<u>An Examination of the Potential Impacts of Food Safety Management Programs
on Community Farms</u>

by

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B.A., Bishop's University, 2001

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Supervisory Committee

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Abstract

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On-farm food safety management programs are increasingly a part of business for horticultural and livestock producers. Originally designed for export oriented food manufacturers, they are now promoted to smaller and domestically oriented farms as well. This thesis explores the potential impacts these programs can have on on small scale, ecological and locally oriented "community" farms. The food safety management approach explored involves a HACCP analysis, "Good Agricultural Practices" and an audit-based verification system. The research is based largely on interviews with community farmers on southern Vancouver Island, British Columbia. Findings indicate that in addition to the (widely acknowledged) financial disadvantages that these programs can present to small scale businesses they can also have significant socio-cultural impacts on community farms specifically.

In particular, food safety programs can require farmers to focus on food safety objectives to the exclusion of other priorities. This can compromise their ability to practice ecological methods of food production. Also, the HACCP programs explored impose a commercial-style administrative model onto farms to facilitate a textually

enacted demonstration of "safe food production". Such an approach does not account for the social regulatory mechanisms in place in localized markets and could require considerable reorganization for community farms. Finally, HACCP programs redefine the role of farmers such that their authority and autonomy are diminished, and the nature of farm work becomes managerially oriented. The impacts identified suggest that the community agricultural sector merits particular consideration in the development and implementation of food safety policies and programs.

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Dedication

I dedicate this thesis to my mother. .

Introduction

This thesis explores the potential impacts that food safety management programs designed for commodity scale food producers could have on community farms, specifically considering those on Vancouver Island, British Columbia (B.C.). In this thesis "community farming" refers to small farms that operate according to ecological principles and sell the majority of their food products locally. This style of farming is strongly supported by various social movements organized around food production, such as the local food and slow food movements. This thesis investigates how the nature of the work carried out on these farms could change as a result of the implementation of certification programs designed to ensure food safety and demonstrate adherence to food safety "best practices".

Food safety management is the management, or minimization, of physical, biological and chemical contamination risks in food production. Internationally, food safety has been a distinct object of international governance since the Application of Sanitary and Phytosanitary Measures entered into force with the creation of the World Trade Organization in 1995 (FAO, n.d.). Prior to this time, the General Agreement on Tariffs and Trade (GATT) obligated signatory governments to comply with established national standards for food safety (along with many other kinds of standards), except where these were considered inadequate protection for public health (Ibid). The most prominent international standards for food safety have been established by the Codex Alimentarius Commission, which was created by the Food and Agricultural Organization (FAO) and the World Health Organization (WHO) to develop food standards and policies

and to promote alignment of international food safety standards (Codex Alimentarius, n.d.).

Food safety management programs—particularly those that bestow a certification on compliant businesses—enable food exporters to demonstrate that their products adhere to the Codex standards, or to other standards set specifically for certain markets (for instance by particular retail chains). They have thus typically been designed for, and implemented by large commercial and export-oriented agri-food operations, including primary producers (farmers) and manufacturers.

Recently, concerns about the safety of food from domestic sources have been gaining widespread attention for several reasons, including growing public attention to the conditions of food production and the emergence of more virulent foodborne pathogens (Nestle 2010). Food safety has become a greater priority with the Canadian public in recent years and also, perhaps concomitantly, with national and provincial governments. The food safety industry (including retail companies, food safety auditors, and agri-food industry associations), as well as policy makers, have for the last several years been promoting audit-based food safety management programs (often with third party certifications), in order to provide for the transparency and verifiability of food safety practices on smaller non-exporting farms as well as on their commercial counterparts.

There are several approaches to on-farm food safety management; the one I consider in this research may currently be the most prevalent. It is widely employed in international markets and western agri-food industries, and—as I explain in chapter one—is also being used within Canadian provincial markets including British Columbia.

The approach involves three mutually supportive and overlapping components: first, the Hazard Analysis Critical Control Point (HACCP), a risk management approach designed to help producers identify and minimize opportunities for food contamination in their production practices; second, Good Agricultural Practices (GAPs), which identify the "best practices" or industry standards recommended for the production of a given food (and generally based on a HACCP analysis); and third, a record based audit system used to verify a farmer's implementation of HACCP and/or GAPs. This three pronged approach to food safety management forms the basis of an extensive number of private food safety programs, government programs and international trade standards. In this thesis I refer to the approach simply as the "HACCP" approach, although as I explain in chapter one, there are variations on how the approach is applied in different programs.

The producers I am concerned with in this research are small scale farmers who sell the majority of their produce locally, and who have shaped their production practices in response to particular ecological values. I refer to these producers as "community farmers". Given the calls from governments and food safety researchers for increasing oversight of food safety practices on smaller domestic farms (discussed in chapter one), it is highly possible that the three-tiered approach to food safety management mentioned here—originally designed for commodity scale commercial food manufacturers— will be more extensively implemented in domestic markets, including on community farms. Community farmers may be required to implement food safety programs because of government or industry regulations or purchaser policies, or they may opt to implement them to improve the marketability of their products or to improve their knowledge of food safety management. In this thesis I ask what impacts programs designed according

to this approach to food safety management could have on small, ecologically and locally oriented farms where production is generally organized quite differently than it is on larger, commodity farms. Based on my research and interviews, I make three major assertions about the impacts that the prevailing approach to food safety management could have on community producers. These are discussed below.

This thesis involves a qualitative analysis informed by in depth interviews with farmers on southern Vancouver Island and the Gulf Islands of British Columbia. I conducted eight interviews with fifteen local farmers concerning nine different farms.[1] Interviewees included full-time, semi-retired and part-time farmers—who employ ecological production practices and sell the majority of their produce within the region. I also interviewed staff who work for the agencies that implement the On-Farm Food Safety Program, a national food safety management program that I used as an example of the prevailing approach to food safety during interviews with farmers. Academic sources that inform this thesis include academic research about food safety management and the promotion and implementation of the HACCP approach internationally. Non-academic sources include communications from within the community agricultural scenes in British Columbia, and information from news agencies, non-profit organizations and governments and international agencies. The farmers I interviewed confirmed that food safety programs are becoming a more common requirement in their markets, and that they anticipate further governance of this type—be it by governments, the agricultural industry or private purchasers. In the Canadian and British Columbian agricultural markets, community farmers are demographically and economically peripheral.

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[1] Nine farms in total were profiled in interviews. In some instances I conducted interviews with two or more farmers at the same time, either farmers who farm the same land, who have their own farm, or who farm distinct properties that are marketed as one farm.

However, on southern Vancouver Island where I have located my research, they are of significant importance to both geographically defined communities (e.g., several municipalities have official plans to promote local food production) and emerging food cultures (such as the local food, slow food, and organic food movements). For this reason, it is important to understand the impact that these increasingly prevalent food safety management programs could have on this type of small scale agricultural producer.

In this thesis I forward three key arguments about the impacts that the HACCP approach to food safety management could have on community farmers. After providing background to food safety management and community agriculture in chapter one, and describing my research methodology in chapter two, I demonstrate in chapter three that on-farm food safety management programs can require farmers to focus on food safety objectives to the exclusion of other producer priorities. Drawing on interview data as well as literature about similarly structured food safety programs, I assert—more specifically—that the prevailing approach to food safety management can require farmers to change or abandon ecological farming practices and compromise ecological values that are central to their style of farming.

In chapter four, I show that the audit-based verification systems in HACCP food safety programs do not account for the ways in which localized food production already provides for many of the objectives for which HACCP certifications were designed. I demonstrate that community based food systems provide distinct ways of fostering consumer trust, providing product traceability and ensuring a producer's accountability for food safety. HACCP programs, unable to account for social forms of regulation, instead impose a commercial model of organization onto community farms that demands

a textual demonstration of food safety practices for auditors and inspectors. My second key assertion is that this model of organization not only impacts community farms financially (this is well documented), but that it also forces a fundamental practical reorganization of their farm operations.

In chapter five I make my third assertion—that HACCP programs have the potential to fundamentally change the nature of farming as an occupation. I forward this argument on the basis of the information presented in previous chapters and on other information that suggests that such programs reduce a farmer's autonomy and displace their authority over farm practices. I also base the assertion on the observation that HACCP programs define farmers as managers and prioritize administrative, supervisory and project management skills above skill sets traditionally associated with land stewardship and food production.

To conclude, I suggest that because community producers are likely to encounter significant difficulties in implementing a HACCP based food safety program, such initiatives may contribute to a delegitimization of these producers in the eyes of regulators, the wider food industry and potential customers, by making it appear that they are less "food safe" than their larger commercial counterparts. I follow this discussion by highlighting opportunities for further research, specifically scaled approaches in the design of food governance programs.

Together, the assertions forwarded in this thesis suggest that the HACCP approach to food safety management could impact community agriculture, such as that practiced on southern Vancouver Island and the Gulf Islands, in several fundamental ways. These impacts have implications for the vitality of these small, ecological and

localized farms and their ability to continue providing philosophical and practical alternatives to mainstream methods of food production.

1. Food Safety Governance and Community Agriculture

In this first chapter I discuss the major concepts involved in this research. I begin by providing some contextual information about community farmers on southern Vancouver Island, and explain why I have selected this group as the focus of this thesis. Next, I discuss the expanding array of actors driving the development and dissemination of food safety management initiatives and programs (hereafter "food safety programs"), and locate these within the predominant political context. In the section following, I detail the particular HACCP based approach to food safety management at issue in this thesis, and provide some historical background on how the approach functions and why it was developed. I then share information that suggests food safety programs will be increasingly targeted toward domestically oriented primary producers, including the kind of community farmers profiled in this thesis. Finally, I present international research on the application of HACCP and suggest that it gives cause for concern regarding the potential impacts of such programs on community farms.

Community Farmers on Vancouver Island

Agriculture on southern Vancouver Island is characterized by small scale diversified, peri-urban farms that employ an array of farming methods. The mild climate provides for a wide diversity of horticultural crops (berries, grapes, tree fruits, leafy vegetables, root crops, etc.) in high intensity production, and most producers in the region are small compared to other parts of British Columbia I have chosen to focus my research in this region[2] because many farms in the area typify the characteristics that I have

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[2] Interview participants for this thesis reside in the region bordered by Duncan in the north Metchosin in the south/west, and the Saanich Peninsula and southern Gulf Islands to the east..

wanted to consider in relation to the implementation of food safety programs. Particularly, a significant number of farms here are small, employ ecological agricultural practices, and have organized their production and marketing to serve local markets. In this thesis "small scale" refers to farms of between two and fifteen acres, and serving local markets means that farmers sell the majority of their products on southern Vancouver Island or the Gulf Islands. "Ecological agricultural practices" are more broadly defined according to research participants' own definitions. In this research participants described "ecological" production practices along a continuum that ranged from biodynamic and certified organic farming methods to approaches that simply avoided chemical inputs.

Research participants were not homogenous, their farming practices varied considerably. Nonetheless, as a group they generally exemplify what Lockie, Lawrence and Halpin (2006) call an "integrated ecological" approach to agriculture. That is, they focus their production and marketing to serve regional communities, use ecological farming practices that account for seasonal and bioregional precepts, and employ "organic and other low input systems that have minimal negative impact on the environment and which aim to deliver more healthy foods to consumers" (Ibid:158). The farmers I interviewed employ practices that differ from mainstream agriculture largely in order to increase the nutritional value of their food products and/or to tread lightly on the natural environment. The majority of research participants explained, in fact, that the production of high quality, nutritious food and the enrichment of human and environmental health were key objectives motivating their particular approaches to farming.

In this thesis I refer to these small, integrated ecological farms as "community farms" and the farmers as "community farmers". I do this, firstly, because many of the objectives that motivate these styles of food production are directed toward nearby communities. The farmers' food sales are locally oriented and both farms and farmers have a high level of interactivity with customers and neighbours. For example, many farms in this area, (including several run by my research participants), invite school groups and public tours, sell products from stands located on-farm, participate in local conferences about farming and food policy, and actively educate and apprentice new farmers and volunteers. Another reason I use the term "community agriculture" is that it is used by the provincial government to identify the diverse, small scale agricultural sector that including organic and agro-forestry producers, permaculturalists, and farms organized according to assorted other alternative approaches.[3] My use of this term groups together a great diversity of small, localized farms with alternative approaches to food production on the basis of these three characteristics—small scale, ecologically and locally oriented. This may risk overlooking the diversity of approaches represented by "community agriculture" but my intention in doing so is to facilitate an examination of the potential impacts of food safety programs on these farms as a group.

The community agricultural sector on southern Vancouver Island is supported by a developing market infrastructure comprised of grassroots organizations and local businesses that promote, distribute, purchase and sell island-grown food.[4] An increasing

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[3] One research participant explained he had previously represented the province's "community agriculture" sector to the provincial government.

[4] Some of the locally based businesses supporting community agriculture on southern Vancouver Island include the Island's Chef Collaborative, the University of Victoria Student Society and Food Roots distributors. There are also various food retailers that sell local products and multiple box programs for delivering produce from local farms.

number of retailers and restaurants have opened their doors in recent years to promote and sell foods from locally based community farmers. Several of the municipalities in the region also have established planning bodies to integrate agricultural production into municipal priorities, and the sector is further supported by a relatively wealthy consumer base in the region that can afford the higher prices that often accompany these products.[5]

The farmers who participated in this research identified conceptual and practical differences between their approaches to food production and that of larger, more market-based producers. They regularly framed their agricultural practices, their motivations for farming, and their markets by contrasting them with those of what they call "industrial agriculture". The difference that interviewees expressed between their own work and that of industrial producers is well established in academic and industry literature. Seyfang (2007), Lockie et al. (2006), Kimbrell (2002) and others have written on the tension between industrial agriculture and what I refer to here as "community agriculture". With these works in mind, participants' comments could be interpreted to indicate that they perceive their approach to agriculture to be located within a different paradigm than mainstream agricultural production.

Two statements concisely portray many of the differences that participants expressed between these two approaches to food production. One farmer, speaking of "industrial producers", explained: "They call themselves an industry. We don't call what we do an industry." Another explained "We don't grow commodities. We grow food." With this clarification that community farming is not an industry, and does not produce

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[5] Money Sense magazine ranked Victoria 20th for highest amount of discretionary income among 154 Canadian cities. http://list.canadianbusiness.com/rankings/bestplacestolive/2009/prosperity/Default.aspx?sc1=4&d1=a&sp2=1&eh=ch

food commodities, participants distanced themselves from mainstream market-based agriculture where they see the value of foods produced as primarily an exchange value. Their own approaches are perhaps better understood through reference to the multiple objectives they cited for their work. Participants expressed that, alongside the need for financial profit, they seek to create ecological value for their surrounding land base, social and educational value for nearby communities, and nutritional value for consumers.

In this thesis I have chosen the terms "commodity producers" and "mainstream producers" to refer to horticultural and livestock producers whose operations are organized to maximize exchange value through large scale production that relies upon high input—often chemical—practices and on a high degree of technological sophistication. The term "commodity producers" references the prioritization of a food product's exchange value over its nutritional or aesthetic value, and over the environmental sustainability of the methods used to produce it. Such approaches to food production contrast markedly with the community farming profiled in this research, however, in practice, delineations between the two production paradigms may be ambiguous in some circumstances. Many primary producers in British Columbia and across Canada employ practices from both the commodity and community approaches. Despite the variation present in both community and commodity farming, however, there is a heuristic value to considering the ideal types of each approach, as it allows a more fulsome evaluation of the potential impacts that food safety programs designed for one approach might have on the other.

Community agriculture per se is not well captured in Canadian agricultural statistics as there is no such category; however inferences can be drawn from the statistics on small farms. The number of small farms in British Columbia (whether measured by income or size) accounts for nearly half of the farms in the province[6]—a higher proportion than any other province in Canada (Statistics Canada 2006). While not all small farms employ ecological agricultural practices or sell the majority of their products locally, when taken in context with the popularity of organic and localized agriculture in the province and the fact that most organic and locally oriented farms tend to be smaller scale, the statistics suggest that community farms have an important presence in British Columbia. Thus, this research has relevance for many other regions of the province besides southern Vancouver Island.

The Food Safety Industry

Food safety, defined as the minimization or elimination of harmful contaminants in foods, is both a technical field and a regulatory one. For this reason, Lawrence Busch (2004) calls food safety a "socio-natural process". Scientific analyses in toxicology and epidemiology are used to determine tolerable levels of bacterial or pathogenic presence for different food products. However, the actual standards that establish what levels of contamination are acceptable (such as in food or irrigation water) or how the presence of these contaminants will be tested, are determined by social factors such as the judgement of individuals working in standard-setting agencies, public pressure on regulators, and

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[6] Farms can be deemed small by income or by size. By income, for the purposes of this statistic (but not the thesis,) I have defined small farms as those that earn less than $10,000 of gross farm income annually, or that operate on 10 acres of land or less. In 2007, 48% of BC's farm population earned less than $10,000 of gross farm income annually, and 34% operated on 10 acres of land or less.

socially defined concepts of "safety" and "danger". Marion Nestle describes the socio-political aspect of food safety:

> The answers to [food safety] questions involve judgments based in part on science, but also on more personal considerations—how much one values the taste of cheeses made from raw milk, for example, or the social contribution of artisanal cheese making. Because such judgements are based on opinion and point of view, and sometimes on commercial considerations, and because they affect the regulation, marketing and financial viability of food products, they bring food safety into the realm of politics. (Nestle 2010:xii)

Framing food safety as both a technical and social issue serves as a reminder that this is a complex area of governance, regulated by a plurality of actors through many different mechanisms.

In British Columbia, the provincial government establishes standards for water quality[7] and waste management on farms[8] and establishes regulations governing the inspections of food premises beyond the farm-gate (i.e., restaurants, delis, etc.). Regional health authorities carry out these inspections and, in conjunction with government ministries, set operational-level policies detailing the hygienic, training and infrastructural requirements for food safety at establishments such as soup kitchens, food banks and temporary markets. Producer associations (such as marketing commissions for supply managed sectors) regularly require their member producers to implement food safety management and bio-security programs. Municipal governments do not regulate food safety per se, but they do dictate acceptable management practices for on-farm composting including the scale of compost piles and required distances from neighbouring properties. Producers whose products are being exported internationally or

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[7] Policy guidelines on these topics can be found on the website of the B.C. Centre for Disease Control, at http://www.bccdc.ca/foodhealth/foodguidelines/default.htm.

[8] The provincial Agriculture Waste Control Regulation establishes a definition for `agricultural operations` that includes both food producing and non-food producing farms. Both are governed by the regulation.

interprovincially are subject to the food safety oversight of the Canadian Food Inspection Agency (CFIA), other federal agencies, and where applicable international trade standards.

The agencies just mentioned are all public or semi-public bodies, however Bain, Deaton and Busch (2005) note a transfer of regulatory authority over the agri-food sector from governments to the transnational private sphere. For example, fresh produce and meat retailers now commonly demand that producers supplying their stores certify their operations with food safety programs that specify acceptable production, labour, environmental and/or risk management practices (Ibid; Campbell et al. 2006; Lockie et al. 2006; Dolan and Humphrey 2002). In the global south, food safety standards and certification programs that regulate international trade in fresh fruit and vegetables discipline exporting producers by acting as filters for the kinds of food production enterprises that can participate in international markets (Friedberg 2004; Dolan and Humphrey 2000). In these countries, export oriented horticultural sectors are becoming increasingly distinct from indigenous forms of food production as producers organize themselves according to the food safety requirements of the international market (Ibid).

The transfer of regulatory authority from governments to the private agri-food sector has been framed as a product of the neoliberalization of the political sphere (Campbell 2005; Busch and Bain 2004). During the era characterized by liberal approaches to governance, national governments had the responsibility to establish policies and programs to improve or protect the public interest. Beginning in the 1970s, the shift to more neoliberal forms of governance was characterized by a weakening of the state apparatus through deregulation to promote international trade liberalization and

economic growth. As Hatt (2009) argues, there is an inherent tension between trade liberalization, which involves lessening regulation, and governance, which revolves around regulation. As governments adopted a more laissez faire neoliberal models of governance, private companies and private-public partnerships increasingly assumed the role of regulating public industries (Ibid). In the agri-food sector, private companies partnered with government to develop and food safety system implemented through risk management and auditing procedures (Ibid). International agreements negotiated under the GATT from 1948 onward began to curb the power of national governments to establish food safety policies, such as those in place in the UK since the 1860's (Draper and Green 2002), on the basis that they might affect commerce.

In 1979, the Technical Barriers to Trade Agreement (TBTA) negotiated under the GATT obligated signatory governments to comply with several established international codes of standards including food safety, unless these could be demonstrated to be inadequate for the protection of public health. Political theorists locate the emergence of neoliberalism in the 1970's, at the same time the TBTA was being finalized. The agreement demonstrates a preference at the international level for liberalized trade at the expense of (explicit) government involvement in markets. This policy focus on market liberalisation continues to date and, generally speaking, the ability of state governments to set food safety standards is constrained by the international political infrastructure governing trade. Member countries of the World Trade Organization (WTO), for instance are compelled to comply with (or set standards very similar to) the Codex Alimentarius standards, which the WTO uses as a benchmark in trade disputes (Bain, Deaton and Busch 2005). This focus, institutionalized into the agendas of national and transnational

governance organizations, provides a deterrent to public food safety governance and an incentive to private forms of governance.

The multiple food safety initiatives administered by government, government-industry partnerships, or private agri-food companies are at times coordinated, at times competitive, and their proliferation and popularity affects the agri-food market in several ways. For one, without participation in a food safety program, commodity farmers in western countries can experience difficulties accessing domestic or international markets (Campbell et al. 2006; Bryar 1999). Also the demand for food safety programs by governments, retailers, and industry associations has given rise to a sizeable industry of private companies that design, implement and audit food safety programs for profit. Further, the plurality of food safety programs that can exist in a single market can put pressure on producers to certify with multiple distinct programs (increasing their administrative responsibilities significantly), or risk losing purchasers. The proliferation and overlapping of food safety programs has reached such a level that several agencies have taken up the cause of aligning international food safety programs to create a smaller number of international standards.[9]

References to "the food safety industry" made throughout this thesis refer to the private and professional actors mentioned above—food safety consultants, program auditors, agri-food marketing agencies, retailers, and other actors in the agri-food sector—in so far as their work influences the production, processing, manufacturing, sale or distribution of food under the auspices of food safety. The tools of food safety

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[9] The CIES (International Consumer Goods Forum) benchmarks existing food safety certifications with major international approaches through an initiative called the Global Food Safety Initiative (www.ciesfoodsafety.com). GlobalGAP similarly integrates and aligns existing food safety systems, as did its predecessor program EurepGAP (Bain et al. 2005).

management, including voluntary food safety programs, regulations, and certifications, as well as "best practices" are also considered part of "the food safety industry". Governments, however, are not included in this term and their role as regulators will be referred to separately to distinguish between actors who may profit financially from their involvement in a regulatory industry, and governments whose regulatory responsibility is to act in the public interest.

The HACCP Approach to Food Safety Governance

The approach to food safety management that I consider in this thesis is a three-pronged approach comprised of Good Agricultural Practices (GAPs), a Hazard Analysis Critical Control Point (HACCP) analysis and an audit-based verification system. Although each can function independently, the three components are commonly employed together. An audit system is one of seven steps in a full HACCP system and GAPs are frequently developed based on HACCP analyses. This three-pronged model of food safety management has become prevalent in both domestic and international markets and was nearly ubiquitous in the literature I consulted. To provide a thorough basis for understanding this approach—and because GAPs, HACCP and audit systems can theoretically be employed in isolation of one another—I describe each component below, beginning with HACCP and followed by GAPs and audit-based verification systems. In the remainder of this thesis I refer to the three-pronged approach to food safety management as simply the "HACCP approach" or the "prevailing approach" to food safety management. In instances where I refer to only one or two components of this model I will name them specifically (e.g. chapter four speaks specifically to audit-based verification programs).

The central component in the model of food safety management being evaluated in this thesis is the Hazard Analysis and Critical Control Point (HACCP) system. HACCP is a risk management approach used to identify potential physical, chemical and biological hazards in food production or processing. The seven step process involves the identification of sites and practices in an operation where food contamination is possible, the formulation and implementation of a plan to respond to these risks, and a system of verification to ensure the proper process was followed.[10] The rationale supporting HACCP is that by identifying potential sources of food contamination at each step of a given production process, and by consistently taking actions to prevent contamination at each of those steps, food contamination will be minimized.

The second component in this approach is the use of GAPs. GAPs are authoritatively sanctioned farming practices developed as the result of a risk management analysis—generally HACCP.[11] GAPs codify the steps involved in producing a given food in a way that minimizes the potential for food contamination. A GAP program typically covers each linear step in the production process, from selecting a growing site, seeding and fertilizing, to harvesting, storage and transportation. GAPs are generally applicable risk management tools; they are not typically amended from one farm to the next (unlike most HACCP programs). For this reason farmers can generally implement them without having to learn risk assessment practices, hire a consultant, or spend the time that would be required to do a complete HACCP analysis.

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[10] See Huleback and Schlosser (2002) for an in-depth description of the seven steps involved in the HACCP system.

[11] The majority of the GAP programs I encountered during my research, (e.g. the On Farm Food Safety Program, the Leafy Green Marketing Agreement and GlobalGAP) were based on detailed HACCP analyses.

By codifying a single way of producing a crop and requiring adherence to that method, GAPs exert a determining influence over the agricultural practices of those who comply with them. For example, GlobalGAP one of the world's largest GAP programs, is a condition of entry into European Union markets (Asfaw 2007; Campbell et al. 2006; Campbell 2005).[12] It thereby shapes much of the agricultural production that occurs among Europe's trading partners, notably Africa and South America (Dolan & Humphrey 2002; Friedberg 2004). This may be one reason why Campbell has called GAPs "a moral or elite ordering of agriculture" (2005:1).

A final key component of the prevailing approach to food safety management in this thesis is an audit-based verification system. Audit-based systems for documenting safe food production practices have gained prominence in the global agricultural market, replacing quality and end product inspections with process oriented systems of verification (Sperber 2003). Governments, retailers, and many agricultural industries promote such programs as a way to decrease the incidence of foodborne illnesses and reassure buyers that only authorized practices have been used in the production or processing of foodstuffs. Sperber (2003) claims this approach is more effective and less costly than end-product testing. Audits enable external, extra-local verification of practices across time and space. This characteristic is especially desirable for trade partners, retailers, etc., given the increasing scale of food systems, the expense associated with in-person inspections, and the fact that production occurs beyond the view of regulators or purchasers.

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[12] Campbell's research cited above pertained to EurepGAP, the precursor to GlobalGAP.

A HACCP certification program typically includes both GAPs and an audit-based verification program. For instance, HACCP programs often rely on the implementation of prerequisite programs that codify risk assessment protocols for aspects of production (e.g., water sources, transportation practices, safe storage environments) that are common across farms. These prerequisite programs are a form of (if not explicitly) GAPs. So GAPs provide a standardized "best approach" for managing food safety in similar circumstances, whereas HACCP programs can be tailored to the specificities of individual operations. Also, the HACCP approach can be applied without the audit and verification steps. This is useful in outcome-based regulatory environments or for educational purposes where the ability to audit practices is not important. While it should be noted that HACCP risk management principles can be applied outside of formal programs, and without an audit component, references to HACCP in this thesis include the entire approach, including both prerequisite programs and the audit steps. The majority of this thesis is concerned with situations and programs where all three elements—HACCP, GAPs and audit programs—are employed together. In instances where this is not the case, such as in chapter four where the audit approach is considered in relative isolation from the others, this will be explicitly identified.

These three elements of food safety programs—GAPs, the HACCP system and audit approaches—exemplify a risk management approach that is focused on the process of food production, rather than on the end product. The three-pronged approach to food safety forms the basis of the On Farm Food Safety Program (now Canada GAP)[13],

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[13]In 2009, the Canadian On-Farm Food Safety standards for fruit and vegetables was benchmarked to internationally recognized Global Food Safety Initiative (GFSI) requirements and GlobalGAP standards. The objective of the implementing agency, the Canadian Horticultural Council, was to establish equivalence in the global marketplace while rebranding the program as "CanadaGAP". As a benchmarked standard, CanadaGAP will have equivalent status to other

California's Leafy Green Marketing Agreement, and the Global GAP (previously EurepGAP) which is required by many European food retailers, to name a few.

The Origins of HACCP

HACCP was originally designed in the 1960s by the National Aeronautics and Space Administration agency in partnership with Pilsbury Company and Natick Laboratories of the United States military to ensure that food consumed by astronauts in space would be free of pathogenic contamination (Domenech 2007:1). It was designed to meet strict sanitary requirements—identified as "zero defect" criteria (Huleback and Schlosser 2002)—and was adapted to the agri-food system by the US Food Safety Inspection Services in 1996, in response to a fatal outbreak of *E.coli* O157:H7 (Hulebak and Schlosser 2002:549). This history indicates that HACCP was primarily designed to be implemented by commercial scale food manufacturers. Such operations are typically organized according to industrial models of production whereby the work involved in producing a food product is broken down into constitutive, standardized and replicable steps—effectively a prerequisite for the identification of critical control points.

It would be difficult to underestimate the role of the HACCP approach in food safety governance. As previously mentioned, the WHO and the FAO of the United Nations established the Codex Alimentarius Commission based on HACCP. The Codex is a collection of food safety standards and guidelines designed to "protect consumer health and ensure fair practices in international food trade" (Codex N.d.). The Codex standards are based on HACCP, and serve as the benchmark standard by the WTO in its

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internationally recognized food safety programs around the world.
http://www.canadagap.ca/en/blog/2009/3/11/canadian-horticultural-council-rebrands-on-farm-food-safety-program.aspx

adjudication of trade disputes concerning food safety and consumer protection (Ibid; Celaya et al. 2007; Sperber 2003; Hathaway 1998). In the European Union (E.U.), HACCP has been mandatory since the early 1990's (Celaya et al 2007), and some established food safety standards are being harmonized with HACCP based standards (Asfaw 2007)[14]. Minimum health and food safety standards in Canada and the United States (U.S.) have been based on HACCP since the late 1980's (Bain 1999). In the late 1990s, Agriculture and Agri-food Canada and the CFIA established the *Food Safety Enhancement Program* to increase the prevalence of HACCP systems in all federally registered establishments in Canada, principally food processors (including abattoirs), and grading stations (Guelph Food Technology Centre n.d). The HACCP approach is well entrenched in Canada's food processing industry, mandatory for federally registered meat and poultry processing operations (Herath and Henson 2006) and implemented on a voluntary, industry-driven basis in many other primary and secondary production sectors.[15]

Extension of Food Safety Management to Farms

The majority of the literature I consulted on HACCP based food safety programs considered HACCP implementation among food processors and manufacturers rather than farmers. Based on this and the frequent recommendations (by actors within the food safety industry and by regulators) that food safety programs be extended to primary production sites, it appears most HACCP based food safety programs have historically been directed toward export-oriented food processors and manufacturers. However,

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[14] Two standards being harmonized are the British Retail Consortium and GlobalGAP.

[15] The Canadian Grain Commission, the Canadian Vintner's Association, the Packaging Association of Canada have implemented voluntary HACCP programs. At the provincial level, Alberta, Manitoba and Ontario have developed programs for non-federally registered food processing plants (Herath et al. 2006).

highly publicized outbreaks of livestock and foodborne illnesses that have figured prominently in trade disputes have helped expand food safety governance into domestic and primary food production as well. For example, the 2003 outbreak of Bovine Spongiform Encephalophy (BSE) spurred the Canadian government to develop more rigorous internationally recognized standards for slaughter waste disposal to increase the food safety reputation of Canadian beef.[16] Also, the 2006 outbreak of *E.coli* in California spinach triggered the creation of the Leafy Green Marketing Agreement—now a required food safety program for the State's leafy green export producers.

The notion that food safety programs should be implemented by domestically oriented farms as well as export oriented ones has support in the food safety and agri-food industries. At the 2004 *International Agribusiness Management Association* meeting*,* Baines, Ryan and Davies (2004) called HACCP implementation at the farm level "the missing link in food safety and security" (p.1). In 2007, the *Journal of Food Protection* published an article that stated "Canada's vision for the agri-food industry in the 21st century is the establishment of a national food safety system employing hazard analysis and critical control point (HACCP) principles … throughout the gate-to-plate continuum" (Rajic et al. 2007:1286).

Governments have also indicated an interest in increasing government oversight of on-farm food safety management. In 2009, American President Barak Obama announced he would establish measures to "upgrade [the U.S.'s] food safety laws for the 21st century" (Eggen, 2009). That year, several bills concerning food safety governance

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[16] This is when specific, rigorous disposal practices were introduced and became mandatory for "specified risk material" (SRM), components of the head and spinal cord of cattle over 30 months of age. These practices were introduced under the auspices of increasing the food safety of Canadian beef. Canada's standards for the disposal of SRM are some of the most rigorous internationally.

were slated for consideration by the US administration[17]; and the U.S. Food and Drug Administration's Department of Health and Human Services indicated that leafy green producers in the U.S. and export-oriented horticultural producers outside the U.S. could expect more numerous, and more enforceable food safety regulations (Taylor 2009)[18].

In Ontario, a 2004 review of provincial meat regulations by Justice Haines recommended:

> ...that the provincial government promulgate regulations to require mandatory HACCP-based food safety programs across all sectors of the food continuum *including farms,* abattoirs, transportation, free standing meat processors and food premises. (Haines 2004:35 *emphasis added*)

British Columbia's provincial government and Agriculture and Agri-Food Canada (AAFC) have at various times also published intentions to expand upon current inspection practices in the agricultural and food processing sectors. In 2008 the B.C. Ministry of Agriculture and Lands website referenced the federal-provincial agreement on agricultural policy stating that the ministry supports "the development of integrated food safety, traceability and food quality systems throughout the agri-food chain from field to fork," and is working to create further safety measures "to enable the tracing of food products back to the farm" (Agriculture and Agri-Food Canada, 2008)[19].

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[17] Bills slated for consideration in the U.S. in 2009 included Bill H.R. 875: The Food Safety Modernization Act, and Bill H.R. 759: the Food and Drug Administration Globalization Act. Also the Leafy Green Marketing Agreement, adopted in California and Arizona was being considered by the US Committee on Oversight and Government Reform as a model for a national food safety program (Food and Water Watch N.d).

[18] A senior advisor to the Commissioner of the US Food and Drug Administration's (FDA) Department of Health informed the *Oversight and Government Reform Committee: Domestic Policy Subcomittee* that the FDA would soon publish new Federal Commodity-Specific Produce Safety Draft Guidances for leafy greens; that these draft guidances were a step along the path to enforceable standards; that the FDA had published a finalized guidance for leafy green processing facilities; and that the FDA was leading an effort through the Codex Alimentarius Commission to develop commodity-specific annexes to the Codex hygienic code for fresh fruit and vegetable production. (Taylor, 2009).

[19] The B.C. Ministry of Agriculture and Lands website did not contain the cited text at the time this thesis was published so a reference to a document by Agriculture and Agri-Food Canada, which outlines federal-provincial agreements for agricultural policy and which contains the same wording, is provided.

A 2009 Agriculture and Agri-Food Canada survey found that both British Columbian residents and Canadians in general felt food safety should be the top priority related to food and agricultural policy for provincial and federal governments. The survey also named food safety as respondents' number one objective for scientific research in agriculture (AAFC, 2009). This level of public concern may lead the agri-food industry or regulators to increase the food safety oversight of all farmers in Canada, including those who only sell their products locally. Research participants explained, in fact, that some of the retailers who purchase from local farms had recently been increasingly promoting food safety programs.

The prospect of mandatory food safety programs or regulations governing on-farm food production concerned some of the farmers interviewed for this thesis. Most expressed that the HACCP approach to food safety regulation was designed for commodity food production and not based on recognition of the distinct characteristics of a local food system relevant to food safety. Several stated that they thought the HACCP approach to food safety regulation was beneficial for producers who operate in longer commodity chains than they do, and whose producers have a less intimate relationship with their goods. One explained, "I agree with this approach when it's applied to where it belongs. This belongs to the industrial commodity production systems. It does not belong to this local economy community agriculture system." This was one example of a common perspective among participants that commodity producers, not community farms, are the intended and logical audience for contemporary food safety programs.

HACCP Impacts on Small Farms: International Findings

It is well documented that audit-based HACCP and GAP programs can present significant financial burdens for small farms (Celaya et al. 2007; Herath, Hassan & Henson 2007; Herath and Henson 2006; Taylor and Kane 2005; Bryar 1999). Researchers have repeatedly found that small and medium sized businesses and especially alternatively organized farms have greater difficulty implementing HACCP programs than larger businesses (Ibid). The foremost researchers in this field have been forthright that these "new forms of social authority" (Campbell 2005:1) can disadvantage agriculturalists who cannot take advantage of economies of scale. Bain, Deaton and Busch (2005), for instance, argue that private standards and certification systems based on HACCP "are not scale-neutral for farmers and, in some situations, may lead to smaller farmers losing market share to larger farmers" (p. 72). Friedberg (2004) cites a consultant to a major UK import firm who, reflecting on the dominance of EurepGAP (now GlobalGAP) states, "if we're not careful we're going to kill off the small farm" (p. 202).

Internationally, the difficulties commonly encountered by smaller businesses trying to implement HACCP requirements, (e.g., example record keeping,) are regularly attributed to a lack of investment capacity, lack of computer expertise and insufficient staff to implement program requirements (Asfaw 2007; Celaya et al 2007; Taylor and Kane 2005; Dolan and Humphrey 2000; Bryar 1999). Food safety programs may require investments in staff, equipment and technological infrastructure that can threaten the profitability of a small business. In the processing industry, where much of the research available on these programs has been based, researchers have established that small scale operations commonly incur disproportionate costs in implementing these approaches (Herath et al. 2007; Herath and Henson. 2006). Similarly, in the retail sector, Friedberg

claims many of Britain's small sellers found the costs and technical demands required by the new generation of food safety legislation onerous if not prohibitive (2004). In the agricultural sector, Bryar (1999) similarly states that small farms commonly lack the resources to conduct required trainings for farm workers, and (along with Celaya et al. 2007) that they commonly lack access to sufficient and affordable external support for understanding and implementing contemporary food safety programs. A community agricultural association in the U.S. reported that small and medium sized farms were bearing the greatest financial costs associated with implementation of the Leafy Green Marketing Agreement in California, particularly because of the high costs of updating produce handling facilities and maintaining HACCP programs (Oregon Tilth N.d.; Kahl 2009).

A smaller scale and less financial capital are not the only attributes that might make the implementation of food safety programs more difficult for farmers. Researchers have identified qualitative attributes of farms and farmers as also having a determining effect on the ease with which HACCP programs can be implemented. For instance, Campbell (2005) and Friedberg (2004) explain that in countries where bureaucratic ways of working are not the norm, HACCP implementation can require deep cultural adjustments. Other qualitative factors such as behavior and outlook have also been cited by those in the food safety industry as contributing to the successful implementation of food safety programs among producers and processors (see for example Celaya et al. 2007; Taylor 2002).

Much of the literature on the consequences of HACCP and other food safety programs for small or alternative farms highlight the financial disadvantages these

programs can present. However, HACCP programs can also impact community farmers in other ways. The literature on the implementation of food safety programs in non-Western (Asfaw 2007; Dolan and Humphrey 2007; Friedberg 2004) and formerly colonized (Campbell 2005) countries also suggests that normative assumptions embedded in HACCP programs may impose a different model of organization, different values or a different worldview onto farmers. Celaya et al. (2007) specifically state that the implementation of HACCP involves a "considerable cultural and organizational change" (2007:10), and others have echoed this idea more generally (Lockie et al. 2006; Campbell 2005; Ray 1998).

The research suggesting that small and alternatively organized producers may have more difficulty implementing HACCP based food safety programs raised my concerns about how such programs might impact community farmers like those on southern Vancouver Island. In this area, many farmers have smaller operations than the industry norm and typically have styles of farming that differ significantly from those of commodity operations. A number of the difficulties encountered by small producers in other countries could be transferable to the community farmers in this region.

2. Research Design and Methods

This chapter details the research methods I employed to address my research question about how HACCP programs could impact community farm population on southern Vancouver Island. It begins with a brief explanation of how I became interested in this topic and the research traditions that have influenced this work. Next, I describe the text-based and interview sources that inform this thesis and follow with a description of the practices used for recruiting participants, conducting interviews and coding interview data. I conclude by outlining the relevance of this research.

Background

While attending conferences and community meetings about food production and food policy, I have often heard small scale farmers express that agricultural policies are designed for commodity producers and that community farmers need improved advocacy and representation with policy makers. My own view is that food production is a matter of public interest and the work involved in ensuring strong, diversified food systems should be shared by non-farmers as well. To that end, this research is intended to provide community farmers, their advocates and policy makers with information about how the prevailing approach to food safety management might impact community farmers in ways that might not be accounted for with traditional policy analysis. It is intended to enhance discussion between the community agricultural sector and food safety regulators regarding food safety governance on community farms, and specifically to bring the particular circumstances and interests of community farmers into view so that they can be understood alongside those of commodity agriculturalists in the design of food safety

programs. In this sense, this research has been conducted for the public, policy makers, the agricultural industry and especially for community farmers.

This thesis is informed by a traditional social structural approach to policy analysis, which prompts the researcher (or policy analyst) to take account of the social systems that exist where policies are to be implemented (Bobrow and Dryzek 1987). This approach deviates from economic-based policy analysis techniques to consider the relative assets of groups affected by particular policies and the distribution of positive and negative consequences that will result from them. It is therefore useful in avoiding some of the economic determinism associated with more traditional policy tools such as cost/benefit analysis, and instead facilitating a more comprehensive understanding of the policy impacts felt by a particular group (Ibid).

In this research, a social structural policy analysis demands sensitivity to the existing structures, characteristics and resources of the farms being studied, as well as to any assumptions about the farms that may be embedded in food safety regulatory approaches. Although I do not analyze a policy *per se* in this research, I do analyze a policy approach, and to fully understand its potential impact on community farms I needed to understand the social context in which these farms are located. Thus, my analysis of research materials has included a consideration of some of the greatest 'relative assets' of community farmers—their relationships with their community, the natural environment, their customers and other farmers. It has also considered how the particular physical, cultural and social organization of the farms themselves shape the way in which a regulatory initiative would be received and possibly integrated on these farms.

Sources

My principal concern in this research is with identifying impacts that HACCP based food safety programs could have on community farmers on southern Vancouver Island, particularly non-financial impacts, as these do not figure prominently in the literature in this area. To accomplish this, I drew on multiple literary sources both from within the Vancouver Island region and internationally and also conducted interviews. These sources support the arguments I forward in following chapters, that compliance with HACCP programs can impact farm landscapes, farm work, and more broadly, the occupation of farming.

Literature Sources

I draw on literature from academia, government and related professional sectors (i.e., the agri-food, health and food safety industries) to inform on current approaches to food safety governance both internationally and in British Columbia.. I have also utilized sources from diverse professional, industry and grassroots sources to learn about the local agricultural community on southern Vancouver Island. For instance, to informally capture the concerns of the local food community, I relied on information gathered through participation at organized conferences, symposiums and from discussions within community organizations' listservs.[20] These sources also provided information on other regulatory issues affecting community producers, and on the ways in which food safety may already be socially regulated in localized markets. I also conducted two interviews with administrators of the On Farm Food Safety Program (OFFSP), a food safety

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[20] B.C. based listservs consulted include the B.C. Food Systems Network, the Capital Regional Food and Agricultural Initiative Roundtable and the Victoria based Office of Community Research. None of the information from these listservs is cited in this thesis.

program discussed later in this chapter, to gather information about how the program was designed, who was involved, and what the objectives for implementation have been.

Farmer Interviews

While there are parallels to be drawn between small Vancouver Island farmers and those overseas, there are also differences that could affect the transferability of research conclusions. In order to better understand how food safety governance initiatives might specifically impact the locally oriented horticultural farmers on or near southern Vancouver Island, and to explore the relevance that international research on HACCP, GAP and audit-based food safety programs have for this region, I conducted eight interviews on this subject with fifteen local farmers.

During interviews I gathered first-hand accounts of how farmers anticipate dealing with increased food safety requirements, their perceptions of the OFFSP, and how they think food safety concerns could best be approached among their—and similar—communities. These accounts allow me to ground the research in this particular locality, connecting the theory provided by the literature on previous research to the lived experience of farmers on southern Vancouver Island.

I derive the principle that people can provide valuable insight into the professions in which they work through interviews from Dorothy Smith's work in Institutional Ethnography (IE) (Smith 2005). I interviewed farmers not to study their experiences or their perceptions of food safety programs as such, but—similarly to Institutional Ethnography—so that I could use their experience and perceptions to better understand both the organization of the work environment in which these programs could be implemented, and the "work" involved in complying with them. Unlike an Institutional

Ethnographer, however, I began this research having greater familiarity with the regulatory approach that governs safe food production (HACCP) than with how this approach shapes the everyday work of community farmers. The perspectives, experiences and expertise shared during interviews helped me understand the regulatory and social environments of community farms, the objectives pursued through community agriculture and some of the practical work involved in it. This information helped me identify potential impacts of HACCP programs on these farms and the kinds of adaptations farmers might need to make to implement them.

The On Farm Food Safety Program

In another nod to Institutional Ethnography, I used a text to gain insight into how an extra-local form of governance can coordinate people's everyday work, namely the work of small scale, community farmers. I used the Canadian Horticultural Council (CHC)'s On Farm Food Safety Program (OFFSP) which is administered in BC by the BC Vegetable Marketing Commission (BCVMC), as a proxy regulation in my interviews with farmers. The OFFSP is the single largest public food safety program in Canada. It is a voluntary program designed by the CHC in concert with the CFIA, food safety representatives from each province, and representatives from agricultural industry associations (CHC/BCVMC p.c. 2008)[21]. It has been adopted by horticultural producers across the country and by at least one major retailer as a minimum standard for farmers wishing to sell to the grocery chain. The B.C. Vegetable Marketing Commission requires that farmers in British Columbia who grow a certain volume of regulated commodities

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[21] This citation indicates an interview with either CHC or BCVMC staff. Both were interviewed for this thesis.

implement the program, and it is promoted as beneficial to all horticultural producers regardless of the size of their business (Ibid).

The program provides a practical example of the approach to food safety governance that I consider in this research because it is based on a HACCP analysis of horticultural production, presents farmers with standardized GAPs to follow and requires an audit-based verification system. An administrator of the program explained that the purpose of the program was to "help producers stay in the market", and elaborated that:

> Really the purpose of what they've done is to give them a package that they can show
> their customers that they are implementing food safety programs. So that is the ultimate
> goal, is to help producers keep their markets and stay in business.
> (CHC/BCVMC p.c. 2008)

This objective, to demonstrate farming practices to consumers, is a common one for food safety programs. This is discussed further in chapter four.

The OFFSP manual enabled me to convey to interviewees some of the typical GAPs required of producers in a HACCP approach, and to stage a hypothetical relationship between farmers and a food safety program. Interviewee responses to the OFFSP's requirements provided information on how the program (and similar requirements) could impact the everyday work of community farming in ways not traditionally accounted for by conventional policy analysis, and provided valuable insight ahead of any actual regulatory proposal.

During the writing of this thesis the name of the OFFSP was changed to the "Canada GAP" program. I have retained the name OFFSP in this research to maintain the integrity of interview data and because my main interest is not in the particular program, but the approach to food safety management that it represents.

Participant Recruitment

Initially, the criteria for farmer participation in this research was threefold. First, farmers needed to be producing horticultural crops for sale and selling the majority of their produce on southern Vancouver Island or the Gulf Islands. Second, they needed to be small scale, with fewer than 15 acres in production. Third, they had to self-identify as being "ecologically oriented", which could involve any farming practices that farmers undertook specifically for their ecological advantages. Participants were purposively selected based on these criteria.

Recruitment was more difficult than anticipated due in part to the year round nature of farming in the region, but also to wariness about the issue of food safety regulation. Several farmers were concerned about the possibility of further regulations, and expressed that they wished to keep as low a profile as possible. Some potential interviewees declined participation for this reason. Many of the farmers who expressed a great interest to participate in this research were livestock farmers whose operations had been affected by the implementation of the B.C. Meat Inspection Regulation, a regulation under the Food Safety Act that governs the construction and inspection requirements of provincially licensed abattoirs. Producers' direct and indirect experiences with the impacts of this regulation appeared to have sensitized them to the issue of food safety governance. In order to capture the experience of these interested livestock producers, I modified my interview criteria and omitted the requirement that farmers had to produce horticultural crops. As a result, I interviewed three farmers who were primarily or exclusively livestock producers (cattle and poultry producers).[22]

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[22] All interviews were conducted with the explicit and written consent of participants. The research project, interview guide and participant consent forms were all approved by the Human Research Ethics Board at the University of Victoria.

I used several recruiting methods including cold calls to farmers listed in the local direct marketing directory, conversations at farmers markets, research announcements on community agriculture listservs and referrals from participating farmers. The diversity of participants recruited is reflective of the diverse nature of small scale agriculture on Vancouver Island.

The final group of interviewees included thirteen community farmers who operated a total of eight horticultural or mixed horticulture/livestock farms. One interview involved five farmers who share a property and collectively market their produce. Three farms had current organic certifications, one had been certified in the past, one had been run as a biodynamic farm, and one identified as 'no-spray' and 'natural'. (It was actually difficult to find and recruit local farmers for this research who were not organically certified.) The non-organic farms I found were more casual operations run by farmers who work full-time off-farm. These farmers were full-time public servants who combined their perspectives on food safety governance with their experiences in policy development, law and public administration as well as in farming. Six of the thirteen participants were full-time farmers and four were extensively involved in the local agricultural sector, either teaching farming, administering farmers markets, working on local agricultural committees and writing for farm publications.

Conducting Interviews

I conducted interviews as an outsider to the subject matter, having little previous experience with agricultural production. Prior to, and during my research, I attended conferences and gatherings on agriculture, health and public policy related to food production and often to community agriculture specifically. These sensitized me to the

range of issues affecting small scale producers. This exposure allowed me to bring a greater understanding of community agriculture to my interviews and to this research project. During the period of this research I accepted work in the field of agricultural and food policy, thus my relationship with the subject of food safety governance evolved during the writing period, and I would no longer be considered an outsider to the topic. Nevertheless, I remain supportive of and concerned for community farming both in and beyond my own geographic region, and I remain hopeful that carefully structured policies and programs can support this type of farming while addressing food safety concerns.

I used a relatively unstructured "guided conversation" approach with open-ended questions to conduct interviews. This approach is known to maximize the emergence of unanticipated data (Ritchie and Lewis 2003). Following Ritchie and Lewis's methodology, interviews began with "context-based, content mapping questions" to introduce the research topic and focus the discussion (2003). Initial questions asked after how long participants had been farming, what approaches to farming they use and why, and what experience they have with food safety management. The interview then proceeded with more subjective, content mining questions to elicit personal viewpoints and relevant knowledge.

Interviews were designed to gather information in a few key areas. Specifically, I asked farmers for their impressions of specific OFFSP requirements that could feasibly be part of future food safety governance initiatives. I sought input on six sections of the OFFSP program manual: Premises Inspection; Building Inspection; Pest Management;

Employee Hygiene; Employee Training; and Visitor Policy and Traceability.[23] The GAPs outlined in these sections allowed me to specifically gather information on farm management practices and farmers' relationships to nature, including birds and wild animals referred to as pests. I also asked for farmers' thoughts on the cost of certifying with the OFFSP and on their farm's capacity to meet record keeping requirements.

Interviews further involved questions about food safety and prevailing approaches to food safety management more broadly. I solicited input on audit-based initiatives and in cases where participants were familiar with HACCP, I inquired after their experiences with, and perspectives on it. Finally, I sought information on how farmers would like to see food safety issues addressed in a way that supports their type of agriculture, while minimizing the risks of foodborne illness.

Although I used an interview guide and ensured that key common questions were asked to all participants, I also allowed for natural conversational flow so that participants were more likely to feel at ease to elaborate during the discussions. This led to participants raising other issues about community farming and provided a rich context on the social and economic environment of community agriculture in the Vancouver Island region. For instance, the numerous, and at times disabling difficulties that farmers encounter in attempting to operate viable small farms was a prominent theme in these interviews. Interviewees regularly reported that their sector suffers from an onerous and uncoordinated regulatory environment. They specifically mentioned an erosion of government support; a reduced availability of agricultural extension agents; and farm property assessment policies that they felt disadvantage small farms. While these

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[23] At the time of research, the OFFSP included eight commodity-specific food safety manuals. I used the Leafy Vegetable and Cruciferae manual; however, the majority of program requirements were identical for all horticultural commodity manuals.

difficulties are not comprehensively explored in this research, they provided context for understanding the environment in which horticultural food safety initiatives could be enacted.

During interviews, participants drew on various experiences with food safety governance. Some had participated in food safety courses targeted either to on-farm practices, marketing or food preparation. Others related that they had read articles in producer journals about food safety "best practices". Many participants related to the topic of food safety regulation through first or second hand experience with B.C. Meat Inspection Regulation. Certified organic producers had extensive experience meeting with food safety requirements and especially with audit-based verification processes via their certification process.

As a group, participants were knowledgeable about how government and agricultural agencies operate and were concerned that community agriculture was not a priority consideration in the design of agricultural policies. Participants conveyed that community farming involves considerable dedication and work from farmers and their families, and that as a whole, they were greatly concerned about the future of community farming in the province. The wealth of information collected during interviews provided rich detail for understanding how the OFFSP and other HACCP programs could impact community farms, and required careful coding.

Coding Interview Data

I adopted a "critical common sense approach" (Ritchie and Lewis 2003:201) to interpreting the substantive meaning of interview data. My objective was not to explore the particular experiences or personal views of farmers individually, but to use participants' knowledge about farming to understand how food safety programs like the OFFSP would influence their style of farming, their business operations and their work. For this reason, I privileged points and concerns identified by multiple farmers, as well as some points that may only have been raised by one participant where this added depth to the analysis or greater understanding of the situation of community farmers. I also used the totality of interview data to contextualize individual statements and judge their overall contributions to the discussion at hand.[24]

To bring rigour to my data analysis, I coded interview data according to the method used in Grounded Theory, which is designed to help the researcher identify latent themes in interview material (Ibid). To control for the fact that I had explicitly raised several topics during interviews—that is, to ensure that the topics that I had explicitly raised did not appear to "emerge" as common themes identified by participants—I initially grouped transcript sections according to the topic area I had introduced. Then, following the Grounded Theory method, I gave a preliminary subject tag to each new observation, perspective or subject raised by participants within these broad areas. I initially assigned several dozen tags in each subject group, then identified larger subject

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[24] In this thesis I have not considered the particular demographic situation of farmers with respect to their contributions—i.e., whether those with full time off-farm work have different concerns, or whether length of time farming or future development plans for the farm shape farmers' perceptions of the potential benefits and constraints presented by food safety governance initiatives. Such topics are ripe for exploration, but are not at issue in this thesis.

groupings for each and analyzed these groupings and interview data iteratively to identify common themes across interviews.

The Grounded Theory method of data analysis allows researchers to identify commonalities in the way participants experience or relate to a particular issue, ideally enabling the researcher to generate new theories about the experiences being studied. Since the thoughts, experiences and feelings of interviewees was not the subject of my research, however, this approach had its limitations. While I privileged several relevant themes identified by multiple farmers, I also omitted several commonly cited issues and perspectives if they did not contribute to my research question.

Note on Citations

This research uses contributions from research participants to gain insight into possible relationships between food safety programs and community agriculture. To this end, it is not necessary to profile the farmers interviewed in such a way that a reader can discern from one chapter to the next which contributions are attributable to the same farmer. So, to protect the anonymity of research participants, I have not attributed citations from interview data in this thesis to one interview or another. This decision was made to help ensure a single body of quotes could not render a research participant recognizable. To further protect participants' anonymity, I also have changed some gender pronouns and referenced interviews with the CHC and the BCVMC generally, with the acronyms of both agencies.

Research Relevance

This research has been conducted at an opportune time. The governance landscape for on-farm food production is evolving quickly and new food safety policies

and programs were developed even during the time in which research data was being collected. Some of the consequences of HACCP programs identified in the literature and cited in chapter one have now also been reported by producers in California where the LGMA has been in place since 2009 (Water Watch USA N.d.; Oregon Tilth N.d.). This rapidly changing regulatory environment highlights the need to better understand the implications of a dominant approach to food safety governance on community farmers.

There have been a number of studies that examine how and why producers adopt food safety programs, what contributes to successful implementation of food safety programs, and the financial impacts of these programs on small businesses. Few, however, have considered how on-farm food safety management initiatives could impact the small scale, ecological and localized farms that are gaining public profile as a result of local food, slow food and organic movements.

3. Multiple Objectives and Ecological Values.

HACCP based risk-management programs can operationalize assumptions about the natural environment that are unaligned with those embodied in community agriculture. Food safety management initiatives typically cast nature[25] and wilderness as potential sources of food contamination—risks to food safety—and require producers to minimize the occurrence of such unstructured, undisciplined biological life in their food production environments. This view of nature and the requirements that stem from it contrast with those in community agriculture where nature is framed as a source of value for farms (see Pollan 2006; Salatin 2003). When community farms need to comply with food safety programs, they can be forced to compromise key ecological values embodied in their style of farming, and to change or even abandon, ecological farming practices.

In this chapter I consider the tension between the single priority of food safety programs and the multiple objectives of community agriculture and explore how nature is framed in each initiative. I then look at the potential impact of HACCP programs such as the OFFSP, on community farmers with regards to their production practices, and share interviewee reactions to some of these requirements. I conclude by asserting that the prevailing model of HACCP based programs can force community farmers to focus on food safety goals to the exclusion of other meaningful objectives, and specifically to compromise their ecological values.

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[25] Any discussion about "nature" or "the natural environment" risks reifying this expansive subject and ignoring the complexities and continuities that exist between the natural and non-natural. I bound the concept in this work according to a traditional, western connotation of "nature"; as undomesticated wild plants, animals, birds, bacteria, weather systems, whole and fragmented eco-systems, etc. As Sandilands (1999) points out, such reductionism can facilitate subject-representation of nature in the policy arena.

Competing Priorities

There is extensive literature claiming community agriculture is supported by a culture that values the social, environmental and ethical implications of local foods (Seyfang 2007; Lockie et al. 2006; Norberg-Hodge, Merrifield and Gorelick 2002; Hines 2000). In keeping with this literature, the farmers I interviewed explained they balance multiple priorities in their work to realize several diverse objectives.

One objective participants mentioned was enjoyment of their farm environment. One participant mused that there might be "something instinctual" about working on a farm, because his U-Pick customers would offer to pick fruit for the farm owners simply in order to continue working after they had all the volume they needed. Another participant explained that she enjoyed being able to eat produce straight out of the ground:

> To take something out of the ground or off a tree and put it directly in my mouth—
> I do it you know. There's nothing more pleasurable than crawling around in the
> plots, yanking out things and biting down on them when the urge overcomes you.
> You think "This is so beautiful"!

One farmer interviewed valued the social interaction offered by harvesting season, an organic farmer valued the relationship with wild species that their farms provide, and one of the part-time farmers expressed that they valued providing green space to the local community. Growing foods of high nutritional value was another objective commonly cited by interview participants. An organically certified horticultural farmer explained that the biological complexity of agricultural soil should be managed in ways that optimize the nutritional quality and bacterial resistance of food. She further explained that certain fungi are valuable for transporting nutrients to plants, and that it is therefore

important to the nutritional value of fruits and vegetables that they not be grown in sterile environments.

The safety of food is, by definition, the singular focus of the food safety industry, and sterile environments are regularly encouraged as the means to this end. Food safety is defined as freedom from biological, chemical and physical contamination and other considerations can be subservient in the design of programs and policies. At the 2008 food safety conference of the International Consumer Goods Forum (CIES), members ranked food safety as a higher objective than health and nutrition of foods (CIES Feb. 2009). British Columbia has distinct administrative structures for food safety and food security programs, (the latter of which includes a focus on access to nutritious foods). The programs are administered and implemented by separate departments, indicating that nutritional considerations are outside the purview of food safety administrators, and food safety is not a prominent consideration in nutritional programs. Further, the CFIA mentions "improving the overall health of Canadians" as a primary aim but this focus includes prevention of foodborne illness, not diet related or other predictable illnesses (Canadian Food Inspection Agency 2009).

The framing of nutrition and food safety as separate and discrete objects of governance may be common in regulatory contexts but it can present producers and consumers with zero-sum choices. The issue of food irradiation provides an apt example. Irradiation is lauded by the food industry as a tool for reducing microbial load, inhibiting sprouting during storage and extending shelf life (Doering 2008,). Nutritional advocates, however, criticize irradiation because it kills some types of microbes that health care practitioners have identified as beneficial.

Several interviewees for this research expressed they were willing to tolerate an increased burden of risk with regards to foodborne illness in order to ensure that their other occupational priorities (such as enjoying farm work), professional priorities (such as Environmental Farm Plans), or ethical priorities (such as providing healthful food to consumers) could also be fulfilled. Several stated their concerns that a narrow approach to food safety may compromise other objectives, and felt the emphasis on hygiene and sanitation they'd seen in food safety initiatives were disproportionately high. As one explained in reference to a food safety course, "OK I get [the frequent hand washing requirement] but I'm putting my hands in dirt!" Farmers expressed that the requirements of the OFFSP considered during the interview, and other food safety courses and policies they had encountered previously, reflected a narrow focus that might compromise other objectives. In cases where food safety management practices might compromise nutritional content, on-farm biodiversity, or financial viability, interviewees expressed a desire for a more nuanced understanding of the food safety risks associated with their existing farm practices.

To summarize, community farmers expressed that they have multiple priorities—everything from the nutritional content of their food products, to the "health" of the natural environment and other living creatures and their own enjoyment of farming work. The discussion below demonstrates that it can be difficult to realize these multiple objectives in a production environment governed by the pursuit of a narrowly defined food safety.

Framing Nature in Food Safety Management

One of the strongest examples of how the singular focus of food safety programs can impact community farming is provided by examining the influence these programs can have on the ecological values and practices central to this style of agriculture. In the prevailing approaches to food safety management, risk reduction is largely premised on distancing food production from the natural environment. Programs require that food production be as replicable, predictable and sanitary as possible, and minimize contact between food products and any biological beings external to the food production process. Plants, animals or people that may come in contact with the food product are treated as risk factors—that is, as potential sources of biological, chemical or physical contamination of food. For instance, bio-safety requirements designed to minimize cross-contamination between food products at different stages of production (i.e., washed and unwashed) or between food products and other entities, commonly prohibit pets from active farming areas and restrict visitor access. In one case in the U.S. a food safety program for leafy green producers recommends that producers prohibit infants and toddler aged children from growing areas.[26] In another, a major purchaser of leafy greens refused to accept crops grown "within 150 yards of rivers or habitats that attract wildlife" (Delind and Howard, 2008:312).

HACCP programs use hygiene and sanitation measures, construction standards, and "product flow" organization to minimize risks of microbial and pathogenic food contamination at production, handling and distribution sites. The approach requires that each step in the production process be examined for potential sources of contamination.

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[26] This is a GAP of the Leafy Green Marketing Agreement, demonstrated in an audit document from PrimusLabsAudit.com (2009). The audit was conducted for Black Dog Farm, a leafy greens producer in California. The document was posted on the website for Diamond Produce, a distribution company and customer, certified in LGMA. See PrimusLabsAudit.com in Reference List

GAPs, such as those used in the OFFSP, typically require that all inputs and materials used in food production be accompanied by documentation of origins;[27] that all surfaces which come in contact with food products be non-porous, smooth and washable; and that any people who handle foods be trained in approved practices and proper hygiene.

Given that sanitation and predictability are key priorities in food safety management, it is not surprising that much of what we consider "nature"—wild plants, animals, insects, even soil and climate—is considered a potential host for pathogenic bacteria and is ideally eliminated from the production environment of food-safe establishments. Baines et al., making the case for HACCP implementation on small farms, explains that small horticulturalists' "proximity to nature" presents a high risk for food contamination (1999:4). Other risk factors he mentions include "close contact between farm staff and living produce enterprises" and "complex and widely different farming systems, the vagaries of weather and soil complications interacting with plant, animal and microbial populations" (Ibid). The authors statement suggests that the "science" (or the technique) of identifying critical control points in a given production process can be influenced by normative understandings about what food production sites should look like, and what objectives of food production are of highest importance. Farmers who work with different approaches to agricultural production may identify different sources of contamination risk to their food products. For instance, some may consider that foods produced from genetic modification techniques pose a contamination risk to humans, whereas food safety programs designed within an agri-food industry that supports such processes would likely not identify genetic modification as a risk. Food

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[27] This is the case for certified organic production in B.C. and also for the OFFSP.

safety inspectors or program auditors accustomed to working in processing plants or commercial greenhouses may be alarmed at the comparatively uncontrolled environment of community farms.

The risk factors that Baines et al. identify—weather, soil, microbial populations, and even people—are not only pervasive on community farms, they are constitutive of them. As discussed, community or "integrated ecological" farmers place a strong emphasis on the symbiosis between the farm ecosystem and the surrounding one. The perception embedded in HACCP programs that the ecosystem is an endless array of food safety risks, may be difficult to reconcile with the values and practices of community agriculture.

Framing Nature in Community Agriculture

The producers interviewed for this thesis utilize ecologically motivated practices and expressed that natural cycles and relationships, such as predator-prey relationships, pollination, or pest inhibiting properties of certain plants, are of significant value to their farms. They expressed that it was important to them to farm in ways that had minimal effect on the immediate environment and that accommodated wildlife in the surrounding area. Most undertook special measures to minimize the environmental impact of their production activities. As previously mentioned, many complied with organic certification requirements and some practiced chemical free agriculture. Several participants also implemented Integrated Pest Management systems or subscribed to British Columbia's Environmental Farm Plan which involves establishing a farm biodiversity plan. One participant farmed according to biodynamic principles, which treat both soil and farms as living organisms and call on farmers to pay particular attention to soil fertility and

aligning production practices with seasonal cycles.[28] One farmer explained, "We deliberately leave portions of the field with nothing done to it. To encourage birds, to encourage snakes, and all that sort of thing. They have a habitat." On another farm, an independent biodiversity project included swallow boxes, salamander boxes, bee hives, habitat for quail and other birds. The farmers reported that the initiative was allowing them to avoid the use of herbicides and pesticides on the farm.

Encouraging wild birds and insects to live on farms contrasts both practically and conceptually with the view that these creatures threaten the integrity of the food being produced on that same land. Far from being a collection of risk factors to be marginalized, nature—as the cycles, inhabitants and biological composition of the farming environment—is a source of aesthetic pleasure for community producers as well as a guide for how, and what, to grow in a given area. One farmer articulated that the agricultural practices used on their farm to encourage native species and avoid chemical inputs are not merely the product of a philosophical or moral standpoint, but are ecological imperatives. The participant said:

> If you don't let nature take care of itself, if you want to push nature in any other way, it'll bite you back, you know. If you do it over here, it'll bite you over here. And, you know, you keep screwing around with it and eventually you really end up in trouble!

Another farmer, upon reading an OFFSP requirement that bird nests are not permitted on farm buildings, asked pointedly: "How are you gonna not have birds in the goddamn ecosystem?". When I replied that the requirement only applied to the farm itself he explained: *"The farm is the ecosystem!"* This statement illustrates the considerable tension between a model of food safety management where "proximity to nature" (Bain

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[28] The farmer was not practicing this approach strictly at the time of our interview but had in the past.

1999) is considered a food safety risk, and an approach to agriculture where the boundaries between the farm and nature are effectively dissolved.

HACCP Impacts on Ecological Farming

The same farm environments that my interviewees look to protect, nurture and learn from are construed as potentially dangerous to food production and human health in contemporary food safety management. In order to minimize food contamination that may be passed from wildlife to food, most HACCP programs frame opportunities for contact with wildlife as critical control points requiring "control measures". For example, the OFFSP requires that bird nests be removed from any buildings used for production or storage of food, that bushes and long grass be trimmed for a perimeter of three metres surrounding farm buildings. The program also requires a professional pest management system and stipulates that the presence of pests is a "major deviation" from the program requiring immediate corrective action and reporting to certification authorities.[29]

California provides a very recent example of a food safety initiative designed in what Terry Marsden calls "the bureaucratic-hygienic mode of regulation" (2004:143). The Leafy Green Marketing Agreement (LGMA) was introduced after the outbreak of *E.coli* in spinach originating from the Salinas Valley—the USA's "salad bowl" region— in 2007. The agreement is a voluntary, government audited program that requires processors, handlers and shippers of leafy greens to implement a HACCP program and requires growers to comply with specified GAPs. Over ninety-nine percent of the leafy greens produced in California are now produced in compliance with the agreement (Pegg,

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[29] Several of the farmers I interviewed explained they have taken, or would take, immediate action to get rid of pests, such as rodents. However they also said that these are a common problem on rural farms and they were concerned about having to report their presence to an authority or certifying agency.

2009). Arizona has also adopted the program and it is being considered federally as a template for a national approach to horticultural food safety.

The program provides a strong example of a food safety program where nature is conceived primarily as a source of risk for food production. For example, participating producers are required to notify their food safety authority if they suspect that a high risk animal such as a deer or a raccoon has breached the mandatory perimeter fence around production areas. Such breaches are evaluated individually by food safety authorities who oversee the program and may result in the destruction of thirty metres of crop around the site where animal activity has been evidenced. For small farms, thirty metres will include a far greater percentage of their crop than for larger commercial producers. Also, the cost of fencing the perimeter of an entire growing area suggests that producers need to be reasonably profitable to afford the investment. The LGMA's approach also disadvantages farms located near wild lands or farms that actively support surrounding wildlife, as they are more prone to having animals enter their fields. Grassroots organizations have criticized the "one size fits all" format of the LGMA for disadvantaging small farms, (Oregon Tilth n.d.; Bunin 2009).

The LGMA provides insight into some of the ways in which similar initiatives might impact British Columbian producers. In some cases California's leafy green producers are abandoning ecological practices—and sometimes entire conservation programs—in order to comply with food safety programs that deem ecological practices a risk to food safety (Lochhead 2009; Bunin 2009, Oregon Tilth website). One California farmer, testifying to a U.S. Domestic Policy Subcommittee hearing on the LGMA, claimed the agreement was having a significantly deleterious effect on small and

ecologically oriented producers. In addition to the extensive financial consequences experienced by smaller producers, he detailed certain aspects of the program and named some consequences it was having on ecological farming practices:

> Wildlife, non crop vegetation, and water bodies are normally viewed as food safety risks. Many environmentally positive practices that growers have implemented … have been removed or abandoned by growers threatened with the rejection of their crops. Windbreaks, beneficial habitat, vegetated filter strips, tailwater reuse reservoirs, grassed roadways and vegetated ditches have been removed from fields to comply with food safety inspectors. Many fields for leafy greens now have wildlife fencing, in some cases to exclude deer or pigs, in other cases to attempt to stop frogs and mice from entering the field. Some fields of leafy greens use bait stations around their perimeter to poison rodents that might enter the field. Rodent predators like hawks and owls can be poisoned secondarily by eating the poisoned rodents. …. The practical effect has been a big step backwards for environmental protection on many farms. (Coke 2009: 2)

This shows how a narrow focus on a single objective can impede the realization of multiple objectives through food production systems.

Participant Perspectives

Producers in British Columbia are not currently subject to requirements as onerous as those in California, although they could be if retailers, regulators or agricultural marketing agencies adopted similar requirements. A couple of interviewees expressed hesitancy toward requirements in the OFFSP, or similarly structured ones that they had encountered in food safety training courses. For example, participants expressed that some of the requirements in the OFFSP, such as reducing non-crop foliage around farm buildings, could detrimentally influence their ecological objectives. In thinking through this, they navigated a tension between the potential benefits of a HACCP programs and the potential consequences to their ecological styles of farming. The requirement that bird nests be removed from farm buildings garnered varied responses from producers. In addition to the farmer who explained "the farm is the ecosystem" another explained that many customers express their appreciation for the bird population

on his farm, and he expressed his feeling that they presented real advantages to his business:

> We have bird feeders hanging in the tree there at the corner, and I guarantee
> you in any ten minute stretch, you're going to see twenty birds there. And we have
> another one out there…and another one there. Those birds... it wouldn't go down well with
> this kind of stuff.

Some participant farmers use their domestic birds as "farm workers": two use chickens and ducks to control unwanted insect populations in their fields, and one used chickens to eradicate a particularly virulent pest infestation. Organic agriculture regulations and the OFFSP both permit animals on food production sites only until three months prior to planting. This allows farmers to use their birds for natural pest control, soil aeration, etc., while also mitigating the contamination risks posed by animal feces. A requirement that animals not be permitted in growing areas at all, however, would risk forcing farmers to employ more costly or chemical means of dealing with insects.

Other interviewees expressed that they would prefer to prioritize compliance with "best practices" recognized by the agricultural industry, others not. One who had recently explained that raptors and owls had been controlling the rabbit population on her farm for several years said after learning of the requirement that she planned to dismantle their perches when she returned home since she was planning to implement a HACCP program recommended by a retail client.

One participant explained that the requirements for managing compost presented to her in a recent food safety workshop (with nearly identical documentation to the OFFSP), demonstrated an institutional management perspective that was markedly unaligned with her experience of community farming,

> Take the compost, we almost have to find out, you know, what, where do the compost
> [ingredients] come from. Like, what do we put into our compost before we later put it

out; where do we put it; what was harvested from that compost? You know, just the idea that we would keep track of that…the level of bureaucracy is obscene.

The requirement to document composting practices clearly stems from a concern that biological, physical or chemical contamination of food could result from improper composting. It is rational from the point of view of minimizing contamination risks, but not from the point of view of a family farmer who could be required to track their family's food waste.

Noting the growing power of certification requirements to shape agricultural spaces, Marsden (2004) explains: "primary production becomes something of a backwater and 'dirty' activity which needs to be 'cleaned up' by the state and corporate retailers on behalf of the public" (2004:137). This insight points again to the role that normative understandings about what food safety "looks like" can play in agri-governance. An example supporting Marsden's contention that food safety programs aim to 'clean up' farming is provided by the experience of one farmer who was required by food safety authorities to remove bushes, grass and other greenery from around their farm buildings in order to minimize habitat for snakes, birds and insects. The OFFSP similarly contained a provision that required farmers to establish a perimeter of gravel or "very short grass" around all farm buildings. "I know the story. This is bio-security," one interviewee offered. He elaborated:

> If you go up the Fraser Valley where all these chickens are grown and you look at these farms that have, you know, eight, ten barns, with the fans all going......you would probably see one pickup truck and nothing else in there. You won't see anyone moving, you won't see any animals, you don't see any people. That's farming! And all around the buildings will all be nice and clean and what not, and why wouldn't it be—because they never use it. They go out with a lawn mower and cut the grass around it, and it's paved all the rest of the way. …it's ugly. It's very ugly. And they call that farming!

What the farmer describes here is not simply a difference of scale between their farm and the ones referred to, but a fundamentally different approach to food production. Aligning practices of community agriculture with commodity agriculture in order to implement food safety requirements that call for a consistent, sterile environment would not only require a narrowing of priorities and a change of practices, but a change in values as well.

Two research participants speculated about what farming might look like if the rationale embedded in contemporary food safety systems were unfettered by these other objectives—if the 'vagaries of weather and nature' were distanced as much as possible from food production and the "backwater" of food production cleaned up. They stated.

(Farmer A)   It's getting pretty weird when you have to have everything indoors. Have you heard about the high-rise they're looking to set up in Vancouver? The vertical farm?

(Farmer B)   Sounds like something you could read in Popular Mechanics forty years ago. The world of the future you know, where we all live in high rises and fly hover crafts and things like that.

(Farmer A)   We could have all our animals indoors and never ever, ever have a problem again—

(Farmer B)   —and they don't have to be diseased, they'll never have a disease! But then you have the pig situation where everything's bio-security: you have to wash your feet and put on suits before you go in.

(Farmer A)   Yeah!

In another interview, a participant coined the term "hospital farm" in reference to the hygienic/sanitary approach to food production he felt was represented by the OFFSP. To him, many of the program requirements both assumed and encouraged an institutional environment.

Conclusion:

The origins of HACCP outlined in chapter one provide context for understanding why HACCP-based programs have a singular focus that can restrict farmers from

satisfying multiple objectives. HACCP was designed to fulfill a specific purpose in a highly industrialized and technical environment where the immediate need for sanitation outweighed other priorities related to food. In this chapter I have demonstrated that this approach to ensuring food safety has been awkwardly translated in programs designed for community farming environments.

The importance of food hygiene and "zero contamination" for an astronaut eating a meal in outer space is far greater than the importance it has for a farmer selling to a customer who shares responsibility for the condition of that food before it is eaten, or to a customer who is concerned about enhancing biodiversity, avoiding harmful chemical residues, or promoting rural vitality as well as food safety. The everyday social and physical environments in which individuals make choices about how to farm and what to eat are generally far more complex than the environment for which the HACCP system was designed. Consequently, HACCP programs force community farmers to set aside other priorities that shape their farming practices in order to implement food safety programs.

Prevalent approaches to food safety management can pressure community farmers to reorganize their land use, production practices and physical environment in ways that are deleterious to natural environments and anathema to the ecological values that characterize these approaches to farming. While community farmers value integrating food production landscapes with surrounding ecosystems, food safety programs are premised on distancing food production from the contamination risks presented by these natural environments. The tension between the "the bureaucratic-hygienic mode of regulation" (Marsden 2004:143)—or governance more broadly—and the ecological

efforts of community farmers not only creates expense and work for community farmers, on a broader level it can compel community farmers into a relationship with nature that goes against their own philosophies, one that has heretofore been characteristic of commodity agriculture.

4. Documenting Food Safety

The last two steps in the seven step HACCP process provide for the establishment of an audit-based verification system, which is an integral component to certification programs. The steps require that the farmer/operator first set up a record keeping system to document the implementation of HACCP risk management practices (i.e., the previous five steps), then establish a system for verifying compliance with the HACCP program and documentation system (i.e., the previous six steps). Verification of documents is typically accomplished by having a certification inspector or someone similar conduct an audit of the HACCP records.

Audit-based verification systems are designed to demonstrate to certifying agencies or regulators that approved procedures are being consistently followed at every stage in a production process. According to researchers and food safety agencies, the certifications granted to producers who comply with an audit approach improve the confidence, or trust, that consumers have in food products, improve a farmer's accountability for food safety practices, and improve the traceability of food products and foodborne pathogens in the food system (Reichenbach, 1999; CHC/BCVMC p.c. . 2008).

In this chapter I argue that the textual performances of trustworthiness, accountability and product traceability provided for by audit-based documentation systems are redundant for locally oriented community farmers, because these three objectives are already provided for through the social relationships that regulate localized agriculture. I begin by highlighting a key principle of the prevailing approach to food safety management, namely that food production practices be documented in order to demonstrate food safe practices. I then show that the localized nature of community

agriculture allows farmers to fulfill the objectives of consumer trust, producer accountability and traceability in distinct, parallel ways that are not accounted for by an audit program. Next, I suggest that the literature on food safety programs often does not recognize the ways in which community farmers ensure food safety on their farms, and that audit programs are not designed to account for these ways. Following, I draw from international research on HACCP implementation in the agricultural and food processing sectors to support my argument that HACCP programs not only present a significant cost burden to community farms but also a significant administrative burden, and that they force a fundamental reorganization of farm operations. To conclude, I share research participants' perspectives on the relative advantages and disadvantages that audit-based certifications do and do not present to community farmers.

Demonstrating Food Safety

An administrator of the OFFSP explained that rather than attempting to change farm practices, the program's audit requirements are actually intended "to document the practices that farmers already have in place" and provide "structure and demonstration of due diligence" (CHC/BCVMC p.c. .2008). The implication is that producing foods that are free of chemical, biological and physical contaminants is only a first step to food safety. The institutional arrangements that govern the agri-food sector have made the demonstrability (and verifiability) of safe production practices conditions for product legitimacy. This approach to agri-governance can be linked to the predominant neoliberal regime in several ways. First, in a neoliberalized market agri-food certifications facilitate trade by generating trust between trading partners. At an international level they serve as proof of adherence to agreed upon practices and standards. Second, these certifications

are themselves commodities with their own economic value. Foods sold under a successful certification program can garner a higher price or access to a wider array of markets, so producers and processors pay for the market access provided by certifications Also the opportunity for financial profit by agencies who design, consult on or verify food safety programs encourages the recreation of food safety programs such that new and higher standards are being regularly (re)created within the food safety industry (much in the way that retail goods are constantly being redesigned).

Approaches to food safety management that emphasize a demonstration of food safety practices thus enable market activity at two levels—the agri-food market and the agri-food certification market. By supporting a market based largely on certifications, the focus on demonstration of practices enables consumers to take on more responsibility for independently assessing food risks, something Draper and Green (2002) claim is a key feature of neoliberal food markets.

Social Regulation

The OFFSP requires documentation on employee training and hygiene, good agricultural practices, water quality, pest management, composting practices, and other factors that comprehensively cover most potential sources of food contamination in the production of a given fruit or vegetable. The program also requires farmers to complete and maintain forms such as the floor plans of farm buildings, locations of pest traps, visitor logs, water testing logs, etc. This textual representation of practices enables producers to demonstrate to certifying agencies their compliance with program requirements. For example, documentation for the OFFSP would demonstrate that a farmer's agricultural inputs come from approved sources, that farm staff have been

trained in and use good hygiene practices, and that the organization of the production environment inhibits cross contamination (e.g. from unwashed foods).

By demonstrating a producer's adherence to best practices, audit-based food safety certifications are said to improve customer trust in food products and to help ensure a producer's accountability for their production practices (Reichenbach, 1999). Also, because audit verification programs require producers to keep records of things such as where they purchased farm inputs, when and where livestock were sent to slaughter, and when certain batches of produce were sold to which restaurant or retailer, they also facilitate the traceability of food products (and any associated food-borne pathogens) through the food chain.

Trust

Food safety certification programs are routinely promoted on the basis that they improve the trustworthiness of a producer to their customers (Ibid). Bryan (1999) and Sparling (2001), for example, maintain that HACCP programs improve the relationship between producers and consumers. Also the OFFSP was designed to legitimize existing good practices through documentation in order to maintain high levels of consumer confidence (CHC/BCVMC p.c. 2008).

In a globalized food system, certifications (e.g., fair trade, dolphin safe) and endorsements by civil society organizations (e.g., Ocean Wise, Rainforest Action Network) function as intermediaries between consumers and producers, providing information about production conditions that is otherwise unavailable to consumers. The "face relations" that facilitate business further up the food chain are generally not existent at the consumer level (Bush 2004) so consumers have increasingly come to rely on

certifications, standards and brand labels to inform their purchasing and generate trust about producers and their practices.

In community agriculture, the relationships between farmers and customers that are generated through visits to the farm or farmers' markets or from farm newsletters, as well as the reputation of a farm in their community, enable consumers to access information about the conditions under which their foods were produced. In this environment, food safety certifications are only one of multiple options that farmers have to improve relationships with their customers, and foster consumer trust about their food safety practices.

There are indications that interpersonal encounters play an important role in creating relationships of trust and accountability between producers and customers, and that these interdependent elements are not only present in localized food systems but actually integral to their functioning. (I will expand on the aspect of accountability in the next sub-section, and here focus on the topic of consumer trust.) For example, uncertified organic farmers rely heavily on personal relationships to communicate their growing practices (Moore 2006) and as a result can maintain a higher-paying clientele that, in the mainstream market, could only be accessed through organic certification. Such trust may even be integral to the existence of community markets. According to DuPuis and Guillon (2008), the existence of the alternative market in which community farmers sell their foods is dependent upon the ongoing recreation of legitimacy and sound governance as interpreted by consumers and the community. The authors state:

> One thing that characterizes alternative economies is that fact that if people—particularly consumers, although also farmers—think governance is illegitimate, they may exit the field, return to the conventional field and thereby threaten the continued existence of the alternative market. (2008 p.122)

The proximity of localized farms and their customers, the operational transparency of many community farms and the interaction between small scale farmers and their customers provide for trust in localized food systems. The citation from DuPuis and Guillon suggests that this trust plays a role in legitimating community food systems and encouraging the success of community agriculture.

Research participants acknowledged that customers demonstrate considerable trust in their products. This may be because of customer's relationships with farmers, but the proximity and size of the community farms also appeared to be contributing factors. In one interview a farmer explained:

> People come to a farm and … where they see (food safety) issues is from the big plants. They see industrial food as dangerous, not food farmed from you know, right from the farmer. That's considered safe. At least here that's the concept.

During each interview I asked farmers whether they had ever heard their customers raise food safety issues and nearly all said no.[30] The citation above suggests that concerns that customers of community agriculture have about food safety may be broader than what is encompassed by HACCP. According to this farmer, food safety involved not only a lack of contamination, but also an absence of production practices that had lost their trust. In another interview, a farmer said,

> The sense that people have is that food from a farm, right from the farmer is safer … that's their perception even though it`s not necessarily the case.

Both farmers noted in the citations above that consumer trust was an idea—a

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[30] The question "Do your customers ever raise issues about food safety?" was phrased generally so as not to suggest to farmers that customers would necessarily be raising concerns, or that they would be specifically discussing food safety with respect to the farmer's operation.

"perception" and a "concept"—that may not have a direct relationship to the actual potential for contamination. The trust between community farmers and customers therefore may be based on both real and imagined knowledge about locally grown food products. Either way, certifications did not present any obvious advantage for interview participants in terms of their ability to increase consumer trust.

Accountability

Food safety audit programs are also promoted as a means to increase producers' accountability (Reichenbach, 1999), that is, a way to help ensure that the producer takes ownership and responsibility for the quality of foods they have produced. In community agriculture, accountability is largely addressed by the fact that the farmer knows the details of any given food's production. Busch (2004) notes that small scale production permits farmers a greater familiarity with their products: "Their very small size suggests that they are more likely to be intimately familiar with what they process—far more than a larger firm" (p.174).

Another factor that establishes accountability on small farms is that the farmer is proximate and accessible to their customer. As noted above, many community farms operate with a high degree of operational transparency because they invite the public to come and visit; and many farms are also family businesses in communities where their name serves to facilitate trust and accountability. Customers in a localized food system have the opportunity to sanction against poor performance by leveraging relationships. One farmer described:

> You don't need a regulatory system for the local economy stuff. 'Cause I mean the people you're selling the stuff to look you right in the face, and they know who you are, … you are responsible to them, this isn't one of those unseen things, you know?

Community agriculture provides a far more direct form of accountability than consumers find in mainstream distribution chains, and, according to interviewees, also provides more reliability than an audit regime. During almost every interview a research participant expressed skepticism about the efficacy of an audit approach in accurately representing farmers' practices. Interviewees who had experience working in fisheries, forestry and shipping contributed experiences from those sectors to demonstrate that audit trails do not necessarily ensure that proper procedures have actually been followed. Most volunteered the perspective that "checking boxes" is an inferior way of demonstrating product quality because the textual representation of food safety could easily be misrepresented.

Traceability

The proximity of, and interaction between, customers and farmers also serves as a mechanism for traceability—the "holy grail of food safety policies and programs"—(Maynard and Nault 2005), on a local scale. Greater traceability in the food chain is an explicit objective of Canadian and American federal governments in order to hold producers or processors accountable for food contaminations (AAFC n.d.; President's Food Safety Working Group n.d.). On the farm, traceability means that farmers track where each of their agricultural inputs comes from and keep records of when and how much of a given product they sell. This enables commercial customers to determine when and from whom they purchased a given batch of foods, and supports regulators and health authorities in determining the source of food contamination outbreaks. Nabhan (2009) summarizes how these objectives are fulfilled in a localized community food

system, saying "the traceability that people want is having a human face, an address and a connection to people to go with it" (audio recording).

The personal relationships, geographical proximity, small scale, transparency and short commodity chains that constitute the localized markets in which community farmers operate serve as strong regulatory mechanisms, providing for the trust, accountability and traceability that documentation systems afford in the mainstream market. These personal relationships, as well as the care and attention that community farmers can personally invest in their products, are not accounted for in audit-based certifications, which have been designed for more commercial modes of production and long distribution chains. HACCP programs do not, for example, exempt farmers from tracking the origin of fertilizers or indicating the storage location of agri-chemicals, because they themselves eat their produce and serve it to their families. Community producers who do not have a pre-existing certification and who implement a food safety program must establish new forms of administrative organization to facilitate ongoing documentation.[31] Consequently, audit-based programs such as HACCP impose a need for commercial style organization on community farms which impacts farmers financially and in other ways.

Barriers to HACCP

Much of the literature I consulted regarding why small scale businesses (farms and food processors) struggle with HACCP implementation did not acknowledge the paradigmatic differences that can exist between small and large scale farms, or investigate how food safety was being ensured on small farms. Rather, researchers

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[31] Interviews suggest that audit based food safety programs are easier for farmers with an existing document based certification in place (such as organic certification), because the administrative practices required to organize ongoing record keeping already exist.

sometimes assumed the only important difference between small scale and large scale producers was the size of the businesses (Taylor 2002, 2005). This allowed them to premise their investigations on the assumption that food safety management on a small scale operation would be improved through the same mechanisms used on larger scales (HACCP). Herath and Henson (2006) analysed the implementation of a HACCP program among food processors with the objective of identifying constraints to successful implementation, and concluded that one significant obstacle was the food safety managers' belief that "the food safety controls in effect at a given firm were sufficient" (2006:455). In other words, business owners felt food safety was already being ensured at their site. The researchers also assumed that HACCP implementation would take place in a similar fashion on small scale operation as on a large scale, and that it would benefit small food processors. The fact that operators expressed that the HACCP was not necessary or advantageous for them was simply portrayed as a constraint to HACCP implementation. (As mentioned in chapter one, HACCP was originally designed for and applied in the food processing sector. On a small and localized scale, food processing businesses—which could involve home-based production of jams, crackers, baked goods, etc.—could encounter similar difficulties as community farms, and may have some of the same mechanisms available to provide for trust, accountability and traceability.)

Cost

The most commonly cited negative impacts that HACCP can have on small producers or food processors are financial (Taylor and Kane 2005; Friedberg 2002; Dolan and Humphrey 2000). Food safety programs can be costly, and proportionally they cost small farms more than larger ones. Larger operations tend to have greater access to the

staff, finances and technology required to meet certification requirements (Ibid). Many

certification programs require annual auditor visits at the farmer's expense, and the cost

for this can vary depending on a producer's proximity to the available inspector.[32] In the

food processing sector again, Herath et al. (2007) concluded the cost of implementation is

the top reason why small food processors in their study did not implement audit-based

HACCP programs[33]. Friedberg (2002) also demonstrates that audit-based governance

initiatives (HACCP or otherwise) in the agri-food sector are designed for farmers with

considerable financial capital, and may disadvantage farms without sufficient financial

means. Specifically considering food governance initiatives implemented by food

retailers, she states:

> Although the supermarkets' increasingly stringent hygiene, environmental and ethical
> standards were in principle scale-neutral, in reality they favoured producers who could
> mobilize all the financial and human resources needed not just for defacto compliance but
> also for demonstrating compliance through particular discourses and practices (2004
> p.202).

Friedberg's passage notes there is a difference between defacto compliance with hygiene

or environmental standards (where the objectives of these standards are being realized),

and official compliance that requires that practices be communicated in a particular way.

For the purposes of this thesis, the "particular discourses and practices" required to

demonstrate compliance are the forms, checklists, floor plans, etc. that farmers are

required to fill out to demonstrate their compliance with HACCP, as well as the specific

technical language they are required to learn (at least to read) to demonstrate their

"management" of "critical control points".

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[32] Personal interview with staff of the Canadian Horticultural Council, December 2008.

[33] Across the author's sample, the most important barriers to HACCP implementation identified were
"internal budgetary constraints," problems obtaining external funding," and "other investments considered
more important".

The financial disadvantage that audit-based HACCP systems present to small businesses are clearly documented (Herath et al. 2007; Herath and Henson 2006; Taylor and Kane 2005; Bryar 1999;). However, small and alternative farms like those run by many of my research participants face other disadvantages as well that have also been recognized in the literature and by the food safety industry.

Administrative Burden

After cost, one of the greatest constraints to the implementation of HACCP among small food processors that Herath et al. (2007) identified was the administrative burden of the approach. Their researchers concluded that operators' impressions that "a lot of changes to our production practices [are] needed before HACCP could be put in place" (2006:455) and "the things needing to be done in order to implement HACCP overwhelmed us" (Ibid) were significant barriers to the implementation. The statements the researchers used might also be summarized as "*this approach is onerous for us*". Prior to Herath et al.'s research, Taylor and Taylor (2004) had drawn similar conclusions from their work in the agricultural sector. Specifically, they found that producer perceptions of HACCP as a "bureaucratic nightmare" were an important barrier to the implementation of HACCP programs on small horticultural farms. The authors suggest these perceptions are often informed by mere conjecture, rather than reflecting the reality of small farmers, but Maynard and Nault (2005) disagree. Speaking of the meat sector specifically, they reported that "small farms… are beginning to drown in paperwork that literally requires filing forms when moving livestock from one pasture to another" (2005: 20).

In my research, community farmers expressed concern that HACCP implementation could indeed present a significant administrative burden. They questioned the rationale for numbering pest traps and for tracking compost inputs. They also expressed concern regarding the time required to fill out HACCP forms and about the impracticality of having to fill them out while working out in the field.

Participants made it clear however that attention to food contamination risks is an integral part of their work. Some explained that an outbreak of foodborne illness could "ruin a small farm" and that their livelihood depends on ensuring food safety. Several asked for a copy of the OFFSP program manual and some began planning implementation of the program GAPs during our interview. All but two, however, expressed they would not be interested in participating in an audit-based certification program even if most of their farm practices already aligned with the required GAPs.

Participants were wary of implementing the OFFSP or a similar program primarily because they considered the documentation requirements to be a significant bureaucratic burden on their time. While most expressed an interest in learning and implementing the most recent research on safe production practices, they were not interested in documenting the implementation of these practices. The basis for their reluctance, it appeared, was not "practicing food safety" so much as having to "demonstrate" or "perform" food safety in an audit-based verification system.

The OFFSP includes six forms to be completed annually and thirteen that require ongoing updates.[34] One participant explained the administrative environment into which

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[34] The OFFSP provides flexibility to producers who comply with other regulatory programs by allowing them to use other forms that cover the same information. (For instance, any form that tracks the frequency of fertilization can be integrated in the OFFSP to avoid duplication with their form designed for this purpose).

these documentation practices would have to be incorporated if he were to implement the

OFFSP:

> With day to day farming you actually have a hard time getting enough hours to put onto a farm—just with looking after people, hiring people, filling out the hiring forms, keeping all your daily records for income tax and accounting, and the WCB[35] regulations, any environmental regulations and then all the municipal regulations and what not. Farms are probably the most "form-y" enterprise anywhere, because we own land and we're subject to a whole host of federal regulations, a whole host of provincial, environmental, work and all the rest of it— and then municipal regulations—taxes and labour codes. I mean, even now, bird and wildlife people are pressuring us to do more for migratory wildlife because we own land. Every year there's two more forms.

The farmer explained that he understood the rationale for record based practices but said

the practical result of the administrative burden they pose was a lack of personal or

family time, with little financial gain.

Certified organic producers have a considerable amount of record keeping to do in

order to maintain their certification, which is also audit-based, so record keeping is

already incorporated into their farm work. Interviewees with organic certification

observed that the organic standard includes food safety management and that OFFSP

would largely be a redundant quality standard for them. Some expressed dismay that the

cost for OFFSP materials for farmers who are not members of the CHC was higher than

the cost of organic certification which, as one participant expressed, "does more for us".[36]

Impacts on Farm Organization

In addition to significant costs and administrative burdens, audit programs can

change the organizational culture of a business that has previously not had to implement a

document management system. Farms that implement HACCP programs do not simply

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[35] Workers' Compensation Board

[36] The cost of the OFFSP manual is roughly $1000 annually for non-member of the Canadian Horticultural Council, and less than $30 for CHC members. This differential cost structure may have also contributed to participants' notions that the program was not designed for independent community farmers, because few of them or their counterparts are members of the agency.

"receive" the program and interact with the oversight agencies, unchanged. The imposition of a document based risk management system reaches into the organizational fabric of a farm. Busch explains that "businesses adopting HACCP must be organized in certain ways—not least in ways that permit audits to take place" (2004:175). Friedberg (2004) and Campbell (2005) explain that in countries where bureaucratic ways of working are not the norm, implementation of HACCP can require significant cultural adjustments.

The particular administrative and structural arrangements required for HACCP implementation are native to commodity farms, not community ones. Commodity farms typically have employees dedicated to operational management, whereas community farms are typically family run businesses (several on southern Vancouver Island are also cooperatives). A community farm may not have employees at all, let alone some dedicated to administrative functions. Further, many HACCP based food safety certifications rely on computerized record keeping. In one interview a participant noted that electronic reporting is a likely requirement for programs like OFFSP, and expressed concern that the need to document spatial information (such as for the floor plans of farm buildings), would require technical skills beyond the computer competencies of many farmers.[37] Some food safety programs provide computer programs to assist 'farm managers' with record keeping (Taylor and Kane 2004) and to help them involve farm workers in the record keeping process (Bryar 1999). While such tools may be useful, they require not only investment but also technological know-how that older farmers, or farmers without the time to become literate in the software, may not be able to acquire.

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[37] A computer generated floor plan was not a requirement of the OFFSP.

They may also present difficulties for small or alternative farms who, for example, lack internet access, use transient labour or whose farmers may have sophisticated agricultural knowledge but not technological knowledge. Campbell (2005), writing about the use of audit-based HACCP and GAP programs by the European Union and its trading partners, summarizes the situation thus:

> All of these programmes and audits are designed to be implemented by a farm operator/manager operating in a highly literate social environment, using skilled and literate labour, and able to interpret the intent behind some of the more obscure aspects of the [regulatory programs] (Campbell 2005:14).

Depending on the program or regulation, the literacy required for implementation can be considerably specialized. Despite the fact that proponents of HACCP laud its flexibility and many claim that it can be applied on any scale of business "from farm to plate", research literature indicates that farmers routinely need external expertise to understand, implement and maintain HACCP systems. The research suggests that successful implementation of an audit-based HACCP program can require a degree of technical and technological literacy, as well as employees who can manage extensive record keeping systems and the time and means to bring in experts as required. For some this would require considerable reorganization of farm operations.

One research participant also expressed the view that food safety programs were indicative of the institutionalization of food safety governance—not so much an attempt to address a real problem as an opportunity to entrench the jobs of regulators and bureaucrats who develop and manage the system. His conspiratorial reference to "people who get rich off my back" may gain some credence when one considers the proliferation of businesses and consultants dedicated to designing, promoting and implementing food safety programs. The farmer's comment is also supported to some extent by an early

planning and performance report on the OFFSP (no longer available) which cited the

expectation that the programs would

> create employment in the rural economy by creating a need for on-farm food

safety auditors. Another couple of research participants dialogued:

> Farmer A: "Well you know, risk aversion creates a huge amount of work and cost."
> Farmer B: "Oh it's a wonderful industry!"

During my research I encountered several instances where the work of implementing

HACCP programs was portrayed as highly specialized and requiring expert counsel. An

online advertisement for a private consultant firm that helps processors implement

HACCP programs serves as an example:

> With the right IT functionality, it becomes possible to master the HACCP process…. Mastering the process entails using document management systems, electronic work instructions, and automated compliance reporting. …The key is knowing how to make use of the IT tools currently available. [The research for sale] discusses proven approaches and some best practices for implementing systems support for your HACCP program. (Lewis N.d.)

This kind of mystification of HACCP implementation, and by extension food safety

management, may be the result of increasing competition among firms delivering

certification and audit services, or of a real growing complexity in the technological

design of audit programs. Either way it encourages farmers to change the administrative

organization of their farms to accommodate the audit process.

Participant Perspectives

The farmers interviewed for this research expressed varied perspectives regarding

whether food safety certifications provided sufficient benefits for the work required by

audit programs. Despite the considerable inconvenience involved with implementing an

audit system, most expressed that they perceived that record keeping could have benefit

in certain circumstances. "I can see that this is for a good purpose and it's necessary,"

one participant said after expressing the difficulty the workload would present to him and his wife, "but when do you do it?" Others did not see a role for government or the commercial agricultural sector to regulating community agriculture at all. Some only wanted to be "left alone to do their thing". Another, explained:

> I'd rather say to people, "Look, forget it, don't eat my food if you don't believe in what I did." You know, if you want something that's proven 'food safe' by authorities go and buy it in a supermarket!

Three participants who work in the public service framed the issue as a tension between the needs of small community farmers in the region, and those of the agencies that regulate their practices. One expressed being "of two minds" about the potential benefits of the program, explaining that some regulation of practices is a good idea, but that the particular way in which verification is addressed could present potential difficulties to small farmers.

> Not everybody does everything the way it should be done. [But] the implications are the little guys will fall down because they can't afford that level of compliance…. Academically I can understand why they want this. For a small farmer who's not necessarily having a steady stream of product week in and week out, I think this would be fairly difficult to implement.

Two others instigated a discussion about how policy makers face "an impossible task" in determining acceptable risk levels for food contamination, because this work involves an acknowledgement that a certain number of deaths from foodborne illness will be tolerated by the regulating agency. Their discussion illustrates McMahon's (2010) point that "farmers are ideologically vulnerable to invocations of health and animal disease control" (p.12). One farmer explained:

> Well I think there has to be an acceptable risk that you determine before you go the 'Nth' degree. I mean, I know that we're talking about people potentially dying, but …we will not, ever, keep everybody from dying. So we need to be reasonable about how we apply these—the regulations—so the small farmer can still go out and do his thing. We have to look at the risk and see what we think is an acceptable risk, and it can't be 100% risk adverse.

The other responded:

> Yes, but that's a very difficult thing. [Consider] the liability side of things: 'acceptable risk', what is that? As soon as you quantify things, and you say 'OK, our acceptable risk will be, for people who eat this, one death out of every 50 million meals'. Well, you take that before a court, the court's going to go, 'you quantified this? And you said that it was appropriate … how dare you put a price on the risk?'

The two farmers struggled with how to strike a balance between what they saw as "necessary measures" since the public needs to be protected from "one bad egg down the road, whose eyesight is going and he sprayed wrong", and what they also understood first hand to be a need on the part of small community farmers to be "left alone to do their thing".

Conclusion

Research on HACCP implementation among small businesses overseas corroborates what most research participants expressed, that audit programs would have greater negative impacts on community farmers than commodity enterprises. Research by Celaya et al. (2007) and Taylor and Kane (2005) indicates that smaller operations generally encounter more difficulties implementing HACCP than commodity scale producers. This raises questions about the consequences of HACCP programs for small, alternative farms on Vancouver Island.

The advantages of documentation based certifications touted by the food safety industry include improved relationships with consumers, greater accountability and food product traceability. These objectives are by and large already provided for through the practices and relationships that structure the localized markets of community agriculturalists. For this reason these farmers have less incentive to participate in an audited certification program than producers in the commercial sector. They also face several potential impacts stemming from the implementation of these programs. Audits

rely on replicable, predictable operational practices and this exerts a determining influence over how work is carried out. Because audit-based food safety systems typically assume a form of organization that is native to industrialized modes of food production, they can impose onto small and alternative farms a bureaucratic mode of operating that requires significant cost and time, as well as particular forms of knowledge and technological infrastructure. These requirements can force a fundamental reorganization of the operations and work involved in community farming.

5. Farmer Autonomy and Farming Knowledge

Lawrence Busch (2000) argues that agri-food standards such as those established by regulators or certification programs have a homogenizing effect on agricultural landscapes, food products and the actors involved in food production—including farmers, retailers and end consumers. The previous two chapters of this thesis provided examples of how HACCP based food safety certifications programs might contribute to this widespread standardization of agri-food chains. For instance, chapter three demonstrated that GAPs designed according to prevailing food safety norms can compel farmers to physically alter their farm environments, such as by requiring two-metre buffers of gravel or sod around farm buildings; trimmed bushes high off the ground to inhibit pests; or the replacement of brick and wood interiors with stainless steel and plastic sheeting. Chapter four demonstrated that audit programs require the implementation of measured, replicable and verifiable procedures that, like GAPs, standardize compliant farms internally so that the work is similar day to day, and year to year. The use of GAPs and audits also standardizes the production process externally, across farms. For example, compliant farms will have similar standard operating protocols for harvesting, washing and food storage, will request similar documentation of their suppliers and post the same instructional signs for staff and visitors. Each of these forms of internal and external standardization impacts the daily work of community farming and contributes more broadly to the standardization of farmers themselves and the occupation of farming in general.

In this chapter I examine the long-term consequences that these governance tools could have for the occupation of farming. I first consider what the theories of technology

and scientific management can contribute to our understanding about the standardizing effects of food safety programs. I then argue that HACCP programs displace the authority of farmers on their farms and exert pressure on producers' autonomy. I also argue that these programs redefine the role of farmers as managers, thereby changing the knowledge and skill base that their work (and by extension the occupation of farming) requires.

Technology and Scientific Management

In her CBC Massey Lecture "The Real World of Technology", Ursula Franklin (1990) considers how technology shapes work and social relationships, and redefines concepts of power and accountability. Her work considers not only the development of machines but also "technology as practice" (p.2), which she defines as "the organization of work and people" or "ways of doing something" that "involve organization, procedures, symbols, new words, equations and most of all, a mindset"(p.6). In this capacity, food safety programs that establish a particular, regimented approach for evaluating and carrying out production practices are "prescriptive technologies" (Ibid). In practice, they set out the constitutive steps of (in this case) a production process and require workers to develop the skills needed to carry out these tasks in the manner prescribed, rather than to learn the craft of production in a holistic or autonomous way.

Franklin explains that prescriptive technologies are "designs for compliance" (1990:16) that remove decision making power within a given workforce, thereby requiring less skill from workers and rendering workforces interchangeable and compliant. She states, "prescriptive technologies eliminate the occasions for decision-making and judgment in general and especially for the making of principled decisions (Franklin 1990:18). According to the author, a workforce governed by prescriptive

technologies has no need to exercise the situation-specific judgment associated with craftsmanship. The expertise needed to design, modify or improve a product or work process is removed from their scope of responsibility. In such cases the particular knowledge or wisdom of individual workers that extends beyond being informed about the program guiding a particular practice, has no role.

On farms, HACCP programs act as prescriptive technologies. One implication of this is that the special, traditional knowledge of farmers has diminishing relevance on farms that comply with them. In this thesis, Franklin's observations highlight the power of food safety programs to shape the nature of farming work, or more specifically to shape the skills and knowledge required to farm under the guidance, or governance of these tools. She states: "When work is organized as a sequence of separately executable steps, the control over the work moves to the organizer, the boss or manager" (1990:16). On small farms, the scientific division of labour implemented by food safety programs does not generally mean that the production of a given food must be carried out by several people, each responsible for one step in the process (as is often the case on large scale farms). What it does mean is that the farmer's control over the entirety of the production process has been displaced by the extra local authority communicated through the food safety program. In this new arrangement the farmer's responsibility becomes primarily the oversight of the program's implementation—that is, to ensure that prescribed practices are properly executed and documented.

Franklin's work on this subject is reminiscent of Harry Braverman and other classical labour theorists who claim that the dictation of how a task is to be carried out contributes to the alienation of workers from the labour process. In his seminal work

Labour and Monopoly Capital, Braverman (1974) describes how traditions of craftsmanship were destroyed during the industrial revolution and transformed into sectors for unskilled labour through scientific management. Much like the practice of prescriptive technologies that Franklin discusses, scientific management entails the subdivision of labour into component parts and the detailing to workers of the specific way in which each should be completed. In its purest form it involves dictating the precise physical movements and speed with which a task must be carried out, the aim being to maximize the surplus labour of a worker and to enable low skilled workers to complete tasks once the privy of skilled workers. Braverman describes that the holistic knowledge traditionally held by a tradesperson about a particular kind of production (metallurgy, cabinetry, etc.) was supplanted by this rationalistic approach. Rather than needing to understand an entire craft, under this approach a worker only needed to learn the work required to complete one step in a production process. Scientific managers had determined the most time and cost efficient way to produce a given result, and at the same time were able to eliminate their reliance on skilled labour (Ibid).

Under scientific management the skills required to conceive, design and improve production processes were transferred from the people carrying out that work to "thinking departments" (Scott and Marshall 2005:584) in the managerial strata of organizations, which would communicate the most efficient production practices to workers. Thus, this approach to the organization of work separates the holistic expertise required to design or govern a production process from the knowledge needed to carry out even a portion of the production process.

Transfer of Authority

     Franklin and Braverman's work has considerable relevance for agri-food governance. Food safety practices are established by people with expertise in food safety and food production who are situated externally from the farms where their expertise will be implemented. The food safety expertise is separated from, and has authority over the practices required to grow food.

     The rise of technology and scientific management developed during the industrial era and which led to the development of the forms of extra-local expertise we see reflected in food safety programs. These forms are well established in the commoditized agricultural sector where they are fundamental to the modes of production. As these programs have become popular and developed their markets, their reach has expanded into the sectors with smaller and more alternatively organized producers. In this environment—where a farmers' knowledge of, involvement in, and responsibility for farm production encompasses the entire cycle of production—extra-local forms of authority implemented through food safety programs have a bigger impact, effectively displacing the farmer's expertise.

     There are clear and significant differences between the scientific management of the industrial era and the recommendation of food safety GAPs to farmers; for example food safety programs are not generally targeted at increasing the financial or temporal efficiency of production practices. However, there are also relevant similarities, for instance a farmer's scope of independence and the extent of their authority on their farm are reduced by the implementation of agri-food certifications. Food safety programs frame farmers' responsibilities as ensuring compliance with the program. The legitimacy of expertise that governs how production should be accomplished is no longer located

with these farmers. Rather than having a job that involves balancing complex and competing priorities, making case-specific judgements and even "principled decisions" (Franklin, 1990), under a GAP or HACCP certification the farmer's role primarily involves implementing what is dictated.

The dictation of acceptable and non-acceptable farm practices signals a transfer of authority that will specify, for example, the kinds of materials used on farms (non-porous), or acceptable re-use practices (e.g. no re-use of packaging materials). Campbell (2005) identifies that "agricultural regulators have become a new form of social authority" (p.1). I add to his observation that the tools of agricultural regulators— certification programs and audit regimes—are also forms of social authority. In order to obtain and maintain food safety certifications and the markets that accompany them, producers need to defer to the universalized knowledge in this new authority. The shift in the legitimacy of farming expertise may ultimately impact the kind of skills that food production requires.

The OFFSP was designed by provincial member agencies of the CHC (who almost exclusively represent commercial producers), and by other federal agencies such as the CFIA and the Public Health Agency of Canada. The collective expertise of this group was codified into the program and is promoted and disseminated across the country as the authoritative way to grow safe crops. Farmers certifying in the program need to comply with the dictates of this authority, thereby reducing their own scope of judgment and discretion on their farms.

Many certification programs require that GAPs be undertaken fully or not at all, a choice that prohibits farmers from tinkering or experimenting with established practices

(Campbell et al. 2006). Once a process has been approved by authorities, the judgement of individuals is made absent from the system altogether. Neither 'farm managers', farm staff, nor in some cases even auditors or inspectors have the authority to make situation-specific judgements to amend established procedures. Compliant farmers have access to information on industry best practices but not the final authority to make decisions about the best way to accomplish their multiple priorities. The requirement to adhere to GAPs also erodes the autonomy of producers, restricting their ability to 'make do' when resources are slim or to employ substitutions or adaptations to normal practices for any reason. By mandating adherence to a system of verification that ensures food production practices are standardized, replicable and auditable, certification programs "remove human intentionality from the domain of food safety" (Busch 2004:175).

For some farmers this restricted autonomy may be of little consequence, but for those who farm ecologically, work with traditionally established practices, use unconventional building materials or are continually adapting their farming to changing circumstances, the regulation of how something is to be accomplished may restrict their ability to innovate. These impacts will be particularly felt among community farmers, who are more apt to use particular kinds of sustainable agricultural practices such as permacultural, biodynamic, and various other ecological approaches.

In effect, a HACCP program removes the farmer from the position of ultimate authority on their farm.

In the example mentioned in chapter three, whereby producers certified in the LGMA must contact their food safety authority if they see evidence that wildlife have breached the perimeter of production areas, farmers' autonomy to carry out case-specific

responses is eroded. In such a situation the authority to determine how food safety will best be ensured is situated extra-locally. The single course of action available to producers (contacting the food safety authority) eclipses many other possible options that could involve less time, cost or other inconvenience for the farmer while yielding the same result. They also eclipse the farmer's opportunity to rely exclusively on their own judgment and expertise were they to decide on the same course of action that a food safety program prescribes. The problem, from a regulatory point of view, is that the efficacy of the farmer's own solution is only as good as the individual farmer. The advantage of standardized required practices is the same as the advantage of scientific management—the field is easier to govern when farmers' practices are known and verifiable.

Another consequence of farmers' diminished authority is their diminished ability to pursue the multiple objectives that they have for their business and their products. Herath et al. (2007), researching food processors, corroborate what participants expressed (outlined in chapter three) about having several objectives for their farms. They state:

> Generally as a public policy goal a greater emphasis is placed on the food safety enhancement in the food supply chain. However, in practice firms strive to maintain or improve both safety and quality attributes and such efforts are closely interrelated and most likely are managed as a whole. (Herath et al. 2007:300)

Any agricultural regulation could be considered an infringement on the autonomy or authority of producers to some degree. What I want to draw attention to is the implications that the reduced autonomy and transfer of authority brought about by HACCP programs have for the work and the occupation of farming, specifically to community farmers. If farmers do not have the discretion to address the risks presented by wildlife on their farm and balance this risk mitigation with other objectives; if they are

forced to abandon practices that, for instance, reduce on-farm pesticide usage or encourage bird life, then the regulatory programs responsible change the sphere of influence that a producer has over their own farm.

HACCP programs do not only remove some of farmers` traditional responsibilities, however; they also replace them with other responsibilities such as ensuring that prescribed practices are being regularly and consistently adhered to and documented. These duties involve a significantly different kind of work and imply that what has been a prominent archetype in western civilization is being replaced with the role of the manager.

Farmer as Manager

As the prevailing approach to on-farm food safety management exerts an extra-local managerial sway over farm activities and removes farmers from a position of authority, it also re-defines farmers as managers whose responsibility it is to ensure that authoritatively sanctioned processes have been followed. The particular aptitudes and judgements required for farming are less important in a context governed by a food safety (or other certification) program than the managerial capacity to ensure that established procedures are being followed and the appropriate paperwork is being filled out.

By definition, food safety management requires farmers to take on managerial responsibilities. The OFFSP and much of the literature I consulted on the implementation of HACCP programs made reference to 'farm managers' but not to farmers (leaving one to guess whether these are one and the same). The textual re-enactment of 'food safe production' requires ensuring that all farm workers fill out the appropriate forms at appropriate times, ensuring that agricultural inputs come with certificates of origin that

are filed for future audits, ensuring that pest control systems are up to date and properly recorded, etc. Overseeing adherence to GAPs and audit systems requires farmers to rely on a considerably different set of skills than farming. These responsibilities emphasize inspection, administration, record verification and surveillance activities, but involve little actual interaction with crops or food producing landscapes.

The emphasis on managerial responsibilities may have the effect of distancing the farm manager from the more basic land-based activities of farming, with the result that they become less intimately familiar with the characteristics and particularities of the soil and crops being grown, and with the farm as an ecosystem. A long term consequence could be a change in how farmers are trained, the kinds of knowledge they develop, and where and how new agricultural expertise is developed.

I do not contend that the myriad skills involved in farming will be rendered unimportant by the addition of managerial responsibilities in a food safety program. Many farmers, such as those who are certified organic, are already adept at following recommended practices communicated through certification standards. At an individual level, farmers may experience new managerial responsibilities as an additional burden, but experience little other change in their daily work. At a macro-level though, I argue that the occupation of farming is impacted by this transfer of emphasis from land-based skills to managerial ones.

In Taylor and Kane's (2005) study, which piloted the utility of a HACCP tool kit designed to ease the implementation of HACCP by small and medium scale food producers and food processors, a lack of managerial ethos was interpreted by researchers as a barrier to HACCP implementation and therefore (according to the authors) also a

problem for food safety. The authors identified several respects in which smaller businesses failed to operate like their larger counterparts, and recommended the development of several project-management tools to help improve their performance, such as establishing "HACCP resource centres" and providing "management tool kits" (p.837).

As the authors' recommendations highlight, HACCP and other audit-based programs require managerial skills and an administrative infrastructure that may not already exist on a small farm. Marsden's (2004) work supports this notion. He indicates that the food safety industry is becoming increasingly professionalized, and increasingly distinct from the field of agriculture:

> The broader field … of agro-food, has also become increasingly populated with project managers, consultants, exchange agents, etc., such that a profession has been established to which some are excluded. In the agro-food sector this is largely done by assembling a bureaucratic-hygiene apparatus—itself something of a new compromise between governments and capital—in order to stave off further and potentially deeper consumer–led legitimization crisis in the old industrial system as a whole. In this context 'primary producers'—those nearest to the natural land base—are continually disempowered (Marsden 2004:142).

The knowledge base and technical proficiency required to implement a detailed HACCP plan can be considerable. Certification programs are generally tailored to each operation. Farmers are not required to know their HACCP plan by memory but, unless they have a "HACCP team", or a readily accessible food safety consultant, they need to be familiar enough with the program manuals, flow charts, etc. to be able to navigate the program and respond appropriately to deviations. The basic HACCP approach is not necessarily difficult to understand, but a HACCP plan can be very complex, especially on multi-crop and diversified farms. Farmers considering a full implementation of the program are typically encouraged to consult with HACCP experts. Numerous information technology programs and tools have been developed to help farmers navigate

program requirements, and an expanding array of private consultants do the same. The extensive lexicon of the food safety management, and the numerous tools, forms, charts, classification systems and other literature developed to help "farm managers" implement the process on their operation illustrate Marsden's point that food safety management has become a new, distinct field of expertise.

Drawing again on Busch's (2000) argument about the compounding homogenization that standards effect, it is reasonable to assert that GAP programs contribute to a standardization of farming knowledge. Specifically, the variable, fallible knowledge of individual producers or farm workers is displaced by universalizing processes agreed upon by authorities. This may impact the prevalence of place-based knowledge in agricultural production, such as is seen with *terroir* based markets.

Terroir, a term gaining popularity through local food and slow food movements, highlights the advantages that regionally specific agricultural practices can have on localized producers and markets. Terroir is particularly developed in Europe where towns only miles apart boast about the distinct differences in the taste of their produce and cheeses—differences attributable to bio-regional variations in soil and climate and to the particular farming/husbandry or processing that have evolved to showcase these variations (Holt and Amilien, 2007). Traditional agricultural knowledge around the world has involved production practices developed for particular climates and bioregions. Through practical experience and knowledge-sharing farmers have developed their knowledge of the landscape, climate, soil and farm biology and (with varying results) have learned to adapt farm practices in the face of changing circumstances (climate, market, available inputs). Such localized knowledge may be less useful in an

environment where the agricultural practices acceptable to purchasers or regulatory authorities are dictated and where variation from GAPs is considered "non-compliance."

Facilitating Governance

The impacts that HACCP programs may have on farming as an occupation, such as displacing the farmer's authority, minimizing their autonomy, privileging governance by external technical experts, and encouraging a standardization of farming knowledge, all render agricultural production easier to govern. Audit-based systems provide administrators (governments, trade partners, and other regulatory authorities) the advantages of extra-local oversight and diminished liability. Standardization also facilitates oversight at a distance and minimizes risks posed to the food system by producers who have poor knowledge of safe food practices. The OFFSP manual explains that a central objective of the program is to demonstrate the production practices in place, but the beneficiaries of this are not only consumers and farmers as the program identifies, but also public and private regulators.

Li (2005) has said that removing farmers from their traditions makes them more vulnerable to official command (p.391), but for those in charge of ensuring that no further food safety outbreaks occur in the province, minimizing reliance on the unpredictabilities of individual human judgement likely appears a sensible approach. More specifically, standardization and documentation of food production practices are rational approaches to governing producers in the agri-food sector**.** This rationality, as Friedberg (2004) reminds us, has its consequences. She warns readers that the subject of regulatory attention is not potentially unsafe food, but the traditional and particular practices of small farmers. "What is being eliminated is not risk, but livelihoods" (2004). The focus

on managerial responsibilities and managerial skills that HACCP programs introduce to community farms suggests that if these programs are taken up on community farms, the nature or character of this livelihood will change.

Conclusion:

      HACCP based food safety programs reduce the burden and responsibility for safe food production on individual farmers by mandating adherence to authoritatively sanctioned production practices supported by document-based systems of verification. These programs displace a farmer's authority on the farm and facilitate governance by extra-local authorities. By prescribing required operational and production practices they also minimize farmers' autonomy and flexibility. The programs address farmers as managers and assign them decidedly managerial responsibilities which rely on more bureaucratic, administrative abilities than the adaptive land-based skills that have traditionally been required for agricultural production. Such changes to the daily work of farming will have particular impacts in the community agricultural sector, where farming approaches are highly diversified.

6. Conclusion

Summary

Food safety programs are a mechanism of agricultural governance that provide for the minimization of food contamination and foodborne illness, and which also facilitate food trade and provide greater market access for businesses in the agri-food sector. These governance tools are developed, promoted and implemented by private agencies as well as by governments, and are becoming increasingly common both domestically and at an international level. One of the most prevalent approaches to food safety management utilized across the world is a three-pronged approach that consists of a HACCP risk analysis, standardized GAPs, and audit-based verification process. In this thesis I have simply referred to this approach as a "HACCP approach".

The increasing profile of food safety as a subject of public concern, as well as developments in the agricultural sector and in politics, suggest that food safety programs such as those based on a HACCP approach may be increasingly promoted to smaller and more localized producers. Community farms present a very different environment for the implementation of HACCP programs than large scale commodity farms. The potential for these programs to expand into small scale environments raises the question of how these programs might impact these alternative producers who are peripheral to the market but important to communities, social movements, and emerging food cultures on Vancouver Island and elsewhere. This is the question I address in this thesis.

I interviewed fifteen farmers based on southern Vancouver Island or the Gulf Islands whose work met the definition of "community farming" employed in this thesis, and inquired after their perspectives on the prevailing approach to food safety

management. A national food safety program, the On Farm Food Safety Program, was used to represent the three-pronged HACCP approach and to provide examples of food safety and audit requirements characteristic of this approach to food safety management. Participants' responses informed my examination of the potential impacts of HACCP programs on community farmers.

In this thesis I have identified three major impacts relating to HACCP implementation. First, as outlined in chapter three, food safety programs can require farmers to focus on food safety objectives to the exclusion of other priorities. Whereas community farmers attempt to balance objectives such as optimizing nutritional content of food products, encouraging on-farm biodiversity, and providing educational opportunities about farming for their community, HACCP food safety programs are uniquely designed to focus farmers' attention on food safety management. A particular and significant corollary of this impact is that some of the food safety practices required by HACCP programs interfere with the realization of environmental farming objectives. These requirements can force farmers to compromise ecological agricultural practices that, for instance, promote bird life on community farms. This situation impacts the ability of farmers to farm according to environmental values, which are of key importance in community food systems.

Second, as outlined in chapter four, HACCP programs are likely to impose a commercial-style administrative model onto implementing farms to facilitate a textually enacted demonstration of "safe food production" to auditors and customers. Academic and industry literature on this topic and interviews for this thesis both indicate that this administrative model would require significant reorganization for community farms.

Further, the audit system included in most HACCP programs does not account for the fact that food safety on community farms is already socially regulated through means such as the direct relationships between farmers and consumers, and the transparency and accessibility of community farms to the public. Rather, the extensive record keeping requirements can force community farmers to incur substantial expenses and administrative burdens that many participants said could threaten their viability. While nearly all research participants showed an interest in learning about new food safety practices, very few expressed an interest in implementing the OFFSP or a similar program because of the record keeping requirements involved. Farms implementing the program need to accommodate the technology, experts, operational management style, training, etc. that are required to implement HACCP and its audit-based verification system. For small family farms serving their local community such requirements could easily compromise their financial viability and also require significant changes to the way farming is conducted.

Third, as demonstrated in chapter five, HACCP programs have implications for the nature of the work carried out on community farms and for farming as an occupation. The prescriptive technologies and scientific management involved in the implementation of HACCP programs can reduce farmers' autonomy to make unilateral decisions about how to manage food safety, displace farmers' authority over what methods to use to grow produce and how to conduct farm administration and facilitate governance by extra local experts. This approach to organizing farm work may be routinized in industrial agricultural sector, but could fundamentally alter to the relationship between worker and work in community agriculture. HACCP programs, I assert, redefine a farmers' role as

that of a manager whose primary responsibility is to implement defined food safety management techniques and ensure proper documentation. Such a role emphasizes a need for management skills rather than those traditionally associated with food production, indicating a shift in the type of work and knowledge base involved in running a community farm.

Together, the impacts identified have significant implications for community farmers individually and for community food systems generally, and suggest that the prevailing approach to food safety management will have consequences in local and regionalized food systems that are not felt in the commodity sector. This in turn suggests that the community agricultural sector merits particular considerations with respect to the design and implementation of food safety programs and policies. The purpose of this research is to draw attention to the range of implications that these initiatives can have for community producers in order to stimulate further reflection as to how food safety governance initiatives (e.g., policies and programs) could better support community agriculture.

In the remainder of this section I consider a further consequence that the impacts discussed above could have for community farmers, which highlights the need to consider new models for food safety oversight. I then identify areas for further research that would contribute to this objective.

Delegitimization of Community Farming

Over time, the consequences of HACCP programs could cumulatively lead to a progressive delegitimization of community farms in the eyes of the agricultural industry, regulators and the public. The impacts discussed in previous chapters bring context to the

research on HACCP implementation that has depicted small farmers as inferior business people and producers or inherently less "food safe" because of their difficulties implementing the program. Taylor and Kane (2005), for instance identify some of the barriers to HACCP implementation among small and medium enterprises (SMEs) in the UK as problems of laziness and a failure to take responsibility. The authors concluded that "smaller companies were wary, even if money was available, of hiring consultants to give them the guidance they needed [for HACCP implementation]" (2005:836). They also concluded that smaller operators were unwilling to invest the necessary time to achieve familiarity with HACCP software and because "even after training and support [most owner/managers of SMEs] could not accept that verification or validation [of HACCP processes] was their responsibility" (Ibid:837). In a similar study conducted in Madrid, a different team of authors concluded that "major hurdles to…small businesses [implementing HACCP] are the lack of management commitment, training and motivation" (Celaya et al. 2007:10).[38] Such findings suggest that the small operators participating in the study are not shrewd or dedicated business people. The implication is that they lack the integrity and motivation to successfully implement the HACCP program. Judgments like the ones above contribute to a delegitimization of small producers by creating the perception that they are not capable of delivering safe food products, and not worthy of participating in a competitive agricultural market.

As it becomes increasingly established that small businesses, including community farms, have greater difficulty implementing the preferred model of food

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[38] Bryar (1999) also cites motivation as an important factor that has ensured successful HACCP implementation among small horticulturalists in Australia, although there is no indication of whether he might have deemed the small farmers he worked with to be 'motivated' because they were successful, therefore assuming that unsuccessful farmers had not been motivated.

safety programs among retailers and governments, small farmers may be increasingly viewed by regulators, other producers and the public as inferior. A certified organic farmer interviewed for this research, for instance, commented that she has been confronted directly with perceptions that organic farmers are 'unclean' producers because of some of their more natural practices. Recounting her experiences with the 2004 Avian flu outbreak, when organic chickens like hers became infected with the flu but had mortality rates close to zero (according to her because of their strong immune system), she explained that despite this strong performance, conventional farmers dismissed the organic approach saying, "You guys can't talk [about food safety]. You've got shit all over the place. You don't know anything about cleanliness...you're a menace to the whole business!"

Special training programs, consultations and prerequisite programs have been implemented to assist small businesses to implement HACCP programs. Also, several researchers have offered recommendations for improving HACCP compliance rates among small farmers (Asfaw 2007; Taylor 2005; Celaya et al. 2007). While these special initiatives may be designed to support the existence of small and localized farms, they may have the opposite effect. Targeted assistance may inadvertently portray small producers as inherently *in need* of assistance in order to operate safely. The presence of such programs, whether funded publicly or privately, may suggest to some that small farmers are somehow deficient, that their success or their food safety requires subsidization.

Nancy Fraser's (1997) examination of economic redistributive practices provides insight to this point. She states that a redistribution of resources to those who are

structurally disadvantaged is not necessarily an effective way to stimulate equality.

Writing about a situation where women are the targeted recipients of such redistribution,

she states:

> Leaving intact the deep structures that generate … disadvantage, [affirmative redistribution programs] must make surface reallocations again and again. The result is …to mark women as deficient and insatiable, as always needing more and more. In time women can even come to appear privileged, recipients of special treatment and undeserved largess (p.29).

With respect to the subject at hand, the structures generating disadvantage for

community farmers are food safety programs that do not align with their multiple

priorities, values, or the operational organization of their farms, and which force them

into new modes of operating. Even though the support mechanisms suggested above to

help small farmers are not intended as recurring 'redistributions', the relevance of

Fraser's argument is that special support measures can make recipients appear inferior.

If dominant narratives about food safety associate food contamination and

foodborne illness with outdoor food production or apparently chaotic landscaping, then

community producers may appear particularly "non-food safe". This could, in turn,

legitimate the imposition of safety systems designed by and for (superior) commodity

production environments, and perhaps also the closure of farms that are unable to

implement these systems.

Next Steps

My response in this thesis to the question "How could food safety management

programs impact community farms?" leads yet to further questions, such as: "How else

could food safety be regulated on community farms?" and "Is there a need for further

regulation of food safety on community farms?". I discussed these questions with farmers

during the interviews for this research and reviewed discussions on the subject in

academic and community-based literature. The most common kinds of recommendations

I encountered about how food safety should be regulated on community farms called for

scaled approaches—regulatory approaches that vary depending on the scale of the

operations they apply to. Maynard and Nault (2005), who were commissioned by the

Agricultural Institute of Canada to write a report on sustainable agriculture in Canada,

and who recognized a "staggering rate of small farm attrition" in the country,

recommended a differentiated regulatory framework to help support small producers.

They stated that "the imposition of [an undifferentiated] regulatory framework regarding

sustainable agriculture is likely to further accelerate the trend towards bigger farms,"

(Ibid:7). They further explained that:

> In all the reviewed literature, a singular treatment was accorded to the subject of
> agricultural sustainability—one size of analysis and suggested action fits all types of
> farmers. Given that there are substantial and increasing differences between the different
> sizes of farms, there needs to be differentiated treatment of the two principal types of
> farms that, regardless the subdivisions of categorization, are beginning to dominate the
> farming landscape: "operators who run large-scale businesses and operators who treat
> farming as a secondary income." (Maynard and Nault 2005:16)

What Maynard and Nault do not state is that the more small and alternatively organized

farms are disadvantaged in the marketplace, the more it becomes necessary for these

types of farmers to pursue other sources of income. A deeper exploration of this dynamic

is warranted, however the authors' point that increasing differences are associated with

farms of differing scales (discussed further below), and that there is a need to account for

these differences in farm programs, is supported by this thesis.

In the U.S., agencies wishing to address the disadvantages that the LGMA

presents to small farmers also recommended scaled initiatives. An Oregon based non-

profit forwards such a recommendation, while also drawing attention to the specific

advantages that a short food chain provides with respect to traceability and

accountability:

> We … believe that regulation should take the scale of operations into account and target the areas of greatest risk, and that the assessment of those risks should be scientifically based. Part of the analysis of risk should also be recognition that scale of operation plays a role in determining risk (Oregon Tilth n.d.; Kahl, 2009).

Even more to the point of this thesis, a research participant stated:

> To me, not differentiating between your big players, multi-nationals and small domestic processors is a major issue…that's where the trouble starts, because it's not a level playing field. You can't level the field for two different processes.

This last statement specifies not only a need to recognize differences in the size of

farming operations, such as differences in acreage and available capital, but also the

difference in styles of farming and farm practices that accompany changes in scale. As I

discuss throughout this thesis, the difference between commodity and community farms

is not only one of scale, but of kind. As farm scale changes, characteristics of farm

organization and farm work change qualitatively. For instance, running a family farm

generally requires that family members working on the farm have a diversity of skills and

that they become more intimately familiar with the entire production process than is

possible on a large scale. The availability of equipment, capital and extra labour may

fluctuate on a family farm so farmers need the freedom to accommodate changing

circumstances. A governance approach that requires replicability and consistency in

production practices can create difficulties in such instances. In order to support

community agriculture, practices of agricultural governance should account for the

qualitative differences between commodity and community farms as well as the more

obvious quantitative differences between them.

As outlined earlier in this section, alternative forms of agriculture will not be well supported by the implementation or subsidization of food safety management programs designed for the commodity sector. The policy challenge is to develop regulatory approaches that can respond to the particular needs of community farmers and provide advantages that have relevance for localized markets. The farmers interviewed for this thesis expressed a sincere interest in learning about the latest food safety practices, but many of the solutions offered to them by contemporary approaches to food safety—such as facilitating a demonstration of best practices, establishing mechanisms for traceability, or informing farm staff how to wash their hands—responded to questions that they were not asking or needs they did not have.

Food safety standards, McMahon (2009) informs us, "reconfigure structures of economic and political power that regulate people locally, their ways of life, and the nature of their relationships with the commons and the natural world" (p.19). A recognition of the regulatory functions of existing social relationships in agri-food systems could help minimize the social disruption caused by the implementation of food safety standards and allow for a more deliberate "reconfiguration" of regulatory relationships and food production environments. A governance approach that considers the particular food safety objectives and regulatory needs of producers and consumers in a given market and which is informed on the interrelation of these objectives with farmers' economic, social and personal priorities might provide a starting point. Such an approach would need to account for the variable ways of working established on farms, for instance: are children or visitors commonly involved in food production? Does the family dog travel with the farmer to the market? Does the farm border a forest or is it

located on a bird migratory route? Common situations like these pose a challenge within the parameters of conventional on-farm food safety management, and are more likely to be accommodated by a flexible approach that is designed with the outcome in mind, and also with the involvement of the nearby and agricultural communities.

A regulatory approach that supports community agriculture needs to be able to accommodate variations in production practices, to operationalize broad definitions of food safety and to support the diversity of cultural practices, natural ecologies and philosophic values that shape regional food systems. One of the key problems that the HACCP approach (particularly through the implementation of GAPs) presents to community farmers is that it imposes a standardized approach to food safety management onto highly variable terrain. Substituting the HACCP/GAP approach with a new set of prescriptions for realizing—and demonstrating—food safety will not support the heterogeneity of community farming practices or environments. A better approach needs to accommodate the "complex and widely different farming systems," the "vagaries of weather and soil complications interacting with plant, animal and microbial populations" and the "close contact between farm staff and living produce enterprises" (Baines et al 1999:4) that are central to community agriculture.

Despite the difficulties that the prevailing HACCP model presents for community farmers, the core of the HACCP approach could also be a useful tool for the minimization of food contamination risks. As a set of principles that set out a framework for the evaluation of contamination risks in a food production process, HACCP can be tailored to unique environments. Pared down to the first five steps of the risk analysis, the HACCP process guides producers through the identification of potential sources of contamination

and the development of controls and contingency plans. Decoupled from prescriptive GAPs and comprehensive record based systems, and operationalized without the use of technical jargon or technological requirements, the bare-bones risk management approach can be implemented by producers in a variety of environments.

There are multiple options for approaching food safety governance in a flexible, holistic and outcome-based manner. Further work is needed to design and test regulatory approaches that can better support and sustain community approaches to food production than food safety governance models imported from the commodity sector. An approach to food safety management that supports the production of nutritious foods, the expansion of sustainable land management practices and the viability and diversity of small producers while minimizing contamination risks is important, not only to ensure that foods produced on community farms are safe to eat, but also to ensure the security and vitality of the socio-cultural, ecological, and economic systems that produce them.

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