

Kitchen Incubators in New England: How an emergent business incubator
model is fostering food entrepreneurship

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Abstract

Kitchen incubators are specialized business incubators that provide food production space and technical services in support of food business development. In recent years, kitchen incubators have been established across the country at unprecedented rates, a trend that is also reflected in New England. They are diverse in form and incubation approach. In the interest of better understanding this relatively new model and how it influences business outcomes, the following research evaluates five kitchen incubators in New England to examine features and practices that correlate with business success. Information gathered from kitchen incubator operators, tenants, and through site visits and other avenues of research reveals that, in most cases, kitchen incubators support food business development and entrepreneur competency. Further, key approaches and practices applied through kitchen incubator programs are important to supporting tenant business development, as well as the sustainability of the kitchen incubator operation.

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Chapter One: Introduction

Kitchen incubators¹ are gaining traction. An emergent business incubation model that combines commercial kitchens and business development support, kitchen incubators are helping individuals start or expand their food businesses. Incubator facilities range from general-use catering kitchens to production spaces outfitted with specialized equipment that are capable of supporting businesses making a range of specialty food products. Business support offered may include food safety training, product development, financing support, assistance with navigating certification and licensing processes, and business planning. Less quantifiable but still inherent and valuable features of kitchen incubators are the resources and professional relationships that tenants can access and leverage in these facilities, exchanging ideas with other businesses at various stages of development and receiving support from kitchen incubator staff.

While kitchen incubators host businesses at all stages of development, most focus their support on food businesses in the critical first years of development. This is particularly noteworthy, given that about one-third of small businesses fail in their first two years of operation (SBA 2012; BLS 2016a). The basic kitchen incubator formula provides business planning support and rental

¹ For this research, the term “Kitchen incubator” is used, though other terms are often used to describe this model including Kitchen Incubator, Culinary Incubator, Food Business Accelerator, and others. Kitchen incubator is used because it is the most descriptive and least ambiguous of the terms. Kitchen incubators are commercial kitchen facilities that rent food production space and equipment to culinary businesses and provide them business development assistance.

kitchen facilities to address common challenges of new food businesses and increase their likelihood of survival and success.

Over the past decade, kitchen incubators have seen exponential growth. Today there are an estimated 200 kitchen incubators nationwide, over 50% more than there were three years ago (Wodka 2016). Reasons for this growth can be attributed to at least two trends: consumer preferences and entrepreneurship growth. First, demand for artisanal and local foods has grown in recent decades. Consumers are increasingly looking for foods that meet quality and health as well as sustainability and ethical criteria. This has created demand for locally-grown and -produced foods, as well as foods made with high quality ingredients. Industry growth has followed demand, and since 2014 the specialty (or artisanal) food industry has seen 15% growth, an unprecedented amount (SFA 2017).

The past decade's significant growth of specialty food businesses follows the increase in entrepreneurship seen across sectors. While there was an initial steep decline in entrepreneurship immediately following the economic recession in 2008, beginning in 2010 the numbers of new businesses operating in the United States has steadily and consistently increased (BLS 2016b). Within the food sector, entrepreneurial activity has spurred development of businesses producing a range of niche products, from specialty cheeses to gluten-free baked goods. The explosion of specialty food business and the strong consumer demand for the products, coupled with a confidence that these trends will remain strong into the future, provide the impetus for the kitchen incubator growth taking place now.

Kitchen incubator expansion has occurred during the maturation of the modern food movement. Variably carrying other names, the modern food movement describes a diversity of efforts across sectors to improve health and advance equity, sustainability, and economic opportunity of food systems. In its beginning stages in the late 1990s and early 2000s, consumer demand for more transparent food supply chains and healthier food options drove expansion of farmers markets and community supported agriculture (CSA) programs (USDA 2014). Over time, as this demand remained strong, markets for local and artisanal foods expanded and diversified, giving rise to a national network of direct-to-consumer market models (such as farmers markets and CSAs), more specialty food markets (including food trucks), and moderate-scale wholesale distribution of local produce and products to schools, hospitals and other institutions (referred to as farm-to-institution programs).

Kitchen incubators fit both practically and ethically into the broader modern food movement. Their organizational narratives often echo the ideals of the modern food movement, particularly with regard to creating economic opportunity within the food system both for tenant food entrepreneurs and for farmers. Kitchen incubators have also played a critical role in providing much needed larger-scale kitchen and distribution infrastructure for food entrepreneurs, and in several cases, have also developed and supported expansion of farm-to-institution programs.

During this moment of sustained, national expansion, this research considers how kitchen incubators are developing within New England, where

some of the most veteran as well as some of the newest are in operation. The research evaluates five kitchen incubators in New England to better understand common and unique features of how the model is being applied and what impact they are having on the food businesses they incubate. Through case studies, interviews with incubator managers, and surveys with tenant businesses, the thesis seeks to answer two questions:

Research questions:

What tools and resources are New England's kitchen incubators employing to encourage business success?

To what extent are New England's kitchen incubators supporting business success?

Through a review of literature on business and kitchen incubators, coupled with manager interviews, tenant surveys, and site visits at five New England kitchen incubators, this research explores the components and dynamics of kitchen incubators and presents the following findings:

Structure and purpose

- Kitchen incubator operations are diverse and reflect their local contexts: If you've seen one kitchen incubator, you've seen one kitchen incubator.
- Promoting economic development and supporting food business growth are the key objectives of kitchen incubators.

Operational Sustainability

- Diverse and regular revenue streams strengthen kitchen incubator operations.
- Differentiation is important to operational sustainability.
- Food plans act as a guide for Vermont's kitchen incubators.
- Owning food products may increase the liability and risk of kitchen incubators.

Incubation Process

- The incubator application process is important for evaluating the fit and readiness of applicant entrepreneurs.
- Providing ongoing business technical assistance is a best practice.
- Partnerships can help expand kitchen incubators' capacity to serve tenants.
- Facilities managers are well positioned to see early indicators of challenges.
- Kitchen incubators can provide support to food businesses at several scales; graduation is not necessarily the goal.

Tenant Outcomes

- Business skill level improves with tenancy at these kitchen incubator, and entrepreneurs with the most limited skills tend to learn the most.
- Tenant businesses of these kitchen incubators tend to report a positive growth trajectory.

As of the writing of this report, limited research exists on kitchen incubators both nationally and in New England. This is not surprising, perhaps, since the trend is still relatively new. Recognizing the need to evaluate and better understand the variety of emergent kitchen incubators models, the attempt here is to provide research that describes the activities, features, and business impact of a handful of them in New England. As kitchen incubators gain in popularity as an innovative model for supporting specialty food business growth, the findings from this research may help to inform future kitchen incubator developments.

The following chapters include, in order, a literature review that examines the history and research of business incubation and kitchen incubation in the United States; a chapter describing research methods; case studies of each of the five kitchen incubators, including insights and results from kitchen incubator manager interviews, site visits, and tenant business surveys; an analysis of the case study findings; and the conclusion.

Chapter Two: Literature Review

The kitchen incubator model derives from the business incubator model that first emerged in the United States in the late 1950s and has since been implemented in many forms within a range of sectors, with the goal of spurring entrepreneurship and enterprise development. The following literature review presents the history of and research on both business incubators generally and kitchen incubators specifically.

Attenuating Risk, Increasing Survival

The first few years of operation are the most uncertain for start-up small businesses. In the United States, one-third of businesses close in their first two years, and half close in their first five years (SBA 2012; BLS 2016a). These high closure rates in the first years of operation flatten out after the formative years (BLS 2016a), showing that if businesses survive their first years, they have a much greater likelihood of long-term survival.

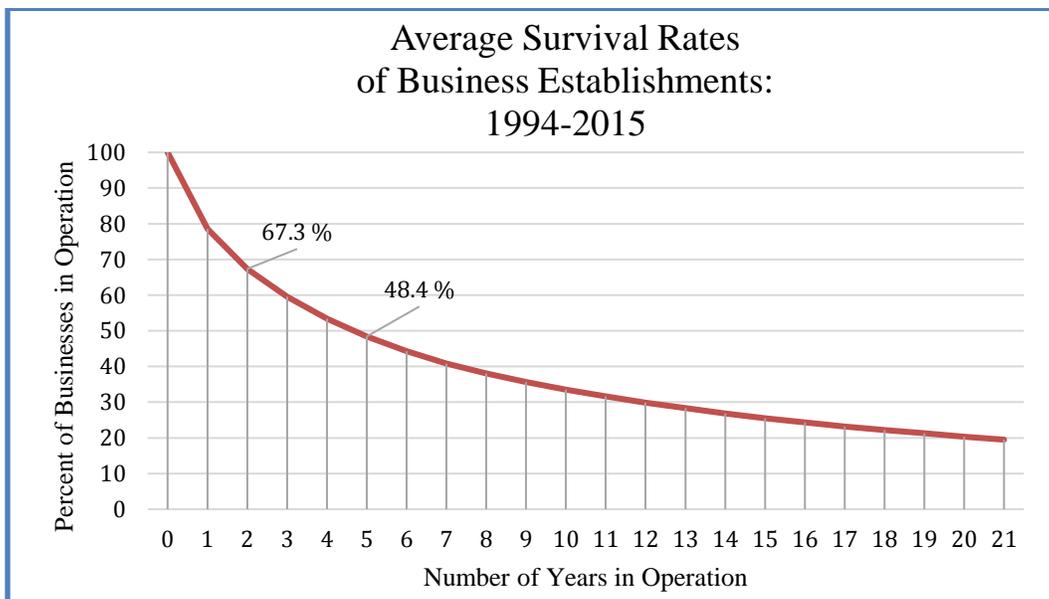


Figure 1: Bureau of Labor Statistics, Business Employment Dynamics, 1994-2015 (BLS 2016a)

Business incubators seek to assist businesses specifically within the initial critical years of operation. Typically, the resources that incubators extend to businesses include shared rental facilities and business support services; these often reduce the relative start-up capital costs and increase the opportunities for business training. The co-location of several business tenants in one facility also fosters professional relationship-building and networking opportunities with other tenant businesses. A business' affiliation with a business incubator can connect it to a network of external resources as well. This combination of resources and services aims to reduce risk and increase the business acumen of tenant entrepreneurs, toward the goal of increasing the rate of survival of start-up businesses and in some cases also of minimizing financial losses for businesses that are not viable (Hackett and Dilts 2004a; Allen and McCluskey 1988; Campbell and Allen 1987).

Business Incubator History

An estimated 1,250 business incubators are in operation today in the United States and 7,000 worldwide. The vast majority of incubators (93%) are non-profit, and the rest are private operations. They share the objective of supporting enterprise development, and otherwise they are diverse in their structure and the types of business they serve. Over half of business incubators serve 'mixed-use' enterprises, over one-third focus on technology businesses, and a smaller percentage focus on niche sectors and manufacturing (NBIA 2016). The business incubator model has changed over time, and researchers agree that there

have been three distinct generations since the mid-twentieth century (Campbell and Allen 1987; Allen and McCluskey 1988; Bruneel et. al. 2012).

Most research references the Batavia Industrial Center as the first business incubator (Hackett and Dilts 2004a; Campbell and Allen 1987). In 1959, the Mancuso family purchased a vacated 850,000 square foot facility in Batavia, New York. After failing to secure a large company as a tenant, the Mancusos partitioned the building and rented it to smaller businesses. In addition to providing business facilities, the Mancusos also offered shared services, financing, and business assistance, citing their interest in supporting their tenants' success. This model of providing support services to co-located business tenants proved successful and is the model from which business incubation evolved (NBIA 2016).

The first generation of business incubators arose beginning in the 1960s as part of economic development strategies to promote business development and entrepreneurship in urban and rural regions in the United States (Campbell and Allen 1987; Huseyin and Shah 2004). In blighted areas of Northeastern cities, they were used as tools for revitalization and part of broader efforts of urban renewal. Among the first of this generation of business incubators was the University City Science Center (UCSC) in Philadelphia. Built in 1964 on land acquired through urban renewal, the UCSC was established through a collaboration of nearly 30 institutions (including colleges, universities, and medical schools), with the original intention of providing research and management services to those institutions (UCSC 2017; Hackett and Dilts 2004a;

Campbell and Allen 1987; Huseyin and Shah 2004). The facility had excess space, and its leadership noted a local demand for small, flexible office space for new companies, so it began to rent some of its excess space and make shared services and equipment available to small businesses. The combination of resources, presence of other small firms, and proximity to universities was attractive to its tenants (Campbell and Allen 1987). Still in operation today, the UCSC has provided incubation services to nearly 450 businesses that have in turn created thousands of regional jobs (Economy League of Greater Philadelphia and Econsult Solutions 2016).

In the 1980s, still considered part of this first generation, application of business incubators increased as an economic development tool in declining, rural areas of the United States, particularly in the Midwest and Northeast. In that period, the U.S. economy was suffering from the impacts of a global energy crisis, and major manufacturing industries like automotive and steel were taking a hit, resulting in plant closings and unemployment. These conditions prompted local governments to develop business incubators in affected areas, often through private-public-nonprofit partnerships. Many of these incubators fostered small industrial companies. And, until the economic recession of the 1990s, these efforts were supported by federal funding sources (Campbell and Allen 1987; Huseyin and Shah 2004).

A decade into the implementation of business incubators as economic development tools, in the 1970s, a new type of business incubator emerged, now considered a second generation. These business incubators were university-

affiliated and spurred research and innovation (Hackett and Dilts 2004a; Huyesin and Shah 2004; Campbell and Allen 1987). They sought to support development of new enterprises, products, and ideas and were initially federally funded by the National Science Foundation (NSF) and the Small Business Administration (SBA) (Hackett and Dilts 2004a; Campbell and Allen 1987, Huseyin and Shah 2004). NSF and SBA sponsorship ended with Reagan administration funding cuts in the 1980s (Huseyin and Shah 2004). Despite the end of federal funding, universities continued to implement a similar model in the form of science parks, which were structured to include an incubator arm that supported innovative research and technologies and served as a feeder of tenants for science park facilities (Campbell, 1987).

Beginning in the mid-1990s, private, high-tech incubators emerged as a third generation of the business incubator model. This new type of incubator served to spur highly profitably dot-com and e-businesses. Different from previous incubator models which did not emphasize the speed of business development, this new incubator model sought to support the rapid growth of tech start-up companies. They did so by investing in tenant companies, and delivering services and expert advice, in exchange for equity in the companies. Within a short period, the incubator sought to prepare the companies it incubated for venture capital and other investment. The high-tech incubator grew rapidly, in large part due to overvalued stock for for-profit high-tech incubators or tenant companies and media popularization of the model. When stock values dropped, so did investment in these incubators. (Hackett and Dilts 2004a; Huyesin and Shah

2004) In the year 2000, there were an estimated 800 incubators in the United States, of which 100 were for-profit technology incubators (Huyesin and Shah 2004). Despite its rapid emergence in the industry, this incubator model has always been a small percentage of business incubators overall (Hackett and Dilts 2004a; Huyesin and Shah 2004). Today, the term ‘accelerator’ is used to describe this type of incubator.

Over its more than 60-year history, diffusion of the business incubator model was gradual at first, accelerating over time. At various points in its history, factors such as legislation and industry change served to accelerate business incubator development. Legislation, including the Bayh-Dole Act of 1980, extended greater protection of intellectual property rights for inventions and innovations. Profit opportunities increased in biomedical research and the dot-com industry in the 1980s and 1990s, spurring the development of industry-specific incubators. This flurry of growth inspired reports, guides and academic studies beginning in the 1980s (Hackett and Dilts 2004a).

In this environment, the National Business Incubator Association (NBIA, now the International Business Innovation Association or InBIA) was established, which served and continues to serve as the leading professional association for the business incubation industry (Huseyin and Shah 2004, Hackett and Dilts 2004a). Today, InBIA’s membership includes accelerators, co-working spaces, makerspaces, university commercialization and entrepreneurship centers, small business development centers, and others (InBIA 2016). The diversity and specialization of the types of business incubators represented in InBIA’s

membership suggests a maturation of the business incubator model, and perhaps the emergence of a fourth generation.

Business Incubator Research

As the business incubator industry has evolved, research has contributed to defining and interpreting the components, dynamics, and outcomes of the incubator-incubation process. Hackett and Dilts (2004a) describe distinct areas of research including: *business incubator configuration; business incubator development; incubator tenant business development; and incubation impact.*

Early research focused on *incubator configuration and development*, and was normative and exploratory in nature. This research defines business incubators, presents taxonomies, and offers policy recommendations for operating business incubators. Recognizing incubators as a new phenomenon, researchers sought to define and differentiate them, discussing both the real estate (i.e. rental office space) and business services as fundamental components. Taxonomies of business incubators differentiated them by financial sponsorship (including non-profit, public, academic, and for-profit), purpose, services and resources delivered, and types of businesses supported. Early research also recommended operational best practices, including having an advisory board, maintaining a pipeline of prospective tenants to mitigate risks associated with temporary tenancy, developing a comprehensive menu of services to facilitate incubation, establishing a vetting process for applicants to ensure admission of those that are “weak, but promising”, considering whether to offer financing support, and

understanding business incubators as a part of an economic development strategy (Hackett and Dilts 2004a).

This stage of research also examined the *components and configuration of incubators* and to a limited extent the incubation process. Contributing researchers presented frameworks that defined elements of the incubator, including facilities, internal business support services, and affiliation with external entities. They also described the incubator-tenant interventions, from evaluating the fit of prospective tenant businesses to delivering services in the incubation process. The frameworks began to define the value of incubation to tenant businesses, as well as the contributions of successfully incubated businesses to the economy and industry. Figures 2 and 3 show two incubator frameworks developed by researchers Campbell et al. (1985) and Smilor (1987). While the frameworks have limitations (they assume incubated businesses will be successful, and do not factor in businesses that do not survive), the configuration studies contributed to further definition of a nascent industry.

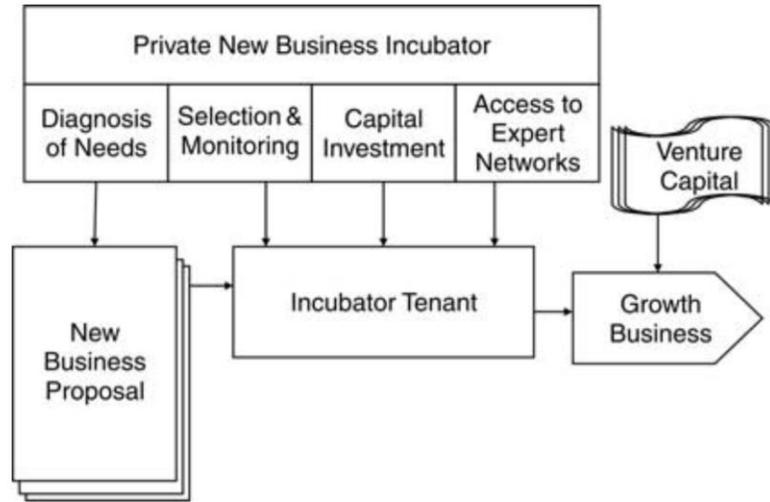


Figure 2: Campbell, Kendrick, and Samuelson Framework (Campbell et al. 1985).

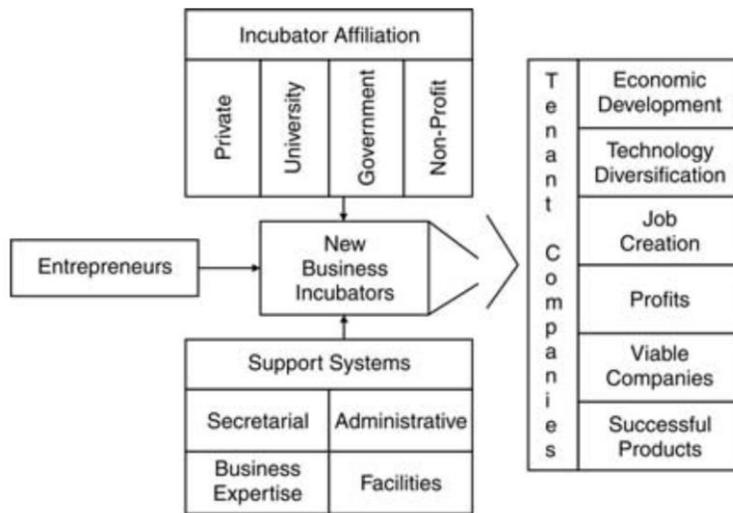


Figure 3: Smilor Framework (Smilor 1987).

A limited set of *incubator tenant development studies* explored business development dynamics, building on research that had until then focused primarily on the incubator facility and operations. There are few such studies, however, and

Hackett and Dilts (2004a) posit that the reason for this has to do with the substantial extant research that examines the small business development process outside of an incubator environment. Studies that do exist on the business development process within an incubator find that the incubator's proactive feedback and business planning assistance are important to the outcomes of business tenants.

Research also sought to measure the *impact of incubation on tenant businesses*. This body of research led with the question, "does the incubator-incubation concept make any difference in the survival rates of its tenants?"; and attempted to answer this question by identifying features of incubators and tenant business success (Hackett and Dilts 2004a).

Studies seeking to isolate variables of *incubator success* evaluated business incubator operations, services, and policies, including the level of sustainability and growth, management policies, and available services. Studies seeking to measure *tenant business success* evaluated graduation rates, job creation rates, sales data, product or service innovation, entrepreneur skill level, and new strategic business relationships (Hackett and Dilts 2004a).

These studies hypothesized that several features of incubators and tenant businesses are associated with positive outcomes. Features identified include: the business selection process; the formation of networks within the incubator; the presence and density of industry/incubator networks and tenant/business-services networks; incubator-manager/tenant relationships; level of incubator

development; and procedure and policy standardization (Hackett and Dilts 2004a).

Additionally, researchers suggested a few indicators of more advanced incubator dynamics that could be useful proxies for measuring efficacy, such as: instances of tenant entrepreneurs leveraging capital investments; a membership composed of primarily start-ups, rather than established businesses; and synergistic relationships between tenant entrepreneurs (evidenced, for example, by sub-consulting and joint purchasing arrangements between tenants). In one study, the age of the incubator and the number of tenant businesses were found to be highly influential on tenant survival rates, accounting for over half the variability in tenant outcomes (Allen and McCluskey 1988). This suggests that experience and knowledge accumulated by the incubator over time may be the most important factor in tenant success (Hackett and Dilts 2004a).

According to researchers, the field of business incubator research is tracking a relatively new phenomenon, and while the body of research is significant, it just scratches the surface. Limitations include a notable absence of empirical and peer-reviewed research; inconsistent use of terms and concepts; and a focus on the incubator facility, rather than the incubation process Hackett and Dilts (2004a). recommend that future research address these limitations and focus on the incubation process in an effort to isolate and test variables that help to better predict and explain tenant business outcomes.

Current research efforts are likely to address some of these research limitations. While gathering and maintaining data on incubators has proven

difficult in past attempts (Hackett and Dilts, 2004a), in 2017 InBIA, the foremost business incubator association in the U.S., was in the process of conducting a national survey to collect data on entrepreneurial support programs, including business incubators. The survey was unprecedented in its scope and scale and included two phases, focusing first on the performance outcomes of programs, then on tenant businesses. The results from the survey promise to benchmark the industry and enable comparisons between programs and outcomes nationally (InBIA 2017).

Kitchen Incubator Development

Kitchen incubators are highly specialized business incubators that are part of the emergent next generation of business incubators, and in the past several years they have been developing rapidly. Efforts to define, research, and evaluate this nascent model of business incubator have begun only recently, and these efforts are limited. Despite the model's newness, kitchen incubators have grown exponentially in the past decade. In 2007, just 19 kitchen incubators were estimated to be in operation in the United States. According to two subsequent assessments, the number of kitchen incubators in operation grew over 50 percent between 2013 and 2016, from 135 to over 200 (Heller 2013; Wodka 2016).

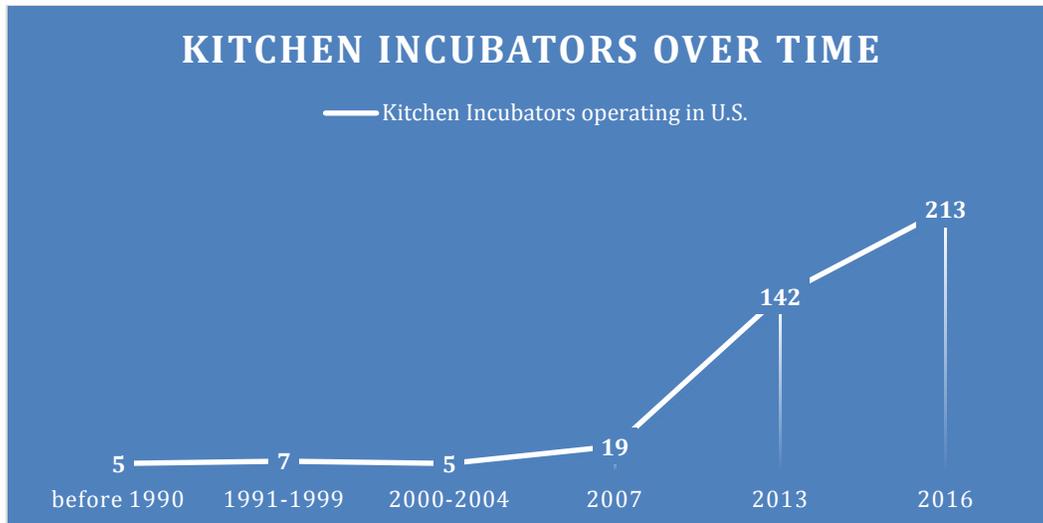


Figure 4: Kitchen Incubators Over Time. (Cox 2016; Novak 2007; Wodka 2016)

The chief explanations given for the growing popularity of kitchen incubators are the growth of entrepreneurship following job loss in the Great Recession (circa 2007-2009) and increased interest in artisanal and local foods (Cox 2016). While some speculated that kitchen incubators would lose popularity as the economy rebounded, trends provide evidence to the contrary. Complementing the development of kitchen incubators in the past decade, specialty food production has seen significant growth. Between 2014 and 2016, the specialty food industry grew about 15%, becoming a \$127 billion industry (SFA 2017). Future kitchen incubator development is difficult to project, but the sustained and significant growth of the specialty food industry and food business entrepreneurship suggests that kitchen incubators will likely remain a popular approach to food business development.

Kitchen Incubator Research

Research is limited on kitchen incubators, but two nationwide survey reports produced by Econsult Solutions, American Communities Trust and

Urbane Development make important contributions. Published in 2013 and 2016 and written respectively, by lead authors Gregory Heller and Adam Wodka, these first reports of their kind share results from two kitchen incubator manager surveys and begin to characterize and track the kitchen incubator model. The initial 2013 survey ($n=46$) and report collected information on kitchen incubator location, size, mission, legal structure, finances, facility features, operations, and tenant businesses. The subsequent 2016 survey ($n=61$) and report included the majority of the same questions, making some modifications and additions based on the lessons learned from the initial survey (Heller 2013; Wodka 2016).

The 2016 report found that kitchen incubators surveyed were largely young, established mostly in urban areas and as for-profit entities, with lean operations, relatively small budgets, and few staff. Survey results showed that roughly two-thirds (63%) of kitchen incubators had opened since 2010. More than half (52%) were located in *urban* areas, and the remainder split between *suburban* (27%) and *rural* (21%) areas. The vast majority (82%) of kitchen incubators facilities were smaller than 10,000 square feet, and one-third (35%) were smaller than 3,000 square feet (Wodka 2016).

Sixty-one percent (61%) of kitchen incubators were *for-profits*, with the rest established as *non-profits* (39%). This is in contrast to business incubators broadly, which are mostly *non-profit* (93%) (NBIA 2016). A majority of *non-profit* facilities (70%) had received grant funding. Nearly one-third (28%) partnered with a workforce training program, and one-fifth (20%) partnered with an educational institution. The operating budget of nearly half (49%) was less

than \$100,000, with an additional 28% between \$100,000 and \$249,999 (Wodka 2016).

Leasing shared and permanent space were kitchen incubators' primary sources of revenue, at 58% and 24%, respectively. Notably, about one-third of kitchen incubators (31%) leased full-time production space to permanent tenants, in contrast to the conventional business incubator model, which supports tenants temporarily. Kitchen incubator rental or mortgage and salary payments were the two highest operating costs (30% and 27%, respectively). The great majority (90%) of kitchen incubators employed five or fewer employees; 20% had only one full-time employee, and 14% had no paid staff (Wodka 2016).

“Assisting early-growth businesses” was stated as the primary goal of 53% of the respondents. Kitchen incubators supported business development by providing rental kitchen facilities and business services. Nearly all kitchen incubators provided convection ovens, prep tables, and cold-, dry-, and freezer-storage, but beyond these the offerings varied. The most frequently cited business services, provided both by the incubator and through partners, included licensing and certification assistance (84%), business counseling (69%), and branding and marketing (49%) (Wodka 2016).

The 2016 report's author, Adam Wodka noted trends in comparing the results of its 2013 and 2016 reports. The length of tenancy was observed to increase. The percentage of kitchen incubators reporting their tenants staying more than one year increased from 35% to 75%. A greater percentage of kitchen incubators were making money (39%, up from 31%), but the inverse was also

true, and a greater percentage were also losing money (25%, up from 16%). Rural incubators were found to have poor financial standing generally; none were making money, and they comprised nearly half of those that were losing money. Newer incubators – those established since 2010 – were also more likely to be losing money than longer-operating counterparts.

In both survey periods, licensing and certification and business counseling services were the most frequently named business services and were provided directly by or through a majority (over 66%) of kitchen incubators. 2016 survey results found that nearly half (40%) of kitchen incubators were making joint purchases of ingredients and packaging, presumably beneficial for efficiencies and cost savings (Wodka 2016).

Comments by respondents suggested that the kitchen incubator concept was becoming a more familiar and popular one and that prospective tenants were more prepared and professional when inquiring about tenancy, but respondents also noted the challenges of attracting tenants and managing a multi-tenant operation with typically few staff (Wodka 2016).

Wodka (2016) and Heller (2013) summarized their observations on kitchen incubator best practices being implemented, and those they thought should be more broadly adopted. Heller (2013) noted that kitchen incubators develop in unique contexts, and as such business models must be reflective of local conditions; he asserts that a study of the market, demand, and prospective tenant needs should guide the facility's development, and that kitchen incubators should remain adaptive as conditions change.

Recognizing business development support as best practice, Heller recommended that kitchen incubators ‘invest heavily in small business support services,’ including business technical assistance, recipe development, bulk purchasing, distribution assistance, market linkages, co-packing services, and financing. Kitchen incubators, he recommended, should also establish relationships with third party service providers for these services. The delivery of these services, Heller asserted, would support the success of tenant businesses, and in turn, the kitchen incubator’s success.

In 2013, there was a discrepancy in kitchen incubators management systems, and where some had manual systems for reserving kitchen space, collecting payments, and building entry and exit; others had fully-automated, electronic systems for these tasks. Wodka (2016) noted in the follow up report, that kitchen incubators were increasingly automating systems and protocols for such practices. These practices, presumably, reduced labor costs of operations that typically have few staff, if any.

Some of Wodka’s (2016) broader recommendations were for kitchen incubators to adopt more robust application processes and acceptance criteria, focus on the sustainability of the kitchen incubator, and implement data collection and sharing on kitchen incubator indicators and outcomes (NFE 2016)

The contributions of these early pieces of kitchen incubator research are significant. The national scope of the research is useful in that it establishes a baseline and also begins to measure trends of the emergent industry. Further, where there is currently no consensus on terminology and definitions of the new

phenomenon, this research uses the term “kitchen incubator” to describe what is also variably termed “culinary incubator,” “food business incubator,” and “shared-kitchen incubator,” and while the research does not propose this, its use of the term “kitchen incubator” may promote use of common terms. Similarly, it offers a definition, stating that a kitchen incubator is a “culinary production facility that can accommodate multiple tenants and is dedicated to growing early-stage wholesale, retail, and/or catering food businesses”. While it does not include ‘business services’ in the definition, as most definitions of business incubators do, this version provides a useful basic definition.

Future research can build on these initial contributions and address some of the gaps as well. While the survey questions in both reports (Heller 2013; Wodka 2016) are extensive, they include few questions about the incubation process or tenant business outcomes. Examples of questions that could be addressed in future surveying include ones about the applicant review process, the degree to which kitchen incubators maintain a pipeline of prospective tenants, entrepreneur business skill level, and growth of tenant businesses. This research addresses some of those gaps.

Chapter Three: Methodology

Research Scope

As described in the previous section, kitchen incubators have developed recently at unprecedented rates in the United States. Research examining their practices and outcomes, however, has been limited. This research seeks to build on existing kitchen incubator research by answering the following questions:

What tools and resources are New England’s kitchen incubators employing to encourage business success?

To what extent are New England’s kitchen incubators supporting business success?

The following outlines the research methodology:

Literature Review

Through a review of existing literature, this research is brought into perspective relative to the purpose and scope of the business incubator model and kitchen incubators specifically.

Multiple-case study, Mixed Methods Strategy

The research questions are answered through a multiple-case study (Yin 1984) of five New England kitchen incubators. The case studies employ a mixed methods research strategy (Clements 2014) and include surveys of tenant businesses, interviews of incubator managers, and facility site visits. The variety of research tools facilitated collection of both qualitative and quantitative data, to gain a more incisive understanding of the incubator and business tenant operations and outcomes. Figure 5 depicts the research components and strategy. The case studies are exploratory vignettes and capture the temporal opinions and

outcomes of kitchen incubator managers and tenant entrepreneurs; as such they offer a rich snapshot of incubator development in New England, but are not intended as a comprehensive representation of the incubators.

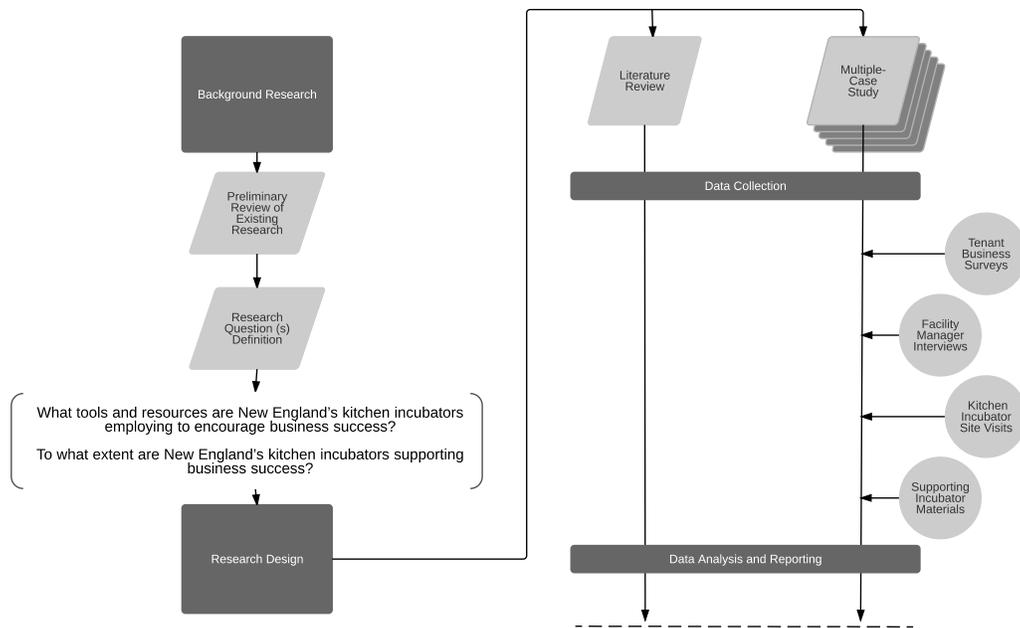


Figure 5: Research components and design strategy, Part A

Case Study Subject Identification

Case study candidates were identified based on four criteria:

- 1) *formally renting commercial kitchen space to start up food businesses;*
- 2) *providing or facilitating access to business technical assistance services;*
- 3) *having been operational for a minimum of one year; and*
- 4) *being located within New England states.*

The first two criteria qualify the facilities as kitchen incubators. Focusing on incubators in operation for a year or more made capturing business growth data possible. And because my professional networks were strongest within New England and my research took place in Boston, limiting my research

geographically allowed for thorough investigation and site visits to participating incubators.

At the time this research was conducted, in spring 2014, an online query of kitchen incubators in New England revealed a total of 11 shared rental kitchens in operation.² Six of these met all four case study criteria and were invited to participate in the research. Five incubators accepted the invitation to participate, shown in Table 1.

Kitchen Incubator	Location	Year Est.
CropCircle Kitchen, now Commonwealth Kitchen	Boston, MA	2009
Western Massachusetts Food Processing Center	Greenfield, MA	2001
Vermont Food Venture Center	Hardwick, VT	2011
Mad River Food Hub	Waitsfield, VT	2011
Coastal Farms and Foods	Belfast, ME	2012

Table 1: Kitchen incubators participating in research

Components of Case Study Research

Surveys with current and former tenant entrepreneurs, interviews with facility managers, and site visits were conducted with all of the participating kitchen incubators. The survey and interview questions were designed by the researcher and approved by the Tufts University Institutional Review Board. The survey questions inquired about entrepreneur business experience, business characteristics, and the perceived impact of kitchen incubation on business development and success.

² In addition to the 6 incubators invited to participate in the research, kitchen facilities in operation that did not meet all the criteria for research included the Dartmouth Grange (Dartmouth, MA), Kitchen Local (Amesbury, MA), Kitchen Inc. (Somerville, MA), Neighbor Made (Keene, NH), and Creative Chefs Kitchen (Derry, NH). Since this research, several additional kitchen incubators have opened, including the expanded CropCircle Kitchen, now named Commonwealth Kitchen (Boston, MA), Hope & Main (Warren, RI), and StockPot Malden (Malden, MA).

Survey questions were identical for all incubators (see Appendix B), with the exception of the survey administered to the Vermont Food Venture Center (VFVC) business tenants, included in Appendix C. At the time that the VFVC was first contacted, it had already designed a survey that it intended to administer to its tenant businesses. The VFVC agreed to stall its survey process in order to collaborate with the researcher on a survey that combined both parties' questions.

Surveys were administered between February and April 2014 to incubator tenant businesses, using Qualtrics, an online survey tool, with the assistance of the kitchen incubator staff. The response timeline was initially one week, extended by one to two weeks when response rates were low.

During each of the site visits, facility managers offered an interview and a tour of the facilities. In interviews, managers offered detailed information about the incubator. Interview questions, included in Appendix A, were administered in person and audio-recorded, complemented with additional website and print material on the incubators when available and offered. Facility tours also included incidental conversations with tenant businesses which were not recorded but informed the research.

Case Study Analysis

The components of the case study research were systematically analyzed to draw out themes and patterns and to identify potential corollary links between incubator activities and outcomes. Figure 6 depicts the approach to data analysis. The strategies for analyzing the research data are described below.

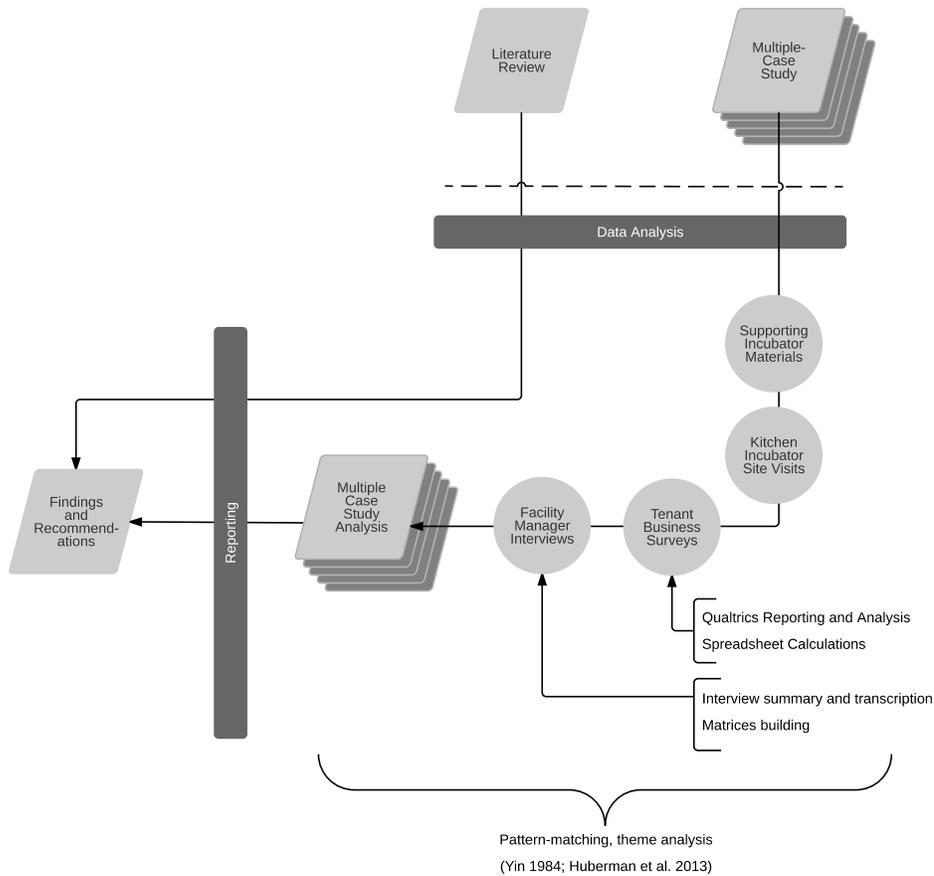


Figure 6: Data Analysis and Reporting Strategy, Part B

Survey data was organized and analyzed using two methods. First, a report was generated from Qualtrics, which aggregated and organized the survey data. Second, raw data on business tenure, finances, employment, and capital sources were downloaded from Qualtrics and calculated in a spreadsheet.

The analysis included calculating scores for the answers to two of the survey questions posed. These questions asked respondents to evaluate the importance of services and infrastructure provided by the incubator, with possible Likert Scale options of “not important,” “somewhat important,” “important,” “very important,” or “essential”. These answer options were assigned ascending, whole-number weights, from 1 through 5. The score ranges were calculated

assuming that, at the top of the range, all respondents answered “essential” (score = 5 x n), and at the bottom, all respondents withheld answering (score = 0 x n). The score was derived by multiplying the weights by the number of respondents that chose the corresponding answer. The equation for calculating the score follows. Here, y represents the score, n represents the total number of respondents, and a , b , c , d , and e represent the number of respondents for corresponding Likert Scale answer options.

$$y = 1a + 2b + 3c + 4d + 5e$$

As an example, where five respondents evaluated the importance of “storage options,” the range would be from 0 to 25 (or “0 x 5” to “5 x 5”). Where three of these respondents valued storage options as “important,” one respondent marked “very important,” and one respondent marked “essential,” the score for storage options would be 18, arrived at via the following equation.

$$y = 1(0) + 2(0) + 3(3) + 4(1) + 5(1)$$

Interview audio recordings were summarized and selectively transcribed. Employing methods presented by Huberman, Miles, and Saldaña (2013), the interview responses were recorded, organized, and distilled into phrases and keywords in a series of matrices. The simplified data matrices allowed for easier understanding of the data and enabled identifying patterns within and between cases. The matrices with more comprehensive data were valuable for crosschecking perceived patterns and themes and assuring accuracy.

Observational data gathered from visits to each of the incubators and information from supplemental reports, brochures, and websites were generally integrated into each case study analysis.

Using strategies presented by Yin (1984), the case study components were systematically analyzed and synthesized for each incubator to draw out patterns and themes and identify potential corollary links between activities and outcomes across the incubators.

Research Limitations

While the research methods employed resulted in a rich body of data, there were limitations in particular with regard to administering surveys that may have influenced participation and completion. The following factors should be considered and addressed when administering surveys to business tenants in the future:

Survey Participation

This research aimed for a 30% response rate from incubator tenants. While that response rate was exceeded at a majority of the participating facilities, this nonetheless yields a relatively small sample of tenant businesses, totaling 52 respondents across the five facilities surveyed. As such, though these responses provide valuable insight into those tenants' experiences and outcomes, it is difficult to conclude that the findings from an analysis of these surveys would be representative of the kitchen incubator tenant outcomes generally. Table 2 summarizes the survey participation at each kitchen incubator.

Kitchen Incubator	Responses	Invitations	Participation Rate
CropCircle Kitchen	12	46	26%
Western Massachusetts Food Processing Center	14	114	12%
Vermont Food Venture Center	17	44	38%
Mad River Food Hub	6	17	35%
Coastal Farms and Foods	3	8	37%

Table 2: Summary of survey responses, invitations, and participation rates.

As the table indicates, the Western Massachusetts Food Processing Center (WMFPC) had the lowest response rate of any facility surveyed, by a significant margin, at only 12%. It is worth noting, however, WMFPC is also by far the oldest of the facilities surveyed, with 13 years in operation at the time of the survey – more than double the longevity of CropCircle Kitchen, the next oldest facility surveyed. Because the survey was administered to all 114 entrepreneurs for whom the facility had active email addresses from throughout its history, it is possible to infer that tenants whose relationships with the WMFPC concluded many years ago might have refrained from taking the survey, affecting the response rate. The response rate of current tenants was 22% (six of 27), closer to the 30% target, and the second-highest absolute number of responses from the five facilities. Therefore, these survey results are considered valuable and assessed in detail in the WMFPC case study and the research findings.

At Coastal Farms and Foods, only three of the eight tenant businesses invited participated in the survey. Responses by these tenants were incomplete and included some illogical responses. Because of this, the data was insufficient for interpretation, and as such, the results were omitted from this research. The Coastal Farms and Foods case study is instead based on information gleaned from

other research and does not discuss survey responses from tenant businesses in further, as the other case studies do.

Survey Questions

The number and types of questions may have contributed to incomplete surveys. Surveys had 28 questions (33 questions at Vermont Food Venture Center), and respondents most consistently completed the first ten questions; thereafter, responses became less consistent. Including fewer questions in future surveys may yield more complete responses.

Three questions pertaining to employment, financial information, and sources of capital funding required referencing business records and accounting information. This information both was potentially sensitive and required additional effort to provide. While participants were assured that their business data would be recorded anonymously and reported in aggregate, staff of CropCircle Kitchen, Western Massachusetts Food Processing Center, and Vermont Food Venture Center conveyed concern expressed by its business tenants about the sensitivity of the questions. Employment records, financial performance, and capacity to leverage capital are valuable measures for incubators in evaluating the level of success of the businesses they support. In future surveying efforts, it may be valuable to reframe financial questions to encourage completion. For instance, Vermont Food Venture Center asked, “What was your change in revenue from last year?”, which offers a good example of an alternative question about business finances. Survey questions in Appendices B and C could be edited for future kitchen incubator evaluations.

Chapter Four: Case Studies

Introduction

The following chapter presents case studies on five kitchen incubators in New England, selected and assessed through the process described in the previous section. With an interest in understanding the dynamic relationship between the kitchen incubator and the tenant entrepreneur, these case studies investigate both. They describe kitchen incubator structure and operations, tenant business characteristics, and tenant incubation experiences in order both to facilitate a clearer understanding of the incubation process and to begin to identify features that are associated with tenant business success.

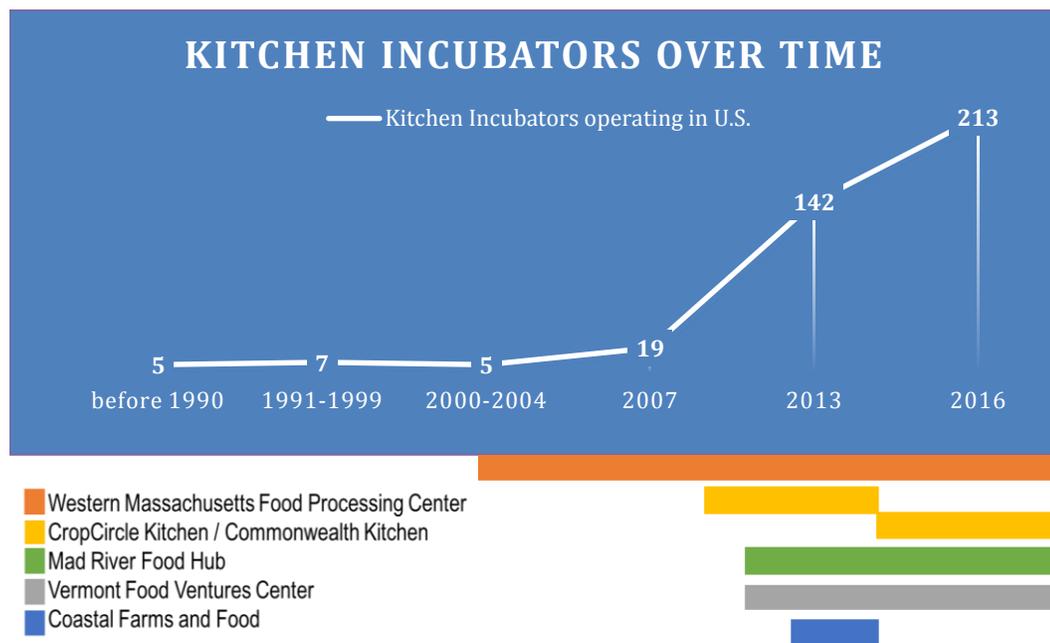


Figure 7: Kitchen Incubators over time with graphic of New England kitchen incubator operation timelines

Kitchen Incubator	Location	Year Est.	Legal Structure	Mission & Purpose	Business Technical Assistance	Facility Size & Features	Distinguishing Features
Western Massachusetts Food Processing Center (WMFPC)	Greenfield, MA	2001	501 (c)(3) non-profit	economic & business development, farm viability, promote food processing best practices	Full time WMFPC business development specialist available	3,500 square feet: includes shared kitchen, storage, offices	<ul style="list-style-type: none"> In operation longest and served most entrepreneurs Operates a vegetable processing enterprise, contracting with local farmers and universities and other regional institutions.
CropCircle Kitchen (CCK)	Boston, MA	2009	501 (c)(3) non-profit	economic & business development, especially for women and minorities	Moderate assistance from CCK staff. Limited referrals to external partners	5,000 square feet: includes shared kitchen, storage, offices	<ul style="list-style-type: none"> Serves more food trucks and caterers than other kitchen incubators included in research. Expanded to become Commonwealth Kitchen in 2014.
Mad River Food Hub (MRFH)	Waitsfield, VT	2011	Low-Profit Limited Liability Corporation (L3C)	economic & business development, farm viability and local food production	Limited, targeted assistance from MRFH staff. Significant referrals to external partners	4,000 square feet: includes shared kitchens, storage, offices	<ul style="list-style-type: none"> Only kitchen incubator included in research that is a USDA certified meat processor and provides distribution of food products to local markets.
Vermont Food Venture Center (VFVC)	Hardwick, VT	2011	501 (c)(3) non-profit	economic & business development, farm viability, serve community	Full Time specialist from Vermont Small Business Development Center	15,000 square feet: includes shared kitchens, storage, offices, separately leased space	<ul style="list-style-type: none"> Leases private food production space to permanent tenants, comprising roughly 70 % of kitchen incubator revenue.
Coastal Farms and Foods (CFF)	Belfast, ME	2012	S-Corp	meet need for farms and food processing and storage facilities	Limited assistance from CFF staff. Limited referrals to external partners.	50,000 square feet: includes shared kitchens, storage, offices, and berry processing facility	<ul style="list-style-type: none"> Operated a blueberry and cranberry processing enterprise, and comprised 75% of annual revenue. Closed in 2014

Table 3: Summary of Kitchen Incubator Characteristics

Western Massachusetts Food Processing Center

Kitchen Incubator Profile

Started in 2001, Western Massachusetts Food Processing Center (WMFPC) in Greenfield, Massachusetts is New England's longest operating kitchen incubator. Occupying about one tenth of the 36,000 square foot facility of its parent non-profit, the Franklin County Community Development Corporation (FCCDC), the WMFPC promotes economic development by fostering food-business entrepreneurship, with a simultaneous interest in promoting local agriculture and food systems. In a less frequently articulated part of its organizational narrative and mission, the WMFPC also seeks to work with low-income entrepreneurs. In its history, the WMFPC has served between 200 and 300 businesses (Buxton 2014), and in 2014, it listed 27 businesses as current tenants. (Lustig 2014)

The WMFPC facility includes a 3,500 square-foot shared kitchen, as well as food warehouse and privately rented food-processing spaces. As a part of the larger FCCDC, the entrepreneurs of the WMFPC receive general assistance and resources made available by the parent organization, as well as tailored food industry-specific consultation.

The WMFPC coordinates three components for supporting food business development and the regional food system. The long-established kitchen incubator serves start-up and established food businesses and was the WMFPC's original program. Contract manufacturing services (also called co-packing) are a second major activity of the WMFPC. This service entails producing food

business' proprietary recipes for a fee. The third major activity of the WMFPC is a frozen vegetable enterprise, in which WMFPC processes and packages locally-grown produce for area schools and institutions. After concluding a four-year pilot period for this program in 2014, the WMFPC introduced sophisticated freezing equipment and planned for the enterprise to become the facility's primary revenue generator.

Kitchen Incubator Approach

Robust business development and food production support is a distinguishing feature of the Western Massachusetts Food Processing Center's approach, offered to entrepreneurs at all business stages, from conception through the duration of tenancy. Depending on entrepreneurs' needs, they may access the full range or a selection of the services the WMFPC offers. Tenancy typically makes sense for start-up businesses that are interested in accessing the full range of services and shared kitchen facilities. Established businesses may have a production space of their own, but may seek WMFPC's business development or financial support.

Before entrepreneurs even contact the WMFPC, they have access to a range of free materials online, including business planning templates and information on the business development process. A free informational session allows attendees to learn more about the scope of services and food processing and storage facilities available and includes a private consultation with a WMFPC staff member. For entrepreneurs in the initial stages of exploring a business concept, receiving these initial services helps them make informed choices as they

move forward with developing their businesses. In the case where the investment is too great, or the business concept infeasible, these services are essential to prospective entrepreneurs in halting their exploration before having made significant financial or time investments.

The WMFPC lays out a program and set of criteria for entrepreneurs interested in producing their recipes in the kitchen incubator, including having a well-conceived business plan; necessary licenses, permits, certifications, and insurance; and a food product tested at a commercial scale. At each step of the process, WMFPC staff facilitate entrepreneurs in meeting these criteria. Initially, all prospective entrepreneurs must attend the information session and subsequently complete an online survey that provides the WMFPC with more information about their business concept and stage of development. WMFPC's Business Development Specialist then follows up with entrepreneurs to discuss and offer assistance with business planning. The business planning review process is iterative, with WMFPC often requiring revisions and improvement to plan elements. This process can be challenging for entrepreneurs who are eager to step into production, but completing a robust plan ensures that entrepreneurs have evaluated feasibility, competition, and other factors necessary to move forward confidently.

Upon WMFPC's approval of the business plan, entrepreneurs may then begin working on producing their recipe in the kitchen with the facility's Operations Manager. This initial production stage, called prototyping, involves converting a typically home-scale recipe to a commercial scale, tracking the

amount of time needed to produce it, assessing the availability and cost of commercial ingredients, and determining storage methods. Where production turns out to be too costly on a commercial scale, WMFPC staff work with entrepreneurs to alter the process or suggest alternative ingredients. This service is offered to entrepreneurs for an hourly fee of \$100 (FCCDC 2016) and is often the first significant investment they make.

After an entrepreneur has successfully taken all these steps, she can begin production in WMFPC's kitchen. Annual membership costs \$600, and a 6-month membership option is available for \$300 for businesses that have shorter production periods, such as farmers preserving seasonal vegetables (FCCDC 2016). The membership fee includes eight hours of food product consulting and eight hours of equipment training. Use of the shared kitchen costs \$32 to \$60 per hour, depending on the frequency of use and whether production happens during peak or off-peak hours (FCCDC 2016a). WMFPC assesses other fees for co-manufacturing, food safety plan development, and other consultation services beyond what is offered with membership (see Appendix D for a list of fees and services). This ongoing support ensures that entrepreneurs have the greatest chance of success, and entrepreneurs benefit not only from the support offered by WMFPC staff but also from opportunities to discuss business development with other members and learn from each other's experiences.

The 3,500 square-foot shared-use kitchen includes equipment for food preparation, production and packaging, as well as storage and distribution facilities. Generally, the kitchen can accommodate businesses producing bottled,

shelf-stable, fresh or frozen foods, and dry mixes (FCCDC 2016b). It also has some bottling, packaging, and labeling equipment (see Appendix D for a list of kitchen equipment). Tenant businesses have included farms and specialty food companies and have produced a range of products including hot sauces, ice cream, jams, chutneys, baked goods, tonics, and processed vegetables.

Where businesses grow bigger than the shared-use kitchen can accommodate, the WMFPC also supports entrepreneurs in finding commercial kitchen space that suits their current and anticipated needs. In some cases, it has graduated tenant businesses into private space within the FCCDC building complex. Real Pickles and Artisan Beverage Cooperative (formerly Katalyst Kombucha and Green River Ambrosia) are two such businesses that started as WMFPC shared kitchen tenants and have grown into their own kitchens, one in FCCDC's complex and the other in a location nearby.

Tenant Characteristics

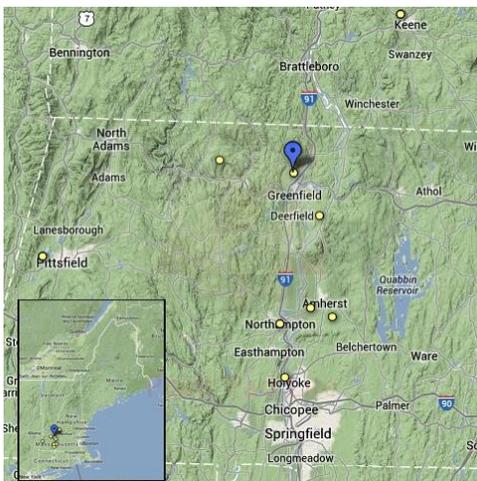


Figure 8: WMFPC (blue) and surveyed entrepreneurs (yellow) locations

Figure 8 shows where surveyed entrepreneurs live, relative to WMFPC. Entrepreneurs reported that their businesses have been in operation from 18 months to over 15 years. Six entrepreneurs reported having been in operation for fewer than five years, and seven for nine years or more. Seven respondents are

current tenants and six are former tenants. Current tenants reported being part of the WMFPC from 18 months to over 15 years, and former tenants reported having been members from two months to over eight years. Of the 14 respondents, 12 are currently in operation. The two that are no longer operating were WMFPC tenants for four and eight years, and in operation for four and 12 years, respectively.

Seven of the entrepreneurs described their businesses as part-time, and that they supplemented their incomes with other work or resources. The other seven described their businesses as full time, and that they did not supplement their income. Seven described their business as growing and profitable, and four stated they were growing and on a path toward profitability. Two reported not growing and not profitable, and one described closing while at the WMFPC with major financial losses.

When asked about their top goals, the most frequently stated goals regarded increasing profitability, expanding product lines, and expanding markets. Some also had goals to increase employment opportunities and increase efficiency. The specific goals identified reveal the diversity of ways entrepreneurs are developing their businesses.

Goal 1	Goal 2	Goal 3
Shift some production to higher margin crops	Eliminate labor due to Dept. of Labor and Gov't Regulations	Grow sales and net earnings by 20%
Double number of accounts	Hire full time employee	Organic certification
Keep production levels with demand	Add new customers	
Successful staff development	Meet increased product demand	Strong social contribution to re-building food system
Break even financially	Double the amount of production in September	Increase stores where my product is available

Remain profitable	Expand distribution	Sell the business by year end
Expand production to keep up with demand	Buy machinery to make production more efficient	Attend Expo East and take over the world
Investigate co-packing opportunities	Expand catering	Maintain competitions
Keeping up pace of demand	Finding new customers	Streamlining - becoming more efficient without affecting quality
Profitable	Acquisition	Expansion

Table 4: Tenant Top 3 Business Goals, WMFPC

In general, when entrepreneurs assessed their business skill level before joining the WMFPC and at the time of the survey, after having been member tenants, they reported improvement. Respondents described having a range of business management experience upon joining the WMFPC, from Novice (No business Experience) all the way through Expert (Advanced Business Experience). In assessing their business management skills after having been a WMFPC tenant, all entrepreneurs believed themselves to be at minimum “Competent” with a moderate level of business experience. Entrepreneurs that entered the WMFPC with little business experience (Novice or Advanced Beginner) more frequently reported gaining business management skills and on average reported a two-category advancement.

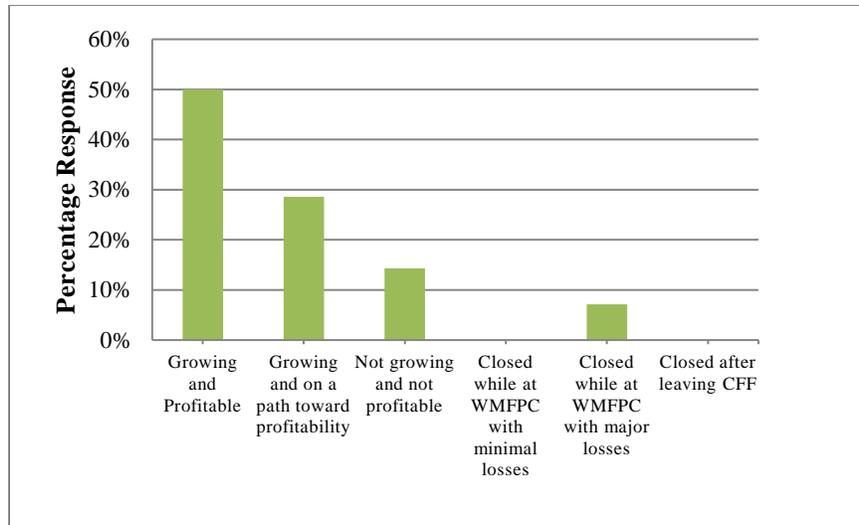


Figure 9: Enterprise Performance, $n=14$

Entrepreneurs that entered the WMFPC with at least moderate business management experience (Competency) on the whole reported no change in their business skill level, with the exception of one entrepreneur that entered the WMFPC as “Proficient” and assessed advancement to “Expert”. This suggests that the business support services offered at the WMFPC are most impactful for those entrepreneurs with the least amount of experience.

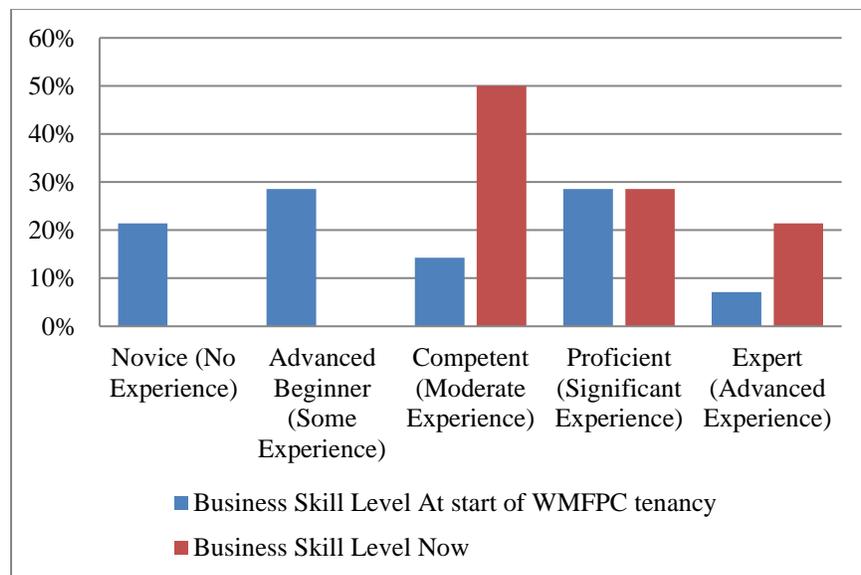


Figure 10: Business Development, $n=14$

The survey also gathered financial information. Fewer entrepreneurs responded to these questions than they did to other survey questions. Anecdotal evidence from kitchen incubator managers suggested that several entrepreneurs were interested in keeping their financial information private (comments made both by Nico Lustig of WMFPC, Roz Freeman of CropCircle Kitchen, and Sarah Waring of VFVC).

The financial information offered by four survey respondents does give some insight into the financial performance of their businesses. In their first four years of operation, all four entrepreneurs reported an increase in net sales. In all but one year reported, these sales increased progressively. Data offered by three respondents also shows that the businesses had positive gross profits in all years reported, and but for one year reported the increase in gross profits was progressive. This figure is arrived at by subtracting the expenses of production (cost of goods sold) from the net sales (revenue from the sale of goods). Positive gross profits are an indicator of a business' health and efficiency.

Two entrepreneurs responded to questions about financial investments. One of the entrepreneurs invested personal savings exclusively; the other entrepreneur leveraged loan financing in all four years reported, investing some personal savings in the first year of operation as well. Neither sought out grant funding nor equity capital in the years of operation reported.

Three entrepreneurs also shared information about employees. Of those that responded, all reported having hired employees. These were all part-time employees, and in each year entrepreneurs reported that their number of part-time

employees either increased or remained constant. For the years reported, the number of employees reported ranged from 0 to 15.

Tenant Experience

Four respondents assessed the value of services provided at WMFPC, and possible scores ranged from 0 to 20, increasing correspondingly with their value. Respondents reported business planning and development and co-packing services to be the most valuable (respective scores=8). Marketing and peer networking opportunities were also valuable (respective scores=7). Of these, business planning and marketing services were used the most by survey respondents (3 out of 4). Next, peer networking received a score of 6; accounting and financial/lending services received a score of 5; and culinary training workshops was considered somewhat important (score=2). In addition to those services offered, one entrepreneur commented that his business would have benefitted from more extensive business planning assistance from WMFPC, particularly in conducting an economic analysis for his farm's value-added enterprise. Figure 11 shows the value of services used by survey respondents.

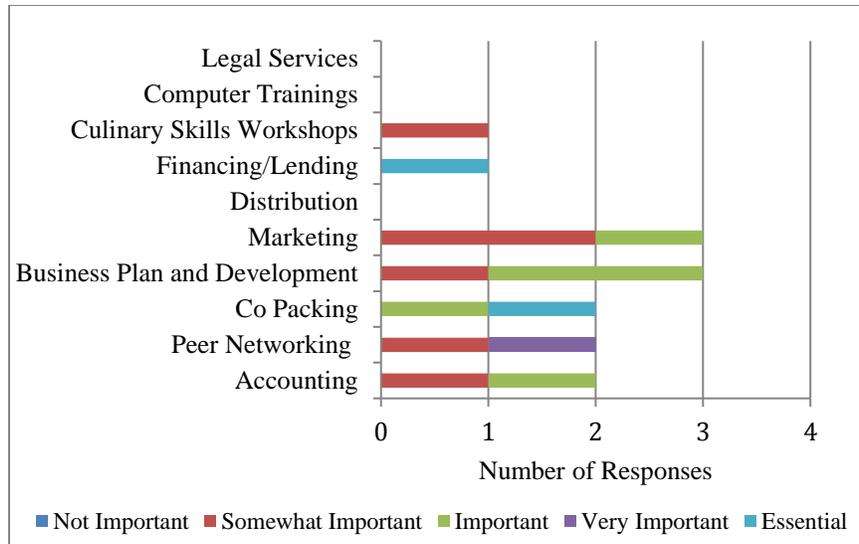


Figure 11: Importance of services used at WMPFC, n=4

Five respondents assessed the value of WMFPC’s infrastructure, and possible scores ranged from 0-25, increasing correspondingly with their value. The commercial kitchen was found to be the most valuable (score=22), as the majority of respondents found it to be either important, very important or essential infrastructure. Specialized equipment was valued as the second most important infrastructure (score=15), followed by storage options and the WMFPC’s geographic location (respective scores=11). The conference area received a score of 4, considered by respondents as somewhat important. And, one respondent added a category, noting that the WMFPC’s supportive and flexible staff were important to their business success. Figure 12 shows the value of infrastructure used by survey respondents.

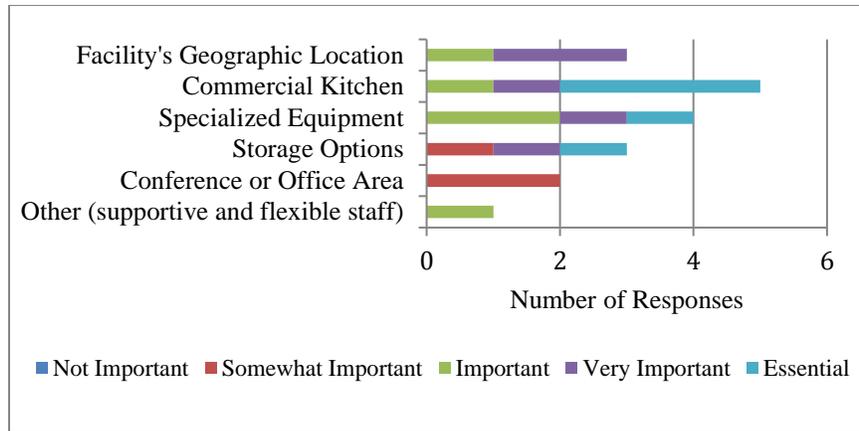


Figure 12: Importance of infrastructure used at the WMFPC, $n=5$

Asked to describe additional infrastructure that would better meet their business needs, entrepreneurs commented that they would benefit from more preparation and packaging space and more short-term refrigeration and freezer storage options.

Crop Circle Kitchen (CommonWealth Kitchen)

Kitchen Incubator Profile

At the time of this research, CropCircle Kitchen (CCK) was a compact kitchen incubator with 5,000 square feet of kitchen and office space, operating in Boston's urban neighborhood of Jamaica Plain. Shortly after this research was concluded, the incubator expanded to include a newly redeveloped 36,000 square foot facility in Boston's nearby Dorchester neighborhood. With this expansion, it significantly altered its operation, added several new programs and initiatives, and changed its name to CommonWealth Kitchen (CWK 2017). It continues to operate both kitchens, though the majority of activity is now at the flagship facility in Dorchester. The case study of CropCircle Kitchen presented here describes the operations of the original facility before the expansion.

CropCircle Kitchen (CCK) was established as a 501(c)(3) non-profit organization and operated from 2009-2014 in the Haffenreffer Brewery business complex in Jamaica Plain. It provided continuity in meeting the demand for rental kitchen space in the Boston area after its predecessor Nuestra Culinary Ventures, also a kitchen incubator, ceased operation in the same space in 2008 due to financial unviability (NCDC 2014). In the time that CCK operated solely out of this kitchen facility it served over 100 enterprises, including food trucks, caterers, and specialty food producers. The 3,000 square-foot kitchen was outfitted with equipment and wares that are typical of a catering kitchen, including preparation tables, convection ovens, stovetop ranges, mixers, fryers, and grills. The dry storage, refrigeration, and freezer facilities made up about one third of the kitchen

space. Other facility features included a loading dock for deliveries and food truck access, an open meeting area, and a staff office (Freeman 2014). Details on the CCK equipment and membership and use rates are included in Appendix D. In this relatively basic kitchen, entrepreneurs produced a diversity of products, including ice cream, hot sauce, and prepared meals. (Adams 2014)

CCK's original mission was to support culinary businesses in such a way that fostered profitable enterprise development, job growth, and workforce training, with a particular interest in serving low-income, women, and minority entrepreneurs. Unique to the other New England incubators included in this research, CCK was the only one to serve food trucks and to explicitly support minority entrepreneurs. These foci are likely due to CCK's location in a diverse city with a growing food truck market.

In a 2014 interview with Darnell Adams, the CCK Operations Manager, she described a need for expanding its operation, noting that the demand for shared kitchen space exceeded CCK's production and storage capacity. The kitchen at the time had the capacity to serve 30-40 businesses, and membership was approaching its maximum. Additionally, Adams estimated that in a given week she received on average four new membership inquiries. Expanding CCK into the Dorchester location was expected to meet the growing demands for shared kitchen space for entrepreneurs in Boston, as well as enable a range of other initiatives, including the development of a co-manufacturing enterprise and private rental kitchen space for established food businesses.

Kitchen Incubator Approach

In its Jamaica Plain location, CCK served its tenant entrepreneurs by offering a combination of affordable kitchen and storage space and technical assistance services. In 2014, the organization's staff of four managed the kitchen, consulted with entrepreneurs on their business development, and coordinated all other aspects of operating the incubator. The staff included Jen Faigel, the interim Executive Director; Darnell Adams, Operations Manager; Brad Stevens, Executive Chef; and Roz Freeman, Development and Community Relations Specialist.

The support offered to entrepreneurs started with the initial inquiry and continued throughout tenancy. As expressed by other kitchen incubators included in this research, CCK deemed it important to thoroughly evaluate businesses to ensure prospective tenants' preparedness and fit with the shared kitchen facility. As such, CCK staff invested a significant amount of time in the initial stages of exploration to determine whether the entrepreneur had a well-formed business concept and whether CCK's facility had the infrastructure to support producing the business' product.

The initial application required entrepreneurs to submit an intake form describing their product and the business' stage of development. After CCK staff reviewed this initial intake, they required entrepreneurs to submit a more detailed application, a pro forma that laid out anticipated production cost and sales

information, a food production flow plan compliant with HACCP³ food safety guidelines, and documentation of business registration and appropriate insurances and licenses. A list of application steps adapted from the CCK website is presented in Table 4.

CropCircle Kitchen Tenant Application Process
Submit Intake form (CCK reviews)
Submit Application and business plan template
Obtain Massachusetts Food Processor's Resource Manual
Obtain ServSafe Certification
Complete online Allergen Training program
Complete a Flow Process plan for product(s)
Register business
Obtain general and product liability Insurance
Determine labeling and packaging needs
Submit product for laboratory analysis of pH and shelf life (if needed)
Review preceding steps with CCK staff. With CCK approval, makes CCK security deposit and receive from CCK a "Base of Operations" letter for health department(s) filing.
Submit Food Processing License Application to the Commonwealth or apply for a Health Permit from the City of Boston
Complete inspection with appropriate health department(s)
Complete orientation with CCK staff
Sign CCK Lease and Operating Agreement

Table 5: CropCircle Kitchen Chronological Tenant Application Process

Adams explained that the several steps of the application process supported entrepreneurs in refining their business concept and plan and allowed them to evaluate their business feasibility. For some entrepreneurs, this process helped them to determine the infeasibility of their businesses and avoid financial

³ Hazard Analysis and Critical Control Points, or HACCP refers to the U.S. Food and Drug Administration (FDA) management system for assuring food safety in food production and manufacturing, that food processors must comply with. See: <http://www.fda.gov/Food/GuidanceRegulation/HACCP/ucm2006801.htm>.

investment and losses. CCK staff also led entrepreneurs in determining sales and growth goals, along with exit strategies in case they did not meet those goals over time. For promising businesses, the application process helped them to proceed confidently with a thorough understanding of what is entailed in owning a food business, as well as allowing CCK to proceed confidently in welcoming them as tenants.

Adams identified the application process as problematic in that CCK offered extensive support throughout the process without assessing any fees for it, representing a significant upfront investment by CCK in businesses that might not become members. As weekly inquiries increased and CCK found itself investing more time in fielding these inquiries, Adams shared that the organization had considered introducing consultation fees. (Adams 2014).

After successfully completing the application, entrepreneurs became members and paid \$900 toward the first and last month rental payments and a security deposit. The monthly membership of \$300 was a minimum fee, covering 10 hours of kitchen use, and additional kitchen use cost \$30 per hour. The monthly membership also included two hours of business consultation with CCK staff on both product and business development. Brad Stevens, CCK's Executive Chef, oversaw the kitchen operations and assisted entrepreneurs in increasing production efficiencies, sourcing ingredients, and expanding their product lines. Adams was available to review business plans, answer other business development questions, and refer entrepreneurs to outside agencies that offered

complementary business services. Use of these hours was not formally tracked, and Adams described that entrepreneurs would request help as needed.

Unique among the kitchen incubators included in this research, CCK also hosted themed, monthly networking events that allowed member entrepreneurs to socialize with each other and learn about specific aspects of business management. In an informal social setting, guest representatives specializing in a range of complementary support services such as financing and marketing shared insights with entrepreneurs, as well as giving entrepreneurs the chance to exchange ideas with each other about their respective experiences in running a food business. Entrepreneurs surveyed indicated that they greatly valued peer networking opportunities at CCK.

Length of tenancy ranged significantly, and Adams estimated that businesses remained members for one to three years. CCK did not have a formal graduation process, and instead entrepreneurs typically stayed with CCK as long as the arrangement and facilities met business their needs. In its five years of operating, CCK helped to launch over 100 food businesses. In 2014, with the opening of the kitchen incubator in Dorchester, several of the businesses at CCK transitioned to the Dorchester facility, with some operating in its shared kitchen and some leasing private kitchen space within the kitchen incubator.

Tenant Characteristics

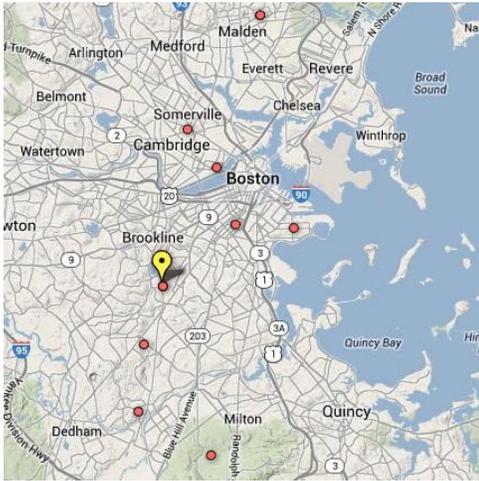


Figure 13 CCK (yellow) and surveyed entrepreneurs (red) locations

Figure 13 shows where surveyed entrepreneurs live, relative to CCK. Entrepreneurs reported that their businesses have been in operation between six months and 12 years. Five respondents were current tenants and seven were former tenants, and all respondents were

currently in operation.

Expanding markets and increasing profitability were respondents' most frequently stated top business goals. Other goals stated included expanding product lines and improving business operations. These goals indicate that all survey respondents were focused on growing their businesses. Some entrepreneurs indicated goals of establishing storefront locations, suggesting these businesses may have grown successfully enough that they were considering operating independent of the kitchen incubator.

Goal 1	Goal 2	Goal 3
Double sales	Expand into 2 new regions	
Wider reach for product	Using business tools (Quick Books, marketing)	Increase sales!
Double Sales	Expand into 2 regions	
Grow employees	Grow profits	Minimize overhead
bring new product to market (caramel sauce)	doubling outlets that carry our product (~125 now to 250)	much larger presence in regional Whole Foods stores (6 now to

		20)
expand wholesale outlets	expand product line	increase production productivity
expanding our product	expanding locations that carry our product(s)	being able to draw a salary
grow by expanding product line	increase outreach/advertising	establishing a brick and mortar business location
grow online sales	widen wholesale territory	grow food service end
Get completely current with all vendors	Shrink my storefront to cut rent	Actually, generate profit
Expand our reach into multiple states	Nail down a distributor	increase production
growth	moving to larger facility	more profit
Engage new market – weddings/catering	Grow business connections	Make money

Table 6: Tenant Top 3 Business Goals, CCK

All but one of the respondents reported that their businesses were growing and either profitable or on a trajectory to becoming profitable. One respondent indicated business stagnancy, with no growth and no profitability.

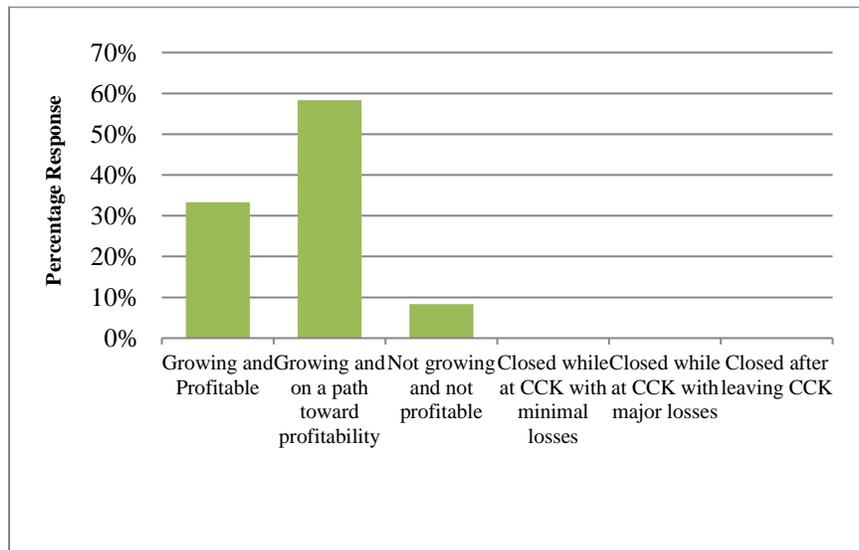


Figure 14: Enterprise Performance n=12

Entrepreneurs reported improving their business skills between the time they joined CCK and the time of the survey. The majority of entrepreneurs

reported having very little business experience when first becoming tenants at CCK, with most identifying as novice or advanced beginners. All respondents reported an improvement in business skill level from the time of their initial tenancy at CCK to the time of the survey, with entrepreneurs identifying primarily as proficient or competent. Figure 16 shows entrepreneurs' self-reported business skill level before their tenancy at CCK and at the time of the survey.

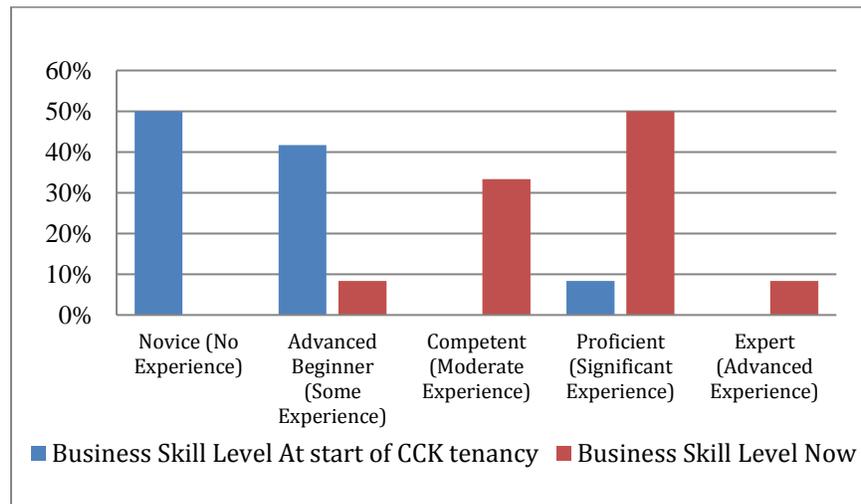


Figure 15: Business Skill Development, $n=12$

Tenant Experience

Five entrepreneurs assessed the services CCK offered, and possible scores ranged from 0-25, increasing correspondingly with their value. Entrepreneurs valued peer networking opportunities (score=20) most highly. All respondents indicated their use of and the importance of peer networking opportunities, with three of five indicating that this was a very important service. Fewer respondents used CCK's distribution services (score=9), but those who did make use of these services found them to be either very important or essential. To a lesser extent, entrepreneurs also valued business plan and development (score=5) and

marketing (score=3) services. Just a few entrepreneurs considered these services to be important and somewhat important. One respondent commented positively on CCK’s reputation, noting that she was able to secure two business contracts because of her affiliation with the kitchen incubator. Notably, few entrepreneurs made use of financial/lending and legal services, and these were not valued highly (respective scores=1).

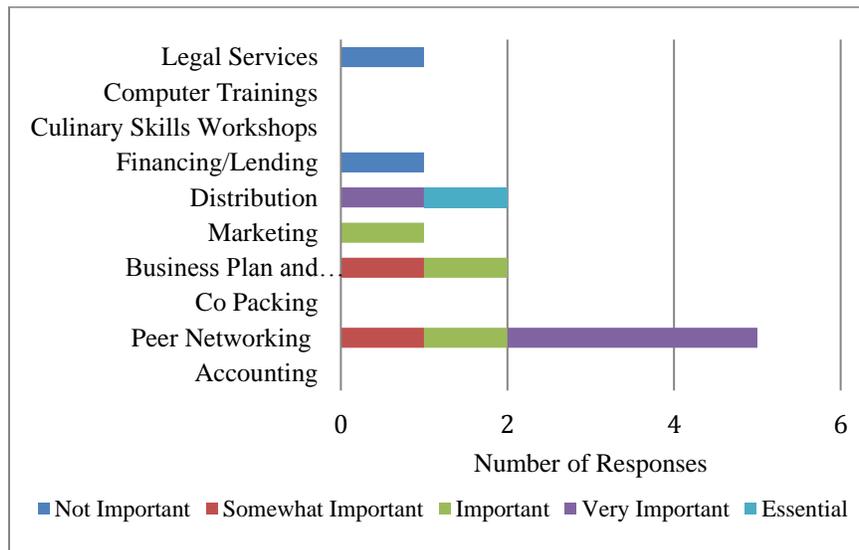


Figure 16: Importance of Services Used, n=5

When asked to identify additional services that would better serve their business needs, entrepreneurs expressed interest in assistance with fundraising, operations management, and understanding how distributors and brokers work. One respondent commented that CCK’s social mixer was a good peer networking opportunity and could be a good forum for offering even more business support services. Another respondent was not aware of the business services offered by CCK other than the social mixer and ServSafe certification.

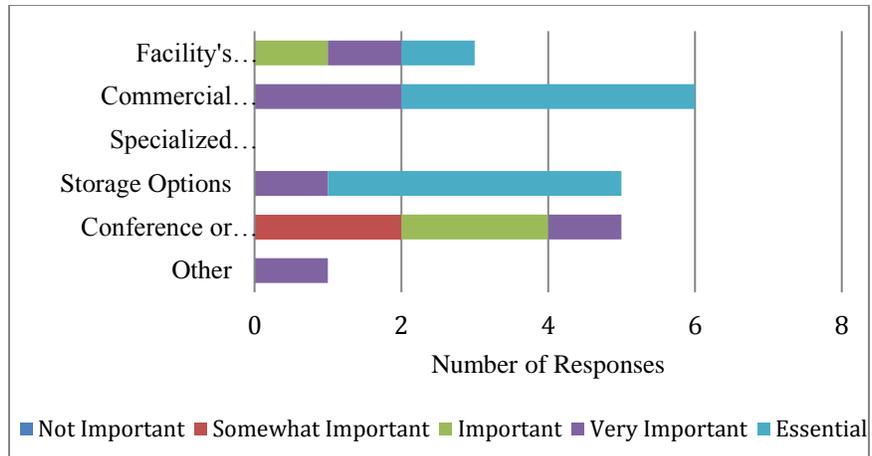


Figure 17: Importance of Infrastructure Used, $n=6$

The infrastructure features valued most by CCK tenants included the commercial kitchen and storage options. Six respondents answered this question, and possible scores ranged from 0-30, increasing correspondingly with their value. Tenants described the commercial kitchen (score=28) and storage options (score=24) to be either very important or essential. To a lesser extent, the conference/office area and the location of CCK were also valued (respective scores=14 and 12). One respondent offered that having 24-hour access was a very important infrastructure feature (score=4). Consistent with the relatively limited specialized equipment available at CCK, no respondents indicated their use of or value of it.

Respondents indicated that a larger facility and expanded infrastructure features would better meet their business needs, specifically citing a need for more storage and generally a larger building. One respondent suggested having an on-site cooperative retail outlet. Another suggested that the facility served most businesses well, but not those that required significant daily use of the facilities.

Mad River Food Hub

Kitchen Incubator Profile

Mad River Food Hub (MRFH) was established in 2011 in the Iraville Business Park in Waitsfield, Vermont. Unique among the kitchen incubators included in this study, MRFH is the only USDA-certified meat processing kitchen incubator in the Northeast, and it also provides hyper-local same-day distribution services. Its 4,000 square-foot facility includes separate shared-use kitchens for vegetable and meat processing, cold- and dry-storage space, and delivery trucks. A relatively compact facility, MRFH served over 50 food businesses in its first years of operation, and within its first year it was operationally sustainable. (Morris 2014; Lee 2013)

MRFH founder Robin Morris purchased the business park in 2003, originally only leasing facilities to food companies, including Liz Lovely Cookies and American Flatbread Company. By 2011, activity in Vermont's local agricultural and food economy had increased, and the recently completed Vermont Farm to Plate Strategic Plan identified an unmet demand for both meat processing facilities and distribution services in the state. Morris, interested in supporting small business development, saw the potential for a kitchen incubator to fill these unmet needs and bring more agricultural and economic development to the Mad River Valley. Further, Morris believed that a processing facility could support farmers in developing value-added products from their produce, to expand their revenue streams.

Through a strategic planning process, Morris applied his more than 30 years of business experience in developing the concept and business model for the Mad River Food Hub. Central to the strategic planning process was the objective of market differentiation. In order to be financially viable, MRFH aimed to identify services and facilities that were in demand, would be profitable, and avoided competition or redundancy with non-profits or businesses with allied missions. With this in mind, Morris developed the business plan for a kitchen incubator that would provide facilities for vegetable food processing; meat processing; storage; and hyper-local, same-day distribution services. The business plan also specified MRFH's role as an incubator and not a food business itself; as such, the incubator would not own or sell tenant businesses' products and would instead facilitate tenants in doing so themselves.

The Mad River Food Hub was established as an L3C, a unique for-profit social enterprise model with a goal of providing a social benefit, rather than maximizing profit. Morris set out to secure capital for infrastructure improvements and build-out, develop systems and processes, and build a lean staff. MRFH implemented its business plan in four stages, focusing first on storage (in the spring of 2011), second on meat and non-meat processing (in the fall of 2011), third on distribution (piloting in the fall of 2011, with full service in the spring of 2012), and fourth on USDA meat inspection and smoking (in the spring of 2012) and curing facilities (in the summer of 2013). In addition to vegetable and meat processing, the facility was designed to accommodate processing for dairy, nuts, low-acid canning, deep-fried foods and baked goods. In

2014, at the time of this research, MRFH was serving roughly 50 food businesses, with roughly 16 of these identified by Morris as core tenant businesses.

Kitchen Incubator Approach

Entrepreneurs interested in joining MRFH go through a relatively streamlined application process. First, prospective tenants must submit an application, available on the incubator's website. This asks for basic information and the business plan, which is encouraged but not required; gauges the degree of technical assistance the entrepreneur is currently using or may need; and asks about the entrepreneur's anticipated use of the facilities. Once the application is submitted, the entrepreneur must secure liability insurance and a Board of Health license, if she does not already have these.

Next, entrepreneurs participate in an evaluation day at MRFH, for a fee of \$65, during which both parties are given a chance to assess the incubator-tenant compatibility, and entrepreneurs receive individualized technical assistance. During the first half of the day, the facility manager provides a tour of the facility and equipment, and the applicant makes her product, while the facility manager observes and takes notes to inform developing a HACCP (a systematic production plan that ensures food safety). During the second half of the day, the facilities manager and applicant discuss the HACCP and Operational Plans. Prospective tenants who need additional business technical assistance are connected with the Vermont Small Business Development Center (VtSBDC) and offered business planning help.

Rather than assessing prospective tenants against a set of criteria, Morris described using his intuition, informed by his business experience, to determine whether or not a business is a ‘good fit’ (Morris 2014). If the evaluation is successful and the entrepreneur is prepared, she completes a rental agreement, signed by both parties, that delineates the terms of tenancy. The rental agreement is then submitted along with proof of liability insurance and Board of Health license, and the entrepreneur may begin producing.

MRFH places a high priority on tenant profitability, in the interest of sustainability of both parties. Using industry metrics, the incubator determined that a small business should expect to spend between 10 and 15 percent of its production output value (or gross revenue from sales) on facility rentals and utilities. As such, if an entrepreneur is not producing enough so that 10 to 15 percent of product sales would cover MRFH facility rental and utility costs, MRFH will provide assistance with increasing efficiencies in production. If the entrepreneur needs business technical assistance, Morris will offer limited and targeted business technical assistance or, more commonly, refer the tenant to the VtSBDC.

MRFH’s network of partnerships, including the VtSBDC, have enabled it to increase its capacity and develop collaborations that have in turn benefitted tenant businesses. As a for-profit organization, MRFH was able to qualify for and secure certain grants for the capital investments in the facility and equipment only by partnering with other organizations in applications.

At the time of this research in 2014, MRFH had begun collaborating on a processing equipment program with the Vermont Food Venture Center (VFVC), a kitchen incubator in Hardwick, VT (included in this research). Where in 2014 Morris would consider purchasing a piece of equipment if at least three businesses needed it, by 2017 his partnership and approach with VFVC had evolved. Together, MRFH and VFVC were coordinating the “Vermont Equipment Access Program,” which allowed tenant entrepreneurs to lease specialized processing equipment in order to facilitate scaling their production. The equipment fit the needs of growing food businesses and was leased at an affordable monthly rate. The concept was that as the businesses outgrew or no longer needed the equipment, they could discontinue their lease. The model supported business growth and helped entrepreneurs avoid the costs of purchasing expensive equipment. Integral to MRFH’s efforts, its partnerships have enabled innovations that have increased its capacity to provide services and infrastructure to tenant businesses in service of their incubation and development.

Tenant Characteristics

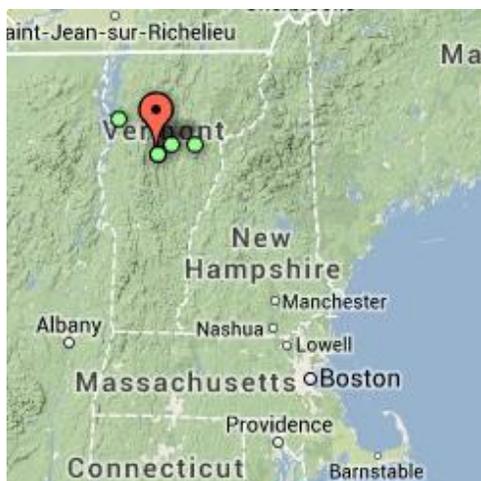


Figure 18: MRFH (red) and surveyed entrepreneurs (green) locations

Six MRFH tenants responded to the survey evaluating business characteristics and kitchen incubator impact. All entrepreneurs were active tenants of MRFH. On average, businesses had been in operation for slightly over three years and had

tenure at MRFH for almost two years. Two-thirds considered their enterprises to be full-time operations, and one-third described theirs as part-time. All of the full-time operations depended only on the revenue generated through their business for their income. All part-time operations supplemented their food business income with other income. Figure 19 shows where survey participants' entrepreneurs live, relative to the MRFH.

Tenant business goals indicated that businesses were in early stages of business development and focused on expansion. Entrepreneurs' most frequently cited business goals were to grow, often in regard to expanding a product line; increase sales; and become profitable or improve profitability. Other goals stated related to increasing staff capacity and strengthening or expanding markets. Individual entrepreneurs cited a goal of moving to a new location and refining business operations.

Goal 1	Goal 2	Goal 3
Grow	Expand products	New location
Increase Sales	Release new product line	Turn part time employees into full time
Achieve profitability	Expand market reach	Expand product offerings
Double sales	Improve profit margins	Improve systems & management
Delegate and train a general manager	Increase sales in all areas	Focus on developing current profit centers, no new initiatives
Expand	Make Profit	Have Fun

Table 7: Tenant Top 3 Business Goals, MRFH

MRFH entrepreneurs assessed their businesses to be performing well. One-third described their businesses as growing and profitable; and two-thirds

were growing and working toward becoming profitable. No respondents indicated their businesses were performing poorly or had closed.

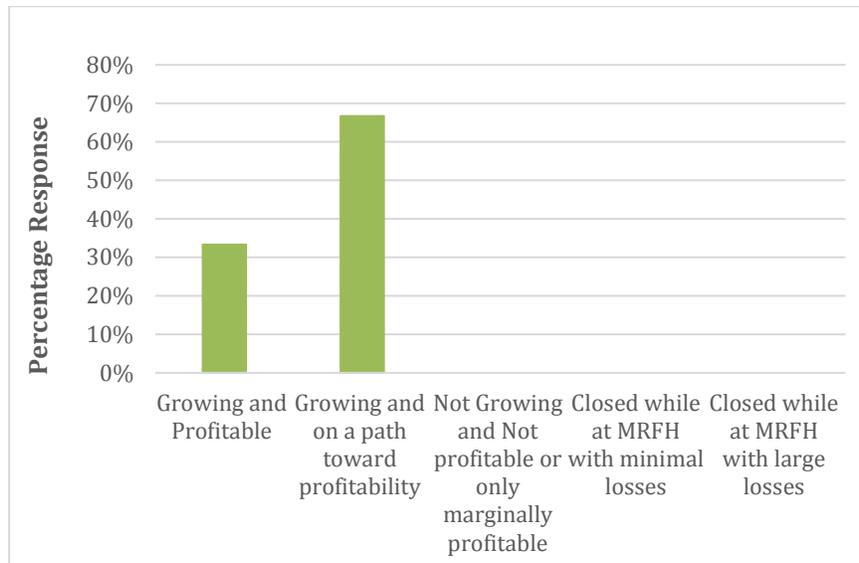


Figure 19: Enterprise Performance $n=6$

Entrepreneurs reported improving their business acumen from the time they started working with the MRFH to the time of taking the survey. Figure 21 shows a notable, positive shift toward increased business management competency. The greatest shift was among the entrepreneurs that had the least amount of business experience upon entry to MRFH. Most entrepreneurs that identified as novices or advanced beginners reported increasing their competency. One novice entrepreneur noted no change in business skill level, and those that identified as expert at the start of their MRFH tenancy also identified as such at the time of the survey.

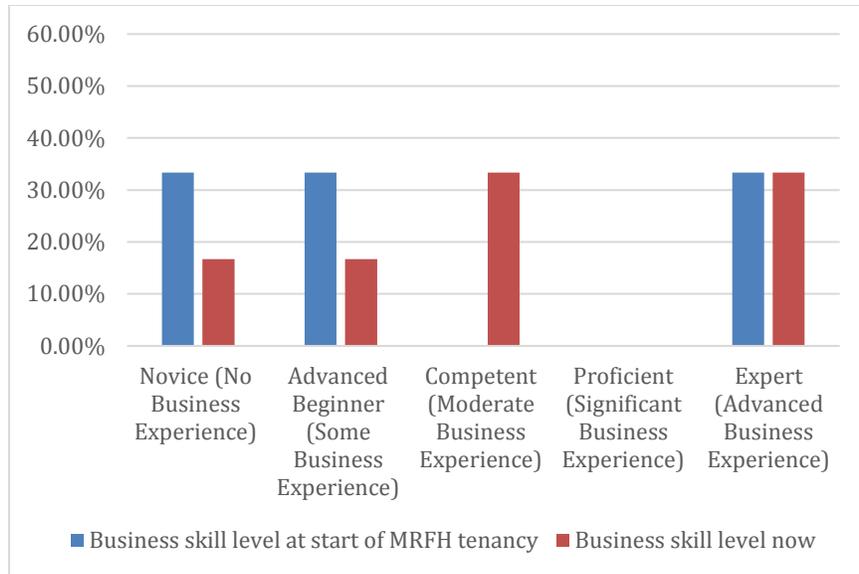


Figure 20: Business Skill Development $n=6$

Tenant Experience

Four tenants assessed the value of services at MRFH, and possible scores ranged from 0-20, increasing correspondingly with their value. Tenants found business planning and accounting services to be the most valuable (respective scores=8), as one-third of respondents found these to be either important or essential. Financial/lending services and peer networking opportunities were also valuable (respective scores=7), and one-third described these as important or very important. Distribution services were used by MRFH tenants more than any other service, though they all described this service as only somewhat important (score=6). Computer trainings were essential for one respondent, and another respondent noted that the MRFH staff was very important. Figure 22 shows the value of services used by survey respondents.

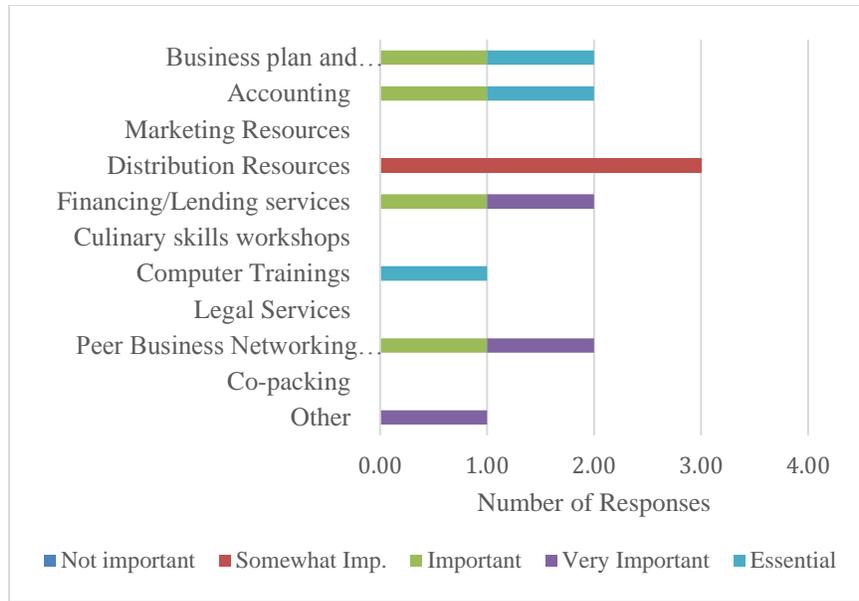


Figure 21: Importance of Services Used $n=4$

Morris emphasized that MRFH does not offer marketing resources. And, beyond the business technical assistance it offers during the evaluation day, it refers tenants to organizations in its networks for trainings and assistance. As such, none of the respondents noted use of marketing services, culinary workshops, or legal services. MRFH does provide limited co-packing services, but none of the respondents used these services. When asked, respondents commented that to better serve their business needs, MRFH could offer more affordable facilities, develop a system for sharing employees, and host tenant meetings for peer exchange services.

Four tenants assessed the importance of MRFH's infrastructure, and possible scores ranged from 0-20, increasing correspondingly with their value. Tenants found storage facilities to be the most valuable (score=19), and respondents found these to be either important or essential infrastructure. MRFH's location was also valuable (score=9), and one-third described it as very

important or essential. Specialized equipment was essential for one respondent, and another respondent noted that the commercial kitchen very important. Figure 23 shows the value of infrastructure used by survey respondents.

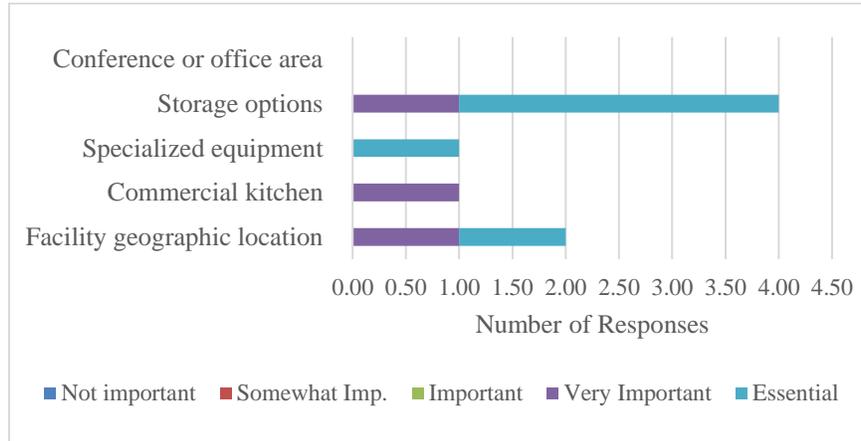


Figure 22: Importance of Infrastructure Used $n=4$

MRFH does not have a conference area for tenants, and as such none of the respondents remarked on it. Respondents did not remark on other MRFH infrastructure not included in this list. When asked, one respondent commented that having access to additional specialized equipment, particularly for dehydrating and canning syrup, would better meet his business needs.

Coastal Farms and Foods

Kitchen Incubator Profile

Coastal Farms and Foods (CFF) operated from 2012 to 2014 in Belfast, Maine, and was established to support growth in local agriculture businesses. It was co-founded by Jan Anderson, Tony Kelley, and Wayne Snyder, who brought with them experience in farming, frozen storage, and business, respectively (Anderson 2014). Anderson was convinced to pursue building CFF after having spearheaded a feasibility survey with the USDA that aimed to identify the barriers to increasing agricultural production in Maine. The survey showed that one-third of Maine farmers were located within a 50-mile radius of Belfast, and found that 90% of farmers reported that an absence of climate-controlled storage and processing presented barriers to growing farming operations (O'Brien 2013).

With this evidence, Anderson, Kelley, and Snyder developed a business plan for a facility with storage space appropriate for farm needs, as well as a kitchen incubator to serve start-up food businesses, and a commercial freezing and frozen storage facility for large volume blueberry and cranberry processing. The founders registered as an S-Corporation,⁴ different from the other kitchen incubator facilities included in this research, and raised \$2 million from investors and through loans to develop the facility.

⁴ An "S-Corporation" is a regular corporation that has between 1 and 100 shareholders and that passes-through net income or losses to shareholders under in accordance with Internal Revenue Code, Chapter 1, Subchapter S.

CFF's 50,000 square-foot facility boasted a large commercial freezing area and storage facility used primarily for blueberry and cranberry processing. In a 6-week period in the summer, roughly 3 million pounds of blueberries and 1 million pounds of cranberries were processed, representing 75% of CFF's annual revenue (Snyder 2014). Temperature- and humidity-controlled refrigerator space, much smaller than the berry freezing space, were rented and shared by roughly 50 farmers, who used the space to store their harvest and extend their season. CFF's two shared-use kitchens accommodated general use in one and dairy product processing in the other. The total scale of the facility was striking during a tour, and it appeared that much of the available space was not in regular active use.

During the time CFF was in operation, roughly 15 small-scale food enterprises made their food products in its shared-use kitchens, and their products included fine chocolates, tofu, soda, and dilly beans. Farmers also used the shared-use kitchens to process their butternut squash, tomatoes, carrots, and other produce.

CFF was also entrepreneurial on its own and occasionally purchased B Grade produce to process or freeze, selling it to area schools. During an interview with Dean Anderson, Facilities Manager, he noted that CFF was in conversation with some Maine universities to explore expanding food processing for them. Additionally, CFF also made its own blueberry syrup and cranberry compote.

Kitchen Incubator Approach

Coastal Farms and Foods's only criteria in screening potential tenants was the entrepreneur's interest. Any entrepreneur who wished to work with the facility

was asked to submit an application, pay a membership fee of \$200 per year, and sign agreements for use of the shared kitchen and storage spaces. Businesses were encouraged but not required to have a business plan and ServSafe certification. Before beginning use of the kitchen facilities, entrepreneurs were required to participate in an orientation led by Anderson or the operations manager.

Coastal Farms and Foods primarily referred tenants to partner organizations for business technical support, and it particularly encouraged tenants to access services through the University of Maine (UMaine). UMaine food development specialist Beth Calder assisted tenants with product licensing, microbial testing, pH testing, and packaging. Her colleague Jason Bolton, a sanitation specialist, offered food safety training. The regional office of the United States Department of Agriculture (USDA) advised on quality assurance in product manufacturing. CFF's other partners included chemical company Rochester Midland, which offered a few trainings in food safety and sanitation; the non-profit SCORE, which supported interested tenants in business plan development; and Manufacturing Extension Partnerships, which provided additional support specific to starting food processing businesses.

In a few instances, Coastal Farms and Foods purchased specialty equipment jointly with its tenants to facilitate expansion of their businesses, making these capital-intensive purchases more feasible. At the end of those businesses' tenancy at CFF, they negotiated with CFF about which party would buy out the other's share of the equipment, allowing it either to move with the businesses or remain at CFF for the shared use of other tenants. In one instance,

two CFF tenants – a tofu company and a malt company – co-purchased seed-sorting equipment.

Tenant Characteristics and Experience

A limited number of tenant businesses responded to surveys, and the responses were incomplete. Because the sample size and responses were limited and do not provide enough information to discuss tenant characteristics and experience, this research omits the results of the CFF surveys.

Kitchen Incubator Closure

In the spring of 2014, CFF closed its doors after 2 years in operation, within a month after the research site visit to CFF and interview with Dean Anderson. The closure was announced in on CFF's website and in local newspaper articles. CFF managers made an immediate attempt to keep the facility open by selling off the frozen berry business, but the deal fell through and CFF's doors closed permanently (Andrews 2014). Financial issues were the primary reasons cited for CFF's closure, specifically under-capitalization and two consecutive years of poor blueberry harvests in Maine (Curtis 2015). The facility's business model relied on revenue from frozen berry sales to subsidize the commercial shared-use kitchen and storage facilities, and when berry sales fell short in its first two years of operation, CFF didn't have the capital to buoy the facility and relied on subsidies from its lender. When CFF's lender suspended subsidies, the facility was forced to close. Upon reflection, Jan Anderson suggested in an article that the large size of the facility and the scale of the berry businesses, coupled with additional factors including rental rather than ownership

of the building, contributed to the failure of CFF (Curtis 2015). If she were to do it again, she would scale it down significantly.

Vermont Food Venture Center

Kitchen Incubator Profile

The Vermont Food Venture Center (VFVC) is a 15,000 square-foot kitchen incubator in Hardwick, Vermont that serves food business entrepreneurs and farmers. It is part of The Center for an Agricultural Economy (CAE), a 501(c)(3) non-profit organization with a mission to ‘build a regenerative, locally-based, healthy food system by engaging the greater Hardwick community through collaboration opportunities, educational outreach and providing infrastructure’ (CAE 2017). The VFVC is central to CAE’s regional work, fostering business development through delivery of comprehensive business technical assistance and provision of commercial kitchen infrastructure. In 2014, the VFVC had been open for 2 years and had served 65 farm processors and specialty food enterprises (Waring 2014).

The VFVC is located in the Northeast Kingdom region, which has an active food and farming economy. This area is home to about 1,300 farms – nearly 20% of the total farms in Vermont (USDA 2012) – and several other significant food- and farming-related businesses, including High Mowing Organic Seeds, Vermont Soy, and Highfields Center for Composting (HVCC 2014).

The VFVC facility occupies a portion of a larger CAE complex. The kitchen incubator facility includes dry storage and refrigerator and freezer units in a central warehouse. On the perimeter of the space there are three shared-use kitchens and two privately leased spaces. The privately leased spaces comprise a 6,000 square-feet of the facility and provide nearly 70% of its operating revenue.

At the time of this research these spaces were rented by Jasper Hill Farm, a creamery, and Grassroots Distribution, a beer and wine distributor. The three shared kitchens are designated as “wet,” “raw,” and “multipurpose” and accommodate production of a variety of types of products. Appendix D provides a list of the equipment in the shared-use kitchens available for member entrepreneurs (Waring 2014, Rowell 2014). Beyond the kitchen incubator’s doors, the CAE also has offices for VFVC staff and a conference room that is shared by VFVC and used for meetings and trainings.

Kitchen Incubator Approach

The Vermont Food Venture Center incubates businesses by providing rental access to its shared kitchens and comprehensive wrap-around business services. Unique to all kitchen incubators in New England, the VFVC partners with the Vermont Small Business Development Center to have a full time Agricultural Business Advisor on staff. This advisor works at the VFVC and provides counseling, training, and other services for agricultural and food businesses at the VFVC and those located in surrounding counties of the Northeast Kingdom (VtSBDC 2014). The advisor’s individual counseling services are offered free of charge to VFVC members.

VFVC also provides entrepreneurs a range of support services in the kitchens. VFVC’s Facilities Manager consults with entrepreneurs as they develop and scale their food production. Some of the services offered include pH testing,

nutrition labeling assistance, and co-packing.⁵ (Waring 2014) Technical product development and food production assistance services are offered at variable rates, described in Appendix D.

VFVC not only incubates member food businesses, but also aggregates, processes, and freezes local produce through its Farm to Co-Packer program and sells the frozen produce to area schools and hospitals. This program supports and strengthens the regional food system by developing new markets for farmers and enabling more area students to eat local food. In its first year of operation in 2013, the program processed over 3,000 pounds of produce from farmers and sold the produce to ten local institutions (CAE 2014, Rowell 2014).

Tenant Characteristics



Figure 23: VFVC location

Of the 44 entrepreneurs invited to participate in the survey, 17 (39%) responded. 73% of respondents were current active members of the VFVC. On average, businesses had been in operation for three years and had had tenure at VFVC for 18 months. More than half (57%) of the entrepreneurs who responded to the survey considered their enterprises to be full-time operations; the others considered their operations part-

⁵ “Co-packing” or “contract packaging” refers to the manufacture and packaging of products on behalf of another company.

time. Half of the full-time operators depended only on the revenue generated through their businesses for their income. This was true for fewer than 20% of the part-time businesses, with the majority depending on supplemental income in addition to what they earned through their food enterprises.

Entrepreneurs reported improving their business acumen from the time they started working with the VFVC to the time of taking the survey. Figure 25 shows a notable, positive shift toward greater business management competency. Whereas at the onset of membership at the VFVC, roughly 25% identified as novice, upon evaluation of their skills at the time of the survey, markedly more businesses identified as competent or proficient, and none said they were novices.

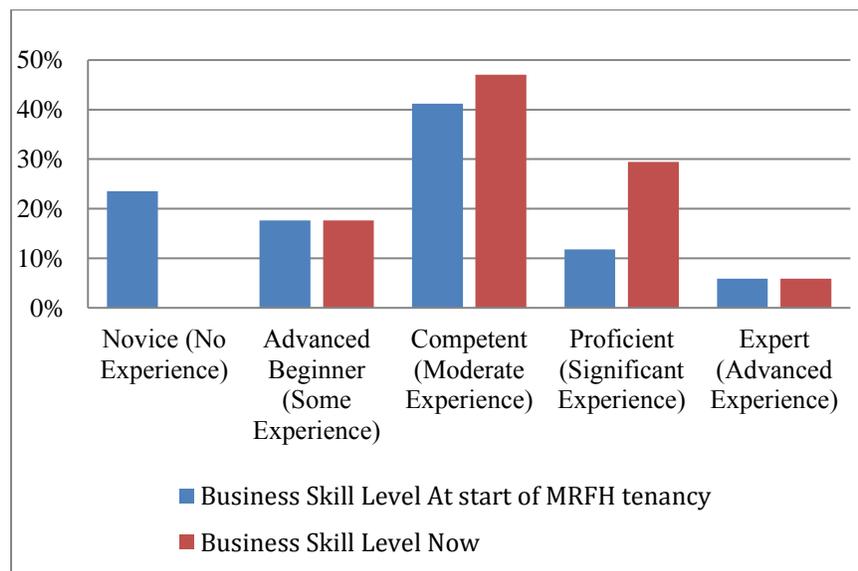


Figure 24: Business Skill Development *n*=17

Overwhelmingly, businesses at the VFVC reported performing well. Asked if their sales increased or decreased compared with the previous year, 58% said their sales increased by 20 percent or more. All others reported increase in sales up to 20%, and none reported a decrease in sales. Assessing their goals for

the coming year, entrepreneurs most frequently wanted to expand their markets via direct marketing, online forums, retail outlets, and wholesale distribution; the second most frequently stated goal was to increase revenue and profitability. Several respondents also wanted to improve their operations.

Goal 1	Goal 2	Goal 3
Increase wholesale and retail sales	Establish systems and efficiencies in production and distribution	Increase hours of part time helper to take over more of the production end of the business
Increase production	Increase quality	Increase efficiency
More sales	Build brand	Hire more staff
increase sales	refine recipe	change marketing techniques
secure distribution	increase production	drop cost per unit
make more money	identify more markets	cut costs
Achieve profitability	Move into a larger production facility	Establish a relationship with a distributor
to increase sales	to increase number of retail outlets where our food is sold	to make a profit
more efficient process to lower per unit cost	expand distribution	increase revenues/profitability
increase sales	earn an income personally	finance growth
expand distribution	increase production	be able to support myself solely from my business.
To lead the green salsa revolution :)		
Increase sale of local organic produce & product	Impact community health	Impact food politics
Continue to sell 80% direct	Launch e-commerce site	Increase gross sales by 60%

Table 8: Tenant Top 3 Business Goals, VFVC

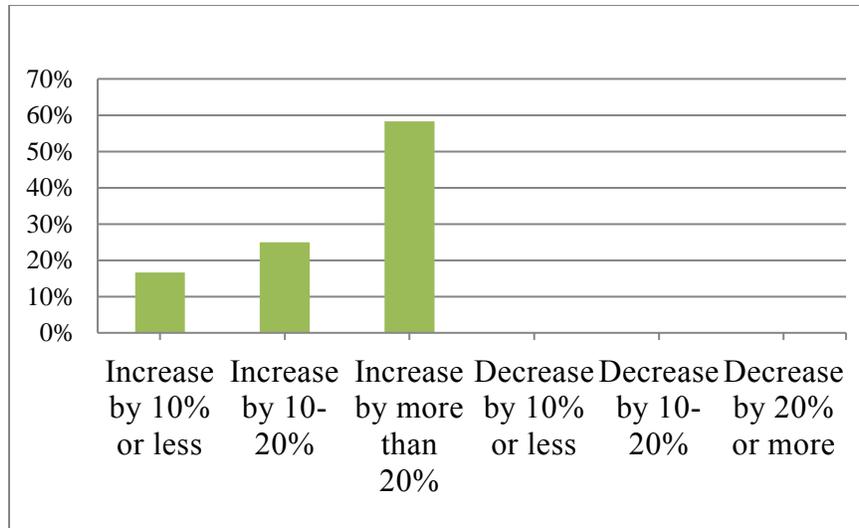


Figure 25: Enterprise Performance $n=12$

Tenant Experience

Thirteen tenants assessed the VFVC’s services, and possible scores ranged from 0-65, increasingly correspondingly with their value. Tenants valued business planning most (score=39). Opinions of the importance of business planning services ranged from not important to essential, with the greatest number of respondents indicating that these services were very important. Co-packing (score=36), culinary workshops (score=34), and peer networking (score=32) were also highly valued, with assessment of these services ranging from somewhat important to essential; the greatest number of respondents indicated these to be very important services. In addition to these services being highly valued, they were also used the most.

Services related to marketing (score=24), distribution (score=17), accounting (score=11), financial lending (score=9), and computer trainings (score=6) were valued to a lesser degree. Of these services, marketing was both used most frequently and most highly valued, with the greatest number of

respondents indicating the service was important to their business. The same number of respondents indicated that distribution services were important to their business, though fewer respondents used the service. Services related to accounting, financing/lending, and computer trainings were used to a lesser degree, and were all considered only somewhat valuable to respondents.

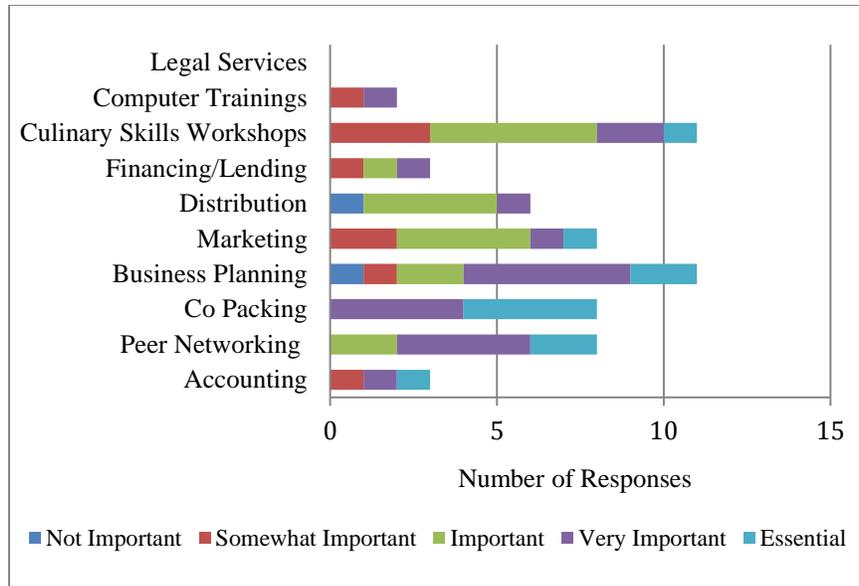


Figure 26: Importance of Services Used $n=13$

When asked about additional services that would better serve their business needs, respondents expressed interest in grant writing and QuickBooks workshops. They recommended operational improvements at VFVC, including improving scheduling kitchen time, providing timely co-packing price quotes, and disseminating information about starting a food business in a more structured way. Several entrepreneurs indicated an interest in learning more about specific topics including navigating regulatory and certification processes, support with understanding finances, distribution and transportation, and market development.

Thirteen tenants assessed VFVC’s infrastructure, and possible scores ranging from 0-65, increasingly correspondingly with their value, Tenants identified specialized equipment and the commercial kitchen (respective scores=52 and 49) as the most valued features, and also the most utilized. Storage options (score=30) and VFVC’s location (score=21) were considered to very important or essential to most respondents. Assessment of the conference and office area was mixed (score=20).

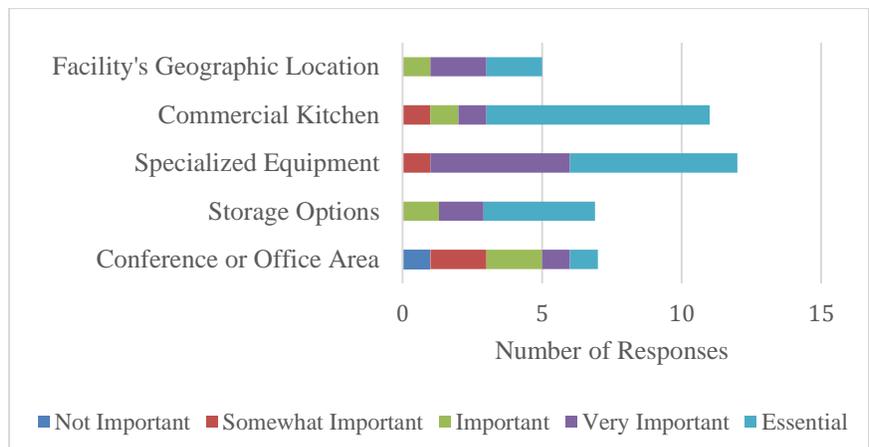


Figure 27: Importance of Infrastructure Used, n=13

When asked to identify additional facility and infrastructure features that would better meet their business needs, some entrepreneurs indicated that the facility met their business needs already. Others indicated some very specific features to improve their experience. Two respondents suggested improvements and better organization in the warehouse area. Two also indicated a need for specialized bottling equipment. Additional suggestions included installing a loading dock ramp, improving parking, enabling frozen transportation, and securing organic certification for the VFVC.

Chapter Five: Findings and Discussion

Based on analysis of the five case studies presented in the previous section, and informed by the existing literature, this research identified the following key findings about New England's kitchen incubators and their tenant businesses.

Kitchen Incubators

Structure and purpose

- **Kitchen incubator operations are diverse and reflect their local contexts:**

If you've seen one kitchen incubator, you've seen one kitchen incubator.

Kitchen incubators develop in response to regional demands and market opportunities for food business development, making each unique.

Geography, regional economy, industry types, and population are a handful of factors that influence how kitchen incubators are established and what facilities and services are offered. This diversity is evident in this research: for instance, rural kitchen incubators included in this research provide more services to farmers, while CropCircle Kitchen, located in Boston, provides more services to food trucks than those in less populous regions.

- **Promoting economic development and supporting food business growth are the key objectives of kitchen incubators.** Kitchen incubators included in this research all articulated in either their missions or their descriptions a primary purpose of supporting small business development through the shared-use kitchen aspect of their operations. Further, four out of the five New England kitchen incubators researched also supported farm processing and

value-added enterprises as a means to support economic development in the broader agricultural economy. A focus on economic development parallels kitchen incubator responses in the national survey (Wodka 2016), where the top stated goal (53%) was to assist early-growth businesses, and it also aligns with the definition of business incubators as economic development catalysts.

Operational Sustainability

- **Diverse and regular revenue streams strengthen kitchen incubator operations.** Most facilities included in this research have revenue streams in addition to the rental revenue from their shared-kitchen incubator programs. These additional revenue streams include storage rental, business support services provided to non-tenant entrepreneurs, distribution services, commissary kitchens, institutional processing, and longer-term leasing to permanent tenants. Kitchen incubators that generate their revenue in part or majority from secondary enterprises seem to be able to control for the uncertainties and fluctuations in rental income from shared-use kitchen operations.

For instance, the Western Massachusetts Food Processing Center contracts with farmers to do light processing, freezing and distribution of produce to area institutions. As of 2014, the Western Massachusetts Food Processing Center anticipated that this frozen produce enterprise, the Pioneer Valley Vegetable Venture, would become a significant revenue generator for the facility.

WMFPC and the Vermont Food Venture Center lease private kitchen space to food businesses to long-term anchor tenants. At the Vermont Food Venture Center, these anchor tenants cover two-thirds of the total operating costs of the facility. This concurs with kitchen incubator activity across the country; the national survey found that one third (31%) of kitchen incubators lease private space, making up 24% of total revenue (Wodka 2016).

In an instructive counter-example, Coastal Farms and Foods relied on cranberry and blueberry processing for 75% of its operating revenue. Two consecutive years of poor blueberry harvests contributed to the facility's closure, suggesting that a diversity of revenue streams is important to sustainability.

- **Differentiation is important to operational sustainability.** Differentiation of incubators supports financial sustainability of the incubator facility. For example, the Mad River Food Hub chose to focus in its kitchen incubator facility on meat processing, an unmet need that had been identified through the Vermont Farm to Plate Plan, and it identifies that decision as critical to its viability. Providing an unmet need ensured Mad River Food Hub was not providing services redundant to what was available in Vermont, and avoided competition with other entities in a typically collaborative field.
- **Food plans act as a guide for Vermont's kitchen incubators.** Both Mad River Food Hub and Vermont Food Venture Center managers referenced food system planning as central to the development and model of their kitchen incubators. The regional Northeast Kingdom Food System Plan, pre-dating

the state plan and completed in 2012, identified gaps and provided guidance for the VFVC. The Vermont Farm-to-Plate Strategic Plan, completed in 2013, guides statewide food planning and policy. Involved in the development of the plan, Robin Morris developed a business model that included meat processing and distribution and logistics services directly in response to the needs and opportunities identified in the state plan. Though both relatively young kitchen incubators, both are doing very well; it would be of value to explore the correlation between the two.

- **Owning food products may increase the liability and risk of kitchen incubators.** Western Massachusetts Food Processing Center manages the Pioneer Valley Vegetable Ventures, its vegetable freezing program, by coordinating with farmers to grow for the enterprise and with local institutions on their purchases of frozen vegetables, and providing the service of processing and freezing the raw produce. In this process, Western Massachusetts Food Processing Center is solely a service provider and has chosen against owning the produce; in doing so it does not assume responsibility or liability for selling the product. Mad River Food Hub has chosen to focus its efforts on providing the services and infrastructure important to food entrepreneurs, and deliberately decided against owning any food products. These examples suggest that owning food products positions the kitchen incubator itself as a food business, with all the related risks and responsibilities, and that this can complicate and potentially compromise the kitchen incubator.

Incubation Process

- **The incubator application process is important for evaluating the fit and readiness of applicant entrepreneurs.** Managers of kitchen incubators consistently described the application process as critical to success of their programs. This process provides an opportunity for a prospective tenant to better understand the realities and requirements of starting a food business, as well as for the kitchen incubator staff to evaluate whether an applicant is sufficiently prepared and has a promising business concept.

A thorough application process can serve to reduce the risk to entrepreneurs of business failure by better preparing them for what lies ahead or even leading them to decide against launching a business. It also reduces the risk assumed by the incubator, helping to ensure that those entrepreneurs who are admitted as tenants have a greater likelihood of survival and success. All of the incubators researched encouraged or required ServSafe certification and a business plan from prospective tenants. These criteria establish minimum thresholds for acceptance, and help to minimize risk to the kitchen incubator.

Four of the five of the incubators included in this research had a protocol for thorough assessment of applicants. Coastal Farms and Foods is a notable exception, accepting all interested entrepreneurs. The other four facilities provided an extensive array of consultation services as part of the application process to evaluate entrepreneur fit – including introductory workshops, evaluation of applications and business plans, and other support – for either no

fee or a relatively low fee, with the highest fee for prospective tenants being \$80 for the orientation at the Vermont Food Venture Center. They also established criteria for acceptance, including being either required or encouraged to gain ServSafe certification and have a business plan.

Application and orientation services all required a significant investment by the kitchen incubator. Only CropCircle Kitchen indicated a concern about the sustainability of offering these services at no cost prior to tenancy. There was general sentiment that application and orientation process needed to support businesses in exploring the feasibility of their business and tenancy, and that to encourage this, pre-tenancy services provided by the kitchen incubators needed to be affordable.

- **Providing ongoing business technical assistance is a best practice.** At those facilities that required a business plan, kitchen incubator staff consistently emphasized their availability to work with potential tenants in crafting those plans. Ongoing business technical assistance is a critical feature of the kitchen incubator experience, ranking as the service most highly valued by tenants across the facilities surveyed. The top business services offered by kitchen incubators nationwide are licensing and certifications (84%), business planning (69%), and marketing and branding (49%) (Wodka 2016).
- **Partnerships can help expand kitchen incubators' capacity to serve tenants.** In interviews with incubator managers, several gave examples of instances in which they had partnered with academic institutions, local organizations, or other incubators to offer expanded services, access to

specialty processing equipment, food safety training, or business support and financing services. These services worked well for tenants, and they didn't have to be provided in-house by the kitchen incubator to meet tenants' needs. For instance, tenants at the Vermont Food Venture Center had access to technical assistance from the Vermont Small Business Development Center, which offered the most comprehensive array of business services of any incubator surveyed here. Corresponding to these research findings, kitchen incubators nationally stated partnering with workforce training programs (28%) and educational institutions (20%).

Partnerships also saved or expanded incubators' resources, allowing them to leverage grant funding or share costs. The Mad River Food Hub, an L3C (Low Profit Limited Liability Corporation), technically could qualify for grant funding but found that its unusual incorporation status made it less competitive. Instead, it partnered with two non-profit organizations to secure grants for capital investments in the facility.

- **Facilities managers are well positioned to see early indicators of challenges.** Kitchen incubator facilities managers work on-site and interact with tenant entrepreneurs regularly about their business operations and performance. These individuals are important actors in monitoring business performance and detecting signs of challenges early on. According to Morris, at Mad River Food Hub indicators of business challenges include: paying rental and service fees late or not at all, having a surplus of product inventory in the freezer (suggesting the business is not selling product at a high enough

volume or rate), or reserving and using the shared kitchen to a limited extent (suggesting the business is not producing at a high enough volume or rate).

- **Kitchen incubators can provide support to food businesses at several scales; graduation is not necessarily the goal.** The traditional business incubator model assumes that businesses will remain tenants until they grow to scale, at which point they graduate from the incubator and leave. While this is the case with some types of business incubators, particularly technology incubators, this is not the common practice of most kitchen incubators. This is true nationally, where between 2013 and 2016 kitchen incubators noted that the length of tenancy increased (Wodka 2016), and it is also the case with New England kitchen incubators researched.

For instance, within months of the completion of this research, CropCircle Kitchen moved into its new, larger facility. One of the tenant businesses from the shared-kitchen incubator, Alex's Ugly Sauce, began leasing private production space in the new facility to accommodate expansion of its business.

Increasingly, the kitchen incubators surveyed here actively seek to accommodate businesses as they grow by providing a variety of types of food production spaces. In these instances, tenants typically graduate internally from the shared-use kitchen to a privately leased kitchen space, within or near the kitchen incubators. Kitchen incubators benefit from the regular revenue from privately leased kitchen space, and tenants benefit from continued co-

location and the opportunity to exchange ideas with businesses of at different stages of growth.

Tenant Businesses

As described in the methodology section, survey response limitations preclude generalization of these tenants' outcomes to those of kitchen incubator tenants more broadly. Nonetheless, the information provided through this research offers valuable insights into tenants' business experiences and begins to identify kitchen incubator features and approaches that support business development.

- **Business skill level improves with tenancy at these kitchen incubators, and entrepreneurs with the most limited skills tend to learn the most.** Survey results showed that, in most cases, business acumen of tenant entrepreneurs improved between the time they joined the kitchen incubator to the time of the survey. Improvement was reported most frequently by entrepreneurs that began at the kitchen incubator with limited business skills, whereas those that reported no change typically had higher skill levels at the time they started operations at the kitchen incubator. This suggests that the kitchen incubator experience supports less seasoned entrepreneurs with an opportunity to increase their competency. While this research did not investigate the specific reasons contributing to business skill improvement, it can be inferred that through supporting entrepreneurs in operating their

businesses and in most cases extending technical assistance services, kitchen incubation encourages business skill development.

- **Tenant businesses of these kitchen incubators tend to report a positive growth trajectory.** Nearly all tenant respondents described their businesses as growing and profitable or as growing and on a path to profitability. Profitability and expanding markets were the most frequently cited top goals for tenant businesses. Across the incubators surveyed, only three entrepreneurs (7%) out of 43 described their businesses as not growing and not profitable, and one entrepreneur (2%) described closing with major losses. Notably, tenants at the MRFH and VFVC (see later) all reported their businesses performing well: either growing and profitable, or on a path to profitability (MRFH); or having increased their revenue in comparison to the previous year (VFVC). All other kitchen incubators included at least some tenants that reported either stagnation or performing poorly. There was not enough data to identify correlations for or causes of business performance, though it is worth noting that at both MRFH and VFVC the business skill level of all tenant ranged from novice to expert, suggesting that factors other than business experience influenced their performance.

All four of the entrepreneurs who indicated business stagnation or negative outcomes operated their businesses part-time and supplemented their business income with other resources. No other information was offered that could support meaningful identification of issues related to stagnancy or financial losses.

Chapter Six: Conclusion

Kitchen incubators have multiplied exponentially in the United States over the past decade. The expansion of kitchen incubators has occurred at a time when the specialty food industry and farm-related food processing enterprises are burgeoning; responding to industry trends, they deliver creative economic development solutions for meeting growing demand for business development support for new food enterprises and food production infrastructure. In the broader context, kitchen incubators are ideologically aligned with the objectives of the modern food movement, which seeks to address systemic issues of the food system and advance equity, sustainability and prosperity across and within food sectors. Ideologically aligned practices include promoting: entrepreneurship by underrepresented groups (women, people of color); increased agricultural production by working with farmers; and programming, like farm-to-institution programming that leverages the scale of the food production and storage capacity of kitchen incubators to serve schools, hospitals.

This thesis investigated New England's kitchen incubators and found that they are serving as highly specialized economic development catalysts, promoting entrepreneurship and growth of local specialty food and agricultural markets. Their practices align with best practices promoted across the industry, and in many cases their innovative approaches are informing establishment of industry best practices. The entrepreneurs they serve place a high value on the technical assistance and other resources provided them. With respect to the tenant experience, the incubation process at these five facilities seems to foster

entrepreneur business acumen and optimism about business growth and profitability.

It is the researcher's hope that the findings are useful and practical contributions to the field and to current and prospective kitchen incubator operators. The illustrations of New England kitchen incubators describe their structures and how they are approaching food entrepreneurship, and begin to draw corollaries between the practices and their impact on food business development. While further research is recommended to look more closely at this relationship between kitchen incubators practices and tenant outcomes, the initial findings of this research could prove instructive in establishing new kitchen incubators, or honing practices of kitchen incubators currently in operation.

Further, this research has implications for regional food policy and planning. Most New England states, and all those who host kitchen incubators researched in this thesis have developed food system plans in recent years. These food system plans identify key issues and provide recommendations for policies to address issues and leverage opportunities, including recommendations for improving food processing infrastructure and strengthening and expanding workforce business development. This research may serve to inform policymakers, the private and non-profit sectors, and other stakeholders in guiding policymaking and implementing recommendations that support food processing and entrepreneurship and leverage the resources and support capacity building of kitchen incubators.

Future Research

Where this thesis initiates an investigation of kitchen incubators in New England, it also compels further investigation. This research elucidates kitchen incubator characteristics, practices, and their value to tenant businesses, and answers some important questions, but it also generates questions and opportunities for future researchers. In service of learning more about kitchen incubator operations and the factors that make them and their tenant business successful, following are recommendations for future research.

Collect consistent data on tenant experience and outcomes. Kitchen incubator tenants should be surveyed regularly to gain insights into the factors that influence their development and outcomes over time. Kitchen incubators may include survey participation requirements as a part of tenancy in order to ensure reliable data collection. Incubator staff or partner researchers may facilitate survey administration. The survey questions in the appendices were asked of entrepreneurs in this research and could be used for future surveying efforts.

Assess factors in tenant business success.

- Business incubator research identified the *age of an incubator* as the possibly greatest influence on tenant business outcomes. The research suggested that this was likely due to the experience gained over time and incubator sustainability. Future research could investigate the correlation between the age of kitchen incubators and business outcomes.
- This research found that *business services* were most highly valued by tenant entrepreneurs. Further investigation should focus on the correlation

between the delivery and breadth of business support services and their impact on business outcomes.

- The kitchen incubator model often facilitates relationship building and mentorship between entrepreneurs. *Peer networking* was valued by tenant entrepreneur, and future research could investigate the impact of this on business development and outcomes, whether naturally occurring or facilitated intentionally by the kitchen incubator.
- *External partnerships* were demonstrated to increase the capacity of several of the kitchen incubators. Future research could investigate the influence of partnerships on kitchen incubator efficacy and tenant business development and outcomes.

Revisit researched kitchen incubators to understand recent developments. In the period of researching these New England kitchen incubators, one closed, one expanded into a larger facility, and those that were operational refined and adapted their operations. Future research could investigate the developments that have occurred and the current status of operations of the kitchen incubators studied.

Understand factors in kitchen incubator closures. Coastal Farm and Foods' closure was not investigated thoroughly in this research. Future research could investigate the factors that contributed to its closure, which may illuminate valuable lessons for the field and for other kitchen incubator operations.

Appendices:

A: Interview Questions: Kitchen Incubator Manager

Origin and Operation

1. How long has [kitchen incubator] been in operation?
2. What is the mission or core objective of [kitchen incubator]?
3. Does [kitchen incubator] seek to assist particular populations?

Structure and Finances

4. What is the incubator's legal structure? (I.e. Non-profit, for profit?)
5. What are the sources for funding, and what is the breakdown for this funding? (I.e. Membership dues, Fees for Goods and Services, Donations, Investors, Foundation Grants, Government Grants)

Tenant Businesses

6. What types of businesses do you serve? (i.e. farmers doing value-added, specialty product producers, food trucks, caterers)
7. How many businesses have you hosted in the history of the incubator?
8. Can you provide the breakdown of businesses served annually since the incubator opened?
9. What process do businesses go through to become tenants? (i.e. Admission screening process)
10. How do you determine a business is a good fit for the incubator?
11. Is there a typical length of tenancy?
12. What is the graduation process for businesses? (i.e. limited tenancy criteria? size of business, length of tenancy)
13. How many businesses have graduated from [kitchen incubator]?
14. How many businesses have you helped to close when they were unviable?

Infrastructure

15. Please describe the incubator facility. (i.e. facility size, kitchen facility, storage space, other facility amenities, loading docks, specialty equipment, parking)
16. Does the facility and equipment meet the needs of business tenants?
17. Where do you see the greatest demand for expanded infrastructure? What capacity does [kitchen incubator] have to fill this demand?

Services

18. Please describe the business support services [kitchen incubator] offers for its tenants. (i.e. accounting, marketing, business planning assistance, computer training, legal services, grant and loan assistance)
19. How are the services delivered to tenant businesses?
 - a. Do you offer these services in-house?
 - b. Do you connect tenant businesses to services available outside of the incubator?
20. How are the services paid for?
 - a. Are these services included in the tenancy agreement, paid for by the tenant, discounted or donated?
21. Does the incubator facilitate formal or informal networking between businesses?
22. Do what degree do tenants make use of these services?
23. Where do you see the greatest demand for expanded services?
 - a. What capacity does [kitchen incubator] have to fill this demand?

Note: Conversations during interviews also included discussion and incubator manager opinion of particular challenges, opportunities and strengths of the kitchen incubators.

B: Survey Questions: Business Owners

Business Profile

1. Please indicate if you are:
 - a. Younger than 18 years old
 - b. 18 or older

2. How long have you been or were you in operation?*

 - a. Begin Date: _____/_____ (month/year)
 - b. End Date: _____/_____ (month/year) OR
 - c. Still operating

3. How long have you been or were you a tenant of [kitchen incubator]?*

 - a. Begin Date: _____/_____ (month/year)
 - b. End Date: _____/_____ (month/year) OR
 - c. Current incubator tenant

4. Where is your business located? (5-digit zip code)
 - a. (fill-in text box)

5. Which most closely describes your skill level in running a business when you first joined the incubator? (Please check one)
 - a. Novice (No Business Experience)
 - b. Advanced Beginner (Some Business Experience)
 - c. Competent (Moderate Business Experience)
 - d. Proficient (Significant Business Experience)
 - e. Expert (Advanced Business Experience)

6. Which most closely describes your skill level in running a business now? (Please check one)
 - a. Novice (No Business Experience)
 - b. Advanced Beginner (Some Business Experience)
 - c. Competent (Moderate Business Experience)
 - d. Proficient (Significant Business Experience)
 - e. Expert (Advanced Business Experience)

7. How would you describe your current business operation? (check one)
 - a. Full-time
 - b. Full-time, and I have other work/resources to supplement my income
 - c. Part-time
 - d. Part-time, and I have other work/resources to supplement my income

8. How would you best describe the top three goals of your business for the coming year?
 - a. (fill-in text box)

Financial Performance

9. How would you best describe the performance of your business (check one):
- Growing and Profitable
 - Growing and on a path toward profitability
 - Not Growing and Not profitable or only marginally profitable
 - Closed while at the incubator, with minimal losses
 - Closed while at the incubator, with large losses
 - Closed after leaving the incubator

10. Please provide the following information for the history of your business:

A reminder that all information collected will be reported on an incubator level, not business level. This assures that details of your business will not be individually identifiable.

	YEAR 1	YEAR 2	YEAR 3	YEAR 4
SALES	\$	\$	\$	\$
TOTAL COST OF GOODS SOLD	\$	\$	\$	\$
TOTAL OF ALL OTHER EXPENSES	\$	\$	\$	\$
PAYROLL (SALARIES, WAGES, BENEFITS, PAYROLL TAXES)	\$	\$	\$	\$
ACCOUNTS RECEIVABLE	\$	\$	\$	\$
ACCOUNTS PAYABLE	\$	\$	\$	\$
TAXES PAYABLE	\$	\$	\$	\$
CASH ACCOUNTS	\$	\$	\$	\$
ALL OTHER ASSETS	\$	\$	\$	\$

Note: For this section, please have your Quickbooks or other accounting information on hand.

If you have been or were in operation more than 4 years, please begin with the year you became a member of [kitchen incubator].

Note: The Vermont Food Venture Center survey questions were amended and asked information for the first four categories only (Sales, Cost of Goods Sold, All other expenses, Payroll). The VFVC survey also included this note:

Examples of reporting financial information:

*The following statements are examples of how your individual business information will be combined and included in the report: After one year of membership with Vermont Food Venture Center, 10% of its member businesses reported sales increases of more than 30%. **

*Twelve percent of Vermont Food Venture Center's member businesses qualified for loans in their first three years of operating. The average loan was for \$8,245. **

**Note: These statements are not real measurements and are offered only as examples to illustrate how survey information will be reported.*

Employment

11. Over the history of your business, how many people have you employed full-time?

	YEAR 1	YEAR 2	YEAR 3	YEAR 4
NUMBER OF <i>FULL TIME</i> EMPLOYEES (≥32 HOURS/WEEK FOR 50 WEEKS OR ≥1,600 HOURS ANNUALLY)	#	#	#	#

12. In the history of your business, how many people have you employed part-time

	YEAR 1	YEAR 2	YEAR 3	YEAR 4
NUMBER OF <i>PART TIME</i> EMPLOYEES (<32 HOURS/WEEK FOR 50 WEEKS OR <1,600 HOURS ANNUALLY)	#	#	#	#

Raising Capital

13. In the history of your business, how much money did your business get through:

	YEAR 1	YEAR 2	YEAR 3	YEAR 4
LOANS (INCLUDING BANK LOANS, LOANS FROM FAMILY AND FRIENDS, REVOLVING LOAN FUNDS, OTHER LOAN SOURCES)	\$	\$	\$	\$
EQUITY CAPITAL (INCLUDING INVESTMENTS FROM ANGEL INVESTORS, VENTURE CAPITALISTS, SEED FUNDS)	\$	\$	\$	\$
GRANT FUNDING (INCLUDING SMALL BUSINESS INNOVATION RESEARCH, STATE GRANTS)	\$	\$	\$	\$
PERSONAL SAVINGS (CAPITAL INVESTED BY BUSINESS OWNER(S))	\$	\$	\$	\$

Kitchen Incubator Experience

14. Please indicate the **Services** you have used that were offered by, or that you were connected to through the Food Venture Center.
- Business plan and development assistance
 - Accounting
 - Marketing Resources
 - Distribution Resources
 - Financing/Lending services
 - Computer Trainings
 - Legal Services
 - Peer Business Networking Opportunities
 - Co-packing
 - Kitchen Assistance (hired VFVC staff)
 - Recipe and Product Development Assistance
 - Workshops
 - Others

15. Please indicate how important these **Services** have been to your business' success. (Tailored to previous question's response)

Answer options:

- Not important
 - Somewhat important
 - Important
 - Very important
 - Essential
16. What type of **Services or Business Technical Assistance** improvements or additions would better meet your business needs?
- (fill-in text box)
17. Please indicate which **Infrastructure Features** you have used and/or have found useful.
- Commercial Kitchen
 - Specialized equipment
 - Storage, dry
 - Storage, cooler
 - Storage, Freezer
 - Conference or office area
 - Facility's Geographic location
 - Other
18. Please indicate how important these **Infrastructure Features** have been to your business' success. (Tailored to previous question's response)

Answer options:

- a. Not important
- b. Somewhat important
- c. Important
- d. Very important
- e. Essential

19. What type of **Infrastructure** improvements or additions would better meet your business needs?

- a. (fill-in text box)

20. Please indicate how important the following **Fee Structures** have been to your business' success. (Matrix Response)

Categories:

- Fee Structures
- Membership Costs
- Hourly Rental/Use rate
- Storage Fees
- Other

Answer options:

- a. Not important
- b. Somewhat important
- c. Important
- d. Very Important
- e. Essential

21. Additional comments or elaborations on above questions.

- a. (fill-in text box)

C: Additional Survey Questions: VFVC Business Owners

These are additional survey questions asked only of the Vermont Food Venture Center business owners.

Business Profile

1. What type of product(s) do you make?
 - a. Perishables (refrigerated or non-shelf stable)
 - b. Beverages or syrups
 - c. Snack food, sauces, jams, jellies
 - d. Meal supplement
 - e. Baked, dehydrated or dried
 - f. Other

2. What do you anticipate will be your biggest challenge to growth in the coming year? (check all that apply)
 - a. Financing
 - b. Equipment
 - c. Kitchen Space
 - d. Markets
 - e. Skilled Labor
 - f. Distribution
 - g. Other

Activity at VFVC

1. How many units of your product do you produce on average in:
 - a. One day (number of units, and unit size):
 - b. One year (number of units, and unit size):

2. How do you distribute your product? (check all that apply)
 - a. I use myself, family and friends to distribute
 - b. I have a per case delivery charge
 - c. I work with a distribution company
 - d. I use the USPS/FedEx
 - e. Other

3. Do you currently have a food safety recall plan for your product?
 - a. Yes
 - b. No
 - c. Currently working on one
 - d. Would like to know more
 - e. Other

4. Do you track the source of your ingredients?
 - a. Yes
 - b. No
 - c. Would like to know more

Local Ingredients

5. Do you purchase local produce or raw ingredients for your product?
 - a. Yes
 - b. No
 - c. I plan to purchase locally in the future
6. If 'Yes' is checked, then: How much of your ingredients are local? Please indicate the Amount / Unit / Frequency below. (for example, 50 / lbs. / week – OR – 500 / \$ / month)
 - a. Local Product: Amount _____ Unit _____ Frequency _____
7. Do you grow or raise any of your own ingredients?
 - a. Yes
 - b. No
 - c. I plan to grow or raise my own in the future
8. If 'Yes' is checked, then: How much of your ingredients do you grow or raise? Please indicate the Amount / Unit / Frequency below. (for example, 50 / lbs. / week – OR – 500 / \$ / month)
 - a. Grow or Raise: Amount _____ Unit _____ Frequency _____
9. Do you purchase ingredients directly from a farmer or producer?
 - a. Yes
 - b. No
 - c. I plan to purchase ingredients directly from a farmer or producer in the future
10. If 'Yes' is checked, then: How much of your ingredients do you purchase directly from a farmer or producer? Please indicate the Amount / Unit / Frequency below. (for example, 50 / lbs. / week – OR – 500 / \$ / month)
 - a. Direct Purchases: Amount _____ Unit _____ Frequency _____
11. What do you do with your food production waste?
 - a. (fill-in text box)

Financial Performance

1. What was your change in revenue from last year?
 - a. Increase by 10% or less
 - b. Increase by 10-20%
 - c. Increase by more than 20%
 - d. Decrease by 10% or less
 - e. Decrease by 10-20%
 - f. Decrease by 20% or more

D: Kitchen Equipment and Fee & Rate Information

Coastal Farms and Foods

Kitchen Equipment

Specialty kitchen equipment

Vacuum packaging machine
Groen, kettle, direct steam, tilting;
20 gal
Groen, kettle, direct steam, tilting;
40 gal.
Robot coupe food processor, 60dl
Lansenkamp pulper / finisher 150
Columbia steam boiler
Eloma combi-oven, 20/21
In-line filling system, piston filler,
capper, labeler
4 hand wash sinks
Dishtable with attachments
Large hood Hobart dishwasher
Clean dishtable
2, 3-bay sinks
Regency 6-burner gas range
4, stainless steel tables

Various kitchen supplies

Large stainless bowls
Large pots
Large can opener
Knives
8 rolling racks
Brushes
3 paddles for kettles
Silicone hot pads
100, 4-gallon food grade
buckets
10, 5-gallon 200 degrees
food grade containers
5, 2-gallon degrees food
grade containers
Other kitchen supplies

Fee & Rate Information

Pre-Admission Fees

None

Storage Fees

Information not included

Kitchen Use

\$20/hr. Kitchen Hourly Rate
\$5/hr. Blast Chiller
\$5/hr. Eloma Combi oven:
\$5/hr. 20 Gallon Kettle
\$5/hr. 40 Gallon Kettle
\$8/hr. 100 Gallon Kettle

\$5/hr. Inline filling system:
(filler, capper, labeler –
one or all)

\$5/hr. Robot Coupe CL60

\$5/hr. Langsenkamp Pulper

Business Services

\$20/hr. Labor
\$30/hr. Production Manager
Labor (Co-packing)

Membership Fees

\$200 Annual membership
fee

CropCircle Kitchen

Kitchen Equipment

General Kitchen Equipment

1, 10-burner stove
2, 6-burner stove
1, grill
2, fryers
5, convection ovens
1, blast chiller
1, Hobart mixer - 40 qt
1, mixer - 30 qt
1, mixer - 20 qt

1, slicer

Sinks

2, prep-sink (2 bay)
2, 3-bay sinks

Storage Area

1050 sq. ft., dry storage
330 sq. ft. cooler storage
330 sq. ft. freezer storage

Fee & Rate Information

Pre-Admission Fees

None

Kitchen Use

\$300/month Minimum
monthly kitchen use charge
\$30/hr. Hourly kitchen use

Storage Use

\$50-100/mo. All storage
options per pallet

Business Services

Moderate, 2 hours/month and
provide referrals to partners
TA providers

Membership Fees

\$300 Security Deposit:
returned upon graduation if
in good standing
\$300 First Month
\$300 Last Month

Mad River Food Hub

Kitchen Equipment

Shared Equipment

- 3, 24" Bus Cart
- 1, End Load Bun Pan Rack
- 1, Heavy Duty Immersion Blender
- 2, Scale, Electric
- 1, Robot Coupe
- 1, Hobart 8486 Buffalo chopper
- 2, 24" Bus Carts
- Various cooking pots, pans, utensils, cutting boards
- Various sanitation supplies incl. hand towel & soap dispensers, brooms, floor squeegees, trash cans etc.

Kitchen

- 1, 40 Gallon Steam Kettle
- 1, 6 Burner Range
- 1, Double Convection Oven
- 4, Tables 72" by 30"
- 1, Vegetable Sink and Faucet
- 1, Wire Shelving, 6ft
- 1, Hand sink, faucets
- 1, Cook Hood 12' by 4' and 1 fan

Dishstation

- Dishwasher
- 1, Dishwasher Stand
- 3, bay sink, faucets and spray
- 1, Wire Shelving, 6ft
- 1, Hand sink
- 5, Expandable Walk-in Coolers
- 1, Vegetable Sink and Faucet

Office

- 1, Mac Book Pro 13"
- 1, HP Wireless Printer
- 1, Desk and filing cabinet

Meat Rooms

- 6, Tables 60" by 30"
- 1, Meat Grinder
- 1, Meat Sausage Stuffer
- 1, Vacuum Sealer
- 1, Pallet Truck
- 1, Steel Handtruck
- 1, BIRO 1433FH, 3 Fixed Head Meat Saw
- 1, Daniels Bag Loader 20361 - 1 8.5" fingers
- 2, LG 10,000 BTU 115 V Window air cons
- 2, Cool Bot
- 1, Stainless Steel Meat Hanging cart
- 2, Hand sinks, knee pedals

Curing Facility

- 1, Evaporator & Compressor for Walk-in Cooler
- 4, Naylor 37FZE cooling coil fan units
- 15, Aluminum Meat Carts

Smoker Room

- 1, Alto Shaam Low Temp Oven
- 1, Cook Hood 4' by 4' and fan

Storage

- 1, Freezer, 37ft x 18ft by 15ft high
- 1, Cooler, 37ft x 18ft by 15 feet high
- 2, Freeaire control system
- 4, Pak 112 Containment Mat
- 4, Wire Shelving, 4ft
- 1, Pallet racking
- 1, Crown MT Walkie Stacker
- 1, Mop Sink and faucet

Mad River Food Hub

Fee & Rate Information

Pre-Admission Fees

\$65 New Customer Evaluation
Day Trial production and
facility training session
provided by Facility
Manager (meat or non-
meat) 8-12 hours

Kitchen Use

\$200/day Kitchen (Vegetable
& Meat) Exclusive Use
(7:30-4pm) 4 people max.
\$120/day Kitchen (Vegetable
& Meat) Shared Use (7:30-
4pm) 2 people max.
\$150/day Meat Room
Processing (8-4:30pm) 3
people max.

Business Services

Limited, targeted. Provide
referrals to partner TA
providers

Storage Use

\$15/pallet/mo. Dry Storage
\$45/pallet/mo. Freezer Storage
\$25/pallet/mo. Cold
(Refrigerated Storage)

Membership Fees

\$300 Processing Room
Deposit

Vermont Food Venture Center

Kitchen Equipment

Multi-purpose kitchen

Professional ovens
60 Qt. Hobart processor
6 burner stove top
60 G steam kettle
Semi-automated fillers
40 G commercial tilt skillet
20 G electric steam kettle
Vegetable food processors:
slicers, peelers, dicers,
washers, blenders, mixers,
more
3-bay sink
Rolling racks
Small kitchen tools
Prep tables

Wet pack kitchen

Commercial sauté pans
Semi-automated fillers
Fruit mill
Professional ovens
6 burner stove top
Semi-automated equipment
Floor drain

2, 40 G steam kettles
40 G commercial tilt skillet
Vegetable food processors:
slicers, peelers, dicers,
washers, blenders, mixers,
more

Storage and equipment

Cooler, freezer and dry storage
space
Raw kitchen
Floor drain
Potato peeler
Vertical mixer
Tilt skillet
Food processors
Sorting table with scales
Prep tables
Small kitchen tools
Rolling racks
Mobile air conditioner

Other equipment

Bottle labeler
Nutrition labeling software
Loading dock

Vermont Food Venture Center

Fee & Rate Information

Pre-Admission Fees

\$80 Consultation/Orientation:
Up to 3 hours with VFVC
and VSBDC to discuss
product, business planning,
walk through of kitchen
tools and process

Kitchen Use

\$25/hr. New Client Use: up to
8 hours, free kitchen
assistance for 4 hours

\$28/hr. Low use: prep days
(excludes skillets, kettles,
ovens or fillers)

\$35/hr. High use: for cooking
or filling days, includes
skillets, kettles, ovens,
fillers

-\$5/hr. Use discount: early bird
discount. Purchase 40 hours
in advance, \$5/hr. discount
applied to hourly rate; good
for 12 months

\$50 Cancellation Policy – If
kitchen use is cancelled
within 3 days of time
scheduled

Storage Use

\$25/pallet/mo., Dry storage
\$40/pallet/mo., Frozen storage
\$40/pallet/mo., Cold storage
\$10/hr. Bottle Labelling
Machine
\$300 Safety Deposit: returned
upon end of facility use

Business Services

Free comprehensive business
services offered via
VtSBDC
Co-packing, fees negotiated
with businesses
\$18/hr., Kitchen or
Professional Assistance
\$50/hr., Consultation with
Operations Manager
\$40/test, Product Testing (pH,
etc.)
\$40/product, Nutrition
Labeling software intro

Membership Fees

\$75/year, Recommended
Annual Membership:
entitles members to
additional discounts

Western Massachusetts Food Processing Center

Kitchen Equipment

Portable equipment

60 Qt. Hobart Mixer & attachments
Simplex filler w/ agitated hopper
Simplex filler w/ cone shaped hopper
45 Qt. HCM food processor
Cardinal Deteco scale- 10 lb.
Easy weigh platform scale – 125 lb.
Robot coupes:
A) model c80 pulp extractor
B) model r302v food processor
C) CL 60 series “d” high volume dicer, slicer, shredder
D) MP 80 turbo immersion blender
2, Vacmaster vacuum sealing machines
Tomato miller, 800 lb. /hour
Stainless prep tables on wheels
Auto labeler
Universal air labeler
Delta heat gun
Uline heat sealer
Transport carts
Pallet jack

Fork lift
30 G shop vacuum
Ph testing equipment

Wet line

49 G tilting skillet
2, 100 G steam kettle

Dry line

Prep sink (dl)
Prep space 5
Six burner commercial range with oven

Control temp area #2

Prep sink (ct2)
60 qt. Mixer
Bakery Prep

Control Temp Area #1

Prep Sink (CT1)

Prep Space 3

Prep Sink (P3)

Western Massachusetts Food Processing Center

Fee and Rate Information

Pre-admission fees

Free 1.5-hour information sessions: address business planning, loan process, available help and resources, WMFPC membership/use, tour of facility

Membership fees

\$50/mo. or \$600/yr. membership: includes access to facility, technical advising, orientation training. Membership discount for farmers and CISA members

Kitchen use

\$38/hr. all operations use

Storage use

\$35/mo. Dry storage, pallet or small cage

\$45/mo. Dry storage, large secure cage

\$8/wk. cold storage, linear foot

\$16/wk. cold storage, rolling rack

\$24/wk. cold storage, pallet

Business services

Free business services offered and included in membership

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