Roots of History, Seeds of Change:
Women Organic Farmers & Environmental Health in Jamaica

by

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ABSTRACT

ROOTS OF HISTORY, SEEDS OF CHANGE:
WOMEN ORGANIC FARMERS & ENVIRONMENTAL HEALTH IN JAMAICA

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This research seeks to address the gap in the literature on women, health, and environments by exploring the factors that motivate Jamaican women farmers to practice organic agriculture and how these might relate to their understandings of environment and health. The experiences and decisions of women farmers are also positioned within wider historical contexts of colonialism and agricultural change. Integrating a variety of theoretical frameworks, including public issues anthropology, ethnoecology, rural sociology, and feminist political ecology, my own scholarly analysis is merged with the perspectives of the women farmers interviewed in this qualitative study. This research found that women organic farmers in Jamaica were motivated by various factors related to environment and health and impacted by the island's legacy of slavery and industrialization. The findings of this thesis can be used to encourage the practice of organic agriculture and to improve human health and environmental wellbeing in Jamaica and beyond.

Dedications

Mashallah.

This thesis is dedicated to my amazing parents whose love has guided me from the very beginning:

- ≈ To my father, Bunny, whose wisdom has given me roots and for whom I have the greatest respect - thank you for always believing in me and for helping me to grow both emotionally and spiritually.

- ≈ To my mom, Diane, who first planted the seed of anthropology in my mind and inspired my love of nature - thank you for nurturing and supporting me unconditionally.

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I did it!

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Finally, I'd especially like to acknowledge the women farmers I interviewed for this study, whose words and ideas have given this thesis its spark.

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Chapter 1 - Introduction

If you were asked to ingest a teaspoon of pesticide each day for the rest of your life, would you do it? I suspect you would refuse, as for the past several decades, scientific research has continued to highlight the negative impact of agricultural chemicals on both human health and the natural environment (Horrigan et al., 2002). Despite these warnings, however, nearly *3 million tons* of chemical pesticides are used on food crops each year, contaminating our air, water, and soil and negatively impacting the earth's ecological balance (Horrigan et al., 2002).

Due to the widespread destruction caused by toxic chemical use in conventional agriculture, there has been a growing academic and public interest in alternative, sustainable, and ecologically-sound farming methods. In addition, many farmers have turned to natural farming methods as means of producing food in ways that protect, rather than destroy, human health and environmental wellbeing.

In Jamaica, as in much of the Third World, women farmers have been essential to the development of organic agriculture (Tandon and Rowan-Campbell, 2010), but what are the reasons that lie at the heart of women farmer's desire to use natural methods? And what are the contexts within which their farming decisions exist?

In this thesis, I explore the factors that motivate Jamaican women farmers[1] to practice organic agriculture. Specifically, I argue that Jamaican women farmers' ecological understandings have a direct impact on their agricultural choices. My central research question for this study asks: What are the factors that motivate Jamaican women farmers to practice organic agriculture and how might these relate to their understandings

[1] Throughout this thesis, my use of the term "women farmers" refers to women who practice either small or medium-scale agriculture in Jamaica. See Chapter 4 for more in-depth information about the women farmers in this study.

of environment and health? The specific goals of my research are: a) to investigate the ways in which Jamaican women farmers' perspectives of environmental health might impact their agricultural decisions and b) to situate Jamaican women farmers' food production practices within a wider historical context of colonialism and agricultural change.

Highlighting the Relationships among Women, Environments, and Health

Over the past several decades, researchers have drawn attention to the importance of studies that support the, "knowledge, prevention, and treatment of women's environmental health" (Hatch, 2000:A11), while also highlighting the need for an integration of women's issues into analysis of environmental health, and incorporation of environmental issues into paradigms for women's health (Rahder and Peterson, 2003). With much of the scholarly literature focusing primarily on women and environments, women and health, or environments and health, rather than the interrelationships among all three (Peterson, 1997), another goal of this research project is to highlight the interactions that are missing in the existing conceptual analysis of women, health, and environments, and to address what has been identified as a significant gap in the literature on these interconnected subjects (Rahder and Peterson, 2003).

Furthermore, as scholars have identified women's work in organic food production as an important aspect of the women, health, and environments research (Rahder and Peterson, 2003), this thesis is useful in that it draws attention to the linkages between these subjects by examining the ways in which women farmers' understandings of environmental health relate to their agricultural decisions.

However, in order to effectively answer and attend to my central research question and goals, it is important to explore the complex and interrelated topics of this thesis in greater depth. Thus, in Chapter 2, I review the scholarly literature and theoretical frameworks that have served as a foundation for this research project. In particular, I use an interdisciplinary approach to integrate perspectives from public issues anthropology, ecological anthropology, ethnoecology, rural sociology, ecofeminism, rural feminist theory, and feminist political ecology, as a means of addressing the conceptual issues surrounding women farmers' perceptions, decisions, and practices.

In Chapter 3 of this thesis, I provide a background and context for the contemporary practice of organic agriculture in Jamaica by looking at the history of agricultural change on the island. Specifically, I draw attention to the ongoing division that has existed between traditional Jamaican farming systems and the commercial and industrial systems introduced at particular points throughout the island's agricultural history.

In Chapter 4, I engage in a detailed description of the theoretical and methodological issues I encountered while conducting ethnographic field research. In particular, I draw attention to the benefits of using feminist ethnography as a research strategy, and highlight my own experiences engaging in field site selection, snowball sampling, participant observation, and semi-structured interviews, which were the qualitative research techniques I used for this study. Within this chapter, I also explore how the issues of positionality, translation, and representation can emerge as self-reflexive aspects of the research process.

The analysis section of this thesis has been divided thematically into two chapters, both of which draw extensively on my research interviews and highlight the various ways in which the experiences and knowledge of women farmers might be used as a solution to some of Jamaica's most pressing socio-cultural and ecological issues. While Chapter 5 explores the wide range of perspectives that Jamaican women farmers had about environmental health in relation to their agricultural practice, Chapter 6 examines Jamaican women farmers' perspectives on colonialism, industrialization, and agricultural change.

Finally, in Chapter 7, I conclude the thesis by reflecting on the significance and value of my research findings, highlighting their relevance to the field of public issues anthropology and suggesting directions for future research.

Chapter 2 - Theoretical Frameworks & Literature Review

In order to further explore Jamaican women farmers' motivations for practicing organic agriculture, their understandings of environmental health, and the historical contexts within which their farming decisions exist, I have drawn on several theoretical frameworks. The various conceptual strands highlighted here have informed my understandings of the issues surrounding women, environments and health, while giving focus to the goals of my research project.

From an interdisciplinary perspective, the complex and interrelated nature of my research topic necessitates an approach that takes into account multiple voices and theoretical perspectives, allowing me to engage in a more holistic and comprehensive analysis. Thus, in order to create a more cohesive conceptual framework for my research, I have relied heavily on literature from public issues anthropology (Borofsky, 2000; Lassiter, 2008; Tedlock, 1991; Scheper-Hughes, 2009); ecological anthropology (Kormondy and Brown, 1998; Kottak, 2006); ethnoecology (Nazarea, 1999; Rhoades and Harlan, 1999); rural sociology (Kaltoft, 1999; Goodman, 1999; Murdoch and Miele, 1999; Holt and Reed, 1996; Bjorkhaug, 2006); ecofeminism (Agarwal, 1992; Shiva, 1988); and feminist political ecology (Rocheleau et al., 1996), while also drawing on perspectives from environmental justice (Krauss, 1993; Hurley, 1995); and rural feminist theory (Sachs, 1996; Mohanty et al., 1991; Mohanty, 2001; Parpart, 1993). Within this thesis I have also focused on works that explore various ideological issues related to the themes of organic agriculture (Sumner, 2003; Sumner, 2005; Hill and MacRae, 1992; McMahon, 2002; Bjorkhaug, 2006; Campbell and Liepens, 2001; Bellon and de Abreau, 2006; Barham, 1997; Chiappe and Flora, 1998); women, health, and the natural

environment (Daughton and Jones-Lepp, 2001; Rengam, 2002; Dankelman and Davidson, 1998; Kettel, 1996; Shiva, 1988; Kothari, 1988; Hatch, 2000; Rahder and Peterson, 2003; Kettel, 1993); and colonialism (Weis, 2001; Stewart, 1992; Sharife, 2008; Mikolajek, 2011).

In the following section, I present a comprehensive review of the relevant literature related to my research topic. I begin the literature review by situating this thesis within the public issues anthropology literature, followed by an overview of the impact of industrial agriculture on both human health and the natural environment. Subsequently, I examine some of the central methods and theories of organic agriculture.

I conclude the chapter with a review of literature that unites women, environment, and health with agricultural knowledge and practice, thereby attending to the significant gap that has been identified in the literature on these interconnected subjects (Rahder and Peterson, 2003).

Organic Farming through the Lens of Public Issues Anthropology

As a subject that has continued to be featured in both academic and popular discourse, organic agriculture can be understood as an important public issue and relevant topic for scholarly research and analysis. In particular, public issues anthropology offers a unique theoretical framework from which to analyze the wider contexts and meanings related to organic food production in that it calls on anthropologists to engage in a "larger stream of public issues, concerns, and debates" (Lassiter, 2008:71; Borofsky, 2000; Tedlock, 1991) and merge these with anthropological thought and practice (Scheper-Hughes, 2009).

By drawing on my interviews with Jamaican women farmers to explore how organic food production might relate to wider global issues of human health and environmental wellbeing, my research has been rooted within a public issues anthropology framework, which encourages scholars to participate in activities that contribute, "directly and indirectly to the general public good" (Purcell, 2000:30). As public issues anthropology also encourages scholars to foster collaborative solutions to global problems by engaging in research that connects both academic and non-academic groups and dissolves the traditional boundaries between expert and 'layperson' knowledge (Borofsky, 2000), I have relied on a combination of theoretical frameworks and research methods, which highlight the value of scholarly information and practice, while also drawing attention to the expert knowledge of my research participants. In particular, I merge my own academic analysis with women farmers' perspectives on environmental health, colonialism, and agricultural change, and highlight the solutions that women farmers suggested would attend to a variety of ecological, socio-cultural and historical issues related to sustainable food production the Jamaican context.

In the following section I provide some background and context for my research topic by examining the problems inherent in the industrial food system. Specifically, I discuss the ways in which this method of food production has negatively impacted human health and environmental wellbeing, causing untold damage to local ecologies and threatening the welfare of future generations.

Industrial Agriculture, Health and the Natural Environment

> "Be mindful of the seeds you plant today, as they will become the crop you harvest." (Morrissey, 2011)

As the most dominant system of food production worldwide (Jacobs and Dinham, 2003), industrial agriculture can be understood as a profit-based model of agriculture that relies on a variety of invasive technological methods to increase harvests and decrease production costs (Barker, 2002; Bunce, 1982; Levine, 2007; Horrigan et al., 2002; Claudio, 2002). Many of the specialized and intensive techniques used in industrial agriculture, including crop irrigation, high-yielding plant varieties, and synthetic chemicals are designed to manage plant growth, and to reduce the destruction of crops from disease-causing organisms, such as fungi, worms, and bacteria (Barker, 2002; Miller et al., 2008; Horrigan et al., 2002; Goering et al., 2001; Dunn, 1998; Kormondy and Brown, 1998).

The prevalence of chemical use in industrial agriculture has meant that millions of tons of pesticides, including insecticides, herbicides, and fungicides formulated from more than 1,600 various chemicals, are used in global food production each year (Horrigan et al., 2002; Jacobs and Dinham, 2003). However, despite their perceived agricultural benefits, the synthetic chemicals used in industrial agriculture have posed serious health risks to humans and the environments in which they live (Barker, 2002; Kormondy and Brown, 1998; Conway & Pretty, 1991; Kimbrell, 2002, Pawlick, 2006; Horrigan et al., 2002; Badrie, 2007; Kavlock, 1996; Jacobs and Dinham, 2003; Levine, 2007).

Industrial Agriculture & Human Health

Human exposure to the pesticides used in industrial agriculture can occur through inhalation of toxic chemical vapours, ingestion of contaminated food and water, or through contact between chemical substances and the skin (Badrie, 2007; Kormondy and Brown, 1998; Horrigan et al., 2002). Studies have shown that pesticides harm the musculoskeletal, immune, cardiovascular, and gastrointestinal systems (Environmental Defence, 2006) and can interfere with the endocrine system by disturbing the complex arrangement of organs, glands, and tissues designed to emit and regulate hormones into the bloodstream (Kavlock, 1996; Jacobs and Dinham, 2003). While the long-term impact of pesticide exposure can include reproductive and developmental harms, respiratory ailments, organ damage, and cancer, the short-term effects of exposure have been linked to acute poisoning and death (Tegtmeier and Duffy, 2005; Levine, 2007; Horrigan et al., 2002).

Studies have also shown that women suffer more from negative health effects of exposure to toxic chemicals, experiencing higher rates of fertility problems, reproductive system abnormalities, and cancer (Hatch, 2000). Due to their ability to disrupt the endocrine system, the toxic chemicals used in industrial agriculture have also been linked to infertility and delayed pregnancy, while maternal exposure to toxins has been shown to increase the risks of developmental abnormalities and spontaneous abortion (Rodier, 1995; Garcia, 2003). As many synthetic chemicals are stored in fatty tissue, where they are able to continue to damage the body long after the initial exposure (Reeves and Rosas, 2003; Institute of Medicine, 1998), the increased occurrence, severity, and outcome from women's exposures to toxins can be attributed to the higher proportion of

fat in women's bodies (Jacobs and Dinham, 2003; Institute of Medicine, 1998). These increased levels of fat mean that women are more likely to store larger amounts of fat-soluble chemicals, even when exposed to the same levels of toxic chemicals as men (Institute of Medicine, 1998).

The build-up of pesticides in the fatty tissues of women's breasts has also been shown to be transmitted through breast milk, lowering the milk's ability to support healing processes, brain growth, and immune-system development (Reeves and Rosas, 2003; Van Esterik, 2002), while the fluctuation of hormone levels during specific stages in a woman's lifecycle, including puberty, pregnancy, and menopause, has also been shown to increase the receptiveness of women's bodies to chemical absorption (Hatch, 2000). In this way, chemical exposure, especially during biologically vulnerable phases, can negatively impact women's reproductive health and threaten their ability to give birth to and raise healthy children (Cooper and Kelly, 2003).

Industrial Agriculture & The Natural Environment

Research has shown that many of the technologies used in industrial agriculture cause significant environmental damage, limiting plant growth, polluting air and water, and reducing the biological activity and fertility of soil (Horrigan et al., 2002; Goering et al., 2001; Kimbrell, 2002). Industrial agriculture has also been linked to the overharvesting of resources: destruction of water, land, and crop diversity and weakened capacity of local ecosystems (Shiva, 1991; McMichael, 2007). As many of the chemical pesticides used in industrial food production are resistant to biological decomposition, they can collect on plant surfaces where they are eventually passed along the food chain (McConnell et al., 1984), negatively impacting local wildlife populations by disrupting

the delicate balance between predator and prey, causing developmental abnormalities in amphibians, and leading to the reduction of honeybee colonies (Horrigan et al., 2002).

Studies have shown that due to the imprecise nature of pesticide application in industrial agriculture, it is often only a minimal amount of chemical that reaches the target pest, while the remainder is left to leach into the surrounding ecosystem (Horrigan et al., 2002), creating high levels of stream and river pollution by seeping into soils, streams, underground aquifers, lakes, and rivers (Kormondy and Brown, 1998; Gliessman, 2005).

Researchers have also highlighted the serious ethical and environmental health issues related to the production of genetically engineered crops, which are made to contain traits from unrelated organisms through plant breeding processes and which have become a common feature of industrialized agriculture (Horrigan et al., 2002; Johnson et al., 2007; Nap et al., 2003; Azevedo and Araujo, 2003; Stewart et al., 2003; Konig et al., 2004; Bakshi, 2003). However, though there continues to be overwhelming evidence that points to the negative impact of industrial agriculture on both humans and the natural environment, including research which suggests that nearly every human and animal on the planet has absorbed some measure of agricultural chemical that cannot be broken down (Thornton, 2000), the agricultural chemical industry has continued to stress the commercial benefits of industrial food production, counteracting environmental health claims by insisting that death, disease, and mass starvation would result if agricultural practices were altered (Jacobs and Dinham, 2003). Yet, as the growing body of evidence suggests, negative consequences from industrial agriculture *do* exist and must be addressed.

In the following section I examine the methodological and ideological foundations of organic agriculture, pointing to the ways in which this natural and holistic farming system offers a sustainable alternative to problems of industrial agriculture, while fostering a mutually-enriching relationship between humans and the natural world.

Farming for Change: Methods & Theories of Organic Agriculture

Within organic agriculture, a wide variety of natural methods and technologies, including crop rotation, manures, leguminous plants, and composting are used to help protect local resources and to recover nutrients according to natural cycles (Bjorkhaug, 2006; Miele, 2001). Many of the agronomic, mechanical, and biological methods used in organic farming have been shown to conserve non-renewable energy and resources, limit disease, control pests, and maintain soil structure and fertility (Nelson, 2004; Goering et al., 2001; Innis, 1983).

Through the of specialized techniques that minimize environmental destruction, organic agriculture eliminates the need for pesticides and other agricultural chemicals, allowing farmers to protect and maintain valuable landscapes and wildlife habitats, preserve the diversity of local plants and animals, and decrease the levels of toxic substances in the natural environment (Holt and Reed, 2002; Bjorkhaug, 2006; Nelson, 2004; Goering et al., 2001). Through the use of sustainable production methods, organic farmers also give preference to long-term interests, such as environmental preservation and biodiversity, rather than short-term interests like commercial gain, which has continued to be the driving force behind industrial agriculture (Horrigan et al., 2002). The success of organic agriculture as a complex system of management designed to maintain a productive and healthy ecosystem also centres on a farmer's understanding of the local

environment, the strengths and limitations of his or her particular farm, as well as an awareness of the delicate balance between the surrounding ecosystem and its complex web of interconnections (Goering et al., 2001). In this way, the practice of organic agriculture adopts a systematic approach to the resolution of farm management problems, placing food production within the holistic context of an entire food system (Horrigan et al., 2002).

Finally, as research has shown that women are more likely to consider natural methods in their farming decisions (Onyango, et al., 2006), working at the forefront of natural and holistic food production movements (McMahon, 2002), investing in matters of environmental conservation (Geno, 2002), and acting as key players in the conversion of farms to organic agriculture (Bjorkhaug, 2006), the focus of this thesis on women specifically is certainly relevant in terms of gaining a more in-depth understanding of the factors which motivate women farmers to engage in organic food production.

Theoretical Perspectives of Organic Agriculture

For many organic farmers, the desire to produce food using natural methods and following the earth's natural cycles suggests a high level of environmental consciousness (Bjorkhaug, 2006). Additionally, through the use of holistic and sustainable methods, the practice of organic farming can also be viewed as a reaction to and rejection of the negative ecological impact of industrial agriculture (Bjorkhaug, 2006; Michelsen, 2001; Goering et al., 2001), and thus a recognition that "the technologies used for increased [agricultural] production are not sustainable and, in many cases, environmentally damaging" (DeWalt 1994:123). In this way, organic agriculture can exist as a grassroots movement within which agricultural resources are utilized to create ecological change.

An anthropological analysis helps us to see how interests in and decisions about organic agriculture are often based on culturally specific ecological values and understandings (Bjorkhaug, 2006). Campbell and Liepens (2001), Rengam (2002), and McMahon (2002) have explored organic farming as a means of addressing both the cultural and environmental problems of industrial agriculture and suggest that organic methods provide a unique challenge to the global food system in that they exist outside of the dominant models of food production and challenge broader tendencies for how food is grown and eaten. In this way, women who practice organic farming in local communities can also be seen as actively responding to the negative environmental and cultural impact of conventional agricultural practices.

Similarly, Sumner (2005) Bellon and de Abreau (2006) and Barham (1997) assert that as a sustainable and holistic form of agriculture, organic farming goes beyond the realm of production to include larger socio-political realities. According to Sumner (2005), organic farming has the ability to alter the path of modern agriculture from a system that produces inequality and environmental harm to one that fulfills a social-justice agenda and embodies an ecological consciousness.

McMahon's work (2002) also discusses organic agriculture's ability to shift dominant norms, reshape institutions, create space for independent social action, and change the face of modern agriculture from a "class, raced, and gendered project that produces inequality, hunger, and environmental degradation" (McMahon, 2002:204) to one that values rural women farmers, social justice, and environmental health (McMahon, 2002).

Within the rural sociology literature (Murdoch and Miele, 1999; Kaltoft, 1999; and Goodman, 1999), scholars have suggested that ideas about organic food, nature, and agricultural production are socially constructed and circulated in ways that bring meaning into the lives of producers, but fail to highlight the ways in which the production of organic food can exist as a "biophysical reality" that has real-world implications for women's health and environmental wellbeing.

Women, Health, and Environments: Important Connections

The indirect and direct poisoning of women exposed to dangerous pesticides has been explored extensively by Rengam (2002) who points to the lack of academic research on the gendered aspects of pesticide exposure. Rengam (2002) identifies the need for research on the specific impacts of toxic chemicals on women and discusses how the organic farming practices of women in local communities can be understood as grassroots responses to negative environmental and health effects from pesticide exposure. However, though Rengam (2002) does discuss gender as an important aspect of women's relationships with the natural environment, the unique biological context of women's environmental health is a missing piece of this research.

The ecofeminist literature has also been useful in drawing attention to the complex relationships that exist between women and the natural environment, with many scholars highlighting the how an abusive land ethic, in which the earth is viewed as no more than an economic resource (Thomas-Slayter and Rocheleau, 1995) has resulted in the oppressive domination of women and nature (Shiva, 1988; Hessler and Willot, 2002). While Shiva (1988) has explored the role of science, colonialism, and industrialization in creating a destructive connection between women's bodies and the natural environment,

much of the ecofeminist discourse has tended to focus on the symbolic and material aspects of women-environment relationships (Agarwal, 1992).

My own research, however, demonstrates that there is also an important physical relationship that exists between women and the natural environment, especially within the context of agricultural production. As synthetic chemicals have been shown to poison both the soil and women's bodies (Horrigan et al., 2002; Hatch, 2000; Reeves and Rosas, 2003; Institute of Medicine, 1998), a weakness of the ecofeminist approach exists in the lack of an essentialist position on the biological relationships between women and nature.

Farming as a Response to Women's Understandings of Environmental Health

Exploring the role of knowledge in framing behaviour has been highlighted by Nazarea (1999) as a useful means of identifying the factors that motivate people to engage with the natural environment. Nazarea (1999) suggests that by using an ethnoecological perspective, researchers are better able to understand how the technological, social, and ecological aspects of human-environment relationships can result from individual knowledge and lead to action and practice at the micro level. As the technological dimension of an ethnoecological analysis would include the treatment of pests, soils and crops in agricultural production, this approach is highly useful to my own research on the specific understandings that inform women farmers' use of sustainable farming methods. Additionally, the ecological and social components of the ethnoecological framework might also exist as a useful lens through which to examine women's responses to human-environment relationships as well as the unique historical and socio-cultural factors within which their agricultural decisions and choices exist.

Rhoades and Harlan (1999) have discussed the importance of research that

explores the ways in which women's perceptions of human-environment relationships are translated into real-world practices. Within this ethnoecological framework, the practice of organic agriculture can be understood as a decision that is based on women farmers' perceived interconnectedness with the natural environment.

Similarly, Dankelman and Davidson (1998) point out that as the most important food producers in the world, rural women often have a strong awareness of and dependence on the natural environment. Highlighting rural women's ecological knowledge as a factor that motivates their use of sustainable agricultural methods, Dankelman and Davidson (1998) also argue that researchers must listen to rural women's experiences and understandings of environmental issues and document the ways in which women farmers respond to environmental destruction through their farming practices.

Theoretical perspectives from ecological anthropology have also been useful for exploring the various ways in which human-environment relationships are experienced, understood, and responded to. As a central aspect of ecological anthropology is a focus on environmental problems, "their effects on human populations, and the response of people to them" (Kormondy and Brown, 1998:57), this approach encourages us to focus on the two-way relationship between environment and culture and to examine the choices people make in response to environmental conditions (Kormondy and Brown, 1998). Thus, for my own research, ecological anthropology offers a useful framework from which to theorize Jamaican women farmers' practice of organic agriculture as a reaction to the problems caused by the industrialized food production.

Perspectives from feminist political ecology and rural feminist theory have also highlighted the significant impact that women's lived experiences with the natural

environment have on their understandings of and responses to environmental health issues. Sachs (1996) argues that the situated knowledge and experiences of women who work closely with the natural environment offer perspectives that challenge dominant systems of food production, create the foundation for social and political movements, and enable women to shape and change their lives. However, though Sachs (1996) suggests that rural women's knowledge can offer unique insights into human-environment relationships and be used to inform both feminist theory and political action, she does not consider how rural women's perspectives and experiences of the natural environment also translate into decisions and practices that impact their physical health and environmental wellbeing.

The role of gender in shaping women's interests in and responses to environmental problems has been explored by Bru-Bistuer (1996), whose work on the grassroots environmental movements of Spanish women against industrial waste describes women's gender-specific experiences and perceptions as a unique standpoint from which to develop alternative environmental definitions. Bru-Bistuer's research (1996) also suggests that a "feminine model of environmental consciousness and action" (Bru-Bistuer, 1996:122) can be utilized as a foundation from which to design and implement new strategies for addressing environmental problems. In this way, the gendered contexts of Jamaican women farmers' agricultural work might offer important insights into positive models for human health and environmental sustainability. Similarly, Rocheleau et al. (1996), Bru-Bistuer (1996), Hurley (1995), Krauss (1993), and Kothari (1988) have also highlighted how social categories such as gender, age, race, class, and culture can shape women's interests in and experiences of the environment,

impact women's control over and access to environmental resources, and influence the types of ecological struggles and practices within which women become involved.

Several scholars (Sumner, 2005; Hill and MacRae, 1992; and Chiappe and Flora, 1998) have explored the core values and beliefs that underlie women's interest in organic farming, highlighting the ways in which women farmers' agricultural philosophies often reflect their ecological and social realities, demonstrate environmental stewardship, and present alternatives to the ecological destruction caused by industrial agriculture. These authors highlight the ways in which the beliefs and practices of women organic farmers can work to create a level of empowerment that translates to responsible practice and action. However, while Chiappe and Flora (1998) and Sumner (2003) draw attention to the specific factors that inform women organic farmers' interest in sustainable agriculture, including diversity, restraint, community and family life, independence, decentralization, spirituality, and harmony with nature, their research does not explore the desire to protect human health as a factor that might inspire women farmers to practice organic food production.

This section has provided the background and contextual depth of my literature review as a foundation and guide for my research. In the following section, I examine the historical context within which Jamaican women farmers' agricultural decisions exist, highlighting the ongoing division between traditional and conventional agricultural on the island.

Chapter 3 - The History of Agricultural Change & Division in Jamaica

Through an anthropological lens, the history of agricultural change and division in Jamaica can be seen as a unique framework within which the decisions and practices of women farmers exist. From this perspective, we are able to see that organic food production does not exist in isolation, but has been impacted by and resulted from a much broader historical context (Weis, 2000).

In this chapter, I situate Jamaican women farmers' use of organic agriculture within a wider historical context by exploring some of the key periods of agricultural transformation that have occurred throughout Jamaica's history. In addition, I draw attention to the ongoing divide that has existed between traditional and industrialized methods of food production on the island (Innis, 1983).

In order to "make use of historical accounts to provide a context for contemporary situations" (Sachs, 1996:9), this chapter also draws attention to the ways in which a colonial legacy has been "inscribed painfully on the Jamaican landscape [where it] cannot be removed from contemporary debates" (Weis 2001:92) about agriculture. By highlighting the role of both industrial and organic agriculture within the contemporary Jamaican context, I also suggest that the practice of organic methods is not new to Jamaica but is rather a revival of traditional agricultural knowledge systems and a return to the island's early roots of sustainable food production.

Prior to delving into the historical patterns of change and division that have existed in Jamaica, I present a brief overview of the island's agricultural sector. I conclude the chapter by discussing the role of women farmers in contemporary Jamaican agriculture.

Jamaica: Agricultural Overview

Jamaica is a tropical West Indian island that sits in the centre of the Caribbean Sea, 160 km west of Haiti and 150 km south of Cuba (Pan American Health Organization, 2011). The island is considered to be the third largest in the Caribbean, with a total land area of 10,830 km² and population of 2,702,300 in 2010 (The World Bank Group, 2011). With its arresting highland interior, striking coastal plains, rugged mountain ranges, lush tropical forests, and enchanting beaches, Jamaica is also an island of unmistakable beauty and ecological diversity (Schlosser, 1999; World Resources Institute, 2011).

Due to its tropical climate and richly fertile soil, nearly half of Jamaica's land mass is devoted to agriculture (The World Bank Group, 2011; Weis, 2001). In 2007 there were nearly 326, 000 hectares of farmland, with close to 62 percent allocated to pasture and crops (Statistical Institute of Jamaica, 2012). In 2011 food production for the Jamaican domestic market stood at nearly 147,378 tonnes (Saunders, 2011) with small-scale farmers, who produce on land of five acres (2.02 ha) or less, contributing significantly to the agricultural sector through the production of roots, pulses and vegetables (Campbell, 2003).

Large-scale farmers, on the other hand, have traditionally produced sugar, coffee, bananas, and pimento, cocoa, and citrus for the export market (Campbell, 2003). Though there is a wide variety of additional crops that are also grown in Jamaica, such as coconut, arrowroot, yam, corn, pumpkin, sweet potato, pigeon peas, okra, eggplant, cassava, dasheen, broccoli, bok choy, cabbage, tomato, dry and string beans, carrots, sweet and chilli peppers, onions, basil, cilantro, thyme, shallots, watermelon, cucumber,

cantaloupe, romaine and leaf lettuce, honeydew melons, and arugula (Syverud, 2006; Schlosser, 1999; Food and Agriculture Organization, 2007), the island continues to rely significantly on agricultural imports, which have traditionally included cereal, dairy products, fruits and vegetables, meat, fish, and poultry (Campbell, 2003).

As a legacy of slavery, Jamaica's agricultural sector is also characterized by vast inequalities in the size and quality of land on small farms vs. that of the large plantation estates which dominate the landscape and leave a mere 3 percent of landowners in control of almost 62 percent of the island's most fertile soil (The World Bank Group, 2011; Weis, 2001; Campbell, 2003).

The distinction between industrialized and organic food production is another important aspect of Jamaican agriculture. Industrial methods continue to be used on a majority of Jamaica's agricultural land, and with many farmers dependent on hazardous chemicals to maintain crop yield and output (Badrie, 2007; Weis, 2001), the island's total fertilizer consumption was over 33,000 tonnes between 2005 and 2008 (Food and Agriculture Organization Statistical Yearbook, 2010).

In contrast, the percentage of farmland dedicated to organic agriculture in 2008 was estimated at only 483 hectares or .09 percent of the island's total agricultural land (Weidmann, et al., 2010). Though in recent years the number of organic farmers in Jamaica has continued to climb, in 2008 only 41 farmers were estimated to be practicing organic agriculture (Weidmann, et al., 2010). It is important to note, however, that these numbers are not likely to account for the Jamaican farmers who rely on completely natural production methods, but whose farms have not been certified as organic.[2]

[2] See Chapter 3 for a more detailed explanation of various factors that have prevented many Jamaican farmers from aquiring organic certification.

Having provided a brief overview of the Jamaican agricultural sector, I use the following section to highlight the ongoing division that has existed between industrial and natural (or traditional) farming systems in Jamaica while also drawing attention the early relationships between colonialism and agriculture on the island.

Colonial Plantation Agriculture vs. Traditional Agricultural Knowledge

In Jamaica, the ongoing division between traditional and industrialized farming systems can be traced back to the earliest days of the island's agricultural history (Innis, 1983). Prior to colonial contact, Jamaica was inhabited by the Arawak Indians, whose ecologically-sound farming practices ensured that the mostly forested landscape was protected and sustained (Mikolajek, 2011; Weis, 2001). However, the arrival of the Spanish during the early 1600s marked the beginning of colonial rule in Jamaica, and with the island's rich and fertile landscape viewed as a significant source of profit and expansion, this period was characterized by the large-scale clearing of forests and land for agricultural crops and by the tragic annihilation of the Arawak Indian population (Weis, 2001).

It was not until the mid-1600s that colonial rule was transferred over to the British, who immediately sought to establish Jamaica as one of the world's most dominant agricultural industries (Weis, 2001; Mikolajek, 2011; Sharife, 2008; Innis, 1983). In order to satisfy the increasing European demand for sugar and other valued commodities, the British soon began the process of transforming Jamaica's agricultural landscape into a slave plantation economy (Weis, 2001). The introduction of this profit-based, industrialized agricultural system was characterized by the conversion of vast areas of farmland for the production of monoculture cash crops (Miller et al., 2008) and

linked to the destruction of beneficial organisms, intensive soil erosion, and loss of plant and animal biodiversity (Horrigan et. al, 2002).

In addition to causing widespread ecological destruction (Innis, 1983; Nelson, 2004), the colonial plantation system was also dependent on the forced agricultural labour of Jamaican slaves who were kidnapped from Africa and forced to work under a system of human cruelty and environmental exploitation[3] for nearly four hundred years (Weis, 2001; Sharife, 2008). Today, the legacy of colonialism has helped to maintain the stronghold of overseas markets over the Caribbean economy (Tianatta, 1998), while in Jamaica specifically, this legacy has also worked to establish a strong and troubled relationships between slavery and food production in the psyche of the Jamaican people (Weis, 2001).

Traditional Jamaican Agriculture

In contrast to the environmental destruction caused by the plantation system, the natural farming methods of Jamaican slaves worked to increase yields, reduce pests and disease, and protect the soil and surrounding ecosystems (Innis, 1983). Many of these methods existed as a part of a "dynamic and complex bodies of know-how, practices, and skills developed and sustained by peoples/communities with shared histories and experiences" (Beckford and Barker, 2007:118) and included a detailed and intimate understanding of local plants, animals, and natural phenomena that had been acquired over time through direct contact with the natural environment (Beckford and Barker, 2007).

[3] Though the horror and cruelty of slavery are beyond the scope of this thesis, several authors, including Curtin (1968), Piersen (1977), Davis (1999), and Morgan (2006) have offered important contributions to the literature on this barbaric system.

It should be noted that many of the traditional farming methods used by Jamaican slaves had been passed down as a form of "ecological inheritance" by their African ancestors (Innis, 1983). This rich body of agricultural knowledge, which had originally been developed on the African continent, was steadily incorporated into the daily experiences of each new generation of Jamaican slaves, enhancing their deep and intimate work with the land (Innis, 1983). In this way, through centuries of forced agricultural labour within the colonial slave system and using the rich history of traditional agricultural knowledge of their African forefathers, many Jamaican slaves inevitably developed an intricate understanding of sustainable food production within the Jamaican context.

Following emancipation in 1833, newly freed slaves (or early Jamaican farmers) were allocated land that was considered unsuitable for plantation agriculture because it lacked commercial value[4] (Weis, 2001). Due to the highly infertile soil in these regions, early Jamaican farmers were forced to devise strategies that would enable them to produce food in inhospitable growing conditions. Fortunately, by relying on a rich foundation of traditional agricultural knowledge which had been formed through centuries of regular experimentation at the farm level and enhanced through intimate and daily experiences working with the land (Weis, 2001), many early Jamaican farmers were able to establish small hillside farming systems using a variety of natural production methods (Reyes-Pacheco, 1995; Beckford and Barker, 2007). These hillside farming systems worked to prevent damage to and loss of Jamaica's natural resources and biodiversity and proved to be a sustainable and ecologically balanced alternative to

[4] See Weis (2001) for a more thorough explanation of the various social and ecological contradictions of Jamaican land ownership and reform.

plantation agriculture, especially in terms of its impact on the Jamaican environment (Reyes-Pacheco, 1995).[5]

In this section, I have described the early history of Jamaican agriculture, highlighting the division between colonial plantation agriculture and the traditional agricultural knowledge of Jamaican slaves. In the following section, I describe the Green Revolution as the period during which industrial agriculture was first introduced in Jamaica. I also draw attention to the negative ecological consequences that industrial food production has had within the Jamaican context.

Chemical Introduction: The Green Revolution & Industrial Agriculture in Jamaica

The advent of the Green Revolution during the 1960s marked a significant shift in patterns of agricultural production in the Third World[6] (Shiva, 1991; Hazell and Ramasamy, 1991). Throughout this period, agricultural production became much more technological and included a variety of industrialized methods, such as increased irrigation, intensive synthetic chemical use, and the development of new seed varieties designed to increase crop yields (Goering et al., 2001; Conway, 1999).

During the Green Revolution, many scientists and industrial enthusiasts interested in taking advantage of further market opportunities began to promote the industrial model on a global scale, presenting industrial agriculture as a technological "miracle" that could meet the rising demands of population growth, and challenge the notion of a global food shortage through agricultural surpluses (Vandermeer, 2009; Conway, 1999; Shiva, 1991).

[5] Though this paper focuses on the environmental impact of traditional and industrial agricultural systems, Reyes-Pacheco (1995) has drawn attention to the correlation between hillside farming and poverty among Jamaican rural farmers, highlighting the need for agricultural practices that will improve the social, ecological, and economic wellbeing of Jamaica and its people.

[6] Though the term "Third World" is now considered outdated terminology, I have used it in this thesis to highlight the exploitation, non-alignment, and inequality inherent in the capitalist world economy. The term "Third World" was also used by the women farmers in this study.

With pressures from development agencies, farm machinery companies, and the agro-chemical industry, many regions around the world began to shift away from domestic food production and, bolstered by the promise that chemical pesticides would lead to greater agricultural yields, began to grow crops for export to rich and well-fed industrial nations (Barker, 2002; Goering et al., 2001; Nelson, 2004).

Today, in the decades since the Green Revolution, the notion that industrialized agriculture can be used to challenge the limits of nature has been widely discredited due to its disastrous social, health, and environmental consequences (Goering et al., 2001; Shiva, 1991). In the Caribbean, a lack of government regulation for pesticide control has also meant the prevalent use of outdated and environmentally persistent agricultural chemicals (Ecobichon, 2001). Acute pesticide poisoning has been reported as a widespread problem among farmers who lack the proper information and training needed to avoid or limit the negative health impacts of these toxins (Ecobichon, 2001). In Jamaican specifically, many agricultural chemicals have been shown to permeate the natural environment, with studies detecting high levels of the pesticides Endosulfan and Diazinon (used to eliminate coffee and banana pests) in surface water, watersheds, rivers, and aquatic life (Badrie, 2007; Robinson and Mansingh, 1999). The toxic chemicals DDT, Endrin, Di-eldrin, and Aldrin have also been detected in Jamaica's coastal waters and sediment (Mansingh and Wilson, 1995), and large quantities of insecticide residues have also been found in many of the island's springs and wells (Robinson and Mansingh, 1999).

Having demonstrated the negative impact of industrial agriculture on both humans and the natural environment in Jamaica, in the following section I discuss the ways in

which Jamaican farmers have reclaimed the natural roots of the island's agricultural past, reviving traditional agricultural knowledge through their use of holistic and sustainable farming methods (Innis, 1983).

Organic Farming: Returning to the Roots of Traditional Jamaican Agriculture

For many farmers, organic agriculture presents itself as a welcome alternative to the damaging impact of industrial food production, as it eliminates a dependency on synthetic chemicals and diminishes the environmental health harms associated with their use (Weis, 2001; Pretty, 2002). In Jamaica specifically, farmers have relied upon a variety of natural methods, including appropriate crop rotations and combinations, experimentation with various food crops, seed varieties and soil types, and the application of stakes, mulch, soil cover, and organic materials to encourage soil fertility (Reyes-Pacheco, 1995; Beckford and Barker, 2007; Weis, 2001). Many of these methods have worked to improve crop productivity, yield efficiency, species diversity, and nutrient recycling and retention (Inter-American Institute for Cooperation on Agriculture, 1995).

Research on the benefits of sustainable food production in Jamaica has also pointed to the ways in which the practice of organic agriculture has enabled many farmers to apply local knowledge and resources in ways which conserve land and soil quality, contribute to the long-term progress of food security, and encourage a return to cultural systems of holistic environmental management[7] (Networked Intelligence for Development and Jamaica Organic Agriculture Movement, 2006; Syverud, 2006). In this way, the increased production of sustainable and locally grown organic food in Jamaica can be seen as a unique opportunity for the island to decrease its dependency on food

[7] Weis (2001) suggests that the ecological and economic aspects of organic agriculture in Jamaica must coincide with greater equality in land ownership, and with the socio-economic determinants that govern food production systems.

imports (Innis, 1983) and to remove the shackles of its colonial history by encouraging the agricultural process itself to become more dignified, socialized, and ecologically balanced (Weis, 2001).

Through the development and use of natural agricultural technologies, the practice of organic agriculture among Jamaican women farmers also suggests a desire to revive the basis of traditional agricultural knowledge and to reject the industrialized and profit-based models that have come to characterize the global agricultural landscape (Inglis, 1993). As the pre-industrial methods of traditional agriculture and post-industrial methods of modern organic agriculture share many similarities (Goering et al., 2001), with both contributing to the economic, socio-cultural, and environmental realities of food producers (Beckford and Barker, 2007; Nelson, 2004), the long legacy of traditional agricultural knowledge in Jamaica exists as a useful resource for farmers interested in practicing organic methods, as well as a framework from which both groups and individuals can articulate their agricultural ideas and goals (Inglis, 1993).

However, despite the efficiency and superiority of traditional agricultural techniques, they have continued to be disregarded and denied legitimacy, while large-scale, input-heavy industrial farming techniques have been privileged and encouraged (Nelson, 2004; Innis, 1983). In many cases, the intellectual inputs and rich agricultural knowledge of Jamaican farmers have been devalued for not being documented in academic journals or based on scientific experimentation (Innis, 1983; Beckford and Barker, 2007), and in this way, despite their time-honoured expertise and knowledge of sustainable farming methods (Vandermeer, 2009), farmers in many regions of the Third

World have been perceived as incapable of improving the state of their own agriculture and treated as though they are in need of a "helping hand" (Shiva, 1991).

In this section, I have highlighted the similarities between traditional Jamaican agricultural knowledge and the contemporary context of organic agricultural practice. In the following subsection, I point to the various ways in which the Jamaican government has worked to support the development of organic food production while also drawing attention to various aspects of organic certification on the island.

Government Support & Assistance for Organic Agriculture

In recent years, the Jamaican government has steadily worked to increase its support for organic agriculture in order to achieve ecological balance, tackle issues of poverty, improve Jamaica's access to the global food market, and contribute to food security and self-sufficiency (Clarke, 2005). With the increasing global demand for Jamaican organic vegetables, ginger, cocoa, pimento, and coffee, government interest in furthering the progression of organic agriculture in Jamaica has also centred on the desire to enhance trade and foreign exchange through the occupation of niche markets that offer long-term sustainable economic development.[8] As organic vegetables have become the fastest leading sector in the worldwide agricultural industry and with organic products commanding 5 to 20 times more than the price assigned to non-organic products, the Jamaican government has increasingly highlighted its efforts to supervise, promote, and monitor the development of organic agriculture on the island (Clarke, 2005). In the last decade alone, the Jamaican Ministry of Agriculture has invested $20 million to establish the National Organic Agriculture Enhancement Project (NOEAP) and the National Organic Agriculture Steering Committee (NOASC), both of which were formed to aid in

[8] See Nelson (2004) for a detailed exploration of the economic aspects of organic farming in the Caribbean.

the development of national organic agriculture policy, research initiatives, and local and international organic certification standards (JOAM, 2006; Thompson, 2010; Clarke, 2005).

The Jamaican government has also suggested that through the implementation of various "cultural measures" there could be a significant reduction in synthetic chemical use in local agriculture (Thompson, 2010). These measures have included the restructuring of the Rural Agricultural Development Authority (RADA)[9] by increasing the number of extension workers, training existing extension workers about the benefits of sustainable farming methods, and directing farmers to get "back to the basics" by educating about the economic, health, and environmental benefits of organic fertilizers (Jamaica Information Service, 2008).

However, while these measures are certain to have a positive impact on the development of sustainable agriculture in Jamaica, they do not specifically address what has been reported as a lack of available extension services for women farmers, which may further limit their contributions to national agricultural development (Protz, 1998; Networked Intelligence for Development and Jamaica Organic Agriculture Movement, 2006). With research showing that agricultural policies and programmes often fail to acknowledge the differences in women's knowledge, work, contributions, and needs (Food and Agriculture Organization, 2005), one of the main challenges for the Jamaican government will be to train extension workers to provide innovative and cost-effective means of communicating successfully with women farmers (Protz, 1998).

[9] The Rural Agricultural Development Authority (RADA) is Jamaica's chief agricultural extension and rural development agency. To see the RADA Handbook for 2011, which includes information about the organization's partnerships, services, clientele, projects, and contact information, visit: www.rada.gov.jm/2010/rada%20handbook.pdf.

As an important guide for the improvement of extension and technology development processes in Jamaica, Protz's (1998) research on the benefits of using a gender approach to meet the needs of women farmers suggests that extension officers must have an understanding of "science, technology, communication, local culture, and the role of social relationships in agricultural decision-making" (Protz, 1998:N.P.).

Additionally, as the quest for policy alternatives is directed away from the export-based, mono-crop production of industrial agriculture towards welfare, family nutrition, and food security, the contributions of women farmers will require much closer observation and analysis (Barrow, 1998). By investigating the findings of researchers who have explored these issues in depth, governmental organizations in Jamaica will likely benefit from developing an awareness of and response to the gender-blindness that has lead to women farmer's "invisibility" in research and policy (Barrow, 1998; McMahon, 2002).

Defining 'Organic': Farm Certification and Standards of Naturalness

Although organic agriculture can be understood as a natural method of food production, stricter definitions relate to a farm's management standards and the ability of the land to be certified as organic (Nelson, 2004). In Jamaica, farmers interested in acquiring organic certification must undergo rigorous certification processes (Clarke, 2005). As in much of the Caribbean, these processes require the discontinuation of synthetic chemical use over an extended period of time (Nelson, 2004). Through organic certification, Jamaican farmers increase their access to global trade, with organic labels providing international consumers with the guarantee that the products meet organic standards (Bryan, 2006).

Thus, much of the Jamaican government's financial assistance for organic agriculture has been aimed at ensuring that organic crops are produced in full compliance with organic standards so that farmers are able to achieve certification (Clarke, 2005). In recent years, the Jamaican Ministry of Agriculture (MOA), Rural Agricultural Development Authority (RADA), Jamaica Organic Agriculture Movement (JOAM), and the Jamaican Agricultural Society (JAS) have also sought to increase the involvement of local organic farmers in organic certification processes (Clarke, 2005), while various agencies and international funding sources, including the Canadian International Development Agency (CIDA), the Caribbean Regional Human Resource Development Programme for Economic Competitiveness (CPEC), the Jamaica Exporters' Association (JEA), and the Jamaica Organic Agriculture Movement have also made great strides towards aiding in the development of organic certification standards in Jamaica and throughout the Caribbean (JOAM, 2006).

In particular, JOAM has helped to train more than 14 Jamaicans as certified organic inspectors and has also released two guides for organic standards in Jamaica entitled "JOAM Standards for Organic Handling and Processing," and "Jamaica Organic Farming Handbook: A Guide for Extension Workers and Farmers,"[10] both of which were designed to meet an ever-increasing demand for assistance from Jamaican food producers involved in various stages of the organic certification process (Bryan, 2006).

However, though the most visible and measurable form of organic food production in the Third World is that which has been formally certified (Parrot et al., 2006), the work of non-certified organic farmers is often much less perceptible. Thus,

[10] A portion of these publications, as well as farm pre-inspection and process pre-inspection questionnaires are available online on the JOAM website at: http://www.joamltd.org/standards.html. These documents exist as useful tools for both farmers and extension workers in Jamaica.

certified organic agriculture might be understood as only a small percentage of "far more widespread and culturally embedded farming practices that rely upon ecological principles and knowledge" (Parrot et al., 2006:154).

Despite the numerous benefits of certification, research has shown that many Jamaican farmers do not have the necessary economic means to afford the certification process and are therefore unable to call their farms "organic"[11] (Syverud, 2006). In addition, studies have shown that the ability of Caribbean women farmers to make the conversion to organic food production is often limited by a lack of access to production processes and standards required for certification (Networked Intelligence for Development & Jamaica Organic Agriculture Movement, 2006; Kleyson and Campillo, 1996). As the conversion to organic farming must be both technologically and economically feasible (Eyhorn, 2007), these findings illustrate the various ways in which socio-cultural and economic constraints can limit the ability of farmers to obtain organic certification, even if they are, in fact, practicing natural methods of food production.[12]

Having explored the history of agricultural change in Jamaica, in the following chapter, I discuss some of the issues related to the merging of theory and practice in fieldwork, highlighting specific challenges, opportunities, and realities I faced in trying to apply anthropological knowledge in "the real world."

[11] The investment of both capital and time are major obstacles to small farms, creating significant challenges that can work to prevent Jamaican farmers from entering into the organic market (Nelson, 2004).

[12] Lockie (2006) suggests that the imposition of conformity in organic standards might work to perpetuate colonial power relations between the First World and Third World, as farmers in the Third World often have to seek certification from external agencies as a means if entering international markets (Lockie, 2006:). However, though this process can be highly disadvantageous for Third World producers, the creation of nationally and regionally based organic certification bodies (such as JOAM) have demonstrated the agency of Third World actors, as well as their ability to actively pursue and engage in international dialogues and processes (Lockie, 2006).

Chapter 4 - Anthropology in the Field: Linking Theory & Methods

Often referred to as the "basis of anthropological knowledge and theory" (El-Kholy, 2002:62), ethnography is a method of research that facilitates the holistic, relativistic, and comparative analysis of the socio-cultural, historical, and physical aspects of human existence (Zaharlick, 1992; Skeggs, 1994). The practice of ethnography centres on the telling of a rigorous, credible, and authentic story through the use of precise quotations and detailed descriptions of relevant events (Fetterman, 2010). Through the process of ethnographic research, anthropologists seek to both examine and engage in the activities and functions of daily life within a selected study community, offering a unique voice and perspective to the meanings of words and behaviours within culturally specific contexts. In this way, ethnography can be understood as a continuous process of theorizing and practice (Fetterman, 2010; Skeggs, 1994). However, as research methods are closely tied to research questions and ultimately influence the interpretation of events and data, they must not be used without critical reflection (Harding, 1987; Caplan 1988).

This chapter will focus on the research methods used in this study, exploring the theoretical foundations of feminist ethnography and highlighting issues of positionality, representation, and translation as they relate to fieldwork. Within this chapter, I also discuss the specific methods I used for this research project, including field site selection, snowball sampling, participant observation, and semi-structured interviews.

Theorizing a Feminist Ethnography: Aiming for Unity & Solidarity in Research

Feminist ethnography can be viewed as a useful framework and strategy for women-centred and women-driven research, as it encourages the use of small-scale,

detailed, and qualitative studies (McDowell, 1992). Feminist ethnography also promotes the use of research as an interactive process and allows researchers to forge relationships with participants that are more egalitarian and intersubjective than what has typically been made possible through the use of alternate methodological frameworks (McDowell, 1992; Duelli-Klein, 1983).

Within the feminist ethnography literature, scholars have also encouraged perspectives of anthropological research as both a theoretical and methodological tool, exposed the myth of the "neutral researcher," challenged the notion that a researcher must remain completely objective and distanced from research participants (El-Kholy, 2002; McDowell, 1992; Moore, 1994), and argued that the types of interconnections and relationships that can develop in the field are an important part of the research process (McDowell, 1992).

Through my own use of feminist ethnography, I sought to develop egalitarian relationships with my research participants (Stacey, 1988) by drawing attention to the commonalities we shared and by encouraging the mutual exchange of viewpoints throughout our discussions. I also chose to focus the majority of my energy on cultivating what has been called a "double consciousness" in the research process, where similarities in women's struggles can diminish the distance between the researcher and the researched (Fonow and Cook, 1991). Ultimately, this research project helped me to realize that by focusing on the ways in which I connected with my research participants, I was more engaged in the flow and exchange of ideas and information, aware of a sense of unity (be it through our shared history, background, interests or goals), and open to a more successful and enriching fieldwork experience.

However, while these goals are certainly admirable, scholars have also drawn attention to the issues of positionality, representation, and translation in ethnographic field research, highlighting the need for studies to include an element of self-awareness and reflection (El-Kholy, 2002; Rabinow, 1977). Much of this shift towards a more introspective and self-conscious ethnography can be attributed to the work of feminist scholars who have drawn attention to the ways in which a researcher's personal standpoint, power dynamics between "self" and "other," as well as differences in education, global location, and access to resources can influence the research process (El-Kholy, 2002; McDowell, 1992; Moore, 1994).

Arguing that critical examination and awareness must remain central to the practice of a holistic and reflective anthropology, scholars have also suggested that ethnographic research can work to disguise the power of the researcher who, in most instances, has greater control over the research process (Fonow and Cook, 1991; Stacey, 1988). Similarly, feminist critiques of "authorship" in ethnography have suggested that although methodology may place both the researcher and research participants in a mutual quest for understanding, the final research product is often "structured primarily by a researcher's purposes, offering a researcher's interpretations, [and] registered in a researcher's voice" (Stacey, 1988:23).

Thus, in the following subsection, I explore the complex issues of language and translation as they relate to ethnographic research, drawing attention to the ways in which these issues can emerge both during fieldwork and afterwards in the analysis and documentation of results (El-Kholy, 2002; Caplan, 1988).

What She Said: Voicing Issues of Language, Translation and Representation

In several of my research interviews, I noted that women farmers were speaking in Jamaican patois, which I found to be a commanding and refreshing linguistic style. Originally developed from English by Jamaican slaves, patois has been recognized by linguistic experts as an authentic language with consistent grammatical rules and verb tenses[13] (Mair, 2003; Pigott, 2011). Additionally, as it is spoken by a large majority of the population, many Jamaicans consider patois to be the "word of the people" and have joined a growing movement to have it recognized as the island's official language, encouraging pride and solidarity among patois-speakers (Pigott, 2011).

When considering the documentation and presentation of my research findings, the use of patois by my research participants presented a unique challenge. In particular, I questioned the level of comprehension that readers of this thesis would need in order to grasp the structure and meaning of certain patois words and phrases. As my analysis chapters draw heavily on my conversations with Jamaican women farmers, I struggled with whether or not I should "translate" women farmers' words, leaving them exactly as they had been expressed and allowing the delivery and flow of their words to be presented authentically or editing the structure and grammar of certain phrases so that they would be more accessible to a standard English-speaking audience and those unfamiliar with the local dialect.

Eventually, after much reflection and a thought-provoking discussion with a close Jamaican friend, I decided to use direct quotes in the analysis chapters of this thesis, enabling the voices of the women I interviewed to shine through in my writing. In

[13] Though it has been developed from the English language, Jamaican patois can be understood as a speech continuum ranging from a more traditional and 'thick' patois, to one that fits in more closely with more standard forms of English (Mair, 2003).

making this decision, I hope that I have demonstrated my desire, as well as the desire of many contemporary anthropologists interested in important public issues, to speak about, rather than speak for my research participants (El-Kholy, 2002).

Finally, by including direct quotations in this thesis, I have attempted to provide a clearer view into the understandings, practices, and motivations of women organic farmers in Jamaica. Though I have aimed to present the perspectives of these women in an authentic way, through the use, interpretation, and presentation of our conversations, their stories have inevitably been filtered through my own academic lens and perspective as a researcher. Therefore, with the exception of direct quotes, my own analysis and outlook on these issues should not be read directly as the voices of the women farmers with whom I spoke (Whatmore, 1990), but as a window into the exchange of information that took place throughout our discussions.

In the following subsection, I discuss some of the issues surrounding ethics, confidentiality, and disclosure in qualitative research, pointing to the unique challenges that these factors pose for researchers who seek to present rich and in-depth accounts of the fieldwork experience.

Ethical Considerations

For anthropologists engaging in qualitative research, the need to protect the confidentiality of study participants remains an important ethical responsibility. However, in trying to balance ethics with the practice of rigorous research methods, many researchers are faced with the complex challenge of presenting in-depth and detailed descriptions without compromising participant confidentiality. The challenges have been discussed significantly in the literature on qualitative research methods in

which scholars have discussed how the presentation of specific traits or descriptions about research participants increases the probability of their being identified by those within the local community (Kaiser, 2009; Sieber, 1992).

For my research of women organic farmers, the preservation of participant confidentiality has remained an important objective and obligation, especially as it ensures trust between the researcher and study community and helps to maintain public confidence in these types of studies (Kaiser, 2009). As the pool of women organic farmers is still relatively small, which allows for certain characteristics or descriptions of the women I interviewed to be more easily recognized, I have taken specific measures to protect their privacy. In this way, I have worked to ensure that I have presented a thorough and comprehensive account of my fieldwork experience while also fulfilling my ethical obligations as an anthropological researcher.

For this study, I have protected the privacy of my participants by purposely protecting names, locations, and any other potentially identifying information. I have also worked to maintain the safety and security of the data I obtained during my field research by keeping all documents in a safe, inaccessible place. As an anthropologist, I believe that one of the most important aspects of this study was the passionate, candid, and forthcoming way in which Jamaican women farmers shared their perspectives and understandings of environment and health and how these related to their agricultural work. It is my hope that the findings of this research provide substantial depth to the main themes and topics of this thesis without having to include any identifying information, which might limit women farmers' right to privacy.

This research project received approval from the University of Guelph Research Ethics Board. My research did not employ any deceptive strategies, and I did not foresee any risks for participants arising from my study. The recruitment of participants was also non-coercive and women farmers were given the option of speaking with me or not, based on their personal preference. The presumed benefits of this research for my study community would be an opportunity for women farmers to strengthen their desire to produce organic food and to build upon their connection to a wider movement of women committed to health, environment, and social change.

Finally, this research was generously funded by the Richard and Sophia Hungerford Travel Scholarship, Yeandle Family Graduate Scholarship, Richard and Sophia Hungerford Graduate Scholarship, Registrar's Research Grant for Graduate Students, and Registrar's Research Travel Grant.

Qualitative Research Methods

For this research project, I used a combination of qualitative research methods to capture the perspectives, understandings, and motivations of both small and medium-scale women organic farmers in Jamaica. These methods were selected for their ability to address my central research question, which asks: Is the decision to practice organic agriculture motivated by Jamaican women farmers' understandings of environment and health?

In this section, I explore the specific methods I relied upon for this study, including the field site selection, snowball sampling, participant observation and semi-structured interviews, while highlighting some of my experiences conducting research more generally.

Selecting a Field Site

On June 17th, 2008, my flight landed at the Norman Manley International Airport in Kingston, Jamaica. Shortly after I arrived, I began my 40 km journey north to the Greencastle Estate in rural St. Mary, Jamaica, which was to be my research-base for the duration of my field study. Situated on Jamaica's north coast between the Caribbean Sea and Jamaica's Blue Mountains, Greencastle estate (or "Greencastle" as it is referred to by the local people), spans over 1600 acres and is a place of great beauty and ecological diversity. The property features a tropical study centre and education house, both of which are designed to provide, "economic, social and educational benefits to rural Jamaican communities, students, and visitors through the integration of sustainable agriculture, eco-tourism and education," and facilitate various research and educational opportunities (Greencastle Tropical Study Centre, 2011:N.P.). Over 700 acres of the Greencastle property has also been designated for the production of certified organic tree crops, including pimento, coconuts, limes, and cocoa, while the estate also hosts one of the largest orchid and organic farms in the Caribbean.

As a field site and research questions are bound together (Neuman, 2003), my decision to use Greencastle as a site for my research project was based on the belief that this location would be most suited to helping me address the central questions of my thesis. With its focus on sustainable agriculture and ecological education and having received support from the estate's managing director who indicated that she would be willing to help facilitate my research goals by introducing me to key contacts, Greencastle was also a safe and convenient location from which to locate participants for

this research project. In the following section, I detail my use of snowball sampling as a method of recruiting participants for this study.

Snowball Sampling as a Method of Recruitment

For this research project, I relied on snowball sampling as a means of recruiting research participants. Snowball sampling is a method in which a researcher begins with only a few research contacts but spreads out to obtain further contacts that are linked to the original sample (Neuman, 2003). Snowball sampling proved to be a useful research method for this study, as each of the women farmers I interviewed provided me with names of other women farmers I could speak to.

In addition, Greencastle's managing director also helped to provide me with various contacts, including men and women farmers, academics in the field of organic agriculture, and community members involved in various aspects of food production. Often, these individuals would also suggest further organizations and individuals who could assist me with my research.

Participant Observation: Living with the People, Talking to the People

Participant observation can be understood as the most significant method of research in cultural anthropology (DeWalt and DeWalt, 2002). Loosely defined as the act of participating in and observing a particular cultural context over time (Neuman, 2003), participant observation can also be understood as a method in which the researcher or observer takes part in the daily rituals, interactions, events, and activities of the study community as a means of learning various aspects of their culture (DeWalt and DeWalt, 2002:1). For many anthropologists who engage in field research, the use of participant observation as a research method requires time spent living in the study community,

taking part in activities by "hanging out" and engaging in casual conversations, and by consciously making observations and internal or written notes. In addition, while most people can be understood as both participants and observers in their daily interactions, it is anthropologists, specifically, who use this type of information for the purposes of scientific inquiry and analysis (DeWalt and DeWalt, 2002).

I chose participant observation as a research method for my study of women organic farmers in Jamaica, as it allowed me to collect data in a way that was relatively unstructured and relaxed while also enabling me to take part in the various activities of my study community. This process helped me to build rapport with the people I met on a day-to-day basis and enabled me to grow accustomed to my new surroundings.

While engaging in participant observation as a research strategy, I took part in various discussions and activities, travelled to local marketplaces and towns, observed the practices of people buying produce in fruit and vegetable stalls, and noted the types of foods sold in the larger grocery stores. I paid attention to the ways in which people talked about food and farming and attended various cultural events, including concerts, speakers series, church services, conferences, and agricultural meetings. By merging participation and observation as a method of inquiry, I was also able to speak with several men involved in the local organic agriculture community, engage in impromptu discussions with women selling produce in local markets, and learn about Jamaica's troubled colonial history from friends and acquaintances.

While in the field, I was also able to speak with a male faculty member at the University of the West Indies (UWI) in Jamaica who discussed the ways in which changing cultural perceptions among many Jamaicans had worked to shift ideas about

food and nature, leading to nutritional deficiencies and environmental degradation. A lengthy discussion with another man who had been actively involved in the Jamaican organic agriculture movement for the past several decades also helped to illuminate the ways in which the Jamaican socio-cultural and agricultural landscape had been marked by deep structural inequalities related to food production and land ownership.

In providing me with additional perspectives and viewpoints, these fieldwork experiences were integral to the formulation of this research project, as they added depth and supplemented the information I gained through my interviews with Jamaican women farmers.

Thus, in the analysis chapters of this thesis (Chapter 5 & Chapter 6), where applicable, I have included information from various source material gained while engaging in participant observation for this research project.

In the following subsection, I describe my use of semi-structured interviews as a research method for this project and provide more in-depth information about my research participants. As described earlier in this chapter, the need to maintain participant confidentiality has necessitated that I withhold certain information about the women farmers I interviewed for this research project. Thus, pseudonyms have been used to protect the identities of women farmers and others who provided information for this study.

In Conversation: Conducting Semi-Structured Interviews with Women Farmers

For this thesis research project, I conducted five semi-structured interviews with a total of four women organic farmers in Jamaica. From the framework of feminist ethnography, the use of small samples in qualitative research allows the researcher to

build a closer rapport with research participants and enhances the quality and depth of inquiry in interviews (Crouch and McKenzie, 2006). Despite these benefits, however, researchers must also recognize the potential for interpretational limits if sample sizes are small (Wimmer and Dominick, 2010), including the inability to make generalizations from the research sample to the population as a whole (Newing, 2011). Though these limitations are an important consideration, studies with a small sample sizes still contribute significantly to the literature and are a useful foundation from which to make wider inferences that can be tested in future research (Newing, 2011).

In ethnographic research, the use of semi-structured interviews allows for a more flexible conversation between the researcher and research participant, especially as the researcher has a certain amount of freedom to adjust the sequence of questions or to add questions in relation to participant responses (Zhang and Wildemuth, 2009). As a research method, the semi-structured interview can be viewed as a "friendly conversational exchange" in which the interviewer tailors specific questions in order to meet the flow and requirements of the conversation, adjusts to the norms and language use of the participant, and enables the research participant to have equal control over the direction and pace of the interview (Neuman, 2003). In this way, the semi-structured interview is a collaboration between the researcher and participant, where the sharing of experiences and perspectives helps to build trust, encourages a mutual process of discovery (Neuman, 2003), and elicits the depth of information necessary for a comprehensive anthropological analysis of important themes and patterns.

For my own interviews, I engaged in conversations with Jamaican women organic farmers about a variety of subjects, including organic agriculture, environmental health,

and various other socio-cultural, historical, and political issues relevant to food production in Jamaica. While my interview questions (See: Appendix A) were designed to elicit answers and information that addressed my central research question, the relaxed nature of our conversations allowed us to communicate freely, encouraged a sense of connection, and ultimately made the process of fieldwork feel more natural (Bernard, 1988).

For each interview, I relied on the use of a digital voice recorder, which enabled me to record what women farmers said so that I could later revisit the conversations in order to pull out the important themes and topics. Audio recordings were supplemented by handwritten notes that I also added to at every opportunity.

Interviews took place at the homes, workplaces, or farms of research participants, with each conversation lasting between one and three hours and ending only when the level of information provided had reached saturation or when the research participant's personal schedule necessitated that they attend to other commitments. All of the interviews took place in the later part of the afternoon and were scheduled according to the women's availability. For conversations that took place on farms, women farmers were eager to show me photographs of their crops, describe the specific types of work that they did on their farms, and discuss the motivations and processes by which they had turned to organic agriculture. These property tours were an integral part of the interview process as the women's understandings of environment and health and their philosophies about organic agriculture often flowed forth as they examined their farms and witnessed the fruits of their labour.

In the following section, I identify some of the key characteristics of the women farmers I interviewed for this study.

Key Participant Characteristics

The farm sizes of the women I interviewed for this research project ranged from small-scale (1-5 acres) to medium-scale (10-30 acres). Tiana rented her property, and Daniella, Dominique, and Royale owned their own farm land. While all of the women I interviewed farmed for local sale, Daniella, Dominique, and Royale also farmed for personal consumption and to feed their families. In addition, Tiana and Dominique expressed an interest in exporting their products internationally.

In addition to growing food crops, the women farmers I interviewed for this research project were also involved in a variety of additional tasks related to their farm work, including manufacturing, quality management, sizing, packaging, and inspections. Several of the women shared the daily responsibilities of farming with anywhere from two to ten family members, labourers, and/or administrative staff. The variety of time each woman farmer had spent practicing organic agriculture also ranged from two to twenty years. While Tiana and Daniella had always practiced organic methods, Dominique and Royale described how they converted to organic agriculture after having started off using industrialized techniques. The key characteristics of my research participants are outlined below in Table 3.0.

Table 1 - Table of Key Participant Characteristics

	Tiana	Daniella	Dominique	Royale
Small-scale farm				*
Medium-scale farm	*	*	*	
Rented land	*			
Owned land		*	*	*
Farmed for personal consumption		*	*	*
Farmed to feed family		*	*	*
Farmed for local sale	*	*	*	*
Interest in export sale	*		*	
Converted to organic			*	*
Always farmed organic	*	*		

Overview of Participant Interviews

Tiana

I first contacted Tiana about a month before my field research began and asked her if she would be interested in speaking with me for this research project. She agreed immediately, and after I arrived in Jamaica, we met on two separate occasions.

The first interview took place at her workplace, which was in a busy urban setting, while the second interview occurred nearly two weeks later at her farm in the rural hills of Jamaica. On both occasions, Tiana struck me as a composed, intelligent woman with a direct approach.

At the beginning of our first interview, Tiana prompted me to speak, and I used this opportunity to explain the motives for my research and to express my interest in the practice of organic agriculture among women in Jamaica and around the world. Tiana soon warmed to our discussion and began to express her own personal philosophies on organic agriculture, health, and environment. I was struck by the depth of thought in which she presented her ideas and was appreciative when she indicated her support of my

research. At frequent intervals throughout our interview, Tiana would also answer important phone calls and field questions from her colleagues. During these times, I turned off my audio voice-recorder to allow her to handle these matters privately. At one point during our first interview, Tiana also asked me to stop the recorder so that she could say something "off the record," to which I immediately obliged.

For our second interview, Tiana invited me to out to see her farm, where we walked in the bright sun and examined the specific organic crops that she and her team were growing. During this interview, Tiana was very "hands-on" and encouraged me to observe and touch the various types of produce on her farm. Having a second opportunity to speak with Tiana in a different location also turned out to be of great benefit, as she was able to share new information with me and was seemingly enthused by being outdoors and near her crops.

Daniella

My interview with Daniella took place on the beautiful property that she both lived on and farmed. When I arrived, Daniella greeted me with a warm and welcoming demeanour and took the time to introduce me to her husband and to the other labourers on her farm. While she spoke, Daniella asked me to accompany her around the grounds of her property, and at frequent intervals she would stop to show me the different types of produce she was growing as well as the unique organizational aspects of her personal farming system. With her soft and calming voice, Daniella lead me through narrow pathways, pointing to the types of insects that were beneficial to the entire ecosystem of an organic farm and highlighting the different techniques she had devised to protect her crops from the natural elements.

I was happy to have brought a notebook and pen with me for my conversation with Daniella, as in the middle of our interview the battery for my audio voice-recorder suddenly died, and I was forced to copy down her words by hand.

Dominique

Throughout our conversation, I was taken aback by the vast amount of knowledge that Dominique possessed and by the passion she had for various aspects of organic agriculture. Though I began our conversation with a few questions, her in-depth knowledge of organic farming methods and of the wider Jamaican organic community meant that my mind was soon racing to absorb her words and ideas.

Additionally, with her vast collection of networks, organizational associations, and contacts, Dominique was an excellent source for snowball sampling, as she had a strong awareness of the agricultural activities of other women farmers from around the island, including the type of crops they produced, the specific techniques they used, and/or the size and description of their farms. She was also extremely generous in providing me with their contact information.

Overall I found Dominique's commitment to organic agriculture in Jamaica to be refreshing and inspiring, and I regretted the fact that I did not have further opportunities to speak with her about my research topic. I was also impressed by Dominique wider understanding of various aspects of food, health, and disease, and by her motivation to create change at both local and global levels.

Royale

It took nearly five hours for me to travel to and locate Royale's farm where she agreed to meet me for our interview. When I arrived, I found Royale working outside mending clothes on her sewing machine.

Throughout our conversation, Royale spoke with conviction, confidence, and purpose. She demonstrated a fierce passion for organic agriculture and gestured vigorously to emphasize specific points. Royale was brimming with ideas and opinions about organic agriculture, and throughout our interview, she discussed a variety problems, remedies, and solutions she saw in terms of her own experiences in food production.

At the end of our discussion, Royale asked her mother to show me around her farm and as she carefully displayed the various plants and products to me, her mother beamed with pride at Royale's hard work, telling me that Royale had "always been this way." Royale's passion and firm commitment to ecological sustainability were truly inspirational and I left our interview fuelled by the enthusiasm and zeal with which Royale had expressed her perspectives on organic agriculture.

In this chapter, I have set the scene for my research interviews by describing my fieldwork methods and by presenting some of the key characteristics of the women farmers I interviewed for this project.

The following chapter will draw on the data that arose out of my research interviews and will explore the ways in which women organic farmers' understandings of environment and health worked to influence their use of organic agriculture.

Chapter 5 - Women Farmers' Understandings of Environment & Health

Within this chapter, I present a scholarly analysis of the factors that were described by the women farmers I interviewed as motivating their practice organic agriculture. In particular, I highlight the various thematic areas that emerged from my interviews, linking the results to my central research question and to the ideological foundations that have guided this project.

Using direct quotes, this chapter explores the complex and varied ways in which health and environment are conceptualized by Jamaican women farmers, especially in relation their practice of organic farm agriculture. Though the reader may note a significant overlap among individual themes, I have presented them here under separate headings, allowing for greater organization in the analysis of their theoretical implications.

Prior to delving into a presentation of my findings, I begin with a brief explanation of my rationale for focusing this study on women farmers, including an important point of reflection offered by one farm woman on the limitations of woman-centred research.

Why Study Women's Interest in Organic Farming?

As explored earlier in this thesis, my interest in studying women farmers' perspectives on environment and health has been motivated by the significant lack of research on the relationships between women, health, and environments (Rahder and Peterson, 2003) and by scientific research indicating that women suffer more greatly than men from the negative health effects of exposure to environmental chemicals (Hatch, 2000; Reeves and Rosas, 2003; Institute of Medicine, 1998; Jacobs and Dinham, 2003;

Cooper and Kelly, 2003), with women in the Third World facing the highest risks overall (Dankelman and Davidson, 1988).

In terms of my field research in Jamaica, interviews with women organic farmers worked to both support and challenge the woman-centred focus of this thesis project. Many of my research participants described how the relationships between agricultural decisions and environmental health were of particular concern to women farmers and also indicated that a greater interest in these issues was common amongst women from around the Caribbean.

However, I was also challenged about my decision to focus exclusively on women farmers for this research project. Daniella expressed her concern that my singular interest in women farmers could be considered exclusionary and argued that men were equally important to the global struggle for improved agricultural standards, human health, and environmental wellbeing. Daniella also explained that just because women farmers were beginning to gain a foothold in the Jamaican agricultural industry, which had typically been dominated by men, it would not be productive for the scale to be tipped from one extreme to the other.

In light of these comments, it is important to note that although a focus on male farmers was beyond the scope of this research project, Daniella's perspectives are particularly relevant in that they highlight the important role that both women and men must play in global struggles for ecological sustainability.

In the following sections, I examine various factors that women farmers identified as motivating their agricultural decisions, including organic farming as a means of protecting human health, the socio-cultural and biological contexts of women farmers'

interests in health and agriculture, the desire to resist the chemical treatment of both bodies and land within medical and industrial systems, as well as women farmers' overall dedication to environmental issues.

In What Ways Do Environment & Health Motivate Jamaican Women Farmers to Practice Organic Agriculture?

For this thesis research project, I was interested in exploring the factors that inspire Jamaican women farmers to use organic production methods. As the following sections indicate, my research findings support the argument that Jamaican women farmers' understandings of environment and health motivate their use of organic agriculture. However, through an analysis of these findings, it also becomes apparent that the ways in which environment and health are perceived within the context of agricultural decision-making can be complex and multifaceted.

Organic Farming as Means of Protecting Human Health

Throughout our conversations, Jamaican women farmers regularly discussed the desire to protect human health as a factor that inspired them to use organic farming methods. During our interview, Tiana stated, "[Among] the women I know who farm organically, the motivation is the environment and health and all of that." Tiana also expressed her concerns about the negative impact of agricultural chemicals on human health, as well as her dismay that many Jamaican crops were grown using synthetic pesticides, herbicides, and fertilizers.

Both Dominique and Royale were also candid about the ways in which human health concerns had lead them to convert their farming practices from conventional methods to the sustainable and holistic techniques of organic agriculture. They each described how in their early days as farmers, they had relied on synthetic pesticides to

grow their crops. However, with increasing concerns about the negative consequences of agricultural chemicals on human health, Dominique and Royale were eventually inspired to "go organic," choosing to rely instead on natural methods. When asked why she did not use pesticides or herbicides, Royale answered:

> "I never grow up on chemical. Me never grow on it, you know, but I start to use it…to be honest with you, when I started agriculture for, like, the first year. Then things and time change and you don't know what -- what fi use. You never see Daddy with a spray pan, you never see him fertilize anything [if] you don't know what [it] did…you know, as a child. So when I started agriculture first, I was using chemical, but there was just something in me just said, No, man, this must be wrong." – Royale

Royale also explained that her mistrust of agricultural chemicals increased after she was instructed to wear special protective clothing when spraying her crops in order to prevent toxic liquids from coming into contact with her skin:

> "The thing that scares me most is that they tell you that when you're using the chemical, the suit you have a put on [is] like you are going a space -- me a say, 'No, this can't be good. Because if I have to protect myself from it so much, why am I using it? You understand me? It something [that] you [are] going to eat and it going down inside of you and it must -- if it go through…if it go through your skin [then] I'm like, So why am I using this? And that is how I start to -- say no, boy, because I never -- I wasn't comfortable." – Royale

Many of the women farmers I spoke with also believed that organic food was much healthier than non-organic food, a belief that was described as a guiding factor in

their own personal consumption decisions. Explaining her mistrust of produce that had been exposed to synthetic chemicals, Royale described how she regularly chose fruits and vegetables that contained imperfections or insects, as she believed these were indicators that the produce was less likely to have been treated with pesticides. Describing the efforts she took to minimize her exposure to agricultural toxins, Royale told me:

> "You go to the market to buy, like, for example, cabbage. You look so…do we have worm 'pon them? At least you know there's no chemical. So [you] clean off the leaf to look good. Me say no, me just want know some worm pon it because even though they use chemical on it, you know that it [has been] a while. So, because worm start to eat it again, so you can eat it. 'Cause me nah believe that everything we're eating is supposed to be eaten. No suh! You get the callaloo and the leaf them nice and pretty and whatever, not even a fly 'pon them. You're going to eat it, [but it] can't be good." – Royale

Women farmers' desire to protect the health and wellbeing of others was also described as a factor in their decision to farm organically. Royale explained that after deciding that she would no longer apply her own pesticides, she eventually hired someone else to do the spraying, but soon felt an enormous sense of guilt for asking another person to use a chemical substance that had the ability to "make someone's skin fall off." It was shortly after this incident, she explained, that she decided to give up the use of agricultural chemicals altogether.

> "And to get the guilt out, what we start to do was to employ somebody [else] to spray. And I'm like, no, because if you don't want it on your skin, why are you using somebody to do it, you know? And it was like guilt trip, trust me. So I had

to just move away from it and then me free, you know? It feels much easier to live…to be honest with you." – Royale

Several participants also discussed their interest in supporting the health of their wider communities through their agricultural practice. For Dominique, growing organically was important because it helped to ensure the availability of healthy quality foods in Jamaica. She pointed out that in recent years the number of fast food restaurants on the island had steadily increased and described her interest in exploring the ways in which organic agriculture could be used to help remedy some of the negative dietary changes that had occurred within the Jamaican food system.

Similarly, Daniella also indicated her interested in getting her own organic products into the local grocery stores, educating store owners about the benefits of organic foods for their customers, and encouraging restaurants to prepare dishes using locally sourced, organic produce.

During our interview, Dominique discussed her desire to gather more information on the health benefits of organic foods for ailments such as diabetes, hypertension, and heart attacks, which have been steadily on the rise in Jamaica (Weis, 2004), and described her interest in researching the health benefits of organic food for black women, who she explained were much more likely to die from coronary diseases.

Dominique's concerns about the availability of healthy foods and dietary changes in Jamaica are substantiated by research showing a steep decline in the national consumption of healthy foods, such as "fruits, vegetables, roots, tubers, [and] legumes" (Weis, 2004:477). While in the field, I was also able to observe the high number of fast

food restaurants on the island and noted that the types of imported foods for sale in most grocery stores often contained large quantities of sugar, synthetic colours and flavours.

Dominique's concerns were also echoed in my discussion with the male faculty member at the University of the West Indies who indicated that there had been an onslaught of western-style fast food restaurants on the island. He also highlighted how dominant cultural notions had positioned traditional foods as "backwards," while food "from foreign," although often nutritionally deficient, was often highly favoured. Dr. Williams also stated that changing cultural perceptions had encouraged many Jamaicans, especially Jamaican youth, to favour soda over coconut water, and unhealthy fast foods over traditional Jamaican staples, such as bulla, pear, yam, and peas, which were now thought of as "backward" and "poor." These perspectives are also reflected in Wilk's (1995) research on food in Belize in which he highlights how processes of colonialism have worked to increase the import of Western consumer goods, which are considered to be more superior and of higher value than goods produced locally.

These research findings demonstrate that for the women farmers who participated in this study, the desire to protect human health, including that of self and others, is a significant factor in their decision to practice organic agriculture. This contributes a new perspective to previous research on the factors that motivate women organic farmers' agricultural practices (Chiappe and Flora, 1998; Sumner, 2003; Sontheimer, 1991).

My findings also highlight the importance of ensuring that farmers are aware of the potentially negative impact of agricultural chemicals on their own health as well as the health of their family members and wider community, as this type of information can act as a significant impetus for farmers to convert to more sustainable agricultural

practices. In the following section, I explore the ways in which both socio-cultural roles and biological realities impact women farmers' perspectives of and responses to the health-related aspects of organic agriculture.

The Social & Biological Contexts of Women's Interests in Organic Farming

Throughout our discussions, the social and biological contexts of women farmers' lives were often described as influencing their interests in the health-related aspects of organic agriculture. Jamaican women farmers regularly discussed the ways in which the gendered roles, including their positions as caregivers, providers, mothers, and wives often meant that women were responsible for providing safe, healthy, and nourishing food for family members. In addition to making the main food decisions for their families, women farmers' gendered socio-cultural roles were also described as influencing their interests in the health-related aspects of their agricultural work, and shaping the ways in which they chose to produce food. When asked why she thought that Jamaican women farmers were interested in "going organic," Royale pointed out that because women were the most invested in the health of their family members, they were also more likely to consider the health aspects of their agricultural decisions.

The impact of gendered social roles on Jamaican women farmers' interests in the health-related aspects of organic agriculture were also highlighted when Royale explained that Jamaican women were generally more concerned with health than men and were much more likely to take charge of their health by seeking medical advice. In contrast, she explained, Jamaican men were more likely to ignore health problems and often avoided medical help:

> "I think women [are] more concerned about their health than men. Yeah…a larger percentage of women are more concerned because if a woman 'ave a headache she run to a doctor. Man? No. Man a lion, man, nothin' a wrong." – Royale

In this way, Royale suggested that the tendency for Jamaican women to be more actively invested in their own personal health also carried over into women farmers' greater interests in the health-related aspects of specific agricultural methods and techniques.

From this perspective, women farmers' agricultural work can be understood to exist within the larger context of gendered social roles that support and reinforce women their awareness of agriculture as it relates to human health and wellbeing. This finding points to the ways in which social categories can influence farmers' perceptions of and affinity with their agricultural decisions, and highlights the ways in which the gendered context of women farmers' lives can encourage them feel a greater sense of responsibility to protect their own health as well as the health of their families and wider communities.

During my research interviews, the biological contexts of women farmers' lives were also described as motivating their interests in the health-related aspects of organic agriculture. In particular, women farmers' perceptions of the body as a source of chemical transmission between mother and child often inspired women to use farming practices that would prevent the contamination of the maternal body and exposure of unborn children to harmful toxins.

When asked why she thought it was important to farm organically, Tiana pointed to the relationship between environmental chemicals and maternal health, suggesting that

the high rates of babies born with eczema and other diseases were related to the mother's exposure to environmental chemicals during pregnancy.

For Dominique, discussions about organic agriculture centred on the themes of healthy soil, plants, food, and bodies. Similarly, Tiana expressed her belief that the conversion of agricultural land and soil to an organic state was a positive step towards protecting the health of future generations.

In this way, women farmers' understandings of the maternal body as a route for the chemical transmission can be understood as inspiring their interest in farming practices that defend the bodies of women, babies, and future generations from the harmful impact of toxins used in industrial agriculture. The women farmers in this study can be understood as using organic agriculture to support human health, allowing the body to become a unique site of resistance to food that has been produced using synthetic chemicals (Eisenstein, 2001).

Though previous research has examined the ways in which the biological contexts of women's lives work to shape their interests in maternal health (Hausman, 2006), my own research takes these ideas a bit further by highlighting the ways in which women farmers' physiological realities can influence and inspire specific agricultural decisions. These findings are also closely linked to the work of Van Esterik (2002) who has examined the ways in which women's bodies, as sites of exposure to environmental contamination, are impacted by processes of globalization, which encourage industrial pollution, and increase the risks of adverse health consequences for children and infants connected to women's bodies through pregnancy and breastfeeding.

In the following section, I highlight Jamaican women farmers' distrust of the "chemical management" of both bodies and land within the medical and industrial industries as another factor that motivated their decision to farm organically.

Chemical Management of Body & Land within Medical and Industrial Systems

Throughout our conversations, participants repeatedly expressed their opposition to the chemical management of both the human body and agricultural land within medical and industrial systems and described this as a motivating factor in their decision to practice organic agriculture. Specifically, women pointed to the similarities that existed between the use of chemical medications for the treatment of illness and disease within the medical system and the use of chemical pesticides for controlling various agricultural "problems" in industrial agriculture.

Several of the women I interviewed suggested that because chemical treatment methods poisoned the body and depleted agricultural land, they were dangerous and ineffective. Tiana suggested that similar to the management of the body within the medical system, the industrial farming system also approached agricultural issues using toxic chemicals, and thus, she argued, both the body and land were managed in similar ways within these systems. Tiana also explained that within conventional medicine, a patient was prescribed a pharmaceutical drug to treat a specific illness or disease, but that often the prescription of these medications was designed to keep pharmaceutical companies in business.

> "Just like the health people [are] happy to poison us. To me they [have] studied it good. The way we treat our bodies -- I always say I'm trying to convert my body to organic because the medication that they give you, I can't -- I find it very

difficult to go to a doctor, a medical doctor, and then he tells me, "Oh, you have this illness, and you have to go on this pill for the rest of your life. And that's -- it's just about keeping the people who make the medication in business because if people are ill, you try to fix a problem. You don't try to stave it off as long as you can so they can buy that much medication from you as possible. And that's exactly what they do." – Tiana

Alternately, women described the benefits of using natural treatment methods to treat a wide variety of agricultural and human health issues. All of the women I interviewed described how various plants, including peanuts, scallion, thyme, mint, coconuts, and neem could be used to nourish soil, repel insects, kill larvae, and maintain soil moisture. Royale also told me that many of the plants found on her property could be used to treat health problems, such as chronic pain and malaria.

Women's resistance to chemical use in agriculture were also mirrored in the ways in which they chose to manage their own bodily health. Royale described how her faith and trust in natural and herbal remedies coincided with her refusal to use chemical antibiotics for the treatment of health problems or chemical pesticides to prevent insects from damaging her crops.

According to Tiana, the process of "going organic" required that an individual change both their diet and lifestyle so that their body could be healed in similar ways to how the soil was replenished through the use of natural techniques:

"So my thing is to, you know, to eat, change your diet, change your lifestyle [to organic], and eventually you get better. It's just like the soil, you know. So it's very synonymous in my mind." – Tiana

Royale explained how her doctor would only inform her of the herbal remedies for specific ailments, knowing that as an organic farmer she was dedicated to using natural methods for both her body and for the environment in which she lived and worked:

> "Let me tell you, my doctor…my doctor know [how] to come. She knows that don't tell me bout no antibiotic. What she'll do -- she said this is a problem and you can be treated with this antibiotic or you can use this natural remedy because she know what I'm going to choose. Don't just give me antibiotic." – Royale

These research findings demonstrate that for several of the participants in this study, both the body and agricultural land were perceived as being subjected to mutual processes of chemical contamination within medical and industrial systems. Women farmers' resistance to chemical treatment methods and belief in the effectiveness of natural methods was reflected in their agricultural practice and approach to the personal health.

These findings support previous research on the "no-chemicals approach" of organic farmers, which rejects the use of synthetic chemical inputs in favour of natural substances, and is based on the view that both agricultural chemicals and antibiotics are responsible for "killing life" (Verhoog et al., 2007). My own research goes a step further, however, by demonstrating that participants' perspectives on pitfalls of chemical treatment can influence their agricultural decisions and impact their approach to personal health.

My findings can also be linked to the ecofeminist work of Shiva (1988) who has analyzed the relationships between women's bodies and the natural environment, arguing

that the dominance and destruction of both women and nature is intrinsic to colonial, industrial, and scientific models. Similar to my own research, Shiva (1988) suggests that by cooperating with nature, women are able to cultivate healthy physical and environmental states, which allow for growth and, "aid in the maintenance of life" (Shiva, 1988:47).

In the following section I examine women's overall commitment to environmental issues as another factor that motivated their decision to practice organic agriculture.

Engaging with Nature: Women Organic Farmers & the Natural Environment

Among the Jamaican women farmers I interviewed for this research project, the desire to preserve, heal, and rebuild the environment in which they lived and worked was another factor that was described as inspiring their use of organic agriculture. Several women farmers explained how their awareness of and commitment to various environmental issues had pushed them to seek opportunities to champion and protect Jamaica's natural landscape, especially through their work as organic food producers.

Royale explained that many of the ecological problems faced globally were issues that should be of particular concern to farmers, who she described as "keepers of the earth," and discussed her own personal desire to protect the earth by relying on agricultural methods that supported environmental wellbeing. Royale also indicated that she felt a sense of hopelessness about the fact that many of Jamaica's environmental problems, including soil contamination from synthetic chemicals and the clear-cutting of agricultural land, were the direct result of the capitalist focus on increasing wealth at the expense of the natural environment:

"You will agree that everybody want to do something fe make a living. But who is going to pay for it? The environment in the long run, you understand? Because they are only focusing on just money. The amount of money that they can they can get back in dem hand. They're not looking at the destruction. [Do] you understand what they are causing? I'm going to tell you…I don't know how we're going to fix it." – Royale

During our interview, Royale also argued that many of Jamaica's most pressing environmental problems were blamed inaccurately on small farmers, when it was the large farmers who were actually responsible for bulldozing large areas of land, chopping down trees, and eroding soil by planting export crops in ecologically vulnerable areas.

"They are focusing on only the small farmers, as if the small farmers alone is contributing to the depletion of the soil and the forest. What about the larger farmers? Say, for example, the coffee farmers. Those men are men that has money. Those are millionaire. They can afford to put tractors in the area and bulldoze it down…They go up there and they destroy everything. Cut down all of the trees for what? Money! Just to plant coffee. And they are not looking at the problem that it's causing…So [the government] needs to place even more emphasis on the larger farmers because they are also contributing a whole lot to the environment [problems]. Yeah, I have a problem with them, big time. Because look at it, [when small farmers] burn coal -- I am not in agreement with it 100 percent, but look at it. They cut down the tree. They don't cut it down from the roots. Them cut it to burn the coal, it grow back. What about the big farmers who are going up in the hillside using the tractor and bulldozing, just pushing down all

of the tree, messing up the river and everything? And from me born people a burn coal and we never have this problem until the larger industrial farmers come into play, you know?" – Royale

Throughout our interviews, several women farmers also explained that through their use of organic farming methods, they were able to engage with nature in ways that substantiated and promoted their environmental understandings and beliefs. Dominique described how the various bird species located on her farm worked to control pests and pointed out that as a holistic system of food production, organic agriculture worked to increase the biological diversity and ecological sustainability of her farm. Dominique also suggested that there needed to be a greater awareness among the Jamaican public about the benefits of organic farming for local ecosystems.

Daniella indicated that the environmental aspects of organic farming were fundamental to her agricultural work and discussed how her commitment to "use everything and waste nothing," meant that fallen leaves from plants would be used as compost or fertilizer, which in turn would attract insects and birds beneficial to her crops. Daniella also suggested that more Jamaican farmers needed to be taught the benefits of using natural fertilizers, which would enable them to put all the "green stuff" back into the land, preventing soil depletion and addressing production issues using the least toxic methods.

For many of the women farmers I interviewed, the practice of organic agriculture also connected with their awareness of and commitment to tackling various environmental problems, including mining, deforestation, land and river protection, illegal dumping, and recycling.

Discussing her interest in establishing a community-organized recycling program for the reduction of public waste, Dominique demonstrated her passion and commitment to an environmental issue she described as bolstering the pride she felt from being an organic farmer. Dominique also described how she hoped to be able to foster environmental programs through networking partnerships and collaborations with various international universities, in order to educate Jamaicans about the growing need for a recycling infrastructure that could be help to teach new and practical uses for materials that had previously been viewed and treated as waste.

> "I'm running a recycling program in this community…because that's not organized down here. And it's part of a program to reduce our input into the public waste. So we're doing some recycling training...because we need people to realize that it's not enough to pick up plastic bottles, put them in a -- a -- a thing and ship them away. You're not reducing your carbon footprint. And [it's about asking] what can we make here that can be reused?" – Dominique

During our interview, Dominique also described how her desire to implement a recycling system in Jamaica reinforced her interest in organic agriculture as a system through which she was able to learn about managing waste according to the earth's natural cycles.

The need for a recycling program in Jamaica was also highlighted in my conversation with Dr. Rodriguez, who argued that Jamaica was in urgent need of a recycling strategy to help combat what he referred to as a "littering culture." Dr. Rodriguez also pointed out that historically, Jamaican people had drank from coconuts and tossed the empty husks into the brush, but with the advent of fast food and

commercial packaging, many people had started to discard styrofoam and plastic containers and were causing considerable environmental pollution.

From these examples, we are able to see that women farmers' interests in various environmental issues can work to motivate their use of sustainable agricultural methods, allowing them to reflect their wider attitudes about and sense of responsibility towards the natural environment through their agricultural work. In this way, a wider commitment to environmental issues can be understood as inherently tied to women farmers' practice of organic agriculture. In addition, my findings demonstrate that within the Jamaican context, women farmers' agricultural work also inspires their interests in other aspects of environmental stewardship.

Going beyond Chiappe and Flora's research (1998), which suggests that "harmony with nature" is a factor that motivates women farmers' use of organic agriculture, allowing them to connect with the natural environment in ways which respect the earth's natural processes, my own findings demonstrate that the desire to protect human health and environmental wellbeing can also exist as a factor that inspires women farmers to make the conversion to organic methods. Certainly for the women I interviewed, the importance of protecting personal health and the wellbeing of others was described as a significant factor in their eventual rejection of agricultural chemicals and adoption of natural and sustainable methods of organic farming.

In this chapter, I have explored the various ways in which women farmers' understandings of environmental health play into their agricultural decisions. In the following chapter, I contextualize Jamaican women farmers' use of organic agriculture within a wider history of agricultural division and change. I also draw attention to

Jamaican women farmers' suggestions for the ways in which organic agriculture might be used as part of a series of remedial actions needed to improve some of the socio-cultural and ecological issues related to the use and development of sustainable food production in Jamaica.

Chapter 6 - Women Farmers' Perspectives on Colonialism, Industrialization, and Agricultural Change

In many regions of the Third World, through the incorporation of traditional agricultural techniques and by engaging in complex landscape planning practices, women farmers have worked to produce higher yields, reduce chemical dependency, conserve land resources and species diversity, and increase self-sufficiency and control over the food production process (Dankelman and Davidson, 1998).

In Jamaica, specifically, women farmers have been shown to contribute twice as much as men to food self-sufficiency and the development of the island's agricultural sector by making decisions about agricultural conversions, engaging in commercial and community-based agricultural production, creating partnerships with men on household plots, and participating in independent farm management activities, such as planting, harvesting, processing, and marketing food (Innerarity, 1996; Barrow, 1994; Tandon, 2004; Protz, 1998).

However, in order to better understand the agricultural realities of Jamaican women farmers, it is important to examine the wider historical and agricultural contexts within which their farming decisions exist.

In this chapter, I draw on my interviews with women farmers to highlight the various ways in which Jamaican "(agri)culture," a term I use to describe the interconnectedness of both agriculture and culture, has been negatively impacted by processes of industrialization and the island's colonial history. I also use this chapter to draw attention to various strategies related to organic farming, including educational initiatives, government support, and networking initiatives that the women farmers in this study suggested could be used as solutions to some of the current problems related to

food production in Jamaica, helping to shift negative (agri)cultural perspectives and create a greater awareness about and appreciation for natural and sustainable methods.

It should be noted that the passion and conviction that women farmers demonstrated in discussing these themes and topics suggests a unique opportunity to learn about the issues that women farmers themselves identified as important to the future of sustainable agriculture in Jamaica.

The Impact of Colonialism on Cultural Perspectives of Agriculture

The negative impact of colonialism on cultural perspectives of agriculture was an issue that was raised repeatedly during my interviews with women organic farmers. Similar to Weis's (2001) research on resistance to ecological issues in Jamaica in which he suggests that the "memory of the institution of slavery [has been] indelibly imprinted on the contemporary Jamaican experience" (Weis, 2001:34), the women farmers I interviewed for this project argued that the Jamaica's colonial history had created negative psychological associations between food production and slavery in the social consciousness of the Jamaican people, diminishing the value of agriculture within Jamaican society.

Discussing the negative impact of Jamaica's colonial history on cultural perspectives of agriculture, Dominique explained that, like any occupation, it was important for farmers to respect and appreciate the type of work they did, but that in Jamaica, many farmers self-denigrated their agricultural work because they associated it with the "brutal conditions of slavery" (Floyd, 1983:218). When asked to elaborate on the ways in which Jamaica's colonial legacy had worked to negatively impact cultural attitudes towards agriculture, Dominique explained:

> "…in terms of people's attitudes to agriculture… if you self-denigrate what you're doing, then your quality, your productivity, everything is very difficult too. You don't take pride in what you do; you don't take pride in what you produce. And so the primary value to even enter the value chain has to be on you and what you provide. And that's not there because it's seen as a dead end, as nothing, you know, that's very useful, nothing that the society deems important." – Dominique

In this way, cultural perspectives of food production were described as being tied to the painful reminder of Jamaica's colonial past, negatively impacting farmers' perceptions of the *value* of their agricultural work and contributing to a general lack of interest in food production.

During our interview, Dominique also discussed her concerns about the ways in which cultural associations between food production and slavery had adversely impacted Jamaican youth, who would eventually be needed to take over as the future generation of Jamaican farmers. She pointed out that many youth were rejecting agriculture as an occupation, stating, "We don't get younger people going into farming because they don't see it as something that is good. [They feel that] it is slavery. That it's done with. [They feel that they] need to do something else now."

With the percentage of the Jamaican population employed in the agricultural sector steadily diminishing over the past decade (United Nations, 2010), Dominique argued that a change was needed in the cultural perspectives of agriculture, which positioned farming as a "useless, dead-end, and underpaid" occupation and troubling reminder of the island's colonial history.

While in the field, I also had the opportunity to discuss the impact of colonialism on Jamaican (agri)culture with a man named Mr. Costello, who had been a major advocate of organic food production in Jamaica for the past several decades. During our conversation, Mr. Costello pointed out that Jamaica continued to be defined by the "plantocracy," or ruling class of plantation owners that had been established during slavery. He described this system as characterized by deep structural inequalities related to food production and land ownership and argued that this system had ensured that many Jamaican citizens remained at a significant socio-economic disadvantage.

In the following section, I draw on my interviews with women farmers to highlight the various ways in which processes of industrialization have negatively impacted (agri)cultural practices and perspectives in Jamaica.

From Natural to Chemical: Industrialization and Agricultural Change in Jamaica

Throughout our interviews, women farmers highlighted how this process of agricultural restructuring had transformed Jamaican agriculture from a traditional system based on natural and holistic methods to an industrialized system characterized by the widespread use toxic chemicals for the removal of weeds and pests.

Royale argued that the introduction of industrialized methods in Jamaica was a specific strategy of First World countries whose supremacy within the global system enabled them to dictate to countries in the Third World:

> "It's simple really. You have the big man; you have the small man. You understand? And the big man [tends to control] us. We don't have any power. So the bigger people can dictate. They're in the bigger country and people [there] are

using [these chemicals]. They come to the Third World country. They start to introduce this to the people and tell them that it is easier." – Royale

Royale also pointed out that many Jamaican farmers had begun using synthetic chemicals as part of their regular agricultural practice after being promised that synthetic fertilizers, pesticides, and herbicides would increase crop volume and decrease growing time:

"Who never want that? Because if I am going to grow something…you can't convince me now, you know, but before...If it take me four months to get this thing and I want to make money [and] you come with a system that instead of four months I can do it in four weeks and get the money. Why not go ahead? Because you're not looking at the long term, and this is where all of this started. Because remember, you know, when you use the fertilizer the things that, as dem say, you pump dem up faster. The peppers, dem bigger; the tomato, dem bigger." – Royale

However, while the prospect of obtaining faster yields and higher profits was described as an appealing aspect of industrial food production, the women farmers I interviewed also argued that the adoption of synthetic chemicals by Jamaican farmers was accomplished through the "lies" and "brainwashing" tactics of chemical companies who purposely circulated a myriad of false claims about industrial agriculture.[14] During our interview, Royale stated, "Believe me, dem brainwash people from beginning...and that is why they can get to manipulate them… so the farmers start to do what dem say," and detailed the manipulative tactics of chemical companies who promoted pesticides but

[14] Kimbrell (2002) explores the ways in which corporate agriculture has continued to flood the public with myths and propaganda about the supposed 'benefits' of industrial techniques.

left out crucial information about the significant health risks related to the use of their products.

Though Royale agreed that chemical fertilizers did "pump up" vegetables and make them grow bigger, she also explained that this did not mean they were safe to use. Royale also argued that by advertising and selling toxic products, the intentions of chemical companies took on a sinister element because they were, in a sense, pushing to kill other people:

> "That is how they push the synthetic chemical, you know. They tell them about the nice thing what it can do for your plants dem. And they're not telling them about the bad part of it. And I believe that these people who manufacture the synthetic chemical, these people who are pushing people to use it, they don't use it. And they don't eat food that it is used on. Because everything, they…are pushing to kill other people, you know? So me don't know…" – Royale

Literacy, Chemical Labels, and False Information

The women farmers that I interviewed for this research project also described how the spread of misinformation about industrial agriculture in Jamaica was often facilitated by the fact that many Jamaican farmers did not read and were thus more likely to accept any available information about the use and safety of agricultural chemicals. Describing her concern about the ways in which high rates of illiteracy among Jamaican farmers had worked to limit farmers' knowledge about the dangers of agricultural chemical use (Jacobs and Dinham, 2003; Badrie, 2007), Royale explained, "Most farmers cannot read [and] they don't want anybody to know that they can't read" and expressed her concern

that as many farmers were unable to read the health warnings on pesticide containers, they were likely to accept misleading or false information as "gospel."

Royale also described how farmer illiteracy was often taken advantage of by chemical companies who would tell farmers to simply "mix this and add this" in order to remove pests and weeds without also warning them about the potential health risks of chemical use:

> "And the thing is with Jamaican farmers, sorry to say, but most of we no read… even now, most farmers can't read. They nah go read [the chemical labels] after and say, "No, this no good for [us]"…they just know [that the chemical companies say it will] get rid of] things that they wanted to get rid of, so everything is all right. Because, you see, let me tell you something, [the farmers] don't know…they don't read to know that this is not good for your health. Because remember, you know, if [the chemical companies] carry it to them [they] nah going tell them, "It nah good for you" because [they] want it to sell and [they] want [farmers] to use it, you know?" – Royale

In this way, high rates of illiteracy worked to reduce farmers' awareness of the dangers of new agricultural technologies and facilitated the industrialization of agriculture in Jamaica by providing chemical companies with easier access to populations from whom they could withhold crucial health information and push their toxic products.

Finally, the disposal of pesticides has also been reported as a significant problem in Jamaica, with many farmers using improper methods, including burning, burial, and dumping in bushes to discard of empty chemical containers (Badrie, 2007). Though these disposal methods are not recommended or supported by the Jamaican government,

farmers often lack information about pesticide toxicity and the means by which pesticides are able to enter the human body (Badrie, 2007). The easy availability of hazardous pesticides, the sale of agricultural chemicals by untrained dealers, and inadequate use of personal protective equipment are also factors that have increased the risks that Jamaican farmers face in their use and disposal of pesticides.

These findings were further substantiated by my own observations of workers spraying flowers and crops without proper equipment or ventilation and by the research findings of Tianatta (1998), whose work in the Caribbean has looked at the ways in which improper use of pesticides, paired with limited information and a lack of governmental resources, has placed many farmers at increased risks of adverse health effects from agricultural chemical exposure. Syverud (2006) also observed the hazardous use of industrial farming techniques in Jamaica, noting:

> "On a daily basis in the morning, it [is] common to hear the gasoline engine pesticide sprayers operating. Tomatoes, watermelons, cantaloupe, sweet melons, peppers, and other lesser crops were sprayed often with a combination of fungicides and insecticides. Some of the pesticides used are no longer available in the United States. Protective equipment is not used." (Syverud, 2006:2)

These risks highlight the continued need for farmer education and training, as well as government disposal programs and policy directives aimed at protecting Jamaican farmers from chemical exposure (Badrie, 2007; Serju, 2011).

In the following section, I explore ways in which processes of industrialization have worked to negatively impact perspectives of sustainable agriculture among Jamaican farmers.

The Impact of Industrialization on Cultural Attitudes towards Natural Farming

Throughout many of my interviews, women farmers also discussed the ways in which processes of industrialization had negatively impacted Jamaican farmers' attitudes towards sustainable agriculture. Specifically, the women I spoke with described how processes of industrialization had slowly worked to denigrate Jamaican farmers' opinions of natural methods while bolstering their support for synthetic chemical use.

Royale suggested that after adopting industrial farming methods, many Jamaican farmers had slowly forgotten the island's rich agricultural history and had become oblivious to the fact that generations of farmers before them had relied on natural methods of growing food.

Similarly, Tiana explained how the rise of industrial agriculture in Jamaica had worked to disassociate the majority of farmers from the realities of the land in which they have lived and worked for centuries. She also described many Jamaican farmers as having an "old school" mentality which was characterized by a loss of traditional agricultural knowledge, rejection of ecologically-friendly farming techniques, disbelief in the efficiency of natural methods, and reliance on agricultural chemical use. It was this mentality, she explained, that had acted as a barrier to the establishment of more sustainable and ecological means of food production in Jamaica.

Suggesting that it would likely take something bad happening for Jamaican farmers to realize that a change was necessary and be willing to practice a new system of food production, Royale explained:

> "Some people you see, like, you want to chop their head in two -- not to kill them -- and just put the information in there because you see, the thing is, it's not

going to be easy, you know. Because people are used to this easier way because using the synthetic thing, you know, it's much easier in the sense that they don't -- they practice it for all dem lives. It [has] become easier to them because people are afraid of change. So when you are trying to let somebody change, even though you're telling them the reason, it's like dem just not see. Sometime when, like, something bad happen to dem, dem realize and they start to change...So after they start to do it now, they realize that it was [not] hard. It just for you to just make the step, and after a while it just becomes so easy." – Royale

Royale also argued that farmers should be made to feel guilty about the extreme harms that resulted from agricultural chemical use and that is was only in this way that the message could really be driven home, so that more farmers would be encouraged to convert to natural methods.

"So, like, for example, you have the synthetic chemical and start to tell people, well, yes, you have this chemical and, yes, it do that but it do this, it do that, it do that. You understand? And if we just start to think, you know, like, it's like a guilt trip -- have to drive it home to them. Let them know the bother. Don't just tell them the good alone." – Royale

Misconceptions about Organic Farming Costs

Another factor that women farmers described as facilitating the stronghold of industrial agriculture on the island and as barrier to the successful implementation of new forms of sustainable agriculture in Jamaica was the general misconception that organic methods were more expensive than conventional techniques. Tiana stated that although there was intense physical labour involved in organic farming, it was much more

cost-effective than industrial food production, especially as the pesticides and other chemical inputs required for industrial farming had become very expensive over the past several years:

> "It's hard to get people to understand that it is actually more economically viable. I always tell people I really don't find it more expensive at all. You might have more manual input, but in terms of cost effectiveness and opportunity cost and all of that, it's far cheaper." –Tiana

According to Royale, the myth that organic farming was a more costly agricultural practice had been propagated by chemical companies in order to prevent farmers from rejecting industrial methods.

> "[The chemical companies] make people believe that organic farming is too expensive to go in, you know. And that is why people don't want to convert to organic farming. Because if they say [organic farming] is expensive, why the hell me want waste my time fe go at night? I want to spend less and make more." – Royale

Royale also suggested that even if a farmer had an interest in protecting the environment, it was not likely that they would convert to more sustainable methods if they believed them to be more costly. For this reason, Royale stated that farmers needed to be shown that although organic agriculture might be more expensive in the short term (because of the costs inherent in the conversion process), in the long term most of these losses would be returned to the farmer. To illustrate her point, Royale compared the organic conversion process to shifting from electricity to solar power, where costs would rise initially, but as time went on would lead to self-sufficiency and personal profit:

> "To convert, it's just like electricity. It is expensive just to go to solar system. But in the long end [the companies] never get a cent out of you. So the money start to come back to you. So, yes, it can be expensive to start up, but what about long term? People – you know, you got to teach people to think long term. People need to know the long term benefits of whatever they are doing in terms of organic farming. Let them know the long term and I think that will even help them to going into it. Because if you plant one tree you no expect the tree a going be here same time. It's long term thing. So there must be some benefit out of it -- your health and everything." – Royale

For Royale, the increasing cost of chemical inputs was also a sign that Jamaican farmers needed to begin producing their own natural fertilizers, which she described as much cheaper and were beneficial for the soil. She stated, "Most of the things that you will use as an organic farmer is things that they use around the house. So compare that to buying a bag of fertilizer." Royale also suggested that the lower cost of practicing organic agriculture was a feature that should be highlighted to farmers and that even if some farmers converted to organic agriculture for monetary reasons, this would still be preferable to the use of harmful industrial methods.

In the following section, I draw on my conversations with participants to highlight the ways in which organic agriculture might be used to shift cultural perspectives of food production and inspire pride in farmers' perceptions of agricultural as a pathway to positive economic, environmental, and social change.

Organic Farming as a Means of Shifting (Agri)Cultural Perspectives

One of the common threads in my discussions with Jamaican women farmers was the suggested potential for organic farming to shift negative cultural perspectives that linked food production with slavery to more promising and positive conceptual associations with environmental sustainability and the health and wellbeing of future generations.

Several of the farm women I interviewed drew attention to the value of organic farming as a tool that could be used to encourage more constructive and positive understandings of agriculture within Jamaican society. Dominique suggested that the discourse around organic farming was an effective means of confronting and challenging the negative associations between agriculture and slavery within Jamaican society. She stated, "The value of farming, the value of what you produce, the value of how you produce it all needs to be addressed. And I think organic farming is one very good way of beginning a lot of that dialogue." Dominique also believed that by switching to more sustainable and ecologically-friendly farming methods, farmers would take comfort in knowing that their work was creating positive change, thereby highlighting agriculture as an occupation that could help to reshape Jamaica's agricultural system in ways which were more dignified, ecologically balanced, and mindful of the island's colonial legacy (Weis, 2001). The positive aspects of organic agriculture were also described as having the potential to create an increased interest in food production among the younger generations of Jamaican youth who would benefit greatly from a renewed belief in the integrity and value of farm work.

As the practice of sustainable agriculture can inspire environmental stewardship, improve the safety and quality of food and soil, strengthen social psyche, and support national and cultural heritage (North and Cameron, 2003; Inter-American Institute for Cooperation on Agriculture in Jamaica, 1995), women farmers' perspectives on organic food production highlight the positive external factors that can follow from shifts in agricultural practice.

Thus, through its potential for creating change at the micro level of individual choice, as well as at the macro level through shifts in cultural thinking, the promotion of organic agriculture suggests an opportunity for more encouraging and affirmative understandings of agriculture in Jamaican society. These findings draw attention to the need for a return to more sustainable and ecologically-friendly farming systems as a means of countering the negative impact of colonialism and industrialization on cultural perspectives of food production (Weis, 2001).

In addition, by applying an anthropological lens to this subject as it exists within the context of the Caribbean, we are able to consider the ways in which historical experiences can shape the range of alternatives needed to transform the landscape of post-colonial societies (Weis, 2001),as well as how colonial histories can exist as unique contexts that are able to shape people's attitudes towards food production and impact their ability to partake in processes of positive agricultural and ecological change.

In the following subsection, I explore changing definitions of "naturalness" within the context of Jamaican agriculture and discuss some of the issues related to organic certification for Jamaican farmers.

The Meaning of "Natural" Farming

In many of our conversations, women farmers described contemporary organic agriculture as an adaptation of the traditional methods that had existed in Jamaica prior to the Green Revolution and explained that traditional Jamaican agricultural knowledge had provided a foundation from which the practices and techniques of modern organic agriculture had originated (Kimbrell, 2002). Describing the ways in which industrialization had shifted definitions of "natural" over time, Tiana suggested that an understanding of her farm work as "organic" could only exist within the context of agricultural restructuring processes that had caused the significant build-up of synthetic chemicals in the soil following decades of pesticide use.

> "Organic is a system of farming, and it encompasses so many things, and there are so many natural ways of farming. I wouldn't say prior to [industrialization] that [farming] was organic, but it just depends on what the definition was you want to use." –Tiana

Tiana explained that for her, organic farming was really a return to the sustainable farming techniques that had defined traditional Jamaican agriculture and indicated that the only key difference was that farmers now had to meet the guidelines and requirements for certification. She also suggested that discourse surrounding organic agriculture needed to be challenged, as organic farms were given a privileged status in comparison to farms that were managed naturally without having certification.

During our interview, Tiana also argued that organic farming should not be understood as a foreign solution to the problem of agriculture in the Third World. Women farmers also pointed out that although an organic farm had to meet specific

requirements in order to achieve certification, of greater importance to them was the use of natural methods that were at the foundation of Jamaica's agricultural history. In this way, organic agriculture was not perceived as an innovative agricultural system, because while it centred on certification and adherence to specific agricultural standards (Kimbrell, 2002), in practice it could be understood as a return to the natural methods of traditional Jamaican agriculture.

While in the field, I also had the opportunity to discuss the issue of organic certification with Mr. Costello, who suggested that within the Jamaican context, the difference between certified and non-certified food production was often down to the rigid terminology and theories that had less practical application "on the ground." However, he also pointed out that it was important to ensure that farmers did use entirely natural methods in order to avoid the dangers of products like Monsanto's "Roundup" which he stated could take you "from the womb to the tomb."

These findings highlight the ways in which the dominance of industrial farming has worked to shift definitions of what constitutes "natural" food production within the Jamaican context while also shedding light on the importance of considering the contemporary practice of organic agriculture by Jamaican women farmers as a return to the natural foundations of the island's traditional farming systems.

In the following subsections, I highlight Jamaican women farmers' suggestions for the ways in which government support, educational initiatives, and networking could be used to teach about the benefits of organic farming and encourage the movement towards agricultural and ecological change in Jamaica.

Government and Agency Support of Organic Agriculture

The need for government support to help the progression of sustainable agriculture in Jamaica was a topic that was raised frequently during my interviews with women organic farmers. For Royale, increased backing from the government was needed in order to help Jamaican farmers make the transition to organic agriculture:

> "I don't know how we're going to do it. It is going to be hard, believe me. But if we try, and we have the [backing] of, like, the government, the bigger agencies that is pushing this thing, it will help…I don't want to be biased, but I don't know if [the government is] really, really pushing organic agriculture. Maybe they are and I don't know. And if they are, I think they need to do more. Yeah, they need to do more." – Royale

Tiana described the Jamaican government as "slowly coming on board" and discussed various projects that had been established to help assist farmers with the conversion process by providing consultants, supplying documentation and training support, and offering resources to help reduce certification costs. Tiana also pointed out that the future of organic farming would not be successful without this continued government assistance:

> "And the government has slowly been coming on board…So that's, like, good. That's like a major leap for the Ministry of Agriculture. I think we have come a very long way so. It's just -- I think worldwide unless you have input from government or some very good practical input, the industry really kind of drags." – Royale

Royale suggested that one of the most successful means of furthering organic

education was through the training of extension officers who worked for Jamaica's agricultural agencies:

> "So I think they -- they need to…have some extension officers -- organic extension officers. Yeah. Or maybe have -- having some of the extension officers doing some course in organic farming They need to change the curriculum in the agriculture school -- put more organic agriculture in." – Royale

Royale explained that within the current system, extension officers only offered advice about the chemical management of specific farming issues and were not trained in the use of natural products and techniques, indicating, "I blame [the agricultural agencies]. They push chemical too much. But in a sense you can't blame them because that is what they learn in school, you understand me?" She suggested that extension officers should be properly trained in organic methods so that they could go out and teach natural farming techniques at farm visits or educational workshops.

Similarly, Tiana discussed how the philosophy and practice of organic farming as a holistic system needed to be implemented at the organizational level. She also suggested that projects and workshops designed to educate organic farmers should not be fragmented by the teaching of isolated topics, but should focus instead on agriculture as an entire system of sustainable and holistic management.

For Royale, the marketing of organic agriculture by government agencies was another way to advance the progression of sustainable agriculture on the island. She suggested that agricultural product shows could be used to encourage a greater focus on advertising and promotion of natural methods. She also suggested that the same

marketing tactics used in mainstream media to sell other products could also be used to advertise and promote organic agriculture:

> "Why not have an organic festival, you know, that people can live more exposed to organic? Get some more advertising out, you know. It's like you're pushing it on them, just like how them a push sex 'pon TV, push organic agriculture. How dem a sell tires? Sex. So do everything in organic to try something, you know?" – Royale

These research findings highlight the importance of government support in helping to advance the progression of sustainable agricultural practices in Jamaica. The differences in Jamaican women farmers' perceptions of government support also indicate that projects that have already been created to help promote and support organic agriculture need to be made available to a higher percentage of the organic farming population. Women farmers' desire for support and training from government agencies also highlights the need for agricultural education at the organizational and structural level, especially through the implementation of programs that will train agricultural extension workers in the methods and techniques of organic food production.

Achieving (Agri)cultural Change through Educational Initiatives

Among the women farmers I interviewed for this research project, the teaching of organic farming methods through agricultural education programs was viewed as the most effective and important means of transforming Jamaican agriculture, increasing food security, and improving environmental sustainability. All of the women I interviewed discussed how agricultural and environmental education programs should be

taught at an early age so that younger generations of Jamaican children would learn the importance of a commitment to these issues.

Royale discussed the need for schools and programs that would foster a hands-on approach to learning about natural methods of agriculture. She believed that an "organic education" should begin at the high school level, which she described as an age where students would be more interested in learning about or pursuing agriculture as an occupation. In order for organic education to be successful, Royale also suggested that students must not be told to simply "go organic" but should first be made aware of the various benefits of organic production:

> "On a wider scale it would start from the secondary stage, like high school because then you have children that are going in agriculture. Why not teach them organic agriculture from beginning, you know? And you can't just tell people, 'go and do organic farming' and leave it at that. Because then you going to have less people doing it – [who] want to do it. Because why am I going to do something -- I love organic farming, but look at it. I didn't know about it and you are telling me to do organic farming and when me do organic farming me can't get nothing to sell." –Royale

Thus, for Royale, it was not only important to promote organic agriculture through educational programs, but teachers also needed to explain and educate about why organic farming was a better option, while also putting in place a system that could help farmers to achieve their natural food production goals. Royale also suggested that in order to practice larger-scale organic agriculture and meet the strict agricultural standards required for organic farming, farmers needed access to information that could help them

manage their crops without the use of synthetic chemicals. She contrasted this with the current system which left farmers who had questions about natural methods and products with a noticeable lack of agricultural information and support from governmental agencies and organizations. Describing her point further, Royale stated, "Farmers don't have the support. They don't know where to go and get the different information." She highlighted how it was the chemical methods and products, instead, that were readily available and for which there was an overabundance of information and support. Thus, Royale felt that farmers need more agencies and resources dedicated to helping them successfully practice natural farming methods:

> "You need to have that information out. When you're doing organic agriculture, you don't have the information that you want to have in terms of the things that you need to use to counteract [pests] -to know which insect is friendly from which is bad--because you will have pests but how am I going to deal with it if you don't help me? And then you don't know how to get rid of this problem, but if you go the synthetic way, it is readily available for you. You know, teach me how to work with it, or I have somebody that I can call. You can call the [agricultural agency] and them say use the chemical there. And even though you don't get rid of it full-time but for awhile it get rid of it and you can sell your stuff. So it is really hard. It is not easy." – Royale

During our conversation with Dr. Williams, he also indicated that education about organic agriculture in Jamaica needed to centre on changing the entire system so that people could renew their love for and appreciation of nature. Dr. Williams suggested that agricultural and environmental education must start with the teachers who were

responsible for spreading misinformation and who had failed to teach the benefits of organic farming to the youth who possessed an innate openness to the natural world. Dr. Williams also said that in order for education initiatives about organic agriculture to be truly successful in Jamaica, they needed to start with the whole system or ideology and then filter down to address the individual components. He stated, "You can't use the same system when making change."

Alternative Education for Nonreading Farmers

Throughout our interviews Jamaican women farmers expressed their interest in the promotion of alternative forms of knowledge transfer and information sharing to help make education farmers about the dangers of chemical use and the benefits of more sustainable farming techniques accessible to a wider population of farmers, including those farmers who were unable to read.

For Tiana, the process of educating nonreading farmers about the benefits of organic agriculture would be a challenge, because many had grown suspicious of paperwork and other written forms of information. She also suggested that many nonreading farmers were comfortable with the fact that they did not read and write and did not trust written materials or documents after learning about the often sinister objectives and deceptive strategies of chemical companies:

> "I think a lot of [farmers] are very comfortable not knowing how to read and write. It's just that they just don't trust. A lot of them, they were very skeptical about just seeing all this -- all this paper. Never in their life have they had all this, you know, but because it's in black and white, they think it's something suspicious, and you trying to trick them and stuff like that…" – Tiana

Interested in helping to facilitate the education of farmers who did not read, Royale also drew attention to the fact that many farmers were more comfortable obtaining information through television and radio rather than through reading materials. She suggested that through the use of alternative methods of knowledge transfer such as images and film, information about organic agriculture could be made more accessible, enabling farmers to make more conscious and educated decisions about their food production practices:

> "Because remember, you know, farmers start to use synthetic chemical, them couldn't read but they find a way. They watch TV, they listen to the radio -- especially radio, because farmers always have their radio with them. So you can reach them. If you put the system in place, you can reach them. The same workshop, as you say, the media--all of these ways, just like how you did reach them with the synthetic chemical, you can reach them with the organic one just the same." – Royale

These findings also strengthen Protz's research (1998), which looked at alternative approaches for communication and information sharing among Jamaican women farmers, including community video screenings, demonstration plots, one-on-one farm visits, and videotaped interviews, and highlighted the need for educational approaches that are "empowering, culturally relevant, and supportive of indigenous knowledge" (Protz, 1998:1).

Networking & Information sharing Among Women Organic Farmers

In addition to education and government support, Jamaican women farmers also discussed their desire to improve networking systems and information sharing activities

as a means of gathering together and disseminating their own unique tools and strategies with other women farmers. Dominique discussed the importance of ensuring that women farmers were aware of the various programs and projects available in Jamaica, including the National Organic Agriculture Enhancement Program, which had been made available to help support women farmers with the costs of organic consultation and certification. Dominique also highlighted her interest in helping other women organic farmers to better understand the certification process and land management requirements and described her interest in using networking activities such as workshops to help improve women farmers' access to transportation, increase access to services, and encourage greater connectivity and communication between women farmers.

During our interview, Dominique also highlighted need for women farmers to support each other through women-to-women business projects where workshops and educational development programs could be used to provide other organic farmers with the know-how to function on their own. In particular, Dominique drew attention to the fact that many Jamaican women farmers were connected with local businesses that sourced organic foods, while others had fostered relationships with educational institutions at home and abroad. She described these relationships as valuable resources in terms of research and the expansion of agricultural knowledge.

Previous research has shown that women farmers have been central to the advancement of organic food production in Jamaica by organizing, participating in, and leading workshops, ensuring membership in agricultural organizations and businesses, attending industry and governmental meetings, and engaging with other women farmers

in activities that "build the capacity of and promote networking among women farmers to farm organically" (Tandon and Rowan-Campbell, 2010:4).

Based on the perspectives and suggestions of the women farmers I interviewed, my own research findings suggest that through dynamic means of information sharing, the ability of Jamaican organic women farmers to network as a collective of individuals who share similar visions and goals can be facilitated and improved in order to help progress the practice of organic farming in Jamaica.

Chapter 7 – Summary and Conclusions

Final Reflections & Directions for Future Research

Though women in the Caribbean play a considerable role in agricultural production, they have rarely been recognized as an important population for research and analysis, and their contributions to food production, especially in terms of policy development, have, for the most part, remained undocumented and ignored (Barrow, 1994; Tandon, 2004; Sumner, 2003; Ransom, 2002; Jacobs and Dinham, 2003). As scholars have drawn attention to the struggle for marginalized groups to be heard within the larger global and political community (Kothari, 1988), one of the goals of this research project has been to demonstrate the importance and value of Jamaican women farmers' knowledge, and to make their skills and expertise more visible to governmental organizations, researchers, and the general public. As the perspectives of the women farmers I interviewed contributed greatly to this study, offering positive solutions to a variety of issues related to agriculture in the Jamaican context, it is my hope that their recommendations are held in the highest regard and that they will be used by scholars, policy-makers, and food producers interested in contributing to the health and wellbeing of Jamaica and its people.

Future research on this topic might address these issues on a wider scale by exploring the perspectives and practices of a larger sample of women, engaging in a comparative study across several Caribbean islands, or examining the perspectives and motivations of male farmers, these research findings clearly demonstrate the benefits of organic agriculture for the women farmers in this particular study. In particular, my findings suggest that within the Jamaican context, organic food production can enable

women farmers to return to the roots of traditional agriculture, challenge processes of industrialization, support human health and environmental wellbeing, and shift negative cultural associations that link agriculture to slavery by instilling a sense of pride about the beneficial and positive impacts of sustainable farming.

Additionally, these research findings suggest that the development of organic food production in Jamaica offers youth the opportunity to become inspired by and involved in the reshaping of the island's agricultural future in ways that are sustainable, holistic, and ecologically-sound.

As anthropological research into the complexities of gendered environmental can be used to incorporate environmental issues into paradigms for women's health, and to integrate gender issues into analysis of environmental health and wellbeing, this thesis offers a particularly important disciplinary contribution, in that it facilitates a more thorough examination of the relationship between women, environments, and health, while also promoting socio-cultural, ecological, and agricultural change at both local and global levels.

Finally, it has been suggested that the goal of public issues anthropology is not only to respond to public issues, but to create public issues out of important anthropological subjects (Scheper-Hughes, 2009). Thus, it is my hope that these research findings are able to spark a greater dialogue within both academic and public circles, about the importance of sustainable agriculture, as well as the increasing need for practices which promote and nurture human health and environmental wellbeing.

As public issues anthropology also encourages researchers to present findings in ways that are accessible both within and outside of the academia, and to utilize their

research to stimulate public engagement and collective efforts for social change (Borofsky, 2000), the findings of this research could be used to nurture further collaborations with women farmers and other actors involved in agriculture, environment, and health, so as to disseminate the information to a wider audience and, "engage, educate, and move the public to action" (Tedlock, 1991:159).

Ultimately, it is my hope that this thesis will promote further research on organic agriculture and women's environmental health, encourage increased networking and collaboration among women organic farmers, and be utilized by various agencies and government bodies responsible for the creation of policy at in Jamaica.

Lastly, by focusing on women farmers' perceptions, experiences, and responses to various environmental health issues, it is my hope this thesis will contribute to the improvement of women's health, and environmental wellbeing, as well as to the increased practice of sustainable agriculture around the world.

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Appendix A

Interview Questions

1. When did you start farming organic food?
2. Why do you farm organically?
3. Why do you choose not use pesticides/herbicides?
4. What are the benefits of organic farming?
5. Do you think that all food should be farmed organically? Why or why not?
6. Do you think that women, in particular, have a reason to produce and/or eat organic food?
7. Do you eat food that contains pesticides and/or other chemicals? Why or why not?
8. Do you see a connection between organic farming and the environment?
9. What are the economic advantages/disadvantages to producing organic food?
10. How would you say that organic farming is perceived in Jamaican society?
11. Is it important that people buy organic produce?
12. Do you think that Jamaica should move to organic farming as a whole? Why or why not?