliance with the
requirements of the NYS Department of Health and NYS Department of Agriculture and
Markets and any other applicable requirements. d. Vendors selling by weight must have scales
approved by a NYS County Office of Weights and Measures; the contact for Schenectady
County is 518-356-6795. e. Vendors selling by measure must use standard size containers such
as pint, quart, bushel, etc. 3. New vendors are approved by the board of directors, upon
recommendation by the vendor relations committee. All vendors are required to fill out the
seasonal market applications. Acceptance is contingent upon priorities stated in this document
and the Vendor Selection Criteria document. 3 4. The market is held outdoors rain or shine on
Sundays beginning in May and ending in late October. The market moves indoors in November. The exact dates and times will be specified in the application package for each season’s market.

a. Cancellation of the market or early closure due to dangerous or severe weather conditions shall be at the discretion of the market manager or the executive committee. 
b. All vendors are prohibited from operating when the market is closed. 

i. Any violation of this rule will result in:

• First offense: $250 fine
• Repeat offense: Suspension for a minimum of one market or expulsion from the market.

c. If there is thunder or lightning at anytime during market setup, market hours or market breakdown, the market will temporarily or permanently close, depending on the time of the event and recommendation of the manager. The final decision regarding resumption of sales or closure of the market will be at the discretion of the market manager, who will remain on the premises or within a nearby building until all vendors have left.

d. Under the circumstances of dangerous or severe weather and temporary closure of the market, it is our recommendation that all vendors take their cash boxes and seek shelter in a nearby vehicle or building. Vendors may also leave under such circumstances, but it is the market's strong recommendation that vendors seek shelter until the danger has passed. If a vendor does wish to leave, they should notify the market manager as soon as possible once a safe opportunity presents itself.

e. Temporary closure due to weather will require vendors who wish to stay to:

• Take their cash boxes and seek shelter in either a vehicle or a nearby building.
• Wait to resume selling until the manager has reopened the market.

f. Cancellation of the market or early closure due to dangerous or severe weather conditions shall be at the discretion of the market manager or the executive committee. Vendors are prohibited from operating when the market has been cancelled.

5. Vendors are assigned to spaces according to seniority, product offerings and previous market attendance.

6. Vendors must arrive and set up during the hours designated at the
start of the season. For safety reasons, vendors shall have their stands in place before the opening of the market. Vendors shall not begin to transact business until the designated time for the market to open and shall cease transacting business at the designated closing time. Vendors are required to remain at the market for the entire hours of operation. Vendors must have their market sites dismantled, packed up and cleaned within 90 minutes of the market closure. 7. Vendors should occupy their spaces no later than 30 minutes prior to market opening. Repeated lateness will result in penalties as outlined in item 20. 8. If the vendor cannot arrive by the designated opening time, the market manager must be notified by 7:00 am in order for space to be held. If such notice is not provided, the market may offer an alternative space, if available, to vendor at time of arrival. However, the market does not guarantee that such accommodations will be made. If a vendor cancels his/her market attendance on a particular day, the market manager must be notified by 7:00 am. An absence announced after 8:00 am on market day will result in penalties as outlined in item 20. 9. On call vendors must meet the requirements, including fees and documents, as specified in the application package. They will be notified as space becomes available. 10. Only vendor owners/principals/persons intimately familiar with the production of the product may staff their stand on market days. People working in their place must be informed of their products as well as all of the market’s rules and regulations and familiar with the vendor orientation packet sent prior to the start of each market season. The vendor is responsible for resolving any problems that may occur in their absence. 11. Vendor space dimensions are established by the board and are specified in the application package. 12. Fees are set by the board and are specified in the application package. 13. Each vendor will be responsible for all equipment and supplies for the setup of a booth, table, scales, bags, signs, etc. and must operate his/her market space in a safe and sanitary manner. The four market is not
responsible for the security of any items on site. Display facilities must be constructed in such a way as to pose no hazards to customers and allow easy access to the goods on display. A. Produce may not be placed directly on the ground. B. Vendors who provide samples and/or products which result in waste materials, such as corncobs, rinds and cups must provide containers for such waste disposal and advertise same. C. Propane-fired grills are not permitted in indoor spaces. D. At the end of the sale day, the vendor’s area must be clean and any refuse taken home by the vendor or disposed of as directed by the market manager. E. All vendors who wish to erect canopies (including umbrellas) during market hours (including setup and breakdown) are required to have their canopies anchored to the ground. Vendors who fail to properly anchor their canopies will not be allowed to sell at the market that day, unless the vendor chooses to take down and stow their canopy and sell without it. F. Should there be extreme wind, vendors are encouraged to leave tents down or take them down in such a way as to pose no hazards to customers; the manager may instruct vendors to take down canopies at any point during market operations. All canopies shall be adequately secured: • Each canopy shall have a minimum of two weights on diagonal corners. • Weights shall be at least 24 lbs. More is recommended. • Vendors may use their vehicles to anchor one side, but must have at least one additional weight on the opposite side. • Weights shall be securely attached using ropes, polyester webbing, or manufacturer provided mechanisms. Bungee cords and other elastic tethers are forbidden. Simply placing weights on the canopy legs is unacceptable. • Strapping tents to display tables is strictly prohibited. • Weights shall be tethered with lines that are clearly visible, and shall not cause a tripping hazard. 14. Vendors must be able to display their products within the assigned space. Each vendor shall remain on his/her own market space when selling and sampling products. Sales should be conducted in an orderly business manner. No shouting, hawking, or
other objectionable means of soliciting shall be tolerated. Vendors shall exhibit courtesy and
coopera
tion to customers and to other vendors selling at the market. 15. Illegal discrimination is
not permitted at the market. Vendors are expected to be courteous and honest at all times.
Disagreements with customers, fellow vendors and the market manager must be handled in a
respectful manner so as to not disrupt the market. 16. Public drinking of alcoholic beverages and
smoking while handling products and dealing with customers is prohibited. 17. Promotion by
political candidates, local civic groups or non-profit organizations at the market site is at the
discretion of the board and/or the market manager. 18. Amplified music is not permitted at the
market unless it is part of entertainment sponsored by the market. 19. Each vendor must identify
themselves or their business by use of a prominent sign stating their name and location. The sign
must be clearly visible from the center aisle. Vendors are encouraged to have business cards. All
literature displayed on a vendor’s table must relate to his/her product or market affairs. 20. The
association shall carry liability insurance to protect the association and the board of directors for
their actions on behalf of the association. Vendors must also carry their own liability insurance in
the amount of $1 million and provide a certificate showing the Schenectady Greenmarket as
additional insured. 21. Schedule of penalties for violations: a. Producer-only rule (for duration as
vendor) • First violation: warning letter • Second violation: indefinite suspension or termination
b. Unexcused absence (for each market year) 5 • A vendor who fails to notify the Market by 7:00
am on days they are scheduled to vend but will be absent will be fined $20. Leaving a message
on the market phone is sufficient notice. c. Late arrival (for each market year) • First violation:
warning letter • Subsequent violations: $20 fine per incident, at the discretion of the market
managers, to be paid on the day they are late. d. inadequately secured canopy (for each market
year) • Any vendor who fails to properly anchor his or her canopy will not be allowed to sell on
that market day unless that vendor chooses to take down and stow their canopy and sell without it or rent weights from the Market at the cost of $20 per day. e. Inappropriate conduct to vendors, staff, customers, members of the board or blatant disregard of market rules: i. Inappropriate conduct may be defined by (but is not limited) to disparaging remarks toward market staff, board members, vendors, or customers. ii. Disregard of market management requests regarding safety, conduct or general market operations. The board will review cases of inappropriate conduct to vendors, staff, customers, members of the board or blatant disregard for market rules and regulations, and may decide on any of the following: i. A warning letter, fine, suspension or termination. e. Trash (for each market year) • First violation: warning letter • Second violation: $20 fine • Third violation: $20 fine • Fourth violation: indefinite suspension or termination f. Other rules (for each market year) • First violation: warning letter • Second violation: warning letter • Third violation: warning letter and certified letter from the board • Fourth violation: indefinite suspension or termination C. Membership 1. The annual vendor membership fee is $75. Members are encouraged to attend association meetings. Members are expected to attend at least one of the regular meetings during each calendar year; either general meetings or board meetings or a combination thereof. 2. Any member may apply to the board in writing for a leave of absence. The duration and terms will be considered on a case-by-case basis. All vendors, including those who have applied for and been granted a leave of absence must apply for the following season in which they plan to participate. 3. The association reserves the right to suspend or terminate the privileges of any member who, in the opinion of the board of directors, has willfully violated the rules and regulations governing the association and the market. 4. Any member who has been suspended or terminated may appeal the determination. • The member shall have 14 days from the date of receipt of the written determination to file a
written appeal with the board. • The board shall hear the appeal within 14 days of the member’s appeal request. • If the determination is reversed on appeal, the vendor’s membership and vending privileges shall be immediately restored. • In no event shall any person be entitled to recover damages from the market for being denied vending privileges based on a good faith enforcement of the market’s rules. 5. Members of the vendor relations committee or the market manager with a designated knowledgeable assistant may inspect any farm or establishment within 72 hours of being notified by a representative of Schenectady Greenmarket. Inspections will be made only with the member or his/her representative present unless otherwise permitted. Members must provide any help necessary to thoroughly document products and conditions recorded at the inspection. The inspection process includes an inventory of products brought to the market for sale. Member will be notified in writing of the results of the inspection within 14 days of the inspection. Refusal to allow an inspection may result in suspension from the market. 6. All member complaints must be directed to the market manager, vendor representatives or the board chair. 7. Membership and market fees shall be established annually by the board of directors.

Market Association RULES AND REGULATIONS Amended and Ratified December 2, 2009 Amended and Ratified April 18, 2012 Amended and Ratified April 16, 2013 Amended and ratified October 3rd, 2013 Amended and Ratified April 14, 2016 Record of Changes Page of Effective Changes Revision Description of Change Section & Paragraph Number April 18, 2012

All General General reorganization and editing of all Sections All April 16th 2013 2, 7 Addition of language to allow a one-year trial of Seasonal Vendors of Ready-to-Eat food Section I: p1, 3, 7. Section V: p. 10 October 3rd 2013 2, 7 "Seasonal Vendors of Ready-to-Eat Food" changes made permanent Section I: p1, 3, 7. Section V: p. 10 April 14, 2016 2 Addition of
member representative or employee Section I: p7 I. MEMBERSHIP 1. Categories of membership are: agricultural, processed food, craft, service, and Seasonal Vendors of Ready-to-Eat food. Seasonal Vendors will be selected by the Board of Directors for each seasonal market and shall be designated as members without good standing (as indicated in the SFMA Constitution and Bylaws). Seasonal Vendors of Ready-to-Eat food will not have voting rights in the Saratoga Farmers’ Market Association. 2. Applications. Membership applications will be reviewed by the Board of Directors in prior to the start of each Market season. For the good of the Market the Registrar may, at his or her discretion, contact the board by email regarding an out-of-season application, for action by the board. If any applications come earlier than one month before the first fall board meeting, the Treasurer will return the check unless the application is acted upon by the board. 3. Proportion of types of vendors. In recognition that the association is a “farmers’ market” association, 75%, plus or minus 5%, of the members/vendors must be involved in agricultural production for the market as determined by the Board of Directors. Seasonal Vendors of Ready-to-Eat food will not be be included in the calculations for total percentages. 4. Vendors may present products from outside their primary membership category, provided they occupy no more than 20% of their stall space, and the products are approved by the Board of Directors. 5. Dues Membership dues and market fees are established annually by the Board of Directors, subject to approval of the membership. 6. Work Share. All members will perform a work share for the Market(s) they attend, as directed by the Vice President. Failure to satisfactorily perform the agreed upon work share will result in a fine as assessed by the Board of Directors. 7. Meeting attendance. All members, except seasonal ready-to-eat food vendors, are encouraged to attend all association membership meetings. Members or a member’s representative consisting of a family member or employee must attend at least half
of the regular membership meetings during each calendar year. Members who are scheduled to be out of the area must notify the Secretary in writing prior to their departure with their forwarding address. Failure to attend the required number of meetings will affect the member’s standing in the association with negative results on member’s stall assignment, and the member may be assessed a fine by the Board of Directors. 8. Cancellation of membership privileges. The association reserves the right to cancel the privileges of any member who, in the opinion of the Board of Directors, has willfully violated the Constitution and By Laws or Rules and Regulations governing the association and the its Markets. 9. Conduct of employees. Members are responsible for the conduct of all their employees at all times at the markets. The conduct of employees will be considered the conduct of the Members. 10. Inspections. The Board of Directors reserves the right to appoint a committee to inspect any member’s farm or establishment with advance notice. Inspections will be made only with the members or their representative present unless written permission is given by the member. Members must provide any help necessary to thoroughly document products and conditions recorded at the inspection. If issues are identified the member will be notified by the Secretary in writing of the results of the inspection within seven days of the inspection. 11. Transfer of membership. Membership rights may be transferred to a relative in the immediate family, pending approval of the board. If the enterprise is sold outside the family, the rights and privileges of membership in the association may not be sold with the business. 12. Leaves of absence. The Board of Directors may, at its discretion, grant a leave of absence on a yearly basis to a vendor who applies in writing to the board. To be eligible for a leave of absence, a vendor must have been actively selling for at least one year at the market(s) for which the leave is requested. The vendor must continue to pay a membership fee and 20 dollars leave of absence fee for each market that a leave is granted. This
will guarantee the vendor’s position in those markets for the following year. At the board’s
discretion, this space may be assigned to another member on a temporary basis, for that year.
Vendors on leave shall inform the board on their application of their intent to return to the
market site. When the member on leave returns, the member filling their position will either be
reassigned to another space, if available, or retain their position on the waiting list. II SELLING
AT MARKET 1. The use of the markets is restricted to members who are bona-fide growers,
craft persons, producers of scratch-made products, or other vendors approved by the Board of
Directors. 2. Purchasing items for resale IT IS ABSOLUTELY AGAINST THE POLICY OF
THE ASSOCIATION FOR ANY MEMBER TO PURCHASE ITEMS AND RESELL THEM
AS PURCHASED OR REPACKAGED AT THE MARKETS. Only products produced by a
member or his/her household or employee on land owned or rented by that member may be sold
or given away at the market, provided the product category was approved on the member’s
application. Only products produced within the membership areas of Saratoga, Washington,
Schenectady, or Rensselaer Counties may be sold at the markets. The Board of Directors has the
authority to review and accept applications from vendors outside currently recognized counties
on an as needed basis for the benefit of the markets. 3. Penalty for selling items for resale. Any
member who is proven to have purchased items and resold them, or who is reported by the
Market Manager to have willfully refused to obey the Market Manager’s express direction, will
be suspended from their markets and from association membership rights and privileges
immediately for a month. A second occasion of this infraction at any point will result in
immediate and permanent expulsion from the association. Any member who has a total of three
lesser infractions in one market season or five over two years, assessed by the Board of Directors
and reviewed by the judicial affairs committee, may be permanently expelled from the
association. 4. Stall assignments. Stalls will be assigned by the Board of Directors a minimum of two weeks prior to the start of any Market in accordance with provisions defined in the association’s Constitution and By Laws. All members will receive notification of their markets and stall assignments and items approved for sale. 5. Attendance and Absences. Vendors who are unable to attend a market they signed up for must contact the Market Manager if they expect to miss a market day. If vendors are not in their stall a half-hour before the market starts, the Market Manager may, at his/her discretion, reassign that stall for that day. 6 Setting up at and exiting a Market. The markets will be open regardless of weather conditions. For safety reasons, vendors should have their vehicles in place one-half hour before the opening of the markets. No products shall be bagged or sold until the designated time for the market to open. Once at the market vendors must stay until the market is over. In case of emergency or special situation where it is necessary to leave early, vendors must consult with the Market Manager. Each vendor will be responsible for all equipment and supplies for the setup of his or her booth (table, scales, bags, signs, etc. Vendors must have their market sites dismantled, packed up, and cleaned within a reasonable time of the market closure. Any vendor who fails to follow the rules and regulations will be subject to disciplinary action. 7. Stall sizes. The inside stalls at the High Rock Market are either 16 wide or 8 feet wide. Stalls at other association-run markets are (12) feet wide, adjusted at the discretion of the market manager. Lawn stalls are 10 feet wide. Market displays will be no more than 3 feet from posts into pavilion in the center building, 4 feet from posts in the end buildings. No vendor space shall exceed more than 30 feet depth from posts. 8. Identification. Each vendor must identify themselves or their business by use of signs or business cards stating their name and address. Prices for products should be clearly displayed. 9. Samples. Vendors, who provide samples and/or products which result in waste materials (such as corn cobs, rinds,
cups), shall provide containers for such waste disposal. All equipment, supplies and any waste products generated must be taken home by the vendor after each Market. 10. Conduct of sales. No products can be sold before the start of the Market’s regular hours. Vendors shall remain on their own market space when selling products. Sales shall be conducted in an orderly business manner. No shouting, hawking, or other objectionable means of soliciting shall be tolerated. Vendors shall exhibit courtesy and cooperation with customers and other vendors selling at the market 11. Vehicles and Parking. No vehicles within the any Market area may be moved during market hours for safety reasons. At High Rock Park, one vehicle per vendor stall will be allowed to be parked next to the Pavilions. All other vehicles shall be parked in parking lots. Vendors who set up on the lawn must park their vehicle in the parking lot. Vehicles are not allowed on the lawns. Parking at all other association-run markets will be at the direction of the market manager. 12. Approvals of Markets and Products. Market and product items, once approved by the board for a member at a specific market, will generally be re-approved for the following season provided it is marked properly on the member’s application. However, the board reserves the right to deny an item or product at their discretion. The Board of Directors shall take into account the overall balance of the market when accepting members and their products. 13. Complaints by members. All member complaints must be addressed in writing to the Market Manager or the President. 14. Licenses and permits. It is the responsibility of each vendor to provide the Registrar with all licenses, seals, permits, certifications, sales tax information, proof of insurance, and other requirements for the sale of any items. Each member is responsible for meeting all applicable federal, state, and local laws and regulations. 15. Liability Insurance – association. The association shall carry liability insurance to protect the association and the board of directors for their actions on behalf of the association. 16. Liability Insurance – Vendors.
Vendors must carry product and general liability insurance in an amount set annually by the Board of Directors, naming The Saratoga Farmers’ Market Association Inc. as “additional insured.”

### III CRAFT GUIDELINES

1. The purpose of these guidelines is to help preserve the integrity of the Saratoga Farmers’ Market. Crafts presented for sale at any Market are to be consistent with the overall “handmade/Homemade” atmosphere of the markets. All crafted products presented for sale at the market must be of high quality workmanship, must be locally produced, designed and executed by the craftsperson and must reflect individual skill and professionalism.

2. A craft vendor is one who mainly sells craft items as opposed to vendors selling mainly agricultural or foods. Craft vendors will not exceed 10% of the total number of vendors signed up for a particular Market in a given year.

3. No more than (1/3) one-third of the selling price of a craft item may be purchased materials. Manufactured items may be incorporated into the craftwork provided the vast majority of the product is handmade and reflects the skill of the craftsperson. Copies of another’s work or design will not be accepted.

4. Kits or products made from kits are strictly prohibited.

5. If there is a question about a crafted item being made to these standards a written complaint must be made to the Market Manager or the President of the Association. The complaint may be referred to the Crafts Committee or other body as appropriate. The vendor is subject to inspection and it is the vendor’s responsibility to produce the receipts and steps taken to produce the item.

6. The board delegates to the Craft Committee the authority to evaluate crafted items submitted for registration approval and to make its recommendations to the board. Should a dispute arise, a craftsperson can make a written appeal to the board for a ruling, which ruling is final and binding.

### IV AGRICULTURAL GUIDELINES

1. Members growing bedding plants, hanging baskets or potted plants may grow them only from seeds, plugs, dormant roots or bulbs, or cuttings.

2. For vegetables, rental of
local fallow land is permitted. Rental of land supporting orchards and small fruits is permitted by members who are in full control and supervision of the individual steps of production with a majority of their own machinery and labor. A map must be submitted with the application, clearly indicating the rental land location, and the name and address of the owner. 3. Livestock, dairy and poultry vendors may rent land for growing crops and for pasturing, but must be in full control of that land at the time they are using it. They may also purchase feed for their livestock and poultry. They must provide the names and addresses of land owners who are their landlords. 4. No live animals (excluding fish) may be brought for sale to or sold at the Market by any vendor (without prior approval by the Board of Directors). Meat, dairy, and poultry vendors must comply with all federal, state, and local laws and regulations. All meat sold must be raised from weaning by the farmer. All live animals brought to the Market as exhibits must be approved by the Market Manager. V FOOD GUIDELINES 1. The purpose of these guidelines is to help preserve the integrity of the Saratoga Farmers’ Market. Processed foods presented for sale at any Market are to be consistent with the overall “handmade/homemade” atmosphere of the Markets. All processed foods should uphold high standards of quality and reflect professionalism. 2. A processed food is one wherein an ingredient or a combination of ingredients is modified from its/their original state by cutting, mixing, cooking, baking, or other process, resulting in a food product different from the original food. These foods are intended for human consumption. 3. A processed food vendor is one who mainly sells processed foods as opposed to those vendors who mainly sell crafts or agricultural products. 4. All baked goods must be fresh baked and prepared from scratch (no commercially prepared dough mixes, crusts, shells, fillings, or contents.) frozen or canned raw fruits or vegetables are acceptable provided they contain no added spices or syrups. All other prepared foods must be made from scratch and approved by the Board of
Directors. 5. All processed foods must demonstrate the skill of the producer. Each vendor will be held responsible to justify all production methods. 6. Processed foods must comply with all federal, state, and local regulations. All processed foods that are not exempt must be produced in a licensed kitchen. Unless the licensed kitchen belongs to the vendor, it is required that the food be processed under supervision by a qualified food processor. 7. When possible, all processed foods must contain local ingredients. Foods in which at least some ingredients are raised by the producer are greatly preferred. Baked goods and other cereal goods such as pasta and granola are exempt from this requirement, although all producers are encouraged to find local sources for at least some of their ingredients, such as honey, eggs, oats, and wheat. 8. The board delegates to the Compliance the authority to evaluate processed food items submitted for registration and to make its recommendations to the board. Should a dispute arise, a processed food vendor can make a written appeal to the board for a ruling, which ruling is final and binding. 9. A processed food vendor, when asked, must 1) produce receipts showing purchase of items used in the processing of the food item, unless the ingredients are grown by the vendor; and 2) describe the processes used in the food’s preparation to the satisfaction of the Compliance Committee. Failure to comply with these requirements will result in the committee’s recommendation to the Board of Directors that the food applied for be declined. 10. All Seasonal Vendors of Ready-to-Eat Foods shall comply with all federal, state, and local regulations. Additionally, all food shall be served in ready-to-eat portions at the market, complete with disposable or recyclable food service utensils; or take-out containers. Preference will be given to Season Vendors of Ready-to-Eat food utilizing local products and products with healthy ingredients.
The New York State Department of Agriculture and Markets (Department), as administrator of both the Women, Infants and Children Farmers’ Market Nutrition Program (WIC FMNP) and the Senior Farmers’ Market Nutrition Program, herein referred to as the Farmers’ Market Nutrition Programs (FMNP), will designate markets in New York State as local partners in the administration of the FMNP. The Department, and all designated markets, shall provide for the operation and administration of the FMNP. The Department, with support from designated markets, will approve farmers for participation in the FMNP. The rules and procedures as described below apply to all approved farmers in the FMNP. The Department reserves the right to interpret the information below as necessary in individual circumstances.

1. Eligibility. To be eligible a farmer must:
   a. Be considered a bona-fide farmer. For the purposes of the FMNP, to be considered a bona-fide farmer, one must grow and harvest, on land owned or leased by the farmer, locally grown fruits, vegetables, and/or culinary herbs. For the purposes of the FMNP, to be considered locally grown, at a minimum, the product must be grown in New York State and/or adjacent states; a market manager/sponsor is permitted to restrict the definition of locally grown further to include portions of New York State, all of New York State, portions of adjacent states, or all of adjacent states, based on their market location, farmer geographic participation, and overall market objectives.
   b. Participate in an authorized FMNP market as a bona-fide farmer at some point during the FMNP season which is June 1–November 30; farmers may participate in the FMNP as a vendor and/or supplier. Depending on the model of operation of the market outlined below, farmers must also demonstrate the following:
      i. Farmers’ markets: (a) when vending at a farmers’ market participating in the FMNP, the bona-fide farmer must meet the “50% Grow Rule.” For the purposes of the FMNP, to meet the “50% Grow Rule,” of the
fruits and vegetables being offered for sale by a bona-fide farmer, at a minimum, 50% (by volume) must be grown and harvested on land he/she owns or leases. ii. Farm stands: (a) when operating a farm stand participating in the FMNP, selling produce primarily from their own farm, the bona-fide farmer must meet the “50% Grow Rule.” Note: To enroll a personal farm stand in the FMNP, farm stand operators must submit a market application (see Rules and Procedures for Markets (FMC-04) for more information on the market application process). iii. Mobile markets: (a) when operating a mobile market participating in the FMNP, selling produce primarily from their own farm, the bona-fide farmer must meet the “50% Grow Rule.” Note: To enroll a mobile market in the FMNP, mobile market operators must submit a market application (see Rules and Procedures for Markets (FMC-04) for more information on the market application process). 2. Application. To apply a farmer must: a. Submit a Farmer Participation Agreement (FMC-6) annually prior to accepting any FMNP checks at market; a farmer may choose to directly submit their agreement to the Department or have a market manager/sponsor forward their agreement on behalf of the farmer. Agreements require a countersignature from a market manager/sponsor operating an authorized FMNP market. If an applicant only participates in the FMNP at their own personal farm stand, they are exempt from obtaining a countersignature. If an option exists to obtain a countersignature, that option must be taken. Applicants are only exempt from this requirement if no other option exists. If you manage your own multi-vendor farmers market, you may not counter-sign your own farmer application; you must have the sponsor or co-manager counter-sign your application. b. Submit a crop plan (FMC-12) annually to every market manager where the farmer accepts FMNP checks – not to the Department - as evidence of his/her bona-fide farmer status. Crop plans will be retained in the records of authorized FMNP markets for three years and may be audited by the Department at any time. Note: If a farmer decides to
enroll their personal farm stand into the FMNP, a crop plan must be included with the market application, as evidence of who the bona-fide farmer is at the farm stand (see Rules and Procedures for Markets (FMC-04) for more information on the market application process). c. Satisfy the annual training requirement. Farmers new to the FMNP must participate in an online training webinar delivered by the Department; they may train face-to-face with their market manager/sponsor. Farmers returning to the FMNP satisfy the training requirement when they read the Rules and Procedures for Farmers (FMC-05). d. Receive and read the material provided in the authorization package from the Department. Farmers who meet all the requirements will be mailed an authorization package annually. The annual authorization package will include the farmer’s FMNP ID card to be used at the bank during the reimbursement process and it will include promotional signage for their market stall; farmers new to the FMNP will also receive their FMNP stamp in the package. 3. Administration. To participate in the FMNP a farmer must perform or provide as necessary the following services, and abide by the following requirements:

a. Only accept FMNP checks after receiving their annual authorization package from the Department. b. Only accept FMNP checks at markets listed on their Farmer Participation Agreement (FMC-6). If a market is added to their schedule, farmers can update their record by contacting the Department. c. Only accept FMNP checks from participants during the FMNP season from June 1-November 30. d. Only accept FMNP checks from participants at authorized FMNP markets. A list of authorized FMNP markets is available online (www.agriculture.ny.gov) and is updated routinely throughout the season. e. Only accept FMNP checks for locally grown fresh fruits, vegetables and/or culinary herbs. f. Display the promotional sign “We Gladly Accept NYS Farmers’ Market Checks” at their market booth at all times from June 1-November 30 or for the entire market season, whichever is shorter. g. Adhere to the “50% Grow Rule” at
participating FMNP markets; meet a market’s higher standard where applicable (e.g. 100% producer-only market). h. Permit a farm visit to occur, as necessary, by a representative from an FMNP market manager/sponsor and/or from the Department to verify information submitted on a crop plan. i. Treat FMNP checks like cash and safeguard them from possible loss or theft. j. Always accept cash in addition to checks from check recipients. k. Never return cash as change for purchases made exclusively with FMNP checks. l. Never participate in “check trafficking.” Check trafficking occurs when a customer or non-FMNP vendor exchanges the FMNP check improperly for cash or other currency. For the purposes of the FMNP, “check trafficking” is defined as cashing and/or any other non-eligible currency redemption of FMNP checks for customers, non-FMNP farmers or non-FMNP vendors. m. Never accept mutilated FMNP checks or checks lacking the serial number and bar code, as they will be rejected by the clearinghouse. n. Display notices at the point of sale stating that any tropical citrus, or other non-locally grown produce cannot be purchased with FMNP checks because they are not locally grown. o. Stamp each FMNP check using their authorized FMNP stamp with black ink only. i. Stamps are issued by the Department to each participating farmer; farmers can request a replacement stamp by calling the Department for which a fee may be assessed. ii. The stamp image must be clearly legible, including the state seal and all four digits; unstamped or illegibly stamped checks will not be paid; farmers do not need to endorse or stamp the back side of the FMNP check. p. Redeem all FMNP checks by December 15. i. Mail in Redemption. New to 2020, checks will no longer be redeemed through any bank. Checks must be mailed to the following address, post marked by December 14, 2020. Farmers’ Market Federation of New York 109 Twin Oaks Drive Suites U2-4 Syracuse, NY 13204 ii. Treat checks like cash. We recommend requesting tracking for each package. iii. A redemption check will be sent to you by the Farmers Market Federation
of New York, for the value of the checks received. iv. Please plan accordingly as redemptions take some time. v. Problems? If further assistance is needed, contact the Department at 518-457-7076 x1. 4. Violations and Sanctions. a. If an FMNP-authorized farmer is identified through a farm inspection to not meet the requirements of the program, he/she will be notified in writing by the Department that such a finding has occurred and he/she is being disqualified from the program. b. If an FMNP-authorized farmer has been identified through compliance purchases to have committed a violation, he/she will be notified in writing by the Department that such a violation has occurred and that future violations can result in termination from the program. A copy of the letter will be provided to the market sponsor or manager. c. If a farmer is identified through a second compliance purchase to have committed a second such violation, he/she will be again notified in writing and required to provide an explanation by a specified date and/or to participate in a violation conference to discuss continued participation in the program. A copy of the letter will be provided to the market sponsor or manager. Violations that occurred in the prior year will be considered to be part of a consecutive series. d. A second violation may, and a third violation will result in disqualification from the FMNP. Immediate disqualification from the FMNP will occur if a farmer: (1) is found to be trafficking FMNP checks or (2) is found to be discriminating against check customers or (3) fails to respond to a second violation notice or (4) fails to attend a scheduled violation conference. e. If a disqualification decision is made by the Department, the farmer will be notified in writing that he/she is being disqualified from the program. Farmers disqualified from the program may be ineligible to participate in future years. Upon disqualification, the farmer’s stamp will be cancelled immediately and will no longer be valid for check depositing or cashing. The farmer must then return his/her FMNP stamp, FMNP sign, and FMNP ID card to the Department. A disqualified farmer may request a Fair Hearing at
the Department at which an Administrative Hearing Officer will review the disqualification
decision. 5. Discrimination. Participating farmers must not discriminate against FMNP check recipients in price, quality, or service, or establish separate produce displays exclusively for FMNP check recipients. 6. Standard assurances. The farmer hereby agrees that it will comply with Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d et seq.), Title IX of the Education Amendments of 1972 (20 U.S.C. 1681 et seq.), Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794), Age Discrimination Act of 1975 (42 U.S.C. 6101 et seq.); Title II and Title III of the Americans with Disabilities Act (ADA) of 1990 as amended by the ADA Amendment Act of 2008 (42 U.S.C. 12131-12189) as implemented by Department of Justice regulations at (28 CFR Parts 35 and 36); Executive Order 13166, "Improving Access to Services for Persons with Limited English Proficiency." (August 11, 2000), all provisions required by the implementing regulations of the U.S. Department of Agriculture (7 CFR Part 15 et seq.); and FNS directives and guidelines to the effect that no person shall, on the ground of race, color, national origin, age, sex, or disability, be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any program or activity for which the agency receives federal financial assistance from FNS; and hereby gives assurance that it will immediately take measures necessary to effectuate this agreement. By providing this assurance, the farmer agrees to compile data, maintain records and submit records and reports as required to permit effective enforcement of the nondiscrimination laws, and to permit Department personnel during normal working hours to review and copy such records, books and accounts, access such facilities, and interview such personnel as needed to ascertain compliance with the nondiscrimination laws. If there are any violations of this assurance, the Department of Agriculture shall have the right to seek judicial enforcement of this assurance. This assurance is given in consideration of and for the purpose of
obtaining any and all federal financial assistance, grants, and loans of federal funds, reimbursable expenditures, grant, or donation of federal property and interest in property, the detail of federal personnel, the sale and lease of, and the permission to use federal property or interest in such property or the furnishing of services without consideration or at a nominal consideration, or at a consideration that is reduced for the purpose of assisting the recipient, or in recognition of the public interest to be served by such sale, lease, or furnishing of services to the recipient, or any improvements made with federal financial assistance extended to the program applicant by USDA. This includes any federal agreement, arrangement, or other contract that has as one of its purposes the provision of cash assistance for the purchase of food, and cash assistance for purchase or rental of food service equipment or any other financial assistance extended in reliance on the representations and agreements made in this assurance. This assurance is binding on the farmer, its successors, transferees, and assignees as long as it receives assistance or retains possession of any assistance from the Department. The person or persons whose signatures appear below are authorized to sign this assurance on the behalf of the farmer. 7. Civil rights violations complaint process. Farmers that receive complaints from FMNP check recipients alleging civil rights violations must explain there is a complaint process and refer them to the USDA, FNS within five days, in accordance with FNS requirements as stated below: In accordance with federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, sex, disability, age, or reprisal or retaliation for prior civil rights activity in any program or activity conducted or funded by USDA. Persons with disabilities who require alternative means of communication for program information (e.g. Braille, large print,
audiotape, American Sign Language, etc.), should contact the agency (state or local) where they applied for benefits. Individuals who are deaf, hard of hearing or have speech disabilities may contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English. To file a program complaint of discrimination, complete the USDA Program Discrimination Complaint Form, (AD-3027) found online at: http://www.ascr.usda.gov/complaint_filing_cust.html, and at any USDA office, or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) Mail: U.S. Department of Agriculture Office of the Assistant Secretary for Civil Rights 1400 Independence Avenue, SW Washington, D.C. 20250-9410; (2) Fax: (202) 690-7442; or (3) Email: program.intake@usda.gov. This institution is an equal opportunity provider. Department Contact Information: Farmers’ Market Nutrition Program New York State Department of Agriculture and Markets 10B Airline Drive Albany, NY 12235 www.agriculture.ny.gov Fax: (518) 457-8398 Email: farmersmarkets@agriculture.ny.gov Questions? Albany (518) 457-7076 x1 Toll-free (800) 554-4501
Appendix V. DOH Report on Oversight of Foodservice Establishments


The following are the Department of Health’s (Department) comments in response to the Office of the State Comptroller’s Draft Audit Report 2017-S-62 entitled, “DOH Oversight of Food Service Establishments” (the Report).

Recommendation #1
Implement procedures to incorporate periodic data analysis and consistent use of EHIPS reporting mechanisms to:

• Assess the performance of designated health department functions that need improvements;
• Identify patterns and/or areas of concern involving noncompliance with the Code; and
• Provide information to regional offices and designated health departments to assist them in the most effective allocation of staff resources (i.e., to more effectively assign FSIO-certified inspectors and assess risk levels of Establishments).

Response #1
The Report does not reflect a comprehensive understanding of the many ways that the Department uses data analysis for both routine assessment of performance measures and ad hoc analysis to address specific concerns. However, the Department agrees with the recommendation to more routinely assess Local Health Department (LHD) performance. The Department has updated the formal, annual review of LHD programs by Regional Office staff using a uniform survey tool. Regional Office staff will conduct assessments of LHDs throughout 2019 and the program review tool will be used to evaluate LHD performance across many aspects of the food
protection program including: establishment permitting, frequency of inspection of establishments, percentage of high-risk inspections performed by a certified Food Service Inspection Officer, identification and correction of public health hazards, enforcement, and foodborne illness complaint investigation. The Department will also review its guidance on Regional Office oversight of LHD programs and revise as necessary to ensure that it is current and consistent with Department expectations.

LHDs must prioritize the various inspection activities that fall within the scope of their responsibilities. The Report suggests that establishments’ history of compliance should be considered when determining the appropriate inspection frequency and recommends that EHIPS reporting mechanisms be used to ensure effective allocation of staff resources. The Department agrees and is confident that this is already occurring. EHIPS already contains various report functions which allow LHDs to use permit and inspection data to effectively implement their food protection program. These reports were developed with significant input from LHDs to address their data needs. The Department will consider additional information reporting needs of the LHDs and the Regions as it works to further improve EHIPS functionality. The Department will also consider incorporating compliance-based prioritization into inspection frequency guidance. Report 2017-S-62 23

Recommendation #2

Ensure that designated health departments take enforcement action for Category I violations, or document justification for not doing so, especially for Establishments that demonstrate a pattern of repeated violations.

Response #2
The Department agrees with the recommendation and acknowledges that LHDs are not always either taking enforcement action for Category 1 Public Health Hazards or documenting reasons for not doing so. Often the Public Health Hazards are corrected or mitigated at the time of inspection. The absence of later enforcement does not further jeopardize public health when LHDs utilize other methods to educate operators and ensure future compliance. The Department will review its guidance on enforcement, provide clarification as necessary, and monitor LHD enforcement actions as part of program reviews by Regional staff as discussed in Recommendation #1.

Recommendation #3
Take steps to improve the accuracy and completeness of EHIPS data including, but not necessarily limited to:

• Implementing procedures for input, quality assurance, and utilization of information; and
• Developing fixes for data errors and the inability to transmit data from designated health departments to EHIPS.

Response #3
The Report identifies certain inaccuracies and inconsistencies in inspection data entered or transferred into the Department’s Environmental Health Information and Permitting System (EHIPS), including issues with Suffolk County not effectively providing inspection data to the Department. Suffolk County has since resolved the issues associated with data transfer and the missing data is now available. The Department will continue to monitor and ensure timely transmission of facility and inspection data by all counties using data transfer methods. Data transfer issues aside, the number of inaccuracies identified were relatively few and do not significantly impact the Department’s ability to evaluate statewide trends. However, the
Department agrees that it is important to minimize data inaccuracies. One major initiative seeking to improve data quality that the Department is undertaking, is the implementation of electronic inspection forms, which reduces data entry steps necessary to import data to EHIPS. The Department is committed to expanding the use of electronic inspection reports throughout its programs and encouraging their use across all LHDs.

Recommendation #4

Develop procedures that provide a basic framework for complaint investigations to improve consistency and standardize the information recorded for investigations.

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Response #4

The Department does not differentiate between foodborne illness complaint and outbreak investigations. Standard procedures and guidance for investigation of illness complaints are provided to LHDs as part of the Department’s outbreak investigation guidance since many foodborne outbreaks are identified through the investigation of foodborne illness complaints. Each LHD is required to develop and maintain a surveillance system to record complaints and identify possible foodborne disease incidents/outbreaks, verify the incident/outbreak and notify the Department Regional Office if an outbreak is identified. More prescriptive standardization of complaint/outbreak investigation procedures is impractical because LHDs differ in their organizational structure and available resources.

As noted in the Report, the Department is developing a statewide complaint system which will provide a central reporting mechanism to be accessed and monitored by both environmental health and communicable disease staff at the local and state level. The Department is also
revising its outbreak investigation guidance to include more robust technical reference material in addition to the existing procedural guidance.